ML 19072A225

Question # 1

Given the following:

- Unit 3 is at 100% power at BOL.
- Unit 4 is at 100% power at EOL.
- B AFW Pump is OOS.

Subsequently:

- The switchyard de-energizes.
- All the vital 4kV busses are re-energized from the EDGs.
- All SG NR levels are off-scale low.

Which one of the following completes the statements below?

Immediately after the reactor trip, __(1)__ will require the most AFW flow in order to remove decay heat.

IAW 3-EOP-ES-0.1, Reactor Trip Response, Unit 3 RO __(2)__ required to maintain AFW flow to Unit 3 above a MINIMUM of 400 gpm.

A. (1) Unit 3
(2) is NOT

B. (1) Unit 3
(2) is

C. (1) Unit 4
(2) is NOT

D. (1) Unit 4
(2) is

Question # 2

Given the following:

- Unit 3 experiences a LOCA concurrently with a LOOP.
- 3-EOP-ES-1.2, Post LOCA Cooldown and Depressurization, is in progress.
- Containment temperature is 175°F and lowering.

Replaced with word "support"

Which one of the following completes the statements below?

IAW 3-EOP-ES-1.2, RCS Cold Leg Temperatures within 21°F of SG saturation temperature __(1)__ ~~indicate~~ that natural circulation flow exists.

IAW 3-EOP-ES-1.2, if natural circulation can NOT be verified, the RO is required to __(2)__.

A. (1) does NOT
(2) raise AFW flow

B. (1) does NOT
(2) dump more steam

C. (1) does
(2) raise AFW flow

D. (1) does
(2) dump more steam

Question # 3

Given the following:

- Unit 3 experiences a LOCA.
- HHSI flow is 950 gpm.
- RHR flow is 1500 gpm.
- 3-EOP-E-1, Loss of Reactor or Secondary Coolant, in progress.
- All SG pressures are 700 psig and lowering slowly.

Which one of the following completes the statements below?

SGs __(1)__ currently acting as a heat sink.

IAW with 3-EOP-E-1, the SI signal will be reset in order to __(2)__.

A. (1) are
(2) re-start the charging pumps

B. (1) are
(2) re-open CV-3-2803, Instrument Air Containment Isolation

C. (1) are NOT
(2) re-start the charging pumps

D. (1) are NOT
(2) re-open CV-3-2803, Instrument Air Containment Isolation

Question # 4

Given the following:

- Unit 3 is at 100% power.
- 3-ONOP-041.1, Reactor Coolant Pump Off-Normal, is in progress due to high RCP vibrations.
- RCP vibrations are:

	3A RCP	3B RCP
Motor Frame	4.5 MILS	5.5 MILS
Shaft	16.5 MILS	10.5 MILS

Which one of the following completes the statements below IAW 3-ONOP-041.1?

The RO is required to trip the __(1)__ RCP.

This RCP is required to be tripped __(2)__ the reactor trip verification using the EOP network.

A. (1) 3A
(2) after

B. (1) 3A
(2) before

C. (1) 3B
(2) after

D. (1) 3B
(2) before

Question # 5

Given the following:

- Unit 3 experiences a loss of all charging at 100% power.
- 3-ONOP-047.1, Loss of Charging Flow in MODES 1 through 4, is in progress.
- Attempts to start a charging pump are NOT successful.

Which one of the following completes the statement below?

IAW 3-ONOP-047.1, the crew will avoid a 3-GOP-100, Fast Load Reduction, in order to prevent _____ .

A. uncovering the PRZ heaters

B. RCS crud to travel to the RCP seals

C. an at-power Rod Insertion Limit unanalyzed condition

D. exceeding the Axial Flux Difference Tech Specs Limit

Question # 6

Given the following:

- Unit 3 is in MODE 5 on RHR cooling.
- 3A RHR Pump is in service.

Subsequently:

- A pipe ruptures downstream of MOV-3-744A, RHR to Cold Leg Discharge Isolation.
- 3A RHR Pump amps are fluctuating.
- 3-ONOP-050, Loss of RHR, is entered.

Which one of the following completes the statements below?

The RO will confirm the break location by receipt of __(1)__.

IAW 3-ONOP-050, the RO __(2)__ required to secure the 3A RHR Pump.

A. (1) ANN G9/5, CNTMT SUMP HI LEVEL
(2) is NOT

B. (1) ANN G9/5, CNTMT SUMP HI LEVEL
(2) is

C. (1) ANN I7/6, RHR PUMP ROOM A SUMP TROUBLE
(2) is NOT

D. (1) ANN I7/6, RHR PUMP ROOM A SUMP TROUBLE
(2) is

Question # 7

Given the following:

- Unit 3 is at 100% power.

Subsequently:

- A CCW leak develops on Unit 3.
- 3-ONOP-030, Component Cooling Water Malfunction, is in progress.

Which one of the following completes the statements below?

IAW 3-ONOP-030, the RO is required to check for normal CCW flow on __(1)__.

In the absence of CCW flow, the RO is required to operate the running charging pump at __(2)__ speed until emergency cooling is established.

A. (1) VPA
(2) MAXIMUM

B. (1) VPA
(2) MINIMUM

C. (1) VPB
(2) MAXIMUM

D. (1) VPB
(2) MINIMUM

Question # 8

Given the following:

- Unit 3 Reactor power is 100%.
- PRZ Pressure Control is in AUTOMATIC.
- PC-3-444J, Pressurizer Pressure Controller, demand fails HIGH.
- PC-3-444J does NOT respond in MANUAL.

Which one of the following completes the statements below?

IAW 3-ONOP-41.5, PRZ Pressure Control Malfunction, the RO is required to MANUALLY operate __(1)__ and __(2)__ in order to stabilize PRZ pressure.

A. (1) ONLY one PRZ PORV
(2) ONLY one PRZ Spray Valve

B. (1) ONLY one PRZ PORV
(2) BOTH PRZ Spray Valves

C. (1) BOTH PRZ PORVs
(2) ONLY one PRZ Spray Valve

D. (1) BOTH PRZ PORVs
(2) BOTH PRZ Spray Valves

Question # 9

Given the following:

- Unit 3 experiences a transient at 100% power.
- The RO attempts to MANUALLY trip the reactor and the reactor fails to trip.
- The crew enters 3-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS.
- Total AFW flow to Unit 3 is 800 gpm.
- ALL SG NR Levels are off-scale low.

Which one of the following completes the statement below?

IAW 3-EOP-FR-S.1, the crew is required to secure the __(1)__ AFW Pump __(2)__.

A. (1) A
(2) within ONE hour from the initial start signal

B. (1) A
(2) when SG NR level is > 7%

C. (1) C
(2) within ONE hour from the initial start signal

D. (1) C
(2) when SG NR level is > 7%

Question # 10

Given the following:

- 3-EOP-ECA-2.1, Uncontrolled Depressurization of All Steam Generators, is in progress.
- Containment pressure is 25 psig.
- SG NR levels are all off-scale low.
- The SGs are being fed from the A Standby Steam Generator Feed Pump.
- Letdown is in service.

Which one of the following completes the statements below
IAW 3-EOP-ECA-2.1?

The crew is required to control feedwater to the SGs based on __(1)__.

The RO is expected to utilize the __(2)__ in order to control RCS pressure.

A. (1) feedwater flow indication to each SG
(2) Normal PRZ Sprays

B. (1) feedwater flow indication to each SG
(2) Auxiliary PRZ Spray

C. (1) changes in RCS temperature and SG level
(2) Normal PRZ Sprays

D. (1) changes in RCS temperature and SG level
(2) Auxiliary PRZ Spray

Question # 11

Given the following:

- Unit 4 is at 100% power.

Subsequently:

- The feedline to the 4A SG shears inside containment.
- 4-EOP-E-0, Reactor Trip or Safety Injection, IOAs are complete.
- ALL SG NR levels are off-scale LOW.

Which one of the following completes the statements below?

The crew __(1)__ required to perform Attachment 3 of 4-EOP-E-0, Reactor Trip or Safety Injection.

IAW the applicable procedure, the crew is required to __(2)__ the AFW flow to 4A SG.

A. (1) is
(2) isolate

B. (1) is
(2) reduce to 50 gpm

C. (1) is NOT
(2) isolate

D. (1) is NOT
(2) reduce to 50 gpm

Question # 12

Given the following:

- Unit 3 is in MODE 3 at normal operating pressure.

Subsequently:

- Unit 3 Startup Transformer experiences a lockout.
- Both Unit 3 EDGs fail to load.
- 3B 4kV Bus is locked out and will NOT reset.

Which one of the following completes the statements below?

The crew is required to implement __(1)__, which attempts power restoration __(2)__ FIRST.

A. (1) 3-EOP-ECA-0.0, Loss of all AC Power
(2) from the Unit 4 Startup Transformer

B. (1) 3-EOP-ECA-0.0, Loss of all AC Power
(2) through the SBO tie

C. (1) 3-ONOP-004, Loss of Off-site Power
(2) from the Unit 4 Startup Transformer

D. (1) 3-ONOP-004, Loss of Off-site Power
(2) through the SBO tie

Question # 13

Given the following:

- Unit 3 is at 100% power.

Subsequently:

- A heavy load is dropped on the piping downstream of the 3A ICW/TPCW Basket Strainer, causing an ICW leak.

Which one of the following completes the statements below?

The crew __(1)__ able to isolate this leak remotely, from the control room.

Once the leak is isolated, Unit 3 __(2)__ expected to be in a Tech Spec action statement for the ICW system.

A. (1) is
(2) is

B. (1) is
(2) is NOT

C. (1) is NOT
(2) is

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

Question # 14

Given the following:

- Unit 3 experiences a loss of instrument air at 100% power.
- The Field Supervisor reports the following instrument air compressor status:
    - 3CM is running but will NOT load.
    - 4CM is OOS
    - 3CD and 4CD will NOT start.
- IA pressure is 78 psig and slowly lowering.

Which one of the following completes the statements below?

IAW 3-ONOP-013, Loss of Instrument Air, the RO is NEXT required to _____.

A. trip the Reactor since the FRVs are drifting OPEN

B. trip the Reactor since the FRVs are drifting CLOSED

C. direct to OPEN 40-2059, Service Air Backup To Units 3/4 Instrument Air Isolation Vlv, in order to prevent the FRVs from drifting OPEN

D. direct to OPEN 40-2059, Service Air Backup To Units 3/4 Instrument Air Isolation Vlv, in order to prevent the FRVs from drifting CLOSED

Question # 15

Given the following:

- Unit 4 is at 100% power.
- Unit 4 reactive load is 240 MVAR in the LEAD with 20 MVAR oscillations.
- Annunciator E 8/2, GEN FIELD FORCING/ VOLT REG LIMITING, is in alarm.
- At the Exciter Switchgear, the MINIMUM EXCITATION module #5 light is on.

IAW 4-ONOP-090, Abnormal Generator MW/MVAR Oscillation, which one of the following is the NEXT required action?

A. Place the AC Voltage Regulator to lower

B. Place the DC Voltage Regulator to lower

C. Place the AC Voltage Regulator to raise

D. Place the DC Voltage Regulator to raise

Question # 16

Given the following:

- The crew initiates a MANUAL reactor trip and Safety Injection from 100% power.
- 3-EOP-E-0, Reactor Trip or Safety Injection, is in progress.
- RCS pressure is 1650 psig and lowering.
- PRZ level is 12% and lowering.
- Containment conditions remain normal.
- Auxiliary Building radiation levels are rising
- All secondary side radiation monitor readings are normal

Which one of the following completes the statements below?

The crew is required to attempt leak isolation IAW __(1)__.

To determine that the leakage is isolated the crew is required to verify that __(2)__ is rising.

A. (1) 3-EOP-E-1, Loss of Reactor or Secondary Coolant
(2) the RCS pressure

B. (1) 3-EOP-E-1, Loss of Reactor or Secondary Coolant
(2) the PRZ Level

C. (1) 3-EOP-ECA-1.2, LOCA Outside of Containment
(2) the RCS pressure

D. (1) 3-EOP-ECA-1.2, LOCA Outside of Containment
(2) the PRZ level

Question # 17

Given the following:

- Unit 3 experiences a loss of emergency recirculation.
- 3-EOP-ECA-1.1, Loss of Emergency Recirculation, is in progress.
- Unit 3 RWST level is 59,000 gallons.

Which one of the following completes the statements below?

IAW 3-EOP-ECA-1.1, the RO is NEXT required to __(1)__ in order to __(2)__.

A. (1) establish SI flow from U4 RWST
(2) extend the availability of RWST injection

B. (1) establish SI flow from U4 RWST
(2) prevent a loss of NPSH to the ECCS Pumps

C. (1) secure all ECCS Pumps taking a suction on Unit 3 RWST
(2) extend the availability of RWST injection

D. (1) secure all ECCS Pumps taking a suction on Unit 3 RWST
(2) prevent a loss of NPSH to the ECCS Pumps

Question # 18

Given the following:

- Unit 3 experiences a LOOP.
- A loss of all AFW occurs.
- 3-EOP-FR-H.1, Loss of Secondary Heat Sink, is in progress.
- A source of feedwater can NOT be restored.
- 3A Charging Pump is NOT available.

Which one of the following completes the statements below?

IAW 3-EOP-FR-H.1, the preferred RCS bleed path is through __(1)__.

IAW 3-EOP-FR-H.1, the RO will start __(2)__ charging pump(s).

A. (1) Both PORVs ONLY
(2) ONLY one

B. (1) Both PORVs ONLY
(2) both available

C. (1) Both PORVs and the RCS Vent Valves
(2) ONLY one

D. (1) Both PORVs and the RCS Vent Valves
(2) both available

Question # 19

Given the following:

- Unit 3 experiences a LOOP.
- 3A and 3B EDGs power the 3A and 3B 4KV Buses.
- 3-EOP-ES-0.4, Natural Circulation Cooldown with Steam Void in Vessel (Without RVLMS), is in progress.
- RCS pressure is 1635 psig.
- Pressurizer level is 30%.

Subsequently:

- Prior to depressurizing the RCS, PCV-3-456, Pressurizer PORV, fails open.

Which one of the following identifies the reason for the initial rapidly rising PRZ level during this event?

A. The steam space in the Pressurizer collapses allowing more makeup to be injected immediately into the RCS by the HHSI Pumps.

B. Pressurizer level reference legs flash which results in a rise in indicated level.

C. Safety Injection Accumulators inject into the RCS which raises Pressurizer level.

D. Reactor upper head region voiding occurs which results in mass transfer from the Reactor Head to the Pressurizer.

Question # 20

Given the following:

- Fuel shuffle is in progress in the Unit 3 spent fuel pool.

Subsequently:

- ANN X4/1, ARMS HI RADIATION, alarms.

Which one of the following completes the statements below?

0-ONOP-066, High Area Radiation Monitoring System Alarm, requires the crew to FIRST __(1)__ .

These actions will be performed from a panel located __(2)__ the RO surveillance area.

A. (1) verify the setpoint on the affected ARMS channel, AND then press the alarm acknowledge pushbutton
(2) inside

B. (1) press the alarm acknowledge pushbutton, AND then verify the setpoint on the affected ARMS
(2) inside

C. (1) verify the setpoint on the affected ARMS channel, AND then press the alarm acknowledge pushbutton
(2) outside

D. (1) press the alarm acknowledge pushbutton, AND then verify the setpoint on the affected ARMS
(2) outside

Question # 21

Given the following:

- Unit 3 is at 100% power.
- A steam generator tube leak develops.
- 3-ONOP-071.2, Steam Generator Tube Leakage, is in progress.

Which one of the following completes the statements below?

IAW 3-ONOP-071.2, __(1)__ indication is the FASTEST to respond to rising SG tube leakage.

If the __(2)__ HIGH Alarm actuates, the RO is required to verify proper AUTOMATIC isolation of the applicable process flowpath.

A. (1) R-3-15, Air Ejector Radiation Monitor,
(2) R-3-15, Air Ejector Radiation Monitor ,

B. (1) R-3-15, Air Ejector Radiation Monitor ,
(2) R-3-19, Steam Generator Sample Monitor,

C. (1) R-3-19, Steam Generator Sample Monitor,
(2) R-3-15, Air Ejector Radiation Monitor,

D. (1) R-3-19, Steam Generator Sample Monitor ,
(2) R-3-19, Steam Generator Sample Monitor,

Question # 22

Which one of the following completes the statements below?

IAW 3-ONOP-067, Radioactive Effluent Release, during Radwaste releases from the Waste Monitor Tanks:

- The PRMS channel that monitors this release, is expected to actuate a HIGH Alarm when a pre-set __(1)__ value is reached.

- If the associated PRMS channel HIGH alarm is actuated, the liquid release __(2)__ isolate in order to minimize off-site dose.

A. (1) cpm
(2) is expected to AUTOMATICALY isolate

B. (1) cpm
(2) is required to be MANUALLY isolated

C. (1) uCi
(2) is expected to AUTOMATICALY isolate

D. (1) uCi
(2) is required to be MANUALLY isolated

Question # 23

Given the following:

- Unit 4 is at 100% power.

Subsequently:

- Unit 4 experiences a LOCA.
- Containment pressure reaches a MAXIMUM of 17 psig.
- Containment Isolation Valve indication on Vertical Panel B is dimly lit for:
    - MOV-4-626, RCP Thermal Barrier CCW Outlet.
    - MOV-4-1418, CCW to Normal Containment Cooler Valves.

Which one of the following completes the statements below?

IAW Attachment 3 of 4-EOP-E-0, Reactor Trip of Safety Injection, the RO __(1)__ required to MANUALLY actuate Phase A containment isolation.

IAW Attachment 3 of 4-EOP-E-0, Reactor Trip of Safety Injection, the RO __(1)__ required to MANUALLY actuate Phase B containment isolation.

A. (1) is NOT
(2) is NOT

B. (1) is NOT
(2) is

C. (1) is
(2) is NOT

D. (1) is
(2) is

Question # 24

Which one of the following identifies the MINIMUM condition to enter 3-EOP-FR-C.1, Response to Inadequate Core Cooling?

A. Any valid CET >700°F

B. Five hottest valid CETs >700°F

C. Any valid CET >1200°F

D. Five hottest valid CETs >1200°F

Question # 25

Given the following:

- Unit 3 experiences a LOCA.
- 3-EOP-ES-1.1, SI Termination, is in progress.

Which one of the following completes the statements below?

IAW 3-EOP-ES-1.1, upon stopping the HHSI Pumps, if __(1)__ lowers below a set value, the crew is required to re-start the HHSI Pumps and transition to __(2)__.

A. (1) CET subcooling
(2) 3-EOP-E-0, Reactor Trip or Safety Injection

B. (1) CET subcooling
(2) 3-EOP-E-1, Loss of Reactor or Secondary Coolant

C. (1) RCS pressure
(2) 3-EOP-E-0, Reactor Trip or Safety Injection

D. (1) RCS pressure
(2) 3-EOP-E-1, Loss of Reactor or Secondary Coolant

Question # 26

Which one of the following completes the statements below?

The 3A SG Safety Valves __(1)__ designed to lift at the same setpoint.

While in the EOP network, if ALL 3A SG Safety Valves fail to operate, the crew __(2)__ required to IMMEDIATEDLY transition to 3-EOP-FR-H.2, Response to Steam Generator Overpressure.

A. (1) are
(2) is

B. (1) are
(2) is NOT

C. (1) are NOT
(2) is

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

Question # 27

Giving the following:

- Unit 3 experiences a LOCA concurrently with a LOOP.
- The 3A and 3B 4kV busses are powered from their respective EDGs.
- 3-EOP-ES-1.2, Post LOCA Cooldown and Depressurization, is in progress.

Which one of the following completes the statements below?

IAW 3-EOP-ES-1.2, the RO is required to cooldown the RCS __(1)__ using the __(2)__.

A. (1) at the MAXIMUM rate possible
(2) Steam Dumps to the Condenser

B. (1) at the MAXIMUM rate possible
(2) Steam Dumps to Atmosphere

C. (1) at LESS THAN 100°F/HR
(2) Steam Dumps to the Condenser

D. (1) at LESS THAN 100°F/HR
(2) Steam Dumps to Atmosphere

Question # 28

Which one of the following describes a function of the flywheel on the RCPs?

A. Prolongs RCP coastdown time to aid in maintaining loop flow thus maintaining DNBR within acceptable limits during certain loss of RCS flow events.

B. Prolongs RCP coastdown time to aid in maintaining loop flow thus maintaining hot channel factors at an acceptable level during certain loss of RCS flow events.

C. Minimizes acceleration on pump start to minimize the effects of core lift when the first RCP is started.

D. Minimizes acceleration on pump start to minimize water hammer in the SG tubes when the first RCP is started.

Question # 29

Given the following:

- Unit 3 is in MODE 5.
- Solid plant operations are in progress with the following components in MANUAL:
    - 3A Charging Pump
    - PCV-3-145, Letdown Pressure Control valve
    - HCV-3-758, RHR Heat Exchanger Outlet Valve

Which one of the following identifies the action that is expected to place the plant closer to a potential pressurized thermal shock of the RCS?

A. Raising the demand on the controller for PCV-3-145, Letdown Pressure Control valve

B. Raising the demand on the controller for HCV-3-142, RHR Letdown valve

C. Lowering the demand on the controller for the 3A Charging Pump

D. Lowering the demand on the controller for PCV-3-455B, PRZ Spray Loop B

Question # 30

Given the following:

- Unit 4 is in MODE 3.
- A reactor startup is in progress IAW 4-GOP-301, Hot Standby to Power Operation.

Which one of the following identifies (1) the power supply to MOV-4-750, RHR Isolation Valve, and (2) the status of power to MOV-4-750?

A. (1) 4D MCC
(2) energized

B. (1) 4D MCC
(2) de-energized

C. (1) 4B MCC
(2) energized

D. (1) 4B MCC
(2) de-energized

Question # 31

Given the following:

- Unit 3 is in MODE 5.
- One PRZ Safety Valve is removed.
- ALL SG NR levels are 50%.

Which one of the following completes the statement below?

IAW Tech Specs, __(1)__ RHR Loop(s) is/are required to be maintained OPERABLE.

3-GOP-305, Hot Standby to Cold Shutdown, requires the operators to maintain one RHR loop in operation in order to provide sufficient coolant circulation to __(2)__.

A. (1) 1
(2) ensure mixing of the RCS

B. (1) 1
(2) sweep gases accumulated in susceptible locations in the RHR system

C. (1) 2
(2) ensure mixing of the RCS

D. (1) 2
(2) sweep gases accumulated in susceptible locations in the RHR system

Question # 32

Given the following:

- Unit 3 experiences a 3B SG fault outside containment while at 100% power.
- Safety Injection AUTOMATICALLY actuates.

Which one of the following identifies a valve that is expected to AUTOMATICALLY reposition?

A. MOV-3-843A, HHSI To Cold Leg MOV

B. MOV-3-865A, 3A Accumulator Discharge

C. MOV-3-1400, 3A Main Steam Stop Bypass

D. MOV-3-716B, RCP CCW Inlet

Question # 33

Given the following:

- Unit 4 is at 100% power.
- The crew is attempting to reduce PRT liquid temperature IAW 4-NOP-041.03, Pressurizer Relief Tank.
- The RO OPENS the following valves:
  - CV-4-519A, PRIMARY WATER CONTAINMENT ISOL VLV
  - CV-4-519B, PRT PRIMARY MAKE UP

Subsequently, an AUTOMATIC Safety Injection signal actuates.

IAW 4-NOP-041.03, which one of the following identifies the required action, if any, regarding the Primary Water Valves that have been opened?

A. No MANUAL action is required, CV-4-519A and CV-4-519B are expected to AUTOMATICALLY close.

B. The RO is required to MANUALLY close CV-4-519B ONLY.

C. The RO is required to MANUALLY close CV-4-519A ONLY.

D. The RO is required to MANUALLY close CV-4-519B and CV-4-519A.

Question # 34

Given the following:

- Unit 4 is at 100% power with normal electrical alignment.
- 4A CCW Pump is OOS.

Subsequently:

- 4B CCW Pump experiences a sheared shaft.

Which one of the following completes the statements below?

4B CCW Pump amperage indication is expected to be __(1)__ than NORMAL.

4C CCW Pump __(2)__ expected to AUTOMATICALLY start.

A. (1) higher
(2) is

B. (1) higher
(2) is NOT

C. (1) lower
(2) is

D. (1) lower
(2) is NOT

Question # 35

Which one of the following identifies the power supply to the 3B PRZ Backup Group Heater?

A. Vital 3B MCC

B. Vital 3B Load Center

C. Vital 3D MCC

D. Vital 3D Load Center

Question # 36

Given the following:

- Unit 4 is at 100% power.
- The Channel Select PRZ Level Control is as follows:

Subsequently:

- LT-4-460, PRZ Level Transmitter, fails LOW.
- 4-ONOP-041.6, PRZ Level Control Malfunction, is in progress.
- 4-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, is in progress.
- The RO places the incorrect channel, LT-4-459, PRZ Level Transmitter, in the tripped condition.

Which one of the following completes the statements below?

A reactor trip ___(1)___ expected to occur IMMEDIATELY.
IAW the applicable procedure, the RO __(2)___ required to restore letdown flow.

A. (1) is
(2) is

B. (1) is
(2) is NOT

C. (1) is NOT
(2) is

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

Question # 37

Given the following:

- Unit 4 is at 100% power.

Subsequently:

- 4A 4kV bus locks out due to a fire.

Which one of the following identifies the expected power alignment of the CCW pumps?

A. ONLY 4B CCW pump has power from the Startup Transformer.

B. ONLY 4B CCW pump has power from the 4B EDG.

C. 4B and 4C CCW pumps have power from the Startup Transformer.

D. 4B and 4C CCW pumps have power from the 4B EDG.

Question # 38

Given the following:

- Unit 4 is at 50% power.
- PT-4-494, C SG Pressure Transmitter Channel II, fails high.
- The bi-stables for the failed channel are tripped IAW 4-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels.

Subsequently:

- PT-4-495, C SG Pressure Transmitter Channel III, fails low.

Which one of the following completes the statements below?

An AUTOMATIC Safety Injection __(1)__ expected to occur, since __(2)__ steam header pressure.

A. (1) is
(2) 2/3 SG pressure inputs to the actuation logic are 100 psig greater than

B. (1) is
(2) 2/3 SG pressure inputs to the actuation logic are 100 psig lower than

C. (1) is NOT
(2) ONLY 1/3 SG pressure input to the actuation logic is 100 psig greater than

D. (1) is NOT
(2) ONLY 1/3 SG pressure input to the actuation logic is 100 psig lower than

Question # 39

Given the following:

- Unit 3 experiences a LOCA concurrently with a LOOP at 100% power.
- 3B 4KV Bus fails to re-energized from the 3B EDG.

Assuming no operator action, which one of the following completes the statements below?

3B ECC __(1)__ expected to have electrical power.

The number of Containment Spray Pump(s) and ECC(s) that have electrical power __(2)__ sufficient to maintain the containment below its design pressure.

A. (1) is
(2) is

B. (1) is
(2) is NOT

C. (1) is NOT
(2) is

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

Question # 40

Given the following:

- Unit 3 experiences a faulted SG while at 100% power.
- 3-EOP-E-2, Faulted Steam Generator Isolation, is complete.
- The crew transitions to 3-EOP-E-1, Loss of Reactor or Secondary Coolant.
- Containment pressure is 12 psig and lowering from a MAXIMUM of 37 psig.
- 45 minutes have elapsed since the SG fault.

Which one of the following completes the statements below?

In order to secure the Containment Spray Pumps the RO is required to reset the containment spray signal by __(1)__.

IAW 3-EOP-E-1, the RO __(2)__ required to secure containment spray.

A. (1) pressing the Containment Spray Reset pushbutton
(2) is

B. (1) pressing the Containment Spray Reset pushbutton
(2) is NOT

C. (1) turning the Containment Spray Reset switch
(2) is

D. (1) turning the Containment Spray Reset switch
(2) is NOT

Question # 41

Given the following:

- Unit 4 experiences a Safety injection from 100% power.
- 4-EOP-E-0, Reactor Trip or Safety Injection, IOAs are complete.
- All RCPs are running.
- All SG NR levels are off-scale low.
- All SG WR levels are 55%.
- AFW flow has been reduced to 420 gpm total
- All AFW Pumps are running.
- One Steam Dump to Condenser valve has open indication.
- RCS Average Temperatures are 535°F and lowering.

Which one of the following identifies the NEXT required action IAW 4-EOP-E-0?

A. Lower AFW flow to 100 gpm per SG

B. Commence Emergency Boration

C. Manually close the open Steam Dump to Condenser

D. Secure the A AFW Pump

Question # 42

Given the following:

- Unit 3 is in MODE 6.
- Unit 4 is at 100% power.

Subsequently:

- 4C SG experiences a fault and it completely depressurizes.

Which one of the following identifies the effect on the AFW system?

A. Steam Supply remains available to ALL AFW Pumps

B. Steam Supply is lost to the A AFW Pump ONLY

C. Steam Supply is lost to the B AFW Pump ONLY

D. Steam Supply is lost to the C AFW Pump ONLY

Question # 43

Which one of the following completes the statements below?

The Condensate Pump Trip initiated runback is armed when turbine power is greater than or equal to _____.

A. 50%

B. 60%

C. 85%

D. 88%

Question # 44

Which one of the following is the primary reason for stopping all RCPs in 3-EOP-FR-H.1, Response to Loss of Secondary Heat Sink?

A. To preserve the RCPs for long term core cooling after the mitigation strategies of 3-EOP-FR-H.1 have been successful.

B. To reduce the heat added from the RCPs, thereby extending the effectiveness of the remaining SG inventory.

C. To prevent the heat added by the RCPs from adversely affecting indications used to determine whether or not RCS bleed and feed will be required.

D. Anticipatory response to prevent cavitation damage to RCPs due to a loss of RCS subcooling.

Question # 45

Given the following:

- Unit 3 is at 100% power.

Subsequently:

- The Auxiliary Feedwater (AFW) system receives an auto-start.
- C AFW Pump trips on over-speed during startup.

Which one of the following identifies the expected plant response?

The Train 1 AFW flow control valves are expected to _____.

A. remain closed

B. auto-open and then throttle back

C. auto-open and remain fully open

D. auto-open and will close after the C AFW pump trips

Question # 46

Given the following:

- The Unit 4 TO is preparing to rack out the 4A Condensate Pump Breaker.
- The 4A Condensate Pump Green light in the control room is LIT.

Which one of the following completes the statements below?

On the control room console __(1)__ a blue light indication for control power availability to the 4A Condensate Pump.

When the 4A Condensate Pump breaker is in the RACKED OUT position, the 4A Condensate Pump Green light indication in the control room is expected to be __(2)__.

A. (1) there is
(2) ON

B. (1) there is
(2) OFF

C. (1) there is NOT
(2) ON

D. (1) there is NOT
(2) OFF

Question # 47

Given the following:

- Unit 3 is at 100% power.
- 3A EDG is paralleled to the 3A 4kV bus during surveillance testing.

Subsequently:

- Unit 3 Main Generator locks out due to differential current.

Which one of the following identifies the expected plant response?

The 3A 4kV bus _____.

A. de-energizes and requires MANUAL actions to restore power

B. is AUTOMATICALLY energized ONLY by the 3A EDG

C. is AUTOMATICALLY energized ONLY by the Unit 3 Startup Transformer

D. is AUTOMATICALLY energized by the Unit 3 Startup Transformer and the 3A EDG

Question # 48

Given the following:

- Both units are at 100% power.

Subsequently:

- 4D MCC DE-ENERGIZES.

Which one of the following identifies the impact on the Unit 3 Vital DC buses?

A. Unit 3 Vital DC busses remain un-affected.

B. ONLY the 3A Vital DC bus loses one Battery Charger

C. ONLY the 3B Vital DC bus loses one Battery Charger

D. BOTH the 3A and 3B Vital DC busses lose one Battery Charger each

Question # 49

Given the following:

- Unit 3 is at 100%.
- The RO is synchronizing the 3A EDG to the grid from the control room IAW 3-OSP-023.1, Diesel Generator Operability Test.

Which one of the following completes the statements below?

IAW 3-OSP-023.1 the RO is expected to, without delay, raise 3A EDG load to __(1)__ in order to prevent __(2)__.

A. (1) 200 KW
(2) oil accumulation in the exhaust stack

B. (1) 200 KW
(2) a reverse power trip

C. (1) 1000 KW
(2) oil accumulation in the exhaust stack

D. (1) 1000 KW
(2) a reverse power trip

Question # 50

Given the following:

- Both units are at 100% power.

Subsequently:

- ANN H1/4, PRMS HI RADIATION, actuates.
- The Unit 3 RO reports R-14, Plant Vent, high alarm light is ON.

Which one of the following completes the statements below?

The Unit 3 Containment Ventilation Isolation __(1)__ expected to AUTOMATICALLY actuate.

The control room ventilation __(2)__ expected to AUTOMATICALLY transfer to recirculation mode.

A. (1) is
(2) is

B. (1) is
(2) is NOT

C. (1) is NOT
(2) is

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

Question # 51

Given the following:

- Waste Gas Decay Tank (GDT) F, release is in progress.
- R-14, Plant Vent Gaseous Monitor, fails low.

Replaced with word "crew"

Which one of the following completes the statements below?

The ~~RO~~ __(1)__ required to stop the F GDT release.

R-14 is OOS, the B GDT is to be released. 0-NOP-061.14B, Waste Gas Disposal System Controlled Release Of Gas Decay Tank B, requires __(2)__ prior to release.

A. (1) is NOT
(2) at least two independent samples analyzed

B. (1) is NOT
(2) R-14 to be returned to service

C. (1) is
(2) at least two independent samples analyzed

D. (1) is
(2) R-14 to be returned to service

Question # 52

Given the following:

- Unit 3 is operating at 100% power.
- 3A and 3B ICW pumps are running.
- 3C ICW pump is OOS.

Subsequently:

- 3A ICW Pump trips.
- 3-ONOP-019, Intake Cooling Water Malfunction, is entered.
- Total ICW flow is 20,500 gpm.

Which one of the following completes the statements below?

IAW 3-NOP-019, Intake Cooling Water, operation in this condition for longer than a MINIMUM of __(1)__ requires an engineering evaluation of the 3B ICW Pump.

IAW 3-ONOP-019, 3-50-406, CCW HX Outlet Spool Piece Bypass Valve, is required to be throttled CLOSED while maintaining a MINIMUM of __(2)__.

A. (1) 20 minutes
(2) 3500 gpm ICW flow through each CCW HX

B. (1) 20 minutes
(2) 12,850 gpm TOTAL ICW flow through ALL the CCW HX

C. (1) 72 hours
(2) 3500 gpm ICW flow through each CCW HX

D. (1) 72 hours
(2) 12,850 gpm TOTAL ICW flow through ALL the CCW HX

Question # 53

Which one of the following identifies a component that is expected to be AUTOMATICALLY supplied from backup nitrogen during a loss of Instrument Air?

A. POV-3-4883, ICW to TPCW Heat Exchanger B

B. CV-3-2831, Train 2 AFW Flow Control Valve to 3A SG

C. POV-3-477, 3A FW Bypass Isolation

D. CV-3-2827, Steam Dumps to Condenser

Question # 54

Given the following:

- Unit 3 is in MODE 6.
- Core reload is in progress.
- 3A and 3B RHR Pumps are running.

Which one of the following completes the statements below?

The core reload is required to be stopped if the _____.

A. the 3B RHR Pump trips and will not restart

B. the refueling cavity water level is found to be 56 feet, 11 inches

C. the containment personnel air lock inner and outer doors are damaged and will NOT close

D. Chemistry reports refueling canal boron concentration is 2320 ppm

Question # 55

Which one of the following completes the statements below?

The RO is able to remotely monitor from the control room the position of ___(1)___ door(s).

The Personnel Hatch Doors are designed to swing OPEN towards the __(2)__.

A. (1) ONLY the Containment Personnel Hatch
(2) INSIDE of Containment

B. (1) ONLY the Containment Personnel Hatch
(2) OUTSIDE of Containment

C. (1) the Containment Personnel Hatch and Emergency Escape Hatch
(2) INSIDE of Containment

D. (1) the Containment Personnel Hatch and Emergency Escape Hatch
(2) OUTSIDE of Containment

Question # 56

Given the following:

- Unit 3 is at 100% power.

Which one of the following completes the statements below regarding the design of RCS loop flow instrumentation?

IF one LOW-pressure tap to the flow transmitter ruptures, a RCS LOOP LOW FLOW Reactor Trip __(1)__ expected to occur.

IF one HIGH-pressure tap to the flow transmitter ruptures, a RCS LOOP LOW FLOW Reactor Trip __(2)__ expected to occur.

A. (1) is
(2) is

B. (1) is
(2) is NOT

C. (1) is NOT
(2) is

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

Question # 57

Which one of the following identifies the NORMAL power supply to the 3C Charging Pump?

A. 3C Load Center

B. 3H Load Center

C. 3C 4kV Bus

D. 3D 4kV Bus

Question # 58

Given the following:

- Unit 3 is at 100% power.

Subsequently:

- Fire header pressure lowers momentarily to a MINIMUM of 83 psig.
- ANN I6/6, XMFR/H2 SEAL OIL DELUGE OPERATING, alarms.
- ANN X5/3, SERVICE WTR/FIRE PP/RWT/WTP TROUBLE, alarms.

Which one of the following completes the statements below?

The Diesel Fire Pump __(1)__ expected to be running.

IAW 0-ONOP-016.8, Response to a Fire/Smoke, the RO is required to NEXT __(2)__.

A. (1) is NOT
(2) dispatch a field operator to the Unit 3 transformer area

B. (1) is NOT
(2) activate the fire brigade

C. (1) is
(2) dispatch a field operator to the Unit 3 transformer area

D. (1) is
(2) activate the fire brigade

Question # 59

Which one of the following completes the statements below?

The Source Range Detectors are expected to AUTOMATICALLY de-energize above __(1)__ permissive, which is armed by the __(2)__.

A. (1) P-6
(2) Intermediate Range NIs

B. (1) P-6
(2) Power Range NIs

C. (1) P-10
(2) Intermediate Range NIs

D. (1) P-10
(2) Power Range NIs

Question # 60

Given the following:

- Unit 3 is at 100% power.
- PC-3-444J, PRZ Pressure Controller, experiences a short circuit.

Which one of the following identifies the effect this fault will have on the Reactor Protection System?

The PC-3-444J controller fault is expected to _____.

A. directly feed back into the RPS circuit, generating a 1/3 HI PRZ Pressure Bi-stable to actuate

B. directly feed back into the RPS circuit, generating a 1/3 LO PRZ Pressure Bi-stable to actuate

C. NOT directly feed back into the RPS circuit due to use of isolation devices

D. NOT directly feed back into the RPS circuit since separate transmitters are used

Question # 61

Given the following:

- Unit 3 experiences a reactor trip from 100%.
- Steam Dumps to Condenser fail CLOSED.

Which one of the following correctly completes the statement below?

RCS Temperature is expected to stabilize at __(1)__ and PRZ Level is expected to stabilize at approximately __(2)__.

A. (1) 543°F
(2) 14%

B. (1) 543°F
(2) 22%

C. (1) 547°F
(2) 14%

D. (1) 547°F
(2) 22%

Question # 62

Given the following:

- Unit 3 experiences a fault on the 3A SG concurrently with a LOOP.
- 3-EOP-E-2, Faulted Steam Generator Isolation, is in progress.
- The US directs the BOP to place Standby Feedwater in service IAW 0-NOP-074.01, Standby Steam Generator Feedwater System.

Which one of the following completes the statements below?

In order to place Standby feed in service the RO __(1)__ required to MANUALLY reset the FW Isolation Signal.

Once on Standby Feed, the RO __(2)__ use the Main Feedwater Control Valves to control feed in order to support natural circulation.

A. (1) is
(2) will

B. (1) is
(2) will NOT

C. (1) is NOT
(2) will

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

Question # 63

Given the following:

- Unit 3 is at 100% power

Subsequently:

- The BOP MANUALLY trips the reactor due to Main Turbine high vibration.

Which one of the following identifies how secondary system parameters respond?

PT-3-447, Turbine Inlet Pressure, is expected to ___(1)___.

Steam Dumps to condenser are expected to OPEN due to ___(2)___.

A. (1) lower
(2) Tave-Tref deviation

B. (1) lower
(2) Main Steam Header pressure

C. (1) rise
(2) Tave-Tref deviation

D. (1) rise
(2) Main Steam Header pressure

Question # 64

Which one of the following completes the statements below?

The Reactor Coolant Drain Tank __(1)__ vented to the Waste Gas vent header.

The CVCS Holdup Tanks __(2)__ vented to the Waste Gas vent header.

A. (1) is
(2) are

B. (1) is
(2) are NOT

C. (1) is NOT
(2) are

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

Question # 65

Given the following:

- The release of the A GDT is in progress.

Which one of the following completes the statement below?

The RO is able to monitor the GDT pressures on _____.

A. QSPDS

B. DCS

C. Vertical Panel B

D. 3QR66, Process Radiation Monitor System Rack

Question # 66

Which one of the following completes the statements below?

IAW 0-ADM-202, Shift Relief and Turnover, the Special Instructions Book is required to be reviewed by the RO __(1)__.

IAW 0-ADM-200, Operations Management Manual, Special Instructions __(2)__ AUTOMATICALLY expire after 30 days.

A. (1) prior to assuming EACH shift watch;
(2) will

B. (1) prior to assuming EACH shift watch;
(2) will NOT

C. (1) as soon as is practical after shift turnover;
(2) will

D. (1) as soon as is practical after shift turnover;
(2) will NOT

Question # 67

IAW 0-ADM-744, Electrical Arc Flash Personal Protective Equipment, which one of the following identifies the MINIMUM required PPE, to rack out the 3A Heater Drain Pump Breaker?

REFERENCE PROVIDED

A. PPE Type 2 Glove Class 0

B. PPE Type 2 Glove Class 1

C. PPE Type 4 Glove Class 0

D. PPE Type 4 Glove Class 1

Question # 68

Given the following:

- Unit 3 is in MODE 1.
- Calorimetric Power indicates 99.80%.
- The crew is preparing to run the A AFW Pump for surveillance purpose.

Which one of the following completes the statement below?

IAW 0-ADM-200, Operations Management Manual, the crew is expected to lower reactor power by __(1)__, __(2)__.

A. (1) lowering turbine load
(2) prior to the A AFW Pump Test

B. (1) lowering turbine load
(2) ONLY if the Calorimetric Power 1 Hour Average reaches 100%

C. (1) inserting control rods
(2) prior to the A AFW Pump Test

D. (1) inserting control rods
(2) ONLY if the Calorimetric Power 1 Hour Average reaches 100%

Question # 69

Given the following:

- Unit 3 is in MODE 5.
- RCS pressure rises to a point exceeding the RCS Pressure Safety Limit.

Which one of the following completes the statements below?

IAW Tech Specs the crew is required to reduce RCS pressure below __(1)__ within a MAXIMUM of __(2)__.

A. (1) 2735 PSIG
(2) 5 minutes

B. (1) 2735 PSIG
(2) 60 minutes

C. (1) 2750 PSIG
(2) 5 minutes

D. (1) 2750 PSIG
(2) 60 minutes

Question # 70

Given the following:

- Unit 4 is at 100% power.
- ANN G8/2, RWST TECH SPEC MIN LEVEL, is being defeated IAW 0-OSP-200.5, Miscellaneous Tests and Operating Evolutions section 7.11.

Which one of the following completes the statements below?

A compensatory action ___(1)___ required to be established and recorded in the Annunciator Status Log.

The oncoming Unit 4 RO ___(2)___ required to review the Annunciator Status Log before assuming the shift.

A. (1) is NOT
(2) is NOT

B. (1) is NOT
(2) is

C. (1) is
(2) is NOT

D. (1) is
(2) is

Question # 71

Given the following:

- Unit 3 experiences a Steam Generator Tube Rupture.
- 3-EOP-E-3, Steam Generator Tube Rupture, is in progress.
- The crew prepares for RCS cooldown using Steam Dumps to Condenser.
- The crew desires to stop the AFW Pumps.

Which one of the following identifies the PREFERRED method of providing feedwater to the SGs during the cooldown, and the reason for this preference, IAW 3-EOP-E-3?

A. Standby Feedwater System since the volume of contaminated secondary water released to the environment (post tube rupture) will be less.

B. Standby Feedwater System since the amount of radioactivity released via an unmonitored pathway (during RCS cooldown) will be less.

C. Normal Feedwater System since the volume of contaminated secondary water released to the environment (post tube rupture) will be less.

D. Normal Feedwater System since the amount of radioactivity released via an unmonitored pathway (during RCS cooldown) will be less.

Question # 72

Which one of the following completes the statements below?

IAW Tech Specs, areas accessible to personnel, where radiation levels exceeds as MINIMUM __(1)__ at 30 cm, are required to be provided with locked doors.

IAW RP-AA-103-1002, High Radiation Area Controls, at PTN __(2)__ approval is required prior to performing a NON-Urgent entry into the Containment building in MODES 1,2 or 3.

A. (1) 100 mr/hr
(2) ONLY Shift Manager

B. (1) 100 mr/hr
(2) Shift Manager and RP Manager

C. (1) 1000 mr/hr
(2) ONLY Shift Manager

D. (1) 1000 mr/hr
(2) Shift Manager and RP Manager

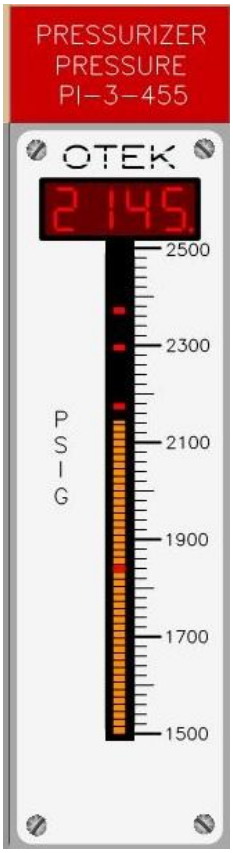
Question # 73

Which one of the following identifies an indicator that is expected to be reliable in a post-accident condition?

A.

B.

C.



D.

Question # 74

Given the following:

- Unit 3 experiences a Steam Line Break.
- 3-EOP-E-0, Reactor Trip or Safety Injection is in progress with the following conditions:
  - Containment Temperature is 195°F.
  - Containment Pressure is 30 psig.
  - NO Containment Spray Pump are running.
  - Gammametrics indicates 3% reactor power.
  - Intermediate Range Nis indicate a -0.2 dpm startup rate.

Which one of the following completes the statements below?

The RO will report that there is a/an __(1)__ Path on the __(2)__ CSF.

A. (1) Red
(2) Containment

B. (1) Red
(2) Subcriticality

C. (1) Orange
(2) Containment

D. (1) Orange
(2) Subcriticality

Question # 75

Which one of the following identifies the person responsible for event classification, once the emergency response facilities are manned?

A. Emergency Coordinator

B. Recovery Manager

C. TSC Supervisor

D. OSC Manager

L-18-1 NRC Exam Reference List
RO & SRO References
Steam Tables
0-ADM-744 ATT.1 & ATT.2

ATTACHMENT 1
Selecting Proper Arc Protection Apparel and PPE
(Page 1 of 3)

TABLE 1

PPE TYPE	REQUIRED PPE	ARC RATING (Cal/cm^2)
1	**Arc-Rated Clothing, Minimum Arc Rating of 4 cal/cm2** • Arc-rated long-sleeve shirt and pants or arc-rated coverall • Arc-rated face shield (See Note 1) or arc flash suit hood • Arc-rated jacket, parka, rainwear, or hard hat liner (as needed) **Protective Equipment (Note 2)**	4
2	**Arc-Rated Clothing, Minimum Arc Rating of 8 cal/cm2** • Arc-rated long-sleeve shirt and pants or arc-rated coverall • Arc-rated flash suit hood or arc-rated face shield (See Note 1) and arc-rated balaclava • Arc-rated jacket, parka, rainwear, or hard hat liner (as needed) **Protective Equipment (Note 2)**	8
3	**Arc-Rated Clothing Selected so That the System Arc Rating Meets the Required Minimum Arc Rating of 25 cal/cm2** • Arc-rated long-sleeve shirt • Arc-rated pants • Arc-rated coverall • Arc-rated arc flash suit jacket • Arc-rated arc flash suit pants • Arc-rated arc flash suit hood • Arc-rated gloves (See Note 3) • Arc-rated jacket, parka, rainwear, or hard hat liner • **Protective Equipment (Note 2)**	25
4	**Arc-Rated Clothing Selected so That the System Arc Rating Meets the Required Minimum Arc Rating of 40 cal/cm2** • Arc-rated long-sleeve shirt • Arc-rated pants • Arc-rated coverall • Arc-rated arc flash suit jacket • Arc-rated arc flash suit pants • Arc-rated arc flash suit hood • Arc-rated gloves (See Note 3) • Arc-rated jacket, parka, rainwear, or hard hat liner **Protective Equipment (Note 2)**	40

ATTACHMENT 1
Selecting Proper Arc Protection Apparel and PPE
(Page 2 of 3)

Note 1: Face shields are to have wrap-around guarding to protect not only the face, but also the forehead, ears, and neck, or, alternatively, an arc-rated arc flash suit hood is required to be worn.

Note 2: Standard PPE is hard hat, safety glasses or safety goggle, hearing protection (ear canal inserts), heavy duty leather gloves (see Note 3), leather footwear.

Note 3: If rubber insulating gloves with leather protectors are used, additional leather or arc-rated gloves are not required. The combination of rubber insulating gloves with leather protectors satisfies the arc flash protection requirement.

ATTACHMENT 1
Selecting Proper Arc Protection Apparel and PPE
(Page 3 of 3)

TABLE 2

VOLTAGE CLASSIFICATION OF GLOVES		
Glove Voltage Classification	Maximum Working Voltage	Proof Test (kV)
Class 00	500	2.5
Class 0	1,000	5.0
Class 1	7,500	10
Class 2	17,500	20
Class 3	26,500	30
Class 4	36,000	40

NOTE

Gloves provide insulation from both electricity and heat. A combination of rubber (worn inside) and leather (worn outside) material is typically used. The gloves should be long enough to cover the sleeves.

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 1 of 7)

PANELBOARDS & MISCELLANEOUS EQUIPMENT (Single phase or direct current 150V and below)			
Boundaries: • Minimum Approach Distance - Avoid Contact • Restricted Approach Boundary - Avoid Contact • Limited Approach Boundary - 3 FT - 6 IN • Flash Protection Boundary - 0 FT, if <200V; 4 FT, if 200-240V			
TASK	PPE Type	V-Rated Gloves	Insulated Tools
Removing/Installing circuit breakers	1	Y	Y
Operating circuit breakers (covers ON or OFF)	0	N	N
Removing/Installing fuses/cartridges	0	Y	Y
Diagnostic Testing • verifying voltage • verifying current • installing/removing test equipment	1	Y*	Y
Working on circuits or equipment >120V AC/140V DC	1	Y	Y
Working on circuits or equipment ≤120V AC/140V DC	0	N	Y
Station Batteries (During assembly and disassembly of bus work only, **NOT** required for routine maintenance.)	1	Y	Y
Opening/Closing hinged covers to exposed live parts	0	N	N
Removing/Installing bolted covers to exposed live parts	1	N	N
Troubleshooting (Unless addressed above)	1	Y	Y

* Voltage Rated Gloves are only required if using Uninsulated Test Leads.

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 2 of 7)

PANELBOARDS/SWITCHBOARDS & MISCELLANEOUS EQUIPMENT (>150V and <301V)			
Boundaries: • Minimum Approach Distance - Avoid Contact • Restricted Approach Boundary - 1 FT • Limited Approach Boundary - 3 FT 6 IN • Flash Protection Boundary - 4 FT			
TASK	PPE Type	V-Rated Gloves	Insulated Tools
Removing/Installing circuit breakers	2	Y	Y
Operating circuit breakers (covers ON)	0	N	N
Operating circuit breakers (covers OFF)	1	N	N
Removing/Installing fuses/cartridges	1	Y	Y
Diagnostic Testing • verifying voltage • verifying current • installing/removing test equipment	1	Y	Y
Application of safety grounds, after voltage test	2	Y	N
Working on circuits or equipment >120V AC/140V DC	2	Y	Y
Opening/Closing hinged covers to exposed live parts	1	N	N
Removing/Installing bolted covers to exposed live parts	2	N	N
Removing/Installing cable tray cover	1	N	N
Working on 277V lighting	1	Y	Y
Connecting to energized welding receptacle	1	Y	Y
Troubleshooting (Unless addressed above)	2	Y	Y

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 3 of 7)

PANELBOARDS/SWITCHBOARDS & MISCELLANEOUS EQUIPMENT
(>300V and <600V)

Boundaries:
- Minimum Approach Distance - 14 IN
- Restricted Approach Boundary - 1 FT
- Limited Approach Boundary - 3 FT 6 IN
- Flash Protection Boundary - 4 FT

TASK	PPE Type	V-Rated Gloves	Insulated Tools
Removing/Installing circuit breakers	2	Y	Y
Operating circuit breakers (covers ON)	0	N	N
Operating circuit breakers (covers OFF)	1	N	N
Removing/Installing fuses/cartridges	1	Y	Y
Diagnostic Testing • verifying voltage • verifying current • installing/removing test equipment	1	Y	Y
Application of safety grounds, after voltage test	2	Y	N
Working on circuits or equipment >120V AC/140V DC	2	Y	Y
Working on circuits or equipment ≤120V AC/140V DC	0	N	Y
Opening/Closing hinged covers to exposed live parts	1	N	N
Removing/Installing bolted covers to exposed live parts	2	N	N
Removing/Installing cable tray cover	1	N	N
Working on 277V lighting	1	Y	Y
Connecting to energized welding receptacle	1	Y	Y
Troubleshooting (Unless addressed above)	2	Y	Y

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 4 of 7)

MOTOR CONTROL CENTERS
(480 V MCCs)

Boundaries:

- Minimum Approach Distance - 14 IN
- Restricted Approach Boundary - 1 FT
- Limited Approach Boundary - 3 FT - 6 IN
- Flash Protection Boundary - 10 FT for installation/removal (racking) of buckets, 5 FT for other activities

TASK	PPE Type	V-Rated Gloves	Insulated Tools
Operating fused switch or breakers (door CLOSED)	0	N	N
Operating fused switch or breakers (door OPEN)	2	Y	N
Removing/Installing fuse/cartridge	1	Y	Y
Removing/Installing starter buckets	3	Y	Y
Diagnostic Testing on Power Circuit • Verifying voltage • Verifying current • Installing/removing test equipment	2	Y	Y
Application of safety grounds, after voltage test	3	Y	N
Working on circuits or equipment on load side of fuse >120V AC/140V DC	3	Y	Y
Working on circuits or equipment ≤120V AC/140V DC	0	N	Y
Working on line side live part (other than voltage verifications)	2	Y	Y
Opening/Closing hinged covers to exposed live parts	1	Y	N
Removing/Installing bolted covers to exposed live parts	3	Y	N
Troubleshooting (Unless addressed above)	2	Y	Y

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 5 of 7)

SWITCHGEAR/LOAD CENTERS
(480V Load Centers)

Boundaries:
- Minimum Approach Distance - 14 IN
- Restricted Approach Boundary - 1 FT
- Limited Approach Boundary - 3 FT - 6 IN
- Flash Protection Boundary - 35 FT or the Load Center Room (whichever is less)

TASK	PPE Type	V-Rated Gloves	Insulated Tools
Operating breakers (door CLOSED)	0	N	N
Operating breakers (door OPEN)	4	N	N
Racking Load Center breakers (door OPEN or CLOSED)	4	N	N
Diagnostic Testing on Power Circuit • verifying voltage • verifying current • installing/removing test equipment	4	Y	Y
Application of safety grounds, after voltage test	4	Y	N
Working on control circuits or equipment >120V AC/140V DC	4	Y	Y
Working on control circuits or equipment ≤120V AC/140V DC	0	N	Y
Working on energized parts (power circuit)	4	Y	Y
Opening/Closing hinged covers to exposed live parts	4	N	N
Removing/Installing bolted covers to exposed live parts	4	N	N
Control power fuse removal and installation with CB racked out	0	Y	Y
Control power removal and installation with CB racked in	4	Y	Y
Troubleshooting (Unless addressed above)	4	Y	Y

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 6 of 7)

SWITCHGEAR
(4kV)

Boundaries:

- Minimum Approach Distance - 26 IN
- Restricted Approach Boundary - 26 IN
- Limited Approach Boundary - 5 FT
- Flash Protection Boundary - 80 FT or Switchgear Room (whichever is less), PPE is as specified below. A boundary consisting of danger tape and a sign stating PPE requirements will be used at the boundary.

TASK	PPE Type	V-Rated Gloves	Insulated Tools
Operating breakers local (door CLOSED)	2	N	N
Racking breakers (door OPEN or CLOSED)	4	Y	N
Voltage Verification (power circuit)	4	Y	Y
Protective relay testing with door OPEN and breaker installed (OPEN or CLOSED)	2	Y	Y
Installed breaker adjustments, breaker OPEN only, with trip and CLOSE fuses removed	2	Y	N
Application of safety grounds, after voltage test	4	Y	N
Working on control circuits ≤120V AC/140V DC	0	N	Y
Control power fuse removal and installation with CB RACKED IN	2	Y	Y
Control power fuse removal and installation with CB RACKED OUT	0	Y	Y
Second verification on control circuits (e.g., clearance order, lifted/landed leads) ≤120V AC/140V DC	0	Y	N
Opening hinged covers to exposed live parts (>1kV	2	N	N
Pad-mounted transformers	3	Y	Y
Troubleshooting (Unless addressed above)	4	Y	Y

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 7 of 7)

SWITCHGEAR/SWITCHYARD
(22kV to 240kV)

Boundaries (22kV):

- Minimum Approach Distance
  - 36 IN (phase-to-phase)
  - 31 IN (phase-to-ground)
- Restricted Approach Boundary - 31 IN
- Limited Approach Boundary- 6 FT
- Flash Protection Boundary - Contact Station Area Operations (SAO)

Boundaries (240kV):

- Minimum Approach Distance
  - 11 FT (phase-to-phase)
  - 7 FT (phase-to-ground)
- Restricted Approach Boundary - 5 FT - 8 IN
- Limited Approach Boundary - 13 FT
- Flash Protection Boundary - Contact Station Area Operations (SAO)

TASK	PPE Type	V-Rated Gloves	Insulated Tools
Open/Close 22/240 kV disconnects/grounds **NO** load only, from motor/manual operated control.	2	Y	Y
Verify Closed/Open 22/240 kV disconnects/grounds	0	Y	N
Walk around 22/240 kV switchyard general inspection or observe	0	N	N
Switching orders/clearances	0	Y	N
Troubleshooting (Unless addressed above)	4	Y	Y

Question # 1

Given the following:

- Unit 3 is at 100% power at BOL.
- Unit 4 is at 100% power at EOL.
- B AFW Pump is OOS.

Subsequently:

- The switchyard de-energizes.
- All the vital 4kV busses are re-energized from the EDGs.
- All SG NR levels are off-scale low.

Which one of the following completes the statements below?

Immediately after the reactor trip, __(1)__ will require the most AFW flow in order to remove decay heat.

IAW 3-EOP-ES-0.1, Reactor Trip Response, Unit 3 RO __(2)__ required to maintain AFW flow to Unit 3 above a MINIMUM of 400 gpm.

A. (1) Unit 3
(2) is NOT

B. (1) Unit 3
(2) is

C. (1) Unit 4
(2) is NOT

D. (1) Unit 4
(2) is

Question # 2

Given the following:

- Unit 3 experiences a LOCA concurrently with a LOOP.
- 3-EOP-ES-1.2, Post LOCA Cooldown and Depressurization, is in progress.
- Containment temperature is 175°F and lowering.

Replaced with word "support"

Which one of the following completes the statements below?

IAW 3-EOP-ES-1.2, RCS Cold Leg Temperatures within 21°F of SG saturation temperature __(1)__ ~~indicate~~ that natural circulation flow exists.

IAW 3-EOP-ES-1.2, if natural circulation can NOT be verified, the RO is required to __(2)__.

A. (1) does NOT
(2) raise AFW flow

B. (1) does NOT
(2) dump more steam

C. (1) does
(2) raise AFW flow

D. (1) does
(2) dump more steam

Question # 3

Given the following:

- Unit 3 experiences a LOCA.
- HHSI flow is 950 gpm.
- RHR flow is 1500 gpm.
- 3-EOP-E-1, Loss of Reactor or Secondary Coolant, in progress.
- All SG pressures are 700 psig and lowering slowly.

Which one of the following completes the statements below?

SGs __(1)__ currently acting as a heat sink.

IAW with 3-EOP-E-1, the SI signal will be reset in order to __(2)__.

A. (1) are
(2) re-start the charging pumps

B. (1) are
(2) re-open CV-3-2803, Instrument Air Containment Isolation

C. (1) are NOT
(2) re-start the charging pumps

D. (1) are NOT
(2) re-open CV-3-2803, Instrument Air Containment Isolation

Question # 4

Given the following:

- Unit 3 is at 100% power.
- 3-ONOP-041.1, Reactor Coolant Pump Off-Normal, is in progress due to high RCP vibrations.
- RCP vibrations are:

	3A RCP	3B RCP
Motor Frame	4.5 MILS	5.5 MILS
Shaft	16.5 MILS	10.5 MILS

Which one of the following completes the statements below IAW 3-ONOP-041.1?

The RO is required to trip the __(1)__ RCP.

This RCP is required to be tripped __(2)__ the reactor trip verification using the EOP network.

A. (1) 3A
(2) after

B. (1) 3A
(2) before

C. (1) 3B
(2) after

D. (1) 3B
(2) before

Question # 5

Given the following:

- Unit 3 experiences a loss of all charging at 100% power.
- 3-ONOP-047.1, Loss of Charging Flow in MODES 1 through 4, is in progress.
- Attempts to start a charging pump are NOT successful.

Which one of the following completes the statement below?

IAW 3-ONOP-047.1, the crew will avoid a 3-GOP-100, Fast Load Reduction, in order to prevent _____ .

A. uncovering the PRZ heaters

B. RCS crud to travel to the RCP seals

C. an at-power Rod Insertion Limit unanalyzed condition

D. exceeding the Axial Flux Difference Tech Specs Limit

Question # 6

Given the following:

- Unit 3 is in MODE 5 on RHR cooling.
- 3A RHR Pump is in service.

Subsequently:

- A pipe ruptures downstream of MOV-3-744A, RHR to Cold Leg Discharge Isolation.
- 3A RHR Pump amps are fluctuating.
- 3-ONOP-050, Loss of RHR, is entered.

Which one of the following completes the statements below?

The RO will confirm the break location by receipt of __(1)__.

IAW 3-ONOP-050, the RO __(2)__ required to secure the 3A RHR Pump.

A. (1) ANN G9/5, CNTMT SUMP HI LEVEL
(2) is NOT

B. (1) ANN G9/5, CNTMT SUMP HI LEVEL
(2) is

C. (1) ANN I7/6, RHR PUMP ROOM A SUMP TROUBLE
(2) is NOT

D. (1) ANN I7/6, RHR PUMP ROOM A SUMP TROUBLE
(2) is

Question # 7

Given the following:

- Unit 3 is at 100% power.

Subsequently:

- A CCW leak develops on Unit 3.
- 3-ONOP-030, Component Cooling Water Malfunction, is in progress.

Which one of the following completes the statements below?

IAW 3-ONOP-030, the RO is required to check for normal CCW flow on __(1)__.

In the absence of CCW flow, the RO is required to operate the running charging pump at __(2)__ speed until emergency cooling is established.

A. (1) VPA
(2) MAXIMUM

B. (1) VPA
(2) MINIMUM

C. (1) VPB
(2) MAXIMUM

D. (1) VPB
(2) MINIMUM

Question # 8

Given the following:

- Unit 3 Reactor power is 100%.
- PRZ Pressure Control is in AUTOMATIC.
- PC-3-444J, Pressurizer Pressure Controller, demand fails HIGH.
- PC-3-444J does NOT respond in MANUAL.

Which one of the following completes the statements below?

IAW 3-ONOP-41.5, PRZ Pressure Control Malfunction, the RO is required to MANUALLY operate __(1)__ and __(2)__ in order to stabilize PRZ pressure.

A. (1) ONLY one PRZ PORV
(2) ONLY one PRZ Spray Valve

B. (1) ONLY one PRZ PORV
(2) BOTH PRZ Spray Valves

C. (1) BOTH PRZ PORVs
(2) ONLY one PRZ Spray Valve

D. (1) BOTH PRZ PORVs
(2) BOTH PRZ Spray Valves

Question # 9

Given the following:

- Unit 3 experiences a transient at 100% power.
- The RO attempts to MANUALLY trip the reactor and the reactor fails to trip.
- The crew enters 3-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS.
- Total AFW flow to Unit 3 is 800 gpm.
- ALL SG NR Levels are off-scale low.

Which one of the following completes the statement below?

IAW 3-EOP-FR-S.1, the crew is required to secure the __(1)__ AFW Pump __(2)__.

A. (1) A
(2) within ONE hour from the initial start signal

B. (1) A
(2) when SG NR level is > 7%

C. (1) C
(2) within ONE hour from the initial start signal

D. (1) C
(2) when SG NR level is > 7%

Question # 10

Given the following:

- 3-EOP-ECA-2.1, Uncontrolled Depressurization of All Steam Generators, is in progress.
- Containment pressure is 25 psig.
- SG NR levels are all off-scale low.
- The SGs are being fed from the A Standby Steam Generator Feed Pump.
- Letdown is in service.

Which one of the following completes the statements below
IAW 3-EOP-ECA-2.1?

The crew is required to control feedwater to the SGs based on __(1)__.

The RO is expected to utilize the __(2)__ in order to control RCS pressure.

A. (1) feedwater flow indication to each SG
(2) Normal PRZ Sprays

B. (1) feedwater flow indication to each SG
(2) Auxiliary PRZ Spray

C. (1) changes in RCS temperature and SG level
(2) Normal PRZ Sprays

D. (1) changes in RCS temperature and SG level
(2) Auxiliary PRZ Spray

Question # 11

Given the following:

- Unit 4 is at 100% power.

Subsequently:

- The feedline to the 4A SG shears inside containment.
- 4-EOP-E-0, Reactor Trip or Safety Injection, IOAs are complete.
- ALL SG NR levels are off-scale LOW.

Which one of the following completes the statements below?

The crew __(1)__ required to perform Attachment 3 of 4-EOP-E-0, Reactor Trip or Safety Injection.

IAW the applicable procedure, the crew is required to __(2)__ the AFW flow to 4A SG.

A. (1) is
(2) isolate

B. (1) is
(2) reduce to 50 gpm

C. (1) is NOT
(2) isolate

D. (1) is NOT
(2) reduce to 50 gpm

Question # 12

Given the following:

- Unit 3 is in MODE 3 at normal operating pressure.

Subsequently:

- Unit 3 Startup Transformer experiences a lockout.
- Both Unit 3 EDGs fail to load.
- 3B 4kV Bus is locked out and will NOT reset.

Which one of the following completes the statements below?

The crew is required to implement __(1)__, which attempts power restoration __(2)__ FIRST.

A. (1) 3-EOP-ECA-0.0, Loss of all AC Power
(2) from the Unit 4 Startup Transformer

B. (1) 3-EOP-ECA-0.0, Loss of all AC Power
(2) through the SBO tie

C. (1) 3-ONOP-004, Loss of Off-site Power
(2) from the Unit 4 Startup Transformer

D. (1) 3-ONOP-004, Loss of Off-site Power
(2) through the SBO tie

Question # 13

Given the following:

- Unit 3 is at 100% power.

Subsequently:

- A heavy load is dropped on the piping downstream of the 3A ICW/TPCW Basket Strainer, causing an ICW leak.

Which one of the following completes the statements below?

The crew __(1)__ able to isolate this leak remotely, from the control room.

Once the leak is isolated, Unit 3 __(2)__ expected to be in a Tech Spec action statement for the ICW system.

A. (1) is
(2) is

B. (1) is
(2) is NOT

C. (1) is NOT
(2) is

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

Question # 14

Given the following:

- Unit 3 experiences a loss of instrument air at 100% power.
- The Field Supervisor reports the following instrument air compressor status:
    - 3CM is running but will NOT load.
    - 4CM is OOS
    - 3CD and 4CD will NOT start.
- IA pressure is 78 psig and slowly lowering.

Which one of the following completes the statements below?

IAW 3-ONOP-013, Loss of Instrument Air, the RO is NEXT required to _____.

A. trip the Reactor since the FRVs are drifting OPEN

B. trip the Reactor since the FRVs are drifting CLOSED

C. direct to OPEN 40-2059, Service Air Backup To Units 3/4 Instrument Air Isolation Vlv, in order to prevent the FRVs from drifting OPEN

D. direct to OPEN 40-2059, Service Air Backup To Units 3/4 Instrument Air Isolation Vlv, in order to prevent the FRVs from drifting CLOSED

Question # 15

Given the following:

- Unit 4 is at 100% power.
- Unit 4 reactive load is 240 MVAR in the LEAD with 20 MVAR oscillations.
- Annunciator E 8/2, GEN FIELD FORCING/ VOLT REG LIMITING, is in alarm.
- At the Exciter Switchgear, the MINIMUM EXCITATION module #5 light is on.

IAW 4-ONOP-090, Abnormal Generator MW/MVAR Oscillation, which one of the following is the NEXT required action?

A. Place the AC Voltage Regulator to lower

B. Place the DC Voltage Regulator to lower

C. Place the AC Voltage Regulator to raise

D. Place the DC Voltage Regulator to raise

Question # 16

Given the following:

- The crew initiates a MANUAL reactor trip and Safety Injection from 100% power.
- 3-EOP-E-0, Reactor Trip or Safety Injection, is in progress.
- RCS pressure is 1650 psig and lowering.
- PRZ level is 12% and lowering.
- Containment conditions remain normal.
- Auxiliary Building radiation levels are rising
- All secondary side radiation monitor readings are normal

Which one of the following completes the statements below?

The crew is required to attempt leak isolation IAW __(1)__.

To determine that the leakage is isolated the crew is required to verify that __(2)__ is rising.

A. (1) 3-EOP-E-1, Loss of Reactor or Secondary Coolant
(2) the RCS pressure

B. (1) 3-EOP-E-1, Loss of Reactor or Secondary Coolant
(2) the PRZ Level

C. (1) 3-EOP-ECA-1.2, LOCA Outside of Containment
(2) the RCS pressure

D. (1) 3-EOP-ECA-1.2, LOCA Outside of Containment
(2) the PRZ level

Question # 17

Given the following:

- Unit 3 experiences a loss of emergency recirculation.
- 3-EOP-ECA-1.1, Loss of Emergency Recirculation, is in progress.
- Unit 3 RWST level is 59,000 gallons.

Which one of the following completes the statements below?

IAW 3-EOP-ECA-1.1, the RO is NEXT required to __(1)__ in order to __(2)__.

A. (1) establish SI flow from U4 RWST
(2) extend the availability of RWST injection

B. (1) establish SI flow from U4 RWST
(2) prevent a loss of NPSH to the ECCS Pumps

C. (1) secure all ECCS Pumps taking a suction on Unit 3 RWST
(2) extend the availability of RWST injection

D. (1) secure all ECCS Pumps taking a suction on Unit 3 RWST
(2) prevent a loss of NPSH to the ECCS Pumps

Question # 18

Given the following:

- Unit 3 experiences a LOOP.
- A loss of all AFW occurs.
- 3-EOP-FR-H.1, Loss of Secondary Heat Sink, is in progress.
- A source of feedwater can NOT be restored.
- 3A Charging Pump is NOT available.

Which one of the following completes the statements below?

IAW 3-EOP-FR-H.1, the preferred RCS bleed path is through __(1)__.

IAW 3-EOP-FR-H.1, the RO will start __(2)__ charging pump(s).

A. (1) Both PORVs ONLY
(2) ONLY one

B. (1) Both PORVs ONLY
(2) both available

C. (1) Both PORVs and the RCS Vent Valves
(2) ONLY one

D. (1) Both PORVs and the RCS Vent Valves
(2) both available

Question # 19

Given the following:

- Unit 3 experiences a LOOP.
- 3A and 3B EDGs power the 3A and 3B 4KV Buses.
- 3-EOP-ES-0.4, Natural Circulation Cooldown with Steam Void in Vessel (Without RVLMS), is in progress.
- RCS pressure is 1635 psig.
- Pressurizer level is 30%.

Subsequently:

- Prior to depressurizing the RCS, PCV-3-456, Pressurizer PORV, fails open.

Which one of the following identifies the reason for the initial rapidly rising PRZ level during this event?

A. The steam space in the Pressurizer collapses allowing more makeup to be injected immediately into the RCS by the HHSI Pumps.

B. Pressurizer level reference legs flash which results in a rise in indicated level.

C. Safety Injection Accumulators inject into the RCS which raises Pressurizer level.

D. Reactor upper head region voiding occurs which results in mass transfer from the Reactor Head to the Pressurizer.

Question # 20

Given the following:

- Fuel shuffle is in progress in the Unit 3 spent fuel pool.

Subsequently:

- ANN X4/1, ARMS HI RADIATION, alarms.

Which one of the following completes the statements below?

0-ONOP-066, High Area Radiation Monitoring System Alarm, requires the crew to FIRST __(1)__ .

These actions will be performed from a panel located __(2)__ the RO surveillance area.

A. (1) verify the setpoint on the affected ARMS channel, AND then press the alarm acknowledge pushbutton
(2) inside

B. (1) press the alarm acknowledge pushbutton, AND then verify the setpoint on the affected ARMS
(2) inside

C. (1) verify the setpoint on the affected ARMS channel, AND then press the alarm acknowledge pushbutton
(2) outside

D. (1) press the alarm acknowledge pushbutton, AND then verify the setpoint on the affected ARMS
(2) outside

Question # 21

Given the following:

- Unit 3 is at 100% power.
- A steam generator tube leak develops.
- 3-ONOP-071.2, Steam Generator Tube Leakage, is in progress.

Which one of the following completes the statements below?

IAW 3-ONOP-071.2, __(1)__ indication is the FASTEST to respond to rising SG tube leakage.

If the __(2)__ HIGH Alarm actuates, the RO is required to verify proper AUTOMATIC isolation of the applicable process flowpath.

A. (1) R-3-15, Air Ejector Radiation Monitor,
(2) R-3-15, Air Ejector Radiation Monitor ,

B. (1) R-3-15, Air Ejector Radiation Monitor ,
(2) R-3-19, Steam Generator Sample Monitor,

C. (1) R-3-19, Steam Generator Sample Monitor,
(2) R-3-15, Air Ejector Radiation Monitor,

D. (1) R-3-19, Steam Generator Sample Monitor ,
(2) R-3-19, Steam Generator Sample Monitor,

Question # 22

Which one of the following completes the statements below?

IAW 3-ONOP-067, Radioactive Effluent Release, during Radwaste releases from the Waste Monitor Tanks:

- The PRMS channel that monitors this release, is expected to actuate a HIGH Alarm when a pre-set __(1)__ value is reached.

- If the associated PRMS channel HIGH alarm is actuated, the liquid release __(2)__ isolate in order to minimize off-site dose.

A. (1) cpm
(2) is expected to AUTOMATICALY isolate

B. (1) cpm
(2) is required to be MANUALLY isolated

C. (1) uCi
(2) is expected to AUTOMATICALY isolate

D. (1) uCi
(2) is required to be MANUALLY isolated

Question # 23

Given the following:

- Unit 4 is at 100% power.

Subsequently:

- Unit 4 experiences a LOCA.
- Containment pressure reaches a MAXIMUM of 17 psig.
- Containment Isolation Valve indication on Vertical Panel B is dimly lit for:
    - MOV-4-626, RCP Thermal Barrier CCW Outlet.
    - MOV-4-1418, CCW to Normal Containment Cooler Valves.

Which one of the following completes the statements below?

IAW Attachment 3 of 4-EOP-E-0, Reactor Trip of Safety Injection, the RO __(1)__ required to MANUALLY actuate Phase A containment isolation.

IAW Attachment 3 of 4-EOP-E-0, Reactor Trip of Safety Injection, the RO __(1)__ required to MANUALLY actuate Phase B containment isolation.

A. (1) is NOT
(2) is NOT

B. (1) is NOT
(2) is

C. (1) is
(2) is NOT

D. (1) is
(2) is

Question # 24

Which one of the following identifies the MINIMUM condition to enter 3-EOP-FR-C.1, Response to Inadequate Core Cooling?

A. Any valid CET >700°F

B. Five hottest valid CETs >700°F

C. Any valid CET >1200°F

D. Five hottest valid CETs >1200°F

Question # 25

Given the following:

- Unit 3 experiences a LOCA.
- 3-EOP-ES-1.1, SI Termination, is in progress.

Which one of the following completes the statements below?

IAW 3-EOP-ES-1.1, upon stopping the HHSI Pumps, if __(1)__ lowers below a set value, the crew is required to re-start the HHSI Pumps and transition to __(2)__.

A. (1) CET subcooling
(2) 3-EOP-E-0, Reactor Trip or Safety Injection

B. (1) CET subcooling
(2) 3-EOP-E-1, Loss of Reactor or Secondary Coolant

C. (1) RCS pressure
(2) 3-EOP-E-0, Reactor Trip or Safety Injection

D. (1) RCS pressure
(2) 3-EOP-E-1, Loss of Reactor or Secondary Coolant

Question # 26

Which one of the following completes the statements below?

The 3A SG Safety Valves __(1)__ designed to lift at the same setpoint.

While in the EOP network, if ALL 3A SG Safety Valves fail to operate, the crew __(2)__ required to IMMEDIATEDLY transition to 3-EOP-FR-H.2, Response to Steam Generator Overpressure.

A. (1) are
(2) is

B. (1) are
(2) is NOT

C. (1) are NOT
(2) is

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

Question # 27

Giving the following:

- Unit 3 experiences a LOCA concurrently with a LOOP.
- The 3A and 3B 4kV busses are powered from their respective EDGs.
- 3-EOP-ES-1.2, Post LOCA Cooldown and Depressurization, is in progress.

Which one of the following completes the statements below?

IAW 3-EOP-ES-1.2, the RO is required to cooldown the RCS __(1)__ using the __(2)__.

A. (1) at the MAXIMUM rate possible
(2) Steam Dumps to the Condenser

B. (1) at the MAXIMUM rate possible
(2) Steam Dumps to Atmosphere

C. (1) at LESS THAN 100°F/HR
(2) Steam Dumps to the Condenser

D. (1) at LESS THAN 100°F/HR
(2) Steam Dumps to Atmosphere

Question # 28

Which one of the following describes a function of the flywheel on the RCPs?

A. Prolongs RCP coastdown time to aid in maintaining loop flow thus maintaining DNBR within acceptable limits during certain loss of RCS flow events.

B. Prolongs RCP coastdown time to aid in maintaining loop flow thus maintaining hot channel factors at an acceptable level during certain loss of RCS flow events.

C. Minimizes acceleration on pump start to minimize the effects of core lift when the first RCP is started.

D. Minimizes acceleration on pump start to minimize water hammer in the SG tubes when the first RCP is started.

Question # 29

Given the following:

- Unit 3 is in MODE 5.
- Solid plant operations are in progress with the following components in MANUAL:
    - 3A Charging Pump
    - PCV-3-145, Letdown Pressure Control valve
    - HCV-3-758, RHR Heat Exchanger Outlet Valve

Which one of the following identifies the action that is expected to place the plant closer to a potential pressurized thermal shock of the RCS?

A. Raising the demand on the controller for PCV-3-145, Letdown Pressure Control valve

B. Raising the demand on the controller for HCV-3-142, RHR Letdown valve

C. Lowering the demand on the controller for the 3A Charging Pump

D. Lowering the demand on the controller for PCV-3-455B, PRZ Spray Loop B

Question # 30

Given the following:

- Unit 4 is in MODE 3.
- A reactor startup is in progress IAW 4-GOP-301, Hot Standby to Power Operation.

Which one of the following identifies (1) the power supply to MOV-4-750, RHR Isolation Valve, and (2) the status of power to MOV-4-750?

A. (1) 4D MCC
(2) energized

B. (1) 4D MCC
(2) de-energized

C. (1) 4B MCC
(2) energized

D. (1) 4B MCC
(2) de-energized

Question # 31

Given the following:

- Unit 3 is in MODE 5.
- One PRZ Safety Valve is removed.
- ALL SG NR levels are 50%.

Which one of the following completes the statement below?

IAW Tech Specs, __(1)__ RHR Loop(s) is/are required to be maintained OPERABLE.

3-GOP-305, Hot Standby to Cold Shutdown, requires the operators to maintain one RHR loop in operation in order to provide sufficient coolant circulation to __(2)__.

A. (1) 1
(2) ensure mixing of the RCS

B. (1) 1
(2) sweep gases accumulated in susceptible locations in the RHR system

C. (1) 2
(2) ensure mixing of the RCS

D. (1) 2
(2) sweep gases accumulated in susceptible locations in the RHR system

Question # 32

Given the following:

- Unit 3 experiences a 3B SG fault outside containment while at 100% power.
- Safety Injection AUTOMATICALLY actuates.

Which one of the following identifies a valve that is expected to AUTOMATICALLY reposition?

A. MOV-3-843A, HHSI To Cold Leg MOV

B. MOV-3-865A, 3A Accumulator Discharge

C. MOV-3-1400, 3A Main Steam Stop Bypass

D. MOV-3-716B, RCP CCW Inlet

Question # 33

Given the following:

- Unit 4 is at 100% power.
- The crew is attempting to reduce PRT liquid temperature IAW 4-NOP-041.03, Pressurizer Relief Tank.
- The RO OPENS the following valves:
  - CV-4-519A, PRIMARY WATER CONTAINMENT ISOL VLV
  - CV-4-519B, PRT PRIMARY MAKE UP

Subsequently, an AUTOMATIC Safety Injection signal actuates.

IAW 4-NOP-041.03, which one of the following identifies the required action, if any, regarding the Primary Water Valves that have been opened?

A. No MANUAL action is required, CV-4-519A and CV-4-519B are expected to AUTOMATICALLY close.

B. The RO is required to MANUALLY close CV-4-519B ONLY.

C. The RO is required to MANUALLY close CV-4-519A ONLY.

D. The RO is required to MANUALLY close CV-4-519B and CV-4-519A.

Question # 34

Given the following:

- Unit 4 is at 100% power with normal electrical alignment.
- 4A CCW Pump is OOS.

Subsequently:

- 4B CCW Pump experiences a sheared shaft.

Which one of the following completes the statements below?

4B CCW Pump amperage indication is expected to be __(1)__ than NORMAL.

4C CCW Pump __(2)__ expected to AUTOMATICALLY start.

A. (1) higher
(2) is

B. (1) higher
(2) is NOT

C. (1) lower
(2) is

D. (1) lower
(2) is NOT

Question # 35

Which one of the following identifies the power supply to the 3B PRZ Backup Group Heater?

A. Vital 3B MCC

B. Vital 3B Load Center

C. Vital 3D MCC

D. Vital 3D Load Center

Question # 36

Given the following:

- Unit 4 is at 100% power.
- The Channel Select PRZ Level Control is as follows:

Subsequently:

- LT-4-460, PRZ Level Transmitter, fails LOW.
- 4-ONOP-041.6, PRZ Level Control Malfunction, is in progress.
- 4-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, is in progress.
- The RO places the incorrect channel, LT-4-459, PRZ Level Transmitter, in the tripped condition.

Which one of the following completes the statements below?

A reactor trip ___(1)___ expected to occur IMMEDIATELY.
IAW the applicable procedure, the RO __(2)___ required to restore letdown flow.

A. (1) is
(2) is

B. (1) is
(2) is NOT

C. (1) is NOT
(2) is

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

Question # 37

Given the following:

- Unit 4 is at 100% power.

Subsequently:

- 4A 4kV bus locks out due to a fire.

Which one of the following identifies the expected power alignment of the CCW pumps?

A. ONLY 4B CCW pump has power from the Startup Transformer.

B. ONLY 4B CCW pump has power from the 4B EDG.

C. 4B and 4C CCW pumps have power from the Startup Transformer.

D. 4B and 4C CCW pumps have power from the 4B EDG.

Question # 38

Given the following:

- Unit 4 is at 50% power.
- PT-4-494, C SG Pressure Transmitter Channel II, fails high.
- The bi-stables for the failed channel are tripped IAW 4-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels.

Subsequently:

- PT-4-495, C SG Pressure Transmitter Channel III, fails low.

Which one of the following completes the statements below?

An AUTOMATIC Safety Injection __(1)__ expected to occur, since __(2)__ steam header pressure.

A. (1) is
(2) 2/3 SG pressure inputs to the actuation logic are 100 psig greater than

B. (1) is
(2) 2/3 SG pressure inputs to the actuation logic are 100 psig lower than

C. (1) is NOT
(2) ONLY 1/3 SG pressure input to the actuation logic is 100 psig greater than

D. (1) is NOT
(2) ONLY 1/3 SG pressure input to the actuation logic is 100 psig lower than

Question # 39

Given the following:

- Unit 3 experiences a LOCA concurrently with a LOOP at 100% power.
- 3B 4KV Bus fails to re-energized from the 3B EDG.

Assuming no operator action, which one of the following completes the statements below?

3B ECC __(1)__ expected to have electrical power.

The number of Containment Spray Pump(s) and ECC(s) that have electrical power __(2)__ sufficient to maintain the containment below its design pressure.

A. (1) is
(2) is

B. (1) is
(2) is NOT

C. (1) is NOT
(2) is

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

Question # 40

Given the following:

- Unit 3 experiences a faulted SG while at 100% power.
- 3-EOP-E-2, Faulted Steam Generator Isolation, is complete.
- The crew transitions to 3-EOP-E-1, Loss of Reactor or Secondary Coolant.
- Containment pressure is 12 psig and lowering from a MAXIMUM of 37 psig.
- 45 minutes have elapsed since the SG fault.

Which one of the following completes the statements below?

In order to secure the Containment Spray Pumps the RO is required to reset the containment spray signal by __(1)__.

IAW 3-EOP-E-1, the RO __(2)__ required to secure containment spray.

A. (1) pressing the Containment Spray Reset pushbutton
(2) is

B. (1) pressing the Containment Spray Reset pushbutton
(2) is NOT

C. (1) turning the Containment Spray Reset switch
(2) is

D. (1) turning the Containment Spray Reset switch
(2) is NOT

Question # 41

Given the following:

- Unit 4 experiences a Safety injection from 100% power.
- 4-EOP-E-0, Reactor Trip or Safety Injection, IOAs are complete.
- All RCPs are running.
- All SG NR levels are off-scale low.
- All SG WR levels are 55%.
- AFW flow has been reduced to 420 gpm total
- All AFW Pumps are running.
- One Steam Dump to Condenser valve has open indication.
- RCS Average Temperatures are 535°F and lowering.

Which one of the following identifies the NEXT required action IAW 4-EOP-E-0?

A. Lower AFW flow to 100 gpm per SG

B. Commence Emergency Boration

C. Manually close the open Steam Dump to Condenser

D. Secure the A AFW Pump

Question # 42

Given the following:

- Unit 3 is in MODE 6.
- Unit 4 is at 100% power.

Subsequently:

- 4C SG experiences a fault and it completely depressurizes.

Which one of the following identifies the effect on the AFW system?

A. Steam Supply remains available to ALL AFW Pumps

B. Steam Supply is lost to the A AFW Pump ONLY

C. Steam Supply is lost to the B AFW Pump ONLY

D. Steam Supply is lost to the C AFW Pump ONLY

Question # 43

Which one of the following completes the statements below?

The Condensate Pump Trip initiated runback is armed when turbine power is greater than or equal to _____.

A. 50%

B. 60%

C. 85%

D. 88%

Question # 44

Which one of the following is the primary reason for stopping all RCPs in 3-EOP-FR-H.1, Response to Loss of Secondary Heat Sink?

A. To preserve the RCPs for long term core cooling after the mitigation strategies of 3-EOP-FR-H.1 have been successful.

B. To reduce the heat added from the RCPs, thereby extending the effectiveness of the remaining SG inventory.

C. To prevent the heat added by the RCPs from adversely affecting indications used to determine whether or not RCS bleed and feed will be required.

D. Anticipatory response to prevent cavitation damage to RCPs due to a loss of RCS subcooling.

Question # 45

Given the following:

- Unit 3 is at 100% power.

Subsequently:

- The Auxiliary Feedwater (AFW) system receives an auto-start.
- C AFW Pump trips on over-speed during startup.

Which one of the following identifies the expected plant response?

The Train 1 AFW flow control valves are expected to _____.

A. remain closed

B. auto-open and then throttle back

C. auto-open and remain fully open

D. auto-open and will close after the C AFW pump trips

Question # 46

Given the following:

- The Unit 4 TO is preparing to rack out the 4A Condensate Pump Breaker.
- The 4A Condensate Pump Green light in the control room is LIT.

Which one of the following completes the statements below?

On the control room console __(1)__ a blue light indication for control power availability to the 4A Condensate Pump.

When the 4A Condensate Pump breaker is in the RACKED OUT position, the 4A Condensate Pump Green light indication in the control room is expected to be __(2)__.

A. (1) there is
(2) ON

B. (1) there is
(2) OFF

C. (1) there is NOT
(2) ON

D. (1) there is NOT
(2) OFF

Question # 47

Given the following:

- Unit 3 is at 100% power.
- 3A EDG is paralleled to the 3A 4kV bus during surveillance testing.

Subsequently:

- Unit 3 Main Generator locks out due to differential current.

Which one of the following identifies the expected plant response?

The 3A 4kV bus _____.

A. de-energizes and requires MANUAL actions to restore power

B. is AUTOMATICALLY energized ONLY by the 3A EDG

C. is AUTOMATICALLY energized ONLY by the Unit 3 Startup Transformer

D. is AUTOMATICALLY energized by the Unit 3 Startup Transformer and the 3A EDG

Question # 48

Given the following:

- Both units are at 100% power.

Subsequently:

- 4D MCC DE-ENERGIZES.

Which one of the following identifies the impact on the Unit 3 Vital DC buses?

A. Unit 3 Vital DC busses remain un-affected.

B. ONLY the 3A Vital DC bus loses one Battery Charger

C. ONLY the 3B Vital DC bus loses one Battery Charger

D. BOTH the 3A and 3B Vital DC busses lose one Battery Charger each

Question # 49

Given the following:

- Unit 3 is at 100%.
- The RO is synchronizing the 3A EDG to the grid from the control room IAW 3-OSP-023.1, Diesel Generator Operability Test.

Which one of the following completes the statements below?

IAW 3-OSP-023.1 the RO is expected to, without delay, raise 3A EDG load to __(1)__ in order to prevent __(2)__.

A. (1) 200 KW
(2) oil accumulation in the exhaust stack

B. (1) 200 KW
(2) a reverse power trip

C. (1) 1000 KW
(2) oil accumulation in the exhaust stack

D. (1) 1000 KW
(2) a reverse power trip

Question # 50

Given the following:

- Both units are at 100% power.

Subsequently:

- ANN H1/4, PRMS HI RADIATION, actuates.
- The Unit 3 RO reports R-14, Plant Vent, high alarm light is ON.

Which one of the following completes the statements below?

The Unit 3 Containment Ventilation Isolation __(1)__ expected to AUTOMATICALLY actuate.

The control room ventilation __(2)__ expected to AUTOMATICALLY transfer to recirculation mode.

A. (1) is
(2) is

B. (1) is
(2) is NOT

C. (1) is NOT
(2) is

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

Question # 51

Given the following:

- Waste Gas Decay Tank (GDT) F, release is in progress.
- R-14, Plant Vent Gaseous Monitor, fails low.

Replaced with word "crew"

Which one of the following completes the statements below?

The ~~RO~~ __(1)__ required to stop the F GDT release.

R-14 is OOS, the B GDT is to be released. 0-NOP-061.14B, Waste Gas Disposal System Controlled Release Of Gas Decay Tank B, requires __(2)__ prior to release.

A. (1) is NOT
(2) at least two independent samples analyzed

B. (1) is NOT
(2) R-14 to be returned to service

C. (1) is
(2) at least two independent samples analyzed

D. (1) is
(2) R-14 to be returned to service

Question # 52

Given the following:

- Unit 3 is operating at 100% power.
- 3A and 3B ICW pumps are running.
- 3C ICW pump is OOS.

Subsequently:

- 3A ICW Pump trips.
- 3-ONOP-019, Intake Cooling Water Malfunction, is entered.
- Total ICW flow is 20,500 gpm.

Which one of the following completes the statements below?

IAW 3-NOP-019, Intake Cooling Water, operation in this condition for longer than a MINIMUM of __(1)__ requires an engineering evaluation of the 3B ICW Pump.

IAW 3-ONOP-019, 3-50-406, CCW HX Outlet Spool Piece Bypass Valve, is required to be throttled CLOSED while maintaining a MINIMUM of __(2)__.

A. (1) 20 minutes
(2) 3500 gpm ICW flow through each CCW HX

B. (1) 20 minutes
(2) 12,850 gpm TOTAL ICW flow through ALL the CCW HX

C. (1) 72 hours
(2) 3500 gpm ICW flow through each CCW HX

D. (1) 72 hours
(2) 12,850 gpm TOTAL ICW flow through ALL the CCW HX

Question # 53

Which one of the following identifies a component that is expected to be AUTOMATICALLY supplied from backup nitrogen during a loss of Instrument Air?

A. POV-3-4883, ICW to TPCW Heat Exchanger B

B. CV-3-2831, Train 2 AFW Flow Control Valve to 3A SG

C. POV-3-477, 3A FW Bypass Isolation

D. CV-3-2827, Steam Dumps to Condenser

Question # 54

Given the following:

- Unit 3 is in MODE 6.
- Core reload is in progress.
- 3A and 3B RHR Pumps are running.

Which one of the following completes the statements below?

The core reload is required to be stopped if the _____.

A. the 3B RHR Pump trips and will not restart

B. the refueling cavity water level is found to be 56 feet, 11 inches

C. the containment personnel air lock inner and outer doors are damaged and will NOT close

D. Chemistry reports refueling canal boron concentration is 2320 ppm

Question # 55

Which one of the following completes the statements below?

The RO is able to remotely monitor from the control room the position of ___(1)___ door(s).

The Personnel Hatch Doors are designed to swing OPEN towards the __(2)__.

A. (1) ONLY the Containment Personnel Hatch
(2) INSIDE of Containment

B. (1) ONLY the Containment Personnel Hatch
(2) OUTSIDE of Containment

C. (1) the Containment Personnel Hatch and Emergency Escape Hatch
(2) INSIDE of Containment

D. (1) the Containment Personnel Hatch and Emergency Escape Hatch
(2) OUTSIDE of Containment

Question # 56

Given the following:

- Unit 3 is at 100% power.

Which one of the following completes the statements below regarding the design of RCS loop flow instrumentation?

IF one LOW-pressure tap to the flow transmitter ruptures, a RCS LOOP LOW FLOW Reactor Trip __(1)__ expected to occur.

IF one HIGH-pressure tap to the flow transmitter ruptures, a RCS LOOP LOW FLOW Reactor Trip __(2)__ expected to occur.

A. (1) is
(2) is

B. (1) is
(2) is NOT

C. (1) is NOT
(2) is

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

Question # 57

Which one of the following identifies the NORMAL power supply to the 3C Charging Pump?

A. 3C Load Center

B. 3H Load Center

C. 3C 4kV Bus

D. 3D 4kV Bus

Question # 58

Given the following:

- Unit 3 is at 100% power.

Subsequently:

- Fire header pressure lowers momentarily to a MINIMUM of 83 psig.
- ANN I6/6, XMFR/H2 SEAL OIL DELUGE OPERATING, alarms.
- ANN X5/3, SERVICE WTR/FIRE PP/RWT/WTP TROUBLE, alarms.

Which one of the following completes the statements below?

The Diesel Fire Pump __(1)__ expected to be running.

IAW 0-ONOP-016.8, Response to a Fire/Smoke, the RO is required to NEXT __(2)__.

A. (1) is NOT
(2) dispatch a field operator to the Unit 3 transformer area

B. (1) is NOT
(2) activate the fire brigade

C. (1) is
(2) dispatch a field operator to the Unit 3 transformer area

D. (1) is
(2) activate the fire brigade

Question # 59

Which one of the following completes the statements below?

The Source Range Detectors are expected to AUTOMATICALLY de-energize above __(1)__ permissive, which is armed by the __(2)__.

A. (1) P-6
(2) Intermediate Range NIs

B. (1) P-6
(2) Power Range NIs

C. (1) P-10
(2) Intermediate Range NIs

D. (1) P-10
(2) Power Range NIs

Question # 60

Given the following:

- Unit 3 is at 100% power.
- PC-3-444J, PRZ Pressure Controller, experiences a short circuit.

Which one of the following identifies the effect this fault will have on the Reactor Protection System?

The PC-3-444J controller fault is expected to _____.

A. directly feed back into the RPS circuit, generating a 1/3 HI PRZ Pressure Bi-stable to actuate

B. directly feed back into the RPS circuit, generating a 1/3 LO PRZ Pressure Bi-stable to actuate

C. NOT directly feed back into the RPS circuit due to use of isolation devices

D. NOT directly feed back into the RPS circuit since separate transmitters are used

Question # 61

Given the following:

- Unit 3 experiences a reactor trip from 100%.
- Steam Dumps to Condenser fail CLOSED.

Which one of the following correctly completes the statement below?

RCS Temperature is expected to stabilize at __(1)__ and PRZ Level is expected to stabilize at approximately __(2)__.

A. (1) 543°F
(2) 14%

B. (1) 543°F
(2) 22%

C. (1) 547°F
(2) 14%

D. (1) 547°F
(2) 22%

Question # 62

Given the following:

- Unit 3 experiences a fault on the 3A SG concurrently with a LOOP.
- 3-EOP-E-2, Faulted Steam Generator Isolation, is in progress.
- The US directs the BOP to place Standby Feedwater in service IAW 0-NOP-074.01, Standby Steam Generator Feedwater System.

Which one of the following completes the statements below?

In order to place Standby feed in service the RO __(1)__ required to MANUALLY reset the FW Isolation Signal.

Once on Standby Feed, the RO __(2)__ use the Main Feedwater Control Valves to control feed in order to support natural circulation.

A. (1) is
(2) will

B. (1) is
(2) will NOT

C. (1) is NOT
(2) will

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

Question # 63

Given the following:

- Unit 3 is at 100% power

Subsequently:

- The BOP MANUALLY trips the reactor due to Main Turbine high vibration.

Which one of the following identifies how secondary system parameters respond?

PT-3-447, Turbine Inlet Pressure, is expected to ___(1)___.

Steam Dumps to condenser are expected to OPEN due to ___(2)___.

A. (1) lower
(2) Tave-Tref deviation

B. (1) lower
(2) Main Steam Header pressure

C. (1) rise
(2) Tave-Tref deviation

D. (1) rise
(2) Main Steam Header pressure

Question # 64

Which one of the following completes the statements below?

The Reactor Coolant Drain Tank __(1)__ vented to the Waste Gas vent header.

The CVCS Holdup Tanks __(2)__ vented to the Waste Gas vent header.

A. (1) is
(2) are

B. (1) is
(2) are NOT

C. (1) is NOT
(2) are

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

Question # 65

Given the following:

- The release of the A GDT is in progress.

Which one of the following completes the statement below?

The RO is able to monitor the GDT pressures on _____.

A. QSPDS

B. DCS

C. Vertical Panel B

D. 3QR66, Process Radiation Monitor System Rack

Question # 66

Which one of the following completes the statements below?

IAW 0-ADM-202, Shift Relief and Turnover, the Special Instructions Book is required to be reviewed by the RO __(1)__.

IAW 0-ADM-200, Operations Management Manual, Special Instructions __(2)__ AUTOMATICALLY expire after 30 days.

A. (1) prior to assuming EACH shift watch;
(2) will

B. (1) prior to assuming EACH shift watch;
(2) will NOT

C. (1) as soon as is practical after shift turnover;
(2) will

D. (1) as soon as is practical after shift turnover;
(2) will NOT

Question # 67

IAW 0-ADM-744, Electrical Arc Flash Personal Protective Equipment, which one of the following identifies the MINIMUM required PPE, to rack out the 3A Heater Drain Pump Breaker?

REFERENCE PROVIDED

A. PPE Type 2 Glove Class 0

B. PPE Type 2 Glove Class 1

C. PPE Type 4 Glove Class 0

D. PPE Type 4 Glove Class 1

Question # 68

Given the following:

- Unit 3 is in MODE 1.
- Calorimetric Power indicates 99.80%.
- The crew is preparing to run the A AFW Pump for surveillance purpose.

Which one of the following completes the statement below?

IAW 0-ADM-200, Operations Management Manual, the crew is expected to lower reactor power by __(1)__, __(2)__.

A. (1) lowering turbine load
(2) prior to the A AFW Pump Test

B. (1) lowering turbine load
(2) ONLY if the Calorimetric Power 1 Hour Average reaches 100%

C. (1) inserting control rods
(2) prior to the A AFW Pump Test

D. (1) inserting control rods
(2) ONLY if the Calorimetric Power 1 Hour Average reaches 100%

Question # 69

Given the following:

- Unit 3 is in MODE 5.
- RCS pressure rises to a point exceeding the RCS Pressure Safety Limit.

Which one of the following completes the statements below?

IAW Tech Specs the crew is required to reduce RCS pressure below __(1)__ within a MAXIMUM of __(2)__.

A. (1) 2735 PSIG
(2) 5 minutes

B. (1) 2735 PSIG
(2) 60 minutes

C. (1) 2750 PSIG
(2) 5 minutes

D. (1) 2750 PSIG
(2) 60 minutes

Question # 70

Given the following:

- Unit 4 is at 100% power.
- ANN G8/2, RWST TECH SPEC MIN LEVEL, is being defeated IAW 0-OSP-200.5, Miscellaneous Tests and Operating Evolutions section 7.11.

Which one of the following completes the statements below?

A compensatory action ___(1)___ required to be established and recorded in the Annunciator Status Log.

The oncoming Unit 4 RO ___(2)___ required to review the Annunciator Status Log before assuming the shift.

A. (1) is NOT
(2) is NOT

B. (1) is NOT
(2) is

C. (1) is
(2) is NOT

D. (1) is
(2) is

Question # 71

Given the following:

- Unit 3 experiences a Steam Generator Tube Rupture.
- 3-EOP-E-3, Steam Generator Tube Rupture, is in progress.
- The crew prepares for RCS cooldown using Steam Dumps to Condenser.
- The crew desires to stop the AFW Pumps.

Which one of the following identifies the PREFERRED method of providing feedwater to the SGs during the cooldown, and the reason for this preference, IAW 3-EOP-E-3?

A. Standby Feedwater System since the volume of contaminated secondary water released to the environment (post tube rupture) will be less.

B. Standby Feedwater System since the amount of radioactivity released via an unmonitored pathway (during RCS cooldown) will be less.

C. Normal Feedwater System since the volume of contaminated secondary water released to the environment (post tube rupture) will be less.

D. Normal Feedwater System since the amount of radioactivity released via an unmonitored pathway (during RCS cooldown) will be less.

Question # 72

Which one of the following completes the statements below?

IAW Tech Specs, areas accessible to personnel, where radiation levels exceeds as MINIMUM __(1)__ at 30 cm, are required to be provided with locked doors.

IAW RP-AA-103-1002, High Radiation Area Controls, at PTN __(2)__ approval is required prior to performing a NON-Urgent entry into the Containment building in MODES 1,2 or 3.

A. (1) 100 mr/hr
(2) ONLY Shift Manager

B. (1) 100 mr/hr
(2) Shift Manager and RP Manager

C. (1) 1000 mr/hr
(2) ONLY Shift Manager

D. (1) 1000 mr/hr
(2) Shift Manager and RP Manager

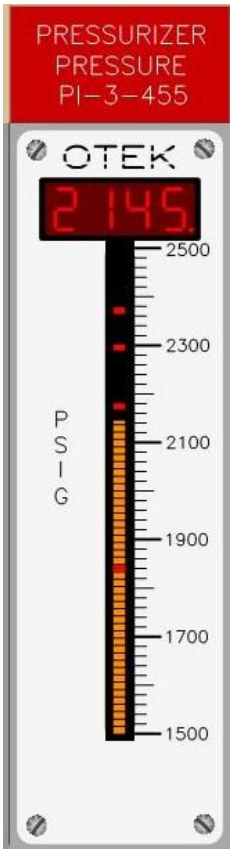
Question # 73

Which one of the following identifies an indicator that is expected to be reliable in a post-accident condition?

A.

B.

C.



D.

Question # 74

Given the following:

- Unit 3 experiences a Steam Line Break.
- 3-EOP-E-0, Reactor Trip or Safety Injection is in progress with the following conditions:
  - Containment Temperature is 195°F.
  - Containment Pressure is 30 psig.
  - NO Containment Spray Pump are running.
  - Gammametrics indicates 3% reactor power.
  - Intermediate Range Nis indicate a -0.2 dpm startup rate.

Which one of the following completes the statements below?

The RO will report that there is a/an __(1)__ Path on the __(2)__ CSF.

A. (1) Red
(2) Containment

B. (1) Red
(2) Subcriticality

C. (1) Orange
(2) Containment

D. (1) Orange
(2) Subcriticality

Question # 75

Which one of the following identifies the person responsible for event classification, once the emergency response facilities are manned?

A. Emergency Coordinator

B. Recovery Manager

C. TSC Supervisor

D. OSC Manager

SRO Question # 76

Given the following:

- Unit 3 is at 100% power.

Subsequently:

- One PZR Safety Valve fails partially open.
- The reactor trips AUTOMATICALLY.
- 3-EOP-E-1, Loss of Reactor or Secondary Coolant, is in progress.
- Conditions prior to transition from 3-EOP-E-1 are as follows:
    - RCS pressure 1275 psig and stable
    - All SGs 40% narrow range
    - All SG pressures approximately 1000 psig
    - Containment Pressure 1.5 psig and slowly rising.

Which one of the following completes the statements below?

__(1)__ is the RPS feature designed to prevents DNB from being exceeded during this plant transient.

The US is required to NEXT transition to __(2)__.

A. (1) OTDT
(2) 3-EOP-ES-1.2, Post LOCA Cooldown and Depressurization

B. (1) OTDT
(2) 3-EOP-ES-1.3, Transfer to Cold Leg Recirculation

C. (1) OPDT
(2) 3-EOP-ES-1.2, Post LOCA Cooldown and Depressurization

D. (1) OPDT
(2) 3-EOP-ES-1.3, Transfer to Cold Leg Recirculation

SRO Question # 77

Given the following:

- Unit 3 experiences a 3A SG tube rupture concurrently with a LOOP.
- 3-EOP-E-3, Steam Generator Tube Rupture, is in progress.
- RCS Wide Range Pressure is 800 psig and stable.
- RCS CETs are 475°F and slowly lowering
- RCS T-hots are 470°F and slowly lowering
- RCS T-colds are 445°F and stable
- SG Pressures are 387 psig and stable.
- PZR level is 25% and slowly rising.

Which one of the following identifies (1) the status of natural circulation, and (2) the required procedural implementation if 3B SG NR Level starts rising in an uncontrolled manner ?

A. (1) Natural Circulation exists.
(2) Stabilize the plant and return to 3-EOP-E-3, Steam Generator Tube Rupture, step 1.

B. (1) Natural Circulation exists.
(2) Transition to 3-EOP-ECA-3.1, SGTR With Loss Of Reactor Coolant – Subcooled Recovery Desired

C. (1) Natural Circulation does NOT exist.
(2) Stabilize the plant and return to 3-EOP-E-3, Steam Generator Tube Rupture, step 1.

D. (1) Natural Circulation does NOT exist.
(2) Transition to 3-EOP-ECA-3.1, SGTR With Loss Of Reactor Coolant – Subcooled Recovery Desired

SRO Question # 78

Given the following:

- Unit 3 experiences a loss of all AC power.
- 3-EOP-ECA-0.0, Loss of All AC Power, is in progress.
- The RO is verifying proper AFW flow.
- NO AFW Pumps are running.
- ALL SG NR Levels are off-scale LOW.

Which one of the following completes the statement below?

The US is required to perform _____.

A. 3-EOP-FR-H.1, Loss of Secondary Heat Sink, while continuing with 3-EOP-ECA-0.0

B. 3-EOP-FR-H.1, Loss of Secondary Heat sink, and when a Feedwater Source is restored continue with 3-EOP-ECA-0.0

C. 3-ONOP-075, Auxiliary Feedwater System Malfunction, while continuing with 3-EOP-ECA-0.0

D. 3-ONOP-075, Auxiliary Feedwater System Malfunction, and when a Feedwater Source is restored continue with 3-EOP-ECA-0.0

SRO Question # 79

Given the following:

- Unit 3 is at 100% power.

Subsequently:

- ANN F1/2, VITAL AC BUS INVERTER TROUBLE, alarms.
- ALL Protection PRZ Level transmitters remain stable at program level.
- The following indication exists on VPA:

ALSO PROVIDED AS A REFERENCE IN LARGER FORMAT

Which one of the following completes the statement below?

IAW Tech Specs _____ from the initiation of the event, is the MAXIMUM time allowed to re-align Vital AC system electrical lineup before requiring a shutdown to HOT STANDBY?

REFERENCE PROVIDED

A. 2 hours.

B. 8 hours.

C. 12 hours.

D. 24 hours.

SRO Question # 80

Given the following:

- Unit 3 trips from 100% power.
- The following indications are observed in the control room.
    - The left half of all alarming annunciators on Unit 3 are DARK.
    - ANN G4/1, ANNUNCIATOR POWER FAILURE, is LIT.
    - MOV-3-1405, 3C STM to AFW Pumps, position indicating lights are DARK.
    - MOV-6459A, A AFW T&T Valve, position indicating lights are DARK.
- The plant is stabilized IAW 3-EOP-ES-0.1, Reactor Trip Response.

Which one of the following completes the statements below?

The US is required to implement __(1)__ .

IAW LI-AA-102-1001, Regulatory Reporting, the NRC is required to be notified within a MAXIMUM of __(2)__?

REFERENCE PROVIDED

A. (1) 3-ONOP-003.4, Loss of DC Busses 3D01 and 3D01A (3A)
(2) 4 hours

B. (1) 3-ONOP-003.4, Loss of DC Busses 3D01 and 3D01A (3A)
(2) 8 hours

C. (1) 3-ONOP-003.5, Loss of DC Busses 3D23 and 3D23A (3B)
(2) 4 hours

D. (1) 3-ONOP-003.5, Loss of DC Busses 3D23 and 3D23A (3B)
(2) 8 hours

SRO Question # 81

Given the following:

- Unit 3 trips from 100% power.
- The crew transitions from 3-EOP-ES-0.1, Reactor Trip Response, to 3-EOP-FR-H.1, Response to Loss of Secondary Heat Sink.
- RCS bleed and feed is established.

Subsequently:

- The BOP establishes flow from the A Standby SG Feed Pump.
- SG NR levels are as follows:
  3A SG 10%
  3B SG 22%
  3C SG 18%

Which one of the following identifies the NEXT required action?

A. Remain in 3-EOP-FR-H.1, Response to Loss of Secondary Heat Sink, and evaluate conditions for termination of Bleed and Feed.

B. Transition to 3-EOP-ES-1.1, SI Termination, for termination of Bleed and Feed.

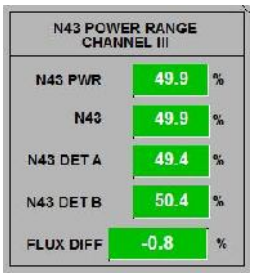
C. Transition to 3-EOP-ES-0.1, Reactor Trip Response and verify natural circulation.

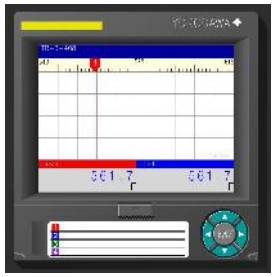
D. Transition to 3-EOP-E-1, Loss of Reactor or Secondary Coolant and close any PORV that is open.

SRO Question # 82

Given the following:

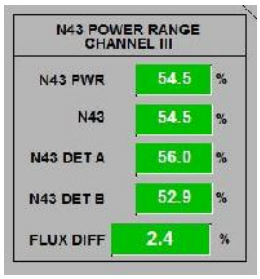
N-3-43. Power Range Channel III, and Tave-Tref recorder indication is:

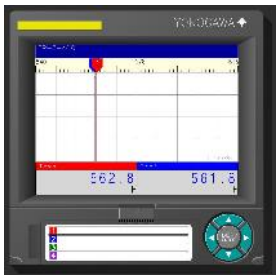




ALSO PROVIDED AS A REFERENCE IN LARGER FORMAT

Subsequently RO observes the following:





ALSO PROVIDED AS A REFERENCE IN LARGER FORMAT

Which one of the following completes the statements below?

The event in progress __(1)__ an Uncontrolled Rod Withdrawal event.

The RPS trip aimed to protect against this event, is designed to terminate the transient before __(2)__ the safety analysis limit.

A. (1) is
(2) the DNBR falls below

B. (1) is
(2) AFD exceeds

C. (1) is NOT
(2) the DNBR falls below

D. (1) is NOT
(2) AFD exceeds

SRO Question # 83

Given the following:

- Unit 4 is in MODE 3.
- The reactor trip breakers are CLOSED.
- Both Gammametrics Channels are OPERABLE.
- The Audio Count Rate Channel Selector is selected to N-4-32, Source Range Detector.

Subsequently:

- N-4-31, Source Range Detector, fails low.

Which of the following actions is required by Tech Specs?

REFERENCE PROVIDED

A. No Tech Spec actions are required

B. ONLY suspend all operations involving positive reactivity changes

C. Suspend all operations involving positive reactivity changes and verify SHUTDOWN MARGIN

D. Restore N-4-31 to operable within 48 hours or open the Rx Trip breakers within the next hour

SRO Question # 84

Given the following :

- Unit 3 is shutdown.
- RCS Tave is 190°F.
- 3A Boric Acid Transfer Pump is OOS

Subsequently:

- Unit 3 experiences an uncontrolled rise in source range counts.
- The US announces the entry into 3-ONOP-046.1, Emergency Boration.
- The 3B Boric Acid Transfer Pump fails to start.

Which one of the following completes the statements below?

IAW 3-ONOP-046.1, the crew __(1)__ NEXT required to align the charging pump suction to the RWST.

IAW Tech Specs, the crew __(2)__ required to restore the boration path from the BAST via a Boric Acid Transfer Pump within a MAXIMUM of 70 hours.

REFERENCE PROVIDED

A. (1) is
(2) is

B. (1) is
(2) is NOT

C. (1) is NOT
(2) is

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

SRO Question # 85

Given the following:

- Unit 3 is in MODE 6.
- Core off-load to the Spent Fuel Pool, is in progress.
- Containment Purge is in service.

Subsequently:

- ANN X4/1, ARMS HI RADIATION, alarms.
- RI-3-1402B, Unit 3 Containment Operating Floor, HIGH alarm light is lit.
- Containment Purge remains in service.

Which one of the following completes the statements below?

The US is NEXT required to enter into __(1)__ and direct to __(2)__.

A. (1) 0-ONOP-066, High Area Radiation Monitoring System Alarm,
(2) sound the Containment Evacuation Alarm

B. (1) 0-ONOP-066, High Area Radiation Monitoring System Alarm,
(2) MANUALLY secure the containment Purge

C. (1) 3-ONOP-053, Loss of Containment Integrity,
(2) sound the Containment Evacuation Alarm

D. (1) 3-ONOP-053, Loss of Containment Integrity,
(2) MANUALLY secure the containment Purge

SRO Question # 86

Given the following:

- Unit 4 experiences a spurious Safety Injection Actuation.
- 4-EOP-E-0, Reactor Trip or Safety Injection, is in progress.
- 4-EOP-E-0 Attachment 3, Prompt Actions Verification, is complete.

Which one of the following completes the statements below?

The US is expected to NEXT transition to __(1)__, where the __(2)__ running HHSI Pumps will be stopped.

A. (1) 4-EOP-ES-0.1, Reactor Trip Response
(2) 2

B. (1) 4-EOP-ES-0.1, Reactor Trip Response
(2) 4

C. (1) 4-EOP-ES-1.1, SI Termination
(2) 2

D. (1) 4-EOP-ES-1.1, SI Termination
(2) 4

SRO Question # 87

Given the following:

- Unit 3 is at 100% power.

Subsequently:

- ANN A1/1, RCP THERMAL BARR COOLING WATER HI FLOW, alarms.
- ANN H1/4, PRMS HI RADIATION, alarms.
- R-3-17A, CCW Radiation Monitor, HIGH alarm is lit.

Which one of the following completes the statements below?

MOV-3-716B, RCP CCW Inlet, __(1)__ expected to AUTOMATICALLY close.

IAW 3-ONOP-041.1, Reactor Coolant Pump Off-Normal, the US is required to direct a __(2)__ within 24 hours.

A. (1) is
(2) containment entry to verify CCW flows to the RCPs IAW 3-NOP-030, Component Cooling Water System,

B. (1) is
(2) shutdown IAW 3-GOP-103, Power Operation to Hot Standby, and secure the affected RCP

C. (1) is NOT
(2) containment entry to verify CCW flows to the RCPs IAW 3-NOP-030, Component Cooling Water System,

D. (1) is NOT
(2) shutdown IAW 3-GOP-103, Power Operation to Hot Standby, and secure the affected RCP

SRO Question # 88

Given the following:

- The crew is isolating accumulators IAW 3-GOP-305, Hot Standby to Cold Shutdown.
- B AFW Pump is OOS.

Subsequently:

- Unit 3 experiences a LOOP.
- A and C AFW Pumps trip and their associated amber lights are lit.
- SG NR Levels are between 3% and 6%.

Which one of the following completes the statements below?

The US is required to perform __(1)__ and restore feedwater from the __(2)__.

A. (1) 3-ONOP-075, Auxiliary Feedwater System Malfunction
(2) A Standby Feedwater Pump

B. (1) 3-ONOP-075, Auxiliary Feedwater System Malfunction
(2) B Standby Feedwater Pump

C. (1) 3-EOP-FR-H.1, Response To Loss Of Secondary Heat Sink
(2) A Standby Feedwater Pump

D. (1) 3-EOP-FR-H.1, Response To Loss Of Secondary Heat Sink
(2) B Standby Feedwater Pump

SRO Question # 89

Given the following:

- Unit 3 is at 100% power.
- An equalizing charge is in progress on the 3B battery IAW 0-PME-003.16, Individual Cell Equalizing Charge for Vital Batteries 3A, 3B, 4A, and 4B and Spare Battery D52.
- The Common HVAC Unit (E16D) and the North DC Equipment/Inverter Room HVAC Unit (E16E) in the DC Equipment and Inverter Rooms have failed.
- DC Equipment and Inverter Rooms temperatures are at 100°F.
- 0-ONOP-025.3, DC Equipment and Inverter Rooms Supplemental Cooling, is in progress.

Which one of the following completes the statements below?

The US __(1)__ required to enter Tech Spec 3.0.3.

Implementation of 0-ONOP-025.3 ___(2)___ establishment of fire watches.

A. (1) is
(2) requires

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

C. (1) is NOT
(2) requires

D. (1) is NOT
(2) does NOT require

SRO Question # 90

Given the following:

- Unit 3 is at 100% power.
- 3B EDG is OOS.

Subsequently, the following timeline of events occurs:

- 1315 Off-Site power is lost
- 1316 3A EDG energizes the 3A 4kV Bus
- 1337 3A EDG output breaker trips.
- 1354 3A EDG is restored to 3A 4kV Bus
- 1355 Systems Dispatch reports that off-site power is not expected to be restored for at least 5 additional hours.

Which one the following identifies the HIGHEST EAL classification required to be declared during this event?

REFERENCE PROVIDED

A. UNUSUAL EVENT

B. ALERT

C. SITE AREA EMERGENCY

D. GENERAL EMERGENCY

SRO Question # 91

Given the following:

- Unit 3 is at 100% power.

Subsequently:

- One Rod drops into the core.
- 3-ONOP-028.3, Dropped RCC, is entered.
- QPTR is determined to be 1.05.

Which one of the following completes the statements below?

IAW 3-ONOP-028.3, the crew is required to __(1)__.

IAW 3-ONOP-028.3, power __(2)__ required to be reduced to less than 50%.

A. (1) MANUALLY initiate a plant runback IAW 3-ONOP-089, Turbine Runback
(2) is

B. (1) MANUALLY initiate a plant runback IAW 3-ONOP-089, Turbine Runback
(2) is NOT

C. (1) perform a load reduction IAW 3-GOP-100, Fast Load Reduction
(2) is

D. (1) perform a load reduction IAW 3-GOP-100, Fast Load Reduction
(2) is NOT

SRO Question # 92

Given the following:

- Unit 4 is in MODE 6.
- The crew commenced rod unlatching.

Subsequently:

- Annunciator I4/6, CNTMT SUMP HI LEVEL, alarms.
- Reactor Cavity water level is 56 feet and lowering.
- ANN H 1/4, PRMS HI RADIATION, alarms
- R-4-12, Containment Gaseous Radiation Monitor, HIGH alarm is lit.

Which one of the following completes the statement below?

As a direct result from the R-3-12 actuation __(1)__ are expected to close.

The US is required to implement __(2)__ .

A. (1) ONLY the Purge Exhaust Valves
(2) 4-ONOP-033.2, Refueling Cavity Seal Failure

B. (1) ONLY the Purge Exhaust Valves
(2) 4-ONOP-041.8, Shutdown LOCA [MODE 5 OR 6]

C. (1) the Purge Supply and Exhaust Valves
(2) 4-ONOP-033.2, Refueling Cavity Seal Failure

D. (1) the Purge Supply and Exhaust Valves
(2) 4-ONOP-041.8, Shutdown LOCA [MODE 5 OR 6]

SRO Question # 93

Given the following:

- Unit 4 is at 85% power.
- Control rod operability testing is in progress in accordance with 4-OSP-028.6, RCCA Periodic Exercise.

Subsequently:

- Control rod H-4 is misaligned 14 steps from the rest of its bank.
- All attempts to move the H-4 control rod have been unsuccessful.
- Engineering reports that H-4 the control rod is mechanically bound.

Which one of the following completes the statements below?

IAW Tech Specs continued power operation on Unit 4 __(1)__ allowed.
IAW Tech Specs Shutdown Margin __(2)__ required to be calculated.

REFERENCE PROVIDED

A. (1) is
(2) is

B. (1) is
(2) is NOT

C. (1) is NOT
(2) is

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

SRO Question # 94

Given the following:

- Unit 3 is at 12% power returning from a refueling outage.

Which one of the following completes the statements below?

IAW 0-ADM-200, the SRO assigned to Unit 3 as the Unit Supervisor is required to __(1)__ reactivity manipulations.

Power operation below 20% for more than 24 hours requires to be approved by the __(2)__.

A. (1) provide independent oversight of
(2) PGM

B. (1) provide independent oversight of
(2) Operations Director

C. (1) direct all
(2) PGM

D. (1) direct all
(2) Operations Director

SRO Question # 95

IAW 3-OP-038.1, Preparation for Refueling Activities, which one of the following identifies an activity that is required to be supervised by a licensed SRO?

A. Lifting of the Reactor Vessel Head

B. Removal of Reactor Vessel Upper Internals

C. Control Rod Unlatching

D. Irradiated Fuel Movement in the SFP

SRO Question # 96

Which one of the following completes the statements below?

IAW OP-AA-101-1000, Clearance and Tagging:

The responsibility to ensure that required audits are performed on the clearance process resides with the __(1)__.

During ECO audits, physical component verification __(2)__ allowed to be waived for ALARA.

A. (1) Operations Director
(2) is

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

C. (1) Nuclear Joint Safety Committee
(2) is

D. (1) Nuclear Joint Safety Committee
(2) is NOT

SRO Question # 97

Given the following:

- Unit 3 is in MODE 3 preparing for a reactor startup.
- Normal electrical alignment.

Subsequently:

- 3B CCW Pump experiences a failed motor bearing, and its breaker is open and racked out
- A risk assessment has NOT been performed addressing the 3B CCW Pump.

Which one of the following completes the statements below?

The reactor startup __(1)__ allowed to continue.

A transition to MODE 5 will be required if the plant remains in this condition for greater than __(2)__ as a MINIMUM.

REFERENCE PROVIDED

A. (1) is
(2) 72 hours

B. (1) is
(2) 30 days

C. (1) is NOT
(2) 72 hours

D. (1) is NOT
(2) 30 days

SRO Question # 98

Given the following:

- A core re-load is in progress on Unit 3.
- R-3-1407, Unit 3 Spent Fuel Pit Canal Area, highest reading in the last 24 hours has been 4 mr/HR.
- An irradiated fuel element is being moved from the Spent Fuel Pool to the upender.

Subsequently:

- At 08:00 a.m.;
  - The spent fuel element is dropped to the bottom of the canal.
  - RAD-6418, Spent Fuel Pool Vent SPING, reads 1.6E-1 uCi/cc and rising.
  - R-3-1407, Unit 3 Spent Fuel Pit Canal Area, reads 5 R/HR.
- At 08:05 a.m., the EC makes an EAL declaration.

Which one of the following completes the statements below?

___(1)___ is the MOST immediate hazard released from the ruptured spent fuel element.

State and Local counties are required to be notified at the LATEST by ___(2)___.

A. (1) Gamma radiation from Cobalt and Nickel solids
   (2) 08:15 a.m.

B. (1) Gamma radiation from Cobalt and Nickel solids
   (2) 08:20 a.m.

C. (1) Gamma radiation from Iodine and Krypton gases
   (2) 08:15 a.m.

D. (1) Gamma radiation from Iodine and Krypton gases
   (2) 08:20 a.m.

SRO Question # 99

Given the following:

- Unit 3 experiences a safety injection.
- While performing 3-EOP-FR-C.2, Response to Degraded Core Cooling, the STA reports the following:
  - RED path condition exists for Core Cooling Critical Safety Function.
  - RED path condition exists for Containment Critical Safety Function.

Which one of the following completes the statement below?

The US is required to _____.

A. complete the actions of 3-EOP-FR-C.2, and then transition to 3-EOP-FR-Z.1, Response to Containment High Pressure

B. complete the actions of 3-EOP-FR-C.2, and then transition to 3-EOP-FR-C.1, Response to Inadequate Core Cooling

C. immediately transition to 3-EOP-FR-Z.1, Response to Containment High Pressure

D. immediately transition to 3-EOP-FR-C.1, Response to Inadequate Core Cooling

SRO Question # 100

Which one of the following completes the statements below?

IAW 0-ADM-016, Fire Brigade Program, the __(1)__ is responsible for Fire Brigade Leader Candidate Selection.

Fire Brigade Leaders __(2)__ required to hold or have held an operator's license.

A. (1) Shift Manager
(2) are

B. (1) Shift Manager
(2) are NOT

C. (1) Fire Protection Coordinator
(2) are

D. (1) Fire Protection Coordinator
(2) are NOT

L-18-1 NRC Exam Reference List
RO & SRO References
Steam Tables
0-ADM-744 ATT.1 & ATT.2
SRO Only References
Picture: Inverter Alarm Lights
Picture: N-3-43 and Tave-Tref recorder
LI-AA-102-1001 ATT.1: Reportable Events
F668 & F669: EAL Tables
TS 3.1.2.1: Boration Systems, Flow paths Shutdown
TS 3.1.2.2: Boration Systems, Flow paths Operating
TS 3.1.3.1: Movable Control Assemblies
TS 3.3.1: Reactor Trip Syst. Instrumentation
TS 3.7.2: Component Cooling Water
TS 3.8.3.1: Onsite Power Distribution

ATTACHMENT 1
Selecting Proper Arc Protection Apparel and PPE
(Page 1 of 3)

TABLE 1

PPE TYPE	REQUIRED PPE	ARC RATING (Cal/cm^2)
1	**Arc-Rated Clothing, Minimum Arc Rating of 4 cal/cm2** • Arc-rated long-sleeve shirt and pants or arc-rated coverall • Arc-rated face shield (See Note 1) or arc flash suit hood • Arc-rated jacket, parka, rainwear, or hard hat liner (as needed) **Protective Equipment (Note 2)**	4
2	**Arc-Rated Clothing, Minimum Arc Rating of 8 cal/cm2** • Arc-rated long-sleeve shirt and pants or arc-rated coverall • Arc-rated flash suit hood or arc-rated face shield (See Note 1) and arc-rated balaclava • Arc-rated jacket, parka, rainwear, or hard hat liner (as needed) **Protective Equipment (Note 2)**	8
3	**Arc-Rated Clothing Selected so That the System Arc Rating Meets the Required Minimum Arc Rating of 25 cal/cm2** • Arc-rated long-sleeve shirt • Arc-rated pants • Arc-rated coverall • Arc-rated arc flash suit jacket • Arc-rated arc flash suit pants • Arc-rated arc flash suit hood • Arc-rated gloves (See Note 3) • Arc-rated jacket, parka, rainwear, or hard hat liner • **Protective Equipment (Note 2)**	25
4	**Arc-Rated Clothing Selected so That the System Arc Rating Meets the Required Minimum Arc Rating of 40 cal/cm2** • Arc-rated long-sleeve shirt • Arc-rated pants • Arc-rated coverall • Arc-rated arc flash suit jacket • Arc-rated arc flash suit pants • Arc-rated arc flash suit hood • Arc-rated gloves (See Note 3) • Arc-rated jacket, parka, rainwear, or hard hat liner **Protective Equipment (Note 2)**	40

ATTACHMENT 1
Selecting Proper Arc Protection Apparel and PPE
(Page 2 of 3)

Note 1: Face shields are to have wrap-around guarding to protect not only the face, but also the forehead, ears, and neck, or, alternatively, an arc-rated arc flash suit hood is required to be worn.

Note 2: Standard PPE is hard hat, safety glasses or safety goggle, hearing protection (ear canal inserts), heavy duty leather gloves (see Note 3), leather footwear.

Note 3: If rubber insulating gloves with leather protectors are used, additional leather or arc-rated gloves are not required. The combination of rubber insulating gloves with leather protectors satisfies the arc flash protection requirement.

ATTACHMENT 1
Selecting Proper Arc Protection Apparel and PPE
(Page 3 of 3)

TABLE 2

VOLTAGE CLASSIFICATION OF GLOVES		
Glove Voltage Classification	Maximum Working Voltage	Proof Test (kV)
Class 00	500	2.5
Class 0	1,000	5.0
Class 1	7,500	10
Class 2	17,500	20
Class 3	26,500	30
Class 4	36,000	40

NOTE

Gloves provide insulation from both electricity and heat. A combination of rubber (worn inside) and leather (worn outside) material is typically used. The gloves should be long enough to cover the sleeves.

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 1 of 7)

PANELBOARDS & MISCELLANEOUS EQUIPMENT (Single phase or direct current 150V and below)			
Boundaries: • Minimum Approach Distance - Avoid Contact • Restricted Approach Boundary - Avoid Contact • Limited Approach Boundary - 3 FT - 6 IN • Flash Protection Boundary - 0 FT, if <200V; 4 FT, if 200-240V			
TASK	PPE Type	V-Rated Gloves	Insulated Tools
Removing/Installing circuit breakers	1	Y	Y
Operating circuit breakers (covers ON or OFF)	0	N	N
Removing/Installing fuses/cartridges	0	Y	Y
Diagnostic Testing • verifying voltage • verifying current • installing/removing test equipment	1	Y*	Y
Working on circuits or equipment >120V AC/140V DC	1	Y	Y
Working on circuits or equipment ≤120V AC/140V DC	0	N	Y
Station Batteries (During assembly and disassembly of bus work only, **NOT** required for routine maintenance.)	1	Y	Y
Opening/Closing hinged covers to exposed live parts	0	N	N
Removing/Installing bolted covers to exposed live parts	1	N	N
Troubleshooting (Unless addressed above)	1	Y	Y

* Voltage Rated Gloves are only required if using Uninsulated Test Leads.

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 2 of 7)

PANELBOARDS/SWITCHBOARDS & MISCELLANEOUS EQUIPMENT (>150V and <301V)			
Boundaries: • Minimum Approach Distance - Avoid Contact • Restricted Approach Boundary - 1 FT • Limited Approach Boundary - 3 FT 6 IN • Flash Protection Boundary - 4 FT			
TASK	PPE Type	V-Rated Gloves	Insulated Tools
Removing/Installing circuit breakers	2	Y	Y
Operating circuit breakers (covers ON)	0	N	N
Operating circuit breakers (covers OFF)	1	N	N
Removing/Installing fuses/cartridges	1	Y	Y
Diagnostic Testing • verifying voltage • verifying current • installing/removing test equipment	1	Y	Y
Application of safety grounds, after voltage test	2	Y	N
Working on circuits or equipment >120V AC/140V DC	2	Y	Y
Opening/Closing hinged covers to exposed live parts	1	N	N
Removing/Installing bolted covers to exposed live parts	2	N	N
Removing/Installing cable tray cover	1	N	N
Working on 277V lighting	1	Y	Y
Connecting to energized welding receptacle	1	Y	Y
Troubleshooting (Unless addressed above)	2	Y	Y

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 3 of 7)

PANELBOARDS/SWITCHBOARDS & MISCELLANEOUS EQUIPMENT
(>300V and <600V)

Boundaries:
- Minimum Approach Distance - 14 IN
- Restricted Approach Boundary - 1 FT
- Limited Approach Boundary - 3 FT 6 IN
- Flash Protection Boundary - 4 FT

TASK	PPE Type	V-Rated Gloves	Insulated Tools
Removing/Installing circuit breakers	2	Y	Y
Operating circuit breakers (covers ON)	0	N	N
Operating circuit breakers (covers OFF)	1	N	N
Removing/Installing fuses/cartridges	1	Y	Y
Diagnostic Testing • verifying voltage • verifying current • installing/removing test equipment	1	Y	Y
Application of safety grounds, after voltage test	2	Y	N
Working on circuits or equipment >120V AC/140V DC	2	Y	Y
Working on circuits or equipment ≤120V AC/140V DC	0	N	Y
Opening/Closing hinged covers to exposed live parts	1	N	N
Removing/Installing bolted covers to exposed live parts	2	N	N
Removing/Installing cable tray cover	1	N	N
Working on 277V lighting	1	Y	Y
Connecting to energized welding receptacle	1	Y	Y
Troubleshooting (Unless addressed above)	2	Y	Y

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 4 of 7)

MOTOR CONTROL CENTERS
(480 V MCCs)

Boundaries:

- Minimum Approach Distance - 14 IN
- Restricted Approach Boundary - 1 FT
- Limited Approach Boundary - 3 FT - 6 IN
- Flash Protection Boundary - 10 FT for installation/removal (racking) of buckets, 5 FT for other activities

TASK	PPE Type	V-Rated Gloves	Insulated Tools
Operating fused switch or breakers (door CLOSED)	0	N	N
Operating fused switch or breakers (door OPEN)	2	Y	N
Removing/Installing fuse/cartridge	1	Y	Y
Removing/Installing starter buckets	3	Y	Y
Diagnostic Testing on Power Circuit • Verifying voltage • Verifying current • Installing/removing test equipment	2	Y	Y
Application of safety grounds, after voltage test	3	Y	N
Working on circuits or equipment on load side of fuse >120V AC/140V DC	3	Y	Y
Working on circuits or equipment ≤120V AC/140V DC	0	N	Y
Working on line side live part (other than voltage verifications)	2	Y	Y
Opening/Closing hinged covers to exposed live parts	1	Y	N
Removing/Installing bolted covers to exposed live parts	3	Y	N
Troubleshooting (Unless addressed above)	2	Y	Y

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 5 of 7)

SWITCHGEAR/LOAD CENTERS
(480V Load Centers)

Boundaries:
- Minimum Approach Distance - 14 IN
- Restricted Approach Boundary - 1 FT
- Limited Approach Boundary - 3 FT - 6 IN
- Flash Protection Boundary - 35 FT or the Load Center Room (whichever is less)

TASK	PPE Type	V-Rated Gloves	Insulated Tools
Operating breakers (door CLOSED)	0	N	N
Operating breakers (door OPEN)	4	N	N
Racking Load Center breakers (door OPEN or CLOSED)	4	N	N
Diagnostic Testing on Power Circuit • verifying voltage • verifying current • installing/removing test equipment	4	Y	Y
Application of safety grounds, after voltage test	4	Y	N
Working on control circuits or equipment >120V AC/140V DC	4	Y	Y
Working on control circuits or equipment ≤120V AC/140V DC	0	N	Y
Working on energized parts (power circuit)	4	Y	Y
Opening/Closing hinged covers to exposed live parts	4	N	N
Removing/Installing bolted covers to exposed live parts	4	N	N
Control power fuse removal and installation with CB racked out	0	Y	Y
Control power removal and installation with CB racked in	4	Y	Y
Troubleshooting (Unless addressed above)	4	Y	Y

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 6 of 7)

SWITCHGEAR
(4kV)

Boundaries:

- Minimum Approach Distance - 26 IN
- Restricted Approach Boundary - 26 IN
- Limited Approach Boundary - 5 FT
- Flash Protection Boundary - 80 FT or Switchgear Room (whichever is less), PPE is as specified below. A boundary consisting of danger tape and a sign stating PPE requirements will be used at the boundary.

TASK	PPE Type	V-Rated Gloves	Insulated Tools
Operating breakers local (door CLOSED)	2	N	N
Racking breakers (door OPEN or CLOSED)	4	Y	N
Voltage Verification (power circuit)	4	Y	Y
Protective relay testing with door OPEN and breaker installed (OPEN or CLOSED)	2	Y	Y
Installed breaker adjustments, breaker OPEN only, with trip and CLOSE fuses removed	2	Y	N
Application of safety grounds, after voltage test	4	Y	N
Working on control circuits ≤120V AC/140V DC	0	N	Y
Control power fuse removal and installation with CB RACKED IN	2	Y	Y
Control power fuse removal and installation with CB RACKED OUT	0	Y	Y
Second verification on control circuits (e.g., clearance order, lifted/landed leads) ≤120V AC/140V DC	0	Y	N
Opening hinged covers to exposed live parts (>1kV	2	N	N
Pad-mounted transformers	3	Y	Y
Troubleshooting (Unless addressed above)	4	Y	Y

ATTACHMENT 2
General Task Scenarios and PPE Required
(Page 7 of 7)

SWITCHGEAR/SWITCHYARD
(22kV to 240kV)

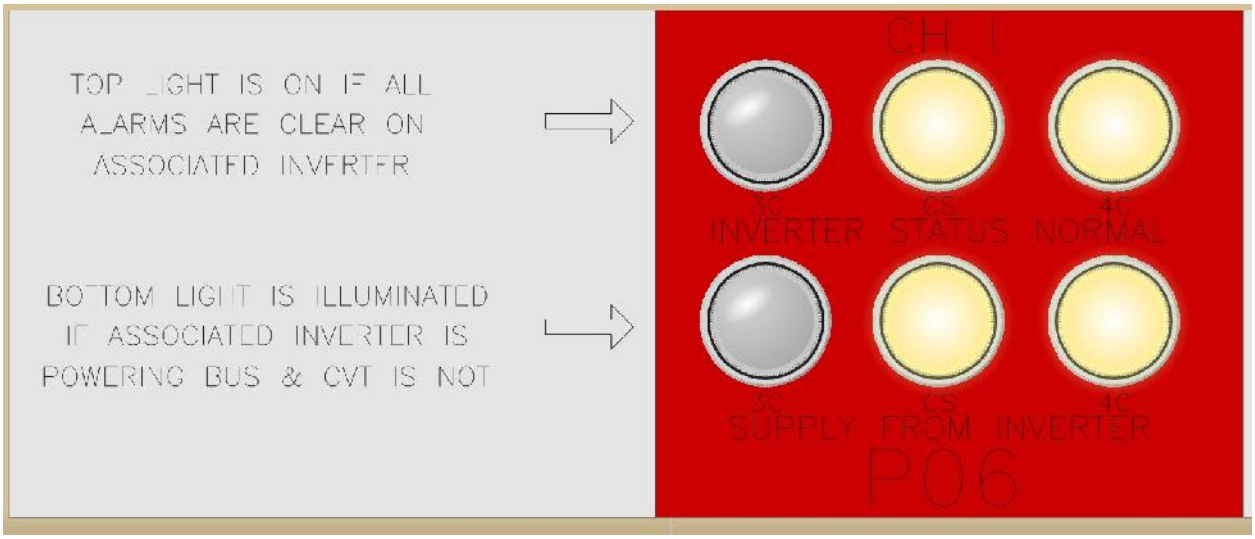
Boundaries (22kV):

- Minimum Approach Distance
  - 36 IN (phase-to-phase)
  - 31 IN (phase-to-ground)
- Restricted Approach Boundary - 31 IN
- Limited Approach Boundary- 6 FT
- Flash Protection Boundary - Contact Station Area Operations (SAO)

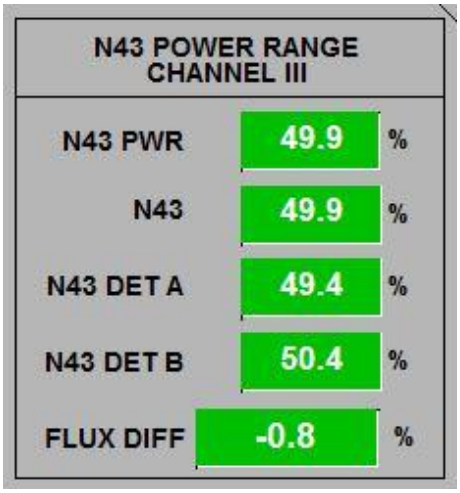
Boundaries (240kV):

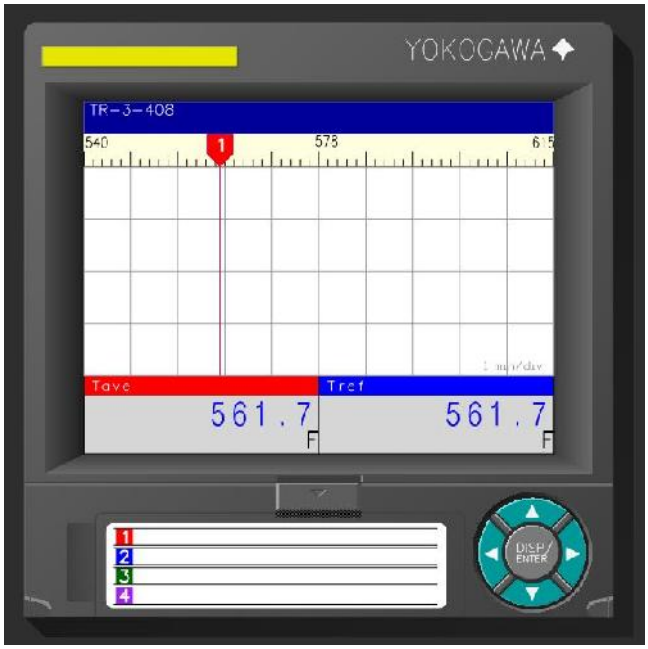
- Minimum Approach Distance
  - 11 FT (phase-to-phase)
  - 7 FT (phase-to-ground)
- Restricted Approach Boundary - 5 FT - 8 IN
- Limited Approach Boundary - 13 FT
- Flash Protection Boundary - Contact Station Area Operations (SAO)

TASK	PPE Type	V-Rated Gloves	Insulated Tools
Open/Close 22/240 kV disconnects/grounds **NO** load only, from motor/manual operated control.	2	Y	Y
Verify Closed/Open 22/240 kV disconnects/grounds	0	Y	N
Walk around 22/240 kV switchyard general inspection or observe	0	N	N
Switching orders/clearances	0	Y	N
Troubleshooting (Unless addressed above)	4	Y	Y

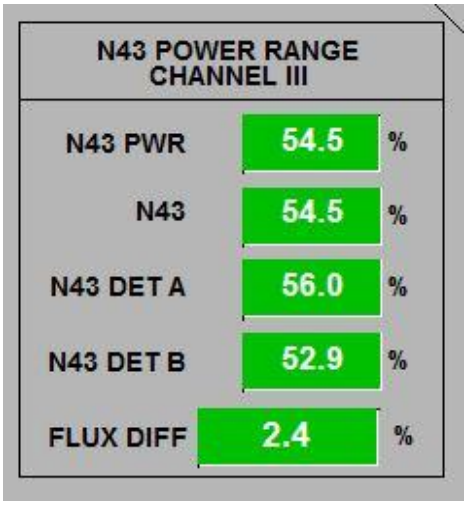

TOP LIGHT IS ON IF ALL
ALARMS ARE CLEAR ON
ASSOCIATED INVERTER
BOTTOM LIGHT IS ILLUMINATED
IF ASSOCIATED INVERTER IS
POWERING BUS & CVT IS NOT
CH 1
3C
CS
4C
INVERTER STATUS NORMAL
3C
CS
4C
SUPPLY FROM INVERTER
P06

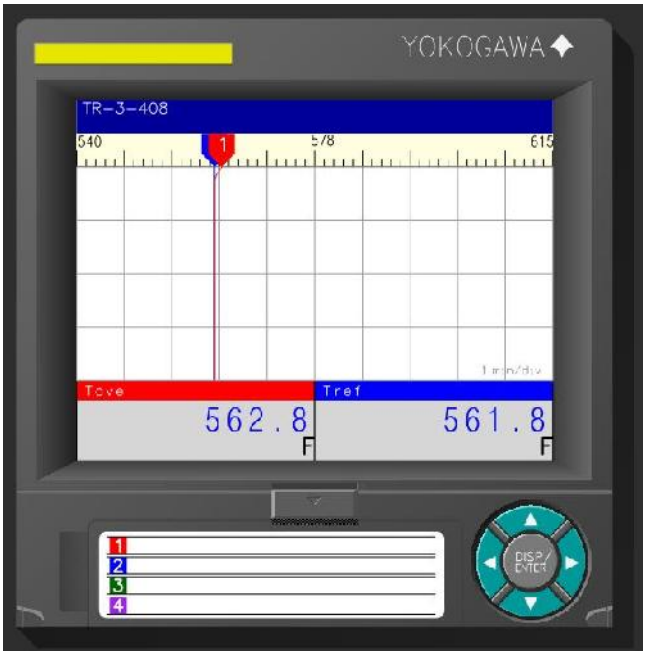
Before:





Subsequently:





ATTACHMENT 1
REPORTABLE EVENTS
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Declaration of an Emergency Class (See NUREG-1022 Section 3.1.1)	
1 Hour Report § 50.72(a)(1)(i) "The declaration of any of the Emergency Classes specified in the licensee's approved Emergency Plan."	
Plant Shutdown Required by Technical Specifications (See NUREG-1022 Section 3.2.1)	
4 Hour Report § 50.72(b)(2)(i) "The initiation of any nuclear plant shutdown required by the plant's Technical Specifications."	**60 Day LER § 50.73(a)(2)(i)(A)** "The completion of any nuclear plant shutdown required by the plant's Technical Specifications."
Operation or Condition Prohibited by Technical Specifications (See NUREG-1022 Section 3.2.2)	
	60 Day LER § 50.73(a)(2)(i)(B) "Any operation or condition which was prohibited by the plant's Technical Specifications except when: (1) The Technical Specification is administrative in nature; (2) The event consisted solely of a case of a late surveillance test where the oversight was corrected, the test was performed, and the equipment was found to be capable of performing its specified safety functions; or (3) The Technical Specification was revised prior to discovery of the event such that the operation or condition was no longer prohibited at the time of discovery of the event."

ATTACHMENT 1
REPORTABLE EVENTS
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Deviation from Technical Specifications Authorized under § 50.54(x) (See NUREG-1022 Section 3.2.3)	
1 Hour Report§ 50.72(b)(1) "... any deviation from the plant's Technical Specifications authorized pursuant to § 50.54(x) of this part."	**60 Day LER § 50.73(a)(2)(i)(C)** "Any deviation from the plant's Technical Specifications authorized pursuant to § 50.54(x) of this part."
Degraded or Unanalyzed Condition (See NUREG-1022 Section 3.2.4)	
8 Hour Report § 50.72(b)(3)(ii) "Any event or condition that results in:	**60 Day LER 50.73(a)(2)(ii)** "Any event or condition that resulted in:
(A) The condition of the nuclear power plant, including its principal safety barriers, being seriously degraded; or (B) The nuclear power plant being in an unanalyzed condition that significantly degrades plant safety."	(A) The condition of the nuclear power plant, including its principal safety barriers, being seriously degraded; or (B) The nuclear power plant being in an unanalyzed condition that significantly degraded plant safety."
External Threat or Hampering (See NUREG-1022 Section 3.2.5)	
	60 Day LER § 50.73(a)(2)(iii) "Any natural phenomenon or other external condition that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary for the safe operation of the nuclear power plant."

ATTACHMENT 1
REPORTABLE EVENTS
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System Actuation
(See NUREG-1022 Section 3.2.6)

4 Hour Report § 50.72(b)(2)(iv)(A) "Any event that results or should have resulted in emergency core cooling system (ECCS) discharge into the reactor coolant system as a result of a valid signal except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation."

4 Hour Report § 50.72(b)(2)(iv)(B) "Any event or condition that results in actuation of the reactor protection system (RPS) when the reactor is critical except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation."

8 Hour Report § 50.72(b)(3)(iv)(A) "Any event or condition that results in valid actuation of any of the systems listed in paragraph (b)(3)(iv)(B) of this section, except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation."

60 Day LER § 50.73(a)(2)(iv)(A) "Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) of this section, except when:

(1) The actuation resulted from and was part of a pre-planned sequence during testing or reactor operation; or
(2) The actuation was invalid and;
  (i) Occurred while the system was properly removed from service; or
  (ii) Occurred after the safety function had been already completed.

As indicated in 10 CFR 50.73(a)(1), in the case of an invalid actuation reported under 10 CFR 50.73(a)(2)(iv)(A) other than actuation of the RPS when the reactor is critical, the licensee may, at its option, provide a telephone notification to the NRC Operations Center within 60 days after discovery of the event instead of submitting a written LER.

ATTACHMENT 1
REPORTABLE EVENTS
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8 Hour Report § 50.72(b)(3)(iv)(B) "The systems to which the requirements of paragraph (b)(3)(iv)(A) of this section apply are:	**§ 50.73(a)(2)(iv)(B)** "The systems to which the requirements of paragraph (a)(2)(iv)(A) of this section apply are:
(1) Reactor protection system (RPS) including: reactor scram and reactor trip. [5]	(1) Reactor protection system (RPS) including: reactor scram or reactor trip.
(2) General containment isolation signals affecting containment isolation valves in more than one system or multiple main steam isolation valves (MSIVs).	(2) General containment isolation signals affecting containment isolation valves in more than one system or multiple main steam isolation valves (MSIVs).
(3) Emergency core cooling systems (ECCS) for pressurized water reactors (PWRs) including: high-head, intermediate-head, and low-head injection systems and the low pressure injection function of residual (decay) heat removal systems.	(3) Emergency core cooling systems (ECCS) for pressurized water reactors (PWRs) including: high-head, intermediate-head, and low-head injection systems and the low pressure injection function of residual (decay) heat removal systems.
(4) ECCS for boiling water reactors (BWRs) including: high-pressure and low-pressure core spray systems; high-pressure coolant injection system; low pressure injection function of the residual heat removal system.	(4) ECCS for boiling water reactors (BWRs) including: high-pressure and low-pressure core spray systems; high-pressure coolant injection system; low pressure injection function of the residual heat removal system.
(5) BWR reactor core isolation cooling system; isolation condenser system; and feedwater coolant injection system.	(5) BWR reactor core isolation cooling system; isolation condenser system; and feedwater coolant injection system.
(6) PWR auxiliary or emergency feedwater system.	(6) PWR auxiliary or emergency feedwater system.
(7) Containment heat removal and depressurization systems, including containment spray and fan cooler systems	(7) Containment heat removal and depressurization systems, including containment spray and fan cooler systems.
(8) Emergency ac electrical power systems, including: emergency diesel generators (EDGs); hydroelectric facilities used in lieu of EDGs at the Oconee Station; and BWR dedicated Division 3 EDGs.	(8) Emergency ac electrical power systems, including: emergency diesel generators (EDGs); hydroelectric facilities used in lieu of EDGs at the Oconee Station; and BWR dedicated Division 3 EDGs.
[5] Actuation of the RPS when the reactor is critical is reportable under § 50.72(b)(2)(iv)(B)	(9) Emergency service water systems that do not normally run and that serve as ultimate heat sinks.

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REPORTABLE EVENTS
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Event or Condition that Could Have Prevented Fulfillment of a Safety Function (See NUREG-1022 Section 3.2.7)	
8 Hour Report § 50.72(b)(3)(v) "Any event or condition that at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to: (A) Shut down the reactor and maintain it in a safe shutdown condition; (B) Remove residual heat; (C) Control the release of radioactive material; or (D) Mitigate the consequences of an accident." **8 Hour Report § 50.72(b)(3)(vi)** "Events covered in paragraph (b)(3)(v) of this section may include one or more procedural errors, equipment failures, and/or discovery of design, analysis, fabrication, construction, and/or procedural inadequacies. However, individual component failures need not be reported pursuant to paragraph (b)(3)(v) of this section if redundant equipment in the same system was operable and available to perform the required safety function."	**60 Day LER § 50.73(a)(2)(v)** "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to: (A) Shut down the reactor and maintain it in a safe shutdown condition; (B) Remove residual heat; (C) Control the release of radioactive material; or (D) Mitigate the consequences of an accident." **§ 50.73(a)(2)(vi)** "Events covered in paragraph (a)(2)(v) of this section may include one or more procedural errors, equipment failures, and/or discovery of design, analysis, fabrication, construction, and/or procedural inadequacies. However, individual component failures need not be reported pursuant to paragraph (a)(2)(v) of this section if redundant equipment in the same system was operable and available to perform the required safety function."
Common Cause Inoperability of Independent Trains or Channels (See NUREG-1022 Section 3.2.8)	
	60 Day LER § 50.73(a)(2)(vii) "Any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to: (A) Shut down the reactor and maintain it in a safe shutdown condition; (B) Remove residual heat; (C) Control the release of radioactive material; or (D) Mitigate the consequences of an accident."

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REPORTABLE EVENTS
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Radioactive Release (See NUREG-1022 Section 3.2.9)	
	60 Day LER § 50.73(a)(2)(viii)(A) "Any airborne radioactive release that, when averaged over a time period of 1 hour, resulted in airborne radionuclide concentrations in an unrestricted area that exceeded 20 times the applicable concentration limits specified in appendix B to part 20, table 2, column 1." **60 Day LER § 50.73(a)(2)(viii)(B)** "Any liquid effluent release that, when averaged over a time period of 1 hour, exceeds 20 times the applicable concentrations specified in appendix B to part 20, table 2, column 2, at the point of entry into the receiving waters (i.e., unrestricted area) for all radionuclides except tritium and dissolved noble gases."
Internal Threat or Hampering (See NUREG-1022 Section 3.2.10)	
	60 Day LER § 50.73(a)(2)(x) "Any event that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary for the safe operation of the nuclear power plant including fires, toxic gas releases, or radioactive releases."
Transport of a Contaminated Person Offsite (See NUREG-1022 Section 3.2.11)	
8 Hour Report § 50.72(b)(3)(xii) "Any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment."	

ATTACHMENT 1
REPORTABLE EVENTS
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News Release or Notification of Other Government Agency (See NUREG-1022 Section 3.2.12)	
4 Hour Report § 50.72(b)(2)(xi) "Any event or situation, related to the health and safety of the public or onsite personnel, or protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made. Such an event may include an onsite fatality or inadvertent release of radioactively contaminated materials."	
Loss of Emergency Preparedness Capabilities (See NUREG-1022 Section 3.2.13)	
8 Hour Report § 50.72(b)(3)(xiii) "Any event that results in a major loss of emergency assessment capability, offsite response capability, or offsite communications capability (e.g., significant portion of control room indication, emergency notification system, or offsite notification system)."	

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REPORTABLE EVENTS
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Single Cause that Could Have Prevented Fulfillment of the Safety Functions of Trains or Channels in Different Systems (See NUREG-1022 Section 3.2.14)	
	60 Day LER § 50.73(a)(2)(ix)(A) "Any event or condition that as a result of a single cause could have prevented the fulfillment of a safety function for two or more trains or channels in different systems that are needed to: (1) Shut down the reactor and maintain it in a safe shutdown condition; (2) Remove residual heat; (3) Control the release of radioactive material; or (4) Mitigate the consequences of an accident." **§ 50.73(a)(2)(ix)(B)** "Events covered in paragraph (ix)(A) of this section may include cases of procedural error, equipment failure, and/or discovery of a design, analysis, fabrication, construction, and/or procedural inadequacy. However, licensees are not required to report an event pursuant to paragraph (ix)(A) of this section if the event results from: (1) A shared dependency among trains or channels that is a natural or expected consequence of the approved plant design; or (2) Normal and expected wear or degradation."

REACTIVITY CONTROL SYSTEMS

3/4.1.2 BORATION SYSTEMS

FLOW PATH - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.1 As a minimum, one of the following boron injection flow paths shall be OPERABLE and capable of being powered from an OPERABLE emergency power source:

a. A flow path from the boric acid storage tanks via a boric acid transfer pump and a charging pump to the Reactor Coolant System if the boric acid storage tank in Specification 3.1.2.4a. is OPERABLE, or

b. The flow path from the refueling water storage tank via a charging pump to the Reactor Coolant System if the refueling water storage tank in Specification 3.1.2.4b. is OPERABLE.

APPLICABILITY: MODES 5 and 6.

ACTION:

With none of the above flow paths OPERABLE or capable of being powered from an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.1.2.1 At least one of the above required flow paths shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that the temperature of the rooms containing flow path components is greater than or equal to 62°F when a flow path from the boric acid tanks is used, and

b. In accordance with the Surveillance Frequency Control Program by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

REACTIVITY CONTROL SYSTEMS

FLOW PATHS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.2 The following boron injection flow paths shall be OPERABLE:

a. The source path from a boric acid storage tank via a boric acid transfer pump to the charging pump suction*, and

b. At least one of the two source paths from the refueling water storage tank to the charging pump suction; and,

c. The flow path from the charging pump discharge to the Reactor Coolant System via the regenerative heat exchanger.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With no boration source path from a boric acid storage tank OPERABLE,

1. Demonstrate the OPERABILITY of the second source path from the refueling water storage tank to the charging pump suction by verifying the flow path valve alignment; and

2. Restore the boration source path from a boric acid storage tank to OPERABLE status within 70 hours or be in at least HOT STANDBY and borated to a boron concentration equivalent to at least the required SHUTDOWN MARGIN at COLD SHUTDOWN at 200°F within the next 8 hours; restore the boration source path from a boric acid storage tank to OPERABLE status within the next 72 hours or be in COLD SHUTDOWN within the next 30 hours.

b. With only one boration source path OPERABLE or the regenerative heat exchanger flow path to the RCS inoperable, restore the required flow paths to OPERABLE status within 70 hours or be in at least HOT STANDBY and borated to a boron concentration equivalent to at least the required SHUTDOWN MARGIN at COLD SHUTDOWN at 200°F within the next 8 hours; restore at least two boration source paths to OPERABLE status within the next 72 hours or be in COLD SHUTDOWN within the next 30 hours.

c. With the boration source path from a boric acid storage tank and the charging pump discharge path via the regenerative heat exchanger inoperable, within one hour initiate boration to a boron concentration equivalent to the required SHUTDOWN MARGIN at COLD SHUTDOWN at 200°F and go to COLD SHUTDOWN as soon as possible within the limitations of the boration and pressurizer level control functions of the CVCS.

* The flow required in Specification 3.1.2.2.a above shall be isolated from the other unit from the boric acid transfer pump discharge to the charging pump suction.

SURVEI LLANCE REQUIREMENTS

4.1.2.2 The above required flow paths shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that the temperature of the rooms containing flow path components is greater than or equal to 62°F when a flow path from the boric acid tanks is used;

b. In accordance with the Surveillance Frequency Control Program by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position;

c. In accordance with the Surveillance Frequency Control Program by verifying that the flow path required by Specification 3.1.2.2a. and c. delivers at least 16 gpm to the RCS.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

GROUP HEIGHT

LIMITING CONDITION FOR OPERATION

3.1.3.1 All full length (shutdown and control) rods shall be OPERABLE and positioned within the Allowed Rod Misalignment between the Analog Rod Position Indication and the group step counter demand position within one hour after rod motion. The Allowed Rod Misalignment shall be defined as:

a. for THERMAL POWER less than or equal to 90% of RATED THERMAL POWER, the Allowed Rod Misalignment is ± 18 steps, and

b. for THERMAL POWER greater than 90% of RATED THERMAL POWER, the Allowed Rod Misalignment is ± 12 steps.

APPLICABILITY: MODES 1* and 2*

ACTION:

a. With one or more full length rods inoperable due to being immovable as a result of excessive friction or mechanical interference or known to be untrippable, determine that the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied within 1 hour and be in HOT STANDBY within 6 hours.

b. With more than one full length rod inoperable or misaligned from the group step counter demand position by more than ± 12 steps and THERMAL POWER greater than 90% of RATED THERMAL POWER, within 1 hour either:

   1. Restore all indicated rod positions to within the Allowed Rod Misalignment, or

   2. Reduce THERMAL POWER to less than 90% of RATED THERMAL POWER and confirm that all indicated rod positions are within the Allowed Rod Misalignment, or

   3. Be in HOT STANDBY within the following 6 hours.

c. With more than one full length rod inoperable or misaligned from the group step counter demand position by more than ± 18 steps and THERMAL POWER less than or equal to 90% of RATED THERMAL POWER, within 1 hour either:

   1. Restore all indicated rod positions to within the Allowed Rod Misalignment, or

   2. Be in HOT STANDBY within the following 6 hours.

* See Special Test Exceptions 3.10.2 and 3.10.3.

d. With one full length rod inoperable due to causes other than addressed by ACTION a, above, or misaligned from its group step counter demand position by more than the Allowed Rod Misalignment of Specification 3.1.3.1, POWER OPERATION may continue provided that within one hour either:

1. The rod is restored to OPERABLE status within the Allowed Rod Misalignment of Specification 3.1.3.1, or

2. The remainder of the rods in the bank with the inoperable rod are aligned to within the Allowed Rod Misalignment of Specification 3.1.3.1 of the inoperable rod while maintaining the rod sequence and insertion limits of Specification 3.1.3.6; the THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation, or

3. The rod is declared inoperable and the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied. POWER OPERATION may then continue provided that:

a) The THERMAL POWER level is reduced to less than or equal to 75% of RATED THERMAL POWER within one hour and within the next 4 hours the power range neutron flux high trip setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER. THERMAL POWER shall be maintained less than or equal to 75% of RATED THERMAL POWER until compliance with ACTIONS 3.1.3.1.d.3.c and 3.1.3.1.d.3.d below are demonstrated, and

b) The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is determined at least once per 12 hours, and

c) A power distribution map is obtained from the movable incore detectors and $F_Q(Z)$ and $F^N_{\Delta H}$ are verified to be within their limits within 72 hours, and

d) A reevaluation of each accident analysis of Table 3.1-1 is performed within 5 days; this reevaluation shall confirm that the previously analyzed results of these accidents remain valid for the duration of operation under these conditions.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The position of each full length rod shall be determined to be within the Allowed Rod Misalignment of the group step counter demand position in accordance with the Surveillance Frequency Control Program (allowing for one hour thermal soak after rod motion) except during time intervals when the Rod Position Deviation Monitor is inoperable, then verify the group positions at least once per 4 hours.

4.1.3.1.2 Each full length rod not fully inserted in the core shall be determined to be OPERABLE by movement of at least 10 steps in any one direction in accordance with the Surveillance Frequency Control Program.

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the Reactor Trip System instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each Reactor Trip System instrumentation channel and interlock and the automatic trip logic shall be demonstrated OPERABLE by the performance of the Reactor Trip System Instrumentation Surveillance Requirement specified in Table 4.3-1. |

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TABLE 3.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. Manual Reactor Trip	2	1	2	1, 2	1
	2	1	2	3*, 4*, 5*	9
2. Power Range, Neutron Flux					
a. High Setpoint	4	2	3	1, 2	2
b. Low Setpoint	4	2	3	1##, 2	2
3. Intermediate Range, Neutron Flux	2	1	2	1##, 2	3
4. Source Range, Neutron Flux					
a. Startup	2	1	2	2#	4
b. Shutdown**	2	0	2	3, 4, 5	5
c. Shutdown	2	1	2	3*, 4*, 5*	9
5. Overtemperature ΔT	3	2	2	1, 2	13
6. Overpower ΔT	3	2	2	1, 2	13

[redacted]

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
11. Steam Generator Water Level--Low-Low	3/stm. gen.	2/stm. gen.	2/stm. gen.	1, 2	6
12. Steam Generator Water Level--Low Coincident With Steam/ Feedwater Flow Mismatch	2 stm. gen. level and 2 stm./feed-water flow mismatch in each stm. gen.	1 stm. gen. level coin-cident with 1 stm./feed-water flow mismatch in same stm. gen.	1 stm. gen. level and 2 stm./feed-water flow mismatch in same stm. gen. or 2 stm. gen. level and 1 stm./feedwater flow mismatch in same stm. gen.	1, 2	6
13. Undervoltage--4.16 KV Busses A and B (Above P-7)	2/bus	1/bus on both busses	2/bus	1	12
14. Underfrequency-Trip of Reactor Coolant Pump Breaker(s) Open (Above P-7)	2/bus	1 to trip RCPs***	2/bus	1	11
15. Turbine Trip (Above P-7)					
a. Emergency Trip Header Pressure	3	2	2	1	12
b. Turbine Stop Valve Closure	2	2	2	1	12

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TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
16. Safety Injection Input from ESF	2	1	2	1, 2	8
[redacted]					
18. Reactor Coolant Pump Breaker Position Trip					
a. Above P-8	1/breaker	1	1/breaker	1	11
b. Above P-7 and below P-8	1/breaker	2	1/breaker	1	11
19. Reactor Trip Breakers	2	1	2	1, 2	8, 10
	2	1	2	3*, 4*, 5*	9
20. Automatic Trip and Interlock logic	2	1	2	1, 2	8
	2	1	2	3*, 4*, 5*	9

TABLE 3.3-1 (Continued)

TABLE NOTATION

***** When the Reactor Trip System breakers are in the closed position and the Control Rod Drive System is capable of rod withdrawal.

****** When the Reactor Trip System breakers are in the open position, one or both of the backup NIS instrumentation channels may be used to satisfy this requirement. For backup NIS testing requirements, see Specification 3/4.3.3.3, ACCIDENT MONITORING.

******* Reactor Coolant Pump breaker A is tripped by underfrequency sensor UF-3A1(UF-4A1) or UF-3B1(UF-4B1). Reactor Coolant Pump breakers B and C are tripped by underfrequency sensor UF-3A2(UF-4A2) or UF-3B2(UF-4B2).

\# Below the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint.

\## Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) Setpoint.

ACTION STATEMENTS

ACTION 1 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours,

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1, and

c. Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER and the Power Range Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored per Specification 4.2.4.2.

TABLE 3.3-1 (Continued)

ACTION STATEMENTS (Continued)

ACTION 3 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint, and

b. Above P-6 (Intermediate Range Neutron Flux Interlock) Setpoint but below 10% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 10% of RATED THERMAL POWER.

ACTION 4 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, suspend all operations involving positive reactivity changes.

ACTION 5 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, suspend all operations involving positive reactivity changes and verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed until performance of the next required ANALOG CHANNEL OPERATIONAL TEST provided the inoperable channel is placed in the tripped condition within 6 hours. |

ACTION 7 - With less than the Minimum Number of Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock is in its required state for the existing plant condition, or apply Specification 3.0.3.

ACTION 8 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

ACTION 9 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or open the Reactor Trip System breakers within the next hour.

ACTION 10- With one of the diverse trip features (undervoltage or shunt trip attachment) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply ACTION 8. The breaker shall not be bypassed while one of the diverse trip features is inoperable, except for the time required for performing maintenance to restore the breaker to OPERABLE status.

TABLE 3.3-1 (Continued)

ACTION STATEMENTS (Continued)

ACTION 11 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours.

ACTION 12 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed until performance of the next required ACTUATION LOGIC TEST provided the inoperable channel is placed in the tripped condition within 6 hours. |

ACTION 13 - With the number of OPERABLE channels one less than the Total number of channels, STARTUP and/or POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 6 hours. For subsequent required DIGITAL CHANNEL OPERATIONAL TESTS the inoperable channel may be placed in bypass status for up to 4 hours. | |

3/4.7.2 COMPONENT COOLING WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.2 The Component Cooling Water System (CCW) shall be OPERABLE with:

a. Three CCW pumps, and

b. Two CCW heat exchangers.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With only two CCW pumps with independent power supplies OPERABLE, restore the inoperable CCW pump to OPERABLE status within 30 days or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With only one CCW pump OPERABLE or with two CCW pumps OPERABLE but not from independent power supplies, restore two pumps from independent power supplies to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With less than two CCW heat exchangers OPERABLE, restore two heat exchangers to OPERABLE status within 1 hour or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.2 The Component Cooling Water System (CCW) shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program, by verifying that two heat exchangers and one pump are capable of removing design basis heat loads.

3/4.8.3 ONSITE POWER DISTRIBUTION

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.3.1 The following electrical busses* shall be energized in the specified manner with the tie breakers open between redundant busses within the unit** and between the busses of Units 3 and 4.

a. One train of A.C. Busses consisting of:

1) 4160-Volt Bus A,
2) 480-Volt Load Center Busses A, C and H***, and
3) 480-Volt Motor Control Center Busses A (Unit 4 only),C and D***,

b. One train of A.C. Busses consisting of:

1) 4160-Volt Bus B
2) 480-Volt Load Center Busses B, D and H***, and
3) 480-Volt Motor Control Center Busses B and D***

c. One opposite unit train of AC busses consisting of either:

1) 4160-Volt Bus A, 480-Volt Load Center Busses A, C and H***, and 480-Volt Motor Control Center Busses A (Unit 4 only), C and D***, or
2) 4160-Volt Bus B, 480-Volt Load Center Busses B, D and H***, and 480-Volt Motor Control Center Busses B and D***.

d. 120 Volt AC Vital Panel 3P06 and 3P21 energized from its associated inverter connected to D.C. Bus 3B.****

e. 120 Volt AC Vital Panel 4P06 and 4P21 energized from its associated inverter connected to D.C. Bus 3B.****

f. 120 Volt AC Vital Panel 3P07 and 3P22 energized from its associated inverter connected to D.C. Bus 3A.****

g. 120 Volt AC Vital Panel 4P07 and 4P22 energized from its associated inverter connected to D.C. Bus 3A.****

h. 120 Volt AC Vital Panel 3P08 and 3P23 energized from its associated inverter connected to D.C. Bus 4B.****

i. 120 Volt AC Vital Panel 4P08 and 4P23 energized from its associated inverter connected to D.C. Bus 4B.****

* For Motor Control Center busses, vital sections only.

** With the opposite unit in MODE 5 or 6, its 480-Volt Load Center can be cross-tied under conditions specified in Specification 3.8.3.2.a.

*** Electrical bus can be energized from either train of its unit and swing function to opposite train must be OPERABLE for the Unit(s) in MODES 1, 2, 3, and 4.

****A back-up inverter may be used to replace the normal inverter provided the normal inverter on the same DC bus for the opposite unit is not replaced at the same time.

LIMITING CONDITION FOR OPERATION (Continued)

j. 120 Volt AC Vital Panel 3P09 and 3P24 energized from its associated inverter connected to D.C. Bus 4A.****

k. 120 Volt AC Vital Panel 4P09 and 4P24 energized from its associated inverter connected to D.C. Bus 4A.****

l. 125 Volt D.C. Bus 3D01 energized from an associated battery charger and from Battery Bank 3A or spare battery bank D-52,

m. 125 Volt D.C. Bus 3D23 energized from an associated battery charger and from Battery Bank 3B or spare battery bank D-52,

n. 125 Volt D.C. Bus 4D01 energized from an associated battery charger and from Battery Bank 4B or spare battery bank D-52, and

o. 125 Volt D.C. Bus 4D23 energized from an associated battery charger and from Battery Bank 4A or spare battery bank D-52

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With one of the required trains (3.8.3.1a., b., and c) of A.C. emergency busses not fully energized (except for the required LC's and MCC's associated with the opposite unit), reenergize the train within 8 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With any of the required LC's and/or MCC's associated with the opposite unit inoperable, restore the inoperable LC or MCC to OPERABLE status in accordance with Table 3.8-1 or Table 3.8-2 as applicable or place the unit in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With one A.C. vital panel either not energized from its associated inverter, or with the inverter not connected to its associated D.C. bus: (1) Reenergize the A.C. vital panel within 2 hours or be in at least HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 30 hours; and (2) reenergize the A.C. vital panel from an inverter connected to its associated D.C. bus

****A back-up inverter may be used to replace the normal inverter, provided the normal inverter on the same DC bus for the opposite unit is not replaced at the same time.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

within 24 hours or be in at least HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 30 hours. This ACTION applies to both units simultaneously.

d. With one D.C. bus not energized from its associated battery bank or associated charger, reenergize the D.C. bus from its associated battery bank within 2 hours* or be in at least HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 30 hours. This ACTION applies to both units simultaneously.

SURVEILLANCE REQUIREMENTS

4.8.3.1 The specified busses shall be determined energized and aligned in the required manner by verifying correct breaker alignment and indicated voltage on the buses in accordance with the Surveillance Frequency Control Program.

* Can be extended to 24 hours if the opposite unit is in MODE 5 or 6 and each of the remaining required battery chargers is capable of being powered from its associated diesel generator(s).

Turkey Point 2019-301 Written Exam Answer Key

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