

Final Submittal

(Blue Paper)

HARRIS 2008-301
Initial License Exam
3/10 - 3/13 & 3/21/2008

FINAL SRO

WRITTEN EXAMINATION

AND REFERENCES

MASTER - SRO

ES-401

Site-Specific SRO Written Examination
Cover Sheet

Form ES-401-8

U.S. Nuclear Regulatory Commission Site-Specific SRO Written Examination	
Applicant Information	
Name:	
Date: 3/21/08	Facility/Unit: HARRIS PLANT
Region: I <input type="checkbox"/> II <input checked="" type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/>	Reactor Type: W <input checked="" type="checkbox"/> CE <input type="checkbox"/> BW <input type="checkbox"/> GE <input type="checkbox"/>
Start Time:	Finish Time:
Instructions	
Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination you must achieve a final grade of at least 80.00 percent overall, with 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require a final grade of 80.00 percent to pass. You have 8 hours to complete the combined examination, and 3 hours if you are only taking the SRO portion.	
Applicant Certification	
All work done on this examination is my own. I have neither given nor received aid.	
_____ Applicant's Signature	
Results	
RO/SRO-Only/Total Examination Values	___ / ___ / ___ Points
Applicant's Scores	___ / ___ / ___ Points
Applicant's Grade	___ / ___ / ___ Percent

MASTER - SRO

Name: _____

1.

Initial conditions:

- The plant is at 80% Reactor power and ramping UP at 1/2% per minute.
- Tave and Tref are matched.
- Rod Control is in AUTOMATIC.

Current conditions:

- ONE (1) Control Bank D Rod has just dropped and is stuck at 170 steps.
- All Other Control Bank D Rods are currently indicating 206 Steps.

Assuming NO operator action is taken, which ONE of the following describes the DEMAND for rod motion, and the effect on Axial Flux Difference (AFD) for the channel NEAREST the control rod problem?

	<u>ROD MOTION</u>	<u>AFD EFFECT</u>
A.	Outward	Less Negative
B.	Outward	More Negative
C.	Inward	Less Negative
D.	Inward	More Negative

2.

Initial Plant Conditions:

- The plant is Solid.

Current Plant Conditions:

- A controller failure has caused 1CS-38, Letdown Pressure Control valve, to shut.
- The crew has just entered AOP-019, Malfunction of RCS Pressure Control.

Which ONE of the following describes the effect of this malfunction on RCS pressure and the actions required IAW AOP-019 to mitigate this event?

A. RCS Pressure will increase;

Ensure the RCP Seal Water Return valves are open

B. RCS Pressure will increase;

Secure the running CSIP

C. RCS Pressure will decrease;

Ensure the RCP Seal Water Return valves are shut

D. RCS Pressure will decrease;

Increase charging flow to raise RCS pressure

3.

The plant is operating at 100% power when one control rod drops fully into the core causing Power Range N-41 to read lower than the other power range channels.

Which ONE of the following is the expected QPTR response over the next two to six hours and why?

A. QPTR will increase due to the buildup of Xenon in the dropped rod's fuel assembly.

B. QPTR will decrease due to the buildup Xenon in the dropped rod's fuel assembly.

C. QPTR will increase due to the change in temperature in the dropped rod's fuel assembly.

D. QPTR will decrease due to the change in temperature in the dropped rod's fuel assembly.

4.

Given the following:

- A plant startup is in progress.
- Reactor power is 20%.
- "B" RCP trips.

Which ONE of the following describes the effect on the reactor and "B" loop Tave?

A. Reactor remains at power;

Loop "B" Tave lowers due to T_{hot} lowering to the value of T_{cold}.

B. Reactor remains at power;

Loop "B" Tave rises due to the decreased flow in the "B" loop.

C. Reactor automatically trips;

Loop "B" Tave lowers due to T_{hot} lowering to the value of T_{cold}.

D. Reactor automatically trips;

Loop "B" Tave rises due to the decreased flow in the "B" loop.

5.

Which ONE of the following evolutions, by itself, will RAISE Shutdown Margin?

A. Lowering the setpoint of the Letdown Temperature Control Valve, TCV-144, by 10 °F.

B. Raising the flow setting of the boric acid flow controller by 2 turns during a blended makeup to the VCT.

C. Raising the setting of the blended makeup flow totalizer by 100 gallons total during a blended makeup to the VCT.

D. Lowering the setting of the boric acid batch totalizer by 20 gallons total during a blended makeup to the VCT.

6.

Which ONE of the following sets of parameters and conditions will satisfy the interlocks to open the Residual Heat Removal Hot Leg Suction valves (1RH-1, 2, 39, and 40)?

- A. RCS temperature is 345 °F,
RCS pressure is 365 psig,
RHR discharge to CSIP valves, 1RH-25 and 1RH-63, are shut,
RHR suction from RWST valves, 1RH-322 and 1RH-323, are shut.
- B. RCS temperature is 335 °F,
RCS pressure 355 psig,
RHR discharge to CSIP valves, 1RH-25 and 1RH-63, are shut,
RHR suction from RWST valves, 1RH-322 and 1RH-323, are shut.
- C. RCS temperature is 345 °F,
RCS pressure 355 psig,
RHR suction from RWST valves, 1RH-322 and 1RH-323, are shut.
RHR suction from Containment sump valves 1SI-300, 301, 310, and 311 are shut.
- D. RHR temperature is 335 °F,
RCS pressure is 365 psig,
RHR discharge to CSIP valves, 1RH-25 and 1RH-63, are shut,
RHR suction from Containment sump valves 1SI-300, 301, 310, and 311 are shut.

7.

Given the following:

- The plant is in Mode 4.
- RHR Train "A" is in service.
- RHR Heat Exchanger Bypass Valve 1RH-20 is in automatic with the output at 40% to maintain 3750 GPM.
- RHR Heat Exchanger outlet valve 1RH-30 demand position is set at 30%.
- The Instrument Air supply line to RHR Heat Exchanger Outlet Valve 1RH-30 becomes severed and is completely detached.
- No other air operated valves are impacted by the failure.

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

	<u>RHR HX Outlet Temp</u>	<u>Total RHR flow</u>
A.	Higher	Lower
B.	Higher	Higher
C.	Lower	Higher
D.	Lower	Lower

8.

Given the following:

- A reactor trip and safety injection have occurred.
- RCS pressure is 1000 psig and lowering.
- "A" CSIP fails to operate.
- All other equipment operates as designed.

Which ONE of the following describes the expected MCB Charging Flow indication (FI-122.1), and the Safety Injection flow indication (FI-943)?

- A. MCB Charging flow 0 gpm;
Safety Injection flow is approximately 600 gpm
- B. MCB Charging flow 0 gpm;
Safety Injection flow is approximately 450 gpm
- C. MCB Charging flow approximately 150 gpm;
Safety Injection flow is approximately 150 gpm
- D. MCB Charging flow approximately 150 gpm;
Safety Injection flow is approximately 450 gpm

9.

Given the following:

- "A" Train equipment is in service.
- A Reactor Trip occurs.
- All equipment is operating as designed.
- The crew is performing actions of Path-1.
- Conditions are as follows:

	<u>CH I</u>	<u>CH II</u>	<u>CH III</u>	<u>CH IV</u>
PZR press.	1865 psig	1865 psig	1845 psig	NA
CNMT press.	2.9 psig	3.1 psig	3.1 psig	2.9 psig

Which ONE of the following describes the status of the Charging Safety Injection Pumps?

- A. Both CSIPs are running due to SI signal on low PZR pressure.
- B. Both CSIPs are running due to SI signal on high Containment pressure.
- C. Only "A" CSIP is running, but "B" CSIP will be started automatically if the additional required PZR pressure transmitter reaches the SI actuation setpoint.
- D. Only "A" CSIP is running, but "B" CSIP will be started automatically if if the additional required CNMT pressure transmitter reaches the SI actuation setpoint.

10.

Initial Conditions:

- With the plant operating at 100% power and all equipment in its normal lineup, the RO takes the Reactor Trip switch to the TRIP position.

Current plant conditions are:

- Reactor Trip Breaker "A" Red indication exists.
- Reactor Trip Breaker "B" Green indication exists.
- Reactor Power is 4% and lowering.
- Rod bottom lights are lit with the exception of FOUR Control Bank D rods. Their positions are as follows:
 - H-8 - 16 steps
 - K-2 - 220 steps
 - M-12 - 8 steps
 - M-8 - 20 steps

Which ONE of the following describes the condition of the reactor, and the action that will be required?

A. The reactor is tripped;

Perform normal RCS boration for the stuck rods as directed by EPP-004 referencing OP-107, Charging and Volume Control System.

B. The reactor is tripped;

Initiate emergency boration for the stuck rods as directed by EPP-004 referencing AOP-002, Emergency Boration.

C. The reactor is not tripped;

Manually insert control rods in accordance with FRP-S.1 until all rods are on bottom.

D. The reactor is not tripped;

Initiate emergency boration for the stuck rods in accordance with FRP-S.1 until adequate Shutdown Margin is verified.

11.

Given the following:

- The plant is at 100% power.
 - A Pressurizer PORV has a slow leak through the seat or disk.
 - The respective PORV isolation valve cannot be closed.
 - ALB-009-8-1, PRESSURIZER RELIEF TANK HIGH-LOW LEVEL PRESS OR TEMP, is actuated.
-
- PRT Level is 73%.
 - PRT Temperature is 128 °F.
 - PRT Pressure is 6.3 Psig.

Which ONE of the following parameters is causing the alarm, and which ONE of the following is the action required to be performed from OP-100, Reactor Coolant System, Section 8, Infrequent Operations?

A. Pressure;

Vent the PRT as necessary to control pressure.

B. Pressure;

Drain the PRT as necessary to control pressure while maintaining level within the normal band.

C. Temperature;

Recirculate the PRT contents through the RCDT Heat Exchanger to lower temperature.

D. Temperature;

Drain PRT to the low end of the normal band and then refill with demineralized water to lower temperature.

12.

Given the following:

- The plant is at 100% power.
- The temperature input to Letdown Heat Exchanger CCW flow control valve TCV-144, fails low.

Which ONE of the following describes the impact on the plant and the action that is required by the appropriate Annunciator Panel Procedure (APP)?

A. High CCW flow to Letdown Heat Exchanger;

Place TCV-144 in manual and adjust flow to restore normal cooling.

B. High CCW flow to Letdown Heat Exchanger;

Isolate letdown and place Excess Letdown in service.

C. High temperature letdown diversion to VCT;

Place TCV-144 in manual and adjust flow to restore normal cooling.

D. High temperature letdown diversion to VCT;

Isolate letdown and place Excess Letdown in service.

13.

Given the following:

- A reactor trip has occurred from 100% power.
- Pressurizer pressure is 2050 psig and lowering.
- Pressurizer level is rising rapidly.
- Containment pressure is 1 psig and slowly rising.

Assuming NO operator action, which ONE of the following could have caused the event in progress?

A. Master Pressure Controller PT-444 output failed LOW

B. Both Pressurizer Spray Valves failed OPEN

C. Master Pressure Controller PT-444 output failed HIGH

D. Small break LOCA on an RCS Hot Leg

14.

Given the following:

- A reactor trip has occurred.
- Safety Injection is actuated.
- All actions required in Path-1 have been taken.
- All RCPs are running.
- RCS pressure is 1450 psig and stable.
- SI flow is 150 GPM.
- Containment pressure is 4.5 psig and slowly rising.
- SG pressures are 1050 psig and stable.

Which ONE of the following describes the plant condition upon transition from Path-1?

A. RCPs should NOT be tripped.

SGs are required for subsequent RCS heat removal.

B. RCPs should NOT be tripped.

SGs are NOT required for subsequent RCS heat removal.

C. RCPs should be tripped.

SGs are required for subsequent RCS heat removal.

D. RCPs should be tripped.

SGs are NOT required for subsequent RCS heat removal.

15.

Initial Plant Conditions:

- The plant was at 100% power.

Current plant conditions are:

- A Loss of Off-site Power occurs.
- Bus 1A-SA is locked out.
- All other equipment has operated as designed.
- Diesel loading sequence is complete.
- RCS pressure is 2180 psig.

Assuming NO operator action has been taken, which ONE of the following describes the status of the PZR Heaters?

- A. ALL PZR Backup Heaters are DE-ENERGIZED.
- B. Group B is the only PZR heater group ENERGIZED.
- C. Group C is the only PZR heater group ENERGIZED.
- D. Groups B and C are the only PZR heater groups ENERGIZED.

16.

Which ONE of the following describes the characteristics of a design basis Large Break LOCA twenty (20) minutes into the event?

- A. RCS temperature is at saturation temperature for intact SG pressure;
RCS pressure is stable below normal SI accumulator pressure, but above RHR pump shutoff head.
- B. RCS temperature is at saturation temperature for intact SG pressure;
RCS pressure is stable below RHR Pump shutoff head.
- C. RCS temperature is below saturation temperature for intact SG pressure;
RCS pressure is stable below normal SI accumulator pressure, but above RHR pump shutoff head.
- D. RCS temperature is below saturation temperature for intact SG pressure;
RCS pressure is stable below RHR Pump shutoff head.

17.

Given the following:

- The unit is at 100% power.
- Unit electrical alignment is normal.
- Aux Bus 1D deenergizes and is locked out.

Which ONE of the following loads will de-energize and automatically re-energize?

- A. "A" NSW Pump
- B. "B" NSW Pump
- C. "A" CSIP
- D. "B" CSIP

18.

Given the following:

- The plant is operating at 30% reactor power, steady state.
- I&C technicians are preparing to perform a calibration on Power Range Channel N-41.
- One I&C technician mistakenly pulls the control power fuses on N-42.
- Realizing his mistake, he reinserts the fuses for N-42 and then pulls the control power fuses for the correct channel, N-41.

Which ONE of the following describes the status of the reactor after the N-41 fuses were pulled and which bistable(s) in N-42 would be tripped?

A. The reactor is tripped;

PR Positive Rate Trip and PR Negative Rate Trip.

B. The reactor is tripped;

PR Positive Rate Trip ONLY.

C. The reactor is NOT tripped;

PR Positive Rate Trip and PR Negative Rate Trip.

D. The reactor is NOT tripped;

PR Positive Rate Trip ONLY

19.

Given the following:

- Pressurizer Pressure Protection Channel PT-455 has failed off-scale HIGH.
- NO Operator action has been taken.

Which ONE of the following identifies the MINIMUM additional channels required to meet the ESF and RPS actuation logic to initiate a reactor trip and safety injection on Pressurizer Pressure?

A. Reactor Trip - 1; Safety Injection - 1

B. Reactor Trip - 1; Safety Injection - 2

C. Reactor Trip - 2; Safety Injection - 1

D. Reactor Trip - 2; Safety Injection - 2

20.

Given the following:

- A LOCA has occurred.
- RCS pressure is 200 psig.
- "A" Containment Spray Pump is Out of Service.
- Containment pressure is 12 psig and slowly increasing.
- Train "B" Phase A has failed to actuate.
- Normal Containment Purge was in service at the time of the LOCA.
- The Containment Ventilation Isolation Signal (CVIS) fails to actuate.
- All other ECCS equipment is running as required.

Assuming no action by the crew, which ONE of the following describes the effect on the plant?

- A. Containment Normal Purge Makeup fans will trip and their associated dampers SHUT.
- B. Offsite dose consequences will exceed the guidelines of 10CFR100.
- C. Normal Containment Purge Makeup valves (1CP-6 and 9) will remain OPEN.
- D. Only half of the Containment penetrations required for containment isolation will be isolated.

21.

Given the following:

- The plant is at 20% power.
- Rod Control is in AUTO.
- The operating crew is preparing to stop RCP 1C due to rising vibration.

Assuming that reactor power is maintained at 20%, which ONE of the following describes the expected indications on Loop 1 and Loop 3 flowrates when RCP 1C is stopped?

- | | <u>Loop 1 Flowrate</u> | <u>Loop 3 Flowrate</u> |
|----|------------------------|---------------------------------------|
| A. | increase to 110% | decreases to 0% and stabilizes |
| B. | increase to 110% | decreases to 0% then increases to 10% |
| C. | increase to 120% | decreases to 0% and stabilizes |
| D. | increase to 120% | decreases to 0% then increases to 10% |

22.

Given the following:

- The plant is at 60% power during a plant startup.
- Steam Dumps are in the Tave mode of control.
- First Stage Pressure Transmitter PT-446 fails high.

Assuming the reactor remains at power, which ONE of the following describes the effect on the steam dump system?

- A. Steam Dumps will receive an arming signal.
- B. Steam Dumps will receive a modulation (open) signal.
- C. Steam Dumps will NOT arm if required.
- D. Steam Dumps will NOT modulate if required.

23.

Given the following:

- The crew is performing EPP-004, Reactor Trip Response.
- Natural circulation verification is in progress.
- Core Exit Thermocouples G2 and K5 have failed due to open circuits.

With these open circuit failures, the input from these thermocouples to the Inadequate Core Cooling Monitor (ICCM) will be _____ and the subcooling margin calculated by ICCM will be _____.

- A. failed low;
higher
- B. failed low;
unaffected
- C. failed high;
lower
- D. failed high;
unaffected

24.

Initial Conditions:

- Containment Cooling is in the Normal Cooling Mode of operation with Train "A" in service.
- Containment temperature has been slowly rising.

Current Conditions:

- The crew has placed the Containment Cooling system in Maximum Cooling Mode per OP-169, Containment Cooling System.
- Containment temperature is now lowering.

Which ONE of the following identifies the MINIMUM temperature at which a Technical Specification action statement must be entered and the expected alignment for the Containment Cooling System?

A. 118 °F

BOTH fans in AH-3 and AH-4 in high speed AND ONE (1) fan in AH-1 and AH-2 in high speed.

B. 118 °F

BOTH fans in AH-3 and AH-4 in high speed AND BOTH fans in AH-1 and AH-2 in high speed.

C. 120 °F

BOTH fans in AH-3 and AH-4 in high speed AND ONE (1) fan in AH-1 and AH-2 in high speed.

D. 120 °F

BOTH fans in AH-3 and AH-4 in high speed AND BOTH fans in AH-1 and AH-2 in high speed.

25.

Given the following:

- The plant is at 100% power.
- VCT Level Channel LT-112 fails high.

Assuming NO operator action, which ONE of the following describes the function(s) lost due to this failure?

- A. ONLY Divert to RHT will be disabled
- B. ONLY Auto Swapover from RWST will be disabled.
- C. Auto Swapover from RWST AND Auto Makeup will be disabled.
- D. Divert to RHT AND Auto Makeup will be disabled.

26.

Initial conditions:

- The plant is at 100% power.
- Train "B" Containment Fan Cooling is in service.

Current conditions:

- A Safety Injection signal has occurred.
- All equipment is operating as designed.

Which ONE of the following describes the operation of Containment Cooling?

One fan in each Fan Cooler Unit is operating in...

A. LOW speed;

Normal Service Water aligned.

B. HIGH speed;

Normal Service Water aligned

C. LOW speed;

Emergency Service Water aligned

D. HIGH speed;

Emergency Service Water aligned

27.

Initial conditions:

- "A" Boric Acid pump is under clearance for motor replacement.

Current conditions:

- 1B-SB Emergency Safety Bus locks out due to an 86UV failure.
- The crew is performing an Emergency Boration in accordance with AOP-002, Emergency Boration, due to a secondary load rejection.
- The RO performs the required valve alignment to provide a boration source.

Which ONE of the following describes the action and/or verification required to ensure that the required boration flow is achieved?

- A. Verify a minimum of 30 GPM on FI-110, Emergency Boration flow.
- B. Verify a minimum of 30 GPM on FI-113, Boric Acid flow.
- C. Adjust FCV-122 as necessary to achieve a minimum of 30 GPM on FI-122.1, Charging Header flow.
- D. Adjust FCV-122 as necessary to achieve a minimum of 90 GPM on FI-122.1, Charging Header flow.

28.

Given the following:

- The plant is in Mode 5.
- An RCS leak and loss of RHR occurs..
- The crew is performing actions of AOP-020, Loss of RCS Inventory or Residual Heat Removal While Shutdown.
- The crew is aligning to provide RCS Makeup using CSIP flow in accordance with section 3.6, Establishing SI Following a Major RCS Leak.

Which ONE of the following describes the required actions to provide RCS makeup in this condition?

A. Start ONE (1) CSIP;

Initiate flow through the BIT

B. Start ONE (1) CSIP;

Initiate flow through the normal charging line

C. Start TWO (2) CSIPs;

Initiate flow through the BIT

D. Start TWO (2) CSIPs;

Initiate flow through the normal charging line

29.

Initial Conditions:

- Surveillance testing is in progress on Containment Spray Train "A".
- "A" Containment Spray Pump is running.
- 1CT-24-SA and 1CT-25-SB, Containment Spray Eductor Test Valves, are open for testing.
- 1CT-50-SA, Containment Spray Pump 1A-SA Discharge Valve, is closed.

Current conditions:

- A LOCA occurs.
- RCS pressure is 600 psig.
- Containment Pressure is 10.5 psig.

Which ONE of the following correctly lists the position of the Containment Spray Eductor Test Valves and the 1A-SA Discharge Valve for the current plant conditions?

	<u>1CT-24-SA and 1CT-25-SB</u>	<u>1CT-50-SA</u>
A.	OPEN	OPEN
B.	CLOSED	OPEN
C.	OPEN	CLOSED
D.	CLOSED	CLOSED

30.

Given the following:

The plant is in Mode 1.

12:00 Containment Spray Pump 1A-SA declared INOPERABLE due to a failed surveillance.

12:27 Containment Spray Pump 1B-SB also declared INOPERABLE due to the results of a common cause failure analysis.

14:21 Containment Spray Pump 1A-SA returned to OPERABLE status.

14:40 Containment Spray Pump 1B-SB returned to OPERABLE status.

Which ONE of the following describes the Technical Specification requirements for operation of the plant?

Actions to initiate a plant shutdown must commence no later than...

A. 12:27;

The shutdown may be terminated no earlier than 14:21.

B. 12:27;.

The shutdown may be terminated no earlier than 14:40.

C. 13:27;

The shutdown may be terminated no earlier than 14:21.

D. 13:27;.

The shutdown may be terminated no earlier than 14:40.

31.

Given the following:

- The plant is operating at 100% power.
- A failure of the PT-444 input to PK-444A, Pressurizer Pressure Master Controller, caused actual pressurizer pressure to decrease to 2190 psig.
- PK-444A has been placed in MANUAL.

Which ONE of the following describes the action required to return pressure to 2235 psig?

- A. Decrease the controller output.
- B. Increase the controller output.
- C. Lower the pressure setpoint adjustment.
- D. Raise the pressure setpoint adjustment.

32.

Given the following:

- The unit is in Mode 6.
- Refueling activities are in progress.
- A fuel assembly has been ruptured during removal from the core.
- Radiation levels are rising steadily and are currently as follows:
 - REM-01LT-3502A-SA, Cnmt RCS Leak Detection Monitor, is in HIGH ALARM
 - REM-01LT-3502B-SB, Cnmt Pre-Entry Purge Monitor, is in HIGH ALARM

Which ONE of the following describes the system isolation signal(s), if any, that have been automatically initiated, and action required in accordance with AOP-013, Fuel Handling Accident?

A. ONLY a Containment Pre-Entry Purge isolation signal has been initiated.

Perform an evacuation from Containment.

B. BOTH Normal Containment Purge AND Containment Pre-Entry Purge isolation signals have been initiated.

Perform an evacuation from Containment.

C. ONLY a Containment Pre-Entry Purge isolation signal has been initiated.

Dispatch Radiation Protection to determine if Containment Evacuation is required.

D. BOTH Normal Containment Purge AND Containment Pre-Entry Purge isolation signals have been initiated.

Dispatch Radiation Protection to determine if Containment Evacuation is required..

33.

Given the following:

- The plant is at 100% power.
- A transient on SG level required a reactor trip, but the reactor did not trip.
- The crew is performing FRP-S.1, Response To Nuclear Power Generation / ATWS.
- The crew notes that the Pressurizer pressure is 2350 psig.
- Control rods are inserting in AUTO.
- All Pressurizer PORV valve position indicating green lights are on and red lights are off.

Which ONE of the following actions are required in relation to the PZR PORVs?

- A. Verify ONLY ONE Pressurizer PORV and Block valve OPEN;
reduce pressure to less than 2135 psig.
- B. Verify ALL Pressurizer PORVs and Block valves OPEN;
reduce pressure to less than 2135 psig.
- C. Verify ONLY ONE Pressurizer PORV and Block valve OPEN;
reduce pressure to less than 2235 psig.
- D. Verify ALL Pressurizer PORVs and Block valves OPEN;
reduce pressure to less than 2235 psig.

34.

Given the following:

- The plant is at 40% power.
- Intermediate Range Channel N-35 loses compensating voltage.
- I&C is called to investigate.
- Prior to any action by I&C, a reactor trip occurs.

Which ONE of the following describes the expected Source Range response in this condition and why?

- A. Source Range Instruments will automatically energize prematurely; they must be manually de-energized until approximately 5 minutes post-trip to prevent damage to the detectors.
- B. Source Range Instruments will automatically energize prematurely; they must be manually de-energized until approximately 15 minutes post-trip to prevent damage to the detectors.
- C. Source Range Instruments will not automatically energize when required; they must be manually energized approximately 5 minutes post-trip to prevent a loss of reactor power indication.
- D. Source Range Instruments will not automatically energize when required; they must be manually energized approximately 15 minutes post-trip to prevent a loss of reactor power indication.

35.

Initial plant conditions:

- The plant is in Mode 6 with Refueling in progress.

Current plant conditions are:

- Fuel movement has stopped due to a problem with the Manipulator.
- The Main Control Room has been informed that initial troubleshooting is in progress on the Manipulator.
- The troubleshooting team desires to operate TS-5, the TROLLEY INTERLOCK BYPASS switch to permit forward and reverse motion of the trolley without the gripper tube at its top limit.

Which ONE of the following describes the permission and concurrence, if any, required for this action?

- A. The SRO-Fuel Handling must approve. No concurrence is required.
- B. The SRO-Fuel Handling must approve with the concurrence of the SSO.
- C. The SSO must approve with concurrence of the Manager - Mechanical Maintenance.
- D. The SSO must approve. No concurrence is required.

36.

Given the following:

- Refueling is 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 plant?

- 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, and manual start is NOT required.
- D. NEITHER train of Fuel Handling Building Ventilation Emergency Exhaust has received an automatic start signal, but manual start is required by AOP-013, Fuel Handling Accident.

37.

Given the following:

- A Steam Generator Tube Rupture has occurred.
- Off-Site power has been lost.
- Both DG's are operating as required.
- Pressurizer level indicates 10% and lowering slowly.
- All plant equipment has responded as expected for the plant conditions.

Which ONE of the following describes a plant concern during the performance of Path-2 for these conditions?

- A. Voiding in the inactive regions of the RCS during the rapid RCS cooldown to target temperature.
- B. Loss of RCS subcooling during depressurization using main or auxiliary spray.
- C. Voiding in the inactive regions of the RCS during depressurization using a PZR PORV.
- D. Loss of RCS subcooling due to the time required to cooldown to target temperature with condenser steam dumps unavailable.

38.

Given the following:

- A reactor trip has occurred from 100% power.
- All systems functioned as designed.

Which ONE of the following describes the position of valves associated with the Main Turbine?

- A. Throttle Valves - CLOSED
Intercept Valves - CLOSED
Reheat Stop Valves - OPEN
- B. Governor Valves - OPEN
Intercept Valves - OPEN
Reheat Stop Valves - CLOSED
- C. Throttle Valves - CLOSED
Intercept Valves - CLOSED
Reheat Stop Valves - CLOSED
- D. Governor Valves - OPEN
Intercept Valves - CLOSED
Reheat Stop Valves - CLOSED

39.

Given the following:

- A Steam Line break has occurred on "C" SG.
- The crew has performed actions contained in EPP-014, Faulted SG isolation.
- SG "C" pressure is 50 psig.
- SG "C" WR level is off-scale low.
- SG "A" and "B" NR levels are being controlled at 25%.
- SG "A" and "B" pressures are approximately 900 psig and stable.

Which ONE of the following describes the action required IAW EPP-014, and the reason for this action?

A. Isolate AFW flow to SG "C";

Minimize RCS cooldown and the mass and energy release from the steam line break

B. Isolate AFW flow to SG "C" ;

Failure of components in "C" SG may occur due to thermal shock

C. Initiate AFW flow to SG "C" at the MINIMUM verifiable rate;

Feeding the "C" SG is required for cooldown, but high AFW flow rates may cause an excessive RCS cooldown requiring an undesired transition out of EPP-014

D. Initiate AFW flow to SG "C" at the MINIMUM verifiable rate;

Feeding the "C" SG is required for cooldown, but high AFW flow rates may cause failure of SG"C" components due to thermal shock

40.

Initial Plant Conditions:

- The plant is at 100% power.

Current Plant Conditions:

- A spurious turbine trip occurs.
- The C-8 interlock fails to operate.
- All other plant equipments responds as expected.

Which ONE of the following describes the response of the Steam Dump Control System (SDCS) and the overall effect on the RCS temperature?

- A. SDCS will control temperature using the Turbine Trip Controller;
RCS temperature will be controlled at normal no-load temperature.
- B. SDCS will control temperature using the Load Rejection Controller;
RCS temperature will be controlled at normal no-load temperature.
- C. SDCS will control temperature using the Turbine Trip Controller;
RCS temperature will be controlled at approximately 3 degrees above normal no-load temperature.
- D. SDCS will control temperature using the Load Rejection Controller;
RCS temperature will be controlled at approximately 3 degrees above normal no-load temperature.

41.

Given the following:

- The Reactor is critical at the POAH.
- The crew is preparing to perform a turbine startup IAW GP-005, Power Operation.

Which ONE of the following describes the expected rod height for Control Bank "D" rods IAW GP-005 and the basis for this band?

A. Between 95 and 115 steps;

Helps ensure IR trip and rod stop bistable setpoints are not reached before they can be blocked

B. Between 130 and 150 steps;

Helps ensure IR trip and rod stop bistable setpoints are not reached before they can be blocked

C. Greater than 95 steps;

Minimum height required to remain above Rod Insertion Limit

D. Greater than 130 steps;

Minimum height required to remain above Rod Insertion Limit

42.

Initial Conditions:

- The plant is at 100% power.
- Testing is in progress on the AFW system.
- The "A" MDAFW pump is running with the MDAFW FCVs 20% open.

Current Conditions:

- A trip of both MFW pumps occurs.
- The lowest SG levels during the transient were:
 - SG "A" = 18%
 - SG "B" = 24%
 - SG "C" = 28%

Assuming NO operator actions have occurred, which ONE of the following describes the current status of the MDAFW Flow Control Valves (FCVs) and TDAFW pump for this event?

	<u>MDAFW FCVs</u>	<u>TDAFW Pump</u>
A.	20% Open	Running
B.	20% Open	Secured
C.	Full Open	Running
D.	Full Open	Secured

43.

Given the following:

- The plant is at 100% power.
- An Extreme HI-HI level is received in Feedwater Heater 1A.

Which ONE of the following describes the impact on the unit and the action, if any, that is required in accordance with OP-136, Feedwater Heaters?

A. ONLY Feedwater Heaters 1A and 2A are bypassed;

Reduce Turbine Load to less than 70%.

B. ONLY Feedwater Heater 1A and 2A are bypassed;

Ensure reactor power less than 100%, NO additional power restrictions are required

C. Feedwater Heaters 1A, 2A, 1B, and 2B are bypassed;

Reduce Turbine Load to less than 70%.

D. Feedwater Heaters 1A, 2A, 1B, and 2B are bypassed;

Ensure reactor power less than 100%, NO additional power restrictions are required

44.

Given the following:

- The plant was operating at 98% power when a loss of off-site power occurred.
- Twenty minutes later, the following plant conditions exist:
 - RCS pressure is 2235 psig and stable.
 - RCS Loop THOT is 596°F in all 3 loops and lowering.
 - RCS Loop TCOLD is 552°F in all 3 loops and lowering.
 - Core exit TCs indicate approximately 600°F and lowering slowly.
 - Steam Generator pressures are approximately 1048 psig and stable.

Which ONE of the following describes the current plant conditions?

(Steam Tables are provided.)

A. Natural Circulation does not exist.

Heat removal must be established by opening the condenser steam dumps.

B. Natural Circulation exists.

Heat removal is being maintained by condenser steam dumps.

C. Natural Circulation does not exist.

Heat removal must be established by opening the SG PORVs.

D. Natural Circulation exists.

Heat removal is being maintained by SG PORVs.

45.

Given the following:

- The plant is in Mode 3.
- A loss of DC Bus DP-1B-SB has occurred.
- The crew is performing actions of AOP-025, Loss of One Emergency AC Bus (6.9 kV) or ONE Emergency DC Bus (125V)

Which ONE of the following describes the reason for ensuring that letdown orifice valves are shut in accordance with AOP-025?

- A. Prevent water hammer or flashing in the letdown line.
- B. Prevent RCS leakage in excess of Technical Specification limits.
- C. Minimize reduction in PZR level with loss of charging flow.
- D. Prevent damage to the Regenerative Heat Exchanger.

46.

For the Steam Generator Water Level Control System (SGWLCS), which ONE of the following describes this system's normal operation and program level input?

- A. SGWLCS is a level dominant system that ultimately adjusts Feed Reg valve position by level error.

Program level is variable based on input from Turbine First Stage pressure.

- B. SGWLCS is a level dominant system that ultimately adjusts Feed Reg valve position by level error.

Program level is constant at 57% NR.

- C. SGWLCS is a flow dominant system that ultimately adjusts Feed Reg valve position by mismatch in steam flow vs. feed flow.

Program level is variable based on input from Turbine First Stage pressure.

- D. SGWLCS is a flow dominant system that ultimately adjusts Feed Reg valve position by mismatch in steam flow vs. feed flow.

Program level is constant at 57% NR.

47.

Given the following:

- The plant is at 100% power.
- The following alarm has just been received:
 - ALB-04-2-2, REFUELING WATER STORAGE LOW LEVEL
 - All other MCR alarms are clear
- The crew enters AOP-008, Accidental Release of Liquid Waste

Which ONE of the following describes the setpoint for the alarm received, and the action required in accordance with AOP-008?

A. 94.3%;

Immediately begin refilling the RWST to above the alarm setpoint

B. 94.3%;

Stop all additions to the RWST

C. 23.4%;

Ensure RHR and Containment Spray Pumps are de-energized

D. 23.4%.

Ensure CSIP suction is isolated from the RWST

48.

Which ONE of the following instruments failures will cause actual feedwater flow to the affected SG to INITIALLY lower? (Assume selected)

A. SG level fails low

B. Feedwater flow fails low

C. Steam pressure fails high

D. Steam flow fails low

49.

Given the following:

- A Gaseous Waste release of Gas Decay Tank C is in progress.
- An ALERT alarm is received on REM-3546, WPB Stack 5 PIG monitor.
- Activity level is stable just above the ALERT setpoint.

Which ONE of the following describes the action required in accordance with OP-120.07?

- A. The release **MUST** be stopped; release may continue under the same release permit after REM-3546 is determined to be operable and curie content of the release is determined to be within limits.
- B. The release **MUST** be stopped; a new release permit must be generated prior to resuming the decay tank release.
- C. The release may continue; if activity level approaches or exceeds the HIGH alarm setpoint, stop the release; release may continue under the same release permit after REM-3546 is determined to be operable and curie content of the release is determined to be within limits.
- D. The release may continue; if activity level approaches or exceeds the HIGH alarm setpoint, stop the release; a new release permit must be generated prior to resuming the decay tank release.

50.

Given the following:

- The plant is operating at 50% power.
- The Turbine Driven AFW pump was taken OOS 12 hours ago for bearing replacement.
- Both Motor Driven AFW pump motors have been determined to be INOPERABLE due to a common cause failure analysis.

Which ONE of the following actions is required?

- A. Immediately initiate action to restore one AFW train to operable status; power operation is currently allowed with all three AFW Pumps Inoperable.
- B. Restore at least 2 AFW Pumps to service within 1 hour, or be in Hot Standby within the following 6 hours.
- C. Restore at least 1 AFW Pump to service within 1 hour, or be in Hot Standby within the following 6 hours.
- D. Immediately enter the action of TS 3.0.3 and be in at least HOT STANDBY within 7 hours from the time it was determined that no AFW pumps were operable.

51.

Given the following:

- The plant is in mode 3
- RCS heatup is in progress

As AFW flow to the steam generators is increased, what will happen to the initial heat transfer rate between RCS and the steam generators and why?

The heat transfer rate will...

A. increase;

because the cooler AFW water will increase the delta T between the RCS and the steam generators.

B. decrease;

because the cooler AFW water will decrease the delta T between the RCS and the steam generators.

C. increase;

because increasing SG level causes SG pressure and saturation temperature to increase.

D. decrease;

because increasing SG level causes SG pressure and saturation temperature to decrease.

52.

Given the following:

- The plant is at 100% power.
- Recovery from a Loss of Instrument Bus 1DP-1A-S1 is in progress.
- The crew has de-energized the associated Process Instrumentation Cabinet (PIC) in preparation for energizing Instrument Bus 1DP-1A-S1.
- The crew is evaluating bistable status prior to energizing the bus.

Which ONE of the following describes the reason for checking bistable status?

- A. When the Instrument bus is energized with the PIC deenergized, a reactor trip may occur due to 'de-energize to actuate' bistables becoming actuated. Checking other bistables ensures a Reactor Trip will not occur.
- B. When the PIC is energized after the Instrument Bus is energized, 'energize to actuate' bistables may experience a momentary inadvertent trip. Checking other bistables ensures an ESF actuation will not occur.
- C. Bistables are checked to ensure that each parameter for Process or Protection goes to its required state when the Instrument Bus and PIC are energized.
- D. Bistables are checked to ensure that all lights are out, verifying that the PIC normal and alternate supply breakers are open prior to reenergizing the Instrument Bus.

53.

Initial Plant Conditions:

- Yesterday, a loss of ESW Header "A" occurred due to a failure shaft shear of the "A" ESW Pump.
- The crew completed AOP-022, Attachment 1, Equipment Alignment Due to Loss of an ESW Header.
- The crew implemented OWP-SW, Operations Work Procedure Service Water, due to the extended loss of the "A" ESW header.

Current Plant Conditions:

- A loss of off-site power occurs coincident with a safety injection actuation.

Which ONE of the following describes the alignment of ESW loads for the current plant condition?

- A. "A" EDG will NOT automatically start because implementation of OWP-SW places the diesel in MAINTENANCE MODE.
- B. "A" EDG will automatically start, but must be manually tripped because it will have no ESW flow.
- C. "A" EDG will NOT automatically start because implementation of OWP-SW will have barred the diesel.
- D. "A" EDG will automatically start, but operators must realign NSW to the ESW header.

54.

Given the following:

- The plant is in Mode 3.
- AFW Pump 1A-SA is operating to provide secondary inventory.
- DC Bus DP-1A-SA becomes de-energized.

Which ONE of the following describes the effect on the operating AFW pump?

- A. MCR control switch indication is extinguished.
Pump remains running.
MCR breaker control is lost
- B. MCR control switch indication is extinguished.
Pump remains running.
MCR breaker control is available
- C. MCR control switch indication is available.
Pump trips.
MCR breaker control is lost
- D. MCR control switch indication is available.
Pump trips.
MCR breaker control is available

55.

Which ONE of the following describes the MAXIMUM continuous rating of the Emergency Diesel Generators?

- A. 6500 KW at a power factor of 0.8 leading
- B. 6500 KW at a power factor of 0.8 lagging
- C. 7150 KW at a power factor of 0.8 leading
- D. 7150 KW at a power factor of 0.8 lagging

56.

Given the following:

- The unit is in Mode 4.
- Maintenance reports that the inner door on the Containment Emergency Airlock will not seal properly after leaving Containment.
- The crew has declared the inner door INOPERABLE and closed the outer door.

Which ONE of the following describes the status of CONTAINMENT INTEGRITY, per Technical Specification Definitions, and the required Technical Specification action?

- A. Containment Integrity IS met;
Immediately verify the outer door closed
- B. Containment Integrity IS NOT met;
Immediately verify the outer door closed
- C. Containment Integrity IS met;
Verify the outer door closed within 1 hour.
- D. Containment Integrity IS NOT met;
Verify the outer door closed within 1 hour.

57.

Which ONE of the following would be used to change the alarm setpoints from the Main Control Room of a safety related radiation monitor?

- A. RM-11
- B. RM-23
- C. RM-23P
- D. RM-80

58.

Given the following:

- The crew entered FRP-C.1, Response to Inadequate Core Cooling, with the following conditions present:
 - Loss of Offsite has occurred
 - Core Exit temperature is 737 degrees F
 - RCS pressure is 1650 psig
 - RVLIS is 36%

Which ONE of the following describes the condition of the RCS and the actions required in response to this condition?

A. Saturated, heat transfer is degraded;

Establish an RCS Vent path to lower pressure and temperature

B. Saturated, heat transfer is in jeopardy;

Reinitiate High Pressure Safety Injection to restore core cooling

C. Superheated, heat transfer is degraded;

Establish an RCS Vent path to lower pressure and temperature

D. Superheated, heat transfer is in jeopardy;

Reinitiate High Pressure Safety Injection to restore core cooling

59.

Given the following:

- The plant is operating at 55% power.
- The following annunciator is received in the Control Room:
 - APP-ALB-002-7-2, SERV WTR PUMPS DISCHARGE LOW PRESS
- The RO notes that Cooling Tower Basin Level is decreasing rapidly.
- Service Water header pressure is 45 psig and lowering.
- One minute later, Service Water header pressure is 25 psig and continues to lower.
- CTMU cannot maintain Cooling Tower Basin level.
- The crew enters AOP-022, Loss of Service Water and completes the immediate actions.
- APP-ALB-002-7-2 is still in and the Cooling Tower Basin Level continues to decrease rapidly.
- RAB Operator reports that a large volume of water is gushing from overhead piping in the vicinity of 1SW-276, Headers A & B Return To Normal SW Header valve. The area is inaccessible.
- All automatic plant systems have functioned as designed.

Which ONE of the following describes the location of the leak, and the action required?

- A. Unisolable leak located in the Normal Service Water System;
Trip the reactor and go to PATH-1.
- B. Unisolable leak located in the Emergency Service Water System;
Trip the reactor and go to PATH-1.
- C. Isolable leak located in the Normal Service Water System;
Ensure NSW is properly aligned to equipment listed in AOP-022, Attachment 1.
- D. Isolable leak located in the Emergency Service Water System;
Ensure ESW is properly aligned to equipment listed in AOP-022, Attachment 1.

60.

Which ONE of the following describes the operation of Service Air Header Isolation Valve, 1SA-506?

- A. Closes automatically when Instrument Air header pressure decreases below 75 psig;

Automatically reopens when pressure increases above 79 psig.

- B. Closes automatically when Instrument Air header pressure decreases below 75 psig;

Must be manually reopened when pressure increases above 79 psig.

- C. Closes automatically when Instrument Air header pressure decreases below 90 psig;

Automatically reopens when pressure increases above 94 psig.

- D. Closes automatically when Instrument Air header pressure decreases below 90 psig;

Must be manually reopened when pressure increases above 94 psig.

61.

Given the following:

- The plant is at 100% power.
- An inadvertent Containment Spray actuation has occurred on Train "A".
- Train "A" Containment Spray has been secured.
- Containment pressure indicates (-)2.4 inches H₂O.

Which ONE of the following describes how Containment pressure will be restored to within limits?

- A. Containment Vacuum Relief system will operate to restore containment pressure to -1.5 inches H₂O. No other actions are required.
- B. Containment Vacuum Relief system will operate to restore containment pressure to -1.5 inches H₂O. Containment purge operation is then required to restore to -1.0 inches H₂O.
- C. Containment Vacuum Relief system will operate to restore containment pressure to -1.0 inches H₂O. No other actions are required.
- D. Containment Vacuum Relief system will operate to restore containment pressure to -1.0 inches H₂O. Containment purge operation is then required to restore to -0.5 inches H₂O.

62.

~~The plant is at 100% power.~~ *3/2/08 The plant was at 100% power with
no equipment out of service.*

The operating crew has entered EPP-013, LOCA Outside Containment due to MCB indications.

Which ONE of the following describes the leak location that would be isolated first in accordance with EPP-013, LOCA Outside Containment, and the method for confirmation of leak isolation?

A. Excess Letdown Heat Exchanger;

PZR level rising.

B. Excess Letdown Heat Exchanger;

RCS pressure rising.

C. RHR Heat Exchanger;

PZR level rising.

D. RHR Heat Exchanger;

RCS pressure rising

63.

Given the following:

- The reactor was tripped on simultaneous loss of the Main Feedwater Pumps.
- All AFW was subsequently lost.
- RCS Bleed and Feed is in progress in accordance with FRP-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK.
- Core Exit Thermocouples have stabilized at an average of 595 °F.
- Main Feedwater Pump "A" has been started.
- Containment pressure is 1.0 psig and stable.

Which ONE of the following describes the method and rate of establishing feedwater flow?

- A. Feed one Steam Generator at the MINIMUM controllable rate until a SG WIDE range level is >15% using the respective Feedwater Control Bypass Valve.
- B. Feed one Steam Generator at the MAXIMUM rate until a SG NARROW range level is >25% using the respective Feedwater Control Bypass Valve.
- C. Feed all Steam Generators at the MINIMUM controllable rate until a SG WIDE range level is >15% using the Feedwater Control Valves.
- D. Feed all Steam Generators at the MAXIMUM rate until a SG NARROW range level is >25% using the Feedwater Control Valves.

64.

Given the following:

- A reactor trip and loss of off-site power have occurred.
- The crew is performing a cooldown using EPP-007, Natural Circulation With Steam Void in Vessel (Without RVLIS).
- Off-Site power has been restored.
- Preparations are being made to start an RCP.

Which ONE of the following describes the minimum PZR level required for RCP restart in accordance with EPP-007, and the reason for the level?

- A. 25% to ensure minimum inventory for adequate pressure control.
- B. 65% to ensure minimum inventory for adequate pressure control.
- C. 25% to ensure adequate volume for collapsing the void
- D. 65% to ensure adequate volume for collapsing the void

65.

Which ONE of the following describes the reason and requirements for depressurizing the RCS in accordance with EPP-012, Loss of Emergency Coolant Recirculation?

A. To minimize RCS leakage;

Depressurize the RCS to achieve RCS subcooling between 10°F and 20°F [40°F and 50°F];

B. To ensure SI Accumulator injection;

Depressurize the RCS to achieve RCS subcooling between 10°F and 20°F [40°F and 50°F];

C. To minimize RCS leakage;

Depressurize the RCS to maintain RCS subcooling just above 70°F [100°F];

D. To ensure SI Accumulator injection;

Depressurize the RCS to maintain RCS subcooling just above 70°F [100°F];

66.

Given the following:

- You are assigned as the RO on day shift.
- You have been called for Fitness for Duty screening.
- You must leave the Control Room for approximately 1.5 hours.
- The SSO has given permission and directed no additional actions are required beyond those stated in OMM-002, Shift Turnover Package.

IAW OMM-002, which ONE of the following is the MINIMUM required for the shift relief?

Note:

(Attachment 14, Documentation of Short Term Assumption of Duties)

(Attachment 5, Control Operator Shift Turnover Checklist)

- A. Oral turnover to the remaining Board Operator. Both watchstanders Initial Attachment 14. No log entry required.
- B. Oral turnover to the remaining Board Operator. Both watchstanders Initial Attachment 14 and document relief for greater than 1 hour in the Control Operator log.
- C. Perform a turnover using Attachment 5. Both watchstanders Initial Attachment 5. No log entry required.
- D. Perform a turnover using Attachment 5. Enter the information in the Control Operators log, and sign the log over.

67.

Given the following:

- A power increase is in progress in accordance with GP-005, Power Operation.
- Average Power Range NIs indicate 40% power.
- Main Turbine load indicates 35% power.
- Average Loop Delta T indicates 42% power.

Which ONE of the following describes the actions required in accordance with GP-005?

- A. Power must be reduced less than 30% by all indications and a calorimetric performed to determine actual power.
- B. Power increase should be stopped and a calorimetric must be performed to determine actual power.
- C. Power increase should be stopped and the PRNIs adjusted to match turbine power.
- D. Power increase may continue using turbine power and no further action is required unless turbine power and average PRNIs deviate by 5% or greater.

68.

Which ONE of the following activities is considered ACCEPTABLE preconditioning of equipment related to performance of a surveillance on that equipment?

- A. Lubrication of a valve stem prior to each scheduled testing of the valve.
- B. Periodic or occasional venting of pumps prior to testing, not associated with the surveillance being performed.
- C. Adjusting the bolt torque on a valve collar prior to stroke time testing of the valve.
- D. Operation of a pump shortly before a test, if a situation could be avoided to operate the pump while maintaining plant and personnel safety.

69.

Given the following:

- The unit is in Mode 6.
- Refueling operations are in progress.
- The 30th fuel assembly is being loaded into the core.
- Current Boron Concentration is 2450 ppm.

According to GP-009, Refueling Cavity Fill, Refueling, and Drain of the Refueling Cavity, Modes 5-6-5, which ONE of the following would require fuel loading operations to be stopped immediately?

- A. Communications is lost between Containment and the Control Room.
- B. Water in the Spent Fuel Pool is not clear enough to view the Fuel top Nozzles without supplemental lighting.
- C. Boron concentration drops by 10 ppm as determined by two successive samples of Reactor Coolant.
- D. An unanticipated rise in count rate by a factor of two occurs on 1 of 2 operable Source Range channels during any single loading step.

70.

Given the following conditions at a work site:

- Airborne activity - 5 DAC
- Radiation level - 40 mrem/hr.
- Radiation level with shielding - 20 mrem/hr.
- Time to conduct task WITH respirator - 40 minutes.
- Time to conduct task WITHOUT respirator - 30 minutes.

Assumptions:

- The airborne dose with a respirator will be zero.
- A dose rate of 40 mrem/hr will be received while placing the shielding. Assume no benefit from shielding during placement.
- All tasks will be performed by one worker.
- Shielding can be placed in 15 minutes with or without a respirator.
- The shielding will not be removed.

Which ONE of the following would result in the lowest whole body dose?

- A. Conduct task WITHOUT respirator or shielding.
- B. Conduct task WITH respirator and WITHOUT shielding.
- C. Place shielding while wearing respirator and conduct task WITH respirator.
- D. Place shielding while wearing respirator and conduct task WITHOUT respirator.

71.

Per DOS-NGGC-0004, Administrative Dose Limits, which ONE of the following describes the annual Progress Energy dose limit and the MINIMUM authorization required for an individual to exceed that limit?

A. 2000 mrem;

Superintendent - Radiation Protection

B. 2000 mrem;

Site Vice President

C. 4000 mrem;

Superintendent - Radiation Protection

D. 4000 mrem;

Site Vice President

72.

Initial Conditions:

- The unit is at 100% power.

Current Conditions:

- The following alarm is received:
 - ALB-001-7-1, ACCUMULATOR TANK A HI-LO PRESSURE
- The RO reports the following indications:
 - Cold Leg Accumulator "A" pressure is 650 psig and slowly increasing
 - Cold Leg Accumulator "A" level is 75% and slowly increasing

Which one of the following is the action required IAW the appropriate Annunciator Plant Procedure and the OPERABILITY of the "A" Cold Leg Accumulator (CLA)?

A. Drain "A" CLA to lower pressure;

CLA "A" is INOPERABLE

B. Verify Nitrogen to the accumulators is isolated and vent excess accumulator pressure;

CLA "A" is INOPERABLE

C. Drain "A" CLA to lower pressure;

CLA "A" is OPERABLE

D. Verify Nitrogen to the accumulators is isolated and vent excess accumulator pressure;

CLA "A" is OPERABLE

73.

Given the following:

- At 1302, a steam generator tube leak is identified.
- At 1318, a plant shutdown is commenced due to exceeding TS leakage limits.
- At 1319, an Unusual Event is declared by the Site Emergency Coordinator. (SEC)
- At 1321, a reactor trip occurs.
- At 1327, the crew identifies SG "A" as the ruptured SG.
- At 1330, an ALERT is declared by the SEC.

Which ONE of the following describes the latest time that the initial notification to State/County officials AND the NRC is due?

	State/County	NRC
A.	1334	1334
B.	1334	1419
C.	1345	1419
D.	1345	1430

74.

Given the following:

- One Shutdown Bank-A, Group 2 Rod has dropped into the core.
- The crew is recovering the dropped rod.
- ALB-13-7-1, ROD CONT SYSTEM URGENT FAILURE is received.

Which ONE of the following describes the reason for the alarm and the plant response?

- A. Withdrawing the rod while the remaining Group 2 Lift Coils are deenergized.
Rod withdrawal is blocked until the alarm is reset.
- B. Initiation of an "out" signal to SD Bank "A" Rods, and its Group 1 rods do not move.
Rod withdrawal is blocked until the alarm is reset.
- C. Withdrawing the rod while the remaining Group 2 Lift Coils are deenergized.
Rod withdrawal is unaffected and recovery may continue.
- D. Initiation of an "out" signal to SD Bank "A" Rods and its Group 1 rods do not move.
Rod withdrawal is unaffected and recovery may continue.

75.

Given the following:

- The Unit has experienced a SBLOCA.
- EPP-009, Post LOCA Cooldown and Depressurization is in progress.
- All RCPs are running.
- RCS pressure is 1690 psig.
- An RCS cooldown has been initiated by dumping steam to the atmosphere.

Which ONE of the following describes the required RCP configuration IAW with EPP-009, and the basis for this configuration?

- A. All RCPs should be stopped;
minimize RCS inventory loss when the break uncovers
- B. One RCP should be stopped;
produces effective heat transfer, provides boron mixing for RHR operations, and provides RCS pressure control
- C. All RCPs should be left running;
ensures symmetric heat transfer to the S/Gs, aids in RCS pressure control, and prevents steam voiding in the Reactor vessel head
- D. Two RCPs should be stopped;
minimizes RCS heat input and still produces effective heat transfer and RCS pressure control

76.

Which ONE of the following describes the Technical Specification basis for the Pressurizer Code safety valves?

The basis is that the combined relief capacity of all the pressurizer Code safeties is greater than the maximum surge rate assuming _____ AND _____.

- A. a complete loss of load directly resulting in a reactor trip from the turbine trip;
no operation of the pressurizer PORVs or the steam dumps
- B. a complete loss of load with no reactor trip until the second trip setpoint is reached;
no operation of the pressurizer PORVs or the steam dumps
- C. a complete loss of load directly resulting in a reactor trip from the turbine trip;
no operation of the pressurizer PORVs, steam dumps operate as designed
- D. a complete loss of load with no reactor trip until the second trip setpoint is reached;
no operation of the pressurizer PORVs, steam dumps operate as designed

77.

Given the following:

- Following a turbine runback, the crew has stabilized the plant.
- Control Bank "D" Group Counters are at 180 steps.
- On DRPI, one Control Bank "D" rod indicates 198 steps; all others indicate 180 steps.
- The crew has entered AOP-001 and determined the rod to be immovable and untrippable.

Which ONE of the following describes the expected alarm for the given plant conditions and the technical specification implications of this event?

A. ALB-13-6-1, RPI URGENT ALARM;

Verify Shutdown Margin within 1 hour and be in Hot Standby within 6 hours.

B. ALB-13-8-5, COMPUTER ALARM ROD DEV/SEQ NIS PWR RANGE TILTS;

Verify Shutdown Margin within 1 hour. Power operation may continue provided that accident analyses are reevaluated to be satisfactory.

C. ALB-13-6-1, RPI URGENT ALARM;

Verify Shutdown Margin within 1 hour. Power operation may continue provided that accident analyses are reevaluated to be satisfactory

D. ALB-13-8-5, COMPUTER ALARM ROD DEV/SEQ NIS PWR RANGE TILTS;

Verify Shutdown Margin within 1 hour and be in Hot Standby within 6 hours.

78.

Given the following plant conditions:

- A normal plant cooldown is in progress
- Both CSIPs are OPERABLE

Which of the following is the plant temperature at which Technical Specifications require a MAXIMUM of ONE (1) CSIP to be OPERABLE and the basis for this requirement?

A. 325 °F;

Prevents an uncontrolled cooldown due to a mass addition of cold water from the RWST

B. 325 °F;

Provides assurance that a mass addition pressure transient can be relieved by the operation of a single PORV

C. 350 °F;

Prevents an uncontrolled cooldown due to a mass addition of cold water from the RWST

D. 350 °F;

Provides assurance that a mass addition pressure transient can be relieved by the operation of a single PORV

79.

Given the following:

- The plant is at 100% power.
- A loss of Component Cooling Water has occurred.
- The crew is performing actions of AOP-014, Loss of Component Cooling Water.
- 3 minutes into the event, the leak is determined to be on CCW loop "A".
- "A" Surge Tank level indicates 2%.
- "B" Surge Tank level indicates 38% and stable.
- The CCW Non-Essential Loop was isolated from "A" Train and is now aligned to the "B" Train.

Which ONE of the following describes the minimum actions required by AOP-014?

A. Trip the reactor,

Immediately trip RCPs, and enter Path-1.

B. Trip affected CCW pump(s)

Continue attempts to locate the leak in accordance with AOP-014. Mode 1 operations may continue.

C. Trip the reactor,

Enter Path-1 and trip the RCPs within 10 minutes.

D. Trip affected CCW pump(s);

Enter AOP-038 for a rapid shutdown while continuing attempts to locate the leak in accordance with AOP-014.

80.

Given the following:

- The plant is operating at 100% power
- All equipment is operating in normal lineups.

Current conditions:

- A loss of DC Bus DP-1A-SA occurs.

Which ONE of the following describes the impact of this failure on the Reactor Protection System and the actions required?

- A. RTB "A" shunt trip coil will be disabled by the loss of DC bus and directly cause a reactor trip;

Perform actions of Path-1 in parallel with AOP-025, Loss of One Emergency AC Bus (6.9kV) Or One Emergency DC Bus (125V)

- B. RTB "A" shunt trip coil will be disabled by the loss of DC Bus but this will NOT directly result in a reactor trip;

Initiate a manual reactor trip due to the effect on the plant of the loss of DC Power supply and perform actions of Path-1 in parallel with AOP-025, Loss of One Emergency AC Bus (6.9kV) Or One Emergency DC Bus (125V)

- C. RTB "A" undervoltage coil will lose power due to the loss of DC Bus and directly cause a reactor trip;

Perform actions of Path-1. Once Path-1 is exited then enter AOP-025, Loss of One Emergency AC Bus (6.9kV) Or One Emergency DC Bus (125V)

- D. RTB "A" undervoltage coil will lose power due to the loss of DC Bus but this will NOT directly result in a reactor trip;

Initiate a manual reactor trip due to the effect on the plant of the loss of DC Power supply and perform actions of Path-1 in parallel with AOP-025, Loss of One Emergency AC Bus (6.9kV) Or One Emergency DC Bus (125V)

81.

Given the following:

- A reactor startup is in progress in accordance with GP-004, Reactor Startup (Mode 3 to Mode 2).
- The following alarm is received:
 - ALB-013-3-2, INTERMEDIATE RANGE LOSS OF COMP VOLTAGE
- SR Channel N-31 indicates 7×10^3 cps.
- SR Channel N-32 indicates 7×10^3 cps.
- IR Channel N-35 indicates 8.7×10^{-11} amps.
- IR Channel N-36 indicates 7.0×10^{-10} amps.

Which ONE of the following describes the existing plant condition and the associated Technical Specification requirements for continued operation?

A. N-35 is undercompensated;

Raising power above P-6 is permitted once OWP-RP, Reactor Protection, is implemented.

B. N-35 is undercompensated;

Raising power above P-6 is NOT permitted until the channel is restored to OPERABLE.

C. N-36 is undercompensated;

Raising power above P-6 is permitted once OWP-RP, Reactor Protection, is implemented.

D. N-36 is undercompensated;

Raising power above P-6 is NOT permitted until the channel is restored to OPERABLE.

82.

Given the following:

- Plant is operating at 100% power.
- Pressurizer level transmitter LI-459A output has failed.

Which ONE of the following describes the Technical Specification actions required, if any, and the Technical Specification basis for the High Pressurizer Water Level reactor trip?

- A. Enter T.S. 3.3.1, RPS Instrumentation. The inoperable channel must be placed in a trip condition within 6 hours;

Provides a backup trip to PZR High Pressure reactor trip and ensures that water relief through the PZR safety valves will not occur.

- B. Enter T.S. 3.3.1, RPS Instrumentation. The inoperable channel must be placed in a trip condition within 6 hours;

Provides primary protection for loss of load events and ensures that on a PZR level channel failure, the PZR safety valves will not lift prior to the PZR High Pressure reactor trip.

- C. Action per T.S. 3.3.1, RPS Instrumentation, is NOT required since 2 channels are still available;

Provides a backup trip to PZR High Pressure reactor trip and ensures that water relief through the PZR safety valves will not occur.

- D. Action per T.S. 3.3.1, RPS Instrumentation, is NOT required since 2 channels are still available;

Provides primary protection for loss of load events and ensures that on a PZR level channel failure, the PZR safety valves will not lift prior to the PZR High Pressure reactor trip.

83.

Given the following:

- The plant is in Mode 4.
- RHR Train "B" has been placed in service.
- RCS temperature is stable at 325 °F.
- RCS pressure is 320 psig and lowering slowly.
- Containment sump level is 20 inches and rising slowly.
- REM-01LT-3502A-SA, Cnmt RCS Leak Detection Monitor, is in HIGH alarm.
- Pressurizer level is 24% and slowly lowering.
- Charging is in MANUAL with flow of 120 gpm.

Which ONE of the following describes the correct procedure to address the event in progress and the mitigation actions this procedure will require?

A. AOP-016, Excessive RCS Leakage

Manually align high head SI flow through the BIT

B. AOP-020, Loss of RCS Inventory or Residual Heat Removal While Shutdown

Manually align high head SI flow through the BIT

C. AOP-016, Excessive RCS Leakage

Stop all running RHR pumps and isolate RHR

D. AOP-020, Loss of RCS Inventory or Residual Heat Removal While Shutdown

Stop all running RHR pumps and isolate RHR

84.

Given the following:

- A LOCA occurred 45 minutes ago.
- The crew is performing actions in accordance with EPP-010, Transfer to Cold Leg Recirculation.
- Swapover to Cold Leg Recirculation is in progress.
- The following alarms are received:
 - ALB-001-2-2, SPRAY PUMP A DISCHARGE LOW PRESS
 - ALB-001-2-5, SPRAY PUMP A SUCTION LOW PRESS
- Both alarms are received and clear intermittently over the course of about 1 minute.
- "A" RHR pump amps and discharge pressure are beginning to oscillate.
- The USCO determines that Train "A" recirculation sump performance is degraded.

Which ONE of the following describes the actions performed based on the determination that the recirculation sump is degraded?

- A. Remain in EPP-010;
Stop "A" Containment Spray Pump.
- B. Remain in EPP-010;
Throttle CSIP flow to be slightly greater than the minimum flow requirements.
- C. Go to EPP-012, Loss of Emergency Coolant Recirculation;
Stop "A" Containment Spray Pump.
- D. Go to EPP-012, Loss of Emergency Coolant Recirculation;
Throttle CSIP flow to be slightly greater than the minimum flow requirements.

85.

Given the following:

- A SGTR is in progress on "A" S/G.
- All MSIVs failed to close.
- All required actions of Path-2 have been completed
- A transition has been made to EPP-020, SGTR WITH LOSS OF REACTOR COOLANT: SUBCOOLED RECOVERY.
- Containment sump levels are normal for the current plant conditions.

Which ONE of the following conditions would require consulting plant operations staff to determine if recovery should be completed using EPP-021, SGTR WITH LOSS OF REACTOR COOLANT: SATURATED RECOVERY?

- A. RWST level of 70%
- B. "A" SG level at 98%
- C. RWST level of 20%
- D. RCS Pressure of 360 psig

86.

Initial conditions:

- Reactor power was at 100%.
- Main Steam flow indications were rising on all 3 SGs.
- Reactor power rose to 103%.
- The reactor was manually tripped.
- Safety Injection was manually actuated.
- Main Steam Isolation was manually actuated.

Current conditions:

- RCS pressure is 1700 psig and stable.
- "A" and "B" SG pressures are 800 psig and stable.
- "C" SG pressure is 50 psig and slowly lowering.
- Core Exit temperature is 440 degrees F and rising.
- Pressurizer level is 12% and rising.
- SG "A" and "B" NR levels are 35% and rising.
- Containment pressure is 0.3 psig and stable
- The USCO has just completed the steps in EPP-014, Faulted Steam Generator Isolation, for isolating the "C" Steam Generator.

Which ONE of the following describes current status of SI Termination criteria and which procedure will be used to address SI Termination?

A. Conditions are met to terminate SI;

SI will be terminated in EPP-014

B. Conditions are met to terminate SI;

SI will be terminated once a transition is made to EPP-008, SI Termination

C. Conditions are NOT met to terminate SI;

SI will be terminated in EPP-014 once conditions are met

D. Conditions are NOT met to terminate SI;

SI will be terminated in EPP-008, SI Termination, once conditions are met

87.

Given the following plant conditions:

- The plant is in Mode 1.
- ALB-15-2-2, PIC 1-2-3-4-9-10-13-14 POWER FAILURE, alarms
- ALB-15-1-4, 60 KVA UPS TROUBLE, remains clear
- ALB-15-1-5, 7.5 KVA UPS TROUBLE, remains clear
- ALB-15-1-3, PROTECTION SYS A/B TROUBLE alarms
- Most lights in the bottom row of Trip Status Light Boxes are energized

Which ONE of the following correctly identifies the effect on the plant and the Technical Specification implications for this event?

- A. Power has been lost to all "B" Train SSPS Slave and Master relays
Enter Technical Specification 3.0.3 immediately
- B. Ability to place AFW Isolation bistables in a tripped condition is lost
Enter Technical Specification 3.0.3 immediately
- C. Power has been lost to all "B" Train SSPS Slave and Master relays
Enter Technical Specification 3.0.3 after 6 hours
- D. Ability to place AFW Isolation bistables in a tripped condition is lost
Enter Technical Specification 3.0.3 after 6 hours

88.

Given the following:

- The MCR has been evacuated and the crew has entered AOP-004, Remote Shutdown.
- The ACP is manned and operational.

Which ONE of the following describes how power will be monitored by the Wide Range Neutron Flux Monitoring (WRFM) system after leaving the MCR, and what is the MINIMUM Emergency Classification for this event?

- A. Neutron flux will be determined using two redundant WRFM (NI-60A2, NI-60B2) that will both indicate across the Source and Intermediate Range.

Alert.

- B. Neutron flux will be determined initially using one WRFM (NI-60B2). Once it is off-scale low then the second WRFM (NI-60A2) is used to determine Source Range flux;

Site Area Emergency.

- C. Neutron flux will be determined using two redundant WRFM (NI-60A2, NI-60B2) that will both indicate across the Source and Intermediate Range.

Site Area Emergency.

- D. Neutron flux will be determined initially using one WRFM (NI-60B2). Once it is off-scale low then the second WRFM (NI-60A2) is used to determine Source Range flux;

Alert.

89.

Given the following plant conditions:

- The plant is at 100% power
- A loss of power to Safety Bus 1B-SB occurs
- The "B" EDG fails to start

Which one of the following describes the effect on the plant and the Technical Specification (T.S.) requirements that apply?

A. Will generate a Containment Ventilation Isolation Signal;

ONLY "B" Train containment vacuum breaker is INOPERABLE, enter T.S. 3.6.5, Containment Vacuum Relief, restore in 72 hours or be in at least HOT STANDBY within the next 6 hours.

B. Will NOT generate a Containment Ventilation Isolation Signal;

ONLY "B" Train containment vacuum breaker is INOPERABLE, enter T.S. 3.6.5, Containment Vacuum Relief, restore in 72 hours or be in at least HOT STANDBY within the next 6 hours.

C. Will generate a Containment Ventilation Isolation Signal;

Enter T.S. 3.0.3 due to inoperability of both containment vacuum breakers

D. Will NOT generate a Containment Ventilation Isolation Signal;

Enter T.S. 3.0.3 due to inoperability of both containment vacuum breakers

90.

Initial Conditions:

- The plant was at 100% power.
- Automatic Safety Injection occurs.
- The crew enters Path-1

Current Plant Conditions:

- Pressurizer level 15% and slowly lowering
- RCS pressure 1400 psig and slowly lowering
- RAB radiation levels are slowly rising
- RAB Sump levels are slowly rising

Which ONE (1) of the following describes the correct action to be taken?

- A. Transition out of Path-1 to EPP-013, LOCA Outside of Containment, and isolate the Low Head Safety Injection system.
- B. Transition out of Path-1 to EPP-013, LOCA Outside of Containment, and isolate the High Head Safety Injection system.
- C. Remain in Path-1 and then cooldown and depressurize IAW EPP-009, Post-LOCA Cooldown and Depressurization.
- D. Remain in Path-1 and then establish cold leg recirculation IAW EPP-010, Cold Leg Recirculation.

91.

Given the following:

- A LOCA has occurred on "B" Cold Leg.
- ECCS has NOT functioned as required.
- All RCP's are TRIPPED.
- CET's indicate 756°F.
- RVLIS Full Range is 49%.
- Containment pressure is 6 psig and rising slowly.
- All SG pressures are at 1050 psig.

Which ONE of the following procedures will the crew implement for these conditions, and what actions will be taken to mitigate this event?

A. Enter FRP-C.1, Response To Inadequate Core Cooling;

Depressurize all intact SGs to 80 psig by dumping steam at maximum rate.

B. Enter FRP-C.2, Response To Degraded Core Cooling;

Depressurize all intact SGs to 80 psig by dumping steam at maximum rate.

C. Enter FRP-C.1, Response To Inadequate Core Cooling;

Depressurize all intact SGs to 80 psig by dumping steam not to exceed a 100°F/hr cooldown rate.

D. Enter FRP-C.2, Response To Degraded Core Cooling;

Depressurize all intact SGs to 80 psig by dumping steam not to exceed a 100°F/hr cooldown rate.

92.

Given the following:

- A reactor trip has occurred due to a loss of offsite power.
- The operating crew is performing actions of EPP-005, Natural Circulation Cooldown.
- "A" Train RVLIS is out of service.
- The crew has commenced RCS cooldown and depressurization.
- RCS pressure is 1780 psig and trending DOWN.
- RCS Tave is 448 °F and trending DOWN.
- All SG pressures are at 960 psig and trending DOWN slowly.
- Pressurizer level is 35% and trending UP slowly.
- Plant management determines that RCS cooldown rate MUST be performed at approximately 60 °F/hr due to secondary inventory concerns.

Which ONE of the following actions will be required in accordance with EPP-005?

- A. Remain in EPP-005 and continue cooldown and depressurization.
- B. Actuate safety injection and go to Path-1, entry point A.
- C. Transition to EPP-006, Natural Circulation Cooldown With Steam Void In Vessel (With RVLIS).
- D. Remain in EPP-005, stop depressurization and re-establish required subcooling .

93.

Initial Conditions:

- A LOCA has occurred.
- The crew is performing actions of EPP-012, Loss of Emergency Coolant Recirculation, based on plant conditions upon transition from Path-1.
- RWST level is 3% and lowering.

Current Conditions:

- Integrity CSF Status Tree indicates Orange.

Which ONE of the following describes the action and procedure usage required?

A. Stop all pumps taking suction from the RWST;

Remain in EPP-012 because actions in EPP-012 are expected to cause an Orange condition on Integrity.

B. Reduce ECCS flow from the RWST to ONE (1) train running;

Remain in EPP-012 because actions in EPP-012 are expected to cause an Orange condition on Integrity.

C. Stop all pumps taking suction from the RWST;

Go to FRP-P.1, Response to Imminent Pressurized Thermal Shock.

D. Reduce ECCS flow from the RWST to ONE (1) train running;

Go to FRP-P.1, Response to Imminent Pressurized Thermal Shock.

94.

Given the following:

- The Unit experienced a Steam Generator Tube Rupture (SGTR) on the "B" Steam Generator (SG).
- The crew is currently performing actions of Path-2.
- After completing the initial cooldown using "A" and "C" Steam Generators, the RO reports that "C" SG pressure continues to lower.

Which ONE of the following correctly describes the NEXT action the crew should take in accordance with Emergency Operating Procedures?

- A. Immediately transition to EPP-014, Faulted Steam Generator Isolation, to isolate "C" SG and then go to EPP-020, SGTR With Loss Of Reactor Coolant: Subcooled Recovery
- B. Immediately transition to EPP-014, Faulted Steam Generator Isolation, to isolate the "C" SG and then return to Path-2 Entry Point J
- C. Complete the depressurization in Path-2 to restore pressurizer level, and then go to EPP-020, SGTR With Loss Of Reactor Coolant: Subcooled Recovery.
- D. Complete the depressurization in Path-2 to restore pressurizer level, and then go to EPP-014, Faulted Steam Generator Isolation.

95.

Initial Plant Conditions:

- The plant is at 100% power.
- Chemistry reports the following:
 - Primary specific activity is 0.76 microcuries per gram dose equivalent I-131.
 - Secondary specific activity is 0.03 microcuries per gram dose equivalent I-131.
 - Secondary conductivity is 5 micromhos.

Current Plant Conditions are:

- Chemistry reports the following:
 - Primary specific activity is 0.85 microcuries per gram dose equivalent I-131.
 - Secondary specific activity is 0.62 microcuries per gram dose equivalent I-131.
 - Secondary conductivity is 12 micromhos.
- The crew enters AOP-033, Chemistry Out of Tolerance.

Which ONE of the following actions is required in accordance with AOP-033?

- A. Remain in AOP-033 and check for Condenser tube leakage. Initiate Turbine load reduction to less than 30%.
- B. Go to AOP-032, High RCS Activity based upon direction of AOP-033.
- C. Remain in AOP-033 and isolate Auto-Chlorination of Service Water and Circ Water, initiate Turbine load reduction to less than 30%.
- D. Go to AOP-016, Excessive RCS Leakage, as directed by AOP-033.

96.

In Mode 1, which ONE of the following correctly states the basis for the Technical Specification Safety Limits on the Reactor Core and the parameters that are used to ensure that the Safety Limit is not violated?

- A. Ensures Departure from Nucleate boiling does not occur by restricting operation to within the nucleate boiling regime.

Reactor Thermal Power, Highest Operating Loop RCS Average Temperature, and Pressurizer Pressure.

- B. Ensures Departure from Nucleate boiling does not occur by restricting operation to within the nucleate boiling regime.

Reactor Thermal Power, Highest Core Exit Thermocouple, and Pressurizer Pressure.

- C. Ensures Peak Centerline Temperature of the fuel is maintained less than 2200° F.

Reactor Thermal Power, Highest Operating Loop RCS Average Temperature, and Pressurizer Pressure.

- D. Ensures Peak Centerline Temperature of the fuel is maintained less than 2200° F.

Reactor Thermal Power, Highest Core Exit Thermocouple, and Pressurizer Pressure.

97.

Given the following plant conditions:

- A fuel shuffle is in progress following a refueling IAW FHP-014, Fuel and Insert Shuffle Sequence.
- You are the SRO-Fuel Handling for the fuel shuffle.
- A fuel assembly has just been latched and raised for visual inspection.
- The Refueling Engineer reports to you that the serial number on Attachment 1 does NOT match the visually verified serial number on the fuel assembly.

Which ONE (1) of the following lists the actions required by FHP-014, Fuel and Insert Shuffle Sequence with regard to the latched fuel assembly?

- A. Lower the fuel assembly in the location it was removed from and unlatch
- B. Move the fuel assembly to a temporary storage location and unlatch
- C. Lower the fuel assembly in the location it was removed from but do NOT unlatch
- D. Move the fuel assembly to a temporary storage location but do NOT unlatch

98.

Given the following plant conditions:

- The operating crew is lining up to discharge the contents of the Treated L&HS Tank A to Cooling Tower Discharge IAW OP-120.10.04.
- It is also determined that a release is required from the Secondary Waste Sample Tank (SWST).

Which ONE (1) of the following provides the minimum approval requirements for this release and what release of the SWST can occur simultaneously with the discharge of the Treated L&HS Tank IAW OP-120.10.04?

A. Manager - Operations permission required;

ONLY a Continuous Release of SWST may occur simultaneously.

B. S-SO permission required;

ONLY a Continuous Release of SWST may occur simultaneously.

C. Manager - Operations permission required;

BOTH a Continuous or a Batch Release of SWST may occur simultaneously.

D. S-SO permission required;

BOTH a Continuous or a Batch Release of SWST may occur simultaneously.

99.

Initial plant conditions:

- "A" Train Equipment in service
- "B" ESW Pump is under clearance for motor replacement
- TDAFW Pump is under clearance for tappet nut replacement

<u>Time</u>	<u>Log Entry</u>
1230	SBLOCA inside containment (~200 gpm)
1231	Reactor Trip & Safety Injection initiated
1236	Containment Pressure 3.3 psig and rising
1238	Loss of Offsite Power occurs
1240	Crew notes "A" CCW Pump has tripped and can not be restarted
1242	CURRENT TIME

All other plant equipment responds as expected for the event in progress.

Which ONE(1) of the following is the HIGHEST Emergency Classification entered for this event as of CURRENT TIME?

- A. ALERT, EAL 5-1-2
- B. ALERT, EAL 8-2-2
- C. SITE AREA EMERGENCY, EAL 2-1-3
- D. SITE AREA EMERGENCY, EAL 8-2-3

100.

Given the following:

- The plant is in Mode 6, Core Alterations in progress.
- Battery 1B-SB is out of service.
- Maintenance reports that Battery 1A-SA electrolyte is overflowing in several cells.

Which ONE of the following is the Technical Specification action required and its bases?

A. Restore an Emergency Battery to Operable status within 1 Hour;

A subsequent loss of off-site power would result in loss of all DC subsystems with attendant loss of ESF functions.

B. Immediately suspend all operations involving Core Alterations, positive reactivity changes, or movement of irradiated fuel;

A subsequent loss of off-site power would result in loss of all DC subsystems with attendant loss of ESF functions.

C. Restore an Emergency Battery to Operable status within 1 Hour;

Sufficient control and instrumentation capability is no longer available to monitor and maintain the unit status

D. Immediately suspend all operations involving Core Alterations, positive reactivity changes, or movement of irradiated fuel;

Sufficient control and instrumentation capability is no longer available to monitor and maintain the unit status

You have completed the test!

Harris 2008-301 SRO Initial License Examination References

1. EAL Flowpath 06-1 Side One Only
2. Steam Tables