

# Final Submittal

(Blue Paper)

**TURKEY POINT JULY/AUGUST 2005 EXAM**

**50-250/2005-301 AND 50-251/2005-301**

**JULY 18 - 22, 2005 & AUGUST 1 - 5, 2005  
JULY 15, 2005 (WRITTEN)**

**FINAL RO**

**WRITTEN EXAMINATION**

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1.

A Unit 3 startup is in progress. Reactor power is 28%.

- RCP "C" breaker trips due to an overcurrent condition

Which ONE of the following describes the Reactor status and "delta T" long-term response?

A reactor trip \_\_\_\_\_ occur and Loops "A" and "B" "delta T" both \_\_\_\_\_.

- A. WILL            increase
- B. WILL NOT      increase
- C. WILL            decrease
- D. WILL NOT      decrease

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2.

Unit 4 is in Mode 1 operating at 100% power when LT-4-115 fails high. Following the failure VCT level decreases to 10% and VCT pressure decreases to 14 psig. The operators also observed that the following annunciators are lit:

- A4/6, VCT HI/LO LEVEL
- A4/5, VCT HI TEMP / HI/LO PRESS

The failure of LT-4-115 caused RCP #2 seal leakoff flow to (1)\_\_\_\_\_ and will require operators to (2)\_\_\_\_\_ to restore seal leakoff flows to normal?

- A. (1)increase, (2)take LCV-4-115A control switch to VCT position
- B. (1)increase, (2) open LCV-4-115B and shut LCV-4-115C to shift charging pump suction to the RWST then increase makeup flow
- C. (1)decrease, (2)take LCV-4-115A control switch to VCT position
- D. (1)decrease, (2) open LCV-4-115B and shut LCV-4-115C to shift charging pump suction to the RWST then increase makeup flow

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3.

A Unit 4 Bank "D" control rod (H-8) dropped fully into the core.

The measured core QPTR will \_\_\_\_\_.

The location of the dropped rod may be determined by observing a localized \_\_\_\_\_ in the CET temperature nearest the affected fuel assembly.

- A. Decrease; decrease
- B. Not change; decrease
- C. Increase, increase
- D. Not change; increase

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4.

Unit 3 is in Mode 1 and the following conditions exist:

- Reactor power is 40%, steady state conditions
- Rod control is in MANUAL
- Letdown flow is 45 gpm
- The running charging pump is in AUTO
- VCT level is 30%

Instrument air pressure is subsequently lost to the running charging pump.

Which ONE of the following describes the initial effect of this failure on Pressurizer level and Charging pump NPSH?

- A. Pressurizer level will decrease, Charging Pump NPSH will decrease.
- B. Pressurizer level will decrease, Charging Pump NPSH will increase.
- C. Pressurizer level will increase, Charging Pump NPSH will decrease.
- D. Pressurizer level will increase, Charging Pump NPSH will increase.

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5.

Unit 4 is operating in Mode 1 at 95% power when the operators notice the following:

- Control Bank "D" group step counters indicate 192 steps
- Control Bank "D" rod D8 RPI indicates 206 steps

In response to the above conditions, the crew entered ONOP-028.1, RCC MISALIGNMENT. The Reactor Operator determined that Rod D8 is movable.

Which ONE of the following describes how the Reactor Operator will realign rod D8 per ONOP-028.1?

- A. With Rod Control Bank Selector Switch in CBD (Control Bank "D"), disconnect the lift coils of the unaffected rods and insert rod D8 to 192 steps.
- B. With Rod Control Bank Selector Switch in MAN, disconnect the lift coils of the unaffected rods and insert rod D8 to 192 steps.
- C. With Rod Control Bank Selector Switch in MAN, disconnect the lift coil of the affected rod and withdraw Control Bank "D" to 206 steps.
- D. With Rod Control Bank Selector Switch in CBD (Control Bank "D"), disconnect the lift coil of the affected rod and withdraw Bank "D" to 206 steps.

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6.

Unit 4 is in Mode 4 and SOLID. RHR is in service and Overpressure Mitigation System (OMS) primary and backup status lights are "ON." A 10 second pressure spike to 550 psig causes the following to actuate:

- Annunciator A-3/2, OMS HI PRESS ALERT
- Annunciator A-3/3, OMS CONTROL ACTIVATED

Which ONE of the following describes a correct operator response and the basis for that response?

- A. The crew should override MOV-750 and 751, NORMAL RHR SUCTION FROM LOOP valves before they fully close to maintain letdown available.
- B. The crew should take MOV-535 and 536, PORV Isolation Valves, to CLOSE to mitigate a subsequent low pressure excursion should either of the PORVs actuate.
- C. The crew should allow MOV-750 and 751, NORMAL RHR SUCTION FROM LOOP valves to close then enter ONOP-050, LOSS OF RHR, to restore RHR and pressure control.
- D. The crew should close affected PORVs and increase charging and letdown flow by opening PCV-145 and HCV-142 to mitigate the momentary pressure excursion.

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7.

Unit 4 is in Solid Plant condition with RHR in service when the following failure occurs:

- HCV-142, RHR LETDOWN TO CVCS, diaphragm fails

Which ONE of the following describes the effect of the diaphragm failure on the RCS?

- A. RCS pressure control is affected, temperature control is affected.
- B. RCS pressure control is affected, temperature control is not affected.
- C. RCS pressure control is not affected, temperature control is affected.
- D. RCS pressure control is not affected, temperature control is not affected.



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8.

Unit 4 is operating at 100% power. The 4B HHSI pump has been tagged out for a motor replacement. Shortly following the tagout and disassembling of the 4B HHSI pump motor, Unit 4 experiences a large break LOCA in conjunction with a loss of the 4A 4kV bus.

- The crew entered and completed the required actions of EOP-E-0, REACTOR TRIP OR SAFETY INJECTION
- Operators were not successful in restoring either the 4B HHSI pump or the 4A 4kV bus

For the current conditions, which ONE of the following is available to supply injection flow to Unit 4?

	RHR	HHSI
A.	4A	3A & 4B
B.	4B	3A & 3B
C.	4B	4A & 4B
D.	4A	4A & 3B

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9.

Unit 4 Accumulator parameters are as follows:

- Pressure                      698 psig
- Level                            6550 gallons
- Boron Concentration    1955 ppm

The potential impact of these parameter values during a 3" small break LOCA is:

- A. Excessive non-condensable gas introduction into the RCS resulting in interruption of core cooling flow.
- B. Too little accumulator water injected into the RCS resulting in increased peak clad temperatures.
- C. Too much accumulator water injected into the RCS resulting in increased peak clad temperatures.
- D. Dilution of RCS boron concentration resulting in inadequate shutdown margin.

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10.

Unit 3 is operating in Mode 1 at 100% power.

- Annunciator A-7/1, PRT HI/LO LEVEL HI PRESS/TEMP, actuates
- No other Annunciators have actuated
- A review of the parameters shows the following:

Time	1300 hrs	1400 hrs
PRT Level	72%	83%
PRT Temperature	108°F	108°F
PRT Pressure	6 psig	7 psig
PZR Level	53%	53%
Tavg	574°F	574°F
Containment Temperature	102°F	102°F

Assuming all plant systems are in normal alignment, discharge from which ONE of the following caused annunciator A-7/1 to actuate?

- A. Letdown line relief valve, RV-203.
- B. RCP seal water return line relief valve, RV-382.
- C. PORV block valve, MOV-535, packing leakoff.
- D. Reactor vessel head vent system.

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11.

Unit 3 is operating at 100% power. Operators are raising Pressurizer Relief Tank (PRT) level IAW OP-041.3, PRESSURIZER RELIEF TANK. PRT Primary Water Makeup Valve, CV-519B, is OPEN, Primary Water Containment Isolation Valve, CV-519A, is in AUTO and indicates open.

- Annunciator A-7/1, PRT HI/LO LEVEL, HI PRESS/TEMP actuates

Which ONE of the following describes the position of the two PRT primary water supply valves for the current plant condition with no operator action?

- |    | CV-519A | CV-519B |
|----|---------|---------|
| A. | SHUT    | OPEN    |
| B. | SHUT    | SHUT    |
| C. | OPEN    | OPEN    |
| D. | OPEN    | SHUT    |

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12.

A Unit startup is in progress with reactor power at 12% and increasing. The generator is synchronized to the grid and feedwater control is in manual. The operators are performing actions to control steam generator level when the following is observed:

- Annunciator C 1/4, SG "A" Lo-Lo Level, actuates
- SG levels are noted as follows; SG "A" 10%, SG "B" 12%, SG "C" 14%
- Reactor Trip Breakers are shut
- No rod bottom lights are illuminated

Given the above conditions, which ONE of the following describes the initial actions that should be taken by the operating crew?

- A. Operators should continue to raise SG level to prevent a reactor trip on lo-lo SG level.
- B. Operators should continue to increase reactor power, not to exceed 25% reactor power given the current plant conditions.
- C. Operators should manually trip the reactor and turbine.
- D. Operators should monitor safety trees using EOP-F-0.

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13.

Unit 3 is operating in Mode 1. The crew split the CCW headers in an effort to find a small leak in the CCW system. The 3B and 3C CCW pumps are aligned to Train "B" with the 3B CCW pump running and the 3C CCW pump in standby. The 3A CCW pump is in Pull-To-Lock. The 3B CCW pump shaft shears and the following Annunciators actuate:

- H-8/3, CCW PP HEADER LO PRESS
- A-1/3, RCP THERMAL BARR COOLING WATER LO FLOW
- H-9/5, RCP MOTOR BRG COOLING WATER LO FLOW

Given the current plant conditions, the 3C CCW pump will (1)\_\_\_\_\_ and (2)\_\_\_\_\_.

- A. (1)NOT auto start; (2)Operators must immediately trip the reactor and stop all affected RCPs to prevent excessive RCP Motor Bearing temperature.
- B. (1)AUTO start on low CCW header pressure of 77 psig in 30 seconds; (2)Operators should verify the auto start of the 3C CCW pump and continue to operate the charging pumps as before.
- C. (1)NOT auto start; (2)Operators must manually operate the charging pump at maximum speed to prevent excessive charging pump coupling oil temperature.
- D. (1)AUTO start on RCP Thermal Barrier cooling water low flow of 66 gpm; (2)Operators must immediately trip the reactor and stop all affected RCPs due to HI RCP Motor bearing temperature.

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14.

Unit 3 is stable at 100% power.

- A pressurizer safety valve opens and fails to reseal and the unit trips

Which ONE of the following indications would the operator expect to see as a result of this event?

- A. Safety tailpipe temperature would initially increase to greater than 600°F and then subsequently decrease.
- B. Safety tailpipe temperature would initially increase to greater than 600°F and then continue to increase to PZR saturation temperature.
- C. Safety tailpipe temperature would initially increase to between 200°F and 300°F then subsequently decrease.
- D. Safety tailpipe temperature would initially increase to between 200°F and 300°F then continue to increase to PZR saturation temperature.

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15.

A Small Break LOCA has occurred inside Unit 3 containment. The crew is implementing EOP-E-0, REACTOR TRIP OR SAFETY INJECTION.

Which ONE of the following is the reason for tripping the reactor coolant pumps (RCPs)?

- A. To ensure RCPs are available later should they be needed in response to an inadequate core cooling condition.
- B. To prevent RCP runout in the event of a large break LOCA.
- C. To prevent excessive depletion of RCS inventory through a small break in the RCS.
- D. To prevent damage to RCPs due to pumping a two-phase mixture.



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16.

Unit 4 is operating at 100% steady-state power. All systems are in automatic and functioning properly when pressurizer pressure channel PT-444 fails high.

Which ONE of the following represents the plant/system response if NO operator action is taken?

- A. Backup PZR heaters will deenergize and both PORVs will open. RCS pressure will decrease resulting in a reactor trip and SI.
- B. Backup PZR heaters will energize and both spray valves will close. RCS pressure will increase resulting in a reactor trip.
- C. Backup PZR heaters will deenergize and both spray valves will open. RCS pressure will decrease resulting in a reactor trip and SI.
- D. Backup PZR heaters will energize and both spray valves will close. RCS pressure will cycle with PCV-456 and NO reactor trip will result.

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17.

A Large Break LOCA coincident with a Loss Of Off-site Power (LOOP) has occurred on Unit 3.

At \_\_\_ hours after event initiation, EOP-E-1 directs the crew to EOP-ES-1.4, "Transfer to Hot Leg Recirculation."

- A. 8 hours.
- B. 10 hours.
- C. 12 hours.
- D. 24 hours.

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18.

Unit 3 has been operating at 50% power for the last 24 hours. All systems are aligned for normal operation and are operating normally when the median Tavg input to LC-459F, PZR Level Controller, fails high.

With no operator action, which ONE of the following describes the initial plant response to this malfunction?

Charging pump speed will automatically \_\_\_\_\_, followed by \_\_\_\_\_.

- A. decrease, actuation of G 1/1, CHARGING PUMP LOW SPEED.
- B. decrease, automatic energization of both groups of PZR backup heaters.
- C. increase, automatic energization of both groups of PZR backup heaters.
- D. increase, actuation of G 1/2, CHARGING PUMP HIGH SPEED.

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19.

Unit 4 is operating at 25% power, steady state conditions, when the Reactor Operator reports that control rods are stepping inward in AUTOMATIC. The operator places the rods in MANUAL and rod motion stops. Rod positions just prior to rods stepping in were:

- Control Bank C at 230 steps
- Control Bank D at 107 steps

Rods moved continuously for 10 steps before the operator took rods to MANUAL. Which ONE of the following describes (1) a possible cause of inward rod motion, (2) the final RPI for Control Bank C and (3) the final RPI for Control Bank D?

Assume PT-446 is the selected channel.

- A. (1) Loop Tcold failed high  
(2) 225  
(3) 97
- B. (1) Loop Tcold failed low  
(2) 220  
(3) 107
- C. (1) First Stage Pressure Transmitter, PT-446 failed high  
(2) 220  
(3) 97
- D. (1) First Stage Pressure Transmitter, PT-446 failed low  
(2) 225  
(3) 97

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20.

Unit 4 was operating at 100% power when a LOCA inside containment occurred. Safety Injection actuated shortly after the LOCA and Phase "B" Containment Isolation actuated some time after the SI.

- The leak has been identified as being on the discharge of Loop "C" RCP
- RCS Subcooling is 85°F

Which ONE of the following describes the effect on the RCPs as a result of Phase "B" Containment Isolation and how is continued RCP operation affected and why?

- A. RCP seal water return isolation valve, MOV-4-381, shuts. The RCPs may continue to run without any adverse effects since RCP design makes allowance for this condition.
- B. RCP CCW supply isolation valve, MOV-4-716B, shuts. The RCPs must be secured to prevent overheating of the pumps' motors.
- C. RCP CCW supply isolation valve, MOV-4-716B, shuts. The RCPs may continue to run until one of the RCPs associated HI TEMP alarms actuates.
- D. RCP seal water return isolation valve, MOV-4-381, shuts. The RCPs must be secured immediately to conserve RCS inventory due to the leak location.

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21.

Unit 4 is at power with a normal electrical lineup when a large break LOCA occurs inside containment immediately followed by a lockout of the Unit 4 Startup Transformer. Concurrently, the following components fail:

- 4A EDG
- 4D Load Center
- Containment High Pressure switch PS-2007
- Containment Hi-Hi Pressure switch PS-2056

For the current plant conditions, which ONE of the following describes the status of the Containment Spray System?

- A. BOTH the "A" & "B" containment spray trains were lost; ONE train of containment spray Automatic Actuation Logic and Actuation Relays was lost.
- B. BOTH the "A" & "B" containment spray trains were lost; NEITHER train of containment spray Automatic Actuation Logic and Actuation Relays was lost.
- C. Only the "A" containment spray train was lost; ONE train of containment spray Automatic Actuation Logic and Actuation Relays was lost.
- D. Only the "B" containment spray train was lost; NEITHER train of containment spray Automatic Actuation Logic and Actuation Relays was lost.

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22.

Unit 3 has been operating at 100% power under steady state conditions for the past 3 days when Annunciator A-1/5, RCP SEAL LEAKOFF HIGH FLOW, actuates. The crew also observed the following annunciators and plant indications:

- "B" RCP No. 1 Seal Leakoff Flow Wide Range	Pegged High
- "B" RCP No. 1 Seal D/P	25 psid
- "B" RCP Seal Water Injection Flow	14 gpm
- Charging Flow	75 gpm
- Pressurizer Level	Decreasing rapidly
- A 6/4 - RCP SEAL WATER LO D/P	Lit
- A 6/5 - RCP LABYRINTH SEAL LO D/P	Lit
- A 6/6 - SEAL WATER INJ FILTER HI D/P	Lit
- G 2/2 - RCP "B" STANDPIPE HI LEVEL	Lit
- G 5/3 - CNTMT LEVEL INCREASING > 1 GPM	Lit

Which ONE of the following RCP Seal failures occurred?

- A. No. 2 and No. 3 seals have failed and the RCS pressure drop is across the No. 1 seal.
- B. No. 2 seal has failed and is allowing water from the standpipe to flow out the No. 1 seal leakoff line.
- C. No. 1 and No. 2 seals have failed causing failure of No. 3 seal.
- D. No. 1 seal has failed and the RCS pressure drop is across the No. 2 seal.

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23.

The following conditions exist:

- The plant is at 75% power
- Rod Control is in AUTO
- NI-44 fails high

With NO Operator action, which ONE of the following correctly describes how control rods will respond to this failure?

- A. Rods will step in until NI-44 and turbine power rates of change are matched.
- B. Rods will step in until Tave and Tref are matched.
- C. Rods will step in until BOTH NI-44 and turbine power rates of change are matched AND Tave and Tref are matched.
- D. Rods will step in continuously and will not stop until rod control is placed in MANUAL.



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24.

Given the following plant conditions:

- A small break Loss Of Coolant Accident (LOCA) has occurred
- ALL RCPs are stopped
- Core Exit Thermocouple System (CET) readouts have failed
- Pressurizer pressure channel PT-455, indicates 1725 psig
- Pressurizer pressure channel PT-457, indicates 1735 psig
- RCS pressure PT-404 indicates 1690 psig
- RCS pressure PT-406 indicates 1685 psig
- RTD temperatures (degrees F) as follows:

	Loop A	Loop B	Loop C
Thot	540	550	560
Tcold	533	543	553

Which ONE of the following RCS Subcooling values (in degrees F) will be displayed on QSPDS?

(NOTE: Steam tables are provided as a reference.)

- A. 73
- B. 60
- C. 57
- D. 53

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25.

Unit 3 is operating at 100% steady state power when a large break LOCA inside containment occurs.

- The "A" Train sequencer fails
- Containment Spray Pump "B" tripped on overload immediately after automatically starting

Which ONE of the following describes the 3-EOP-E-0 manual actions necessary to prevent exceeding containment design parameters for this event?

- A. Start the 3B or 3C ECC only.
- B. Start the 3B and 3C ECC only.
- C. Start the 3B or 3C ECC and 3A CSP.
- D. Start the 3B and 3C ECC and the 3A CSP.

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26.

Unit 3 tripped due to a loss of all AC power. Plant conditions are as follows:

- Power has been restored
- Transition has just been made from 3-EOP-ECA-0.0 to 3-EOP-ECA-0.1
- Common Seal Water Return Temperature to CVCS is 220°F
- No. 1 Seal Water Outlet Temperature for all RCPs is 220°F
- Annunciator A 1/6, "No. 1 Seal Leak-Off Hi Temp" is lit
- Annunciator A 1/2, "RCP Thermal Barrier Cooling Water Hi Temp" is lit
- Seal Injection Manual Isolation Valves, 297A, 297B, 297C are closed
- RCP Thermal Barrier CCW Outlet Valve, MOV-3-626, is closed

IAW 3-EOP-ECA-0.1, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED, which ONE of the following is correct?

- A. Do NOT attempt to restore RCP seal injection or thermal barrier cooling.
- B. Adjust RCP Seal Injection Manual Isolation Valves to establish pump bearing cooldown rate less than or equal to 1°F/minute to minimize the potential for thermal shock of the seals
- C. Slowly establish Component Cooling Water flow to the thermal barrier heat exchanger prior to restoring seal injection flow to limit the introduction of steam into the CCW system.
- D. Immediately establish a 100°F/hour cooldown of the RCS using natural circulation.

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27.

Unit 4 experienced a LOCA. Cold Leg Recirculation is in progress. The crew also observed the following annunciators and plant conditions:

- RWST Level is <60,000 gallons
- Annunciator H6/2, RHR HX HI/LO FLOW, actuates
- RHR flow is fluctuating between 2750 and 3250 GPM
- RHR pump motor amps are oscillating
- RVLMS head level indicates 33%

Which ONE of the following would cause low RHR flow based on the current plant conditions?

- A. Low RWST level.
- B. Low HHSI pump flow.
- C. Clogging of the containment sump screens.
- D. Chemical plating occurring in the core.

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28.

Unit 4 was operating at 100% power with the "A" CCW pump breaker tagged and racked out. The 4D Bus is aligned to 4A Bus. A LOCA in conjunction with a Loss Of Off-site Power (LOOP) occurs. Current plant conditions are as follows:

- Unit 4 tripped.
- SI actuated.
- 4B Diesel Generator failed to start.
- 4A Emergency Load Sequencer initiated
- All other components and systems operated as designed

For the above conditions, which ONE of the following describes how CCW flow will be reestablished?

- A. The "C" CCW pump will not automatically start. An operator must manually start the "C" CCW pump.
- B. The "C" CCW pump will not automatically start. An operator must first restore power to the associated bus, then manually start the "C" CCW pump.
- C. The "C" CCW pump will be automatically started by the sequencer.
- D. The "C" CCW pump will be automatically started on low CCW system pressure.

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29.

Operators are performing 3-GOP-305, "Hot Standby to Cold Shutdown," and are preparing to perform required actions related to Containment Spray Pumps.

Which ONE of the following describes the required operator actions for the given plant conditions in accordance with 3-GOP-305?

- A. When RCS temperature is between 350°F and 200°F, place both CSPs in Pull-To-Lock and lock closed both discharge isolation valves.
- B. When RCS temperature is between 350°F and 200°F, place both CSPs in standby and remove power from both discharge MOVs.
- C. When RCS temperature is less than 200°F, place both CSPs control switches in Pull-To-Lock and lock closed both discharge isolation valves.
- D. When RCS temperature is less than 200°F, place both CSPs control switches in standby and remove power from both discharge MOVs.

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30.

Unit 4 is operating at 75% power.

- RCS pressure is decreasing
- PI-445 indicates 2500 psig
- PORV-456 opens

Assuming no operator action, which ONE of the following is correct?

- A. All pressurizer heaters energize. RCS Pressure will stabilize around 2000 psig.
- B. Spray valves close. Pressure will continue to decrease until the reactor trips at 1835 psig.
- C. Spray valves open. RCS Pressure will stabilize around 2000 psig.
- D. All pressurizer heaters deenergize. Pressure will continue to decrease until the reactor trips at 1835 psig.

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31.

The following conditions exist:

Unit 4 is in mode 5 with a containment purge in progress when Containment Radiation Monitor R-12 fails high.

With NO Safety Injection Signal present, which ONE of the following statements is correct?

- A. Operators must manually isolate the Containment Purge System by closing the purge supply and exhaust valves and containment instrument air bleed valves. Purge supply and exhaust fans will automatically trip.
- B. An automatic isolation of the Containment Purge System will occur. Purge supply and exhaust valves will shut. Containment instrument air bleed valves will shut, and purge supply and exhaust fans will trip.
- C. An automatic isolation of the Containment Purge System will occur. Purge supply and exhaust valves will shut. Containment instrument air bleed valves will remain open. Purge supply and exhaust fans must be manually tripped.
- D. Operators must manually isolate the Containment Purge System by closing the purge supply and exhaust valves. Containment instrument air bleed valves will remain open. Purge supply and exhaust fans must be manually tripped.



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32.

Unit 4 was operating at 100% power when RCS and Pressurizer pressure increased to 2395 psig. NO automatic protective functions actuated as a result of the increased pressure. The operator inserted a manual trip but the reactor failed to trip.

Which ONE of the following represents the NEXT action, if any, operators should take?

- A. Manually insert rods into the core in order to decrease reactor power.
- B. Manually initiate safety injection to ensure at least one train of safeguards equipment is available.
- C. Locally open reactor trip and bypass breakers to rapidly decrease reactor power.
- D. No automatic protective functions should actuate for this transient and no actions should have been attempted.

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33.

Unit 3 is in Mode 2 with a reactor startup in progress. The following conditions exist:

- Reactor power is 5 E-10 amps
- Source range high voltage is de-energized
- Intermediate Range channel N-35 has failed low

After placing the LEVEL TRIP switch on the failed channel drawer in BYPASS, which ONE of the following actions and limits are required by ONOP-059.7, INTERMEDIATE RANGE NUCLEAR INSTRUMENTATION MALFUNCTION?

- A. Restore the inoperable channel to operable prior to increasing power above 5%.
- B. Verify P-6 is in its required state within 1 hour or place the Unit in at least Hot Standby within the next 6 hours.
- C. Re-energize source range by depressing both P-6 DEFEAT pushbuttons when the operable intermediate range channel indicates less than 10 E-10.
- D. Operation above P-6 may continue unrestricted up to 100% rated thermal power IAW Technical Specifications.

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34.

Refueling operations are in progress on Unit 4 when a fuel assembly with 10,000 MWD/MTU is dropped directly to the floor of the Spent Fuel Pit (SFP). Operators see bubbles coming from the damaged fuel assembly.

Which ONE of the following radiation monitors would actuate annunciator H 1/4, PRMS HI RADIATION, to alert operators to this event?

- A. R-12 (Unit 4 Containment Air Gaseous Monitor).
- B. R-14 (Plant Vent Gaseous Monitor).
- C. RAD-6304 (Plant Vent Stack SPING/4 Monitor).
- D. RI-4-1422B (Unit 4 SFP South Wall ARM).

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35.

Unit 3 is operating at 100% power with all controls in automatic when you see the following:

- Decreasing PZR level and pressure
- Increasing Charging flow
- S/G "A" level increases 4% and returns to program level
- Steam flow and pressure for all S/Gs remains constant
- All loop cold leg temperatures remain constant

Which ONE of the following explains the cause of the plant response?

- A. A S/G Safety Valve on S/G "A" failed open.
- B. A SGTR on S/G "A" has occurred.
- C. A steam break downstream of the MSIV for S/G "A" has occurred.
- D. A loss of feed to S/G "A" has occurred.

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36.

A plant startup is in progress on Unit 3. Latch up of the turbine per 3-OP-089, MAIN TURBINE, is in progress.

- The Unit 3 Secondary Operator latches the turbine by placing the Overspeed Trip Mechanism Lever to the RESET position and then slowly releases the lever to the NORMAL position

Based on this action, which ONE of the following indicates the expected response for the following valves?

	Turbine Stop	Turbine Control	Reheat Stop	Intercept
A.	remain closed	open	remain closed	open
B.	remain closed	remain closed	open	open
C.	open	remain closed	open	remain closed
D.	open	open	remain closed	remain closed

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37.

Operators initiated a plant cooldown on Unit 4 using the Steam Dump To Condenser System (SDTC). Shortly after the cooldown is started, the crew notices that SDTC valves automatically close. Tavg is 543°F.

Which ONE of the following describes the interlock that closed the SDTC valves and the basis for the interlock?

- A. SDTC Low Tavg interlock; prevents inadvertent RCS cooldown.
- B. SDTC Low Tavg interlock; allow for manual SI Block.
- C. SI High Steam Flow with Low Tavg interlock; allows for manual SI Block.
- D. SI High Steam Flow with Low Tavg interlock; prevents inadvertent RCS cooldown.

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38.

Which ONE of the following conditions would result in closure of MSIVs?

- A. High steam flow and high Tavg.
- B. Low steam flow and low Tavg.
- C. Hi and Hi Hi containment pressure.
- D. Low Tavg and low S/G pressure.

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39.

Unit 3 operators were performing 3-GOP-301, HOT STANDBY TO POWER OPERATION, when the "A" S/G Feedwater Pump tripped on overload. Plant conditions just prior to the pump trip were as follows:

- Both the "A" and "B" S/G Feedwater Pumps were operating
- Reactor Power was 58% and increasing
- First stage pressure was 310 psig and increasing
- S/G Water Level was 68% and increasing

Which ONE of the following describes the plant response based on the indications given?

- A. A turbine trip due to trip of the Feedwater Pump breaker.
- B. A turbine trip due to S/G water level.
- C. A turbine runback due to trip of the Feedwater Pump breaker.
- D. A turbine runback due to S/G water level.



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40.

EOP-ECA-0.0, "Loss of All AC Power," directs the operator to:

- "Depressurize all intact S/G's to 180 psig."
- The NOTE that immediately precedes this step states that this should be accomplished at the MAXIMUM rate

Which ONE of the following correctly describes the BASIS for the step and the NOTE?

- A. Minimize secondary coolant loss.
- B. Prevent loss of pressurizer level.
- C. Prevent voiding in the reactor vessel head area.
- D. Minimize RCS inventory loss.

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41.

Unit 3 is at 760 MW with condenser vacuum at 28 inches when the main condenser slowly begins losing vacuum. The following is the sequence of events and crew responses to the decreasing condenser vacuum:

- Vacuum is lowering at a rate of ½ inch per minute
- The crew begins a power decrease at a rate of 35 MW per minute
- Vacuum decreases for 10 minutes until the SJAE hogging jets are started.
- Vacuum recovers at a rate of 1/2 inch per minute.
- Power decreases at a constant rate of 35 MW per minute until 2 minutes after the SJAE hogging jets started

Which ONE of the following indicates the approximate generator load when the SJAE hogging jets were started and if any condenser vacuum limitations violated?

Approximate Generator Load when SJAE hogging jets started?	Violation of operational limit associated with condenser vacuum?
A. 340 MW	NO
B. 340 MW	YES
C. 410 MW	YES
D. 410 MW	NO

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42.

Unit 3 is operating at 100% power when a Loss Of Off-site Power (LOOP) occurs resulting in a reactor trip and a loss of forced reactor coolant circulation.

- S/G levels are stable
- All other systems have responded as expected
- Valve positions have remained relatively unchanged for the past 15 minutes

Using the following parameters, which ONE of the following combinations of parameter trends indicates that natural circulation is fully established?

<u>RCS T-Hot</u>	<u>RCS T-Cold</u>	<u>S/G Pressure</u>	<u>RCS Subcooling</u>
A. increasing	decreasing	increasing	stable
B. decreasing	stable	stable	increasing
C. stable	decreasing	increasing	decreasing
D. increasing	stable	decreasing	increasing

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43.

Unit 3 is in Mode 2. Unit 4 is in Mode 3 with refueling tests in progress.

Which ONE of the following correctly states the Condensate Storage Tanks System minimum indicated volume required by Technical Specifications and its basis?

- A. 420,000 gallons; Provides sufficient volume to cooldown to below 350°F within 23 hours.
- B. 420,000 gallons; Provides sufficient volume to maintain Hot Standby for approximately 23 hours.
- C. 210,000 gallons; Provides sufficient volume to cooldown below 350°F within 23 hours.
- D. 210,000 gallons; Provides sufficient volume to maintain Hot Standby for approximately 23 hours.

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44.

Unit 4 is operating at 100% power with a liquid radioactive waste release in progress when the following control room indications are received:

- R-18 WARNING ALARM LIGHT - OFF
- R-18 Fail indicator is ON and its display is failed low

IAW ONOP -067, RADIOACTIVE EFFLUENT RELEASE, which ONE of the following is correct?

- A. Stop the release and notify the SM to refer to Tech Specs.
- B. Direct field operator to locally re-open RCV-018.
- C. Notify I&C of the PRMS failure while continuing the release.
- D. Direct the RO to manually close RCV-018 from VPB.

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45.

Unit 3 is operating at 25% power. The 3A Condensate and the 3A Main Feedwater Pumps are running. While continuing to increase power the 3A 4KV bus locks out and the crew observes the following control room indications:

- Annunciator D-5/2, SGFP A LO FLOW, actuates
- Annunciator D-5/5, FEEDWATER PUMP A LUBE OIL LOW PRESS TRIP, actuates
- Feedwater Pump Suction Pressure on PI-1627-A indicates 350 psig following auto-start of the 3B and 3C Condensate pumps

Which ONE of the following describes the action of the 3B Feedwater Pump?

- A. It will NOT start automatically or manually.
- B. It will start automatically only after suction pressure on PI-1627-A indicates > 400 psig.
- C. It will start automatically without operator action.
- D. It can be started manually regardless of suction pressure after auto start of the 3B and 3C Condensate Pumps.

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46.

Unit 3 is in Mode 5 and Unit 4 is at 100% power with all systems in normal alignment except for the AFW system, which has been realigned as a result of the "A" AFW pump being out of service. The following sequence of events occurs:

- A Loss OF Off-site Power (LOOP) occurs on both Units
- Unit 4 S/Gs were being supplied by AFW with levels steady when Unit 3 instrument air system pressure dropped to 70 psig

Which ONE of the following describes the effect on the plant?

- A. After 2 hours the D/P across Train 1 AFW FCVs supplying Unit 4 will increase and Unit 4 S/G levels will decrease.
- B. After 1 hour the D/P across Train 1 AFW FCVs supplying Unit 4 will decrease and Unit 4 S/G levels will increase.
- C. After 2 hours the D/P across Train 2 AFW FCVs supplying Unit 4 will increase and Unit 4 S/G levels will decrease.
- D. After 1 hour the D/P across Train 2 AFW FCVs supplying Unit 4 will decrease and Unit 4 S/G levels will increase.

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47.

Activity sensed by the Unit 3 Spent Fuel Pit exhaust duct area radiation monitor will (1)\_\_\_\_\_ because the detector (2)\_\_\_\_\_

- A. (1)not be delayed, (2)is shielded and measures gaseous radiation within the exhaust duct only.
- B. (1)not be delayed, (2)is unshielded and measures beta/gamma both gaseous and general area radiation.
- C. (1)be delayed, (2)is shielded and measures gaseous and particulate radiation trapped on the filter paper.
- D. (1)be delayed if condition is due only to particulate, (2)is unshielded and measures general area, gaseous and particulate radiation trapped on the filter paper.



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48.

Unit 3 is operating at 65% reactor power when a failure of the "C" Bus Transformer occurs.

Which ONE of the following occurs IMMEDIATELY after the failure of the "C" Bus transformer?

- A. Turbine Runback.
- B. Loss of all CVCS makeup capability.
- C. Loss of all feedwater flow.
- D. Loss of all Circulating Water System flow.

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49.

Unit 3 is operating at 100% power when the following events occur:

- The Unit 3 reactor trips
- All Unit 3 Annunciators except X Panel go dark
- Unit 3 MSIVs go closed
- 3C S/G AFW Steam Supply, MOV-3-1405, lights go out
- All Unit 3 S/G Feed Reg Valves go Closed

Which ONE of the following identifies the event that initiated these occurrences?

- A. Loss of 120V AC Bus 3P08
- B. Loss of 125V DC Bus 3D23
- C. Loss of 120V AC Bus 3P07
- D. Loss of 125V DC Bus 3D01

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50.

Unit 3 is in Mode 1 operating at 100% power when DC bus 3D23 is lost.

Which ONE of the following describes how EDGs are affected?

- A. The 3B EDG can start but can not load.
- B. The 3A EDG can start but can not load.
- C. The 3B EDG can not start.
- D. The 3A EDG can not start.

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51.

A Loss Of Off-site Power (LOOP) has occurred. Site conditions are as follows:

- Unit 4 EDGs are running at full load
- Due to problems with the fuel oil transfer system, operators are unable to replenish the 4A EDG Day Tank

Assuming the 4A EDG Day Tank is full and the 4A EDG continues to run at full load, which ONE of the following represents the time until the 4A EDG will run out of fuel?

- A. 1-1/2 hours
- B. 3 hours
- C. 11 hours
- D. 7 days

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52.

Units 3 and 4 had been operating at 100% power when Instrument Air pressure was lost.

- Units 3 and 4 were both manually tripped
- 3-40-339, Auxiliary Building and Control Room Header Isolation Valve, was subsequently closed to isolate the leak in the Instrument Air header
- Pressure has returned to normal in the unaffected portions of the Instrument Air system

With the Instrument Air header in its current condition, which ONE of the following is correct?

- A. Charging Pump Suction will automatically align to the RWST.
- B. Charging flow will increase.
- C. RCP seal bypass flow will increase.
- D. NRHX outlet temperature (RCS side) will increase.

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53. Unit 4 experienced a Large Break LOCA outside containment. Emergency Off-site Dose Calculations are being made IAW EPIP-20126, OFF-SITE DOSE CALCULATIONS, when all data being supplied via both Met Towers is lost.

Which ONE of the following describes the consequences of and operator response to the loss of the Met Towers?

- A. ERDADS will automatically display predetermined default values. Operators will be required to use the displayed values.
- B. ERDADS will display the last valid values obtained. Operators will be required to use data obtained from Homestead Air Reserve Base.
- C. Related data on ERDADS will be displayed in blue. Operators will be required to use the displayed values.
- D. Related data on ERDADS will be displayed in blue. Operators will be required to use data obtained from the National Weather Service.

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54.

Unit 3 has experienced a large break LOCA resulting in fuel damage.

- Radiation levels have increased in the auxiliary building resulting in high airborne activity levels
- Process Radiation monitor R-14, Plant Vent Gas Monitor, has been steadily increasing and was reading 1M CPM when it experienced an instrument failure

Which ONE of the following describes how radiation levels commensurate to those measured by R-14 can be determined as radiation levels increase?

A valid backup reading is available on \_\_\_\_\_.

- A. Containment Air Gaseous Monitor, R-3-12.
- B. Plant Vent Gaseous Monitor, R-14 on Unit 4.
- C. Plant Vent Sping-4, RAD-6304.
- D. DAM-1 monitor, RAD-6426.

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55.

Unit 4 is operating at 100% power with 4A and 4B ICW pumps running. 4C ICW pump is OOS for a shaft replacement. The following occurs:

- I 4/3, ICWP A/B/C/ MOTOR BRG HI TEMP, actuates
- 4A ICW pump upper bearing temperature is 195°F and slowly rising
- 4A ICW pump motor current is 50 amps and slowly rising

Operators enter 4-ONOP-019, INTAKE COOLING WATER MALFUNCTION, and stop the 4A ICW pump. Total ICW flow is 20,500 gpm after the 4A ICW pump stops.

Which ONE of the following statements is correct?

- A. Operators should throttle shut on the TPCW HX Outlet Combined ICW Isolation Valve 4-50-401 which will cause an increase in TPCW outlet temperature. Operators should reduce Unit Load if unable to reduce total ICW flow.
- B. Operators should throttle open on the TPCW HX Outlet Combined ICW Isolation Valve 4-50-401 which will cause a decrease in TPCW outlet temperature. Operators should reduce Unit Load if unable to increase total ICW flow.
- C. Operators should throttle shut on the TPCW HX Outlet Combined ICW Isolation Valve 4-50-401 which will cause an increase in TPCW outlet temperature. Operators should manually trip the reactor and turbine if unable to reduce total ICW flow.
- D. Operators should throttle open on the TPCW HX Outlet Combined ICW Isolation Valve 4-50-401 which will cause a decrease in TPCW outlet temperature. Operators should manually trip the reactor and turbine if unable to increase total ICW flow.



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56.

Units 3 and 4 are in Mode 1. The instrument air systems are in normal lineups with Unit 3 motor driven compressor (3CM) in LEAD.

- Unit 3 air receiver air pressure has been cycling between 99 psig and 110 psig for the last two hours
- Unit 3 motor driven compressor (3CM) has been running loaded continuously for the same period

Which ONE of the following statements is correct regarding the operation of the instrument air system during this two-hour time period?

- A. Unit 4 instrument air header isolation valve, CV-4-1605, has been cycling.
- B. Unit 4 motor driven compressor (4CM) is cycling on load.
- C. The LAG diesel driven compressor is cycling on load.
- D. Unit 3 instrument air header isolation valve, CV-3-1605, has been cycling.

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57.

Earlier during your shift a fire broke out in the Auxiliary Building Fan Room (Fire Zone 28) where contractors were working.

- The Fire Door (D028) from the Auxiliary Building Fan Room to the Auxiliary Building Hallway was opened and closed a number of times as Contractor personnel evacuated.
- Alarm Point 39 (Fire Zone 58 - Aux Building Hallway adjacent to Fire Zone 28) on Fire Detection Panel C39A alarmed.
- After inspecting the entire area, the Fire Brigade reported that the fire was out with no equipment damage but a lot of smoke had entered the Auxiliary Building Hallway (Fire Zone 58) as a result of the opening and closing of the fire door.
- Emergency ventilation of the Auxiliary Building has been delayed because the Auxiliary Building Supply Fan 3B-V11 will not start.

Based on the information given, which ONE of the following statements explains why the fan will not start?

- A. The keylock switch (HS3-V11 - Supply Fan 3B Normal / Isolate) located on 3D MCC, had been repositioned from "Normal" to "Isolate."
- B. The fire alarm started an Auxiliary Building Exhaust fan which must be stopped before the supply fan can be started.
- C. The Contractors left Fire Door D028 partially open after passing through which prevented the Auxiliary Building Supply Fan 3B-V11 closing contact from engaging.
- D. Use of Fire Door D028 allowed smoke to enter the Auxiliary Building area causing Alarm Point 39 (Fire Zone 58 - Aux Building Hallway adjacent to Fire Zone 28) alarm to activate.

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58.

Unit 3 is in Mode 6 with refueling operations in progress. The manipulator crane is latched to an irradiated fuel assembly inside containment. As the assembly is being moved, the following alarm and plant conditions are observed:

- Annunciator G 9/5, CNTMT SUMP HI LEVEL actuates
- Annunciator I 4/6, CNTMT SUMP HI LEVEL actuates
- Containment Radiation Monitor R-3-12 shows an increase in level but is below its alarm set point

Which ONE of the following is the FIRST action to be taken by the Control Room Operator in accordance with 3-ONOP-033.2, "Refueling Cavity Seal Failure?"

- A. Direct HP to monitor radiation levels in the containment area.
- B. Manually initiate Containment Isolation Phase A.
- C. If RCS level is low, restore level immediately using ONOP-041.9, REDUCED INVENTORY OPERATION.
- D. Sound the containment evacuation alarm.

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59.

A fire in the Control Room necessitated implementing 0-ONOP-105, "Control Room Evacuation." As part of his Immediate Actions, the Third RO depresses the Plant PA Page Boost push button.

Which ONE of the following describes an action initiated by pressing this Page Boost push button?

- A. Actuates high intensity blue strobe lights located in designated high noise areas in the plant.
- B. Resets any PA emergency alarms in progress at that time (site evacuation, containment evacuation or fire alarms).
- C. Expands PA coverage to include Unit 4 EDG building and plant areas south of the NAB.
- D. Activates ambient noise monitors to automatically adjust speaker volume in Charging Pump and Pipe and Valve rooms.

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60.

You are the Field Operator assigned to perform 0-OP-074.1, Startup of the Standby Steam Generator Feedwater System. The system had been drained for maintenance. You are on Step 5.1.2.4 which reads as follows:

IF maintenance has been performed on the Standby Steam Generator Feedwater system (system drained), **THEN** open the following valves until a solid stream of water emits **AND** then close the valve:

- a. SSGFP Disch Header Vent DWDS-148
- b. SSGFP Disch Header Vent DWDS-150
- c. SSGFP Disch Header Vent DWDS-152

Per the procedure, you perform and observe the following conditions:

- You open DWDS-148, get a solid stream of water, and shut DWDS-148
- After several attempts, you find you are unable to open DWDS-150 but you do observe water dripping from the valve's outlet.

For this situation, which ONE of the following is correct?

- A. It is permissible to complete the remaining substep.
- B. Stop the procedure, have a qualified SRO evaluate and N/A the step, and continue with the next substep.
- C. Annotate that the valve was stuck shut and continue the procedure.
- D. Stop the procedure, place the system in a safe condition, and notify the Shift Manager.

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61.

The Third RO announces to the Control Room that he is leaving to perform administrative duties associated with Units 3 and 4. The Unit 4 SRO acknowledges his announcement. Although he makes no mention of it, he anticipates being out of the Control Room just under two hours. He returns two hours and 15 minutes later.

In this situation, which ONE of the following statements is correct?

- A. The Third RO has not violated procedure because he received proper acknowledgement to his announcement.
- B. The Third RO has violated procedure because he did not receive proper acknowledgements to his announcement.
- C. The Third RO has not violated procedure because he did not anticipate being away more than two hours.
- D. The Third RO has violated procedure because he was away more than two hours.

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62.

The following conditions exist on Unit 3:

- MODE 3 at normal operating temperature and pressure, preparing for Reactor Startup.
- The RCS has been diluted to the ECC Startup Boron concentration.
- Non-Regenerative Heat Exchanger Temperature Control Valve, TCV-144, is in MANUAL.
- All other controls are in AUTOMATIC and functioning NORMALLY.
- The Unit 3 RO REDUCES letdown flow from 120 gpm to 60 gpm.

Assuming NO other manipulations, over the next hour, Source Range counts will?

- A. INCREASE due to warmer RCS water exiting the non-regenerative heat exchanger.
- B. INCREASE due to cooler RCS water exiting the non-regenerative heat exchanger.
- C. DECREASE due to warmer RCS water exiting the non-regenerative heat exchanger.
- D. DECREASE due to cooler RCS water exiting the non-regenerative heat exchanger.

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53.

Unit 3 is in Mode 5 and Unit 4 is in Mode 3.

- At 0800 on February 3<sup>rd</sup>, the 3A2 battery charger was taken OOS for maintenance and disassembled
- At 1400 on February 3<sup>rd</sup>, the 3A1 battery charger failed due to an electrical fault

Using the attached Technical Specification pages, determine which ONE of the following is the correct action to be taken.

- A. Restore at least one charger to operable status by 1600 on February 3<sup>rd</sup>.
- B. No action required, adequate DC electrical sources are still operable.
- C. Restore at least one charger to operable status by 1400 on February 6<sup>th</sup>.
- D. Restore at least one charger to operable status by 1400 on February 4<sup>th</sup>.



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64.

The operating crew is performing OP-038.1, PREPARATION FOR REFUELING ACTIVITIES.

Which one of the following describes an activity that requires communications to be established with the Control Room?

- A. Transferring a new fuel element to a New Fuel Room rack.
- B. Performing Insert shuffle in the SFP.
- C. Detensioning the reactor vessel head.
- D. Lowering the Containment upender with an irradiated element.

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65.

Which ONE of the following dose components are combined to determine a Radiation Worker's Occupational Annual Dose Limit?

- A. Total Effective Dose Equivalent and Committed Dose Equivalent.
- B. Deep Dose Equivalent and Committed Dose Equivalent.
- C. Total Effective Dose Equivalent and Planned Special Exposures.
- D. Committed Dose Equivalent and Planned Special Exposures, only.

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66.

Operations has a task to be performed in the Auxiliary Building near a 20 foot pipe that reads 300 mr/hr at 2 feet. Two options exist to complete the assignment:

Option 1: Operator A can perform the assignment in 1 hour, working at a distance of 4 feet from the line source.

Option 2: Operators B and C can perform the same task, using special extension tooling, in 1.5 hours working at a distance of 9 feet from the source.

Which ONE of the following options should be selected according to the facility ALARA plan?

- A. Option 1 with a total dose of 150 mrem.
- B. Option 1 with a total dose of 75 mrem.
- C. Option 2 with a total dose of 45 mrem.
- D. Option 2 with a total dose of 200 mrem.

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57.

Unit 3 has experienced a large break LOCA. The crew has transitioned from EOP-E-0, "Reactor Trip or Safety Injection" to EOP-E-1, "Loss of Reactor or Secondary Coolant." The following conditions exist:

- "A" S/G N/R level is 38%, AFW flow is 120 gpm, pressure is 1050 psig
- "B" S/G N/R level is 42%, AFW flow is 110 gpm, pressure is 1025 psig
- "C" S/G N/R level is 58%, AFW flow is 0 gpm, pressure is 1135 psig
- RCS pressure is 35 psig and decreasing
- CET Subcooling is 0°F
- Core exit thermocouples are 690°F
- RVLMS Plenum level is 0%
- Containment pressure is 37 psig

Which ONE of the following is the correct procedure to use for these conditions?

- A. EOP-FR-I.2, "Response to Low Pressurizer Level".
- B. EOP-FR-C.2, "Response to Degraded Core Cooling".
- C. EOP-FR-Z.1, "Response to High Containment Pressure".
- D. EOP-FR-H.2, "Response to Steam Generator Overpressure".

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68.

Given the following conditions:

- Reactor Power is stable at 88%
- Generator output is 660 MWe and steady
- Control Rods are in automatic
- Tave is less than Tref by 1.5°F
- Charging flow is 45 gpm and steady
- Pzr pressure is 2235 psig
- Control Bank D begins to insert

Which ONE of the following describes the correct immediate operator response to these conditions?

- A. Verify quadrant power tilt and axial flux difference within limits.
- B. Place Rod Motion Control Selector switch to the MAN position.
- C. Trip the Reactor and Turbine and go to EOP-E-0.
- D. Verify IRPI operating properly.

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69.

Unit 3 has had a reactor trip and SI due to a main steam line break in containment.

- "B" S/G WR indication is zero%
- "A" S/G narrow range level is 4% and slowly rising
- "C" S/G narrow range level is 5% and slowly rising
- Total AFW flow is 300 gpm
- PZR level is 4% and rising
- Containment temperature is 178°F and slowly lowering
- RCS CET subcooling is stable at 88°F
- RCS pressure is 1800 psig and slowly rising

Which ONE of the following sets of conditions will allow the crew to transition from EOP-E-1 to EOP-ES-1.1, SI TERMINATION?

- A. One intact S/G level is increased above 17% and PZR level is increased above 6%.
- B. PZR level is increased above 17% and total AFW flow is increased above 345 gpm.
- C. One intact S/G level is increased above 17% and total AFW flow is increased above 345 gpm.
- D. RCS CET Subcooling is increased above 100°F and PZR level is increased above 6%.

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70.

Unit 4 has experienced a LOCA outside containment. The crew has taken the actions of ECA-1.2, LOCA OUTSIDE CONTAINMENT.

- RCS pressure is increasing

The crew transitions to E-1, LOSS OF REACTOR OR SECONDARY COOLANT. Which ONE of the following identifies the basis for the transition to E-1?

- A. To prevent excessive depletion of RCS inventory to prevent further, if any, head void formation.
- B. To establish conditions for SI termination.
- C. To establish conditions for RHR system operation for subsequent plant cooldown.
- D. To establish conditions for utilizing the water inventory in the sump.

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71.

Unit 3 operators have entered EOP-FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK. The following plant conditions exist:

- All S/G's WR levels < 6%
- S/G feed is unavailable
- Normal charging and letdown are unavailable
- The plant had been at 100% power for 30 days prior to tripping
- All RCP's have been tripped
- SI and Containment Isolation Phase A have been actuated
- HH SI pumps have been verified running
- Both PZR PORV Block valves are open and both PZR PORV's have been opened

Which ONE of the following describes how the plant will respond based on existing plant conditions?

- A. PZR level will decrease, Loop B hot leg temperature will decrease, Core Exit Thermocouple temperature will decrease.
- B. PZR level will increase, Loop B hot leg temperature will increase, RCS Subcooling will decrease.
- C. PZR level will decrease, RCS pressure will decrease, RCS Subcooling will increase.
- D. RCS pressure will decrease, Loop B hot leg temperature will decrease, RCS Subcooling will decrease.



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72.

A LOCA has occurred on Unit 4 and the crew is currently in EOP-E-1, LOSS OF REACTOR OR SECONDARY COOLANT. The following plant conditions exist:

- All RCPs are secured
- Both Source Range channels have failed
- Containment pressure is 43 psig and increasing
- Core Exit Thermocouples are 783°F and increasing
- RCS CET Subcooling is 0°F
- S/G pressure in the "A" S/G is 1095 psig and increasing
- Lowest and highest S/G levels are 28% and 33% NR
- PZR level is 13% and decreasing
- Gamma-Metrics is 3% and decreasing

Based on the current plant conditions, which ONE of the following situations should the crew immediately address?

- A. Low Pressurizer Level.
- B. High Containment Pressure.
- C. Loss of Core Shutdown.
- D. Degraded Core Cooling.

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73.

Unit 3 operators have entered EOP-ES-0.2, NATURAL CIRCULATION COOLDOWN, as a result of a Loss Of Off-site Power (LOOP).

- The Shift Manager has determined RCS degassing is required
- The crew has just determined that they must exceed the maximum natural circulation cooldown rate of 25°F/hr stated in EOP-ES-0.2

IAW BD-EOP-ES-0.2, the major factor which would require a more rapid cooldown and depressurization than procedure EOP-ES-0.2 allows is \_\_\_\_\_.

- A. to maximize RCS delta T to enhance natural circulation
- B. when RCS inventory is being lost through the RCP seals
- C. to reduce SG pressure to increase AFW flow
- D. when condensate storage is limited

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74.

A LOCA occurred on Unit 3. The crew transitioned to EOP-ES-1.3, TRANSFER TO COLD LEG RECIRCULATION. The operators have progressed in EOP-ES-1.3 to the point where RHR suction has been aligned to the Containment Recirc. Sump and one RHR pump has been started when the following indications are noted:

- The running RHR pump amps are oscillating
- RHR flow is abnormally low and oscillating
- Annunciator H-6/2, RHR HX HI/LO FLOW

Which ONE of the following indicates the operational implications and the initial actions the crew should take?

- A. The Recirculation Sumps are blocked. Place both RHR pumps in Pull-to-Lock and continue performing the remaining steps of ES-1.3.
- B. The running RHR pump shaft has sheared. Start the standby RHR pump and continue performing the remaining steps of ES-1.3.
- C. The running RHR pump shaft has sheared. Transition to 3-EOP-ECA-1.1, "Loss of Emergency Coolant Recirculation," and start the standby RHR pump.
- D. The Recirculation Sumps are blocked. Transition to 3-EOP-ECA-1.1, "Loss of Emergency Coolant Recirculation," and add makeup to the RWST.

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75.

The following conditions apply to Unit 4.

- The plant has tripped late in core life from 100% RTP
- Condenser steam dumps, steam dump to atmosphere valves, and main steam safety valves have failed to automatically respond causing 4A S/G pressure to reach 1130 psig
- The crew has entered EOP-FR-H.2, RESPONSE TO STEAM GENERATOR OVERPRESSURE
- The 4A S/G NR level is observed to increase off-scale high

Which ONE of the following describes the next action to take and the basis for that action?

- A. Transition to 3-EOP-FR-H.3, RESPONSE TO STEAM GENERATOR HIGH LEVEL, since steam should not be released from the affected steam generator.
- B. Attempt to manually dump steam using the 4A steam dump to atmosphere valve to mitigate the overpressure condition.
- C. Stop any running Auxiliary Feedwater Pump(s) to preclude adding additional inventory to the affected steam generator.
- D. Initiate RCS Bleed and Feed in order to establish a heat removal path from the reactor core.