

Question # 1

Given the following conditions:

- Unit 3 and Unit 4 are at 100% power.
- A fire is reported in the control room electrical chase.
- Units are tripped in accordance with 0-ONOP-105, Control Room Evacuation.

Which one of the following completes the statements below?

In accordance with 0-ONOP-105, the Third Licensed Reactor Operator will mechanically trip the \_\_\_\_ (1) \_\_\_\_ AFW pump.

When the ASP transfer switch for MOV-6459B, B AFW PUMP T&T VALVE, is placed in LOCAL, a \_\_\_\_ (1) \_\_\_\_ AFW pump may occur.

- A. (1) A  
(2) trip of a running
- B. (1) A  
(2) start of a non-running
- C. (1) C  
(2) trip of a running
- D. (1) C  
(2) start of a non-running

Question # 2

Given the following initial conditions:

- Unit 3 trips from full power.
- RCS pressure is 1200 psig and lowering.
- Indicated PRZ level is 80% and rising.

Subsequently:

- The crew transitions to 3-EOP-E-1, Loss of Reactor or Secondary Coolant.
- Containment temperature is 160°F.
- RCS pressure stabilizes at 590 psig.

Which one of the following completes the statements below?

The crew is responding to a break on the PRZ (1) line.

RHR stop criteria (2) met.

- A. (1) surge  
(2) is NOT
- B. (1) surge  
(2) is
- C. (1) safety  
(2) is NOT
- D. (1) safety  
(2) is

Question # 3

Given the following conditions:

- 3-EOP-ES-1.2, Post LOCA Cooldown and Depressurization, is in progress.
- PRZ narrow range pressure is 1500 psig.
- RCS wide range pressure is 1400 psig.
- CET temperatures are 500°F.

Which one of the following completes the statements below?

Subcooling based on CETs is   (1)   .

Subcooling is monitored on the foldout page to determine if   (2)   .

- A.    (1) 88°F  
      (2) SI re-initiation is required
- B.    (1) 88°F  
      (2) voiding will occur during depressurization
- C.    (1) 97°F  
      (2) SI re-initiation is required
- D.    (1) 97°F  
      (2) voiding will occur during depressurization

Question # 4

Given the following initial conditions:

- Unit 3 experiences a reactor trip due to a LOOP from 100% power.
- 3B EDG fails to start.
- The crew transitions to 3-EOP-E-0, Reactor Trip or Safety Injection.

Subsequently:

- A Large Break LOCA occurs.
- Containment pressure is 28 psig.
- The crew transitions to 3-EOP-E-1, Loss of Reactor or Secondary Coolant.

Which one of the following completes the statements below?

The AFW System will start and   (1)   required to support core decay heat removal during this accident.

During the injection phase of the accident, ICW pumps will be loaded on the 3A EDG for   (2)   removal.

- A. (1) is NOT  
(2) containment heat
- B. (1) is NOT  
(2) core decay heat
- C. (1) is  
(2) containment heat
- D. (1) is  
(2) core decay heat

Question # 5

Given the following conditions:

- Unit 3 is at 100% power.
- Component Cooling Water flow is lost and can NOT be established in either header.
- 3B RCP lower guide bearing reaches 235°F.
- The crew enters 3-ONOP-030, Component Cooling Water Malfunction and 3-ONOP-041.1, Reactor Coolant Pump Off-Normal.

Which one of the following completes the statements below?

The crew will next trip the reactor and then secure \_\_\_\_ (1) \_\_\_\_ .

The crew will operate the charging pumps at \_\_\_\_ (2) \_\_\_\_ speed.

- A. (1) only the 3B RCP  
(2) maximum
- B. (1) only the 3B RCP  
(2) minimum
- C. (1) all RCPs  
(2) maximum
- D. (1) all RCPs  
(2) minimum

Question # 6

Given the following initial conditions:

- Unit 3 trips from full power.
- The crew enters 3-EOP-ES-0.1, Reactor Trip Response.
- RCS temperature stabilizes at 547°F.
- PRZ level stabilizes on program.

Subsequently:

- A loss of all charging occurs.
- PRZ level is lowering by 1% every four minutes.

Which one of the following identifies the MINIMUM time to restore charging flow BEFORE letdown is automatically isolated?

(Assuming no operator action)

- A. 2 - 10 minutes
- B. 30 - 40 minutes
- C. 80 - 90 minutes
- D. 170 - 180 minutes

Question # 7

Given the following initial conditions:

- Unit 3 is in Mode 5.
- PRZ cold cal level is 25% and stable.
- 3A RHR Pump is in service.
- RHR flow is 3100 gpm.

Subsequently:

- The 3A RHR Pump's motor amps and flow lower and become erratic.
- The crew stops the 3A RHR Pump in accordance with 3-ONOP-050, Loss of RHR.

Which one of the following completes the statements below?

The crew will first attempt to start the \_\_\_\_ (1) \_\_\_\_ RHR Pump.

When RCS temperature is subsequently stabilized, FI-3-605, RHR flow indicator, will measure flow through \_\_\_\_ (2) \_\_\_\_ .

- A. (1) 3A  
(2) both the RHR HXs and the bypass flow line
- B. (1) 3A  
(2) the RHR HXs only
- C. (1) 3B  
(2) the RHR HXs and the bypass flow line
- D. (1) 3B  
(2) the RHR HXs only

Question # 8

Given the following conditions:

- Unit 3 is in Mode 2.
- PRZ pressure control is in automatic.
- Pressurizer pressure is 2150 psig and lowering.
- 3-ONOP-041.5, Pressurizer Pressure Control Malfunction, is entered.

Which one of the following completes the statements below?

The operator will manually (1) the output on PC-3-444J, PZR PRESS CONTROL, to stabilize pressure.

When adjusting the output on PC-3-444J, PCV-3-455C, PZR PORV, (2) expected to immediately automatically open if the controller demand setpoint is driven to 2335 psig.

- A. (1) raise  
(2) is
- B. (1) lower  
(2) is
- C. (1) raise  
(2) is NOT
- D. (1) lower  
(2) is NOT



Question # 9

Which one of the following describes how the AMSAC (ATWS Mitigating System Actuation Circuit) trips the reactor?

- A. Energizes both Control Rod MG set input breaker trip coils.
- B. Energizes both Control Rod MG set output breaker trip coils.
- C. De-energizes the Shunt Trip Coils on both Reactor Trip Breakers and Bypass Breakers.
- D. De-energizes the Undervoltage Trip Coils on both Reactor Trip Breakers and Bypass Breakers.

Question # 10

Given the following conditions:

- The crew is performing 4-ONOP-071.2, Steam Generator Tube Leakage.
- Reactor power is 50%.
- Tavg and Tref are matched.
- Pressurizer level starts lowering.
- All charging pumps are running with individual controllers in AUTOMATIC.

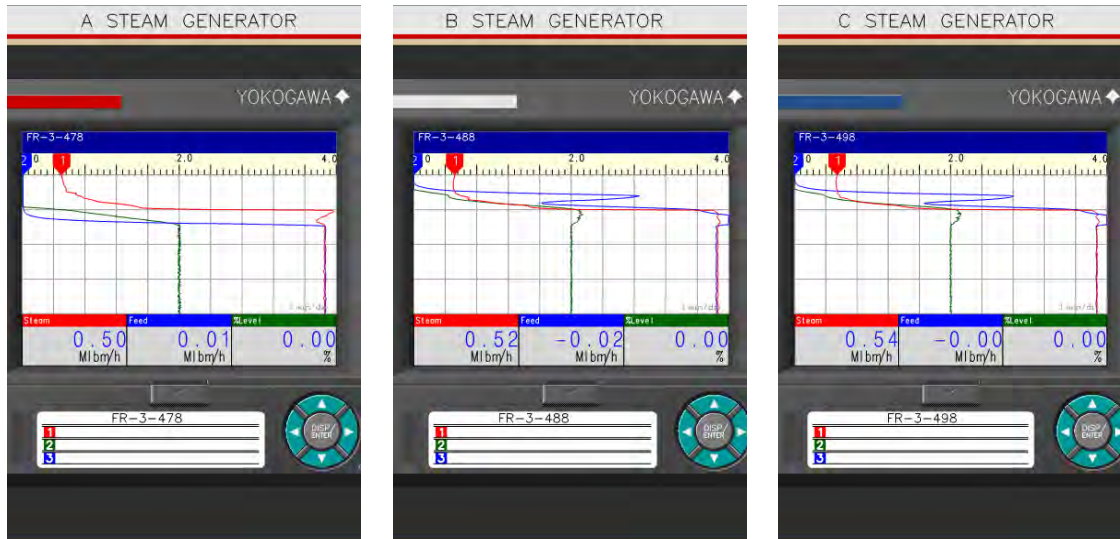
Which one of the following completes the statement below?

The crew is required to manually initiate safety injection when the master charging pump controller's demand is   (1)   in MANUAL with letdown isolated OR when PRZ level is   (2)   and lowering.

- A.   (1) 100%  
      (2) 40.5%
- B.   (1) 100%  
      (2) 29.5%
- C.   (1) 0%  
      (2) 40.5%
- D.   (1) 0%  
      (2) 29.5%

## Question # 11

Post trip steam generator trends on Unit 3 are as follows:

**TRENDS ALSO PROVIDED AS REFERENCE IN LARGER FORMAT**

Which one of the following identifies the initiating event?

- A. One main feed regulation valve failed closed.
- B. A feedwater isolation occurred.
- C. One steam dump to condenser failed open.
- D. A steamline isolation occurred.

Question # 12

Given the following initial conditions:

- Unit 3 experienced a safety injection at full power.

Subsequently:

- SG NR levels are 4% and rising.
- AFW flow is 375 gpm.
- CET temperatures are 670°F and rising.
- CET subcooling is 0°F.
- Containment temperature is 160°F and rising.
- A station blackout occurs on Unit 3.
- 3-EOP-ECA-0.0, Loss of All AC Power, is entered.

Which one of the following completes the statements below?

QSPDS   (1)   available for monitoring.

If power is immediately restored, the crew will transition to   (2)   .

- A. (1) is  
(2) 3-EOP-FR-H.1
- B. (1) is  
(2) 3-EOP-FR-C.2
- C. (1) is NOT  
(2) 3-EOP-FR-H.1
- D. (1) is NOT  
(2) 3-EOP-FR-C.2

Question # 13

Given the following initial conditions:

- Unit 3 is operating at 100% power.
- A loss of offsite power occurs.
- The crew enters 3-EOP-ES-0.1, Reactor Trip Response.

While performing Attachment 1, Natural Circulation Indications, the following plant conditions are observed:

- CET temperatures = 595°F and stable
- RCS hot leg temperatures = 585°F and stable
- RCS pressure = 1900 psig and stable
- All SG pressures = 985 psig and stable
- RCS cold leg temperatures = 540°F and stable

Which one of the following (1) identifies the status of natural circulation and (2) the action required to enhance or establish natural circulation in accordance with 3-EOP-ES-0.1?

- A. (1) Established  
(2) Raise steam flow through steam dumps to condenser
- B. (1) Established  
(2) Raise steam flow through steam dumps to atmosphere
- C. (1) NOT established  
(2) Raise steam flow through steam dumps to condenser
- D. (1) NOT established  
(2) Raise steam flow through steam dumps to atmosphere

Question # 14

Given the following conditions:

- Unit 3 experiences a LOOP-LOCA.
- 3P07, Vital Instrument AC bus, de-energizes.

Which one of the following identifies why safeguards equipment must be manually started in accordance with Attachment 3, Prompt Action Verifications of 3-EOP-E-0?

- A. 3A train Emergency Sequencer loses power.
- B. 3A train Safety Injection bistables fail to actuate.
- C. 3B train Emergency Sequencer loses power.
- D. 3B train Safety Injection bistables fail to actuate.

Question # 15

Which one of the following (1) identifies the signal that automatically closes ICW/TPCW Isolation Valves POV-3-4882 and POV-3-4883, and (2) the reason for the automatic closure?

- A. (1) High ICW flow  
(2) Prevents ICW pump runout
- B. (1) High ICW flow  
(2) Ensures ICW is dedicated to CCW
- C. (1) Safety Injection  
(2) Prevents ICW pump runout
- D. (1) Safety Injection  
(2) Ensures ICW is dedicated to CCW

Question # 16

Given the following conditions:

- Unit 3 is at 100% power.
- PRZ level is 60%.
- A loss of instrument air is in progress.
- The crew has entered 3-ONOP-013, Loss of Instrument Air.
- Instrument Air header pressure on PI-3-1444 (VPA) is 65 psig and lowering slowly.
- Pressure drop across the operating air dryer is 8 psid.
- All available Instrument Air Compressors are running.

Which one of the following completes the statements below?

In accordance with 3-ONOP-013, the crew is required to   (1)   .

Once the plant is shutdown, PRZ level band is maintained by cycling   (1)   as necessary.

- A.   (1) perform a fast load reduction  
      (2) letdown valves
- B.   (1) perform a fast load reduction  
      (2) charging pumps
- C.   (1) trip the plant  
      (2) letdown valves
- D.   (1) trip the plant  
      (2) charging pumps



Question # 17

Given the following conditions:

- The crew enters 3-EOP-FR-H.1, Loss of Secondary Heat Sink.
- Bleed and feed criteria is met.

Which one of the following describes (1) the MINIMUM number of pressurizer PORV(s) opened in order to establish bleed and feed and (2) the reason for taking this action?

- A. (1) One  
(2) Prevents RCS pressure from rising to the pressurizer safety valve setpoint, leading to further loss of coolant inventory
- B. (1) One  
(2) Allows SI flow to inject when the RCS is depressurized, leading to core decay heat removal
- C. (1) Two  
(2) Prevents RCS pressure from rising to the pressurizer safety valve setpoint, leading to further loss of coolant inventory
- D. (1) Two  
(2) Allows SI flow to inject when the RCS is depressurized, leading to core decay heat removal

Question # 18

Given the following conditions:

- The crew enters 3-EOP-ECA-2.1, Uncontrolled Depressurization of All Steam Generators.
- RCS cooldown rate is 65°F/hr.
- AFW is unavailable.
- A standby steam generator feed water pump is in service.
- All SG NR levels are 20%.
- Containment temperature is 185°F.

Which one of the following completes the statements below?

A minimum feed flow of 50 gpm   (1)   required to be maintained to each SG.

Low range flow indication   (2)   available when using standby feed.

- A. (1) is  
(2) is NOT
- B. (1) is  
(2) is
- C. (1) is NOT  
(2) is NOT
- D. (1) is NOT  
(2) is

## Question # 19

Given the following conditions:

- A downpower is in progress in accordance with 3-GOP-103, Power Operation to Hot Standby.
- TCS is in MW control.
- Rods are in automatic.
- $T_{avg}$  is 571.2°F.
- $T_{ref}$  is 570.0°F.
- TCS is placed in HOLD.
- Control Bank D rod M8 drops fully into the core.

Which one of the following completes the statements below?

(Assuming no operator action)

Control rods \_\_\_\_ (1) \_\_\_\_ insert to close the  $T_{avg}-T_{ref}$  mismatch.

TCS \_\_\_\_ (2) \_\_\_\_ automatically adjust to maintain MW output.

- A. (1) will NOT  
(2) will
- B. (1) will  
(2) will
- C. (1) will NOT  
(2) will NOT
- D. (1) will  
(2) will NOT

Question # 20

Given the following conditions:

- Unit 3 is at 75% power during a plant startup.
- A rod withdrawal of 3 steps is initiated in manual.
- ANN B 9/2, AXIAL FLUX TILT alarms.
- Rod withdrawal is stopped.
- ANN B 9/3, SHUTDOWN ROD OFF TOP/ DEVIATION alarms.
- Tavg rises 0.2°F and stabilizes.

Which one of the following describes (1) the event and (2) the cause of the AXIAL FLUX TILT alarm?

- A. (1) One RCCA fully drops during withdrawal  
(2) Exceeding a maximum delta between any two PR channels
- B. (1) One RCCA fully drops during withdrawal  
(2) Exceeding a maximum delta between upper and lower detectors on any PR channel
- C. (1) One RCCA sticks during withdrawal  
(2) Exceeding a maximum delta between any two PR channels
- D. (1) One RCCA sticks during withdrawal  
(2) Exceeding a maximum delta between upper and lower detectors on any PR channel

Question # 21

Given the following initial conditions:

- Unit 3 is reducing power from 100% power for maintenance.
- B 8/2, ROD BANK A/B/C/D EXTRA LO LIMIT alarms concurrently with a rod control card issue which prevents further rod motion.
- The unit is stabilized at 75%.

Subsequently:

- Rod Control repairs are complete after one hour.
- The crew initiates an emergency boration in accordance with 3-ONOP-046.1, Emergency Boration, to restore from excessive rod motion.
- Turbine control is in manual.

Which one of the following completes the statements below?

During the boration, the RCO ensures charging flow is a minimum of   (1)   on FI-3-122A in accordance with 3-ONOP-046.1.

With the same initial boration flow and after enough time elapses for the effects of the boration, a rise of reactor power will next require the RCO to   (2)   .

- A.   (1) 45 gpm  
      (2) start an additional Boric Acid Transfer Pump
- B.   (1) 40 gpm  
      (2) start an additional Boric Acid Transfer Pump
- C.   (1) 45 gpm  
      (2) verify FCV-3-114A, Primary Water to Blender, is closed
- D.   (1) 40 gpm  
      (2) verify FCV-3-114A, Primary Water to Blender, is closed

Question # 22

Given the following conditions:

- Unit 3 is in Mode 6.
- A fuel element drops into the core during fuel movement.
- Gas bubbles are rising from the dropped fuel element.

Which one of the following completes the statements below?

For the event in progress, ANN B 4/1, SOURCE RANGE HIGH FLUX AT SHUTDOWN, \_\_\_\_ (1) \_\_\_\_ the ONLY clad damage indication.

ANN B 4/1 \_\_\_\_ (2) \_\_\_\_ automatically cause a containment evacuation alarm to occur.

- A. (1) is  
(2) will
- B. (1) is  
(2) will NOT
- C. (1) is NOT  
(2) will
- D. (1) is NOT  
(2) will NOT

Question # 23

Given the following conditions:

- Unit 3 trips due to a LOOP.
- Secondary radiation levels rise.
- 3C SG is identified as being ruptured and is isolated.
- The cooldown to required Core Exit Temperature is complete.

Which one of the following describes a concern during the initial RCS depressurization of 3-EOP-E-3, Steam Generator Tube Rupture and how the depressurization will be performed?

- A. Voiding in the reactor vessel upper head when using Auxiliary Spray.
- B. Loss of RCS subcooling when using Auxiliary Spray.
- C. Voiding in the reactor vessel upper head when using a PRZ PORV.
- D. Loss of RCS subcooling when using RCS Vent Valves.

Question # 24

Which one of the following is the correct responses after acknowledgement of a Fire Alarm Operator Workstation C41 alarm?

Dispatch \_\_\_\_ (1) \_\_\_\_ to inspect the alarming zone(s) for fire or smoke.

The crew will reset the alarming fire detector \_\_\_\_ (2) \_\_\_\_ .

- A. (1) the fire brigade  
(2) locally at the detector
- B. (1) an operator  
(2) locally at the detector
- C. (1) the fire brigade  
(2) on Fire Alarm Operator Workstation C41
- D. (1) an operator  
(2) on Fire Alarm Operator Workstation C41



Question # 25

Given the following conditions:

- 3-EOP-ES-1.2, Post LOCA Cooldown and Depressurization, is entered.
- Charging pumps become gas bound.
- Unit 3 HHSI pumps are running at shutoff head.
- Containment temperature is 195°F.
- PRZ level is 10%.

Which one of the following completes the statements below?

The pressurizer level requirement \_\_\_\_ (1) \_\_\_\_ met for terminating HHSI.

HHSI pumps will be rotated to limit continuous runtime of any pump to a maximum of \_\_\_\_ (2) \_\_\_\_ minutes.

- A. (1) is  
(2) 44
- B. (1) is  
(2) 30
- C. (1) is NOT  
(2) 44
- D. (1) is NOT  
(2) 30

Question # 26

Given the following conditions:

- Unit 3 tripped from 100% power.
- A LOCA is in progress.
- Attachment 3 of 3-EOP-E-0, Reactor Trip or Safety Injection, is complete.
- The running HHSI pumps trip.
- ANN A 4/2, QSPDS INADEQUATE CORE COOLING, alarms.
- CET temperatures are 1250°F and rising.
- RCPs are secured.

Which one of the following completes the statements below?

The highest priority Core Cooling CSF is a/an (1) path.

In accordance with the required Core Cooling FRP, the 1<sup>st</sup> priority is to (2) .

- A. (1) RED  
(2) start RCPs for forced flow
- B. (1) RED  
(2) establish HHSI flow
- C. (1) ORANGE  
(2) start RCPs for forced flow
- D. (1) ORANGE  
(2) establish HHSI flow

Question # 27

Given the following condition:

- The crew enters 4-EOP-FR-Z.2, Response to Containment Flooding.

Which one of the following identifies an unexpected source of water to containment?

- A. Water from the Accumulators may exceed the containment level design basis criterion when injected in an uncontrolled manner.
- B. Water from the RCS lower vessel may cause a thermal stress on the core when re-injected during the recirculation phase of accident.
- C. Water from the accident unit RWST may block the sump filters with contaminants if pumped below the low level setpoint.
- D. Water from the opposite unit RWST may reach critical plant components necessary for plant recovery and may be damaged.

Question # 28

Given the following conditions:

- Unit 3 is at 14% power.
- The 3B 4kV Bus de-energizes due to an undervoltage condition.

Which one of the following completes the statement below?

\_\_\_\_(1)\_\_\_\_ RCP(s) will trip and the reactor \_\_\_\_ (2) \_\_\_\_ automatically trip.

- A. (1) Only one  
(2) will
- B. (1) Only one  
(2) will NOT
- C. (1) Two  
(2) will
- D. (1) Two  
(2) will NOT

Question # 29

Given the following conditions:

- Unit 3 is at 100% power.
- NRHX outlet temperature on TI-3-144 is 151°F and rising.
- Letdown pressure on PI-3-145 is 295 psig.
- NRHX (Non Regenerative Heat Exchanger ) CCW flow is 105 gpm.
- TCV-3-143, Letdown Demin Divert Valve, remains aligned to the demineralizers.

Which one of the following identifies the effect if no action is taken?

- A. Demineralizer vessel over pressure condition
- B. Demineralizer bed high temperature degradation
- C. Flashing of the letdown line upstream of the NRHX
- D. Thermal stress on NRHX tubes due to insufficient cooling

Question # 30

Given the following conditions:

- Unit 3 is at 100% power.
- An inadvertent letdown isolation occurred.
- The cause has been identified and corrected.
- PRZ level is 68% and rising.

Which one of the following describes (1) a requirement for re-establishing letdown, and (2) the maximum allowable letdown flow when letdown is in service?

- A. (1) Orifice Isolation Valves CV-3-200A/B/C must be open prior to opening Letdown Isolation valve LCV-3-460.  
(2) 120 gpm
- B. (1) Orifice Isolation Valves CV-3-200A/B/C must be open prior to opening Letdown Isolation valve LCV-3-460.  
(2) 165 gpm
- C. (1) Letdown Isolation Valve LCV-3-460 must be open prior to opening Orifice Isolation Valves CV-3-200A/B/C  
(2) 120 gpm
- D. (1) Letdown Isolation Valve LCV-3-460 must be open prior to opening Orifice Isolation Valves CV-3-200A/B/C  
(2) 165 gpm

Question # 31

Given the following conditions:

- Unit 4 is in Mode 3.
- Plant startup is in progress in accordance with 4-GOP-301, Hot Standby to Power Operation.

Which one of the following identifies (1) the power supply to RHR Isolation Valve MOV-4-750 and (2) the current 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 # 32

Given the following conditions:

- A plant heatup is in progress in accordance with 3-GOP-503, Cold Shutdown to Hot Standby.
- RCS temperature is 520°F and rising.
- Pressurizer pressure is 2075 psig and rising.

Which one of the following completes the statements below?

The BLOCK LOW PRZ PRESS SI status light on VPA is \_\_\_\_ (1) \_\_\_\_ .

The LOW PRZ PRESS SI BLOCKED status light on VPA is \_\_\_\_ (2) \_\_\_\_ .

- A. (1) lit  
(2) lit
- B. (1) lit  
(2) NOT lit
- C. (1) NOT lit  
(2) lit
- D. (1) NOT lit  
(2) NOT lit



Question # 33

Given the following conditions:

- Unit 3 is at 100% power.
- RCS pressure is 2235 psig and stable.
- RCS leakage has risen by 0.5 gpm.

Which one of the following indications can SOLELY be used to distinguish a leaking PRZ PORV from a leaking PRZ Safety?

- A. PRZ relief tank level, LI-3-470
- B. PRZ relief tank pressure, PI-3-472
- C. PRZ relief line temperature, TI-3-463
- D. PRZ PORV/safety acoustic monitor, S-3-6303

Question # 34

Given the following conditions:

- Unit 3 is operating at 100% power.
- The 3B CCW Pump is in operation.
- The following alarms are received:
  - H 8/2, CCW PP A/B/C/ MOTOR OVERLOAD
  - H 8/1, CCW PP A/B/C TRIP
  - H 8/3, CCW HEADER LO PRESS

Which one of the following identifies the subsequent automatic action?

- A. 3A CCW pump will start immediately after initiating signal
- B. 3A CCW pump will start after at least 10 seconds
- C. 3C CCW pump will start immediately after initiating signal
- D. 3C CCW pump will start after at least 10 seconds

## Question # 35

Given the following conditions:

- All systems are in automatic when a vital instrument AC bus is lost.
- PRZ spray control indicates as follows :



Which one of the following completes the statements below?

120V Vital Instrument Bus power (1) is lost to the PCV-3-455B controller.

Due to the loss of power, PCV-3-455B LOOP B spray valve will (2) .

(Assuming no operator action)

- A. (1) 3P06  
(2) fail CLOSED
- B. (1) 3P06  
(2) remain AS IS
- C. (1) 3P09  
(2) fail CLOSED
- D. (1) 3P09  
(2) remain AS IS

Question # 36

Given the following conditions:

- Unit 3 is stable at 75% power.
- Control bank D is at 210 steps.

Which one of the following completes the statements below?

The Tech Spec maximum allowed rod position misalignment from group step counter demand is   (1)   steps.

If two C bank control rods drop into the core (one dropped rod RPI is at 2 steps and the other dropped rod RPI indicates 4 steps), the crew will   (2)   .

- A.   (1) 18  
      (2) trip the reactor
- B.   (1) 12  
      (2) trip the reactor
- C.   (1) 18  
      (2) stabilize the plant at power
- D.   (1) 12  
      (2) stabilize the plant at power

Question # 37

Given the following conditions:

- Unit 3 is at 100% power.
- 3-SMI-063.01A, Train A Safeguards Matrix Logic Test, is in progress.
- Blue channel STM HEADER PRESSURE, PT-3-466, fails HIGH.
- The test is stopped and all test switches are returned to normal.
- I&C wants to open the associated channel rack.

Which one of the following completes the statements below?

The (1) PROTECTION RACK OPEN annunciator is expected to alarm when I&C performs the investigation.

If one of the remaining steam header pressure protection transmitters subsequently fails LOW, the 3A train sequencer (2) start safeguards equipment.

- A. (1) CHANNEL II  
(2) will
- B. (1) CHANNEL III  
(2) will
- C. (1) CHANNEL II  
(2) will NOT
- D. (1) CHANNEL III  
(2) will NOT

Question # 38

Given the following conditions:

- Unit 3 is at 100% power.
- 3-OSP-055.1, Emergency Containment Cooler Operability Test, is in progress.

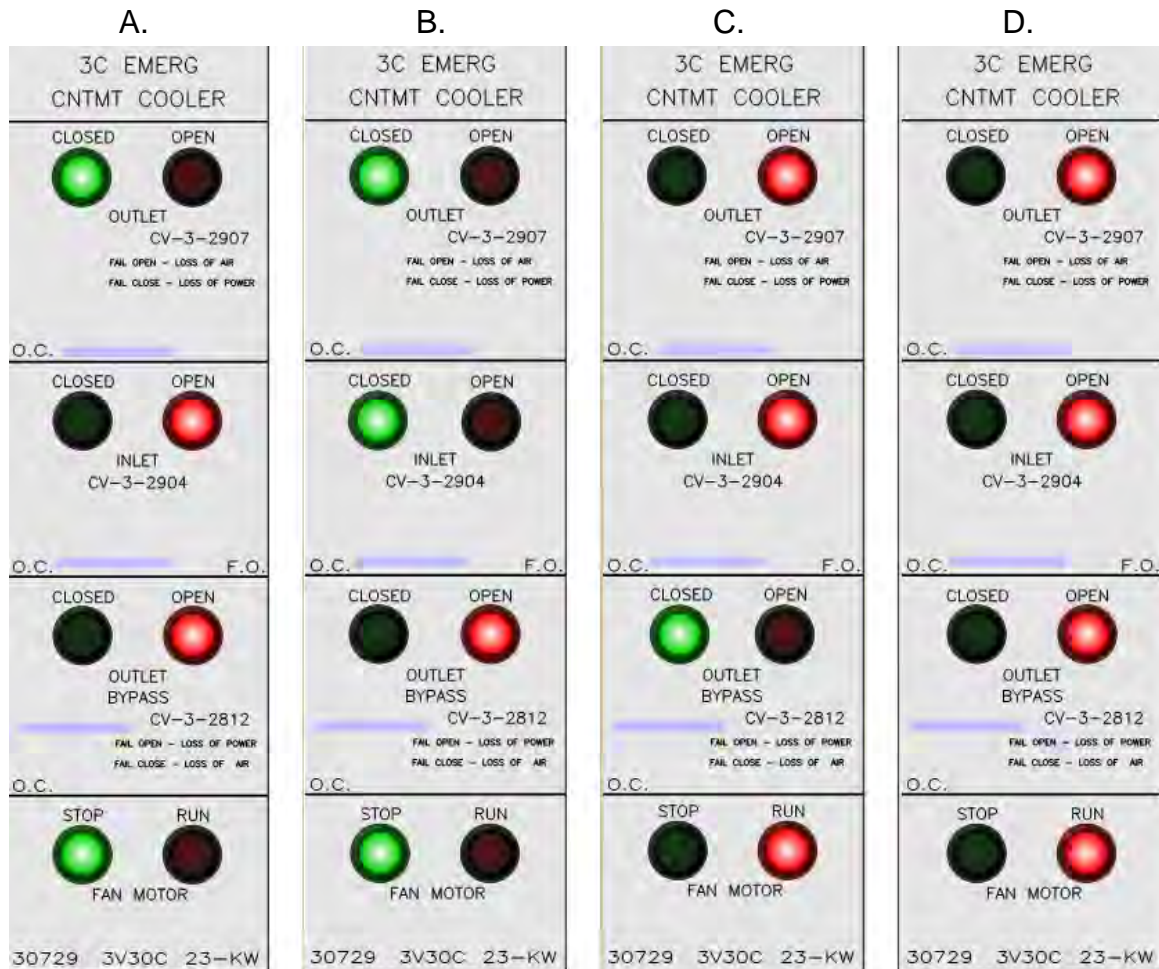
Which one of the following completes the statement below?

In accordance with 3-OSP-055.1, a minimum of   (1)   CCW Heat Exchangers must be in service to prevent exceeding the   (2)   during an ECC test.

- A.   (1) two  
      (2) 550 gpm individual ECC coil flow rate limit
- B.   (1) two  
      (2) 6840 gpm individual CCW heat exchanger flow rate limit
- C.   (1) three  
      (2) 550 gpm individual ECC coil flow rate limit
- D.   (1) three  
      (2) 6840 gpm individual CCW heat exchanger flow rate limit

## Question # 39

Which one of the following matches the letters identifying the alignments of the 3C ECC CCW valves in the (1) normal standby and (2) following a safety injection signal?



- A. (1) normal standby alignment- A  
(2) safety injection alignment- D
- B. (1) normal standby alignment- B  
(2) safety injection alignment- D
- C. (1) normal standby alignment- A  
(2) safety injection alignment- C
- D. (1) normal standby alignment- B  
(2) safety injection alignment- C

## Question # 40

Given the following conditions:

- Unit 3 trips from full power due to a steam line break inside containment.
- Containment pressure on DCS is 22 psig.
- The following is observed on VPB:



★ identifies a lit bistable

Which one of the following completes the statements below?

(Assuming no operator action)

Containment spray pumps   (1)   automatically started.

An ORANGE path on the Containment critical safety function,   (2)   present.

- A. (1) have  
(2) is
- B. (1) have NOT  
(2) is
- C. (1) have  
(2) is NOT
- D. (1) have NOT  
(2) is NOT



Question # 41

Given the following conditions:

- Unit 3 experiences a steam header break from 50% power.
- RCS pressure is 1800 psig.
- RCS Tavg is 525°F.
- Containment pressure is 0.1 psig.
- All SG pressures are 720 psig.
- All SG steam flows are 40% of full-scale.

Which one of the following completes the statements below?

(Assuming no operator action)

The Turbine Stop valves and MSIVs   (1)   receive an automatic closure signal.

MSR stop valves and MSIV bypasses   (2)   receive an automatic closure signal.

- A. (1) will NOT  
(2) will NOT
- B. (1) will NOT  
(2) will
- C. (1) will  
(2) will NOT
- D. (1) will  
(2) will

Question # 42

Given the following conditions:

- Unit 3 is performing a power ascension.
- The 3B Steam Generator Feed Pump is OOS.

Which one of the following identifies the MAXIMUM power level allowed in accordance with 3-GOP-301, Hot Standby to Power Operation?

- A. 88%
- B. 85%
- C. 58%
- D. 50%

Question # 43

Given Unit 3 is at 15% power.

Which one of the following completes the statements below?

A Main Steam Line Isolation signal   (1)   directly cause an automatic Auxiliary Feedwater actuation.

A feedwater isolation signal   (2)   close Main Feedwater Control Valves FCV-3-478, FCV-3-488 and FCV-3-498.

- A.   (1) will  
      (2) will
- B.   (1) will NOT  
      (2) will
- C.   (1) will  
      (2) will NOT
- D.   (1) will NOT  
      (2) will NOT

Question # 44

Given the following conditions:

- Unit 4 trips due to a LOOP.
- The crew is securing AFW to Unit 4.
- SG pressures are 200 psig.

Which one of the following identifies (1) which valve(s) is / are required to be throttled open PRIOR to starting the B Standby Feed Pump (SSGFP) and (2) the amount of pump run time that the B SSGFP fuel tank capacity will provide at full flow?

- A. (1) FCV-4-479, FCV-4-489 and FCV-4-499, FW Bypass Valves  
(2) 11 hours
- B. (1) DWDS-4-012, STBY SGFP Discharge Header to Unit 4 Isolation Valve  
(2) 11 hours
- C. (1) FCV-4-479, FCV-4-489 and FCV-4-499, FW Bypass Valves  
(2) 72 hours
- D. (1) DWDS-4-012, STBY SGFP Discharge Header to Unit 4 Isolation Valve  
(2) 72 hours

Question # 45

Given the following conditions:

- Unit 4 trips due to a loss of main feedwater.
- 4B 4kV Bus is locked out.
- Only the A AFW Pump is in service.
- A AFW Pump speed begins to lower due to a malfunctioning governor.

Which one of the following describes (1) how the change in AFW flow will initially affect pressurizer level and (2) the reason why?

- A. (1) pressurizer level will rise initially then lower  
(2) changing saturation conditions in the vessel head
- B. (1) pressurizer level will rise initially then lower  
(2) changing primary to secondary heat transfer rate
- C. (1) pressurizer level will lower and stabilize  
(2) changing saturation conditions in the vessel head
- D. (1) pressurizer level will lower and stabilize  
(2) changing primary to secondary heat transfer rate

## Question # 46

Given the following conditions:

- A loss of off-site power and SI has occurred on Unit 4.
- 4A EDG is powering the 4A 4KV Bus.
- 4A EDG is loaded to 2500 KW with essential loads.
- The RO is directed to load additional equipment in the following order:

A containment spray pump	212 KW
A battery charger	56 KW
A CRDM fan	48 KW
A computer room chiller	43 KW
A battery room ac	30 KW
An electrical equipment room A/C	25 KW

Which one of the following indicates the maximum number of components (if any) that may be started, in the order listed, before steady state loading limits on the 4A EDG are exceeded?

- A. 0
- B. 1
- C. 4
- D. 6

Question # 47

Given the following conditions:

- A loss of all AC power has occurred on Unit 3.
- 3-EOP-ECA-0.0, Loss of All AC Power, is entered.
- 4kV bus power can NOT be restored.

Which one of the following completes the statements below?

Operators are directed to shed non-essential loads in order to \_\_\_\_ (1) \_\_\_\_ .

Vital DC battery amps will be monitored by reading Vital DC bus voltages \_\_\_\_ (2) \_\_\_\_ .

- A. (1) lower battery discharge rates to lengthen availability of vital equipment  
(2) on DCS
- B. (1) lower battery hydrogen generation rates while no ventilation is available  
(2) on DCS
- C. (1) lower battery discharge rates to lengthen availability of vital equipment  
(2) at VPA
- D. (1) lower battery hydrogen generation rates while no ventilation is available  
(2) at VPA

Question # 48

Given the following conditions:

Unit 3 is at 10% power.

A loss of Vital DC bus 3D23 occurs.

Which one of the following describes the direct effect on the RTBs?

- A. 3A RTB opens due to loss of power to the undervoltage trip coil
- B. 3B RTB opens due to loss of power to the undervoltage trip coil
- C. 3A RTB opens due to loss of power to the shunt trip coil
- D. 3B RTB opens due to loss of power to the shunt trip coil



Question # 49

Given the following conditions:

- Unit 3 at 100% power.
- ANN F 8/2, EDG A TROUBLE, alarms.
- ANN 1/10, LOW AIR PRESSURE, is locked in at the local panel.
- The left-side Air Receivers for the 3A EDG are at 195 psig.
- The right-side Air Receivers for the 3A EDG are at 205 psig.

Which one of the following completes the statement below?

In accordance with 3-OP-023, Emergency Diesel Generator, the 3A EDG  
\_\_\_\_(1)\_\_\_\_ available to start and the right-side air receivers \_\_\_\_ (2) \_\_\_\_ be aligned to  
supply both the left-side and right-side set of Air Start Motors.

- A. (1) is  
(2) will
- B. (1) is NOT  
(2) will
- C. (1) is  
(2) will NOT
- D. (1) is NOT  
(2) will NOT

Question # 50

Given the following initial conditions:

- Unit 3 is at 100% power.

Subsequently:

- Annunciator H-1/6, PRMS CHANNEL FAILURE actuates.
- R-19, SG Blowdown Radiation Monitor, is failed.

Which one of the following completes the statements below?

Blowdown Isolation Valves, CV-3-6275A, B and C   (1)   auto close.

S/G Liquid Sample Valves, MOV-3-1425, 1426 and 1427   (2)   auto close.

- A. (1) will  
(2) will
- B. (1) will  
(2) will NOT
- C. (1) will NOT  
(2) will
- D. (1) will NOT  
(2) will NOT

Question # 51

Given the following initial conditions:

- Unit 3 is at 8% power, MOL.
- 3-GOP-301, Hot Standby to Power Operation, startup is in progress.
- The main generator is rolling unloaded at 1800 rpm.
- Steam Dump to Atmosphere (SDTA) valves are controlled as follows:
  - 3A is throttled in manual.
  - 3B is closed in manual.
  - 3C is throttled in AUTO.

Subsequently:

- 3C SDTA setpoint is lowered by 20 psig.

Which one of the following completes the statements below?

With no additional operator action, reactor power will   (1)   .

Control rods   (2)   automatically compensate for the SDTA adjustment.

- A. (1) lower  
(2) will
- B. (1) rise  
(2) will
- C. (1) lower  
(2) will NOT
- D. (1) rise  
(2) will NOT

Question # 52

Given the following conditions:

- Unit 3 is at 75% power.
- Annunciator F 1/1, RCP MOTOR/SHAFT HI VIB, is received.
- R-3-369 RCP Vibration Recorder indicates the following for 3B RCP:
  - Shaft vibration is 20 mils and rising slowly.
  - Motor frame vibration is 4 mils and stable.

Which one of the following completes the statement below?

The crew will \_\_\_\_ (1) \_\_\_\_ in accordance with \_\_\_\_ (2) \_\_\_\_ .

- A. (1) trip the reactor then trip the 3B RCP  
(2) 3-ARP-097.CR.F, Control Room Annunciator Response Panel F
- B. (1) trip the reactor then trip the 3B RCP  
(2) 3-ONOP-041.1, Reactor Coolant Pump Off-Normal
- C. (1) perform a fast load reduction  
(2) 3-GOP-100, Fast Load Reduction
- D. (1) perform a fast load reduction  
(2) 3-GOP-103, Power Operation to Hot Standby

Question # 53

Given the following conditions:

- Unit 3 is at 100% power.
- The 3A and 3B ICW pumps are running.
- The ICW header piping ruptures.

Which one of the following completes the statements below?

An ICW header (1) alarm will come in.

3-ONOP-019, Intake Cooling Water Malfunction, will direct (2) start of the 3C ICW pump.

- A. (1) low pressure  
(2) a manual
- B. (1) low pressure  
(2) verifying an automatic
- C. (1) high flow  
(2) a manual
- D. (1) high flow  
(2) verifying an automatic

Question # 54

Given the following conditions:

- Unit 3 is at 100% power.
- Instrument Air Header Pressure on PI-3-1444 is 85 psig and lowering slowly.
- Containment pressure is 0.3 psig and rising slowly.
- A Field Operator closes 3-40-337, Header Supply to Containment Isolation.

Which one of the following completes the statement below?

Normal letdown \_\_\_\_ (1) \_\_\_\_ expected to be lost and 3C loop pressurizer spray valve is expected to fail \_\_\_\_ (2) \_\_\_\_ .

- A. (1) is NOT  
(2) closed
- B. (1) is  
(2) open
- C. (1) is  
(2) closed
- D. (1) is NOT  
(2) open

Question # 55

Given the following conditions:

- Unit 3 is in Mode 6 with refueling in progress.
- A spent fuel assembly is damaged in containment.
- 3-ONOP-033.3, Accidents Involving New or Spent Fuel, is entered.
- The Containment Evacuation alarm is actuated.

Which one of the following completes the statements below:

The sound of the containment evacuation alarm can be described as a  
\_\_\_\_(1)\_\_\_\_ .

After the plant page is made to evacuate containment, the crew must next stop  
the \_\_\_\_ (2) \_\_\_\_ .

- A. (1) beeping tone  
(2) Containment Purge Fans
- B. (1) beeping tone  
(2) Normal Containment Cooler Fans
- C. (1) wailing tone  
(2) Containment Purge Fans
- D. (1) wailing tone  
(2) Normal Containment Cooler Fans

Question # 56

Given the following initial conditions:

- Unit 3 is at 50% power.
- All RCP currents indicate 600 amps.

Subsequently:

- 3A RCP current drops and stabilizes at 150 amps.

Which one of the following completes the statement below?

The reactor will automatically trip on \_\_\_\_\_ .

- A. RCS loop loss of flow
- B. 4kV bus voltage
- C. OP $\Delta$ T
- D. OT $\Delta$ T



Question # 57

Given the following initial conditions:

- Unit 3 is at 40% power.
- LT-3-461, PRZ LEVEL PROT / CONT channel failed.
- All bistables for the failed channel are tripped.
- The plant is stabilized and all systems are in automatic.

Subsequently:

PRZ LEVEL PROT / CONTROL channel:

- LI-3-459 is 90% and rising.
- LI-3-460 is 94% and rising.
- LI-3-461 is 85% and stable.

Which one of the following identifies a condition the crew is currently responding to?

- A. Reactor trip breakers opening
- B. Charging pumps tripping
- C. PRZ heaters tripping
- D. Backup PRZ heaters energizing

Question # 58

Given the following conditions:

- A load reduction is in progress in accordance with 3-GOP-100, Fast Load Reduction.
- Rod Control is in AUTO.
- Control bank C RPIs indicate 188 steps.
- Control bank D RPIs indicate 60 steps.
- Reactor power is 50%.

Which one of the following completes the statements below?

The Rod Insertion Limit Monitor compares C & D bank steps with (1) to determine if limits are exceeded.

The rod insertion limits (2) exceeded.

**REFERENCE PROVIDED**

- A. (1) median loop  $T_{avg}$   
(2) are
- B. (1) median loop  $T_{avg}$   
(2) are NOT
- C. (1) median loop  $\Delta T$   
(2) are
- D. (1) median loop  $\Delta T$   
(2) are NOT

Question # 59

Given the following conditions:

- Unit 4 is at 100% power.
- A Core Exit Thermocouple fails.
- ANN A4/2 QSPDS INADEQUATE CORE COOLING, alarms.

Which one of the following completes the statements below?

QSPDS \_\_\_\_ (1) \_\_\_\_ automatically bypass the failed inputs.

ANN A4/2, can also be actuated by a failed \_\_\_\_ (2) \_\_\_\_.

- A. (1) will  
(2) Tavg module
- B. (1) will NOT  
(2) Tavg module
- C. (1) will  
(2) RVLMS sensor
- D. (1) will NOT  
(2) RVLMS sensor

Question # 60

Given the following conditions:

- Unit 3 is in Mode 5.
- A Containment purge is initiated in accordance with 3-NOP-053, Containment Purge System.

Which one of the following completes the statements below?

Containment Purge flow is monitored on \_\_\_\_ (1) \_\_\_\_ .

A high alarm on noble gas monitor 3-R-12 \_\_\_\_ (2) \_\_\_\_ cause the Unit 3 purge exhaust and supply fans to trip.

- A. (1) DCS ONLY  
(2) will
- B. (1) DCS and VPB  
(2) will
- C. (1) DCS ONLY  
(2) will NOT
- D. (1) DCS and VPB  
(2) will NOT

Question # 61

Given the following initial conditions:

- Unit 3 is in Mode 5.
- Spent Fuel Pit (SFP) level is 56' 11".
- SFP boron concentration is 2300 ppm.

Subsequently:

- A tube inside of the in-service Spent Fuel Pool Heat Exchanger breaks.
- ANN H 8/6 CCW HEAD TANK HI/LO LEVEL alarms.
- A crew is dispatched to isolate the heat exchanger.

Which one of the following correctly completes the statement below?

The crew must take action to prevent Spent Fuel Pool (1) from violating the Tech Spec LCO by performing a (2) to the SFP in accordance with 3-NOP-033, Spent Fuel Pit Cooling System.

- A. (1) level  
(2) direct boration
- B. (1) level  
(2) primary water fill
- C. (1) boron concentration  
(2) direct boration
- D. (1) boron concentration  
(2) primary water fill

Question # 62

Given the following conditions:

- A 3C Steam Generator tube rupture occurs.
- A loss of offsite power occurs.
- The crew enters 3-EOP-E-3, Steam Generator Tube Rupture.
- ECCS flow has been terminated.
- Offsite power has been restored to the emergency buses.
- The crew is performing step 37, Evaluate RCP Status.

Which one of the following describes the preferred operation of the RCPs?

- A. Start the 3C RCP, then 3B RCP.
- B. Start ONLY the 3B RCP.
- C. Start ONLY the 3C RCP.
- D. Start ONLY the 3A RCP.

Question # 63

Given the following conditions:

- Unit 3 is at 75% power and stable.
- Absolute condenser pressure is 2 in Hg on DCS.
- A steam leak occurs downstream of steam jet air ejector common steam supply valve, 3-30-020.

Which one of the following completes the statements below?

Absolute condenser pressure will    (1)    .

Turbine exhaust hood temperatures will    (2)    .

- A.   (1) RISE  
      (2) LOWER
- B.   (1) RISE  
      (2) RISE
- C.   (1) LOWER  
      (2) LOWER
- D.   (1) LOWER  
      (2) RISE

Question # 64

Given the following conditions:

- Discharge of a Waste Monitor Tank is in progress.
- H 1/4, PRMS HI RADIATION, is received.
- R-18 HI alarm is lit.

Which one of the following describes the action required by the crew?

- A. Manually trip the in-service Waste Monitor Tank discharge pump.
- B. Manually close RCV-018, Liquid Waste Effluent Isolation Valve.
- C. Verify that the in-service Waster Monitor Tank discharge pump automatically trips.
- D. Verify that RCV-018, Liquid Waste Effluent Isolation Valve automatically closes.



Question # 65

Given the following conditions:

- Both units are at 100% power.
- ANN I-6/1 INSTRUMENT AIR HI TEMP/LO PRESS alarms on both units.
- Both units implement 3/4-ONOP-013, Loss of Instrument Air.
- Instrument air pressure on Unit 3 is 85 psig and slowly lowering.
- Instrument air pressure on Unit 4 is 90 psig and stable.
- NO additional Instrument Air Compressors can be started.

Which one of the following describes the required actions in accordance with 3/4-ONOP-013?

- A. Manually close Header Pressure Control Valve CV-4-1605 and then close CV-3-1605.
- B. Manually close Header Pressure Control Valve CV-3-1605 and then close CV-4-1605.
- C. Locally start available Service Air Compressors and open Service Air Supply to Unit 3 / Unit 4 tie valve 40-2059.
- D. Locally start available Service Air Compressors and open Units 1 and 2 Instrument / Service air supply valve 40-1331.

Question # 66

Which one of the following completes the statement below?

The following shall be OPERABLE for core alterations:

At a minimum, \_\_\_\_ (1) \_\_\_\_ Source Range Neutron Flux Monitor(s) with continuous visual indication in the control room and audible indication in the containment and control room, and one \_\_\_\_ (2) \_\_\_\_ channel with continuous visual indication in the control room.

- A. (1) one  
(2) Intermediate Range
- B. (1) two  
(2) Intermediate Range
- C. (1) one  
(2) Gamma Metrics
- D. (1) two  
(2) Gamma Metrics

Question # 67

Given the following conditions:

- Unit 3 is at 100% power.
- A 3C loop Tcold fails HIGH.
- The following alarms are received:
  - B 3/6, OT $\Delta$ T
  - B 4/5, RCS HI/LO TAVG
  - B 5/5, OT $\Delta$ T/OP $\Delta$ T ROD STOP
  - B 5/6,  $\Delta$ T DEVIATION
  - J 7/4, EAGLE 21 TROUBLE
  - J 9/5, RTD CHANNEL FAILURE

Which one of the following completes the statements below?

Median Tavg on TR-3-408 will   (1)   .

3C loop   (2)   setpoint on VPA will indicate lower.

- A. (1) indicate higher  
(2) OT $\Delta$ T
- B. (1) remain the same  
(2) OT $\Delta$ T
- C. (1) indicate higher  
(2) OP $\Delta$ T
- D. (1) remain the same  
(2) OP $\Delta$ T

Question # 68

Given the following conditions:

- A control room evacuation is ordered in accordance with 0-ONOP-105, Control Room Evacuation.

Which one of the following completes the statements below?

The Unit 3 (1) will report to the Unit 3 Alternate Shutdown Panel to control the plant.

The (2) is required to report to the Unit 3 and 4 Main Turbine Front Standards and ensure the Turbines are tripped.

- A. (1) Reactor Operator  
(2) Non-Fire Brigade Nuclear Plant Operator
- B. (1) Reactor Operator  
(2) Third Licensed Reactor Operator
- C. (1) Unit Supervisor  
(2) Non-Fire Brigade Nuclear Plant Operator
- D. (1) Unit Supervisor  
(2) Third Licensed Reactor Operator

Question # 69

Given the following conditions:

- Both units are at 100% power.

Which one of the following completes the statements below?

In accordance with 3-OSP-075.1, Auxiliary Feedwater Train 1 Operability Verification, Train 1 of AFW (1) be declared OPERABLE with AFW feedwater control valves in manual.

When the test is complete, AFW flow controllers will be set to (2) .

- A. (1) will  
(2) 130 gpm
- B. (1) will  
(2) 135 gpm
- C. (1) will NOT  
(2) 130 gpm
- D. (1) will NOT  
(2) 135 gpm

Question # 70

Given the following conditions:

- Unit 3 is at 100% power.
- All circulating water pumps are running.
- MOV-3-1415, 3A2 CIRC WTR PUMP DISCHARGE VLV, is de-energized open on a clearance.
- The next step in the clearance is to stop the 3A2 Circulating Water Pump (CWP).

Which one of the following completes the statements below?

**REFERENCES PROVIDED**

The 3A2 CWP \_\_\_\_ (1) \_\_\_\_ be stopped at this time.

Breaker 3AA01 \_\_\_\_ (2) \_\_\_\_ be used to complete the 3A2 CWP tag out.

- A. (1) will NOT  
(2) will NOT
- B. (1) will NOT  
(2) will
- C. (1) will  
(2) will NOT
- D. (1) will  
(2) will

Question # 71

Given the following conditions:

- Unit 3 is raising power from 25% to 100%.
- Containment radiation monitors indicate rising trends.
- R-11/12, Containment Air Particulate / Gas Radiation Monitors are in HIGH alarm.

Which one of the following completes the statements below?

In accordance with 3-ONOP-067, Radioactive Effluent Release, to check the channel operability of R-11/12, the operator must   (1)  .

The R-11/12 bypass switch on VPB   (2)   a keylock switch.

- A. (1) depress the CHECK SOURCE pushbutton and ensure that the readout rises slightly  
(2) is
- B. (1) depress the CHECK SOURCE pushbutton and ensure that the readout rises slightly  
(2) is NOT
- C. (1) depress the FAIL/TEST pushbutton and ensure that the readout equals 288K or 289K  
(2) is
- D. (1) depress the FAIL/TEST pushbutton and ensure that the readout equals 288K or 289K  
(2) is NOT

Question # 72

Given the following conditions:

- The crew is maneuvering the unit in accordance with 3-GOP-301, Hot Standby to Power Operation.
- Power is stabilized at 5% power.

Which one of the following completes the statements below?

During the next rod withdrawal, the maximum startup rate allowed is   (1)   .

When syncing to the grid, steam load will transfer from the steam dumps to   (2)   to the main turbine.

- A.   (1) 1 dpm  
      (2) atmosphere
- B.   (1) 1 dpm  
      (2) condenser
- C.   (1) 0.5 dpm  
      (2) atmosphere
- D.   (1) 0.5 dpm  
      (2) condenser



Question # 73

Given the following conditions:

- An imminent airborne threat has been confirmed by Plant Security.

Which one of the following completes the statements below?

The   (1)   will become the Emergency Coordinator.

If ONLY the EC is incapacitated, the Third Licensed Reactor Operator, which does NOT hold an active SRO license,   (2)   be next in line to relieve the EC.

- A.   (1) Shift Manager  
      (2) will NOT
- B.   (1) Security Shift Supervisor  
      (2) will NOT
- C.   (1) Shift Manager  
      (2) will
- D.   (1) Security Shift Supervisor  
      (2) will

Question # 74

Given the following initial conditions:

- Unit 3 trips from 25% power due to a Startup Transformer failure.
- The Startup Transformer must be replaced.
- Safety Injection is NOT required.

Which one of the following completes the statements below:

The crew will transition from 3-EOP-E-0, Reactor Trip or Safety, to a(n)  
\_\_\_\_(1)\_\_\_\_ to cooldown the plant.

When performing non-accident EOPs, all Technical Specification surveillances  
\_\_\_\_(2)\_\_\_\_ required to be complied with.

- A. (1) Functional Restoration Procedure  
(2) are NOT
- B. (1) Functional Restoration Procedure  
(2) are
- C. (1) Optimal Recovery Procedure  
(2) are NOT
- D. (1) Optimal Recovery Procedure  
(2) are

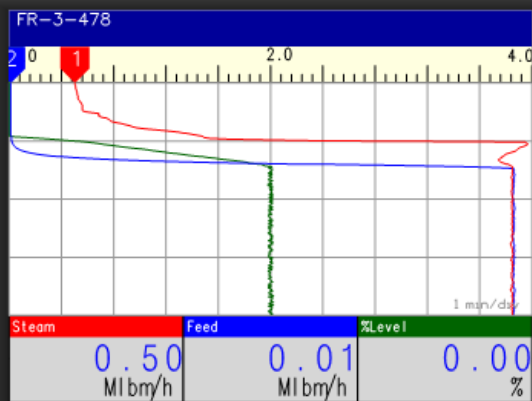
Question # 75

Which one of the following identifies a Control Board Instrument that may be available in a post-accident condition, and the required color of the instrument label, in accordance with O-ADM-209, Equipment Tagging and Labeling?

- A. PI-3-444, Pressurizer Pressure; blue
- B. PI-3-444, Pressurizer Pressure; purple
- C. TI-3-410A, Loop A T-cold Wide Range; blue
- D. TI-3-410A, Loop A T-cold Wide Range; purple

# A STEAM GENERATOR

YOKOGAWA ◆



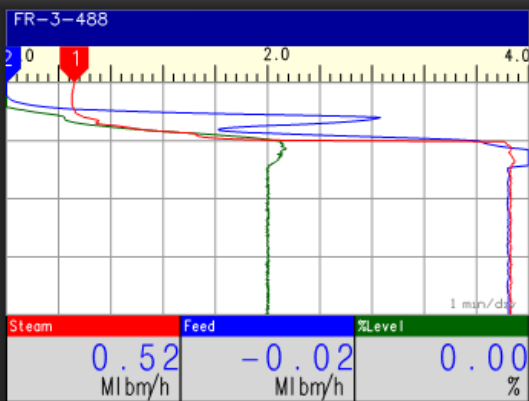
FR-3-478

1  
2  
3



# B STEAM GENERATOR

YOKOGAWA ◆



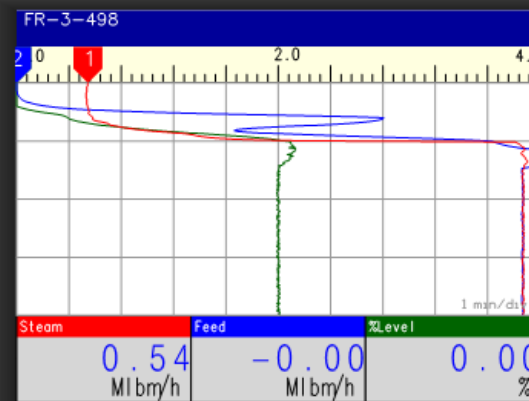
FR-3-488

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# C STEAM GENERATOR

YOKOGAWA ◆



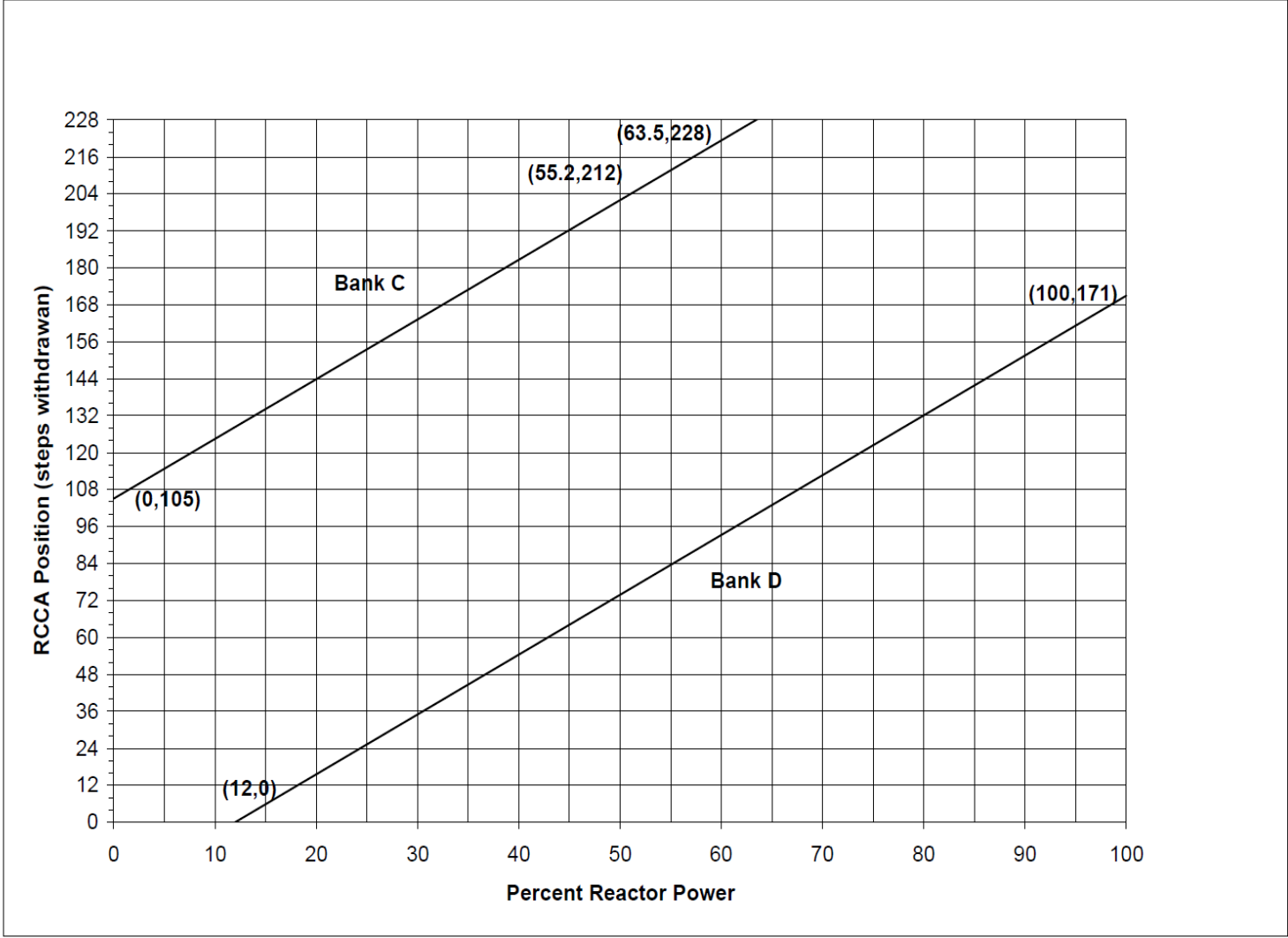
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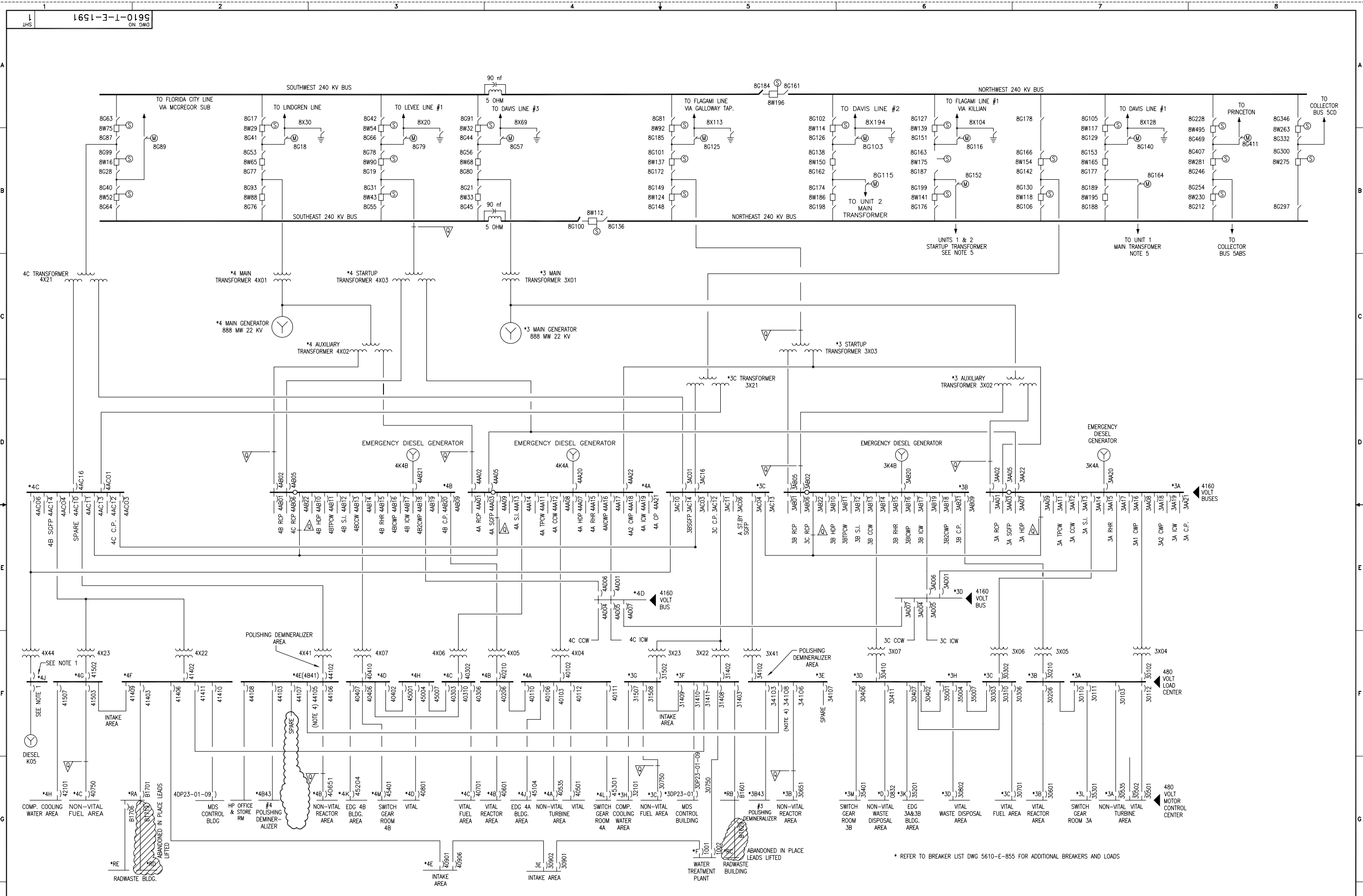
1  
2  
3



**FIGURE A3**

**Turkey Point Unit 3 Cycle 28 Rod Insertion Limits vs Thermal Power**  
**ARO = 228 Steps Withdrawn, Overlap = 100 Steps**





NOTES:

- SEE 5610-E-1522 FOR ADDITIONAL INFORMATION
- DELETED
- DELETED
- 480V TIE-LINE BETWEEN LOAD CENTERS 3E & 4E IS A TEMPORARY MAINTENANCE TIE AND ITS USE IS CONTROLLED BY PROCEDURE 3/4-NOP-006.
- NOTIFY NPS PRIOR TO COMMENCING WORK ON THIS SYSTEM.

71	3/19/13	ISSUED AS-BUILT PER EC 249331 (TOP 13-03-150).	RH	BB	-	ERJ	65	4/25/12	ISSUED AS-BUILT PER EC 249330 AND INCORP. CRN-038.	RV	BB	-	AH
70	02-09-12	ISSUED AS-BUILT PER EC 242437 (TOP 13-02-034)	RH	RV	-	PMB	64	2/23/12	ISSUED AS-BUILT PER EC 249330. (PARTIAL - BREAKER ONLY)	RV	RH	-	LG
69	12-08-12	ISSUED AS-BUILT PER EC-DCR 27665.	RV	BB	-	MA	63	1/27/12	ISSUED AS-BUILT PER EC 246989(PC/M 09-105).	RV	RH	-	LG
68	08-30-12	ISSUED AS-BUILT PER EC 246916 (PC/M 06-167) .	RV	BB	DA	JD	74	06-13-13	ISSUED AS-BUILT PER EC 246917 (TOP 13-06-052).	RV	RH	-	PMB
67	08-23-12	ISSUED AS-BUILT PER EC 275192	RV	RH	-	PMB	73	04-02-13	ISSUED AS-BUILT PER EC-DCR 278017.	RV	BB	-	DBJ
66	06-11-12	ISSUED AS-BUILT PER EC 275192	RV	BB	-	PDS	72	3-29-13	ISSUED AS-BUILT PER EC 246904 & INCORP. CRN-017 (TOP 13-03-168).	RH	RV	-	TK
REV	DATE	REVISION	BY	CH	APP	APP	REV	DATE	REVISION	BY	CH	APP	APP

\* REFER TO BREAKER LIST DWG 5610-E-855 FOR ADDITIONAL BREAKERS AND LOADS

SAFETY RELATED

POD

TURKEY POINT NUCLEAR UNITS 3 & 4

FLORIDA POWER & LIGHT

OPERATING DIAGRAM  
ELECTRICAL  
DISTRIBUTION

DRAWING NUMBER

5610-T-E-1591

SHEET: 1

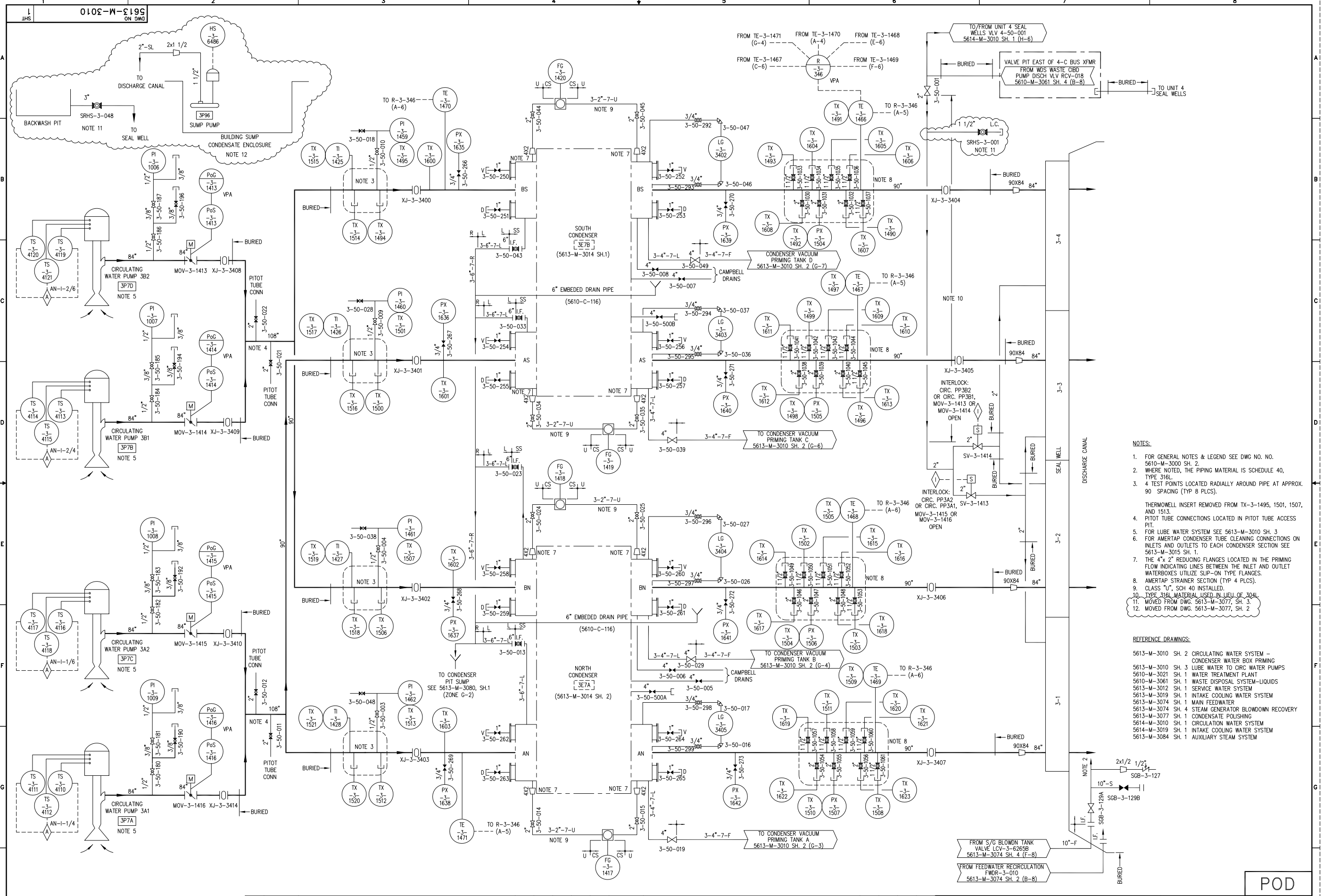
SYS

-

REV

74






- NOTES:
1. FOR GENERAL NOTES & LEGEND SEE DWG NO. NO. 5610-M-3000 SH. 2.
  2. WHERE NOTED, THE PIPING MATERIAL IS SCHEDULE 40, TYPE 316L.
  3. 4 TEST POINTS LOCATED RADIALLY AROUND PIPE AT APPROX. 90° SPACING (TYP 8 PLCS).
  4. THERMOWELL INSERT REMOVED FROM TX-3-1495, 1501, 1507, AND 1513.
  5. PITOT TUBE CONNECTIONS LOCATED IN PITOT TUBE ACCESS PIT.
  6. FOR LUBE WATER SYSTEM SEE 5613-M-3010 SH. 3.
  7. FOR AMERTAP CONDENSER TUBE CLEANING CONNECTIONS ON INLETS AND OUTLETS TO EACH CONDENSER SECTION SEE 5613-M-3015 SH. 1.
  8. THE 4" x 2" REDUCING FLANGES LOCATED IN THE PRIMING FLOW INDICATING LINES BETWEEN THE INLET AND OUTLET WATERBOXES UTILIZE SLIP-ON TYPE FLANGES.
  9. AMERTAP STRAINER SECTION (TYP 4 PLCS).
  10. CLASS "U", SCH 40 INSTALLED.
  11. TYPE 316L MATERIAL USED IN LIFT OF 304.
  12. MOVED FROM DWG. 5613-M-3077, SH. 3.
  13. MOVED FROM DWG. 5613-M-3077, SH. 2.

- REFERENCE DRAWINGS:
- 5613-M-3010 SH. 2 CIRCULATING WATER SYSTEM - CONDENSER WATER BOX PRIMING
  - 5613-M-3010 SH. 3 LUBE WATER TO CIRC WATER PUMPS
  - 5610-M-3021 SH. 1 WATER TREATMENT PLANT
  - 5610-M-3061 SH. 1 WASTE DISPOSAL SYSTEM-LIQUIDS
  - 5613-M-3012 SH. 1 SERVICE WATER SYSTEM
  - 5613-M-3019 SH. 1 INTAKE COOLING WATER SYSTEM
  - 5613-M-3074 SH. 1 MAIN FEEDWATER
  - 5613-M-3074 SH. 4 STEAM GENERATOR BLOWDOWN RECOVERY
  - 5613-M-3077 SH. 1 CONDENSATE POLISHING
  - 5614-M-3010 SH. 1 CIRCULATION WATER SYSTEM
  - 5614-M-3019 SH. 1 INTAKE COOLING WATER SYSTEM
  - 5613-M-3084 SH. 1 AUXILIARY STEAM SYSTEM

THIS DRAWING SUPERSEDES DRAWINGS:  
5610-M-5 SH. 1 REV. 41  
5610-M-342 SH. 1 REV. 9  
5610-M-364 SH. 1 REV. 2  
5610-M-365 SH. 1 REV. 6

NOTE: THIS DWG IS MADE FROM:  
FPL POD 5610-T-E-4065 SH. 2 REV. 58

28	4-25-14	ISSUED AS-BUILT PER EC 242495.	RH	RV	-	RSV	22	12-1-10	ISSUED AS-BUILT PER EC 242487 (PC/M 09-041).	RH	RV	RN	TS
27	4-17-14	ISSUED AS-BUILT PER EC 242051 (242051-FINAL).	RH	AFG	-	EB	21	11-02-10	ISSUED AS-BUILT PER EC 242489.	RV	CBW	PJV	MG
26	2-12-13	ISSUED AS-BUILT PER EC 249149 (ITOP 13-02-065).	RH	DS	-	RSV	20	8-13-09	ISSUED AS-BUILT PER CRN'S M-12628 & M-12629 (PC/M 09-005).	RV	BB	-	PJV
25	8-29-12	ISSUED AS-BUILT PER EC 246914 (PC/M 08-165) INCORP. CRN'S-028, 029 & 043 RV/RH	BB	DA	-	JD	19	4-24-09	ISSUED AS-BUILT PER PC/M 09-043 (PARTIAL) & INCORP. CRN M-12706.	RH	BB	ASD	PRB
24	7-19-12	ISSUED AS-BUILT PER EC 246914. (PARTIAL)	RH	RV	-	JL	0	1-29-91	THIS DWG CREATED PER THE P & ID RECONSTITUTION PROJECT SCOPE	TAM	MD	SW	LBR
23	12-17-11	ISSUED AS-BUILT PER EC-DCR 274982.	RH	RV	-	BB	-	-	AND ISSUED INTO THE FPL DWG SYSTEM PER DCR-TPM-90-541.	-	-	-	-
REV	DATE	REVISION	BY	CH	APP	APP	REV	DATE	REVISION	BY	CH	APP	APP



**TURKEY POINT NUCLEAR UNIT 3**

P & ID

**CIRCULATING WATER SYSTEM**

**STONE & WEBSTER ENGINEERING CORP.**  
FT. LAUDERDALE, FLORIDA

DRAWING NUMBER  
**5613-M-3010**

SHEET 1

SYS  
**010**

REV  
**28**

POD

Additional Reference:

- GFES Equation Sheet



SCANTRON.

Scantron Test Sheet  
100/W

Form No. 95677

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

PERFORMANCE ASSESSMENT			
% OF TOTAL SCORE		POINTS EARNED	
90 = 100%			
EQUIVALENT VALUE	0	0	0
	1	1	1
	2	2	2
	3	3	3
	4	4	4
	5	5	5
	6	6	6
	7	7	7
	8	8	8
	9	9	9

Bar Code

KEY ID  
A B C D

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

FEED IN THIS DIRECTION

1 T F A B C D E  
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3 A B C D E  
4 A B C D E  
5 A B C D E  
6 A B C D E  
7 A B C D E  
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SCORE	
RESCORE	

100  
ITEM

MARKING INSTRUCTIONS

Use a No. 2 Pencil  
A B C D E  
Fill oval completely  
A B C D E  
Erase cleanly

NAME L-16-1 WRITTEN EXAM  
SUBJECT RO KEY  
PERIOD DATE 9/2/16

STUDENT ID NUMBER

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