

2014 NRC RO Written Exam

1. Which ONE of the following completes the statement below?

The response of Reactor power level following a Reactor trip from 100% power is characterized by a prompt drop (1), followed by a -1/3 DPM startup rate for approximately (2).

- A. (1) of approximately 3 decades as indicated on NI-35 and NI-36
(2) 20 minutes
- B. (1) to approximately 5% power as indicated on PR-41, PR-42, PR-43 and PR-44
(2) 20 minutes
- C. (1) of approximately 3 decades as indicated on NI-35 and NI-36
(2) 3-4 hours
- D. (1) to approximately 5% power as indicated on PR-41, PR-42, PR-43 and PR-44
(2) 3-4 hours

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2. Given the following plant conditions:
- The unit is operating at 100% power

Subsequently:

- A Loss of Offsite Power occurred
- ONE PRZ PORV is partially OPEN
- PRZ pressure is 1785 psig
- PRT pressure is 35 psig

Which of the following completes the statements below for the current conditions?

The temperature indicated on the PRZ PORV Tailpipe Temperature Indicator, TI-463, is (1) .

As PRT pressure continues to rise the rupture discs on the PRT will rupture at (2) psig.

- A. (1) 622°F
(2) 100
- B. (1) 622°F
(2) 150
- C. (1) 280°F
(2) 100
- D. (1) 280°F
(2) 150

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3. Given the following plant conditions:
- The unit was operating at 100% power

Subsequently the following occurs:

- Small Break LOCA
- Loss Of Offsite Power

Currently:

- The crew is implementing EOP-ES-1.2, Post LOCA Cooldown and Depressurization
- PRZ level is off scale low
- The OATC has been directed to depressurize the RCS to refill the PRZ

Which ONE of the following actions will be performed by the OATC to initiate the RCS depressurization?

- A. OPEN one PRZ PORV
- B. OPEN 1CS-487, PRZ Aux Spray valve
- C. Place both PRZ Spray Valves to MANUAL and increase the demand signal to OPEN both valves
- D. Place PK-444.1, Master Pressure Controller, to MANUAL and increase the demand signal to OPEN both PRZ Spray Valves

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4. Given the following plant conditions:
- The unit was operating at 100% power

Subsequently a Large Break LOCA has occurred.

Which ONE of the following describes the characteristics of a design basis Large Break LOCA one (1) minute into the event in accordance with the FSAR?

RCS temperature is approximately (1) .

RCS pressure is stable at approximately (2) .

- A. (1) 538°F
(2) 625 psig
- B. (1) 538°F
(2) 45 psig
- C. (1) 292°F
(2) 625 psig
- D. (1) 292°F
(2) 45 psig

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5. Given the following plant conditions:

- The unit is in Mode 1
- UAT's are supplying power to the Aux Buses
- Current MCB Bypass Permissive and Trip Status Light Box indicate the following:
 - P-7 LIT
 - P-8 EXTINGUISHED
 - P-10 LIT
 - P-13 EXTINGUISHED

A fault on breaker 108, Unit Aux Xfmr A to Aux Bus A, causes the breaker to open.

Which ONE of the following completes the statement below concerning the plant response and reason for the current condition?

An Auto Reactor trip will (1) because of the status of (2) .

- A. (1) occur
 (2) P-7
- B. (1) occur
 (2) P-13
- C. (1) NOT occur
 (2) P-8
- D. (1) NOT occur
 (2) P-10

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6. Given the following plant conditions:

- The unit is operating at 100% power
- The following annunciators have just gone into alarm:
 - ALB-008-5-3, RCP-C Seal #1 Leakoff High Low Flow
 - ALB-006-1-1, Charging Pumps Disch Header High-Low Flow
- 'A' CSIP pump amps have risen from 54 amps to 60 amps
- PI-121, Charging Header Pressure, lowers from 2400 psig to 2125 psig
- Charging flow controller FK-122.1 demand is rising
- RCP seal injection flows are:
 - A RCP = 5.1 gpm B RCP = 5.0 gpm C RCP = 4.9 gpm

Which ONE of the following is the required response to these conditions in accordance with AOP-018, Reactor Coolant Pump Abnormal Conditions?

- A. Stop the running CSIP due to charging leakage and then monitor ASI pump operation.
- B. Stop the running CSIP due to a shaft shear and then start the standby CSIP.
- C. Backflush the seal water injection and return filters due to filter blockage.
- D. Trip the Reactor, secure all RCP's and shut all RCP seal water return valves due to filter blockage.

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7. Given the following plant conditions:

- The plant is in Mode 6 and the core reload is in progress
- The second assembly has been taken from the upender and is on its way to the core
- 'A' Train RHR is in service
- 'B' Train RHR is under clearance for breaker overhaul and will be returned to service in 2 hours
- Cavity level is 23 feet 4 inches above the Reactor Vessel Flange
- RCS temperature is 80°F

Subsequently:

- 'A' RHR Pump trips

Which ONE of the following is a correct response for the given conditions?

- A. Actuate Phase A Isolation.
- B. Continue refueling activities for up to 1 hour.
- C. Suspend fuel movement immediately.
- D. Immediately verify all Containment penetrations closed.

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8. Given the following plant conditions:

- The unit is in Mode 4, performing a cooldown on RHR
- Both trains of CCW are in service
- NSW pump 'A' is operating; NSW pump 'B' is in standby

Subsequently the 'A' NSW pump trips on an overcurrent condition.

Which ONE of the following completes the statement below?

The ESW pumps will start on a (1) signal to cool (2) .

 (1) (2)

- A. breaker trip Train 'A' CCW ONLY
- B. low pressure Train 'A' CCW ONLY
- C. breaker trip BOTH trains of CCW
- D. low pressure BOTH trains of CCW

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9. Which ONE of the following completes the statements below?

In accordance with the EOP Basis Document, the reason(s) for tripping the Main Turbine during an ATWS is to prevent (1) .

In accordance with EOP-FR-S.1, Response to Nuclear Power Generation/ATWS, the first verification that the Main Turbine has tripped will be to check Turbine (2) .

- A. (1) adding positive reactivity and conserve SG inventory
(2) Stop Valve position (on TSLB 2)
- B. (1) adding positive reactivity and conserve SG inventory
(2) Governor Valve position (on DEH Panel B)
- C. (1) pressurized thermal shock
(2) Stop Valve position (on TSLB 2)
- D. (1) pressurized thermal shock
(2) Governor Valve position (on DEH Panel B)

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10. Given the following plant conditions:

- The unit was operating at 100% power, a Reactor Trip and Safety Injection have occurred due to a steam line break in Containment on the 'B' SG

Current plant conditions are as follows:

- Containment pressure is 28 psig
- The crew has transitioned from EOP-E-0, Reactor Trip or Safety Injection and are at step 1 of EOP-E-2, Faulted Steam Generator Isolation

Which ONE of the following identifies the set of valves listed below that are expected to be in the SHUT position for the current plant conditions?

1. All MSIV's
 2. 1MS-70, Main Steam B to Aux FW Turbine
 3. 'B' SG MDAFW AND TDAFW motor isolation valves
 4. ONLY 'B' MSIV
 5. All Blowdown isolation valves
 6. 1SI-3, BIT Outlet
- A. 1, 2 and 3
- B. 4, 5 and 6
- C. 1, 3 and 5
- D. 2, 4 and 6

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11. Given the following plant conditions:

- The unit has just entered Mode 2
- 1B MFW pump is in operation and trips due to low lubricating oil pressure

One (1) minute later the following plant conditions exist:

- Multiple Containment radiation monitors are in alarm
- Containment pressure is 13.2 psig and rising
- RCS pressure is 650 psig and lowering
- Tavg is 342°F and lowering
- SG pressures are 1106 psig
- SG levels are:
'A' 23% slowly rising 'B' 22% slowly rising 'C' 24% slowly rising

Given the current plant conditions, which ONE of the following completes the statement below?

The Main Feedwater system _____ required to maintain a heat sink.

- A. continues to operate and is
- B. continues to operate but is not
- C. has been automatically isolated and AFW is
- D. has been automatically isolated and AFW is not

12. Given the following plant conditions:

- The unit is operating at 100% power
- 1 minute ago the crew completed an ESCW Chiller swap from the 'A' Chiller to the 'B' Chiller

Subsequently:

- A loss of Off-site power has occurred

The Safeguards Actuation verification is in progress in accordance with EOP-E-0, Reactor Trip or Safety Injection, Attachment 3.

Which ONE of the following identifies the current status of ESCW chillers WC-2A and WC-2B?

- A. Both will restart via sequencer operation on their respective buses.
- B. Both will restart immediately upon restoration of power of their respective bus.
- C. Neither will be running but can be manually restarted after the 30 minute anti-recycle interlock has timed out.
- D. Neither will be running but could be manually restarted after verifying Load Block 9 was reached on their respective sequencer.

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13. Given the following plant conditions:

- The plant is at 100% power
- 'B' Train equipment is in service
- 'A' EDG is running for testing

Subsequently the following occurs:

- A Normal Service Water System rupture occurs
- 1A-SA ESW Pump tripped one minute ago and cannot be restarted

Which ONE of the following describes a required action and the reason for the action?

- A. Isolate Letdown due to loss of 'B' CSIP.
- B. Isolate Letdown due to loss of cooling to Letdown Heat Exchanger.
- C. Emergency Stop 'A' EDG due to loss of ESW to 'A' EDG Air Compressors.
- D. Emergency Stop 'A' EDG due to loss of ESW to 'A' EDG Jacket Water Cooler.

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14. Given the following plant conditions:

- A Reactor and Turbine startup is in progress
- Reactor power is 6%

Subsequently a leak has developed in the Instrument Air system and air pressure indications are as follows:

<u>Time</u>	<u>IA pressure</u>
1107	76.6 psig
1110	64.2 psig
1113	58.9 psig
1116	34.7 psig

Based on the plant conditions, which ONE of the following identifies the EARLIEST time the Reactor is required to be tripped in accordance with AOP-017, Loss of Instrument Air?

- A. 1107
- B. 1110
- C. 1113
- D. 1116

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15. Given the following plant conditions:

- A Reactor Trip and Safety Injection have occurred from 100% power
- The crew has transitioned to EOP-ECA-1.2, LOCA Outside Containment
- 1RH-1 and 1RH-2, RCS Loop A to RHR Pump A-SA, BOTH indicate partially OPEN

Which ONE of the following identifies:

(1) The action required to ALLOW shutting 1RH-1 and 1RH-2 from the MCB

AND

(2) The MCB parameter and trend that is used in EOP-ECA-1.2 to determine if this action has isolated the break?

- A. (1) turn ON the control power switch on the MCB
(2) PRZ level rising
- B. (1) turn ON the control power switch on the MCB
(2) RCS pressure rising
- C. (1) CLOSE the breakers for 1RH-1 and 1RH-2 locally
(2) PRZ level rising
- D. (1) CLOSE the breakers for 1RH-1 and 1RH-2 locally
(2) RCS pressure rising

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16. Given the following plant conditions:

- The unit was operating at 100% power
- MDAFW pump 'B' is under clearance

Subsequently the following occurs:

- A manual Reactor Trip was initiated due to a loss of both MFPs
- The TDAFW pump tripped after starting
- MDAFW flow control valves are full open
- SG NR levels are 43% and lowering
- Containment pressure is 0.5 psig

Which ONE of the following would be the FIRST set of conditions that would require entry into EOP-FR-H.1, Response to Loss of Secondary Heat Sink?

All SG NR levels are ___ (1) ___ AND total AFW flow is ___ (2) ___.

- A. (1) 24%
(2) 200 KPPH
- B. (1) 24%
(2) 220 KPPH
- C. (1) 39%
(2) 200 KPPH
- D. (1) 39%
(2) 220 KPPH

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17. Given the following plant conditions:

- The unit was operating at 100% power and has experienced a large break LOCA
- The RHR system is NOT capable of cold leg recirculation and the crew has transitioned from EOP-E-1, Loss of Reactor or Secondary Coolant to EOP-ECA-1.1, Loss of Emergency Coolant Recirculation
- RWST level is 45%

The following conditions exist 15 minutes later:

- One Containment Spray pump and two CSIPs and are running
- Containment pressure is 12 psig and lowering
- RWST level is 2.7% and lowering

Which ONE of the following identifies the required crew actions for operation of the CSIPs and Containment Spray pumps?

- A. Allow CSIPs AND Containment Spray pumps to operate
- B. Stop CSIPs, allow Containment Spray pumps to operate
- C. Allow CSIPs to operate, stop Containment Spray pumps
- D. Stop CSIPs AND Containment Spray pumps

18. Given the following plant conditions:

- The unit is operating at 100% power
- The Load Dispatcher reports a large disturbance occurring on the grid

The following conditions are observed:

<u>Time</u>	<u>Grid Frequency (Hz)</u>
0107	59.6
0110	59.2
0114	58.9
0116	58.7
0119	58.5
0121	58.3

Which ONE of the following describes (1) the EARLIEST time that the Reactor must be tripped in accordance with AOP-028, Grid Instability and (2) what is the basis for that Reactor Trip?

- A. (1) 0119
 - (2) Continued operation in this condition could lead to high temperatures in the generator and subsequent insulation degradation
- B. (1) 0121
 - (2) Continued operation in this condition could lead to high temperatures in the generator and subsequent insulation degradation
- C. (1) 0119
 - (2) Provides core protection against DNB as a result of underfrequency on more than one RCP
- D. (1) 0121
 - (2) Provides core protection against DNB as a result of underfrequency on more than one RCP

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19. During a plant startup Control Bank D rods B8 and H14 continued to step out after outward demand had stopped.

Rods were placed to manual and all rod motion stopped.

Current Rod Control status is as follows:

- Control Bank D group step counter demand is 174 and 173 steps
- DRPI indication for Control Rods B08 and H14 indicate 192 steps

Which ONE of the following completes the statement below identifying the Technical Specification LCO that is NOT met for this condition and the reason why?

Technical Specification (1) to ensure that (2) .

(Assume Control Bank D rods remain at the current positions)

- A. (1) 3.1.3.1, Movable Control Assemblies - Group Height
(2) acceptable power distribution limits are maintained
- B. (1) 3.1.3.1, Movable Control Assemblies - Group Height
(2) DNBR in the core is \geq the design DNBR value
- C. (1) 3.1.3.2, Position Indication Systems - Operating
(2) acceptable power distribution limits are maintained
- D. (1) 3.1.3.2, Position Indication Systems - Operating
(2) DNBR in the core is \geq the design DNBR value

20. Given the following plant conditions:

- The unit is in Mode 6 with refueling in progress
- A spent fuel assembly is being moved in the Fuel Handling Building (FHB) when it's damaged by contacting a wall of the pool
- Spent Fuel Pool area radiation monitor RM-1FR-3566A-SA is in HIGH alarm
- Spent Fuel Pool area radiation monitor RM-1FR-3567B-SB is in ALERT

Which ONE of the following describes the effect on the Fuel Handling HVAC system?

- A. ONLY "A" train of Fuel Handling Building Ventilation Emergency Exhaust has received an automatic start signal.
- B. BOTH "A" and "B" trains of Fuel Handling Building Ventilation Emergency Exhaust have received automatic start signals.
- C. NEITHER train of Fuel Handling Building Ventilation Emergency Exhaust has received an automatic start signal, but manual start is required.
- D. NEITHER train of Fuel Handling Building Ventilation Emergency Exhaust has received an automatic start signal, and manual start is NOT required.

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21. With the unit operating at 100% power a tube leak develops on the 'C' SG

Current plant conditions are as follows:

- RCS and 'C' SG pressures have been equalized at 980 psig
- ERFIS is NOT available
- The CRS directs steam to be dumped until the RCS is subcooled by 40°F

In accordance with AOP-016, Excessive Primary Plant Leakage, which ONE of the following completes the statement below?

PREFERRED RCS temperature indication will be obtained using (1) and the RCS cooldown will be stopped when the RCS is at (2).

- A. (1) highest core exit T/C
(2) 500°F
- B. (1) highest core exit T/C
(2) 504°F
- C. (1) active loop WR Thot
(2) 500°F
- D. (1) active loop WR Thot
(2) 504°F

22. Given the following plant conditions:

- The plant is operating at 58% power during a Reactor startup in accordance with GP-005, Power Operation

Subsequently:

- The crew is experiencing Condenser vacuum problems and are implementing AOP-012, Partial Loss of Condenser Vacuum
- Load is being reduced in accordance with AOP-038, Rapid Downpower

Current Condenser conditions are:

- Condenser Zone 1 pressure is 4.9 inches Hg absolute
- Condenser Zone 2 pressure is 5.1 inches Hg absolute

Which ONE of the following completes the statements below?

For the current plant conditions the C-7A status light is (1) and alarm ALB-018-1-1, Turbine Trip Condenser Low Vacuum, is (2) .

- | | <u> (1) </u> | <u> (2) </u> |
|----|--------------------|--------------------|
| A. | ON | ON |
| B. | OFF | ON |
| C. | ON | OFF |
| D. | OFF | OFF |

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23. Given the following plant conditions:

- The unit was operating at 100% power
- The MCR was evacuated due to a fire
- Off-site power was lost as the crew evacuated the MCR

Subsequently:

- AOP-004, Remote Shutdown is in progress and transfer to the ACP has just been completed

In accordance with AOP-004, which ONE of the following describes the required actions to take for EDG operation?

- A. Locally restart and load BOTH EDGs.
- B. Locally restart and load ONLY the 'B' EDG.
- C. Check ONLY 'B' EDG has energized its emergency bus. 'A' EDG is not required for safe shutdown.
- D. Check that BOTH emergency busses are energized.

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24. Given the following plant conditions:

- The crew is performing EOP-ES-0.4, Natural Circulation Cooldown With Steam Void In Vessel Without RVLIS

Current plant conditions are:

- RCS pressure is 1600 psig
- All hot leg temperatures are 449°F and stable
- Pressurizer level is 30%
- Letdown flow is 60 gpm
- Total RCP Seal Return Flow is 8 gpm
- Total RCP Seal Injection Flow is 27 gpm
- A RCS depressurization to 800 psig is about to be performed

Which ONE of the following completes the statement below?

Charging flow should be adjusted to (1) gpm prior to starting the depressurization in order to (2) .

- A. (1) 33
(2) accommodate void growth
- B. (1) 33
(2) allow accurate monitoring of void growth
- C. (1) 41
(2) accommodate void growth
- D. (1) 41
(2) allow accurate monitoring of void growth

25. Given the following plant conditions:

- EOP-FR-C.2, Response to Degraded Core Cooling is in progress due to an ORANGE condition on the Core Cooling CSFST
- RCPs 'A' and 'C' are running; RCP 'B' is secured
- Both CSIPs are tripped
- The crew is about to depressurize all SGs to atmospheric pressure

Which ONE of the following completes the statement below describing the RCP operational requirement and the EOP basis for RCP operation from this point forward in EOP-FR-C.2?

RCPs are _____ .

- A. stopped to reduce heat input into the RCS
- B. stopped because number 1 seal differential pressure will be lost
- C. left running to provide core cooling until ECCS flow is established
- D. left running as long as net positive suction head exists

26. Given the following plant conditions:

- The plant was operating at 100% power
- A Small Break LOCA has occurred
- FR-P.1, Response to Imminent Pressurized Thermal Shock is in progress

Subsequently:

- The RCS Tavg cooldown rate was determined to be 240°F in the last hour

Which ONE of the following completes the statement below concerning the MINIMUM RCS soak time requirements and the reason for the soak in accordance with FRP-P.1?

A RCS soak period of (1) is required for the current plant conditions to (2) .

A. (1) 1 hour

(2) relieve Reactor vessel stress to enhance and maintain vessel integrity

B. (1) 29 hours

(2) allow time for the vessel head to cool to prevent voiding during the subsequent depressurization

C. (1) 1 hour

(2) allow time for the vessel head to cool to prevent voiding during the subsequent depressurization

D. (1) 29 hours

(2) relieve Reactor vessel stress to enhance and maintain vessel integrity

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27. Given the following plant conditions:

- A LOCA has occurred
- 480V Emergency Bus 1A2-SA de-energized due to a ground fault
- The crew is performing EOP-E-1, Loss Of Reactor Or Secondary Coolant

The following conditions exist in Containment:

- Containment Pressure is 10.3 psig and rising slowly
- Containment Sump Level is 210 inches and rising slowly
- High Range Containment Post LOCA Radiation Monitors are in alarm

Which ONE of the following completes the statement below?

Enter (1) AND sample the (2) .

- A. (1) EOP-FR-Z.1, Response to High Containment Pressure
(2) Containment Sumps
- B. (1) EOP-FR-Z.1, Response to High Containment Pressure
(2) 'A' ESW Return Header
- C. (1) EOP-FR-Z.2, Response to Containment Flooding
(2) Containment Sumps
- D. (1) EOP-FR-Z.2, Response to Containment Flooding
(2) 'A' ESW Return Header

28. Given the following plant conditions:

- The unit is operating at 100% power with "A" Train equipment in service

Subsequently a fault causes 6.9KV Emerg Bus A-SA to Aux Bus D Tie Breaker 105 to open.

Plant conditions are as follows:

- 'A' EDG has failed to start
- The crew enters AOP-025, Loss of One Emergency AC Bus or One Emergency DC Bus and starts 'B' CSIP but the pump immediately trips on overcurrent

Which ONE of the following identifies how RCP seal injection will be restored?

RCP seal injection FLOW _____ .

- A. must be manually restored at the ASI System Control Panel by placing the ASI Pump switch to "START"
- B. must be manually restored at the ASI System Control Panel by selecting 'BYPASS' for both squib valves then manually starting the ASI pump
- C. will be restored automatically by the ASI system when the squib valves open and the pump starts simultaneously
- D. will be restored automatically by the ASI system when the squib valves open and the pump starts 15 seconds later

29. A plant transient resulted in the crew reducing power from 100%

Current plant conditions are as follows:

- Power is stable at 50%
- Median Tavg is stable at 572.9°F
- PRZ pressure is stable at 2252 psig
- PRZ level is NOT matched with program level and is at 44.2%

Based on current plant conditions, which ONE of the following completes the statements below?

Charging flow will (1) to return PRZ level to program.

The Pressurizer (2) .

- A. (1) rise
(2) Group 'C' heaters will be at minimum
- B. (1) rise
(2) spray valves will be open
- C. (1) lower
(2) Group 'C' heaters will be at minimum
- D. (1) lower
(2) spray valves will be open

30. Which ONE of the following completes the statements below?

During full power operation the CSIP normal miniflow valve (1) to provide low flow protection.

Flow from the miniflow valve returns to the (2) .

- A. (1) is open
 (2) CSIP suction
- B. (1) is open
 (2) top of the VCT
- C. (1) throttles
 (2) CSIP suction
- D. (1) throttles
 (2) top of the VCT

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31. Given the following plant initial conditions:

- The plant is in Mode 4
- RHR Train 'A' is in service
- 1RH-20, RHR Heat XCHG A BYP Flow Cont FK-605A1 is in manual with the output at 40% to maintain 3750 GPM
- 1RH-30, RHR Heat XCHG A Out Flow Cont HC-603A1 demand position is set at 30%

Plant final conditions:

- The Instrument Air supply line to RHR Heat Exchanger Outlet Valve 1RH-30 has become severed and is completely detached

Which ONE of the following describes the RHR system parameter changes from the initial steady state condition to final steady state condition?

	<u>TI-606A (RHR HX Outlet Temp)</u>	<u>FI-605A1 (HX 'A' RHR HDR FLOW)</u>
A.	Higher	Lower
B.	Higher	Higher
C.	Lower	Higher
D.	Lower	Lower

32. Given the following plant conditions:

- The unit is in Mode 6 with a core reload in progress
- 'A' RHR pump is in operation
- 'B' RHR pump is in standby
- Cavity level is 23 feet 3 inches above the Reactor Vessel Flange

The following occurs:

- RP reports to the MCR that a large crack has developed in a pipe in Containment
- 'A' RHR pump discharge pressure is lowering
- Refueling Cavity level is very slowly lowering
- The Refueling SRO reports that the Containment side upender has an assembly in it and the upender will not raise

Entry conditions are satisfied for which of the following procedures?

- 1) AOP-013, Fuel Handling Accident
- 2) AOP-020, Loss of RCS Inventory or Residual Heat Removal While Shutdown
- 3) AOP-031, Loss of Refueling Cavity Integrity

- A. 1 and 2 ONLY
- B. 1 and 3 ONLY
- C. 2 and 3 ONLY
- D. 1, 2 and 3

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33. Given the following plant conditions:

- The unit is operating at 100% power
- At 0300 on 11/4/2014 the current RWST parameters are as follows:

Level	91%
Temperature	63°F

Which ONE of the following completes the statement below in accordance with Technical Specification 3.5.4, Emergency Core Cooling System - Refueling Water Storage Tank?

RWST (1) must be restored to within Technical Specification limits by (2) on 11/4/2014.

- A. (1) level
(2) 0330
- B. (1) level
(2) 0400
- C. (1) temperature
(2) 0330
- D. (1) temperature
(2) 0400

34. Which ONE of the following completes the statements below?

The 'C' CSIP can be powered from either (1) .

A (2) is a design feature that prevents two CSIPs from being aligned to the same power supply.

- A. (1) 6.9 KV Emergency Bus 1A-SA or 6.9 KV Emergency Bus 1B-SB
(2) Kirk key operated interlock
- B. (1) 6.9 KV Emergency Bus 1A-SA or 6.9 KV Emergency Bus 1B-SB
(2) manual transfer switch
- C. (1) 480V Emergency Bus 1A2-SA or 480V Emergency Bus 1B2-SB
(2) Kirk key operated interlock
- D. (1) 480V Emergency Bus 1A2-SA or 480V Emergency Bus 1B2-SB
(2) manual transfer switch

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35. Given the following plant conditions:

- The unit is operating at 100% power
- The crew is responding to a leaking PRZ Safety valve

<u>Time</u>	<u>PRT Temp</u>	<u>Safety Tailpipe Temp</u>
1000	95°F	145°F
1005	115°F	255°F
1010	122°F	275°F
1015	146°F	403°F

Which ONE of the following is the first time that annunciator ALB-009-8-1, PRT High-Low Level Press or Temp, will alarm?

- A. 1000
- B. 1005
- C. 1010
- D. 1015

36. Given the following plant conditions:
- The unit is operating at 30% power
 - The 'C' RCP trips due to an electrical fault

Which ONE of the following completes the statement below?

As 'C' RCP coasts down, Loops 'A' and 'B' ΔT will (1) and the Loops 'A' and 'B' OT ΔT setpoint will (2) .

(Assume that Reactor power is maintained at 30%)

- A. (1) lower
 (2) rise
- B. (1) lower
 (2) lower
- C. (1) rise
 (2) rise
- D. (1) rise
 (2) lower

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37. Given the following plant conditions:

- The unit is operating at 100% power
- ALB-005-6-1, CCW Surge Tank High-Low Level has just alarmed
- CCW Surge Tank level is 39% and lowering

Which ONE of the following automatic actions are required to be verified in accordance with APP-ALB-005-6-1?

- A. CCW Makeup valve, DW-15, has opened
- B. CCW Drain Tank Transfer Pump has tripped
- C. Holdup Tank Transfer Pump has tripped
- D. GFFD and Primary Sample Panel have isolated

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38. Given the following plant conditions:

- The unit is at 100% power

The following conditions occur:

- PT-445, PRZ Press Control, fails high

Which ONE of the following completes the statement below?

Pressurizer PORV(s) (1) will OPEN and remain OPEN until PRZ pressure reaches (2).

- A. (1) 1RC-116 and 1RC-118
(2) 1960 psig
- B. (1) 1RC-116 and 1RC-118
(2) 2000 psig
- C. (1) 1RC-114
(2) 1960 psig
- D. (1) 1RC-114
(2) 2000 psig

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39. Given the following plant conditions:

- A startup is in progress with the unit operating at 7% Reactor power

Subsequently Instrument Bus S-I de-energizes.

Given the above plant conditions, which ONE of the following will result in a Reactor trip signal being generated?

- A. LT-461, PZR Level Channel III, fails high
- B. LT-496, 'C' SG Level Channel III, fails low
- C. PT-951, Containment Pressure Channel II, fails high
- D. A and C Aux buses are crosstied and breaker 107, Aux Bus A supply, fails open

40. Given the following plant conditions:

- The unit is being taken off line in accordance with GP-006, Normal Plant Shutdown From Power Operation To Hot Standby
- Main Turbine load is being held at 25 DEH units for Trip Status light verifications

In accordance with GP-006, which ONE of the following completes the statements below?

(NOTE: Consider each statement independently)

The OATC should find the Trip Status Light Box 4 bistable lights (1) .

IF the bistable lights are NOT in the expected condition then a method used to correct this condition would be to (2) .

(Trip Status Light Box 4 bistable status lights)

- PR P-7/P-10 NC 41M Bistable Light 4-1
- PR P-7/P-10 NC 42M Bistable Light 4-2
- PR P-7/P-10 NC 43M Bistable Light 4-3
- PR P-7/P-10 NC 44M Bistable Light 4-4

- A. (1) ON
(2) manually insert Control Rods
- B. (1) ON
(2) reduce Turbine load
- C. (1) OFF
(2) manually insert Control Rods
- D. (1) OFF
(2) reduce Turbine load

41. Given the following plant conditions:

- An automatic Containment Spray Actuation Signal (CSAS) has occurred
- Both Containment Spray pumps have been manually stopped
- The CSAS has NOT been reset

Subsequently the following occurs:

- Containment Pressure is 2.5 psig and rising

(Assume no further operator action)

Which ONE of the following describes the operation of the Containment Spray system as pressure rises above the CSAS setpoint?

Containment Spray pumps _____ .

- A. do NOT automatically start, but can be manually started
- B. do NOT automatically start and cannot be manually started until CSAS has been reset
- C. automatically start when Containment Pressure exceeds 3 psig
- D. automatically start when Containment Pressure exceeds 10 psig

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42. Containment Cooling has been placed in Maximum Cooling Mode in accordance with OP-169, Containment Cooling And Ventilation, due to a 1 gpm RCS leak.

Which ONE of the following completes the statement below?

AH-3 and AH-4, Containment Fan Cooler Units, will be running in ____ (1) ____ speed with their post-accident dampers ____ (2) ____.

- A. (1) HI
(2) OPEN
- B. (1) HI
(2) SHUT
- C. (1) LO
(2) OPEN
- D. (1) LO
(2) SHUT

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43. Which ONE of the following is required when a loss of the 1A-SA Emergency AC Bus occurs simultaneously with a loss of the DP-1A-SA Emergency DC Bus in accordance with AOP-025, Loss Of One Emergency AC Bus (6.9KV) Or One Emergency DC Bus (125V)?
- A. AFW valves are operated locally until power is restored during plant recovery.
 - B. The DC load breakers are to remain closed when energizing the DC Emergency Bus during plant recovery.
 - C. Commence a plant cooldown in accordance with GP-007, Normal Plant Cooldown (Mode 3 to Mode 5).
 - D. The 1A-SA 6.9-KV AC load breakers are opened locally prior to energizing the AC Emergency Bus.

44. Given the following plant conditions:

- The plant is operating at 100% power
- 'A' Containment Spray Pump is running on recirculation per OST-1118, Containment Spray Operability Train A Quarterly Interval Modes 1-4

Subsequently:

- A Large Break LOCA occurs in Containment
- Containment pressure is now 14.8 psig and rising

Which ONE of the following completes the statement below?

The 'A' Containment Spray Pump has been tripped by the Containment Phase (1) signal.

To place the 'A' CT train in service the operator must reset the (2) then manually align the system.

- A. (1) A Isolation (T)
(2) Phase 'B' actuation signal
- B. (1) A Isolation (T)
(2) Containment Spray actuation signal
- C. (1) B Isolation (P)
(2) Phase 'B' actuation signal
- D. (1) B Isolation (P)
(2) Containment Spray actuation signal

45. Given the following plant conditions:

- The unit is operating at 100% power
- A main steam line rupture in the Turbine building has occurred
- The crew has manually tripped the Reactor

Which ONE of the following completes the statement below?

The Turbine Ventilating valves 1GS-97, 1GS-98 are expected to (1) AND the MSR Non-Return valves 1HD-2, 1HD-3, 1HD-302, 1HD-303 are expected to (2) .

(NOTE: Listed below are the associated valve noun names)

Turbine Ventilating valves

1GS-97, HP Turbine Vent to Cond (FCV-01TA-0415B)

1GS-98, HP Turbine Vent to Cond (FCV-01TA-0415A)

MSR Non-Return valves

1HD-2, MSR 1A-NNS Outlet to MSDT 1A-NNS

1HD-3, MSRDT 1A-NNS Outlet to 5-1A-NNS

1HD-302, MSR 1B-NNS Outlet to MSDT 1B-NNS

1HD-303, MSRDT 1B-NNS Outlet to 5-1B-NNS

- A. (1) shut
(2) shut
- B. (1) shut
(2) open
- C. (1) open
(2) shut
- D. (1) open
(2) open

46. Given the following plant conditions:
- The unit is operating at 84% power

Subsequently:

- 'A' Main Feedwater pump trips

In accordance with AOP-010, Feedwater Malfunctions, which ONE of the following describes (1) the Turbine runback status AND (2) the REQUIRED operator action?

- A. (1) Turbine runback is initiated
(2) Isolate Steam Generator Blowdown
- B. (1) Turbine runback is initiated
(2) Trip the Reactor
- C. (1) Turbine runback is NOT initiated
(2) Isolate Steam Generator Blowdown
- D. (1) Turbine runback is NOT initiated
(2) Trip the Reactor

47. Which ONE of the following supplies power to the Turbine-Driven AFW pump steam admission valves 1MS-70 and 1MS-72?

(NOTE: Listed below are the associated valve noun names)

TDAFW pump steam admission valves
1MS-70, MAIN STEAM B TO AUX FW TURBINE
1MS-72, MAIN STEAM C TO AUX FW TURBINE

- | | <u>1MS-70</u> | <u>1MS-72</u> |
|----|---------------|---------------|
| A. | 1DP-1A-SI | 1DP-1A-SIII |
| B. | 1DP-1B-SII | 1DP-1A-SIII |
| C. | DP-1A2-SA | DP-1B2-SB |
| D. | MCC 1A31-SA | MCC 1B31-SB |

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48. Given the following plant conditions:

- A plant heat up is in progress in accordance with GP-002, Normal Plant Heatup From Cold Solid To Hot Subcritical Mode 5 To Mode 3
- 'A' MDAFW pump is feeding the SGs

Subsequently the following annunciator alarms:

- ALB-017-5-4, Aux Feedwater Pump 'A' Trip Or Close CKT Trouble

Which ONE of the following completes the statements below?

SG levels will lower to (1) where the 'B' MDAFW pump will automatically start, to restore SG levels.

Entry in to AOP-010, Feedwater Malfunctions, (2) required.

(Assume NO Operator actions)

A. (1) 20%

(2) is

B. (1) 20%

(2) is NOT

C. (1) 25%

(2) is

D. (1) 25%

(2) is NOT

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49. Given the following plant conditions:

- The unit is operating at 100% power
- An electrical fault occurs on 6.9-kV Aux Bus 1D causing breaker 102, Unit Aux Xfmr A to Aux Bus D, to open

Which ONE of the following components is expected to be running after the loss of the 1D bus?

- A. Heater Drain Pump 1A
- B. Circulating Water Pump 1A
- C. Normal Service Water Pump 1A
- D. Cooling Tower Makeup Pump 1X

50. Given the following plant conditions:

- 250 VDC Battery Charger 1A is in service
- Annunciator ALB-015-3-4, 250 VDC Bus Trouble has alarmed
- Local observation confirms that a ground condition exists

Which ONE of the following completes the statement below concerning this ground?

The impact of this condition on the 250 VDC Bus is that (1) .

In accordance with APP-ALB-015-3-4, the crew should implement OP-156.06, Ground Isolation and Bus Drop, and (2) .

- A. (1) the ground could result in the degradation of the DC system reliability
- (2) energize the 1B 250 VDC Battery Charger then remove the 1A 250 VDC Battery Charger from service
- B. (1) the ground could result in the degradation of the DC system reliability
- (2) open the 1A charger DC output breaker allowing the batteries to power the 250 VDC bus and then place the 1B 250 VDC Battery Charger in service
- C. (1) the battery charger will automatically trip on a high ground condition if left in operation
- (2) energize the 1B 250 VDC Battery Charger then remove the 1A 250 VDC Battery Charger from service
- D. (1) the battery charger will automatically trip on a high ground condition if left in operation
- (2) open the 1A charger DC output breaker allowing the batteries to power the 250 VDC bus and then place the 1B 250 VDC Battery Charger in service

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51. Given the following plant conditions:

- The EDG 1A-SA is loaded to 6.3 MW from the MCR in accordance OP-155, Diesel Generator Emergency Power System
- The crew is preparing to shutdown the EDG

Which ONE of the following completes the statement below concerning the continued shutdown of the EDG in accordance with OP-155?

The EDG should be shutdown from 35% load in a maximum of (1) minutes AND the impact of this action is it will (2) .

- A. (1) 5
(2) prevent stator winding overheating
- B. (1) 5
(2) minimize carbon buildup
- C. (1) 20
(2) prevent stator winding overheating
- D. (1) 20
(2) minimize carbon buildup

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52. Which ONE of the following completes the statements below?

1CC-23, REM 3501 A CCW Inlet Solenoid Valve, will (1) automatically if REM-01CC-3501A-SA, CCW Train A, loses power.

Upon restoration of power to REM-01CC-3501A-SA, 1CC-23 must be operated locally on the (2) elevation of the RAB.

- A. (1) shut
(2) 305'
- B. (1) shut
(2) 236'
- C. (1) not shut
(2) 305'
- D. (1) not shut
(2) 236'

53. Which ONE of the following sets of components are ALL supplied by the Emergency Service Water system?

1. CSIP oil coolers
2. CCW heat exchangers
3. Containment fan coil units (AH-37, 38, 39)

A. 1 and 2 ONLY

B. 1 and 3 ONLY

C. 2 and 3 ONLY

D. 1, 2 and 3

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54. Given the following plant conditions:

- A loss of Instrument Air is in progress
- Instrument Air header pressure is 88 psig and continuing to lower slowly

With the current plant conditions, which ONE of the following completes the statement below?

The current status of 1SA-506, SA Header Isol Valve is (1) . When IA pressure lowers to (2) psig then ALB-002-8-1, Instrument Air Header Low Pressure annunciator will go into alarm.

- A. (1) Open
(2) 85
- B. (1) Open
(2) 75
- C. (1) Shut
(2) 85
- D. (1) Shut
(2) 75

55. Given the following plant conditions:

- RCS Tavg is 124°F
- A plant heatup is to be commenced in accordance with GP-002, Normal Plant Heatup From Cold Solid to Hot Subcritical Mode 5 to Mode 3

Which ONE of the following describes (1) the fan(s) that is (are) required to be placed in service prior to the RCS Tavg exceeding 140°F and (2) the fan's function?

- A. (1) Control Rod Drive Mechanism Fans
(2) To prevent insulation degradation and subsequent CRDM failure.
- B. (1) Containment Fan Coolers
(2) Provides cooling to the RCPs during normal and abnormal operation
- C. (1) Primary Shield Cooling Fan
(2) To minimize concrete dehydration and subsequent structural damage
- D. (1) Containment Fan Coil Units
(2) Provides cooling to CNMT during normal and abnormal operation

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56. Which ONE of the following completes the statements below?

The main power supply for the Rod Control Logic Cabinet is from (1) .

The output of the Rod Control Logic Cabinet sends multiplexing signals to the (2) .

- A. (1) a 120 VAC Vital Instrument Bus
(2) Power Cabinets
- B. (1) a 120 VAC Vital Instrument Bus
(2) P-A converter
- C. (1) the Rod Drive MG sets through a 5KVA transformer
(2) Power Cabinets
- D. (1) the Rod Drive MG sets through a 5KVA transformer
(2) P-A converter

57. Given the following plant conditions:

- The unit is operating at 100% power
- PRZ level controller LK-459F has failed in auto
- The operator is making adjustments for current level error

Which ONE of the following responses occurs FIRST once the operator places the PRZ Master level controller in MANUAL and depresses the LOWER pushbutton?

- A. The PRZ backup heaters energize.
- B. The letdown orifice isolation valves close.
- C. 1CS-231, FK-122.1 Charging flow valve will OPEN further from its current position.
- D. 1CS-231, FK-122.1 Charging flow valve will CLOSE further from its current position.

58. Which ONE of the following completes the statements below?

If a Core Exit Thermocouple fails the RVLIS plasma display panel will read (1) .

A method to locally obtain Core Exit Thermocouple temperatures at the Train specific panel OUTSIDE the Control Room is to use the (2) .

- A. (1) 50°F
(2) CRT monitor and keyboard
- B. (1) 50°F
(2) thumbwheels set to specific points identified by a legend
- C. (1) 2500°F
(2) CRT monitor and keyboard
- D. (1) 2500°F
(2) thumbwheels set to specific points identified by a legend

59. Given the following plant conditions:

- The unit is operating at 100% power
- The 'B' SG Control and Recorder Selectors are as follows:



Subsequently:

- The controlling 'B' SG Feed Flow channel fails high
- Annunciator ALB-014-4-1B, SG B FW > STM Flow Mismatch, alarms

Which ONE of the following completes the statements below?

Immediately after the failure the 'B' SG FRV will start to go (1).

Once 'B' SG level is under operator control, in order to restore 'B' SG automatic water level control the operator will select (2) in accordance with OWP-RP, Reactor Protection.

- A. (1) OPEN
(2) STM GEN B FW Flow Chan 486 ONLY
- B. (1) OPEN
(2) STM GEN B FW Flow Chan 486 AND STM GEN B STM Flow Chan 485
- C. (1) CLOSED
(2) STM GEN B FW Flow Chan 486 ONLY
- D. (1) CLOSED
(2) STM GEN B FW Flow Chan 486 AND STM GEN B STM Flow Chan 485

60. Given the following plant conditions:

- The unit is in Mode 6 with personnel working in Containment
- The Accumulators are being vented in accordance with OP-110, Safety Injection
- The O₂ concentration outside the restricted area is reported 'low'

Subsequently:

- The running Containment Pre-Entry Purge fan tripped on motor overload
- The crew secured venting the Accumulator

In accordance with OP-110, which ONE of the following completes the statements below?

The O₂ concentration outside the restricted area is required to be above a MINIMUM of (1) .

Prior to recommencing the Accumulator venting the crew is required to (2) .

A. (1) 23.5%

(2) run all standby Containment Fan coolers for a minimum of 4 hours for Containment atmosphere mixing

B. (1) 23.5%

(2) ensure the O₂ concentration is restored above the minimum concentration level

C. (1) 19.5%

(2) run all standby Containment Fan coolers for a minimum of 4 hours for Containment atmosphere mixing

D. (1) 19.5%

(2) ensure the O₂ concentration is restored above the minimum concentration level

61. Given the following plant conditions:

- A 20% Turbine load rejection has occurred from 100% power
- During the transient the Steam Dump control system malfunctioned

After the plant stabilized:

- Group 1 Steam Dumps indicate dual position on SLB-1
- Reactor power is ~ 7.5% higher than Turbine power
- T_{avg} and T_{ref} are matched

(Assume no operator action and use THUMBRULE values when determining the answer)

For this condition, which ONE of the following identifies how far the Steam Dump valves must be open to cause the current plant conditions?

- A. 7.5%
- B. 25%
- C. 50%
- D. 75%

62. Given the following plant conditions:
- The unit is operating at 100% power

Subsequently:

- A Turbine Trip signal occurs
- One Throttle Valve failed to close
- All Governor Valves are indicating closed

Which ONE of the following completes the statements below?

Assuming NO operator actions have occurred after the Turbine has tripped, SG pressure will (1) immediately following the trip.

In accordance with EOP-E-0, Reactor Trip Or Safety Injection, the operator is FIRST required to (2) .

- A. (1) RISE
(2) manually run back the Turbine
- B. (1) RISE
(2) manually actuate a Turbine Trip
- C. (1) LOWER
(2) manually run back the Turbine
- D. (1) LOWER
(2) manually actuate a Turbine Trip

63. The unit is operating at 100% power when Main Condenser backpressure begins to degrade.

Which ONE of the following completes the statements below?

For 'B' Vacuum pump to automatically start the 'A' Vacuum Pump breaker must be (1).

In addition to the breaker position, the setpoint for the Condenser backpressure required for auto start of the 'B' Vacuum Pump is (2).

(Assume NO operator actions)

- A. (1) CLOSED
(2) 6.5 inches Hg
- B. (1) CLOSED
(2) 4.0 inches Hg
- C. (1) OPEN
(2) 6.5 inches Hg
- D. (1) OPEN
(2) 4.0 inches Hg

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64. Given the following plant conditions:

- The unit is operating at 58%, with a plant shutdown in progress

- The following ALB-019 annunciators alarm:
 - 2-4A, CONDST PUMP A LO FLOW
 - 2-4B, CONDST PUMP A DISCH LO PRESS
 - 2-5A, CONDST PUMP A BKR TRIP/TRBL
- Indications on the 'A' Condensate Pump are as follows:
 - Red light is OFF
 - Green light is LIT

Which ONE of the following identifies the expected response of the CBPs and MFPs?

- A. All CBPs and all MFPs will continue to run
- B. The 'A' CBP and 'A' MFP will both trip
- C. Only the 'A' CBP will trip
- D. Only the 'A' MFP will trip

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65. Given the following plant conditions:

- The plant is operating at 100% power
- Treated L&HS Tank 'A' contains radioactive liquid that is required to be released.

Which ONE of the following completes the statement below?

In accordance with OP-120.10.04, Treated Laundry And Hot Shower Tanks, the Treated L&HS Tank 'A' should be discharged to the (1).

A new release permit is required if (2) before discharging the remaining contents of the tank.

- A. (1) Waste Neutralization Settling basin
(2) a valid High alarm on radiation monitor REM-3540 occurs
- B. (1) Waste Neutralization Settling basin
(2) the release flow rate on WP Computer point FA809 exceeds 80% of the Max Effluent Flow Rate
- C. (1) Cooling Tower Blowdown line
(2) a valid High alarm on radiation monitor REM-3540 occurs
- D. (1) Cooling Tower Blowdown line
(2) the release flow rate on WP Computer point FA809 exceeds 80% of the Max Effluent Flow Rate

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66. Which ONE of the following events will REQUIRE normal alarm response protocol to be suspended, in accordance with AD-OP-ALL-1000, Fleet Conduct of Operations?
- A. Power Range N-43 failing high
 - B. 'A' SG Channel 1 Level Indication failing low
 - C. Pressurizer LT-459 failing low with PRZ Level Selector in 459/460
 - D. 'A' EDG tripping during the performance of OST-1013, 1A-SA Emergency Diesel Generator Operability Test

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67. Given the following plant conditions:

- The unit is in Mode 6
- Core off-load has been suspended due to Source Range NI-31 indication failure
- NI-31 has been declared inoperable

Before fuel movement in Containment can resume, which ONE of the following describes the MINIMUM actions required by GP-009, Refueling Cavity Fill, Refueling And Drain Of The Refueling Cavity Modes 5-6-5?

In addition to verifying the audio count rate channel is selected to Source Range NI-32, the operability of _____ must be verified.

- A. both Wide Range Neutron Flux Monitors
- B. either Wide Range Neutron Flux Monitor
- C. the Wide Range Neutron Flux Monitor on the opposite side of the core from NI-32
- D. the Wide Range Neutron Flux Monitor on the same side of the core as NI-32

68. Given the following plant conditions:

- An RCS heatup is in progress
- RCS Tavg is 342°F
- 1A-SA EDG is declared INOPERABLE due to failure of the shutdown relay

Which ONE of the following identifies (1) the current plant OPERATIONAL MODE and (2) the Technical Specification requirements regarding Mode changes?

A. (1) Mode 3

(2) Change to Mode 2 may be performed provided the TS 3.8.1, AC Sources - Operating, Action Statements for 1A-SA EDG inoperability are satisfied.

B. (1) Mode 3

(2) Change to Mode 2 may NOT performed.

C. (1) Mode 4

(2) Change to Mode 3 may be performed provided the TS 3.8.1, AC Sources - Operating, Action Statements for 1A-SA EDG inoperability are satisfied.

D. (1) Mode 4

(2) Change to Mode 3 may NOT performed.

69. Which ONE of the following completes the statements below?

In accordance with AD-HU-ALL-0004, Procedure And Work Instruction Use And Adherence, the ___(1)___ shall be used to verify the current revision of a Control Wiring Diagram (CWD).

Based on CAR-2166-B-401 Sheet 2309, ESW Aux Reservoir Bay No. 1 Traveling Screen 4A-NNS, the green indicating light will be extinguished and the red indicating light will be illuminated when the ___(2)___ relay is energized.

(Reference provided)

- A. (1) Document Management System, Controlled Documents Module
(2) 42-H
- B. (1) Document Management System, Controlled Documents Module
(2) 42-L
- C. (1) Records Management System, Records Retrieval Module
(2) 42-H
- D. (1) Records Management System, Records Retrieval Module
(2) 42-L

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70. The following radiation monitors are in service:
- REM-3502A, Containment RCS Leak Detection
 - REM-3502B, Containment Pre-Entry Purge

Which ONE of the following describes the effect on these monitors if a Containment Isolation Phase 'A' actuation occurs?

	<u>REM-3502A</u>	<u>REM-3502B</u>
A.	remains in service	remains in service
B.	remains in service	is isolated
C.	is isolated	remains in service
D.	is isolated	is isolated

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71. Which of the following completes the statements below?

In accordance with PEP-330, Radiological Consequences, the dose limit for ANY emergency activity NOT involving protecting valuable property or lifesaving activities is (1) .

The dose limit for Lifesaving activities is (2) .

- A. (1) 2 rem
(2) 10 rem
- B. (1) 2 rem
(2) 25 rem
- C. (1) 5 rem
(2) 10 rem
- D. (1) 5 rem
(2) 25 rem

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72. With the unit at power, which ONE of the following tasks would require utilization of a Specific RWP in order for Operations to perform the activity?
- A. Entry into a High Radiation Area on the 261' RAB to evaluate boric acid deposits
 - B. Entry into a Locked High Radiation Area to hang a clearance
 - C. Entry into Containment to inspect for RCS leakage in the PRZ cubicle.
 - D. Entry into an area with loose surface contamination at 2500 dpm/100cm² to perform a valve line-up

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73. Given the following plant conditions:

- Due to a small break LOCA the crew is implementing EOP-ES-1.2, Post LOCA Cooldown and Depressurization
- A cooldown to Cold Shutdown has been initiated
- The first CSIP was just secured

- RCS parameter response is as follows:

<u>Time</u>	<u>RCS Temperature (°F)</u>	<u>RCS Pressure (psig)</u>	<u>Subcooling (°F)</u>
1400	435	462	27
1402	433	460	29
1404	431	458	30
1406	429	456	32

In accordance with guidance provided by the EOP User's Guide, which ONE of the following completes the statement below concerning the RCS evaluation?

RCS pressure should be considered _____ .

- A. STABLE because the RCS pressure drop is being controlled
- B. STABLE because RCS subcooling is rising
- C. LOWERING even though RCS subcooling is rising
- D. LOWERING because the RCS pressure drop cannot be controlled

74. Given the following plant conditions:

- The plant was operating at 100% power

Subsequently:

- The crew performed a manual Reactor Trip and Safety Injection due to RCS leakage in excess of makeup capability
- The crew has transitioned to EOP-ES-1.1, SI Termination, and have secured one CSIP and realigned the CSIP discharge from the BIT to the normal Charging line

Concerning PRZ level control during these conditions, which ONE of the following completes the statement below?

EOP-ES-1.1 cautions that Charging flow must NOT exceed (1) gpm to prevent (2) .

- A. (1) 120
(2) exceeding normal VCT makeup capability
- B. (1) 120
(2) damage to the Regenerative Heat Exchanger
- C. (1) 150
(2) exceeding normal VCT makeup capability
- D. (1) 150
(2) damage to the Regenerative Heat Exchanger

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75. Given the following plant conditions:

- The plant is operating in Mode 5
- The RCS is in solid plant operation
- Both Trains of RHR are aligned in the Shutdown Cooling Mode

Subsequently a large RCS leak has developed. Conditions are as follows:

- The crew has aligned flow through the BIT with 'A' CSIP in service as directed by AOP-020, Loss Of RCS Inventory Or Residual Heat Removal While Shutdown
- Core Exit Thermocouples continue to rise
- RCS water level continues to lower

Which ONE of the following is the action required by AOP-020 to mitigate the event?

- A. Start the 'B' CSIP with flow through 1SI-3 and 1SI-4, BIT Outlet Valves
- B. Start the 'B' CSIP with flow through 1SI-52, Alternate High Head SI to Cold Leg Valve
- C. Align 'A' RHR Pump for Low Head SI with flow through 1SI-340, Low Head SI Train A to Cold Leg Valve
- D. Align 'A' RHR Pump for Low Head SI with flow through 1SI-359, Low Head SI Trains A & B to Hot Leg valve

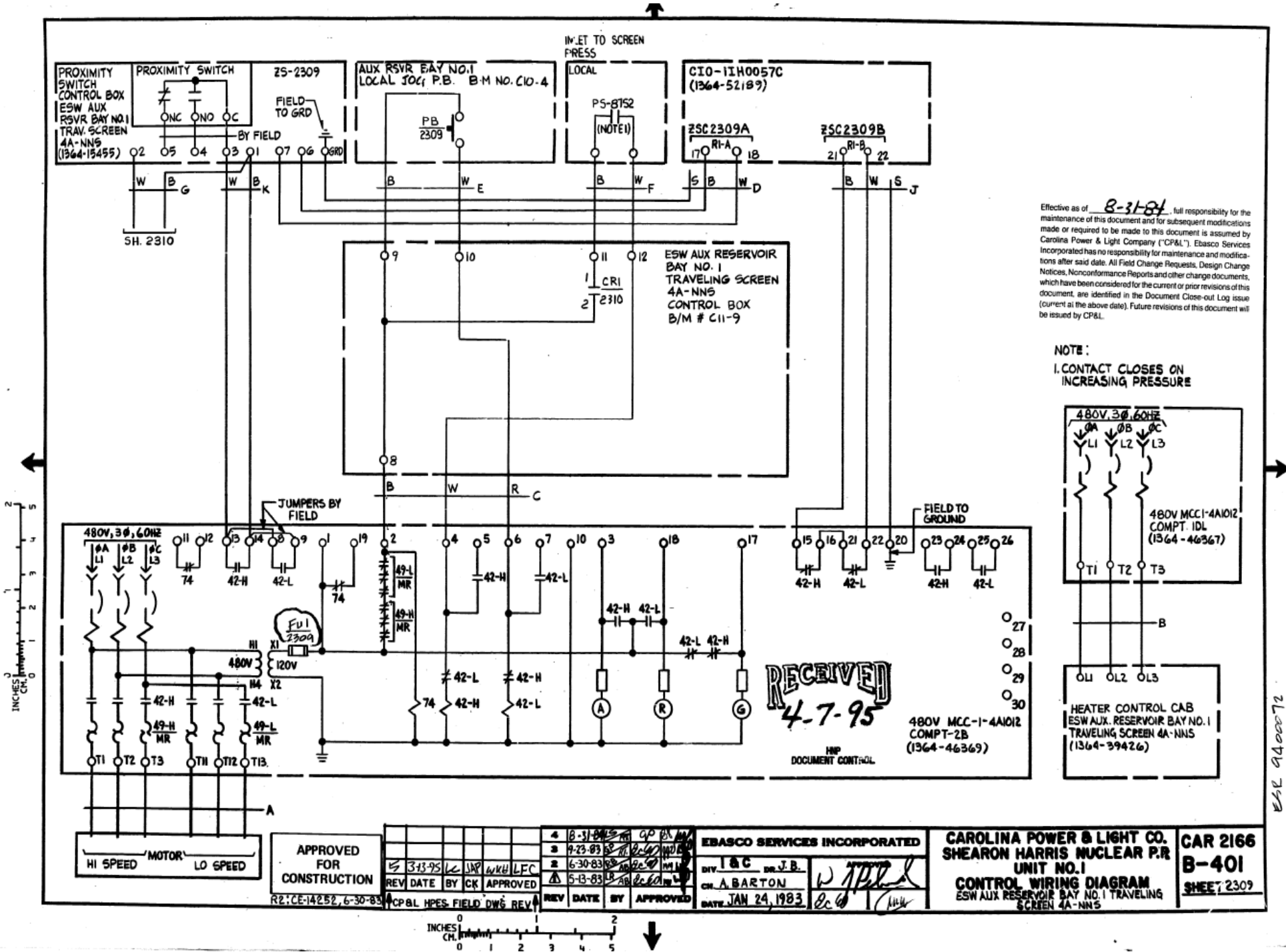
You have completed the test!

ANSWER KEY REPORT
for 2014 NRC RO Written Exam Test Form: 0

#	ID	Answers
1	2014 NRC RO 1	B
2	2014 NRC RO 2	C
3	2014 NRC RO 3	A
4	2014 NRC RO 4	D
5	2014 NRC RO 5	A
6	2014 NRC RO 6	A
7	2014 NRC RO 7	C
8	2014 NRC RO 8	D
9	2014 NRC RO 9	A
10	2014 NRC RO 10	C
11	2014 NRC RO 11	D
12	2014 NRC RO 12	A
13	2014 NRC RO 13	D
14	2014 NRC RO 14	D
15	2014 NRC RO 15	D
16	2014 NRC RO 16	A
17	2014 NRC RO 17	B
18	2014 NRC RO 18	A
19	2014 NRC RO 19	A
20	2014 NRC RO 20	A
21	2014 NRC RO 21	B
22	2014 NRC RO 22	D
23	2014 NRC RO 23	D
24	2014 NRC RO 24	D
25	2014 NRC RO 25	B
26	2014 NRC RO 26	A
27	2014 NRC RO 27	C
28	2014 NRC RO 28	D
29	2014 NRC RO 29	C
30	2014 NRC RO 30	B
31	2014 NRC RO 31	C
32	2014 NRC RO 32	C
33	2014 NRC RO 33	B
34	2014 NRC RO 34	A
35	2014 NRC RO 35	C
36	2014 NRC RO 36	D
37	2014 NRC RO 37	D
38	2014 NRC RO 38	B
39	2014 NRC RO 39	B
40	2014 NRC RO 40	D
41	2014 NRC RO 41	B
42	2014 NRC RO 42	A
43	2014 NRC RO 43	D
44	2014 NRC RO 44	B
45	2014 NRC RO 45	C
46	2014 NRC RO 46	A
47	2014 NRC RO 47	C

ANSWER KEY REPORT
for 2014 NRC RO Written Exam Test Form: 0

#	ID	Answers
48	2014 NRC RO 48	D
49	2014 NRC RO 49	B
50	2014 NRC RO 50	A
51	2014 NRC RO 51	B
52	2014 NRC RO 52	B
53	2014 NRC RO 53	A
54	2014 NRC RO 54	D
55	2014 NRC RO 55	C
56	2014 NRC RO 56	C
57	2014 NRC RO 57	D
58	2014 NRC RO 58	B
59	2014 NRC RO 59	D
60	2014 NRC RO 60	D
61	2014 NRC RO 61	C
62	2014 NRC RO 62	B
63	2014 NRC RO 63	A
64	2014 NRC RO 64	B
65	2014 NRC RO 65	C
66	2014 NRC RO 66	A
67	2014 NRC RO 67	C
68	2014 NRC RO 68	D
69	2014 NRC RO 69	B
70	2014 NRC RO 70	C
71	2014 NRC RO 71	D
72	2014 NRC RO 72	C
73	2014 NRC RO 73	B
74	2014 NRC RO 74	D
75	2014 NRC RO 75	C



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NOTE:
1. CONTACT CLOSING ON INCREASING PRESSURE

ESL 9400072

REV. DATE			BY			APPROVED		
4	8-31-83	ML	GO	ML	ML	EBASCO SERVICES INCORPORATED		
3	9-23-83	ML	ML	ML	ML	DIV. I & C DR. J.B.		
2	6-30-83	ML	ML	ML	ML	CH. A. BARTON		
1	5-13-83	ML	ML	ML	ML	DATE: JAN 24, 1983		

CAROLINA POWER & LIGHT CO. SHEARON HARRIS NUCLEAR P.R. UNIT NO. 1 CONTROL WIRING DIAGRAM ESW AUX RESERVOIR BAY NO. 1 TRAVELING SCREEN 4A-NNS

CAR 2166 B-401 SHEET 2309