

Final Submittal

(Blue Paper)

1. Reactor Operator / Senior Operator
Written Examination

**SEQUOYAH NUCLEAR PLANT
EXAM 2002-301
50-327 & 50-328**

DECEMBER 2 - 6, 2002

1. 001 K3.01 001

The unit is at 100% power with no Xenon transients and all systems functioning normally. When the following annunciators are received:

"TS-68-2P/Q Reac Cool Loops T Ref T Auct High-Low"
"Rod Control System Urgent Failure"

Tref is 4°F above Tave.

Which ONE of the following is correct for this condition?

- A. Raise turbine load **AND** borate.
 - B. Lower turbine load **AND** borate.
 - C. Raise turbine load **OR** borate.
 - ✓D. Lower turbine load **OR** dilute.
- A. Incorrect, per AOP-C.01 (Tref is > Tave). Step 1 RNO only allows load change OR change in RCS boron concentration. Increasing turbine load is not correct (Tref is > Tave). Boration is not correct (Tref is > Tave).
 - B. Incorrect, Step 1 RNO only allows load change OR change in RCS boron concentration. Boration is not correct (Tref is > Tave).
 - C. Incorrect, per AOP-C.01 (Tref is > Tave).
 - D. Correct, per AOP-C.01 (Tref is > Tave). Step 1 RNO only allows load change OR change in RCS boron concentration. Either lower turbine load (Tref is > Tave) OR dilute (Tref is > Tave).

K/A[CFR]: 001 K3.01 [2.9/3.0] [41.7]

Reference: 1-AR-M5-A (C-6)
AOP-C.01 R8 section 2.1 step 2 RNO.

LP/Objective: OPL271RDCNT B.9

History: New question.

Level: Analysis

Comments: FHW 12/02 001 K3.01

2. 004 A3.07 001

Given the following plant conditions:

- The unit is presently at 60% power.
- RCS Pressure is 2235 psig.
- Rod control is in automatic.
- S/G #4 atmospheric failed open.

Which ONE of the following would occur if the operator took no action?

- A. Feedwater flow would decrease.
 - B. Pressurizer sprays would begin to open.
 - ✓C. Charging flow would initially increase.
 - D. Control rods would step in.
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- A. Incorrect, loss of secondary mass would require additional feedwater to maintain S/G level. There is a delay during the level swell.
 - B. Incorrect, pressurizer pressure would decrease due to Tave dropping.
 - C. Correct, pressurizer level would decrease requiring more charging flow to maintain program level. Final Tave would be higher.
 - D. Incorrect, rods would step out due to Tave drop.

K/A[CFR]: 004 A3.07 [3.3/3.3] [41.7]

Reference: OPL271CVCS

LP/Objective: OPL271CVCS B.9

History: New question.

Level: Comprehension

Comments: FHW 12/02 004 A3.07

3. 005 AA2.01 001

Rod Cluster Control Assembly F8 is greater than 12 steps from its group step counter demand position. Tech Spec actions for continued power operation have been met except for verifying $F_Q(z)$ and $F_{\Delta H}^N$ are within their limits.

Which ONE of the following will Reactor Engineering use for evaluation of $F_Q(z)$ and $F_{\Delta H}^N$ per Tech Specs for this situation?

- A. delta I indications.
 - ✓B. incore detector flux map.
 - C. core exit thermocouples.
 - D. NIS indications.
- A. Incorrect, delta I does not determine rod power distribution.
B. Correct method to determine rod power distribution.
C. Incorrect, core exit T/Cs do not determine rod power distribution.
D. Incorrect, NIS does not determine rod power distribution.

K/A[CFR]: 005 AA2.01 [3.3/4.1] [43.5]

Reference: TS 3.1.3.1 action c.3.c).

LP/Objective: OPL271C071 B.6

History: New question.

Level: Comprehension.

Comments: FHW 12/02 005 AA2.01 It is doubtful that a student can recall an action method in the second sub-paragraph of an LCO, therefore he must understand that the only method of obtaining the heat flux along the "z" direction of a fuel rod is by an incore probe.

4. 006 K6.19 001

Open Reference.

Unit One is operating at 100% power. On January 10 at 0200 hours the 1A-A CCP failed to start on an attempted pump swap. The crew entered the appropriate LCO action. Maintenance can **NOT** get replacement parts until January 14.

Which ONE of the following is the correct Tech Spec action?

- ✓A. Be in Hot Standby on January 13 at 0800 hours.
 - B. Be in Hot Standby on January 13 at 1400 hours.
 - C. Be in Hot Shutdown on January 14 at 0800 hours.
 - D. Be in Hot Shutdown on January 14 at 0200 hours.
- A. Correct, the action is 72 hrs to operability or Hot Standby in the next 6 hours. January 10 0200 hrs. to January 13 0200 is 72 hours plus 6 hours is January 13 at 0800.
- B. Incorrect per reference.
- C. Incorrect per reference.
- D. Incorrect per reference.

K/A[CFR]: 006 K6.19 [3.7/3.9] [41.7]

Reference: Tech Specs 3.5.2.a.

LP/Objective: OPL271C079 B.2

History: New question.

Level: Comprehension

Comments: FHW 12/02 006 K6.19
Provide a copy of Tech Specs 3.5.2

5. 008 A2.04 001

"0-RA-90-123A CCS Liq Eff Mon High Rad" alarm is lit.

Which ONE of the following is the correct cause and action for this condition?

- A. A leak in the Containment Spray Heat Exchanger and ensure proper operation of the auto make up to the CCS surge tank.
 - B. A leak in the Spent Fuel Pool Heat Exchanger and ensure the surge tank vents are closed.
 - ✓C. A leak in the RHR heat exchanger and ensure the CCS surge tank vents are closed.
 - D. A leak exists in the CCP gear drive reservoir heat exchanger and ensure proper operation of the auto make up to the CCS surge tank.
-
- A. Incorrect, the cooling medium is ERCW.
 - B. Incorrect, the CCS is a higher pressure.
 - C. Correct per reference.
 - D. Incorrect, the cooling medium is ERCW.

K/A[CFR]: 008 A2.04 [3.3/3.5] [41.5 43.5]

Reference: 0-AR-M12-B (C-5)
1,2-47W845-2
2-47W845-4

LP/Objective: OPL271CCS B.9

History: New question.

Level: Comprehension

Comments: FHW 12/02 008 A2.04

6. 010 A2.02 001

The unit is operating at 100% power when the controlling pressurizer pressure channel fails high.

Which ONE of the following is the correct system response and the required action to mitigate the event?

- A. Only the pressurizer spray valve associated with the failed channel will open and the operators manually closes this valve.
 - ✓B. Both pressurizer spray valves will open and the operator manually closes these two valves.
 - C. No pressurizer spray valves will open due to a pressurizer pressure channel bistable interlock and the operator places the spray valve controllers in manual.
 - D. Both pressurizer spray valves will open and the associated PORV will open if selected to the failed channel and the operator manually closes all three valves.
- A. Incorrect the pressurizer pressure controller will open both spray valves.
 - B. Correct per references.
 - C. Incorrect the bistable is associated with the PORV.
 - D. Incorrect the pressurizer pressure control channels do not have input to the PORV via interlock.

K/A[CFR]: 010 A2.02 [3.9/3.9] [41.5 43.5]

Reference: 1-47W611-68-3
AOP-I.04 section 2.1.

LP/Objective: OPL271PZRPCS B.14

History: New question.

Level: Memory

Comments: FHW 12/02 010 A2.02

7. 012 K6.07 001

Unit One is operating at 100% power. Instrument Mechanics are performing a surveillance which required removing RCS Loop 1 $\Delta T/T_{avg}$ instrument T-68-2 from service. The bistables associated with this loop have been placed in the tripped position.

Which ONE of the following is correct for this condition?

- A. If loop 2 $\Delta T/T_{avg}$ instrument T-68-25 was removed from service and the bistables associated with this loop were tripped; Unit One would remain at power after a OT ΔT turbine runback.
 - ✓B. If loop 2 $\Delta T/T_{avg}$ instrument T-68-25 was removed from service and the bistables associated with this loop were tripped; Unit One would trip.
 - C. Unit One will remain at power since the runback/trip logic has now changed to 2 of 3 remaining loops.
 - D. Tech specs will require Unit One to be in Hot Standby if the RCS Loop 1 $\Delta T/T_{avg}$ instrument T-68-2 is **NOT** declared operable within 1 hour.
- A. Incorrect, if all bistables associated with a second loop were tripped then the 1 of 3 trip logic would be made and the unit will trip.
 - B. Correct, if all bistables associated with a second loop were tripped then the 1 of 3 trip logic would be made and the unit will trip.
 - C. Incorrect, the runback/trip logic is changed to 1 of 3 loops.
 - D. Incorrect, per TS 3.1.1.1 Table 3.3-1. 7., action 6 the required action time is 6 hours.

K/A[CFR]: 012 K6.07 [2.9/3.2] [41.7]

Reference: AOP-I.02 R1 Appendix A page 5 of 12.
Tech Specs 3.3.1.1 Table 3.3-1 and action 6.

LP/Objective: OPL271RPS B.19

History: New question.

Level: Comprehension

Comments: FHW 12/02 012 K6.07

8. 013 K4.01 001

Which ONE of the following is correct concerning a Safety Injection signal?

- A. Low Pressurizer pressure input to Safety Injection logic can be manually blocked at any time.
 - B. Hi Containment pressure input to Safety Injection logic can be manually blocked at any time.
 - C. Safety Injection can be reset immediately after automatic actuation.
 - ✓D. If the Safety Injection has been reset and the reactor is tripped, all subsequent automatic Safety Injection actuation signals are blocked.
- A. Incorrect per reference, manually blocked below P-11.
 - B. Incorrect per reference, no manual block.
 - C. Incorrect per reference, time delay pick up before reset logic can be made.
 - D. Correct per reference.

K/A[CFR]: 013 K4.01 [3.9/4.3] [41.7]

Reference: 47W611-63-1

LP/Objective: OPL271RPS B.16

History: New question.

Level: Memory

Comments: FHW 12/02 013 K4.01

9. 022 2.4.27 001

Unit One is in mode 6 with fuel movement in progress and outside air being used for containment cooling. An outside spontaneous fire ignited near the Unit One Auxiliary Building air intake. The outside AUO reports there is a lot of smoke.

Which ONE of the following will prevent smoke from getting into Unit One containment?

- A. Containment Purge air fans will automatically shut down.
 - B. Unit One Auxiliary Building supply fans will automatically shut down.
 - ✓C. A manual Containment Vent Isolation is required.
 - D. Upper and Lower compartment coolers have HEPA filters.
- A. Incorrect, even though the purge fans have a suction source in the auxiliary building air intake plenum, the fans will not automatically shut down, reference print 1,2-47W611-30-1.
- B. Incorrect, smoke detection in the auxiliary building supply will automatically trip the auxiliary building supply fans, but the purge fans take suction from the intake plenum just as the auxiliary building supply fans, therefore smoke can still be drawn through the air intake plenum, see reference print 1,2-47W611-30-5. 1,2-47W866-2.
- C. Correct, even though the containment vent isolation will close the containment dampers as well as stop the purge fans; a smoke detection signal is not part of the logic, so a manual action is required, see reference print 1,2-47W611-30-1.
- D. Incorrect, the upper and lower compartment coolers' suction are located inside containment and have cooling coils, see reference 1-47W866-1.

K/A[CFR]: 022 2.4.27 [3.0/3.5] [41.10 43.5]

Reference: 0-SO-30-3
1-47W866-1
1,2-47W866-2
1,2-47W611-30-1
1,2-47W611-30-5
TS 3.9.9.

LP/Objective: OPL217C426 B.3

History: New question.

Level: Analysis

Comments: FHW 12/02 022 2.4.27

10. 022 K2.01 001

Given the following plant conditions:

- The unit is at 100% power.
- 6.9 kv Shutdown Board "B" trips on a differential fault.
- All D/Gs functioned as designed.

Which ONE of the following is a result of this condition?

- A. Feedwater flow is increased due to more demand by the S/G level program.
 - B. Train "B" RHR pump will be available when the blackout sequencer times out.
 - ✓C. Available forced flow from the upper compartment coolers is reduced.
 - D. Unit runback will occur due to loss of HDT Pump.
- A. Incorrect, AOP-P.05/06 requires manual reactor trip, therefore feedwater flow is not increased. S/G level is vital power and not load shed.
 - B. Incorrect, loads are not available from a board that had a differential fault. BOX and BOY relays will not pick up due to dead bus.
 - C. Correct upper compartment fans that are fed from the associated reactor vent board are no longer available.
 - D. Incorrect, AOP-P.05/06 power reduction guidance not given.

K/A {CFR}: 022K2.01 [3.0/3.1] [41.7]

References: 1,2-15E500-1
1,2-45N724-1
1,2-45N755-3
AOP-P.05/06 App T.

LP/Objectives: OPN218E.012 B.4

History: New Question

Level: Comprehension

Comments: FHW 12/02 022K2.01

11. 025 2.2.13 001

Unit One is presently in mode 4 and preparing for a refueling outage. In order to stay ahead of the schedule you are directed to tag out the glycol expansion tank level switches.

Which ONE of the following devices will you use?

- ✓A. Plastic tag with stainless wire.
- B. Paper/cloth tag with waxed twine.
- C. Plastic tag with waxed twine.
- D. Paper/cloth tag with stainless wire.

A. Correct, the glycol tank is inside containment. Mode 4 is greater than 200°F therefore the procedure requires a plastic tag with stainless wire if the RCS temperature is greater than 200°F.

- B. Incorrect per reference.
- C. Incorrect per reference.
- D. Incorrect per reference.

The student must understand the glycol tank is inside containment and that mode 4 is greater than 200°F which requires a unique card and hanging device (plastic with stainless wire).

K/A[CFR]: 025 2.2.13 [3.6/3.8] [41.10]

Reference: SPP-10.2, Tech Spec definitions Table 1.1

LP/Objective: OPL271C528 B.9

History: New question.

Level: Memory

Comments: FHW 12/02 025 2.2.13

12.034 A1.02 001

Open reference.

Unit One is in mode 6 and currently performing 0-GO-13. The off going shift advised you that the upper and lower internals storage area was dry, filling the refuel cavity is in progress.

The Reactor Cavity AUO said the level is on ladder rung number 18.

Which one of the following is correct to reach ladder rung number 8?

- A. Add approximately 19,000 gallons and core alterations are prohibitive.
 - B. Add approximately 67,000 gallons and irradiated fuel movement is allowed.
 - ✓C. Add approximately 99,000 gallons and irradiated fuel movement is allowed.
 - D. Add approximately 143,000 gallons and core alterations are prohibitive.
- A. Incorrect per reference.
 - B. Incorrect per reference.
 - C. Correct per reference, per appendix K page 2 each ladder rung is one foot.
Per Appendix K page 1 each foot above elevation 702 requires 9,889 gallons.
Per Appendix K page 2 ladder rung 31 is elevation 702. Rung 31 - 21 is 10 rungs.
10 rungs (10 feet) times 9,889 gallons is approximately 99,000 gallons.
 - D. Incorrect per reference.

K/A[CFR]: 034 A1.02 [2.9/3.7] [41.5]

Reference: 0-GO-13 R38 Appendix K pages 1 and 2.

LP/Objective: OPL271C057 B.5

History: New question.

Level: Analysis

Comments: FHW 12/02 034 A1.02
Provide a copy of 0-GO-13 R38 Appendix K pgs 1 and 2

13. 035 K5.01 001

Unit One is at 90% power when the S/G #4 safety fails open.

Which ONE of the following describes how the unit will initially respond?

- A. Reactor power will remain the same because the S/G levels are on program.
 - ✓B. The increased steam flow will insert positive reactivity.
 - C. Reactor power will increase due to a higher Tave.
 - D. Pressurizer level will increase due to a higher program level.
- A. Incorrect, reactor power will change to due a lower Tave, positive reactivity.
B. Correct, increased steam flow will drop Tave which inserts positive reactivity.
C. Incorrect, Tave will not increase; reactor power will not increase since this is a negative reactivity effect.
D. Incorrect, pressure level will drop due to shrinkage when Tave drops and pressurizer level program inputs are auctioneered Tave vs. no-load Tave.
Since Tave drops then auctioneered Tave would initially drop.

K/A[CFR]: 035 K5.01 [3.4/3.9] [41.5]

Reference: AOP-S.05 symptoms.

LP/Objective: OPL271MS B.9

History: New question.

Level: MEMORY

Comments: FHW 12/02 035 K5.01

14. 056 A2.04 001

Unit One is operating at 65% power with all systems aligned normal. The crew had just placed the second Main Feedwater Pump 1B-B in service. An injection water low pressure condition of 150 psig for 10 seconds occurs.

Which ONE of the following is the correct result and proper action for this condition?

- A. The turbine will run back and the crew should use AOP-S.01, "Loss of Normal Feedwater."
- B. The unit will trip and the crew should use E-0 "Reactor Trip or Safety Injection."
- C. Only the 1 B-B Main Feedwater Pump will trip and the crew should use the Annunciator Response Procedure for MFW pump "Tripped."
- ✓D. The Main Feed Pumps will **NOT** trip and the crew should use 0-GO-5, "Normal Power Operation."

- A. Incorrect, per TI-28 attachment 9.
- B. Incorrect the timer is 20 seconds.
- C. Incorrect the timer is 20 seconds.
- D. Correct the timer is 20 seconds.

K/A[CFR]: 056 A2.04 [2.6/2.8] [41.5 43.5]

Reference: 1,2-47W803-1
1-45N657-18
1-45N646-1
1-AR-M3-B (A-2)
TI-28 attachment 9

LP/Objective: OPL271COND.FW B.11

History: New question.

Level: Comprehension

Comments: FHW 12/02 056 K1.03

15. 056 K1.03 001

Unit One is operating at 100% power and all systems are aligned normal. The crew notices the "PS-2-129 Low NPSH at MFP's" alarm just annunciated.

Which ONE of the following could bring in this alarm?

- A. Condensate low pressure heater strings "A" and "B" isolated on hi-hi #7A and #7B heater levels.
 - B. High pressure feedwater heater #1A discharge valve was inadvertently closed.
 - ✓C. Trip of a condensate booster pump.
 - D. Condensate intermediate heaters #3B and #3C are above program level.
- A. Incorrect, there is no string isolation logic associated with the #7 heaters.
 - B. Incorrect, the isolated #1 heater discharge valve is downstream of the MFP.
 - C. Correct, per reference.
 - D. Incorrect, the #3 heaters do not have a program level.

K/A[CFR]: 056 K1.03 [2.6/2.6] [41.2-9]

Reference: 1-AR-M3-A (E-1)
1,2-47W611-2-1
1,2-47W611-2-2
1,2-47W803-1

LP/Objective: OPN218SS.006A B.3

History: New question.

Level: Memory

Comments: FHW 12/02 056 K1.03

16. 059 A4.01 001

Unit One is operating at 75% power.

Instrument Mechanics are performing a test on the S/G level transmitters. They accidentally make up a hi-hi level signal on channels II and III for S/G #1.

Which ONE of the following is correct for this condition?

- A. Only 1-FCV-3-33 feedwater isolation valve to S/G #1 will close.
 - ✓B. "Main Feedwater Pump Turbine 1B Abnormal" alarm will annunciate.
 - C. "Turbine Runback BOP" alarm will annunciate.
 - D. "PS-2-129 Low NPSH at MFP's" alarm will annunciate.
- A. Incorrect, all 4 feedwater isolation valves will close, see 1,2-47W611-3-2.
- B. Correct, 2/3 level transmitters made up for 1/4 S/Gs will create a P-14 and trip the MFP turbines (see 47W611-3-2). This annunciator will receive an input from the turbine tripped alarm SER.
- C. Incorrect, this alarm will annunciate if MFP trip and load >80%, see 1-AR-M2-A (B-1).
- D. Incorrect, this alarm comes in if 100 psid decreasing between MFP inlet and #2 heater shell caused by increasing load or CBP trip. see 1-AR-M3-A (E-1).

K/A[CFR]: 059 A4.01 [3.1/3.1] [41.7]

Reference: 0-GO-5 R27 section 5.1 step [20]
1-AR-M3-B (B-1)
1-AR-M2-A (B-1)
1-AR-M3-A (E-1)
1,2-47W611-2-1
1,2-47W611-3-2

LP/Objective: OPL271COND.FW B.8

History: New question.

Level: Comprehension

Comments: FHW 12/02 059 A4.01

17. 059 AA2.05 001

Given the following plant conditions and information:

- Unit 1 is at 210°F and is being cooled down after discovery of a fuel clad failure.
- RCDT pump A is being used to lower level in the RCDT.
- Panel 1-XA-55-30 window "1-RA-277A RCDT Hi Rad" is in alarm.

- 1-FCV-77-9 (inside containment isolation valve).
- 1-FCV-77-10 (outside containment isolation valve).

The SRO directs the Operator to pump the contents of the RCDT to the TDCT. Which ONE of the following actions should the Operator take to pump down the RCDT?

- A. Place 1-HS-77-9B and 1-HS-77-10B to "Normal" then open 1-FCV-77-9A and 1-FCV-77-10A.
 - ✓B. Place 1-HS-77-9B and 1-HS-77-10B to "Block" then open 1-FCV-77-9A and 1-FCV-77-10A.
 - C. Place 1-HS -77-9A and 1-HS-77-10A to "Open."
 - D. Cycle 1-HS-77-9A and 1-HS-77-10A back to "A-Auto."
- A. Incorrect per reference.
 - B. Correct per reference, block position will override a high rad signal.
 - C. Incorrect per reference, will not override a high rad signal.
 - D. Incorrect per reference.

K/A[CFR]: 059 AA2.05 [3.6/3.9] [43.5]
073 A4.01 [3.9/3.9] [41.7]

References: 47W611-77-1 1-AR-M30-A (B-3)

LP/Objectives: OPL271RADMON B.8

History: New question

Level: Memory

Comments: FHW 12/02 073 A4.01

18. 060 AK2.02 001

Waste Gas Decay Tank "A" is in service and has developed a small external leak on the gas analyzing sampling valve. Containment Purge and Waste Gas Release are in progress.

Which ONE of the following are automatic actions that would take place as result of this condition?

- A. The waste gas release will terminate.
 - B. The containment purge will terminate.
 - ✓C. Auxiliary building ventilation will shut down.
 - D. Nitrogen to the waste gas system will isolate.
- A. Incorrect, RE-118 is a closed pipe detector and not sensing this leak.
B. Incorrect, RM-130/131 has closed pipe sensing and not subject to this leak.
C. Correct, the spent fuel pool monitors or RM-90-101 will initiate an ABI that will stop the normal ventilation.
D. Nitrogen has a manual isolation valve and no circuit with rad monitors.

Student must understand the external leak will drift inside the auxiliary building and could make the spent fuel pit ARMs or RM-90-101 reach setpoint and initiate an ABI that will stop the normal auxiliary building ventilation.

K/A[CFR]: 060 AK2.02 [2.7/3.1] [41.7]

Reference: 1,2-47W830-4
1,2-47W611-30-6
0-SO-90-2
0-SO-30-10

LP/Objective: OPL271RADMON B.9

History: New question.

Level: Comprehension

Comments: FHW 12/02 060 AK2.02

19. 061 AK2.01 001

"0-RA-90-102A Fuel Pool Rad Monitor High Rad" alarm just annunciated.

Which ONE of the following describes the detector location and the automatic actions associated with this alarm?

- A. East of the spent fuel pool on the penetration room wall elevation 749 and results in an ABI (fuel handling area isolation) train "A."
 - B. The transfer canal elevation 714 and results in ABI (fuel handling area isolation) trains "A" and "B."
 - C. West of the spent fuel pool on the penetration room wall elevation 749 and results in an ABI (fuel handling area isolation) train "B."
 - ✓D. Near the spent fuel pool water elevation 734 and results in an ABI (fuel handling area isolation) train "A."
- A. Incorrect per references.
B. Incorrect per references, this is 20 feet below floor elevation.
C. Incorrect per references.
D. Correct, per 0-AR-M12-B (B-3) and 0-RA-90-102A is associated with "A" train ABI per drawing. Where as 0-RA-90-103A is associated with "B" train.

K/A[CFR]: 061 AK2.01 [2.5/2.6] [41.7]

Reference: 0-AR-M12-B (B-3)
1,2-47W611-30-6
0-SO-30-10 R19

LP/Objective: OPL271C013 B.2

History: New question.

Level: Analysis

Comments: FHW 12/02 061 AK2.01

20. 061 K2.01 001

Which ONE of the following is the correct power supply to the Auxiliary Feedwater System ERCW Header isolation motor operated valve 1-FCV-3-136B?

- A. 480v Unit Bd 1A.
- B. 480v Turbine MOV Bd 1A.
- ✓C. 480v Rx MOV Bd 1A2-A.
- D. 250v Battery Bd #1.

- A. Incorrect per reference.
- B. Incorrect per reference.
- C. Correct per reference.
- D. Incorrect per reference.

The student must understand this vital system is fed from a shutdown power source which is 480v Rx MOV Bd 1A2-A.

K/A[CFR]: 061 K2.01 [3.2/3.3] [41.7]

Reference: 1-SO-3-2, Att. 1, date 16 Nov 01, page 6 of 8.
1,2-45N779-10

LP/Objective: OPL271C035 B.4

History: New question.

Level: Memory

Comments: FHW 12/02 061 K2.01

21. 061 K6.01 001

Unit One is performing a surveillance test on the Terry Turbine when the following is experienced.

"Aux FWP Turbine 1A-S Mechanical Overspeed Trip" alarm is lit because 1-FIC-46-57 failed to control pump outlet flow. **CONTROLLER OUTPUT IS 100%**

Which ONE of the following is the correct operator action(s) to place the pump back in service with the failed controller as per 1-SO-3-2, "Auxiliary Feedwater System?"

- A. Place 1-HC-46-57-S in manual and go to open with 1-HS-1-51A-S.
 - B. Ensure the mechanical overspeed mechanism is latched IAW 1-SO-3-2, Auxiliary Feedwater System, and place 1-HC-46-57-S in manual and go to open with 1-HS-1-51A-S.
 - C. After the overspeed alarm is cleared place 1-HC-46-57-S in manual and go to open with 1-HS-1-51A-S.
 - ✓D. After the mechanical overspeed is reset and the overspeed alarm is cleared place 1-HC-46-57-S in manual and set the controller output to 20% and go to open with 1-HS-1-51A-S.
- A. Incorrect, per reference.
 - B. Incorrect, per reference.
 - C. Incorrect, since the controller failed to control before then adjust the controller output to 20%.
 - D. Correct, the overspeed condition has been corrected and the controller output has been adjusted to 20% to prevent another overspeed.

K/A[CFR]: 061 K6.01 [2.5/2.8] [41.7]

Reference: 1-AR-M3-C (A-4)
1-SO-3-2 R27 section 8.5 and section 5.3.

LP/Objective: OPL271C035 B.6

History: New question.

Level: Memory

Comments: FHW 12/02 061 K6.01

22. 063 A2.01 001

"125V DC Vital Bat Bd 1 Abnormal" alarm is lit.

Which ONE of the following is the correct cause and action for this condition?

- A. An undervoltage condition exists and dispatch operations personnel to adjust the charger output voltage.
 - ✓B. A ground exists, clearing the alarm requires adjustment of the red flag (indicator) ground setpoint by dispatching operations personnel to the local board.
 - C. An overvoltage condition exists and dispatch operations personnel to adjust the charger output voltage.
 - D. A ground exists, clearing the alarm will require a local push button reset and additional IM support in the control room at the annunciator panel.
- A. Incorrect, an undervoltage does not have input to this alarm. Also the charger output voltage is adjusting by maintenance section.
- B. Correct per reference.
- C. Incorrect, a overvoltage does not have input to this alarm. Also the charger output voltage is adjusting by maintenance section.
- D. Incorrect, the reset is not a push button and IM support is not required.

K/A[CFR]: 063 A2.01 [2.5/3.2] [41.5 43.5]

Reference: 1-AR-M1-C (A-5)

LP/Objective: OPN218E.007 B.17

History: New question.

Level: COMPREHENSION (Examiner)

Comments: FHW 12/02 063 A2.01

23. 064 K2.02 001

The Diesel Generator 1A-A Day Tank Fuel Oil Transfer Pump #1 was running in automatic due to a low level in a 1A-A Day Tank caused when maintenance pumped out the day tank . The D/G 1A-A is **NOT** running at this time.

6.9 kv Unit Bd 1B tripped on a ground fault while the D/G 1A-A Day Tank Fuel Oil Pump #1 was running.

Which ONE of the following is correct for this condition?

- A. The Day Tank Fuel Oil Pump will continue to run since it is DC powered from the D/G battery.
 - ✓B. The Day Tank Fuel Oil Pump will stop and after the 1A-A D/G ties to the 1A-A 6.9 kv Shutdown Bd., the Day Tank Fuel Oil Pump will start.
 - C. The Day Tank Fuel Oil Pump will stop and require manual restart after 6.9 kv Shutdown Bd 1A-A is energized.
 - D. The Day Tank Fuel Oil Pump will continue to run since it is powered from "B" train shutdown power.
-
- A. Incorrect, the pump's power supply is Diesel Aux Bd 1A1-A, not DC powered.
 - B. Correct, the pump's power supply is Diesel Aux Bd 1A1-A which will be energized when the D/G 1 A-A ties on to 6.9 kv Shutdown Bd. 1 A-A.
 - C. Incorrect, the pump was running in auto when the 6.9 unit bd tripped therefore the switch position remains the same and the transfer pump will start again since the day tank level was not increased to normal level.
 - D. Incorrect, the pump's power supply is Diesel Aux Bd 1A1-A which is fed from the 480v Shutdown Bd 1A1-A.

K/A[CFR]: 064 K2.02 [2.8/3.1] [41.7]

Reference: 45N771-4
15N500

LP/Objective: OPL271 D/G B.10

History: New question.

Level: Comprehension

Comments: FHW 12/02 064 K2.02

24. 069 2.1.14 001

Open reference.

Unit 1 is at 100% RTP. 0-SI-SLT-000-160.0, "Primary Containment Total Leak Rate," has just been completed for Unit 1. System Engineering reports to the Unit 1 US that the combined bypass leakage rate is 65 scfh. L_a is 225.17 scfh.

Which ONE of the following should be notified of the surveillance results?

- A. No additional notifications are required
- ✓B. Plant Manager, Senior Vice President Nuclear Operations, Duty Plant Manager
- C. Site Vice President Nuclear Operations, Duty Plant Manager, Operations Duty Specialist
- D. Plant Manager, Site Vice President Nuclear Operations, Operations Duty Specialist.

A. Incorrect. Analysis of the data ($65/225.17 > .25$) reveals that Unit 1 should enter LCO 3.6.1.2. This is a four hour LCO. Therefore, SPP-3.5 Appendix C requires site notifications for an unplanned entry into a LCO with a time duration of 72 hours or less.

B. Correct. Condition describes entry into a LCO with duration of less than 72 hours. Therefore, the Plant Manager, Senior Vice President Nuclear Operations since LCO less than 24 hours, and the Duty Plant Manager are required to be notified. A TS safety limit was not exceeded; therefore, the ODS is not required to be notified. Per the * note, the Plant Manager notifies the Site Vice President.

C. Incorrect. Justification per "B" above.

D. Incorrect. Justification per "B" above.

K/A[CFR]: 069 2.1.14 [2.5/3.3] [43.5]

References: TS 3.6.1.2 and SPP-3.5 Rev.10, Appendix C

LP/Objective: OPL271C168 B.3

History: New Question

Level: Comprehension.

Comments: FHW 12/02 069 2.1.14; Written by Jim Kearney (9/11/02).
Provide TS 3.6.1.2 and SPP-3.5 Rev 10, Appendix C.

25. 076 AK3.05 001

Unit Two is currently at 100% power. Chem Lab reports the RCS activity for Iodine 131 is 480 $\mu\text{Ci/gm}$.

Information: 2-RM-90-277 (RCDT).
2-RM-90-278 (RCDT).
2-RM-90-400A (Shield Bldg Vent).
2-RM-90-400B (Shield Bldg Vent).

Which ONE of the following symptoms and procedural actions are correct for Iodine removal?

- ✓A. Monitor 2-RM-90-277, 2-RM-90-278, and place mixed beds and cation bed demineralizers in service.
 - B. Monitor 2-RM-90-400A, 2-RM-90-400B, and divert letdown to the hold up tank.
 - C. Monitor 2-RM-90-277, 2-RM-90-278, and isolate normal letdown and place excess letdown in service.
 - D. Monitor 2-RM-90-400A, 2-RM-90-400B, and place mixed beds and cation bed demineralizers in service.
- A. Correct, RM-90-277/278 monitors for high RCS activity; demin beds reduce RCS activity per references.
 - B. Incorrect, RM-90-400 monitors only during a gas release; hold up tank does not remove RCS activity.
 - C. Incorrect, placing excess letdown in service will by pass the demineralizers.
 - D. Incorrect, RM-90-400 monitors only during a gas release.

K/A[CFR]: 076 AK3.05 [2.9/3.6] [41.5 41.10]

Reference: 1-47W809-1
1-AR-M30-A (A-3)
1-AR-M30-A (B-3)
AOP-R.06

LP/Objective: OPL271C370 B.3

History: New question.

Level: Comprehension

Comments: FHW 12/02 076 AK3.05 Written by Scott Poteet.

26. 078 K3.03 001

Given the following plant conditions:

- Unit One is operating at 100% power.
- Unit Two is operating at 100% power.
- Auxiliary Control Air Compressor A-A power supply breaker on 480V C&A Vent Bd 2A1-A is tagged.

A pipe break in the control air header has allowed the control air header pressure to drop to 65 psig.

The Auxiliary Control Air Compressor B-B breaker on 480V C&A Vent BD 2B1-B has tripped.

Which ONE of the following is correct for these conditions.

- A. Unit Two equipment using "B" train instrument air ONLY is affected.
 - B. Unit Two equipment ONLY using both trains of instrument air are affected.
 - C. Unit One equipment ONLY using both trains of instrument air are affected.
 - ✓D. Unit One and Unit Two equipment using both trains of instrument air are affected.
- A. Incorrect, control air compressors to auxiliary air compressors isolate when control air pressure reaches 69 psig and neither aux air compressors are available therefore both trains of air are effected.
- B. Incorrect, control air compressors to auxiliary air compressors isolate when control air pressure reaches 69 psig and neither aux air compressors are available therefore both trains of air are effected which also supply Unit one.
- C. Incorrect, control air compressors to auxiliary air compressors isolate when control air pressure reaches 69 psig and neither aux air compressors are available therefore both trains of air are effected.
- D. Correct, the auxiliary control air compressors supply both units.

K/A[CFR]: 078 K3.03 [3.0/3.4] [41.7]

Reference: AOP-M.02
1,2-47W848-1
1,2-47W848-12

LP/Objective: OPL271CSA B.11

History: New question.

Level: Comprehension

Comments: FHW 12/02 078 K3.03

27. 079 2.1.1 001

Maintenance was completed on the "C" Control and Service Air Compressor and just returned to service.

The "Control and Service Air Compressor C or D Trouble/Shutdown" alarm just annunciated.

Which ONE of the following is the first action taken according to conduct of operations requirements.

- A. Use the PA to dispatch operations personnel to the air compressors.
- B. Use two way communications on the radio.
- C. Acknowledge the alarm and assume it was a pre-planned activity.
- ✓D. Acknowledge the alarm and perform actions in the annunciator response.

- A. Incorrect per reference.
- B. Inorrect per reference.
- C. Incorrect per reference.
- D. Correct per reference.

K/A[CFR]: 079 2.1.1 [3.7/3.8] [41.10]

Reference: OPDP-1 R1

LP/Objective: OPL271C209 B.6 and 8

History: New question.

Level: Memory

Comments: FHW 12/02 079 2.1.1

28. 086 K3.01 001

Given the following conditions:

- The 6.9kv Shutdown Board 1A-A has a differential fault.
- A fire is in the spreader room.
- The fire protection system failed to actuate in the spreader room.
- All AOP-C.04 checklists are complete.

Which ONE of the following is correct for this condition?

- A. The 1A-A MDAFW pump can be started from the 6.9kv Shutdown Board 1A-A.
 - B. The 2B-B RHR pump can be started from the Unit 2 Auxiliary Control Room.
 - C. The 1B-B Safety Injection pump can be started from the 480v Shutdown Bd. 1B1-B.
 - ✓D. The 2B-B RHR pump can be started from the 6.9 kv Shutdown Bd. 2B-B.
- A. Incorrect, the motor driven aux feedwater pump has no power supply due to a differential fault.
- B. Incorrect, electrical devices are controlled from their switchgear.
- C. Incorrect, the pump is supplied from the 6.9 kv shutdown bd.
- D. Correct, the electrical devices are controlled from their switchgear.

K/A[CFR]: 086 K3.01 [2.7/3.2] [41.7]

Reference: AOP-C.04

LP/Objective: OPL271C423 B.5

History: New question.

Level: Comprehension

Comments: FHW 12/02 086 K3.01

29. 103 A3.01 001

Which ONE of the following is correct concerning an automatic phase B containment isolation?

- ✓A. Panel 6E will be lit inside and outside the outlined area.
- B. Panel 6E will be lit outside the outlined area **ONLY**.
- C. Panel 6E will be lit inside the outlined area **ONLY**.
- D. Panel 6E will be dark and both containment spray pumps will be running.

- A. Correct per reference.
- B. Incorrect per reference.
- C. Incorrect per reference.
- D. Incorrect per reference.

K/A[CFR]: 103 A3.01 [3.9/4.2] [41.7]

Reference: E-0 R23 step 9

LP/Objective: OPL271C379 B.3

History: New question.

Level: Memory

Comments: FHW 12/02 103 A3.01

30. 2.1.16 001

The Unit One operator notices the service air receiver is isolated and control air pressure is dropping.

Which ONE of the following is correct for announcements of this abnormal condition?

- A. Announce over the PA system one time ONLY and phone the AUO field office.
- ✓B. Announce at least twice over the PA system.
- C. Announce over the PA system one time ONLY.
- D. Announce over the radio using two way communication.

- A. Incorrect per reference.
- B. Correct per reference.
- C. Incorrect per reference.
- D. Incorrect per reference.

K/A[CFR]: 2.1.16 [3.7/3.8] [41.10]

Reference: OPDP-1 R1 section 3.10.1

LP/Objective: OPL271C209 B.6

History: New question.

Level: Memory

Comments: FHW 12/02 2.1.16

31. 2.1.24 001

Open Reference.

Using the attached drawing which ONE of the following will cause an idle Hotwell Pump Motor to start?

- A. HS-2-33A placed in START, HS-2-33B in RESET and either MFP "A" or "B" condenser isolation valves closed.
 - B. HS-2-33A in P-Auto and both MFP "A" and "B" condenser isolation valves in the full open position.
 - ✓C. Either MFP "A" or "B" condenser isolation valves in the full open position, all electrical faults reset, and HS-2-33B placed in the TEST position.
 - D. Reset of electrical fault relays while both MFP "A" and "B" condenser isolation valves are open, HS-2-33B in reset and HS-2-33A in spring return to mid position.
- A. Incorrect per reference. No flow path if the valves are closed, interlock.
 - B. Incorrect per reference. No P-Auto position.
 - C. Correct per reference.
 - D. Incorrect per reference switch was never in start position.

K/A[CFR]: 2.1.24 [2.8/3.1] [41.10 43.5]

References: 1,2-47W611-2-1

LP/Objective: OPN218SS.002 B.6

History: New Question

Level: Analysis

Comments: FHW 12/02 2.1.24 Written by Jim Kearney (10/3/02).
Must provide a copy of drawing 1,2-47W611-2-1

32. 2.2.4 001

Open Reference.

Given the following plant conditions:

- Unit One and Unit Two are both in Mode 5.
- Unit One RCS level is being maintained at elevation 708 ft.
- Unit Two RCS level is being maintained at elevation 706 ft.

Which ONE of the following describes the corresponding RVLIS upper range indications for both units?

	<u>Unit One</u>	<u>Unit Two</u>
✓A.	99%	94.5%
B.	94.5%	94.5%
C.	94.5%	99%
D.	99%	99%

- A. Correct per reference.
- B. Incorrect per reference.
- C. Incorrect per reference.
- D. Incorrect per reference.

K/A[CFR]: 2.2.4 [2.8/3.0] [45.1/13]

Reference: 0-GO-13 R23 Appendix J.

LP/Objective: OPL271RVLIS B.6

History: New question.

Level: Analysis

Comments: FHW 12/02 2.2.4 Written by Scott Poteet (9/11/02)
Provide a copy of 0-GO-13 R23 Appendix J

33. 2.3.10 001

A Control Room Isolation was automatically initiated during normal power operations.

Plant Conditions:

- Control Bldg Emergency Air Cleanup Fan A-A handswitch indicates red.
- Control Bldg Emergency Air Cleanup Fan B-B handswitch indicates red.
- Control Bldg Emergency Pressurization Fan A-A handswitch indicates red.
- Control Bldg Emergency Pressurization Fan B-B handswitch indicates green.
- Spreading Room Supply Fan handswitch indicates green.
- Spreading Room Exhaust Fans A and B are handswitches indicates green.
- Locker Room Exhaust Fan handswitch indicates green.
- 0-FCV-311-105A (MCR fresh air inlet) handswitch indicates red.
- 0-FCV-311-106A (MCR fresh air inlet) handswitch indicates red.

Which ONE of the following is correct for this condition?

- ✓A. Close 0-FCV-311-105A and 106A to limit potential personnel exposure.
 - B. 0-FCV-311-105A and 106A should remain open to ensure control room will remain habitable.
 - C. Spreader Room Supply, Spreader Room Exhaust Fans, and the Locker Room exhaust fans should be running to ensure control room will remain habitable.
 - D. Stop Control Bldg Emergency Pressurization Fan A-A since Control Bldg Emergency Air Cleanup Fan A-A is running maintaining Control Room environment.
- A. Correct per references.
B. Incorrect, MCR fresh air inlets should be closed.
C. Incorrect, these fans should be stopped.
D. Incorrect, at least one emergency air pressurizing fan should be running.

K/A[CFR]: 2.3.10 [2.9/3.3] [43.4]

Reference: 0-SO-30-2 R9
Tech Specs bases B3/4.7.7.

LP/Objective: OPL271CBVENT B.11

History: New question.

Level: Comprehension

Comments: FHW 12/02 2.3.10

34. AIR-B.12 002

Given the following plant conditions:

- Unit 1 and 2 are at 100% power
- A leak develops on the Control Air System
- Air pressure is at 73 psig

Which ONE of the following describes the system response?

- ✓A. A and B Auxilliary Air Compressors automatically started and loaded.
 - B. A and B Train Auxilliary Air automatically isolated from Control Air.
 - C. A and B Train Auxilliary Air automatically isolated to Containment.
 - D. A and B Control and Service Air Compressors started and are operating half loaded.
- A. Correct, Aux Air Cmpr will start <77 psig and load <83.5 psig.
 - B. Incorrect this setpoint is <69 psig.
 - C. Incorrect this setpoint is <50 psig.
 - D. Incorrect C&S air cmprs will operate at full load at <94 psig.

K/A: 078 K4.01 [2.7/2.9]
 078 K1.01 [2.8/2.7] [41.2-9]
 078 A3.01 [3.1/3.2] [41.7]

Changed to 078 A3.01, does not affect outcome of outline, make chngs to outline, do not have sensor air, check RO outline for minimum number

Reference: AOP-M.02, Control Air system description.

Objective: OPL271CSA, B.12

History: System bank

Level: Comprehension

Note: FHW 12/02 078 A3.01

35. AIR-B.5 014

iven the following plant conditions:

- Control Air receiver #1 pressure is 96 psi and steady
- Control Air receiver #2 pressure is 99 psi and steady
- Service air receiver pressure is 78 psi and decreasing

Which ONE of the following could cause the decreasing service air receiver pressure?

- A. Loss of compressors A & B sequencer power.
 - B. Stuck open blowdown valve on air dryer A tower # 1.
 - C. Pressure control valve 0-PCV-33-4 failed open.
 - ✓D. Loss of power to pressure control valve 0-PCV-33-4.
-
- A. Control air receivers 1 and 2 pressure is normal thus ruling out an air compressor problem. the difference between control air receiver pressure is calibration tolerances.
 - B. The air dyers are on the control air header and the capacity of the blowdown valve is within the capacity of the compressors. A stuck open blowdown valve would have to decrease control air receiver pressures down to < 78 psig for this to affect the service air system via PCV-33-4.
 - C. Pressure control valve 0-PCV-33-4 fails closed on loss of air or loss of power. If the valve could fail open it will not cause the service air receiver to depressurize.
 - D. O-PCV-33-4 is the crosstie valve that supplies service air from the control air receivers 1 and 2. This valve fails closed on loss of power and closure of this valve will cause service air receiver pressure to decrease while control air pressure remains normal.

35. AIR-B.5 014

K/A{CFR}: 41.9}	079 K1.01	[3.0/3.1]	{41.2, 41.3, 41.4, 41.5, 41.6, 41.7, 41.8, 41.9}
41.9}	079 K2.01	[2.3/2.3]	{41.2, 41.3, 41.4, 41.5, 41.6, 41.7, 41.8, 41.9}
41.9}	079 K4.01	[2.9/3.2]	{41.2, 41.3, 41.4, 41.5, 41.6, 41.7, 41.8, 41.9}
41.9}	079 A2.01	[2.9/3.2]	{41.2, 41.3, 41.4, 41.5, 41.6, 41.7, 41.8, 41.9}
41.9}	078 K1.02	[2.7/2.8]	{41.2, 41.3, 41.4, 41.5, 41.6, 41.7, 41.8, 41.9}

References: AOP-M.02 1,2-47W611-32-1
45N632
45N779-6 45N779-18

LP/Objectives: OPL271C038 Obj. B.2, B.5

History: System bank

Level: Comprehension

Comments: LP-5/2000. C&S Air 002.; FHW 12/02 079 K4.01

36. AOP-C.01-B.1 002

Given the following plant conditions:

- The unit is initially operating at 75% power.
- The following symptoms occur:
 - T_{avg} greater than T_{ref}
 - Pressurizer spray valves partially OPEN
 - Pressurizer level INCREASING

Which ONE of the following would cause the above symptoms to occur?

- A. Turbine Runback
 - ✓B. Uncontrolled rod withdrawal
 - C. S/G Safety Valve failed OPEN
 - D. Power Range Channel N-43 failed high
- A. Incorrect, pressurizer level would be above program but decreasing if a runback occurred.
- B. Correct, pressure increase and water expansion due to increasing RCS temperature from 75% power.
- C. Incorrect, S/G safety failing open would decrease T_{ave} .
- D. Incorrect, no inputs to pressure control.

K/A: 001 AK1.03 [3.9/4.0] {41.8 41.10}

Reference: AOP-C.01, Symptoms and Entry Conditions

LP/Objective: OPL271AOPC01, B.1

Level: Comprehension

History: Procedure Bank

Comments: FHW 12/02 001 AK1.03

37. AOP-C.01-B.5 011

Given the following plant conditions:

- Unit 1 was operating at 83% power.
- A control rod dropped into the core.
- N-41 negative rate trip status light came on.
- One minute later, N-43 negative rate trip status light came on.
- **NO** additional rate trip status lights or annunciations are lit.

Which ONE of the following actions is required?

- A. Recover the dropped rods using AOP-C.01, Rod Control System Malfunctions.
 - B. Shutdown the reactor using AOP-C.03, Emergency Shutdown.
 - ✓C. Trip the reactor and go to E-0, Reactor Trip or Safety Injection.
 - D. Reduce power and enter AOP-I.01, Nuclear Instrument Malfunction.
- A. Incorrect per reference.
 - B. Incorrect per reference.
 - C. Correct per reference.
 - D. Incorrect per reference.

K/A: 2.4.11 (3.4/3.6 {41.10, 43.5}
 2.4.4 (4.0/4.3) {41.10, 43.2}
 003 AK3.04 (3.8/4.1) {41.5, 41.10}
 003 AA2.03 (3.6/3.8) {43.5}
 001 K1.05 (4.5/4.4) {41.2-9}

Reference: AOP-C.01, Section 2.3, page 13

Objective: OPL271AOPC01, b.5

Level: Memory

History: Procedure bank

Comments: FHW 12/02 003 2.4.4.

38. AOP-C.04 001

Given the following plant conditions:

- A fire occurs in the cable spreading room while both units are at 100% power.
- The operating crew places HS-13-204 and 205, Train A and B MOV Shunt Trip, to the TRIP position.

Which ONE of the following explains why this action is performed?

- ✓A. Remove power from certain critical valves to prevent inadvertent operation.
 - B. Transfer control of vital equipment to the local control stations.
 - C. Remove control power from certain critical valves to prevent operation either from the main control room or from the switchgear.
 - D. Trip the spreading room ventilation equipment to compartmentalize the fire and to keep it from spreading.
- A. Correct per reference.
B. Incorrect per reference.
C. Incorrect per references.
D. Incorrect per reference.

2-47W611-74-1 shows that the shunt trip breaker will "stop" valve motor when in "normal" but will not when in "auxiliary," therefore distractor "C" is incorrect.

K/A[CFR]: 067 AA2.17 [3.5/4.3] [43.5]

Reference: AOP-C.04, page 5; 1-47W611-74-1

Objective: OPL271C423, B.1

Level: Memory

History: Procedure bank

Comments: FHW 12/02 067 AA2.17

39. AOP-C.04-B.5 008

Due to conditions causing Control Room Inaccessibility, the main control room has been abandoned and all checklists are complete. Hot Standby conditions are being maintained from the Auxiliary Control Room when 2B-B 6.9-kV S/D Bd. experiences a loss of voltage.

Which ONE of the following is the expected response by the operating staff for this condition?

- A. Check Diesel Generators running and all auto-connected to the 6.9-kV S/D Boards.
 - ✓B. Ensure Diesel Generators running and dispatch personnel to manually close the 2B-B 6.9-kV S/D Board Emergency Feeder Bkr. Verify 2B-B D/G connected to 2B-B 6.9-kV S/D Bd.
 - C. Verify Diesel Generators running and dispatch personnel to manually close all 6.9-kV S/D Bd. Emergency Feeder Breakers. Verify all D/Gs connected to the 6.9-kV S/D Boards.
 - D. Verify D/Gs running and 2B-B D/G auto-connected to the 2B-B 6.9-kV S/D Board.
-
- A. Incorrect - Diesels will not auto connect after checklist have been completed. Switches are in auxiliary position.
 - B. Correct - Diesels will not auto connect after checklist have been completed. Switches are in auxiliary position and breaker must be closed locally.
 - C. Incorrect - Only ONE SD BD has lost voltage.
 - D. Incorrect - Diesels will not auto connect after checklist have been completed. Switches are in auxiliary position.

K/A {CFR}: 2.3.3 [1.8/2.9] {43.4}

References: AOP-C.04 section 2.1 [13] note

LP/Objectives: OPL271C423 B.5

History: Procedure bank

Level: Memory

Comments: FHW 12/02 2.3.3; since the SRO is the procedure reader it is his responsibility to ensure actions are completed.

40. AOP-I.04-B.2 001

During Mode 1 operation, with the Pressure Control Selector Switch selected to the NORMAL position (340/334), which ONE of the following statements describes the effects of Pressurizer Pressure Control Channel I failing LOW? Assume no operator action is taken.

- ✓A. All heaters on; LOW PRESSURE alarm; PORV-340A blocked; RCS pressure rises; PORV-334 opens at 2335 psig.
- B. Sprays full on; PORV-340A opens; Low Pressure Reactor Trip at 1970 psig; Low Pressure SI at 1870 psig.
- C. All heaters on; LOW PRESSURE alarm; PORV-340A setup for open signal; RCS pressure increases to 2335 psig.
- D. Sprays full on; PORV-340A blocked; all heaters on at 2210 psig; heaters modulate to maintain RCS pressure between 2210 and 2218 psig.

- A. Correct per reference.
- B. Incorrect, PZR press channel failing low will not fully open the sprays.
- C. Incorrect, channel I failing low does not set up PORV 340A for opening.
- D. Incorrect, PZR press channel failing low will fully open the sprays.

K/A[CFR]: 010 2.4.47 [3.4/3.7] [41.10 43.5]

027 AK2.03 (2.6 - 2.8)

027 AK2.03 (2.6/2.8)

027 AA1.01 (4.0 - 3.9)

027 AA2.16 (3.6 - 3.9)

027 AA1.01 (4.0/3.9)

027 AA2.16 (3.6/3.9)

Reference: AOP-I.04

LP/Objective: OPL271PZRPCS B.11

History: Procedure bank. old Bank Number PL-0914

Level: Analysis

Comments: FHW 12/02 010 2.4.47

41. AOP-M.01-B.3 002

With a rupture of the ERCW return header in the Auxiliary Building, during normal full power operation, how long may the CCP and SI pumps operate without experiencing bearing failure after the loss of ERCW cooling?

- A. 1 hour.
 - B. 45 minutes.
 - C. 30 minutes.
 - ✓D. 10 minutes.
- A. Incorrect per reference.
 - B. Incorrect per reference.
 - C. Incorrect per reference.
 - D. Correct per reference.

K/A[CFR]: 2.4.20 [3.3/4.0] [41.10]

Reference: AOP-M.01 section 2.3.

LP/Objective: OPL271AOPM01, B.3

History: Procedure bank, old Bank Number B-1090

Level: Memory

Comment: FHW 12/02 2.4.20

42. AOP-M.03-B.1 002

Given the following plant conditions:

- Unit Two in MODE 3 for maintenance.
- Panel 0-XA-55-27B-D Annunciator A-4, "MISC EQUIP SUP HDR FLOW LOW", starts alarming.
- Panel 0-XA-55-27B-D Annunciator A-6, "LETDOWN HX OUTLET FLOW/TEMP ABNORMAL", starts alarming.

Which ONE of the following events could cause both alarms to actuate?

✓A. CCS supply header rupture.

B. Letdown HX tube rupture.

C. Loss of seal injection.

D. Loss of charging flow.

A. Correct because CCS supply header rupture causes a loss of cooling to the letdown heat exchanger.

B. Incorrect because the combination of annunciators A-4 and A-6 indicate a CCS failure instead of a letdown heat exchanger failure.

C. Incorrect because the combination of annunciators A-4 and A-6 indicate a CCS failure instead of a loss of seal injection.

D. Incorrect because the combination of annunciators A-4 and A-6 indicate a CCS failure instead of a loss of charging flow.

K/A {CFR}: APE 026 AA2.01 [2.9/3.5] [43.5]
2.4.45 [3.3/3.6] [43.5]

References: AOP-M.03 "Loss of Component Cooling Water"
0-AR-M27-B-D (A-4)
0-AR-M27-B-D (A-6)

LP/Objectives: OPL271C425, B.1

History: 98 NRC Exam

Level: Comprehension

Comments: FHW 12/02 026 AA2.01

43. AOP-P.02-B.4 002

A loss of 125V DC Vital Battery Board I occurs during a surveillance test on 1A-A diesel generator. The diesel generator has been paralleled to the 1B 6.9kV Unit Board and is sharing the load. The loss of 125V DC Vital Battery Board I will result in which ONE of the following?

- A. diesel trip due to underfrequency.
 - B. loss of control to the diesel generator output breaker ONLY.
 - ✓C. loss of speed and voltage control from the control room along with the ability to shutdown the diesel from the control room.
 - D. no effect - 125V DC Vital Battery Board I power only affects the ability to start the diesel.
- A. Incorrect per reference.
B. Incorrect per reference.
C. Correct per reference.
D. Incorrect per reference.

K/A {CFR}: 058 AK3.01 [3.4/3.7] 41.5, 41.10
 063 K3.02 [3.5/3.7] 41.7
 058 AA2.03 [3.5/3.9] 43.5

References: 45N767-5

LP/Objectives: OPL271C364, b.4

History: Procedure Bank

Level: Comprehension

Comments: FHW 12/02 058 AK3.01

14. AOP-R.01-B.2 003

Given the following plant conditions:

- The operating crew has identified a S/G tube leak.
- AOP-R.01 has been implemented.
- Letdown flow = 75 gpm.
- 1 CCP is in service with charging valves FCV-62-93 and 89 full open.
- Charging flow = 160 gpm.
- Pressurizer level is stable at 58%.
- All other parameters are normal

Which ONE of the following best estimates the total primary to secondary leak rate?

- A. 55 gpm.
 - ✓B. 75 gpm.
 - C. 85 gpm.
 - D. 150 gpm.
- a. Incorrect - Nearest if Total letdown plus seal return are used. ($160 - 87 - 20 = 53$)
- b. Correct - Nearest if correct numbers are used ($160 - 87 = 73$.)
- c. Incorrect - Nearest if only letdown number is included. ($160 - 75 = 85$)
- d. Incorrect - Nearest if letdown flow is neglected and seal return flow is used. ($160 - 12 = 148$)

K/A {CFR}: APE 037 2.1.7 [3.7/4.4] [43.5]

References: OPL271CVCS

LP/Objectives: OPL271C366 B.2
OPL271C022 B.3

History: Procedure Bank

Level: Analysis

Comments: FHW 12/02 037 2.1.7 **Provide a calculator**

15. AOP-R.01-B.2 004

Given the following plant conditions:

- The plant is operating at 90% power.
- A tube leak has developed on SG #1.
- PRESSURIZER LEVEL HIGH-LOW annunciator has just alarmed.
- Pressurizer level is below program, decreasing slowly.

Which ONE of the following actions is required for these conditions in accordance with AOP-R.01, "Steam Generator Tube Leak"?

- A. Manually trip the reactor and actuate SI.
 - B. Isolate letdown and evaluate pressurizer level.
 - ✓C. Maximize charging for pressurizer level evaluation.
 - D. Maximize VCT blended makeup to prevent approach to RWST swapover level.
- A. Incorrect, not procedurally required with initial conditions.
 - B. Incorrect, not procedurally required with initial conditions.
 - C. Correct per procedure.
 - D. Incorrect, not procedurally required with initial conditions.

K/A {CFR}:	037 2.4.49	[4.0/4.0]	
	037 AA1.11	[3.4/3.3]	{41.7}
	2.4.4	[4.0/4.3]	41.10, 43.2
	2.4.11	[3.4/3.6]	41.10, 43.5

References: AOP-R.01

LP/Objectives: OPL271C366 B.1

History: Procedure Bank

Level: Memory

Comments: Reviewed by J. Epperson; FHW 12/02 037 AA1.11

46. AOP-R.02-B.2 001

Unit 1 is at 100% RTP when a small reactor coolant system leak develops. The operators are responding to the event attempting to locate the leak. The following parameters are observed:

- RCS pressure at approximately 2205 psig and decreasing
- All ice condenser doors open
- Containment pressure at 1.5 psid and increasing
- Pressurizer level at approximately 55% and decreasing (with Maximum charging)

Which ONE of the following actions should the operating crew perform?

- A. Initiate Phase A Containment Isolation.
 - B. Initiate Phase B Containment Isolation.
 - C. Initiate rapid load decrease per AOP-C.03.
 - ✓D. Trip the reactor and initiate Safety Injection.
- A. Incorrect per reference.
 - B. Incorrect per reference.
 - C. Incorrect per reference.
 - ✓D. Correct per reference, this is a management expectation. Ice doors are open and containment pressure is approaching SI setpoint of 1.54 psid.

K/A:[CFR]: 2.4.4 [4.0/4.3] [41.10 43.2]

Reference: EPM-4 R12 3.4 B. 2 (Management expectation)

LP/Objective: OPL271C266 B.14

History: Procedure bank, old Bank Number B-0383A

Level: Comprehension

Comments: FHW 12/02 2.4.4

47. AOP-R.03-B.5 005

Which ONE of the following is an indication of vortexing at the suction of the RHR pump during reduced inventory conditions?

- ✓A. Erratic pump amps
- B. RHR suction relief lifting
- C. RHR flow decrease and stable at the lower value
- D. Constant pump discharge pressure

- a. Correct - This condition exists due to alternate slugs of water and air going thru the pump
- b. Incorrect - Pressure increases on the suction of the pump should not exist when pump is cavitating.
- c. Incorrect - RCS temperature would not decrease. Flow would decrease due to pump cavitation.
- d. Incorrect - Discharge pressure would be changing as flow changed due to cavitation.

K/A {CFR}: 025 AK1.01 [3.9/4.3] {41.8, 41.10}
 025 AA2.07 [3.4/3.7] [43.5]

References: AOP-R.03 "RHR System Malfunctions"
 OPL271C141 "Mid-Loop Operations."

LP/Objectives: OPL271AOPR03, b.5

History: Bank

Level: Memory

Comments: FHW 12/02 025 AA2.07

48. AOP-R.04-B.5 001

Unit Two is operating at 30 % RTP when Loop 3 RCP trips.

Which ONE of the following describes the initial unit response?

- A. A reactor trip will occur and there will be no flow in loop 3.
 - B. A reactor trip will occur and loop 3 flow will decrease.
 - C. A reactor trip will **NOT** occur and there will be no flow in loop 3.
 - ✓D. A reactor trip will **NOT** occur and loop 3 flow will decrease.
- A. Incorrect, the reactor will not trip as initial unit response, the unit is below P-8 logic. AOP-R.04 will require a manual reactor trip.
- B. Incorrect, the reactor will not trip as initial unit response, the unit is below P-8 logic. AOP-R.04 will require a manual reactor trip.
- C. Incorrect, the reactor is below P-8 auto trip logic and the initial unit response is NOT a reactor trip. Affected loop flow decreases to zero and then reverses to 20-25% of nominal flow caused by the delta-P across the reactor vessel. Therefore no flow is incorrect.
- D. Correct, affected loop flow decreases and then reverses to 20-25% of nominal flow caused by the delta-P across the reactor vessel.

K/A[CFR]: 015 AA2.07 [2.1/2.9] [43.5]

Reference: AOP-R.04, RCP system description, abnormal operations.

LP/Objective: OPL271RCP B.13

History: Procedure bank

Level: Analysis

Comments: FHW 12/02 015 AA2.07

19. AOP-R.05-B.2 001

Given the following plant conditions:

- Reactor power is STABLE at 90%
- Pressurizer level is DECREASING
- VCT level is DECREASING
- The following annunciators are actuated:
 - PRESSURIZER LEVEL HIGH-LOW
 - LTDN HX OUTLET TO DEMIN TEMP HIGH
 - REGENERATIVE HX LETDOWN LINE TEMP HIGH

Which ONE of the following events would most likely cause these indications?

- A. Pressurizer level control valve malfunction.
- B. Isolation of CVCS letdown.
- ✓C. Charging header rupture.
- D. Letdown header rupture.

- A. Incorrect, both pressurizer and VCT level would not be decreasing.
- B. Incorrect, "Regenerative Hx Letdown Line temp High" would not alarm.
- C. Correct, with a loss of charging due to a pipe break the pZR would still lower in level due to letdown. Since there is no flow balance VCT level would decrease. Without charging acting as a cooling medium on the regen ht exchgr the temp alarms would annunciate.
- D. Incorrect, letdown header rupture would cause a loss of letdown therefore the high temp alarm would not annunciate.

K/A[CFR]: 22 AA2.01 [3.2/3.8] [43.5]

Reference: 1-AR-M6-C(A-4)
1-AR-M6-C(D-4)
1-AR-M5-A(C-3)
AOP-R.05

Objective: OPL271C367, B.2

History: Procedure bank

Level: Analysis

Comments: FHW 12/02 22 AA2.01

50. AOP-R.05-B.5 001

Given the following plant conditions:

- Unit 1 is operating at 100% power.
- CCS surge tank level was increasing but is now stable.
- "1-RA-90-123A CCS LIQ EFF MON HIGH RAD" Alarm is LIT.
- Surge tank vent valve is closed.

Which ONE of the following describes the automatic actions that should take place with the above conditions?

The thermal barrier containment isolation inlet and outlet valves:

- A. to the affected RCP close (the non-affected RCPs isolation valves remain open), and the thermal barrier booster pumps trip.
 - B. to the affected RCP close (the non-affected RCPs isolation valves remain open), the inlet and outlet CCS valves to the RCP oil coolers close, and the thermal barrier booster pumps continue to run with miniflow valves open.
 - ✓C. to all 4 RCPs close, the inlet and outlet CCS valves to the RCP oil coolers remain open, and the thermal barrier booster pumps trip.
 - D. to all 4 RCPs close, the inlet and outlet CCS valves to the RCP oil coolers are **NOT** affected, and the thermal barrier booster pumps continue to run with miniflow valves open.
-
- A. RCP thermal barriers do not have pump specific containment isolation valves. CIVs to all RCPs will close and thermal barrier pumps will trip.
 - B. CIVs for RCP thermal barriers will close, but CIVs for RCP oil coolers will not close. The thermal barrier pumps will trip--they do not have miniflow valves.
 - C. Correct:
 - D. The first two parts are correct, however thermal barrier pumps will trip--they do not have miniflow valves.

50. AOP-R.05-B.5 001

K/A{CFR}: 41.9}	008 K1.04	[30./3.3]	{41.2, 41.3, 41.4, 41.5, 41.6, 41.7, 41.8,
	008 K6.04	[2.1/2.3]	{41.7}
	008 A3.02	[3.2/3.2]	{41.7}
	009 EK3.01	[3.1/3.6]	{41.5, 41.10}
	009 EK3.05	[3.4/3.8]	{41.5, 41.10}
	009 EK3.09	[3.1/3.4]	{41.5, 41.10}
	015 AK2.08	[2.6/2.6]	{41.7}

References: 0-AR-M12-A (B-1)
47W611-70-3

LP/Objectives: OPL271C026 Obj. 5 OPL271C026 Obj. 9
OPL271C026 Obj. 12 OPL271C367 Obj. 5

History: Modified SYS.bnk Q# CCS 007 stem and 2 distractors
Not modified for 12/02

Level: Memory

Comments: LP-5/2000. CCS 001
FHW 12/02 015AK2.08

51. CCS-B.9.A 001

Given the following plant conditions:

- Unit #1 is operating at 100%.
- All systems aligned normal.
- Loss of ERCW Supply header 2A occurs due to a rupture in the yard.

Which ONE of the following describes indications the Unit 1 operator would see in the main control room in this event? (Assume no operator actions).

- A. Ice condenser chillers trip.
- B. "Diesel Gen 1 A-A Jacket Water Temp High-Low Engine 1 or 2" alarm lit on the non running 1 A-A D/G.
- C. General ventilation chillers trip.
- ✓D. CCS surge tank level increasing with auto makeup valve closed.

- A. Incorrect - these chillers use RCS even though located in the Aux. Building.
- B. Incorrect - ERCW is isolated on a non running D/G.
- C. Incorrect - Aux Building chillers are also RCW.
- D. Correct - loss of cooling to the A CCS heat exchanger would cause a heatup of A CCS train and expansion into the surge tank.

K/A {CFR}: APE 062 AA1.05[3.1/3.1] {41.7, 45.5, 45.6}
 008 K1.01 3.1/3.1
 008 K4.02 [2.9/2.7] [41.7]

References: 0-47W859-1-4 CCS Flow
 0-47W845-2 ERCW Flow
 0-AR-M26-A (C-4)
 AOP-M.01 App. C

LP/Objectives: OPL271CCS, B.9.a, B.12

History: System bank

Level: Analysis

Comments: FHW 12/02 008 K4.02

52. CONTROL *RODS 020

Given the following plant conditions:

- Unit One is 100% power and at steady state.
- Rod control is in manual.
- **NO** boration or dilution have occurred.
- Turbine control is in IMP OUT.

After two days which ONE of the following describes the effects of Reactor Power and Core Reactivity?

	REACTOR POWER	CORE REACTIVITY
A.	↓	↓
B.	↔	↑
C.	↑	↑
✓D.	↔	↓

- A. incorrect per reference.
- B. Incorrect per reference.
- C. Inorrect per reference.
- D. Correct per reference, reactor power will remain the same, turbine power in IMP OUT.

K/A[CFR]: 001 K5.30 [2.9/3.1] [41.5]

Reference: Rx Theory Chapter 7
Thermodynamics Chapter 1

LP/Objective: Rx Theory- Control Rods - LP1- PR05lr2 Obj. 5

History: Genfunme bank

Level: Comprehension

Comments: FHW 12/02 001 K5.30

53. CTMT PURGE-B.4 001

0-SO-30-3 contains the following precaution: "IF operating the containment purge system in MODE 5 or 6 WHILE the other unit is in MODES 1 through 4 THEN, an operator shall be available to stop the containment purge system in the event of an ABI."

Which ONE of the following describes the basis for this precaution?

- A. During containment purge system operation with the unit in MODE 5 or 6 its isolation function on a high rad condition is blocked and an operator is required to isolate the system.
 - B. The volume of air, that could pass from the unit being purged to the ABSCE via the containment purge fans and the open blast doors, would exceed the capacity and design basis of the EGTS.
 - ✓C. The volume of air, that could pass from the unit being purged to the ABSCE via the containment purge fans and the open blast doors, would exceed the capacity and design basis of the ABGTS.
 - D. During containment purge system operation with the unit in MODE 5 or 6 the automatic Safety Injection function is blocked which inhibits the ABI signal and an operator is required to isolate the system.
- a. Incorrect - Not a consideration in 0-SO-30-3
 - b. Incorrect - EGTS is not considered.
 - c. Correct - per reference material LER 50-327/88007 R5
 - d. Incorrect - blocking auto SI does not inhibit ABI signal, see 1,2-47W611-30-6.

K/A [CFR]: 2.3.9 [2.5/3.4] [43.4]

References: 0-SO-30-3 "Containment Purge System Operation"
LER 50-327/88007 R5
1,2-47W611-30-6

LP/Objectives: OPL271CONTPURGE B.7

History: Systems bank

Level: Memory

Comments: FHW 12/02 2.3.9

54. CTMT-B.11 001

Which ONE of the features stated below is designed to provide more efficient operation of the Ice Condenser and Containment Spray for heat removal after blowdown resulting from a LOCA?

- A. The Divider Barrier Seal between upper and lower containment will open to enhance mixing of the two environments.
 - B. Lower containment Ventilation Fans are designed to mix the air and provide additional cooling during a loss-of-coolant accident.
 - ✓C. The containment Air return fans provide flow to return air from upper containment to lower containment during a LOCA.
 - D. Pressure-operated Ice-Condenser doors will open to allow upper containment air to flow to lower containment.
-
- A. Incorrect, the divider barrier seal must be operable to enhance flow through the ice condenser.
 - B. Incorrect per TS bases, only considered for a non LOCA accident.
 - C. Correct per TS bases.
 - D. Incorrect the doors were opened for flow from the lower to upper.

Student must comprehend containment conditions, equipment status during and after blowdown.

K/A[CFR]: 025 K5.02 [2.6/2.8] [41.5]

Reference: TS bases for 3.6.5.6 and 3.6.5.9

LP/Objective: OPL271C024, b.11

History: Old Bank Number PL-0227. Modified distractor A to ensure one correct answer, FHW.

Level: Memory

Comments: FHW 12/02 025 K5.02

55. CTMT-B.11 004

During outages the CRDM motor power supply may be temporarily realigned to supply receptacle power in the lower containment.

Which ONE of the following describes how this condition is controlled?

With the motor breaker racked out:

- A. the motor leads are lifted and re-landed on the receptacle power pack. A TACF is placed on the breaker to identify this temporary condition.
- B. the motor leads are lifted and re-landed on the receptacle power pack. A Hold Order is placed on the breaker to identify this temporary condition.
- C. a transfer switch is aligned to supply power to the receptacle power pack. A TACF is placed on the breaker to identify the breaker is under receptacle load.
- ✓D. a transfer switch is aligned to supply power to the receptacle power pack. A Caution Order is placed on the MCR handswitch to identify the breaker is under receptacle load.

- A. A transfer switch is used so the leads will not have to be lifted and re landed.
- B. A transfer switch is used so the leads will not have to be lifted and re landed.
- C. A transfer switch is used , however a CO is used rather than a TACF.
- D. Correct per reference.

K/A {CFR}: SYS 022 2.2.11 [2.5/3.4] {41.10, 43.3}
 022 K2.01 [3.0/3.1] {41.7}
 2.2.11 [2.5/3.4] [41.10 43.3]
 2.2.14 [2.1/3.0] [43.3]

References: 0-SO-30-6 R17 section 8.2 [9]

LP/Objectives: OPL271CONTCOOLING B.6

History: System bank

Level: Memory

Comments: LP-5/2000. CV 001; FHW 12/02 2.2.14, modified selected correct answer to conform with 0-SO-30-6 as to "handswitch" not "breaker." This is a unit difference question.

56. CTMT-B.5 004

Open reference.

Unit 1 is operating at 100% power. Monthly containment entry inspections are in progress. Which ONE of the following would result in a loss of Primary Containment Integrity?

- A. An AUO makes an entry into the Unit 1 Annulus and leaves the EI 690 Annulus Entry Door unlatched.
 - B. Primary Containment internal pressure is discovered to be at .75 psig relative to Annulus pressure.
 - ✓C. The DI water system was discovered unisolated and unattended to lower containment service outlets.
 - D. The Upper Containment Personnel Airlock door operating mechanism is broken and the door is locked closed.
- A. Incorrect, the annulus door is not a containment air lock door.
 - B. Incorrect, outside the limits of LCO 3.6.1.4.
 - C. Correct per LCO 3.6.1.1.
 - D. Incorrect, actions of LCO 3.6.1.3 have been met.

K/A: 103 K3.02 [3.0 / 4.2]
069 AA1.03 [2.8/3.0] {41.7}

Reference: Tech Spec LCO 3.6.1.1
Tech Spec LCO 3.6.1.4
Tech Spec LCO 3.6.3
1-SI-OPS-088-014.0 R13

Objective: OPL271C083, B.3

History: Systems Bank

Level: Comprehension

Comments: **Provide tech specs 3.6.3, 3.6.1.1, 3.6.1.4** FHW 12/02 069 AA1.03

57. D/G-B.10 002

Given the following plant conditions:

- Unit 1 & 2 are steady-state at 100% power
- 125V DC Vital Battery Board III is inadvertently deenergized

Which ONE of the following describes the effect this has on the diesel generators?

- A. All diesel generators except Diesel Generator 1A-A would auto start.
 - B. All diesel generators would auto start but all engine and generator trips on Diesel Generator 2A-A would be disabled.
 - C. Diesel Generator 1A-A would auto start and could only be shutdown using the EMERGENCY STOP pushbutton on 0-M-26 until control power was restored.
 - ✓D. Diesel Generator 2A-A would auto start and could only be shutdown using the Local EMERGENCY STOP pushbutton until control power was restored.
- A. Incorrect per reference.
 - B. Incorrect per reference.
 - C. Incorrect per reference.
 - D. Correct per reference.

K/A {CFR}: 064000K203 [3.2/3.6]
 064 A3.06 [3.3/3.4] [41.7]

References: 1,2-45N767-2 & 5

LP/Objectives: OPL271 D/G, B.9

History: HLC 9809 Audit Exam

Level: Analysis

Comments: FHW 12/02 064 A3.06

58. D/G-B.6 012

Diesel Generator 1A-A was emergency started from the backup control room during an evacuation of the main control room. Which ONE of the following conditions would result in a trip of the Diesel Generator 1A-A?

- ✓A. Diesel Generator 1A-A low lube oil pressure relay actuates.
 - B. Diesel Generator 1A-A phase imbalance relay actuates.
 - C. Diesel Generator 1A-A reverse power relay actuates.
 - D. Diesel Generator 1A-A neutral overcurrent relay actuates.
- A. Correct while emergency start switches on O-M-26 and O-L-4 are held in emergency start position, all engine trips are defeated except for overspeed. When the switches are released to normal, the emergency-start relay is reenergized and all engine protection is restored.
- B. Incorrect, the only generator protection is differential overcurrent.
- C. Incorrect, the only generator protection is differential overcurrent.
- D. Incorrect, the only generator protection is differential overcurrent.

K/A[CFR]: 064 K4.02 (3.9-4.2) {41.7}
 068 AK2.07 [3.3/3.4] {41.7}

Reference: 0-SO-82-1
 0-45N767-2

LP/Objective: OPL271C065, b.6

History: System bank old Bank Number PL-1426

Level: Memory

Comment: FHW 12/02 068 AK2.07

59. E-0-B.3.A 007

Given the following plant conditions:

- A reactor trip has occurred due to loss of offsite power.
- SI did **NOT** actuate.
- 6.9kV Shutdown Boards 1A-A and 1B-B are energized by the D/Gs.
- The crew has just ensured that all Control Rods are fully inserted.
- The following plant parameters exist:
 - PZR Level is 15% and increasing very slowly.
 - PZR Pressure is 1980 psig and decreasing.
 - AFW Flow is ~580 gpm.
 - All S/G levels are approximately 5%
- The crew ensures that the PZR PORVs are closed and the spray valves are closed.

Which ONE of the following describes the **MINIMUM** actions that must be performed to stabilize plant conditions?

- A. Reset the Blackout Relays on both 6.9kV Shutdown Boards and allow the PZR Pressure Control System to automatically stabilize conditions.
 - B. Manually actuate SI and return to E-0, "Reactor Trip or Safety Injection".
 - C. Secure AFW flow to the S/Gs and place the PZR backup heaters control switch to CLOSE.
 - ✓D. Increase PZR level, then allow the PZR Pressure Control System to automatically stabilize conditions.
- A. Incorrect, blackout relays can not be reset until offsite power is restored.
B. Incorrect, initial conditions do not require a SI.
C. Incorrect, AFW flow is needed for a heat sink, S/G level >10% per reference.
D. Correct, control charging/letdown so PZR level trending to 25% per reference.

K/A[CFR]: 056 AA2.18 [3.8/4.0] [43.5]

Reference: ES-0.1

Objective: OPL271C381 B.1

History: Procedure bank

Level: Comprehension

Comments: FHW 12/02 056 AA2.18

30. E-0-B.6 003

Which ONE of the following symptoms would require the initiation of a manual reactor trip **AND** safety injection if neither had occurred automatically?

- A. Containment pressure = 1.0 psig
 - B. General Warning alarm on the Solid State Protection System B
 - ✓C. Pressurizer pressure = 1850 psig, pressurizer level = 40%
 - D. Power = 33% and loss of flow in one loop
- A. Incorrect per reference.
B. Incorrect per reference, general warning requires 2/2 logic.
C. Correct per reference pressurizer pressure < 1970 psig for reactor trip and < 1870 psig for safety injection.
D. Incorrect per E-0, however AOP-R.04 does require a manual reactor trip if greater than P-10 (10%) but it does not require a safety injection.

K/A[CFR]: 013 2.4.47 [3.4/3.7] [41.10 43.5]
 2.4.1 (4.3 - 4.6)
 2.4.2 (3.9 -4.1)
 2.4.4 (4.0 - 4.3)

Reference: E-0

LP/Objective: OPL271C379 B.1

History: Procedure bank

Level: Memory

Comments: FHW 12/02 013 2.4.2

31. E01 2.2.25 001

Given the following plant conditions:

- CCP "A" is tagged for motor replacement.
- A small RCS leak occurs with RCS pressure dropping to 1950 psig.

The procedure reader is at E-0 step four and is concerned about having only one train of ECCS during a LOCA.

The procedure reader used his own judgement and transitioned to ES-0.0, "Rediagnosis."

Which ONE of the following is correct concerning his actions and concerns?

- ✓A. His transition was incorrect because TS bases for ECCS is based on a LOCA with one train available.
 - B. His transition was correct because TS bases for ECCS is based on a LOCA with one train available.
 - C. His transition was incorrect because TS bases for ECCS is based on a SG tube rupture with one train available.
 - D. His transition was correct because TS bases for ECCS is based on a SG tube rupture with one train available.
- A. Correct, he should not go to ES-0.0 since there was no SI (RCS pressure dropped to 1950 psig), and TS bases for ECCS is a LOCA.
- B. Incorrect, he should not go to ES-0.0 since there was no SI, and TS bases for ECCS is a LOCA.
- C. Incorrect, he should not go to ES-0.0 since there was no SI, and TS bases for ECCS is a LOCA.
- D. Incorrect, he should not go to ES-0.0 since there was no SI, and TS bases for ECCS is a LOCA.

K/A[CFR]: E01 2.2.25 2.5/3.7] [43.2]

Reference: EPM-4 section 3.11.5 and TS bases 3/4.5.2 and 3/4.5.3.

LP/Objective: OPL271C266 B.3

History: New question.

Level: Comprehension

Comments: FHW 12/02 E01 2.2.25

32. E15 EA2.1 001

The operating crew is at step two (2) of FR-Z.2, "Containment Flooding."

Which ONE of the following is the correct criteria necessary to exit FR-Z.2?

- A. RHR suction must be aligned to the RWST.
 - ✓B. Containment pressure increased to 3.0 psid.
 - C. Chem Lab analysis is complete on the RHR system sample.
 - D. Containment sump was pumped down to < 55%.
- A. Incorrect, per reference the only action verb associated with RHR is "check."
B. Correct, per reference. transition to FR-Z.1.
C. Incorrect, per reference the chem lab is only notified to take a sample.
D. Incorrect, there is no level requirement in the reference.

K/A[CFR]: E15 EA2.1 [2.7/3.2] [43.5]

Reference: FR-0
EPM-4

LP/Objective: OPL271C409 B.1

History: New question.

Level: Memory

Comments: FHW 12/02 E15 EA2.1

33. E15 EK2.2 001

Given the following plant conditions:

- The unit is recovering from a large break LOCA.
- Containment pressure is indicating 12 psid.
- RWST level is 3%.
- Containment sump level is 60%.

All actions due to initial conditions have been completed. Which ONE of the following best describes the core heat removal?

- A. Core heat is removed by ECCS injection from the RWST.
 - B. Core heat is removed by the steam generators.
 - C. Core heat is removed by containment spray heat exchangers ONLY.
 - ✓D. Core heat is removed through the RHR and containment spray heat exchangers.
- A. Incorrect, the RWST is 3% and sump level is 60% therefore sump swapover should have occurred.
- B. Incorrect, the primary system is uncoupled.
- C. Incorrect, the RHR system is on recirculation.
- D. Correct, on sump recirculation.

K/A[CFR]: E15 EK2.2 [2.7/2.9] [41.7]

Reference: ES-1.3
EPM-3-ES-1.3 step 5

LP/Objective: OPL271C388 B.2

History: New question.

Level: Comprehension

Comments: FHW 12/02 E15 EK2.2

34. E16 2.4.41 001

Open reference.

Given the following plant conditions:

- E-1 has been entered.
- Subcooling is 80°F.
- Chem lab reports RCS activity 280 $\mu\text{Ci/gm}$ dose equivalent I-131.
- 1-RM-90-271 and 272 are indicating 370 Rem/Hr.

Make **NO** assumptions.

Classify this condition per the Emergency Plan Implementing Procedure.

- A. Unusual Event.
- B. Alert.
- ✓C. Site Area Emergency.
- D. General Emergency.

C. correct, EAL 1.1.5.L and 1.3.5.P and 1.2.2.P. Site Area Emergency is a "Loss or Potential Loss of any two barriers" General emergency is a loss of two barriers.

K/A[CFR]: E16 2.4.41 [2.3/4.1] [43.5]

Reference: EPIP-1

LP/Objective: OPL271C198 B.3

History: New question.

Level: Comprehension

Comments: FHW 12/02 E16 2.4.41
Provide a copy of EPIP-1

35. ECA-1.2-B.1 002

Given the following plant conditions:

- Unit 2 is operating at 100% power when a LOCA occurs.
- Containment pressure is 0.2 psig and steady.
- The operators initiated safety injection.
- The crew has determined that SI cannot be terminated.
- SI has been reset.
- RCS pressure is 500 psig and dropping slowly.

Which ONE of the following best describes the procedure methodology to mitigate this condition?

- A. If the LOCA can **NOT** be isolated then transition to E-1.
- ✓B. If the LOCA can **NOT** be isolated then transition to the Loss of RHR Sump Recirculation procedure.
- C. When the RWST level is <27%, the operator should transfer ECCS pumps to the containment sump.
- D. When the RWST level is <8%, the operator should transfer the ECCS pumps to the containment sump.

- A. Incorrect - ECA-1.2 will not transition you to E-1.
- B. Correct - per EPM-3 "Basis Document"
- C. Incorrect - ECA-1.2 makes NO provisions for this evolution.
- D. Incorrect - ECA-1.2 makes NO provisions for this evolution.

K/A CFR: W/E04 2.4.4 [4.0/4.3] {41.10, 43.2}
 E04 EK2.2 [3.8/4.0] {41.7}

References: ECA-1.2

LP/Objectives: OPL271C418 B.1

History: Bank

Level: Memory

Comments: FHW 12/02 E04 EK2.2

36. ECA-2.1-B.1 004

ECA-2.1, "Uncontrolled depressurization of all Steam Generators" is in effect. The following conditions occur:

- TDAFW pump trips on overspeed and can **NOT** be reset.
- "A" MDAFW pump is tagged out.
- "B" MDAFW pump trips on overcurrent.
- Offsite power is lost, with both D/G's re-energizing their respective 6.9 kv AC bus.
- All SG levels are below 0% NR.

The operating team should:

- A. Remain in ECA-2.1 "Uncontrolled depressurization of all Steam Generators."
- B. Transition to E-0 "Reactor Trip or Safety Injection."
- C. Transition to E-2 "Faulted Steam Generator Isolation."
- ✓D. Transition to FR-H.1 "Loss of Secondary Heat Sink."
 - A. Incorrect per reference.
 - B. Incorrect per reference.
 - C. Incorrect per reference.
 - D. Correct, the reduction in AFW flow was not by procedure direction therefore a transition to FR-H.1 is required.

K/A[CFR]: E12 2.4.16 [3.0/4.0] [41.10 43.5]

Reference: ECA-2.1 note on page 3.

LP/Objectives: OPL271C419, b.1

History: Procedure bank, old Bank Number PL-0798

Level: Analysis

Comments: FHW 12/02 E12 2.4.16

67. ECCS-B.2 002

Which ONE of the following is a safety injection initiation signal?

- A. High containment pressure of 2.81 psid on 2/4 pressure transmitters.
 - B. High containment pressure of 2.81 psid on 2/3 pressure transmitters with P-11 blocked.
 - C. High containment pressure of 1.54 psid on 2/4 pressure transmitters with P-11 blocked.
 - ✓D. High containment pressure of 1.54 psid on 2/3 pressure transmitters.
- A. Incorrect per reference.
 - B. Incorrect per reference.
 - C. Incorrect per reference.
 - D. Correct per reference.

K/A[CFR]: 00013 K1.01 (4.2-4.4) {41.2 -9}
 E14 EK2.1 [3.4/3.7]

Reference: TI-28

History: Systems bank old Bank Number PL-1468

LP/Objective: OPL271RPS b.10

Level: Memory

Comments: FHW 12/02 E14 EK 2.1

38. ECCS-B.3 002

The unit is experiencing a large break LOCA. Which ONE of the following best describes the order of ECCS component injection?

- A. CCPs, SI Pumps, RHR Pumps, Cold Leg Accumulators.
 - ✓B. CCPs, SI Pumps, Cold Leg Accumulators, RHR Pumps.
 - C. SI Pumps, CCPs, Cold Leg Accumulators, RHR Pumps.
 - D. SI Pumps, CCPs, RHR Pumps, Cold Leg Accumulators.
-
- A. Incorrect per reference.
 - B. Correct per reference.
 - C. Incorrect per reference.
 - D. Incorrect per reference.

Student must comprehend the order of injection based on the pump/accumulator discharge head.

K/A [CFR]: 006 A1.07 [3.3/3.6] [41.5]

006 K1.03 (4.2 - 4.3)

006 K5.06 (3.5 - 3.9)

006 A3.01 (4.0 - 3.9)

006 A3.02 (4.1 - 4.1)

Reference: ECCS System description section 3.

LP/Objective: OPL271ECCS B.13

History: Systems bank Old Bank Number PL-1530

Level: Memory

Comments: FHW 12/02 006 A1.07

39. EPM-4-B.7 001

Given the following events and conditions:

Unit 1 was conducting control rod drop tests during a plant startup at 2% reactor power when a complete loss of 'A' Train CCS occurred.

- Control room operators enter AOP-M.03 (Loss of Component Cooling Water)
- RCP Thrust Bearing temperature annunciator actuates.
- The operators manually trip the reactor but the trip breakers fail to open.
- Reactor power has increased to 5%
- Pressurizer pressure = 1930 psig

Which ONE of the following statements correctly describes the proper procedural flow path for these conditions?

- A. Remain in AOP-M.03, trip all RCPs and commence a reactor shutdown.
 - B. Implement FR-S.1 (Nuclear Power Generation/ATWS) concurrently with AOP-M.03.
 - C. Terminate AOP-M.03, enter E-0 (Reactor Trip or Safety Injection) and immediately transition to FR-S.1.
 - ✓D. Enter E-0 and immediately transition to FR-S.1 while continuing on in AOP-M.03 as time and conditions permit.
- A. Incorrect, per reference.
B. Incorrect, per reference.
C. Incorrect, per reference.
D. Correct, per reference.

K/A [CFR]: 2.4.5 [2.9/3.6] [41.10 43.5]

References: EPM-4

LP/Objectives: OPL271C266, b.7

History: Procedure bank

Level: Comprehension

Comments: FHW 12/02 2.4.5

70. ES-0.0-B.3 001

Given the following plant conditions:

- Reactor trip and SI have occurred 10 minutes ago
- RCS T_{cold} 535°F
- RCS Pressure 1810 psig
- Pressurizer level 15%
- S/G NR Levels 20% each
- S/G #1 Pressure 875 psig
- Other S/G Pressures 890 psig
- AFW Flow is 150 gpm to each S/G

Which ONE of the following identifies the type of accident that is in progress?

✓A. Small break LOCA

B. Steam line break

C. Feed line break

D. S/G tube rupture

A. Correct for initial conditions.

B. Incorrect since all S/G pressure are approx. the same after 10 minutes.

C. Incorrect since all feed flows are the same.

D. Incorrect since all S/G levels are approx. 20% after 10 minutes.

K/A: 000009A202 [3.5/3.8]
E01 EA1.1 [3.7/3.7] {41.7}

Reference: ES-0.0, pages 4 & 5

Objective: OPL271C380, b.3

History: Procedure Bank

Level: Comprehension

Comments: FHW 12/02 E01 EA1.1

71. ES-0.0-B.5 002

Given the following plant conditions:

- Reactor trip and SI have occurred.
- S/G level in #2 S/G was increasing uncontrollably.
- Crew transitioned to E-3.
- Chemistry and Rad Con report **NO** activity in **ANY** S/G.
- Turbine Building AUO reports #2 S/G MDAFW LCV is leaking by.
- The indicator for AFW flow to #2 S/G is determined to be failed low.
- Isolation of #2 S/G MDAFW LCV stops level increase in #2 S/G.
- #2 S/G pressure is stable at 1010 psig.
- E-3 cooldown is in progress.

Which ONE of the following is the correct procedural action to take in response to the above conditions?

- A. Continue in E-3 and terminate SI in E-3.
 - B. Transition directly to ES-1.1 and terminate SI.
 - C. Transition to E-2. Transition from E-2 to E-1. Transition from E-1 to ES-1.1.
 - ✓D. Transition to ES-0.0. Transition from ES-0.0 to E-1. Transition from E-1 to ES-1.1.
- A. Incorrect, E-3 provides steps to mitigate a SGTR.
 - B. Incorrect, ES-1.1 has entry conditions from E-0, E-1, and FR-H.1.
 - C. Incorrect, if in E-3 the any S/G pressure dropping in an uncontrolled manner, any S/G pressure less than 140 psig, or any faulted S/G not isolated would be a transition to E-2. These conditions are not listed in the initial conditions.
 - D. Correct, per EPM-4 ES-0.0 is applicable only if SI is in progress and E-0 has been performed and entered based on Operator judgment.

K/A[CFR]: E01 EA2.1 [3.2/4.0] [43.5]

Reference: ES-0.0, ES-1.1 entry conditions, E-3, EPM-4.

LP/Objective: OPL271C380 B.2

History: Procedure bank

Level: Comprehension

Comments: FHW 12/02 E01 EA2.1

72. ES-0.1-B.1 002

A reactor trip following a spurious turbine runback occurred on Unit 1. The following plant conditions are observed:

- RCS Tavg = 547° F
- RCS pressure = 2198 psig and slowly increasing
- CCP 1 A-A tripped on overcurrent at the time of the trip
- Control Rods are fully inserted except Rods H-8 and C-4 are at 24 and 16 steps respectfully.

Which ONE of the following describes the appropriate action for the OATC to take?

- A. Start CCP 1B-B, open FCV-62-132 and FCV-62-133 (VCT Outlet), close FCV-62-135 and FCV-62-136 (RWST Supply to CCP Suction), verify at least 80 gpm charging flow through the normal charging flowpath.
 - ✓B. Start CCP 1B-B, shift the BAT pumps to fast, open FCV-62-138 (Emergency Borate), verify at least 35 gpm boric acid flow.
 - C. Shift the BAT pumps to fast, open FCV-62-138 (Emergency Borate), verify at least 35 gpm boric acid flow.
 - D. Shift the BAT pumps to fast, open FCV-62-140 (Normal Boration to VCT Outlet) and FCV-62-128, verify at least 30 gpm boric acid flow.
- A. incorrect this is normal boration path.
B. correct per EA-68-4 requires emergency boration.
C. incorrect a CCP is required for emergency boration.
D. incorrect this is not an emergency boration path.

K/A {CFR}: 024 AK3.02
024 AA1.17 [3.9/3.9]

References: EA-68-4
ES-0.1

LP/Objectives: OPL271C381, b.1

History: Procedure Bank

Level: Comprehension

Comments: FHW 12/02 024 AA1.17

73. ES-0.2-B.3 001

Unit 1 has had a loss of offsite power and is cooling down using ES-0.2, Natural Circulation Cooldown. RCS temperature is 500 °F. Power has just been restored to the CRDM fans.

Which ONE of the following describes the effect that starting all CRDM fans will have on the cooldown?

- A. The fans will aid significantly in removing heat from the upper head region. A **GREATER** amount of subcooling is procedurally required for cooldown.
 - ✓B. The fans will aid significantly in removing heat from the upper head region. A **SMALLER** amount of subcooling is procedurally required for cooldown.
 - C. The fans will **NOT** significantly contribute to the overall upper head cooldown rate. A **GREATER** amount of subcooling is procedurally required for cooldown.
 - D. The fans will **NOT** significantly contribute to the overall upper head cooldown rate. A **SMALLER** amount of subcooling is procedurally required for cooldown.
- A. Incorrect, with the CRDM fans inservice more ambient heat is removed from the vessel head which allows for a smaller subcooling margin.
- B. Correct, with the CRDM fans inservice more ambient heat is removed from the vessel head which allows for a smaller subcooling margin.
- C. Incorrect, the CRDM fans will remove a significant amount of heat as discussed in Westinghouse ERG ES-0.2.
- D. Incorrect, the CRDM fans will remove a significant amount of heat as discussed in Westinghouse ERG ES-0.2.

The student must understand the significance of additional cooling on the vessel head and it's contribution to a smaller required subcooling margin.

K/A [CFR]: E09 EA2.1 [3.1/3.8] [43.5]

References: EPM-3-ES-0.2

LP/Objectives: OPL271C382, B.3

History: Procedure bank

Level: Comprehension

Comments: FHW 12/02 E09 EA2.1

74. ES-0.2-B.3 003

Given the following plant conditions:

- All reactor coolant pumps are deenergized.
- The core exit thermocouples are reading 440 °F and decreasing.
- Upper head thermocouples are reading 605 °F.
- The RCS cold leg temperatures are 400 °F and decreasing.
- The RCS pressure is 1585 psig and slowly decreasing.
- The pressurizer level has rapidly increased from 35% to 48%.

Which ONE of the following is the reason for the change in pressurizer level?

- A. RCS pressure has decreased to the point where the safety injection pumps have begun injecting into the RCS.
 - B. Anticipated response due to uneven loop cooling and flows during natural circulation.
 - ✓C. RCS depressurization has caused saturated conditions and a steam void in the reactor vessel head area.
 - D. Pressurizer level swings are expected due to steam entering the pressurizer and surge line.
- A. Incorrect SI pumps start injecting at 1500 psig.
 - B. Incorrect by design there should be no uneven loop flow.
 - C. Correct per steam tables. Sat temp for 1600 psia is 604.87°F.
 - D. Incorrect, the RCS temperature is subcooled.

K/A {CFR}: E10 EK3.1 [3.4/3.7] {41.5 41.10}

References: ES-0.2

LP/Objectives: OPL271C382, b.3

History: Procedure Bank

Level: Comprehension

Comments: FHW 12/02 E10 EK3.1 **Provide steam tables**

75. ES-1.2-B.2 004

Given the following plant conditions:

- A LOCA has just occurred on Unit 1 and appropriate responses have been taken.
- Only #2 RCP is running.
- The crew is performing, ES-1.2, "Post-LOCA Cooldown and Depressurization."

Which ONE of the following is an indication that voiding exists in the RCS?

- A. Rapidly increasing RVLIS Upper Plenum level if auxiliary spray is initiated.
- B. Rapidly decreasing safety injection flow rate when RCS pressure is decreased.
- ✓C. Rapidly increasing pressurizer level when normal spray valves are opened.
- D. Rapidly decreasing RCS pressure if high head injection is realigned through the CCPIT.

A. Incorrect, auxiliary spray would cause pressurizer level to increase.

B. Incorrect, decreasing RCS pressure would allow increased SI flow.

C. Correct per ES-1.2.

D. Incorrect, SI flow through the CCPIT would increase RCS pressure.

K/A {CFR}: 000008K301 [3.7/4.4]
E03 EK1.3 [3.5/3.8] {41.8 41.10}

References: ES-1.2, caution at step 13.

LP/Objectives: OPL271C387, B.2

History: HLC 9809 Audit Exam, HLC 12/02

Level: Memory

Comments: FHW 12/02 E03 EK1.3

76. ES-1.2-B.2 006

During the performance of ES-1.2, "Post-LOCA Cooldown and Depressurization," it is desirable to have only one RCP running.

Which ONE of the following describes the reason for having only one RCP in service?

- A. One RCP provides the DELTA-P required to provide letdown. Additional RCPs would add unnecessary heat load.
 - ✓B. One RCP is desired for spray and RCS heat transport to the SGs. Additional RCPs would add unnecessary heat load.
 - C. One RCP is needed for RCS heat transport to the SGs. Additional RCPs could overload the electrical power supply.
 - D. One RCP is desired for spray and RCS mixing. Additional RCPs would strain the plant electrical power supply in the post-LOCA condition.
-
- A. Incorrect - RCS pressure provides force for letdown.
 - B. Correct - per EPM-3 "Basis Document"
 - C. Incorrect - RCPs are fed from independent 6.9 Kv Unit Boards and will not overload them.
 - D. Incorrect - RCPs are fed from independent 6.9 Kv Unit Boards and will not overload them.

K/A {CFR}: W/E03 EK3.1 [3.3/3.7] {41.5, 46.13}

References: EPM-3-ES-1.2. Step 14

LP/Objectives: OPL271C387 B.2

History: Procedure Bank

Level: Comprehension

Comments: FHW 12/02 E03 EK 3.1

77. FH-B.12.B 001

Which ONE of the following describes the function of the SFP bridge crane hoist "lower" limit gear operated switch?

- ✓A. Stops downward travel before the crane hook enters the water.
 - B. Stops downward travel before the fuel assembly reaches the bottom of the fuel cell.
 - C. Automatically changes hoist speed from fast to slow while the fuel assembly is in the fuel cell boundary.
 - D. Prevents bridge travel when the fuel assembly is within the fuel cell boundary.
- A. Correct. This prevents contamination of the hook and possible contamination of SFP water.
 - B. Fuel handling operator uses a load cell to monitor and stop downward travel when the FA reaches the bottom of the fuel cell.
 - C. There is no fast/slow speed on the hoist. It only has a normal speed with a jog button
 - D. Bridge travel is interlocked with the full up limit switch.

K/A{CFR}:	036 AK3.02	[2.9-3.6]	{41.5, 41.10}
	034 K4.02	[2.5/3.3]	{41.7}
	034 A3.01	[2.5/3.1]	{14.7}

References: FHI-3 Sect. D. IV.A

LP/Objectives: System Description 079a Obj. 12.b

History: Refuel.bnk Q# OPL274A069.5 004. Revised stem and D distractor.

Level: Memory

Comments: LP-5/2000.; FH 001; FHW 12/02 034 K4.02

78. FISSION*PROD*POISON 052

Which ONE of the following occurrences can cause power range NI's to fluctuate between the top and bottom of the core when steam demand is constant and what are the actions to mitigate?

- A. steam generator level oscillations and manually control steam generator levels.
- B. iodine spiking and increase letdown flow.
- ✓C. xenon oscillations and adjust control rods.
- D. inadvertent boron dilution and emergency borate.

- A. Incorrect per reference.
- B. Incorrect per reference.
- C. Correct per reference.
- D. Incorrect per reference.

K/A [CFR]: 015 A2.03 [3.2/3.5] [41.5 43.5]

References: OPL271C228

LP/Objective: OPL271C228 B.38

History: General Fundamental Bank

Level: Comprehension

Comments: FHW 12/02 015 A2.03

79. FR-C.1-B.2 003

Given the following plant conditions:

- The Unit has tripped from 100% power with a LOCA in progress.
- Pressurizer pressure indicates 900 psig.
- Reactor Coolant Pumps have been tripped.
- Core exit thermocouples are at 720 °F.
- RVLIS lower plenum indicates 36%.
- T hot for all loops range between 512°F to 525°F.

Which ONE of the following describes the conditions existing in the core as applicable to the Emergency Operating Procedures?

- ✓ A. Superheated conditions, which present an imminent challenge to the fuel matrix and fuel cladding.
 - B. Superheated conditions, which do **NOT** present a challenge to the fuel matrix and fuel cladding as long as hot leg temperatures are at saturation conditions.
 - C. Saturated conditions, which present a potential challenge to the fuel matrix and fuel cladding.
 - D. Subcooled conditions, which do **NOT** present a challenge to the fuel matrix and fuel cladding.
- A. Correct, per steam table. RCPs off and RVLIS < 40 % equates to core water level < 3.5 feet from bottom of the fuel, therefore, imminent challenge is correct.
- B. Incorrect, water level is < 3.5 feet from bottom of the fuel.
- C. Incorrect, conditions are superheat.
- D. Incorrect, conditions are superheat and water level is < 3.5 feet from bottom of the fuel.

K/A {CFR}: 074 EK1.01 [4.3/4.7] {41.8 41.10}

References:

FR-C.1
EPM-3-FR-C.1

LP/Objectives: OPL271C398, B.2

History: HLC 9809 Audit Exam
HLC 12/02

Level: Comprehension

Comments: **Provide steam tables.** FHW 12/02 074 EK1.01

30. FR-C.1-B.2 011

Given the following plant conditions:

- The operating crew entered procedure FR-C.1, "Inadequate Core Cooling."
- All attempts to establish high pressure Safety Injection flow were unsuccessful.
- RVLIS lower range level is 28% and dropping slowly.
- Core Exit Thermocouples are reading 820 degrees F and slowly increasing.
- Reactor Coolant pumps have been secured.

Which ONE of the following methods would be the **NEXT** step in mitigating the core cooling challenge?

- A. Enter the Severe Accident Management Guidelines (SAMGs).
 - B. Prior to RCP restart open available pressurizer PORVs to allow RCS depressurization to the SI accumulator and SI injection pressures.
 - ✓C. Depressurize all intact steam generators using Steam dumps or ARVs to allow RCS depressurization to the SI accumulator and SI injection pressures.
 - D. When RCP support conditions are available restart one RCP in an idle loop to provide forced two-phase flow through the core.
-
- a. Incorrect - This event does not require entry into SAMGs
 - b. Incorrect - If RCPs cannot be started, or if core cooling is not restored after the RCPs are started, then RCS vent paths are opened. RCS vent paths are not considered prior to restart of RCP.
 - c. Correct - This is first evolution attempted if normal ECCS is not established
 - d. Incorrect - If the secondary depressurization is not successful in reducing core temperatures, then the RCPs are started. Support conditions are not required to start a RCP.

80. FR-C.1-B.2 011

K/A {CFR}: EPE 074 EK2.06 [3.5/3.6]
074 EK2.02 [3.9/4.0] {41.7}

References: FR-C.1 "Inadequate Core Cooling" step 14

LP/Objectives: OPL271C398 B.2

History: Bank; Modified distractor B to include "prior to RCP restart" to avoid confusion as to assumed procedure step progress. Modified distractor D to include "when RCP support conditions are available" to avoid confusion as to assumed procedure step progress. FHW 12/02

Level: Analysis

Comments: FHW 12/02 074 EK2.06

31. FR-H.1-B.3 004

The emergency procedures have been implemented and the following plant conditions exist:

1. Performance of FR-H.1, "Loss of Secondary Heat Sink", is in progress.
2. Neither Feedwater or Condensate flow can be established.

Which ONE of the following methods will be used?

- A. Use the Pressurizer PORV's to bleed off the decay-heat energy then feed ECCS to the Reactor Coolant System.
 - ✓B. Feed ECCS to the Reactor Coolant System then use the Pressurizer PORV's to bleed off the decay-heat energy.
 - C. Use the Reactor Head Vents **ONLY** to bleed off the decay-heat energy then feed ECCS to the Reactor Coolant System.
 - D. Feed ECCS to the RCS then attempt to use the Reactor Head Vents **ONLY** to bleed off the decay-heat energy..
- A. Incorrect, procedure requires actuation of SI to start ECCS pumps to feed.
B. Correct per FR-H.1.
C. Incorrect, procedure requires actuation of SI and bleeds using PORVs.
D. Incorrect, procedure requires using PORVs for a bleed path.

K/A[CFR]: E05EK2.2 (3.9-4.2)
E05 EA1.3 [3.8/4.2] {41.7}

Reference: FR-H.1

LP/Objective: OPL271C401, b.3

History: Procedure bank old Bank Number PL-0900

Level: Comprehension

Comments: FHW 12/02 E05 EA1.3

32. FR-P.1 001

FR-P.1, Response to Pressurized Thermal Shock, has the operator check that RHR flow is greater than 1500 gpm if RCS pressure is less than 180 psig.

This step is based on:

- A. ensuring adequate mixing in the cold leg downcomer region during natural circulation conditions.
 - B. preventing core exit temperatures from exceeding the required temperature to place RHR in service.
 - C. ensuring adequate Low Head Safety Injection cooling prior to Accumulator isolation.
 - ✓D. preventing implementation of Pressurized Thermal Shock (PTS) actions if a Large Break LOCA has occurred.
- A. Incorrect, RHR does not mix the CL region; RCS is uncoupled.
 - B. Incorrect, CET has no input to RHR
 - C. Incorrect, Isol CLA in P.1
 - D. Correct per EPM-3-FR-P.1

K/A: E08 EK3.2 [3.6/4.0] {41.5 41.10}

Reference: EPM-3-FR-P.1

Objective: OPL271C406 b.3

History: Procedure Bank

Level: Comprehension

Comments: FHW 12/02 E08 EK3.2

83. FR-Z.1-B.2 001

FR-Z.1, "High Containment Pressure", directs that if ECA-1.1, "Loss of RHR Sump Recirculation", is in effect then operate containment spray using applicable steps in ECA-1.1.

A loss of offsite power has occurred.

Which ONE of the following describes the basis for giving priority to ECA-1.1?

- A. ECA-1.1 operates the containment spray pumps to maintain level in the containment sump for the RHR pumps.
 - B. ECA-1.1 operates the containment spray pumps to ensure sufficient power is available from the diesel generators for the RHR pumps.
 - C. ECA-1.1 operates the containment spray pumps to prevent automatic swapover of the spray pumps to the containment sump.
 - ✓D. ECA-1.1 operates the containment spray pumps in order to conserve the level in the RWST.
- A. Incorrect, not addressed in EPM-3-ECA-1.1.
 - B. Incorrect, not addressed in EPM-3-ECA-1.1.
 - c. Incorrect, not addressed in EPM-3-ECA-1.1.
 - D. Correct, the RHR sump is not available, therefore the crew must conserve water for injection from the RWST.

K/A: 000069SG11 [3.8 / 4.2]
025 AK2.05 [2.6/2.6] {41.7}

Reference: EPM-3-ECA-1.1 step 12

LP/Objective: OPL271C417, B.2

History: Procedure Bank

Level: Comprehension

Comments: FHW 12/02 025 AK2.05

34. FR-Z.2-B.2 001

Which ONE of the following is addressed in FR-Z.2, "Containment Flooding", as the potential source of excessively high containment sump levels?

- A. Condensed steam from a steam break
- B. RWST
- C. Accumulators
- ✓D. CCS

- A. Incorrect per reference.
- B. Incorrect per reference.
- C. Incorrect per reference.
- D. Correct per reference.

Student must comprehend the RWST and Accumulators are bounded [limited] sources and the CCS has potential to continue flowing. Also the engineering evaluation for the sump level transmitter setpoint [not high level] includes the volume of the RWST and the accumulators.

K/A{CFR}: E15 EK1.1 [2.8/3.0] [41.8 41.10]

Reference: FR-Z.2

LP/Objective: OPL271C409, b.2

History: Old Bank Number PL-0014

Level: Memory

Comments: FHW 12/02 E15 EK1.1

35. FW-B.5 001

Given the following plant conditions and information:

- Unit One is at 100% rated thermal power
- Feedwater Master Controller and Feedwater Pump Speed Controllers are in AUTOMATIC.
- Main Feedwater Regulating Valves are in AUTOMATIC.
- All four main feedwater flows start increasing with level in all four steam generators trending upwards.

For information:

- PT-1-33 is a Main steam header pressure transmitter
- PT-3-1 is a Main feedwater header pressure transmitter

Which ONE of the following describes the instrument failures that could have caused this transient?

- A. PT-1-33 has failed LOW and PT-3-1 has failed LOW.
- ✓B. PT-1-33 has failed HIGH and PT-3-1 has failed LOW.
- C. PT-1-33 has failed HIGH and PT-3-1 has failed HIGH.
- D. PT-1-33 has failed LOW and PT-3-1 has failed HIGH.

35. FW-B.5 001

- A. PT-1-33 failing low would cause a high delta-P and the MFPT control system would reduce MFPT speed causing low feed flow and decreasing SG levels. The results of PT-3-1 failing low are described in "B" below.
- B. Correct. Feedwater header pressure is normally higher than steam header pressure by a programmed value of 80 psid at 0% totalized steam flow and 195 psid at 100% totalized steam flow. PT-1-33 failing high OR PT-3-1 failing low would indicate a lower than normal delta-P between steam header pressure and FW header pressure. This would cause the MFPT control system to increase speed in an attempt to restore programmed delta-P. This increased delta-P would increase FW flow and cause SG level to trend upward. The FW regulating valves would be closing in an attempt to reduce SG level back to programmed value.
- C. The results of PT-1-33 failing high are described in "B" above. PT-3-1 failing high would cause a high delta-P and the MFPT control system would reduce MFPT speed causing low feed flow and decreasing SG levels.
- D. PT-1-33 failing low would cause a high delta-P and the MFPT control system would reduce MFPT speed causing low feed flow and decreasing SG levels. PT-3-1 failing high would cause a high delta-P and the MFPT control system would reduce MFPT speed causing low feed flow and decreasing SG levels.

K/A{CFR):	039 K3.04	[2.5/2.6]	[41.7]
059 K1.04	[3.4/3.4]	{41.2, 41.3, 41.4, 41.5, 41.6, 41.7, 41.8, 41.9}	
	059 K6.03	[1.9/2.1]	{41.7}
	059 K6.09	[2.4/2.6]	{41.7}
	059 A2.11	[3.0/3.3]	{41.5, 43.5}

References: 47W611-3-2
OPL271CCOND/FW

LP/Objectives: OPL271C034 Obj. B.5

History: WBNOPS--1.bnk Q# SYS003D.14 001(Modified stem)

Level: Analysis

Comments: LP-5/2000;. FW 004; FHW 12/02 039 K3.04

36. FW-B.5.B 004

Which ONE of the following describes the SSPS input to the MFW Pump trip circuitry?

- A. The SSPS provides a signal to a 120v AC trip solenoid valve which dumps trip oil thus tripping the pump.
- B. The SSPS provides a signal to the overspeed trip plunger which dumps trip oil thus tripping the pump.
- C. The SSPS provides a signal to a 48v DC trip solenoid valve which dumps trip oil thus tripping the pump.
- ✓D. The SSPS provides signals to two 125v DC trip solenoid valves which dump trip oil thus tripping the pump.

- A. Incorrect per reference.
- B. Incorrect per reference.
- C. Incorrect per reference.
- D. Correct per reference.

KA[CFR]: 063 K4.04 [2.6/2.9] [41.7]
 059 K4.16 (3.1-3.2)

References: 1,2-47W611-99-4

LP/Objective: OPL271COND.FW B.12

History: System bank; 9/2/97 Makeup Audit Exam.

Level: Memory

Comments: FHW 12/02 063 K4.04

37. GO-2-B.1 003

When restarting the unit after a trip, a NOTE in 0-GO-2 gives specific guidance about when the operations staff is to declare mode 2.

Which ONE of the following is the correct time to declare MODE 2 per this procedure?

The unit enters mode 2 administratively when:

- ✓A. the control banks are first withdrawn.
- B. the shutdown banks are first withdrawn.
- C. the Keff is $> .99$ and RCS Temperature is $> 350^{\circ}\text{F}$ with Reactor Power less than 5%.
- D. reactor power is greater than or equal to 1% and RCS Temperature is $> 350^{\circ}\text{F}$.

- a. Correct - per NOTE in 0-GO-2. This is an administrative requirement.
- b. Incorrect - per NOTE in 0-GO-2. When control banks are first withdrawn
- c. Incorrect - per NOTE in 0-GO-2. Mode 2 ≥ 0.99 $\leq 5\%$ $\geq 350^{\circ}\text{F}$
- d. Incorrect - per NOTE in 0-GO-2. Mode 2 ≥ 0.99 $\leq 5\%$ $\geq 350^{\circ}\text{F}$

K/A {CFR}: 2.1.22 [2.8/3.3] [43.5]

References: 0-GO-2 R14 section 5.2 [11] note.

LP/Objectives: OPL271C50 B.1

History: Procedure Bank

Level: Memory

Comments: FHW 12/02 2.1.22

38. INCORE-B.1.B 002

The plant Exosensor System calculates RCS subcooling by using which ONE of the following instrument inputs?

- A. Pressurizer pressure and RCS WR T_{hot} .
 - B. Pressurizer pressure and core exit thermocouples.
 - C. RCS WR pressure and RCS WR T_{cold} .
 - ✓D. RCS WR pressure and core exit thermocouples.
- A. Incorrect per reference.
 - B. Incorrect per reference.
 - C. Incorrect per reference.
 - D. Correct per reference.

K/A {CFR}: 016 K1.01 [3.4/3.4] [41.2-9]

References: GOI-6 section P

LP/Objectives: OPL271RCSTEMP, B.9

History: System bank

Level: Memory

Comments: FHW 12/02 016 K1.01 Exosensor also uses non nuclear inputs for RCS subcooling calculation, i.e. RCS WR pressure.

39. INCORE-B.1.D 003

The post-accident monitoring instrumentation for core-exit temperature and saturation margin is located on M4 Control Panel. One of the Main Menu displays on the Channel-I plasma display monitor has an asterisk (*) notation.

Which ONE of the following describes the current alarm associated with the asterisk?

- ✓A. "Any (core-exit) Thermocouple outside Physical Limit." A thermocouple is above or below its limit setpoint.
 - B. "Denotes thermocouple outside of electrical limits."
 - C. "Monitor Mode is in Effect." The channel has been taken off line for calibration from the Auxiliary Instrument Room panel.
 - D. "Diagnostic Channel Error." All capability for calculating Saturation Margin has been disabled.
- A. Correct per reference.
B. Incorrect per reference.
C. Incorrect per reference.
D. Incorrect per reference.

K/A: 017 K6.01 [2.7-3.0] [41.7]

Reference: Incore Temperature Monitoring System Description section 2 "Plasma Display Unit." GOI-6 section P

LP/Objective: Incore Temperature Monitoring System Description Objective 3.

History: Old Bank Number PL-1126

Level: Memory

Comments: FHW 12/02 017 K6.01

90. INPO2 231

Following a large steam line rupture, monitoring of Critical Safety Function Status Trees indicates a RED path for FR-P.1, "Pressurized Thermal Shock."

Which ONE of the statements below correctly identifies the major component and reason for concern that Pressurized Thermal Shock conditions may result in brittle failure?

- A. The RCS piping due to increased stresses resulting from a cooldown of unexpected severity or an overpressure condition at low temperature.
- B. The pressurizer due to increased stresses resulting from a rapid depressurization condition at high temperature.
- C. The steam generator tube sheet due to increased stresses resulting from a rapid overpressure condition at low temperature.
- ✓D. The reactor vessel due to increased stresses resulting from a cooldown of unexpected severity or an overpressure condition at low temperature.
 - a. incorrect per EPM-3-FR-P.1
 - b. incorrect per EPM-3-FR-P.1
 - c. incorrect per EPM-3-FR-P.1
 - d. correct per EPM-3-FR-P.1 "The thermal stress due to a rapid cooldown and the pressure stress are additive in the vessel wall."

K/A {CFR}: 040 AK1.01 [4.1/4.4] [41.8 41.10]

References: EPM-3-FR-P.1

LP/Objectives: OPL271C406 b.3

History: INPO2 231 Bank

Level: Memory

Comments: FHW 12/02 040 AK1.01

31. INPO2 976

Given the following plant conditions:

- A Reactor trip and Safety Injection have occurred due to a SGTR.
- E-3, "Steam Generator Tube Rupture," is in effect with a cooldown started to target temperature.
- The highest S/G pressure is 900 psig.
- RCS pressure is 1000 psig and dropping.
- High Head Safety Injection flow is approximately 300 gpm.

Which ONE of the following describes what should be done with the Reactor Coolant Pumps?

- A. RCP's must be tripped because RCP trip criteria is currently met.
 - ✓B. RCP's must **NOT** be tripped because RCP trip criteria does **NOT** apply once an operator initiated RCS cooldown is commenced.
 - C. RCP's must be tripped because RCP trip criteria applies after an operator initiated RCS depressurization is commenced.
 - D. RCP's must **NOT** be tripped because RCP trip criteria does **NOT** apply until the operator initiated RCS cooldown is completed.
- A. Incorrect per procedure.
 - B. Correct per procedure.
 - C. Incorrect per procedure.
 - D. Incorrect per procedure.

K/A [CFR]: 038 EK3.08 [4.1/4.2] {41.5 41.10}

References: E-3

LP/Objective: OPL271C391 B.3

History: INPO2 976

Level: Comprehension

Comments: FHW 12/02 038 EK3.08

32. INPO3 955

Given the following plant conditions:

- A small break LOCA has occurred.
- SI pumps fail to start.
- RCS Hot Legs and the Reactor Vessel Head have voided.
- RCS Pressure is 775 psig.
- RCP's are tripped in accordance with the EOP network.
- Assume that all other ECCS equipment operates as required.

Which ONE of the following describes the current method of cooling the core?

- A. Break flow is the only core cooling method available.
 - B. Natural Circulation is the principle means of core cooling.
 - C. No core cooling mechanism exists at the present time.
 - ✓D. Break flow and reflux flow are providing core cooling.
- A. Incorrect, the initial conditions due not exclude a S/G heat sink.
 - B. Incorrect, voiding in the hot legs and vessel head does not allow natural circulation.
 - C. Incorrect, a heat sink and break flow cooling still exists.
 - D. Correct, initial conditions would allow break and reflux flow.

K/A [CFR]: 009 EK1.01 [4.2/4.7] {41.8 41.10}

References: EPM-3-ES-0.3 "Check RVLIS upper plenum range."

LP/Objectives: OPL271C383 b.4

History: INPO3 955

Level: Comprehension

Comments: FHW 12/02 009 EK1.01

33. INPO8 155

When synchronizing the Main Generator, procedures direct the operator to adjust the speed of the generator until the synchroscope is rotating slowly in the fast direction. The two parameters indicated by the synchroscope are:

- A. Current and voltage differences.
- ✓B. Frequency and phase differences.
- C. Frequency and current differences.
- D. Current and phase differences.

- A. Incorrect per reference.
- B. Correct per reference.
- C. Incorrect per reference.
- D. Incorrect per reference.

K/A[CFR]: 062 A4.03 [2.8/2.9] [41.7]

References: OPL271MTGC

LP/Objective: OPL271MTGC B.9

History: INPO8 155

Level: Memory

Comments: FHW 12/02 062 A4.03; modified inpo question for SQN MTGC.

94. MFW 001

The Main Feedwater Regulating Bypass Valves receive level input signals from:

- A. Associated SG's Motor Driven Auxiliary Feedwater Level transmitters.
- ✓B. Associated SG's Turbine Driven Auxiliary Feedwater Level transmitters.
- C. Narrow range level signal from the median selector on each SG control circuit.
- D. The non-PAM narrow range level transmitter from the associated SG.

- A. Incorrect per reference.
- B. Correct per reference.
- C. Incorrect per reference.
- D. Incorrect per reference.

KA[CFR]: 059 K1.04 [3.4/3.4] [41.2-9]

References: 1,2-47W611-3-2

LP/Objective: Steam Generator System description section 2. Objective 2

History: System bank

Level: Memory

Comments: FHW 12/02 059 K1.04

35. ODCM-B.5 001

Open reference.

A lightning strike has disabled 0-LS-27-225, Cooling Tower Blowdown Effluent Line and causing both unit's blowdown to isolate. Repairs to the level switch will take about 45 days from today.

Unit 1 needs to restore blowdown to cooling tower blowdown today. Which ONE of the following lists the actions required to **COMPLETELY** address this situation?

- A. Have the lineup for blowdown to cooling tower blowdown double verified and have two samples from each steam generator analyzed independently. Jumper the circuitry so that the blowdown release may be initiated. Initiate blowdown to cooling tower blowdown.
 - B. Jumper the circuitry so that the blowdown release may be initiated. Initiate blowdown to cooling tower blowdown. If RCS dose equivalent I-131 is less than 0.01 microcuries per gram, sample the steam generators every 24 hours. Notify the Chemistry Supervisor when blowdown has been in service for 30 days without 0-LS-27-225 for inclusion in the Annual Radioactive Effluent Release Report.
 - C. Estimate the cooling tower blowdown flow locally. Jumper the circuitry so that the blowdown release may be initiated. Initiate blowdown to cooling tower blowdown. Estimate cooling tower blowdown flow locally every 4 hours during blowdown. No further notifications are required.
 - ✓D. Estimate the cooling tower blowdown flow locally. Jumper the circuitry so that the blowdown release may be initiated. Initiate blowdown to cooling tower blowdown. Estimate cooling tower blowdown flow locally every 4 hours during blowdown. Notify the Chemistry Supervisor when blowdown has been in service for 30 days without 0-LS-27-225 for inclusion in the Annual Radioactive Effluent Release Report.
- A. Incorrect per reference.
 - B. Incorrect per reference.
 - C. Incorrect per reference.
 - D. Correct per reference.

35. ODCM-B.5 001

K/A[CFR]: 2.3.11 [2.7/3.2] [41.11]

References: ODCM Control 1.1.1 action b, Table 1.1-1 action 33

LP/Oblective: OPL271LRW B.3

History: Procedure bank

Level: Comprehension

Comments: FHW 12/02 2.3.11 **Provide copy of ODCM R46 page 13,14,15**

96. OPDP-4 002

A main control room annunciator, HIGH PRESS IN AUX BLDG, has sounded on the 1-M-5 panel repeatedly over the past several hours. You eventually determine that it is a nuisance alarm. All compensatory actions have been taken.

Which ONE of the following actions should you take to remove this short term nuisance alarm from service?

- A. Follow procedure SPP-10.2, "Clearance Procedure", and have the annunciator's input leads lifted and tagged.
 - B. Follow procedure SPP-9.5, "Temporary Alterations", issue a TACF to disable the annunciator by lifting the associated leads at the transmitter.
 - ✓C. Complete Form OPDP-4-1, Disabled Alarm Checklist, including SM signature, and disable the alarm from the MCR.
 - D. Initiate a maintenance work request to have the annunciator disabled in the communications room.
-
- A. Incorrect per reference.
 - B. Incorrect per reference.
 - C. Correct per reference.
 - D. Incorrect per reference.

K/A {CFR}: 2.4.33 [2.4/2.8] [41.10 43.5]

References: OPDP-4

LP/Objectives: OPL271OPSMGMTL B.12

History: Procedure bank

Level: Memory

Comments: FHW 12/02 2.4.33; revised stem to remove similar wording with the correct answer.

37. OPL271C180.3 001

Which ONE of the following assures the operator that the heat flux hot channel factor upper bound times the normalized peaking factor remains within limits in the event of Xenon redistribution following power changes?

- A. Maintaining all control rods at the full out position for the core cycle.
 - B. Maintaining control rods in specified sequence and overlap.
 - C. Maintaining specified rod insertion limits.
 - ✓D. Maintaining axial flux difference within specified limits.
- A. Incorrect per reference. This requirement reduces rod fretting. see TI-28 att 6
 - B. Incorrect per reference.
 - C. Incorrect per reference.
 - D. Correct per reference.

K/A[CFR]: 2.2.25 [2.5/3.7] [43.2]

Reference: TS Bases 3/4.2.1

LP/Objective: OPL271C180 B.3

History: Part B bank, old Bank Number B-0040

Level: Memory

Comments: FHW 12/02 2.2.25

38. OPL271C353.4 001

Given the following plant conditions:

- Unit One is at 100% power.
- All controls are in Normal.
- RCS pressure is 2235 psig.
- The Master Pressure Controller Fails AS IS.

Which ONE of the following will cause actual pressurizer pressure to increase?

- A. Pressurizer Pressure channel fails high.
 - B. A steam line break.
 - ✓C. A fully opened turbine governor valve goes closed.
 - D. RCS Boration at 100% RTP.
- A. incorrect a pressure channel failing high will not increase pressure.
B. incorrect a steam line break will reduce Tave and pressure.
C. correct an increase in RCS temperature will cause expansion of liquid and pressure increase.
D. incorrect a boration will reduce Tave.

K/A[CFR]: 027AK1.02 [2.8/3.1] {41.8 41.10}

Reference: Thermo Basic Energy Concepts-SH1-PT02Sr2.doc

LP/Objectives: OPL271C353 B.4

History: Procedure Bank

Level: Comprehension

Comments: FHW 12/02 027AK1.02

99. OPL271C367.1 002

Unit 1 is operating at 100% RTP when the operating crew observes the following:

- All ice condensers doors open.
- RM-90-106 & 112 radiation increasing.
- Pzr level at approximately 58% and decreasing slowly.
- 1A-A charging pump is running.
- FCV-62-93 fully open.
- RCS pressure 2225 psig and decreasing slowly.
- Cntmt pressure at approximately 0.2 psig and increasing slowly.

Which ONE of the following actions should the operating crew perform FIRST?

- A. Isolate letdown.
- ✓B. Start the 1B-B charging pump.
- C. Start a load decrease.
- D. Initiate a reactor Trip.

A. Incorrect, per procedure

B. Correct, starting an additional charging pump will increase charging flow and aid in determining if the pressurizer level can be stabilized.

C. Incorrect, a load decrease will drop the pressurizer level program and make it more difficult to determine if the pressurizer level can be maintained with charging flow.

D. Incorrect, even though a reactor trip is required if the pressurizer level can not be maintained greater than 10%; that determination has yet to be made since no effect has been made to stabilize the pressurizer level.

The student may recall the AOP requires controlling charging flow; he must understand that an additional charging pump will increase flow as well as taking manual control of FCV-62-93. He must also understand that determining the stability of the pressurizer level is very important and could allow a RCS leak hunt while at power. A reactor trip is not a solution until the stability of the pressurizer level can be determined unable to be maintained greater than 10%.

99. OPL271C367.1 002

K/A[CFR]: 004 2.4.1 [4.3/4.6] [41.10 43.5]

Reference: AOP-R.05

LP/Objectives: OPL271C367 B.2

History: Procedure bank, old Bank Number B-0383C

Level: Comprehension

Comment: FHW 12/02 004 2.4.1

30. OPL271C367.1 003

Unit 1 is at 100% RTP when a small RCS leak develops. The operating crew takes the necessary actions to stabilize PZR level. Subsequently to these actions the crew attempts to determine the leakage source. After isolating letdown, the crew observes the following parameters/indications:

- Letdown flow 0 gpm
- Cntmt pressure approximately 0.2 and decreasing
- RCS pressure approximately 2235
- Pzr level approximately 65% and increasing
- Charging flow 40 gpm
- Cntmt radiation monitors decreasing

Which ONE of the following actions should the SRO direct the operating crew perform next?

- A. Proceed to Cold Shutdown per AOP-C.03 .
- ✓B. Place excess letdown inservice and adjust charging flow.
- C. Immediately trip the reactor.
- D. Decrease turbine load to approximately 50% at 2%/min.

A. Incorrect, AOP-C.03 Emergency Shutdown is entered for conditions that require a rapid shutdown without a reactor trip. Since pressurizer level is stabilized and the other initial conditions indicated the RCS leak has been isolated a rapid shutdown is not required per AOP-R.05.

B. Correct, the RCS leak was determined to be on normal letdown. Therefore to maintain pressurizer level and RCS chemistry (chemical feed and boration) excess letdown is required.

C. Incorrect, the initial conditions do not require a reactor trip.

D. Incorrect, a load reduction of 2%/min is within the guidelines of AOP-C.03, Emergency Shutdown which is not required since the RCS leak is isolated.

The student must understand from the initial conditions the RCS leak was on the letdown line and has been isolated. In order to maintain pressurizer level and chemistry excess letdown is required.

00. OPL271C367.1 003

K/A[CFR]: 011 2.1.6 [2.1/4.3] [43.5]

Reference: AOP-R.05
EA-62-3

LP/Objectives: OPL271C367 B.2

History: Procedure bank, old Bank Number B-0383D

Level: Comprehension

Comments: FHW 12/02 011 2.1.6

01. OPL271C368.3 001

Unit One is taking actions to mitigate a loss of offsite power. Fifteen (15) seconds after 1A-A 6.9kv shutdown board was energized by the 1A-A D/G the Operator noticed the 1A-A CCP was **NOT** running and the 1A-A AFW pump was **NOT** running.

What, if any, should be the Operator's next action?

- ✓A. Manually start the 1A-A CCP, then monitor the 1A-A AFW pump for auto start.
- B. Manually start the 1A-A CCP and the 1A-A AFW pump.
- C. Nothing, the 1A-A CCP and the 1A-A AFW pump load sequencers have **NOT** timed out for starting.
- D. Nothing, the 1A-A CCP and 1A-A AFW pump sequencers function only with a black out and SI signal combined.
- A. Correct, the CCP should have auto started and the AFW pump sequencer has not timed out for auto start.
- B. Incorrect, the AFW pump sequencer has not timed out for auto start.
- C. Incorrect, the CCP sequencer should have auto started.
- C. Incorrect, the CCP and AFW sequencer will function for a black out only as well as for a black out and SI combined.

K/A {CFR} 056 AK3.01 [3.5/3.9] {41.5 41.10}
064K4.10 [3.5-4.0] {41.7}

References: AOP-P.1 appendix B

LP/Objective: OPL271C368 B.4

History: Develop1 Bank

Level: Memory

Comments; FHW 12/02 056 AK3.01

2. OPL271C379.3 001

The plant is operating and the following conditions exists:

Reactor power = 58% slowly increasing
RCS pressure = 2210 psig slowly decreasing
Auctioneered T-avg = 560°F slowly decreasing
Turbine power = 595 MW (steady - no change)
S/G levels = 44% stable
Steam pressure = 900 psig slowly decreasing
Containment pressure = approximately 0.5 psig slowly increasing

Based on the indications listed above, the most likely event in progress is which ONE of the following?

- A. LOCA inside containment.
 - ✓B. Steamline break inside containment.
 - C. Steamline break outside containment.
 - D. LOCA outside containment.
- A. Incorrect, RCS pressure is dropping slowly, reactor power in increasing.
B. Correct with initial conditions.
C. Incorrect, containment pressure is slowly increasing.
D. Incorrect, RCS pressure is dropping slowly, reactor power in increasing, containment pressure is slowly increasing.

K/A[CFR]: 040 AA2.01 [4.2/4.7] [43.5]

Reference: AOP-S.05 symptoms

LP/Objective: OPL271C390 B.2

History: Part B, old Bank Number B-0185

Level: Analysis

Comments: FHW 12/02 040 AA2.01

Comment: Reactor power is slowly increasing due to T-Avg slowly decreasing. Containment pressure is above TS limits and slowly increasing. The cause for these symptoms is an accident in containment which drops T-Avg. The correct answer is steam line break inside containment.

03. OPL271C382.4 001

Which ONE of the following indicates natural circulation?

- ✓A. Core exit thermocouples decreasing; T-HOT decreasing; RCS subcooling increasing.
- B. Core exit thermocouples decreasing; T-HOT decreasing; RCS subcooling decreasing.
- C. T-HOT increasing slowly; T-COLD decreasing; RCS subcooling increasing.
- D. Core exit thermocouples increasing slowly; SG pressure decreasing; RCS subcooling decreasing.

- A. Correct per ES-0.2.
- B. Incorrect due to subcooling decreasing.
- C. Incorrect due to T-COLD decreasing.
- D. Incorrect due to RCS subcooling decreasing.

K/A [CFR]: E09 EA1.1 [3.5/3.5] {41.7}

Reference: EA-68-6

LP/Objectives: OPL271C382 b.4

History: Old Bank Number PL-0904

Level: Comprehension

Comments: FHW 12/02 E09 EA1.1

04. OPL271C458.1 001

Per SPP-10.0, Plant Operators, under which ONE of the following conditions can an individual without a license manipulate controls that directly affect reactivity.?

- A. A licensed operator trainee under the direction and in presence of an inactive licensed Senior Reactor Operator.
 - B. When the individual has taken the NRC License Examination and is awaiting results for confirmation.
 - ✓C. A licensed operator trainee under the direction and in presence of an active licensed Reactor Operator.
 - D. When the licensed Reactor Operator requires assistance and asks for any individual's help.
- A. Incorrect per reference.
 - B. Incorrect per reference.
 - C. Correct per reference.
 - d. Incorrect per reference.

K/A[CFR]: 2.1.10 [2.7/3.9] [43.1]

Reference: SPP-10.0 R2

LP/Objectives: OPL271OPSMGMTL B.21

History: Procedure bank, old Bank Number B-0743

Level: Memory

Comments: FHW 12/02 2.1.10: Modified stem and distractors to conform to requirements of SPP-10.0.

05. PI-B.10 001

Which ONE of the following radiation detectors will initiate a Containment Ventilation Isolation Signal on high radiation level?

- A. Lower Containment Particulate Detector.
 - ✓B. Containment Purge Radiation Detector.
 - C. Containment High-Range Area Detector.
 - D. Spent Fuel Pit Continuous Air Monitor Detector.
-
- A. Incorrect per reference.
 - B. Correct per reference.
 - C. Incorrect per reference.
 - D. Incorrect per reference.

K/A[CFR]: 029 A1.02 [3.4/3.4] [41.5]

Reference: 0-SO-30-3

LP/Objective: OPL271C013 B.4

History: System bank, old Bank Number PL-0280

Level: Memory

Comments: FHW 12/02 029 A1.02

06. PRT-B.7 004

Unit 2 was operating at 90% after a start-up from a refueling outage. A PORV is found to be leaking and the PORV block valve was shut. Given the following PRT conditions:

- Level - 80%
- Pressure - 6 psig
- Temperature - 145 °F

What action is required to restore normal operating conditions to the PRT?

- A. Increase PRT nitrogen blanket pressure to 8 psig.
 - B. Vent/purge the PRT to the waste gas system.
 - ✓C. Initiate cooling of the PRT.
 - D. Lower the PRT level .
- A. Incorrect, increasing to 8 psig would bring in the high pressure alarm per reference.
B. Incorrect, venting is not required at 6 psig per reference.
C. Correct, alarm setpoint is 132° F per reference.
D. Incorrect, the level has not reached high alarm level of 88% per reference.

Look and see if 2.1.32 is a better fit

K/A[CFR]: 007 2.1.10 [2.7/3.9] [43.1]
007 2.1.32 [3.4/3.8] [41.10 43.2]

References: 2-SO-68-5
2-AR-M5-A, (C-1)

LP/Objectives: OPL271PRT B.8

History: System bank

Level: Comprehension

Comments: FHW 12/02 007 2.1.32; modified "A" distractor to remove similar conditions as "B" distractor.

07. PZR LEVEL-B.14 003

Given the following plant conditions:

- Reactor power is 60%
- Pressurizer pressure is 2240 psig
- Charging flow is being controlled in MANUAL
- All other controls are in AUTOMATIC
- The backup heaters just ENERGIZED

Which ONE of the following would be the indicated pressurizer level?

- A. 41%
- B. 43%
- C. 46%
- ✓D. 51%

46% is the programmed PZR level for 60% power, +5% above program is the level which energizes the backup heaters.

K/A: 2.1.7 [3.7/4.4] [43.5]

Reference: TI-28
1-AR-M5-A (E-4)

Objective: OPL271C019, B.6

History: System bank

Level: Analysis

Comments: FHW 12/02 2.1.7

08. PZR PRESS-B.9 006

Given the following plant conditions:

- Unit 2 is operating at 100% power.
- PZR level at 60% and both PZR spray valves in manual and closed.
- MIG is investigating erratic responses.
- A main turbine control failure results in a rapid load reduction.
- RCS temperature, PZR level, and PZR pressure rise rapidly.
- The RO stabilizes RCS pressure at 2300 psig by manually opening one spray valve.
- Pressure is held constant at 2300 psig for an extended period of time.
- The RO then observes that PZR level is 68%.
- Pressurizer pressure master pressure controller output has increased to 85%.
- PCV-68-340 and PCV-68-334 are closed.
- The "Pressurizer Level High / Low" alarm is **NOT** lit.
- Backup heaters are on.

Which ONE of the following describes the status of the Pressurizer Pressure & Level Control systems?

- ✓A. Functioning properly.
 - B. Malfunctioning because PCV-68-334 and 340 should be open.
 - C. Malfunctioning because "Pressurizer Level High\Low" should be in alarm.
 - D. Malfunctioning because the backup heaters should be de-energized.
-
- A. Correct per reference.
 - B. Incorrect the 2335 psig bistable logic is not made.
 - C. Incorrect the alarm setpoint is 70% span increasing, 5 percent of span deviation below program level. 68% level is above program level but less than 70%.
 - D. Incorrect, the backup heaters should be on because PZR level is more than 5% of span above level program. For 100% power PZR program level is 60%.

08. PZR PRESS-B.9 006

K/A {CFR}: 027 G 2.1.7
2.1.31 [4.2/3.9] [45.12]

References: AOP-I.04 and 2-AR-M5-A (C-3), (E-4)

LP/Objectives: OPL271PZRLCS B.9
OPL271PZRPCS B.9

History: System bank

Level: Comprehension

Comments: FHW 12/02 2.1.31

09. RADIATION 002

Which ONE of the following statements is correct concerning the SQN ALARA program?

- ✓A. The SQN Plant Manager must approve all lower containment entries inside the polar crane wall when the unit is in Mode 1.
 - B. The SQN Site Vice President must approve all lower containment entries inside the polar crane wall when the unit is in Mode 1 or 2.
 - C. The SQN Plant Manager must approve all lower containment entries inside the polar crane wall when the unit is in Mode 1 or 2.
 - D. The SQN Site Vice President must approve all lower containment entries inside the polar crane wall when the unit is in Mode 1.
-
- A. Correct - As described in RCI-10 ALARA Program
 - B. Incorrect - Plant Manager must approve entry only in MODE 1.
 - C. Incorrect - Plant Manager must approve entry only in MODE 1.
 - D. Incorrect - Plant Manager must approve entry only in MODE 1.

K/A {CFR}: 2.3.2 [2.5/2.9] [41.12 43.4]

References: RCI-10 R27 section 5.0.

LP/Objectives: OPL271C260 B.9

History: Admin bank

Level: Memory

Comments: FHW 12/02 2.3.2

10. RADWASTE-B.12 006

Which ONE of the following explains why the Liquid Radwaste Processing System Monitor Tank is recirculated for one hour before being sampled?

- A. Eliminates thermal stratification.
 - ✓B. Provides homogeneous mixture for sampling.
 - C. Minimizes accumulation of radioactive material in tank.
 - D. Reduces deposition of chemical precipitates (boron) in tank.
-
- A. Incorrect per reference.
 - B. Correct per reference.
 - C. Incorrect per reference.
 - D. Incorrect per reference.

K/A [CFR]: 068 K4.01 [3.4/4.1] [41.7]

Reference: ODCM section 6.1.1

LP/Objective: OPL271LRW B.12

History: System bank

Level: Memory

Comments: FHW 12/02 068 K4.01

11. RADWASTE-B.12 008

What TWO conditions will independently cause automatic closure of Liquid Radwaste Release Valve, 0-RCV-77-43?

- ✓A. Low cooling tower blowdown flow, and high radiation sensed in the release header.
 - B. Low cooling tower blowdown flow, and high radiation sensed in the cooling tower blowdown flow.
 - C. High release header flow, and high radiation sensed in the release header.
 - D. High release header flow, and high radiation sensed in the cooling tower blowdown flow.
-
- A. Correct per reference.
 - B. Incorrect per reference.
 - C. Incorrect per reference.
 - D. Incorrect per reference.

K/A {CFR}: 068 A3.02 [3.6/3.6] [41.7]

References: 1,2-47W611-77-2

LP/Objectives: OPL271LRW B.12

History: System bank

Level: Memory

Comments: Reviewed by T Jetton, FHW 12/02 068 A3.02

12. RCI-15 001

A pipe elbow on the spent resin transfer line in the EI 690 Pipe Chase is producing a 500 mr/hr field at 30 centimeters from the elbow.

Which ONE of the following identifies the proper posting requirement for the area surrounding the pipe elbow?

- ✓A. CAUTION, HIGH RADIATION AREA
- B. DANGER, AIRBORNE RADIATION AREA
- C. DANGER, VERY HIGH RADIATION AREA
- D. GRAVE DANGER, VERY HIGH RADIATION AREA

- A. Correct per reference.
- B. Incorrect per reference.
- C. Incorrect per reference.
- D. Incorrect per reference.

K/A {CFR}: 2.3.1 [2.6/3.0] [41.12/43.4]

References: RCI-15 R12 section 6.8.

LP/Objectives: OPL271C260 B.3

History: HLC 9809 Audit Exam

Level: Memory

Comments: FHW 12/02 2.3.1; modified stem for a correct answer.

13. RCP-B.12 002

Which ONE of the following is the reason that the RCP's have an anti-reverse rotation device installed on the pump rotor?

- A. Prevent any reverse flow through a tripped RCP when other RCP's are running.
- B. Prevent overheating of pump bearings due to a tripped RCP rotating without normal internal cooling flow.
- C. Prevent damage to the pump thrust bearing due to operation in the reverse direction.
- ✓D. Prevent stator winding damage due to excessive pump starting current.

- A. Incorrect per reference.
- B. Incorrect per reference.
- C. Incorrect per reference.
- D. Correct per reference.

K/A [CFR] 003 A1.03 [2.6/2.6] [41.5]

Reference: RCP system description section 2.0

LP/Objective: RCP System Description Objective 12.

History: System bank

Level: Memory

Comments: FHW 12/02 003 A1.03

14. RCS-TEMP-B.2 008

Which ONE of the following temperature elements is used to supply a temperature compensation signal to correct for the Reactor Coolant liquid-density and/or steam-density changes for the Reactor Vessel Level Indicating System (RVLIS) level transmitter outputs?

- A. RCS wide-range cold-leg temperature elements.
 - ✓B. RCS wide-range hot-leg temperature elements.
 - C. Hot-leg RVLIS instrument-line temperature elements.
 - D. Cold-leg RVLIS instrument-line temperature elements.
- A. Incorrect per reference.
 - B. Correct per reference.
 - C. Incorrect per reference.
 - D. Incorrect per reference.

K/A [CFR]: 016 A3.02 [2.9/2.9] [41.7]

Reference: 1-47W610-68-7
RCS temperature system description page 2-4.

LP/Objective: OPL271RCSTEMP B.11

History: System bank, old Bank Number PL-1148.

Level: Memory

Comments: FHW 12/02 016 A3.02

15. RCW-B.9 001

Which ONE of the following is the source of water for the Raw Cooling Water System?

- A. Emergency Raw Cooling Water System
- B. Raw Service Water System
- ✓C. Condenser Circulating Water System
- D. High Pressure Fire Protection System

- A. Incorrect per reference.
- B. Incorrect per reference.
- C. Correct per reference.
- D. Incorrect per reference. Fire protection is used for a backup to the CTLP bearing lube water.

K/A[CFR]: 075 K1.01 [2.5/2.5] [41.2-9]

References: 1-47W844-1

LP/Objective: OPL271CCW B.9

History: System bank

Level: Memory

Comments: FHW 12/02 075 K1.01

16. RDCNT-B.7.B 001

Unit 1 was operating at 60% power. Given the following events and conditions:

- Pressurizer pressure decreased to 1940 psig.
- The SSPS train "A" low PZR pressure trip logic relay failed to actuate.

What effect would this failure have on the function of the reactor protection system?

- A. The reactor would **NOT** trip because the Train A logic relay would not remove power from the UV coil for RTA.
 - B. The reactor would **NOT** trip because the Train B logic relay would not remove power from the UV coil for RTA.
 - ✓C. The reactor would trip because the Train B logic relay would remove power from the UV coil for RTB.
 - D. The reactor would trip because the Train B logic relay would remove power from the UV coil for RTA.
-
- A. Incorrect per reference.
 - B. Incorrect per reference.
 - C. Correct per reference.
 - D. Incorrect per reference.

K/A {CFR}: 012 K2.01 [3.3/3.7] [41.7]

References: 1,2-47W611-99-1

LP/Objectives: OPL271RPS, b.11

History: Systems bank

Level: Comprehension

Comments: FHW 12/02 012 K2.01

17. REFUELING-B.1.G 001

Which ONE of the following identifies the requirement for RHR cooling loops while in the refueling mode with no core alterations near the hot legs?

- ✓A. When > 23 feet in cavity only one RHR loop is required to be operable and in operation.
 - B. When < 23 feet in cavity only one RHR loop is required to be operable.
 - C. When < 23 feet in cavity two RHR loops are required to be operating.
 - D. When > 23 feet in cavity two RHR loops are required to be operable and one in operation.
-
- A. Correct per reference.
 - B. Incorrect per reference.
 - C. Incorrect per reference.
 - D. Incorrect per reference.

K/A: 2.2.26 [2.5/3.7] [43.5]

Reference: Tech Spec 3.9.8.2
Tech Spec 3.9.8.1

Objective: OPL271c269, b.1.g

Level: Memory

History: Procedure bank

Comments: FHW 12/02 2.2.26

18. REP-B.1.D 002

Select the **LOWEST** emergency classification from the list below that requires activation of the Technical Support Center. Do **NOT** consider a security event.

A. Notification of Unusual Event

✓B. Alert

C. Site Area Emergency

D. General Emergency

A. Incorrect per reference.

B. Correct per reference.

C. Incorrect per reference.

D. Incorrect per reference.

K/A[CFR]: 2.4.39 [3.3 - 3.1] [45.11]

2.4.29 [2.6 - 4.0] [43.2]

Reference: EPIP-6 R34 section 3.2.3.

LP/Objective: OPL271C198, B.1.

History: Procedure bank, old Bank Number PL-0308

Level: Memory

Comments: FHW 12/02 2.4.39

19. RHR-B.13.H 001

Given the following plant conditions:

- Plant cooldown in progress using two trains of RHR.
- The flow is 2500 gpm per train.
- The RCS cooldown rate is too high.
- The RCS temperature is 250°F.

Which ONE of the following operator actions is required to **DECREASE** the RCS cooldown rate while maintaining constant RHR flow?

- A. Close the Component Cooling water outlet valves on one RHR heat exchangers.
- B. Throttle open the RHR heat exchanger bypass valve.
- C. Throttle the outlet valves on the RHR heat exchangers closed to decrease the cooldown rate.
- ✓D. Throttle open the RHR heat exchanger bypass valve and throttle closed the RHR heat exchanger outlet valves.

- A. Incorrect per reference.
- B. Incorrect per reference.
- C. Incorrect per reference and decreased flow could lead to vortex.
- D. Correct per reference.

K/A [CFR]: 005 A1.01 [3.5/3.6] [41.5]

Reference: 0-SO-74-1 R39 section 5.6

LP/Objective: OPL271RHR B.12

History: Systems bank

Level: Memory

Comments: FHW 12/02 005 A1.01

20. RMS-B.2 004

Which ONE of the following Common Radiation Monitor 0-XA-55-12B annunciators in alarm indicates an area high radiation condition?

- A. (A-5) 0-RA-90-132A SERVICE BLDG VENT MON HIGH RAD
 - B. (B-1) 0-RA-90-101A AUX BLDG VENT MONITOR HI RAD
 - ✓C. (B-3) 0-RA-90-102A FUEL POOL RAD MONITOR HIGH RAD
 - D. (C-7) 0-RA-90-125A MAIN CNTRL RM INTAKE MON HIGH RAD
-
- A. Incorrect per reference.
 - B. Incorrect per reference.
 - C. Correct per reference.
 - D. Incorrect per reference.

K/A: 072 A1.01 [3.4/3.6] [41.5]

Reference: 0-XA-55-12B (B-3)

LP/Objective: OPL271C013, B.2

Level: Memory

History System bank (Developed 7/23/98)

Comments: FHW 12/02 072 A1.01

21. RMS-B.9 001

A Waste Gas Decay Tank is being vented to atmosphere using the normal gaseous waste discharge path. If high gaseous activity exists in this tank, which ONE of the following radiation monitors would generate an alarm?

- A. Auxiliary Building Ventilation Monitor [RE-90-101].
- B. Containment Purge Air Exhaust Monitor [RE-90-130].
- C. Service Building Ventilation Monitor [RE-90-132].
- ✓D. Shield Building Ventilation Monitor [RE-90-400].

- A. Incorrect per reference.
- B. Incorrect per reference.
- C. Incorrect per reference.
- D. Correct per reference.

K/A {CFR}: 071 A1.06 [2.5/2.8] [41.5]
073 K1.01 (3.6 - 3.9)
073 A4.01 (3.9 - 3.9)

Reference: 1,2-47W611-77-4
0-SO-77-15

LP/Objective: OPL271GRW B.11

History: System bank

Level: Memory

Comments: FHW 12/02 071 A1.06

22. RPS-B.5.B 001

The Reactor Protection System manual handswitches in the Control Room are operated in an attempt to trip the Reactor during an ATWS event.

Which ONE of the following describes how the Reactor Trip Breaker's trip attachments should respond to operation of a manual Reactor Trip handswitch?

- A. The SSPS undervoltage trip attachments and the 125V-DC trip attachments must both deenergize to trip the Reactor.
- ✓B. The SSPS undervoltage trip coils must deenergize, while the 125V-DC trip coils must energize to trip the Reactor.
- C. The SSPS undervoltage coils will energize and the 125V-DC trip coils are deenergize.
- D. The 125V-DC trip coils will energize, while the SSPS undervoltage coils will be energize.

- A. Incorrect, 125V-DC trip coil will energize.
- B. Correct, per reference.
- C. Incorrect, 125V-DC trip coil will energize.
- D. Incorrect, the undervoltage coil will deenergize.

K/A[CFR]: 012 A3.07 (4.0 / 4.0)
029 EK2.06 [2.9/3.1] {41.7}

Reference: 0-47W611-99-1

LP/Objective: OPL271RPS, b.9

History: System Bank old Bank Number PL-0811

Level: Comprehension

Comments: FHW 12/02 029 EK2.06

23. RVINT-B.8 001

Technical Specification 3.4.9, Pressure/Temperature Limits curves are for limiting Reactor Coolant System cooldown rates.

Which ONE of the following describes the technical specification basis for using the composite curves for limiting reactor vessel cooldown?

- A. The thermal gradients produced during cooldown produce compressive stresses at the inside of the reactor vessel wall, therefore the cooldown rate is limited to 200°F/Hr.
 - B. The thermal gradients produced during cooldown produce tensile stresses at the outside of the reactor vessel wall, therefore the cooldown rate is limited to 200°F/Hr.
 - ✓C. The cooldown procedure is based on measurement of reactor coolant temperature, whereas the limiting pressure is actually dependent on the reactor vessel temperature at the tip of the assumed flaw, therefore the cooldown rate is limited to 100°F/Hr.
 - D. The cooldown procedure is based on measurement of reactor coolant pressure, whereas the limiting temperature is actually dependent on the reactor vessel stress at the tip of the assumed flaw, therefore the cooldown rate is limited to 100°F/Hr.
-
- A. Incorrect because the thermal gradients produced during cooldown produce tensile stresses at the inside of the reactor vessel wall.
 - B. Incorrect because the thermal gradients produced during cooldown produce compressive stresses at the outside of the reactor vessel wall.
 - C. Correct because there is no way to measure the reactor vessel temperature at the tip of the assumed flaw.
 - D. Incorrect because the cooldown procedure is based on measurement of reactor coolant temperature, whereas the limiting pressure is actually dependent on the reactor vessel temperature at the tip of the assumed flaw.

23. RVINT-B.8 001

K/A: 2.2.25
039 K5.05 [2.7/3.1] [41.5]

Reference: Technical Specifications, page B 3/4 4-12
0-GO-7 R27 section 3.2 C. and D.

LP/Objective: OPL271RVINT, B.5

History: New question (Developed 7/17/98)

Level: Memory

Comments: FHW 12/02 039 K5.05

125. SPP-9.5 001

Which ONE of the following states responsibilities of the designated Senior Reactor Operator for normal installation of Temporary Alterations (TA) on quality related equipment?

- A. Determine the need for environmental evaluation by the Environmental Section and reactivity management evaluation by Reactor Engineering.
- B. Verify all required reviews and documentation have been completed, prepare the TA Tags and place the TA tags after the TA is installed.
- ✓C. Review the TACF to ensure required reviews and an engineering 50.59 review have been completed and that the TA can be performed without adverse effect on plant operation.
- D. Perform a 10CFR50.59 evaluation on the TA to ensure it won't have an adverse affect on plant operation and review the TA to determine if training is needed prior to installation.

- A. Incorrect - This is done by the Environmental Section
- B. Incorrect - Performed by System or Design Engineer
- C. Correct - per SPP 9.5 "Temporary Alterations"
- D. Incorrect - Done by System or Design Engineer

K/A {CFR}: 2.2.9 [2.0/3.3] [43.3]

References: SPP-9.5

LP/Objectives: OPL271OPSMGMTL B.11

History: Procedure bank

Level: Memory

Comments: FHW 12/02 2.2.9

26. T.S-2.1-B.2 001

Open Reference.

Unit 2 was operating at 60% power when an event occurred. All 3 pressurizer safety valves lifted. T-ave peaked at 680°F and the RCS pressure transient reached 2675 psig.

The unit tripped and RCS temperature and pressure rapidly decreased.

Which ONE of the following describes the Tech Spec action applicable to this transient (prior to rods tripping)?

- A. Reduce the RCS pressure to within its limit within 5 minutes.
- B. Reduce the RCS pressure to within its limit within 1 hour.
- C. No action is required because RCS pressure never exceeded 2735 psig.
- ✓D. Be in Hot Standby within 1 hour.

- A. Incorrect because initial conditions are mode 1.
- B. Incorrect because RCS pressure never exceeded 2735 psig.
- C. Incorrect TS 2.1.1 was exceeded.
- D. Correct per references.

K/A {CFR}: 027 AA2.04 [3.7/4.3] [43.5]

References: Tech Spec Safety Limit 2.1.1 and Figure 2.1-1.

LP/Objectives: OPLI271C075, B.2

History: Tech Spec bank

Level: Analysis

Comments:

FHW 12/02 027 AA2.04 ; Modified the stem and distractors for analysis. **Provide safety limits figure 2.1-1. DO NOT provide safety limit 2.1.1 since this is a required memory one hour action.**

27. T/S0304.02 003

Unit One is starting up from Cold Shutdown. The 0-SI-OPS-000-004.0 procedure has acceptance criteria that requires, the primary and secondary Steam Generator metal temperatures shall be verified greater than 70°F on an hourly basis when RCS or Steam Generator pressures is greater than 200 psig and no RCP is in service.

This acceptance criteria will prevent

- A. rapid depressurization of the RCS and subsequent injection of non-condensable gases upon RCP start.
- B. subsequent reactivity excursion on RCP start.
- C. pressurized thermal shock of the reactor vessel.
- ✓D. pressurized thermal shock of Steam Generators.

- A. Incorrect per reference.
- B. Incorrect per reference.
- C. Incorrect per reference.
- D. Correct per reference.

K/A [CFR]: 003 K4.02 [2.5/2.7] [41.7]

Reference: 0-GO-1 section 3.2.K
0-SI-OPS-000-004.0 Appendix A Table 1 acceptance criteria.
TS 3.7.2 and TS bases 3/4.7.2.

LP/Objective: OPL271C181 B.2

History: Develop one bank.

Level: Comprehension

Comments: Modified the question to SQN LCO 3.7.2 which has different criteria.
FHW 12/02 003 K4.02

128. WGDS-B.12 001

Given the following:

- A waste gas decay tank release was in progress.
- RM-90-118, Waste Gas Discharge Radiation Monitor, is in service.
- 0-RA-90-118A WDS GAS EFF MON HIGH RAD annunciator alarms.
- RCV-77-119, Gas Release Header Flow Control Valve, has tripped closed.
- The Chemlab has performed a backup sample analysis on the waste gas decay tank.
- A new release permit has been issued, RM-90-118 setpoint has been adjusted, and approval has been granted to resume the release.

Which ONE of the following is (are) the **MINIMUM** action(s) to take for RCV-77-119 (Gas Release Header Flow Control Valve) in order to continue the waste gas release?

- A. Reset the valve locally and allow it to automatically re-open.
 - ✓B. Take the valve controller to ZERO (0), then re-open the valve.
 - C. Purge the release line with nitrogen until RM-90-118 returns to background, reset the valve locally, then re-open the valve.
 - D. Place the PROCESS RADMON SYS BLOCK SW TRAIN "A" to the RM-90-118 position, take the controller to ZERO (0), then re-open the valve.
- A. Incorrect per reference.
 - B. Correct per reference.
 - C. Incorrect per reference.
 - D. Incorrect per reference.

Student must comprehend this situation requires a new procedure for the second release and begins at step one.

K/A[CFR]: 071 A4.26 [3.1/3.9] [41.7]

Reference: 0-SO-77-15 section 6.0 [15] and [22].

Objective: OPL271GRW, B.12

History: Modified from 97 Summer NRC Exam

Level: Comprehension

Comments: FHW 12/02 071 A4.26