

Final Submittal

V. C. SUMMER EXAM
50-39512004-302

APRIL 19 - 23, 2004
April 28, 2004 (written)

1. Final RO Written Exam with KAs,
Answers, References, and Analysis

**U.S. Nuclear Regulatory Commission
Site-Specific
RO Written Examination**

Applicant Information

Name:	
Date:	Facility/Unit: Virgil C. Summer Nuclear Station
Region: II	Reactor Type: W
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination you must achieve a final grade of at least 80.00 percent. Examination papers will be collected six hours after the examination starts.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

Applicant's Signature

Results

Examination Value:	_____	Points
Applicant's Score:	_____	Points
Applicant's Grade:	_____	Percent

1. 003AK1.01001

The Unit has experienced a dropped rod event and T_{avg} has stabilized 60F below T_{ref} .

Which **ONE** of the following methods is used to restore T_{avg} to within 5°F of T_{ref} in accordance with AOP-403.6 "Dropped Control Rod?"

- A. Dilute the RCS to displace boron adding positive reactivity.
- B. Withdraw control rods in manual, to add positive reactivity.
- C. Increase turbine load to allow xenon to adjust temperature.
- D. Reduce turbine load to allow power defect to add positive reactivity.

Bank Question from Turkey Point. Similar to Summer Bank Question.
Summer AOP 403-6 Enabling Objective # 2436, 2437, and 2438.

- A. Incorrect, the procedure does not direct diluting the RCS.
- B. Incorrect, the procedure does not direct using control rods to adjust temperature.
- C. Incorrect, increasing turbine load would lower T_{avg} .
- D. Correct, reducing turbine load to raise T_{avg} is directed by AOP 403.6.

2.003K6.14001

- The Unit is in Mode 1, 33% power and increasing reactor power per GOP-4A.
- At 0330, high vibration alarms are received on "A" RCP and the CRS directs that "A" RCP be secured.
- The crew begins a unit shutdown at 1% per minute due to the loss of the "A" RCP at 0335.
- I&C investigation reveals that the problem was due to a bad module in the Bentley Nevada vibration indicator and that repairs can be completed by 0400.
- Management has requested that Operations restart "A" RCP as soon as possible and has asked for a time estimate.

Which ONE of the following is the appropriate response for the crew?

- A. Stop the power decrease at this time. Once I&C has verified that the repairs to the vibration panel can be completed and retests are performed, restart "A" RCP prior to 0435.
- B. Continue decreasing power at 1/2% per minute until I&C can complete repairs and retests, then start "A" RCP prior to 0430.
- C. Stop the power decrease at this time. Since the "A" RCP was tripped due to a bad indication and not a true high vibration condition, the only requirement is that the pump be restarted before 0435.
- D. Continue decreasing power at the rate specified by the CRS and be in Hot Standby before 0430. "A" RCP cannot be restarted prior to Mode 3.

Modified from Bank question 318. Summer Objective # AB-2-07. Licensee wrote new question; placed into bank 4/13/2004.

- A. Correct, at least 30 minutes have elapsed since the pump was secured.
- B. Incorrect, at least 30 minutes between start attempts is a precaution and limitation.
- C. Incorrect, this time is too soon.
- D. Incorrect, the time is too soon and PCV-145 does not have to be in manual.

3. 004K6.14.001

Which ONE of the following describes the effect of having to close MVG-8109A, "CHG PP MINI FLO" to isolate a leak?

- A. The "A" charging pump will not have miniflow protection and could overheat during low flow conditions.
- B. With MVG-8109A closed, the "A" charging pump would have to be secured to prevent lifting the seal return line relief.
- C. The 'A' Charging pump running without miniflow could cause the seal return pressure to increase affecting RCP seals.
- D. With MVG 8109A closed, the "A" charging pump may not develop the required flow if a safety injection and loss of offsite power occurred.

New Question. Summer Objective AB-3-15.

- A. Correct, this is the function of the chg pump miniflows.
- B. Incorrect, the miniflow being closed would not cause this pressure to increase.
- C. Incorrect, with the miniflow closed this pump running would have no effect on RCP seats.
- D. Incorrect, the charging pump is designed to operate with the valves closed during a safety injection.

4. 00544.01 001

- The Plant is solid with temperature being controlled via **RHR** in auto.
- Due to maintenance problems RCS pressure is being controlled by the operator by using **PCV-145**, and **FCV-122** in MANUAL.
- The Running **RHR** pump trips.

Which ONE of the following describes the response of **RCS** pressure, and the action the operator should take to return **RCS** Pressure to its pre-event value?

- A. **RCS** pressure will initially decrease and then steadily increase and the operator should raise demand on **FCV-122** to reduce **RCS** pressure to the pre-event value.
- B. **RCS** pressure will initially increase and then steadily decrease and the operator should lower demand on **PCV-145** to raise **RCS** pressure to the pre-event value.
- C. **RCS** pressure will initially decrease and then steadily increase and the operator should lower demand on **FCV-122** to reduce **RCS** pressure to the pre-event value.
- 5. **RCS** pressure will initially increase and then steadily decrease and the operator should raise demand on **PCV-145** to raise **RCS** pressure to the pre-event value.

New question based on combining Summer Bank question #677, and Farley bank question O52101K16001. OBJ # AB-7-26, AB-7-12, and AB-7-03.

- A. Incorrect, **RCS** pressure will initially decrease when the **RHR** pump trips, and then increase and opening **FCV-122** will continue to raise pressure above the pre event value.
- B. Incorrect, **RCS** pressure will initially decrease and then steadily increase, closing **PCV-145** will raise **RCS** pressure above the pre event value.
- C. Correct, **RCS** pressure will initially decrease and then steadily increase, lowering demand on **FCV-122** will lower **RCS** Pressure to get to the pre-event value.
- D. Incorrect, **RCS** pressure will initially decrease and then steadily increase, raising demand on **PCV-145** will tower **RCS** pressure.

5. 005AK3 06 001

- The plant was operating at 50% power.
 - The reactor tripped due to a feedwater control problem.
 - The crew is performing their immediate actions and stabilizing the plant at no-load conditions.
- A check of rod bottom lights and rod position indicators show that control bank "D" rod B3 is stuck fully withdrawn.

Which ONE of the following describes the action to be taken and the reason for the action?

- A. Immediately commence an emergency boration, to ensure that shutdown margin is adequate.
- B.** Continue with actions as directed by the EOPs, the core is designed for adequate shutdown margin with one rod stuck out.
- C. Immediately commence an emergency boration, because the rod is from a control bank and they are all normally on the bottom after a reactor trip.
- D. Continue with actions as directed by the EOPs, Xenon peaking will ensure that shutdown margin is always adequate for the first 24 hours.

original K/A was 005AK3.05, changed to 005AK3.06 due to inability to write a question at the RO level for the topic. Modified from a Summer Bank question # 3361. Summer Objective # AOP-220.1 # 4 and EOP-1.0 #1676.

- A. Incorrect, an emergency boration is not required.
- B. Correct, the core is designed to have adequate shutdown margin with the most active rod stuck out.
- C. Incorrect, An emergency boration is not required.
- 5. Incorrect, this is the correct action, but not the reason for the action.

6.006K6 IS 001

- The Unit has experienced a Faulted S/G.
- The Crew has completed S/G isolation, and are in EOP-2.0, "Loss of Primary or Secondary Coolant."
- ~~A~~B the step for verifying SI termination Criteria, the Crew notices that PT-403 "RCS Pressure" has failed low.
- RCS Temperature is 500°F.

Which ONE of the following describes the train of subcooling margin monitor that should be used to make the determination that SI be terminated, and what indication will be displayed on the Core Subcooling Monitor?

- A. Train "A" subcooling monitor should be used to determine subcooling, it will indicate actual subcooling.
- B. Train "B" subcooling monitor should be used to determine subcooling, it will indicate actual subcooling.
- C. Train "A" subcooling monitor should be used to determine subcooling, it will indicate greater than 200°F.
- D. Train "B" subcooling monitor should be used to determine subcooling, it will indicate greater than 200°F.

New Question. Used Summer Bank question 2255 as a guide.
Objective # IC-12-12.

- A. Incorrect, PT-403 is an Input to A train, with it being failed low the indication is not correct, and it should not be used.
- B. Correct, Train B will not be affected and will read actual subcooling.
- C. Incorrect, PP-403 is an Input to A train, with it being failed low the indication is not correct, and it should not be used.
- D. Incorrect, this is the correct train to use but this is the indication of a failed subcooling margin monitor.

7. 007A1.01 001

- RCS is in Solid Plant Operations.
- Tavg is being maintained at 160°F, with "B" RCP in Operation.
- RHR train "A" is in service with "A" RHR pump running in the cool down mode.
- Low Pressure letdown is established on "A" train via XVT-8720A.
- Seal Injection is established to all three RCPs at 8 gpm/pump.
- Letdown flow is 90 gpm.
- Charging flow is 8 gpm.

Which ONE of the following would be the result of placing letdown pressure control valve PCV-145 in manual with no further operator action?

- A. VCT level would increase until VCT level control valve 115A diverts.
- B. PRT level would increase, potentially damaging the rupture disc.
- C. RCS pressure would remain stable.
- D. "B" RCP minimum #1 seal differential pressure would be lost.

Bank question from Farley exam bank. Summer Objective AB-2-10.

- A. Incorrect, VCT level will decrease.
- B. Correct, RCS Pressure would increase until RHR reliefs lift causing PRT level to rise and pressure to increase.
- C. Incorrect, RCS pressure would increase.
- D. Incorrect, Seal differential pressure would increase.

B. 008K3.03 001

The plant is at 100% power when CCW is lost to the Reactor Coolant Pumps.

Which ONE of the following describes the condition that would require the operator to secure the RCPs, assuming that CCW cannot be restored?

- A. Motor Bearing Temperature exceeds 195°F.
- B. Lower Seal water bearing temperature reaches 205°F.
- C. CCW Flow is not regained within 5 minutes.
- D. RCPs can continue to run as long as seal injection flow is maintained.

Modified from Summer Bank Questions # 3998 and 5037.
Objectives AB4-04 and AB 4-24.

- A. Correct, a precaution and limitation requires the pumps to be tripped any time Motor bearing temperature exceeds 195°F.
- B. Incorrect, Lower Seal water bearing temperature can rise to 235°F prior to being secured.
- C. Incorrect, the time limit is ten minutes.
- D. incorrect, in this case the pump must be secured even if seal injection is maintained.

9. 009EG2 1 20.001

-A Small Break LOCA coincident with a **Loss of Offsite** Power has occurred.
-Operators are at the step in EOP2.1, "Post LQCA Cooldown and Depressurization," to depressurize the RCS and Refill the PZR.

Which **ONE** of the following describes the **actions** the operator should perform to initiate the RCS depressurization?

- A. Open PCV 444D, PZR SPRAY and Close PCV 444C, PZR SPRAY.
- B. Open PVT-8145 PZR Auxiliary Spray valve.
- C. Open PCV 444C, PZR SPRAY and Close PCV 444D, PZR SPRAY.
- D. Open ONE PZR PORV, PCV-445A, or PCV-445B, or PCV-444B.

Bank Question from Farley Bank # O52531F09008 adapted to Summer.
OBJ #'s 1844 and 1845 EOP2.1 Lesson Plan.

- A. Incorrect, there are no RCPs running.
- B. Incorrect, the procedure does not direct this because normal charging is not in service.
- C. Incorrect, there are no RCPs running.
- D. Correct, the procedure directs the operator to open ONE PORV.

10.010K1.08001

- The Unit is at 100% with all systems in Automatic.
- The Pressurizer level control switch is selected to 459/460.

Which ONE of the following describes the long term system response if LT-459 failed high? (assume no operator actions)

- A. Pressurizer Heaters will de-energize, and letdown will isolate.
- B. Letdown will isolate, pressurizer heaters will remain energized.
- C. Pressurizer Heaters and letdown will remain unaffected.
- D. Letdown will remain in service, but pressurizer heaters will de-energize.

Used Summer bank questions 2429 and 2808 to write question.
Summer obj #IC3-22.

- A. Correct, with 459 failed high and selected charging flow will decrease to min, and pressurizer heaters will turn off and letdown will isolate.
- B. Incorrect, the pressurizer heaters will de-energize.
- C. Incorrect, both will be affected.
- D. Incorrect. letdown will be affected.

11.011A3.03.031

- The Unit is at 100% power.
- Pressurizer level channel selector switch is in the "460/461" position.
- The sensing line to pressurizer transmitter 460 develops a reference leg leak near the connection point to the D/P cell.

Which one of the following correctly describes the expected plant response? (assume no operator action)

- A. LT-460 indication will fall, charging flow will rise, actual pressurizer level will rise, LCV 460 will isolate letdown.
- Not Still ok* B. ~~LT-460~~ indication will rise, charging flow will fall, actual pressurizer level will fall, pressurizer deviation alarm will come in.
- C. LT-460 indication will fall, charging flow will rise, actual pressurizer level will fall, LCV 461 will isolate letdown.
- D. LT-460 indication will rise, charging flow will rise, actual pressurizer level will fall, pressurizer heaters will energize.

Modified bank questions Summer question #161, and Farley bank question.

- A. Incorrect, LT-460 indication will rise, chg flow will fall, actual pressurizer level will fall, and 460 will not isolate letdown.
- Not Still ok* B. ~~Correct~~ *INCORRECT*
- C. Incorrect, LT-460 indication will rise, chg flow will fall, actual pressurizer level will fall, but 461 could isolate letdown.
- D. *Correct* incorrect, LT 468 indication will rise, chg flow will *Rise* lower, actual pressurizer level will lower, the pressurizer heaters will *not* energize. *Not Still ok*

Not Still ok

BASED ON POST EXAM COMMENT RESOLUTION.

12.011EK3 04001

Which ONE of the following describes the operation of the Reactor Building Cooling Units during a Large Break LOCA?

- A. Running units will trip off, one unit on each train will restart in slow speed, reactor building air will enter through the bypass damper.
- B. All running units will shift to slow speed, reactor building air will enter through the bypass damper.
- C. Running units will trip off, one unit on each train will restart in slow speed, the bypass damper will close and reactor building air will enter through the demister and HEPA filter.
- D. All running units will shift to **slow** speed, **one** unit on each train will restart in slow speed, the bypass damper will close and reactor building air will enter through the demister and **HEPA** filter.

New question. Summer Objective # AB-17-16 Reactor Building Ventilation.

- A. Incorrect, air does not enter through the bypass damper.
- B. Incorrect, the fans do not shift to **slow** speed, and the air does not enter through the bypass damper.
- C. Correct the running units will trip off and **start** in slow speed and the air will enter through the demister and **HEPA** filter.
- D. Incorrect, all running units will not shift to slow speed.

13. 012A1.01 001

- The Reactor is operating at 75% power.
- Normal Delta I at 75% power is 0.
- Undamped Xenon Oscillations are occurring.
- No Operator Actions are taken.

Which ONE of the following describes how the OT delta T trip setpoints will change if the core xenon fluctuations cause the output currents from all Power Range NI detectors to change as follows:

- Upper detector currents decrease from normal 75% value to normal 50 % value.
- Lower detector currents increase from normal 75% value to normal 100% value.

- A. INCREASE because Delta I will be excessively POSITIVE.
- B. DECREASE because Delta I will be excessively NEGATIVE.
- C. INCREASE because Delta I will be excessively NEGATIVE.
- D. DECREASE because Delta I will be excessively POSITIVE..

Summer Bank question # 41 13. Objectives # IC-9-15, 16, and 41.

- A. Incorrect, Delta I will not be excessively positive, and the setpoint will not increase.
- B. Correct, Delta I will be excessively negative and the setpoint will decrease.
- C. Incorrect, Delta I will be excessively negative, but the setpoint will decrease.
- D. Incorrect, Delta I will be excessively negative.

14.013K3.02001

- A Large Break LOCA has occurred coincident with a **loss** of Off-site power.
- The "A" Diesel generator started, but failed due to a mechanical problem.
- Eight hours after going to cold leg recirculation the crew is implementing EOP-2.3, "Transfer to Hot Leg Recirculation."
- MVG-8886 "CHG LP B PO HOT LEGS" trips on **overload** when placed in the open position.

Which ONE of the following describes the effect that this malfunction will have on the RCS?

- A. Hot Leg Recirculation will **only** be established from one train, however this will provide enough flow to prevent fuel damage.
- B. Hot Leg Recirculation will only be established from one train, fuel damage could occur due to boron plating out decreasing heat transfer.
- C. Hot leg Recirculation cannot be established from either train, however, reflux cooling will provide enough flow to prevent boron plate out.
- D. Hot Leg Recirculation cannot be established from either train, fuel damage could occur due **to** boron plating out decreasing heat transfer.

New question. Ref: EOP-2.3 "Transfer to Hot leg Recirculation" objectives 1864 and 1865.

- A. Incorrect, with no **A** train power and MVG-8886 not opening neither train of Hot Leg recirc will be established.
- B. Incorrect, neither train of Hot leg recirc will be established.
- C. Incorrect, reflux cooling will not prevent boron plate out.
- D. Correct, neither train can be established, and this is the **effect** of the malfunction.

15.014K3.02 001

- The Unit is operating at 100% power.
- Annunciator XCP-620(2-5) CMPTR ROD DEV illuminates.

Which ONE of the following is a condition that could cause the above alarm?

- A. A Bank step counter malfunction has occurred.
- B. A flux tilt of greater than 2%.
- C. An error or failure from both DRPI data cabinets.
- D. An IPCS computer failure.

As Study

Used Summer Bank Question 2'122 for idea.
Summer Objective IC-4-16, and 17.

- A. Incorrect, this would cause a CMPTR ROD SEQ alarm.
- B. Incorrect, this would not cause the above alarm.
- C. *As Study* Incorrect, this would cause a DRPI Alarm Urgent failure. *POSSIBLE ANS. BASED ON POST EXAM COMMENT RESOLUTION*
- D. Correct, *if* the IPCS computer failed this alarm would come in.

16. 015AK2.08.001

The following annunciators are received:

- (XCP-603 1-3/2-3/3-3), RCP A (B) (C) CCW FLO LO
- (XCP-603 4-3), XS LTDN/RCDT HX CCW OUT FLOW LO
- (XCP-602 2-31, RCP A/B/C THERM BAR&BRG FLO LO

Which ONE of the following by itself would cause the above annunciators to alarm?

- A. A High flow condition causes MVG-9593 A(B) (C) "FROM RCP A (B) (C) THERM BARR" to close.
- B. A high flow condition has caused MVG-9625 "CC TO RB" and 9626 "CC TO RB" to close.
- C. A high flow condition has caused MVG-9568 "TO RB LOAD" to close
- D. The running booster pump has tripped.

Summer **Bank** Question # 58.
Objective #s AB4-04 and 4-24.

- A. Incorrect, these valves would not isolate flow to all areas in alarm.
- B. Correct, these valves going closed would cause these alarms to come in.
- C. Incorrect, these valves would not isolate flow to all areas in alarm.
- D. Incorrect, **the** booster pump does not supply the RCP coolers.

17.017G2.4.47.001

-A Total **Loss** of All **ESF** power has occurred.

Core Exit Thermocouples read approximately 670°F.

Steam Generator pressure is stable at 815 psig.

Which **ONE** of the following describes the current plant conditions?

- A. The steam generators have **boiled** dry.
- B.** Natural circulation cooling **has** been interrupted.
- C. **The** reactor core has uncovered and core melt **is** imminent.
- D. Natural circulation cooling has increased.

Changed K/A from G2.2.22. Very difficult to ask an RO level question on **this** subject.

Changed to 2.4.47

Surry Bank Question, Slightly modified. Steam tables allowed as reference.

Summer objectives TS-12-23, IC-12-11, and EOP-1.1 # 1776.

- A. Incorrect, the S/Gs have not boiled dry as indicated by 815 psig pressure.
- B. Correct, these indications show that there is **no** evidence of heat being transferred to the steam generators.
- C. Incorrect, there are no indications that the core has uncovered and that core melt is imminent.
- D. Incorrect, Natural Circulation flow **is** not increasing, at 815 psig the temp in the **RCS** should be about 525 degrees.

18. 022A2.03 001

- The Unit was operating at 100% power.
- 1A, 2A, and 1B Reactor Building Cooling Units (RBCUs) are running in high speed with 1A and 1B selected on MCB selector switches.
- A Safety Injection occurs due to a Main Steam line Break inside containment.
- The NROATC reports that Annunciator XCP-607 ("RBCU 1B/2B Fan Trip") is in alarm.

Which ONE of the following describes the RBCUs that are now running and what actions are required to be taken?

- A. 1A, and 2B RBCUs are running, verify Service Water is supplying cooling water.
- B. 1A and 2B RBCUs are running, verify Industrial Cooling Water is aligned for cooling and start 2B RBCU.
- C. 1A RBCU is running, verify that Industrial Cooling Water is supplying cooling water and start 2B RBCU.
- D. 1A RBCU is running, verify Service Water cooling is aligned for cooling and start 2B RBCU.

Attachment 3 of EOP-1.0, ARP 001 XCP-607 (1-1) RBCU 1B/2B.
Summer Objectives AB-17-07 and 16.

- A. Incorrect, 2A will not be running and the annunciator informs the operator that 1B has tripped.
- B. Incorrect, 2A will not be running, and ICW will be isolated
- C. Incorrect 2A and 2B will not be running, and ICW will be isolated.
- D. Correct 1A will be running and with 1B tripped, 2B should be started after cooling water is verified.

19. 022AA1.02 001

- Reactor Power is 90%.
- Pressurizer level is decreasing.
- VCT level is increasing.
- RCP A (B) (C) # 1 SL INJ FLO LO annunciators are lit.
- REGEN HX CTDN OUT TEMP HI annunciator is lit.
- CHG LINE FLO HI/LO annunciator is lit.

Which ONE of the following is an event that could cause these indications, and what action would mitigate this event?

- A. The RCP seal injection filter is clogged, swap to the other seal injection filter.
- B. Letdown has isolated, establish excess Letdown until normal letdown can be established.
- C. A Pressurizer PORV has failed open, close the appropriate block valve.
- D. The running charging pump has tripped, start the standby charging pump.

Summer bank question# 2045 slightly modified to match WA.
Summer Objective # AB-3-25. XCP-614 point 5-1.

- A. Incorrect, an RCP seal injection filter clogged would cause one of the indications, however not the rest.
- B. Incorrect, the above indications indicate that letdown is still in service.
- C. Incorrect a failed open pressurizer PORV would not give these conditions.
- D. Correct, if the running charging pump tripped these indications would be received, and this would be the correct action to take.

20.025AA2 02 001

- A Plant shutdown and cooldown is in progress.
- RCS temperature is 240°F, and Both trains of RHR have been placed in cooldown mode.
- "A" Train of RHR is aligned for low pressure letdown.
- Pressurizer level begins decreasing rapidly.
- VCT level begins decreasing.
- RM-A3, "MAIN PLANT VENT EXH ATMOS MONITOR" begins to trend up.
- (XCP-631 6-1), "AB SUMP LVL HI" alarms.
- AOP-122.1, "Shutdown LOCA" has been entered.

Which ONE of the following describes the location of the leak and the major action required to mitigate the event?

- A. The leak could be from the suction relief on the "A" RHR pump, isolate both trains of RHR, initiate SI, control RCS pressure with one PORV.
- B. The leak could be from the "B" RHR pump, into the Auxiliary Building, isolate "B" train of RHR from the RCS.
- C. The leak could be from the suction relief or the "B" RHR pump, isolate both trains of RHR, initiate SI, control RCS pressure with one PORV.
- D. The leak could be from the letdown relief valve XVR 8117-CS, into the Auxiliary Building, isolate " A Train of RHR from the RCS.

New Question developed to cover K/A. Summer Objective LP-112.1 # 5661.

- A. Incorrect, the suction relief discharges to the PRT..
- B. Correct, a leak on the B RHR pump would cause these indications
- C. Incorrect, this relief discharges to the PRT.
- D. Incorrect, this relief discharges to the PRT.

21. 026A4.05 001

- A Steamline Break has occurred in the Reactor Building.
- Reactor Building Pressure peaked at 18 psig, and is now at 1 psig.
- Both Reactor Building Spray Pumps have been running for greater than two hours.
- TSC requests that the Control Room secure the RB spray pumps.

Which ONE of the following correctly describes the actions the operator must take to secure the Reactor Building Spray pumps?

- A. Reset Phase A -TRAIN A(B) CTMT ISOL, then stop both RB spray pumps and place in standby.
- B. Reset both SI RESET TRAIN A(B) switches, then stop both RB spray pumps and place in standby.
- C. Depress both RESET TRAIN A(B) RB SPRAY, then stop both RB spray pumps and place in standby.
- D. RESET BOTH Phase B -TRAIN A(B) CNTMT ISOL, then stop both RB spray pumps and place in standby.

New Question. Summer Objective AB-08-12.

- A. Incorrect, Resetting the phase A will give control of the NAOH tank outlet valve and spray injection valve.
- B. Incorrect, Resetting the SI signal will not allow the operator to stop the RB spray pumps.
- C. Correct, Resetting the train oriented manual reset switches allows the operator to stop the RB spray pumps.
- D. Incorrect, Resetting the phase B signal does not give the operator control of the RB spray pumps.

22. 02hK2.02 001

- The Unit was at 100%.
- B D/G is tagged out for maintenance.
- A LOCA occurs in conjunction with a **loss** of off-site power.
- EOP-1.0, "Reactor Trip or Safety Injection Actuation" is in progress.
- Reactor Building Pressure is 13 psig and rising.

Which ONE of the following describes how the MVG-3002A(B) NAOH TO SPRAY PUMP A(B) valves will respond to these conditions **and** why?

- A. MVG-3002B will be open, because it is powered from 1DB2Y.
- 5. MVG-3002A will be open, because it is powered from 1DB2Y.
- C. MVG-30025 will be open, because it is powered from 1DA2Y.
- D. MVG-3002A will be open, because it is powered from 1DA2Y.

New question. Summer objective AB-08-23.

- A. Incorrect, the B train does not have power to the **MOV**.
- B. Incorrect, this is the correct valve that will be open but not the correct power supply.
- C. Incorrect, the 5 train does not have power to the MOV.
- D. Correct, this valve will be open and it is powered from 1DA2Y.

23. 027AK3.04 001

An RCS Cooldown is in progress in accordance with EOP-1.3, "Natural Circulation Cooldown."

Which ONE of the following describes the reason for maintaining pressure within the limits of Attachment 1, "RCS P/T LIMITS DURING NATURAL CIRCULATION COOLDOWN WITH CRDM FANS?"

- A. This curve is designed to prevent DNB limits from being exceeded.
- B. This curve maintains RCS pressure at an acceptable value to allow a resta. of an RCP.
- C. This curve is designed to maintain the RCS at a temperature and pressure to prevent an SL.
- D. This curve maintains RCS temperature and pressure limits to prevent upper head voiding.

K/A changed from AK3.01 due to not having spray isolation valves. Bank question from old Sur9 Exam. (Spray valves not being available is the PCS system malfunction). Summer Objective EOP-1.3 Lesson Plan # 1798.

- A, B, and C, Incorrect, these are not the reasons for this attachment.
- D. Correct the curve is designed to limit upper head voiding.

24. 029EK2.06 001

- Initial Reactor Power was 47%.
- An Anticipated Transient Without Scram, (ATWS), occurs.
- Tavg-Tref deviation = **25°F**.
- Main Steamline pressures are at 1150 psig.
- At step 4 of EOP 13.0, (with reactor trip breakers still closed), the BOP operator reports that Bank 1 and 2 of steam dumps **AND** all steamline PORVs are open.

Which ONE of the following correctly describes the response of the steam dump system with the current plant conditions?

- A. The steam dump system is **NOT** operating properly. The atmospheric steam dump valves should also be open due to the C-7B circuit being energized along with the Tavg-Tref deviation of **25°F**.
- B.** The steam dump system **IS** working property. Banks 1 and 2 steam dump valves are open due to the **C-7A** circuit being energized along with the Tavg-Tref deviation of **25°F** while the PORVs are responding to high steamline pressure.
- C. The steam dump system **is NOT** operating properly. Only Bank 1 and 2 steam dump valves should be open due to the **C-7A** circuit being energized along with the Tavg-Tref deviation of **25°F**.
- D. The steam dump systems working properly. Banks 1 and 2 steam **dump** valves and the steamline PORVs are open due to the C-7A circuit being energized along with the Tavg-Tref deviation of **25°F**.

Bankquestion 3136.

- A. Incorrect, Requires the operator to analyze that the **C-7B** circuit is not energized due to less than a 58% load rejection occurring because the plant was initially at **45%** power.
- B.** Correct, The steam dump valves are open due to **C-7A** circuitry since the reactor trip breakers are still closed and the load rejection controller is in control, while the PORVs are responding to high steamline pressure of greater than **1133** psig.
- C. Incorrect, requires the operator to analyze that the PORVs are open due to high steam line pressure.
- D. Incorrect, Requires the operator to analyze that the PORVs do not receive an open signal from the **C-7A** circuitry. Signals are only received from steamline pressure greater than **1133** psig or from the **M/A** station when in PORV mode or from the **C-7B** circuitry.

25. 032AK2 01 001

The Unit is in mode 3.

During preparations for plant startup the control power fuses for N-32 blow.

Which **ONE** of the following describes the effect this will have on the instrument(s)?

- A. The Reactor Protection and Logic system will see this as a trip signal and the bistables for N-32 will indicate tripped.
- B. The Reactor Protection and Logic system will see this as a minimum signal and the bistables for N-32 will have to be tripped manually.
- C. The power supply for the detectors high voltage will be lost, and the indication will fail high.
- D. The power supply for the detectors low voltage electronics will be lost, and the indication will fail low.

New Question. Summer Objectives IC-8-7,8, and 11.

- A. Correct, **loss** of control power will result in the bistables tripping.
- B. Incorrect, this is what would be seen if Instrument power was **lost**.
- C. Incorrect, this is a part of what would happen if instrument power was lost but the indication **would** be low.
- D. Incorrect, this is a part of what would happen if instrument power was lost.

26. 034K6.02 001

- The Unit is in the process of refueling.
- RM-G8, "FHB Refueling Bridge" Area radiation monitor is out of service.
- A spent fuel assembly is dropped and damaged in the spent fuel pool.

Which ONE of the following radiation monitors would indicate an increase in radiation level in accordance with AQP-123.3, "Potential Fuel Assembly Damage While Handling Fuel?"

- A. RM-A6, "FHB Exh Particulate Atmos Monitor" and RM-A3, "Main Plant Vent Exh Particulate Atmos Monitor."
- B. RM-G17A(B), "RB Manip Crane Area Gamma" and RM-A3, "Main Plant Vent Exh Particulate Atmos Monitor."
- C. RM-G6, "WB Refuel Bridge Area Gamma" and RM-A6 FHB, "Exh Particulate Atmos Monitor."
- D. RM-G17A(B), "RB Manip Crane Area Gamma" and RM-G6 RB, "Refuel Bridge Area Gamma."

Modified Summer Bank Question 2369, and AOP-123.3 "Potential Fuel Assembly Damage While Handling Fuel". Summer Objective AOP-123.3 2359.

- A. Correct, these are the radiation monitors that would be used.
- B. Incorrect, the RM-17 monitor is in the RB and with refueling in process this monitor will not see any effects of a fuel element dropped in the Fuel Building.
- C. Incorrect, RM-G6 is in the RB and with refueling in process this monitor will not see any effects of a fuel element dropped in the Fuel Building.
- D. Incorrect, Both are in the RB and with refueling in process this monitor will not see any effects of a fuel element dropped in the Fuel Building.

27. 035K1.14001

- The Plant is operating at 100% power with no equipment out of service.
- Busses 1A and 1B lose power and an SI signal is simultaneously generated.
- Control Room operators enter EOP-1.0, "Reactor Trip and Safety Injection Actuation" and perform immediate operator actions.
- Both 1DA and 1DB have voltage.
- The crew verifies FW isolation and containment phase A.
- ONE minute after the SI initiation the crew observes only the TDEFP running.

Which ONE of the following describes the expected condition of the EFW system to this event?

- A. Only the TDEFP should be running, The Emergency Safeguards Features Loading Sequencer (ESFLS) does **not** start the Motor Driven Emergency Feedwater Pumps (MDEFPS) for a loss of offsite power with SI.
- B. The MDEFPS should have been started by the Emergency Safeguards Features Loading Sequencer (ESFLS), therefore, all EFW pumps should be running.
- C. The TDEFP should be running, the Emergency Safeguards Features Loading sequencer (ESFLS) will not start the MDEFPS for another 10 seconds on an **SI**.
- D. Only the MDEFPS should have started due to the under voltage conditions on the 1A and 1B service busses.

summer bank question # 353, modified slightly from the original.
Summer objective # IB-03-19.

- A. Incorrect, the **MDEFPS** should be running.
- B. Correct, the MDEFPS should start in 20 sec after SI load block # 5.
- C. Incorrect, the MBEFPS should be running.
- D. Incorrect, the MDEFPS will not start on a loss of service busses.

28. 039K4.05.001

Which ONE of the following conditions will cause the Main Steam Isolation Valves (MSIVs) to isolate automatically?

- A. One out of three (1/3) detectors on one out of three (1/3) Steam Generators 97 psig less than the other two steam generators.
- B. One out of three (1/3) Containment Pressure indicators at 6.5 psig.
- C. RCS Tavg on one out of three (1/3) RCS loops < 540°F and P-4 present.
- D. Steamline Pressure on two out of three (2/3) steam lines less than 675 psig.

Summer learning objective IC-9-31. Modified from summer Exam bank questions 889 and 1913.

- A. Incorrect, One steamline 97 psig less than the other two will cause a safety injection.
- B. Incorrect, the containment pressure coincidence is 2 out of 3 greater than 6.35 psig.
- C. Incorrect, A reactor trip and Tavg , 540°F will not cause a Main steamline isolation.
- D. Correct One out of three steamlines less than 675 psig will actuate a main steamline isolation.

29. 040AK1.05 001

- The Plant is operating at 90% power with a cycle burn-up of 20,000 MWD/MTU.
- Tavg on all three loops is **584°F**.
- One "A" Steam Generator safety valve **GRADUALLY** fails open; after **15** seconds, the safety sticks in the full open position.
- Rod Control is in Auto with control rods at **220** steps.

Which one of the following describes the response of median Tavg in response to the stuck open S/G safety valve? (assume no operator action)

- A. Median Tavg would remain the same.
- B. Median Tavg would decrease to approximately **557°F**
- C. Median Tavg would increase to approximately **587°F**
- D. Median Tavg would decrease to approximately **576°F**

Summer system bank question # 4329. Can use curves if required. (may want to change MWD/MTU if it will change the answer)

- A. Incorrect, all three loop Tavg would decrease.
- B. Incorrect, temperature will decrease, but not to the post trip value.
- C. Incorrect, all three loop Tavg would decrease (Temperature may increase if rods stepped out).
- D. Correct, for these conditions and no rod motion Tavg must decrease enough to add positive reactivity to offset power defect for added power of open safety valve, which is about 8 % power.

30.041A4.08.001

Given the following plant conditions:

- 100% reactor power.
- Steam dumps in T_{avg} mode.
- A load rejection occurs resulting in a $T_{avg}-T_{ref}$ mismatch of 15°F .

Which ONE of the following is the MAXIMUM number of steam **dump** banks that will receive an open demand signal?

- A. One
- B. Two
- C. Three
- D. Four

Summer Bank Question # 3039 modified to 15°F mismatch.
Summer Objectives IC-1-12 and 19.

- A. Incorrect, with a mismatch of greater than 6°F **two** dump banks will open.
- B. Correct, with a mismatch of 15°F two dump banks will open.
- C. Incorrect, with a mismatch of $>16.9^{\circ}\text{F}$ three dump banks will open.
- D. Incorrect, with a mismatch of $>22.4^{\circ}\text{F}$ four dump banks will open.

31. 045A3.07 001

- The Unit was at 55% power.
- A loss of Service Busses has occurred.
- The reactor has tripped.
- The BOP reports that all main turbine stop valves indicate open.

Which ONE of the following describes the actions that the crew should take **IAW** EOP-1.0, "Reactor Trip / Safety Injection Actuation?"

- A. Trip the main generator **EXC FIELD BKR**.
- B. Set **LOAD LMT SET** fully clockwise, and place Both **EHC** pumps to **stop**
- C. Press the decrease load pushbutton until load set equals **zero (0)**.
- D. Set **LOAD LMT SET** fully counterclockwise, and place Both **EHC** pumps to **PTL**.

Modified from Summer Bank Questions 3217 and 3218.
Objective # 1673 from **EOP-1.0** Lesson Plan.

- A. Incorrect, this action will occur 30 secs after turbine trip.
- B. Incorrect, Load limit should be counter clockwise and the **EH** pumps must be in Pull to Lock.
- C. Incorrect, this is not directed by the procedure.
- D. Correct, these are the actions to be taken if the turbine does not trip **IAW** EOP-1.0

32. 051AA2.02 001

- The Plant is operating at 65% power.
- CNDSR A Vacuum LO annunciator comes in.
- Condenser Vacuum is 7.9 " Hg **absolute**, and increasing.

Which ONE of the following describes the operator actions that should be taken?

- A. Continue turbine load reduction to compensate for the vacuum loss. No further actions are required.
- B. Ensure the turbine trips and enter **AOP-214.1**, "Turbine Trip."
- C. Start the standby condenser vacuum pump and wait for vacuum to recover. No further actions are required.
- D. Trip the reactor and enter EOP-1.0, "Reactor Trip / Safety Injection Actuation."**

Modified from Summer Question 2029. Objective **IC-9-37**.

Check and Make sure D is the correct choice (refer to wording)

- A. Incorrect, vacuum is at the turbine trip setpoint
- B. Incorrect, the turbine and reactor should trip and **EOP-1.0** should be entered.
- C. Incorrect, condenser vacuum is at the trip setpoint.
- D. Correct, the reactor and turbine should be tripped and EOP-1.0 should be entered, at this power level the turbine should trip and the reactor should trip because the turbine tripped.**

33. 054AA1.02 001

- The Unit is starting up in accordance with **GOP-4.A**, "Power Operation (Mode 1 Ascending)."
- Reactor Power **is** currently 20% power.
- The **B** Main Feed pump is in service.
- Feedwater control is being transferred from the Bypass Valves to the Main Feed Regulating Valves in accordance with SOP-210, Section **H**.
- The operator becomes distracted and all S/Gs are overfed, with the "C" S/G reaching 80%.

Which **ONE** of the following describes the expected status and operator actions for the Emergency Feedwater System to mitigate the event?

- A. No EFW pumps will auto start, the operator should manually start all EFW pumps when high level condition resets.
- B. The Turbine Driven EFW pump delivering flow, manually start Motor Driven EFW pumps when high level condition resets.
- C. Both Motor Driven EFW pumps delivering flow, manually start the Turbine Driven EFW pump if needed.
- D. Turbine Driven EFW pump delivering flow, immediately manually start both Motor Driven EFW pumps.

From Surry NRC exam.

Summer Objectives IC-9-12, IC-9-33,34,35, AOP-210.3 # 5 and AOQ-214.1 # 3046
AOP-210.3 and AOP 214.1.

- A. incorrect, the MDEFW pumps will auto-start and deliver flow.
- B. Incorrect, the TDEFW will not auto start on a trip of all MFPs.
- C. Correct, the MDEFW pumps ~~will~~ auto **start** and deliver **flow**, the TBEFW pump would have to be manually started if needed.
- D. Incorrect, the TDEFW will not auto start, and the MDEFW pumps will auto start.

34. 055EA2.04 001

- The Unit is at power with a normal electrical lineup.
- A Station Blackout occurs.

Which ONE of the following describes the loads that will still be available to the operating crew?

- A. D/G field flash; Radiation monitoring panels; Control room emergency lighting.
- B. Safety Related Inverters; Control Room emergency lighting; Pressurizer heaters.
- C. ESF control power; DIG control power; major circuit breaker closing and tripping power.
- B. Control room emergency lighting; Main feed pump turning gears; D/G field flash.

Summer objectives # GS-3-03 and 04. Modified from a summer question #1419.

- A. Incorrect, Radiation monitoring panels are not powered from the DC buses.
- B. Incorrect, the pressurizer heaters will not be available due to power **loss**.
- C. Correct, all of these loads will have DC power.
- D. Incorrect, the MFP turning gears will not be available.

35. 055K1.06.001

Which *ONE* of the following describes the initial indications that would be expected on a 50 gpm primary to secondary leak into the "C" steam generator?

<u>CHG Flow</u>	<u>FRV Position</u>	<u>S/G level</u>	<u>RMA-9 indication</u>
A. Increasing	Opening	Remains the same	Remains the same
B. Remains the same	Opening	Increasing	Increasing
C. increasing	Closing	Remains the same	Increasing
D. Remains the same	Closing	Increasing	Remains the same

Summer Bank Question # 1618.
Objective GS-9-04.

- A. incorrect, 'C' feed regulating valve opening is not an indication of a SGT Leak, and RMA-9 indication would be increasing.
- B. Incorrect, Charging flow would increase, and 'C' feed regulating valve would close, and S/G level will remain the same for this size leak.
- C. Correct. all of these indications are associated with a SGT Leak
- D. incorrect, charging flow would increase and RMA-9 would increase, and S/G level will remain the same for this size leak.

36. 056AK1.03 001

- The plant is operating at 100% power.
- A loss of Qffsite (ESF and BOP) electrical power occurs.
- The D/Gs start and energize the ESF emergency buses, all emergency equipment starts as required.
- An SI is not required.
- RCS pressure stabilizes out at the P-11 setpoint.
- Highest RCS Phot is 550°F.
- Five highest reading T/Cs are 547°F, 545°F, 552°F, 551°F, and 549°F.

Which ONE of the following correctly describes the subcooling margin that would be displayed on the subcooling monitor?

- A. 83.8°F
- B. 85.8°F
- C. 87.0 °F
- D. 90.8°F

Modified Question, based on Exam bank question 527.

- A. Correct, auctioneering unit selects highest T/C. Applicant must first determine saturation temperature from steam tables and calculate using highest T/C.
- B. Incorrect, This would be the result if RCS That was used.
- C. Incorrect, This would be the result if average T/C temperature was used.
- D. Incorrect, This would be the result if the lowest temperature was used.

37. 056G2.1.30 001

- Unit was at **45%** power.
- AOP-206.1, "Decreasing Main Condenser Vacuum," has been entered, due to lowering vacuum.
- Directions have been given to Check **XVB-101**, "Main Condenser Vacuum Breaker," locally, due to **MCB** indication being lost.

Which **ONE** of the following describes the normal position, and the location of **XVB-101**?

- A.** Normally open, located **436'** Turbine building, north side **of** the condenser.
- B.** Normally open, located **436'** Turbine building, south side **of** the condenser.
- C.** Normally closed, located **436'** Turbine building, south side of **the** condenser.
- D.** Normally closed, located **436'** Turbine building, north side **of** the condenser.

Modified from Summer Bank Question **#1344**. Objective **TB-6-10 (21)**
AOP-206.1 Step 1.

- A.** Incorrect, **the** valve should be normally closed, this is the correct location.
- B.** incorrect, the valve should be normally closed, and this is the wrong location.
- C.** Incorrect, correct valve **position** but wrong location.
- D.** Correct, both valve position and location are correct.

38. 057AG2 I 32 001

- The Plant is at 100% power during an "A1" maintenance week.
- APN-5901 has been transferred to APN-1FA while work is in progress on XIT-5901.
- The Normal feeder breaker for APN-1FA trips open due to a fault.

Which ONE of the following describes the effect that this will have on the ESFbS system?

- A. "A" Train loads will be shed and an ESFbS will be initiated.
- B. "B" Train loads will be shed and an ESFLS will be initiated.
- C. "A" Train loads will remain connected and ESFLS will be disabled.
- D. "B" Train loads will remain connected and ESFbS will be disabled.

5/11/04

Modified from Summer Bank questions 2032, and 4305.
Objective # GS-2-20.

- A. Incorrect, this is the correct train, however the loads will not be shed and ESFLS will not be initiated.
- B. Incorrect, this *is* not the correct train, and the loads will not be shed and ESFLS will not be initiated.
- C. Correct, this is the correct train and the loads will not shed and ESFbS will be disabled.

5/11/04
D. ~~Incorrect, this is the wrong train.~~ *BASED ON POST EXAM COMMENT RESOLUTION*
CONCERN

39. 058AK1.01 001

- The plant is currently in Mode 5.
- Battery Charger XBC1A is out of service due to a failed supply breaker.
- Battery Charger XBC1A-1B is aligned to DPN1HA.
- Preparations are complete to remove the 1B Battery from service to replace several damaged cells.

When the battery breaker is opened the following annunciators actuate on panel XCP-637:

- "DG B LOSS OF DC"
- "TRAIN B BATT CHGR TRBL XBC1B/1A-1B"
- "DC SYS OVRVOLT/UNDRVOLT"

Which QNE of the following describes a possible cause for the annunciators listed above?

- A. Battery Charges XBC1A-1B has ceased to produce voltage.
- B. Battery Charges XBC1B has ceased to produce voltage.
- C. Excessive Voltage is being delivered from Battery Charger XBC1A-1B.
- D. Excessive Voltage is being delivered from Battery Charger XBC1B.

Summer Bank Question # 4918 for B train.
Summer Objective # GS-3-04 and GS-3-20.

- A. Incorrect, this charger is on the **opposite** train.
- B. Correct, this could cause these indications.
- C. Incorrect, this would not cause all of the indications and is **on** the wrong train.
- D. Incorrect, this would not cause all of the indications.

40.059K1.02 001

- The Unit is operating at 30% power.
- The "B" D/G is tagged out for maintenance.
- A transformer fault causes a loss of 1DB power.
- All Main Feed Water pumps trip.
- S/G narrow range levels are "A" 28%, "B" 35%, "C" 15%

Which ONE of the following describes the EFW pump(s) that will be running?

- A. "A" EFW and TDEFW pumps.
- B. "A" & "B" EFW pumps.
- C. "B" EFW and TDEFW pumps.
- D. "A" EFW pump only.

Similar to old NRC bank question used on Farley Exam 2000.
Summer Objectives 18-3-12, 18-3-19.

- A. Correct, the A pump will start as a result of all three feed pumps being tripped, and the TDEFW will start as a result of Lo-Lo S/G level.
- B. Incorrect, the B EFW pump does not have power.
- C. Incorrect, the B EFW pump does not have power.
- D. Incorrect the A EFW and TBEFW pump will be running.

41. 061A3.04 001

- The unit is responding to an emergency *event*.
- Annunciator XCP-622 point 1-1, "EF TO A SG FLOW HI," is in alarm.

Which One of the following describes how the TBEFW pump is protected from going into runout conditions under these conditions?

- A. The TDEFWP FCV to " A S/G will close immediately if EFW flow exceeds 730 gpm.
- B. The TDEFWP recirculation flow path to the Condensate Storage Tank (CST will isolate if Row to the "A" S/G is greater than 515 gpm for 30 seconds).
- C. The TDEFWP FCV to " A S/G will close if EFW flow exceeds 730 gpm for 30 seconds.
- D. The combined EFW FCV to " A S/G will close immediately if combined EFW flow exceeds **515** gpm.

Need to verify ARP numbers. New question developed from bank question # 4124.

- A. Incorrect. this is the correct flow rate, but it must be present for 30 seconds.
- B. Incorrect, the recirculation valve does not close at this flowrate.
- C. Correct, ARP XCP-622 point 1-1 describes the setpoint of 730 gpm for 30 seconds, the FCV will isolate.
- D. Incorrect, this is not the correct setpoint and the combined isolation valve does not isolate at this flow rate.

42.061K5 05 001

- The Unit is at 100% power.
- The "B" MDEFW pump has been run for the quarterly STP.
- 2 hours after the pump is secured, it is reported that pump discharge temperature is 155°F.

Which ONE of the following describes the condition that exists and its operational implications?

- A. "B" EFW pump FCV was inadvertently closed; this would cause a delay in EFW flow if an auto start condition occurred.
- B. "B" EFW pump outlet check valve failed to reseat; this could result in steam binding of the pump.
- C. "B" EFW miniflow valve was closed causing temperature to rise; this could result in the pump overheating when the pump is restarted.
- D. "B" EFW pump outlet check valve failed to reseat; this could result in pump run-out if an auto start occurs.

New Question. Summer objective IB-3-20. pages 13 and 32.

- A. Incorrect, the FCV being closed would not cause the discharge temperature to rise.
- B. Correct, this would cause these indications, and this is the correct concern.
- C. Incorrect, the mini flow valve being closed should not cause the temperature to remain this high after two hours of the pump being secured.
- D. Incorrect, this is the correct cause, but pump runout is not a concern.

43. 062AA2.01001

-A Safety Injection has occurred.

-The following annunciators are received on Panel XCP-604:

"SWBF A(B) SUC DISCH PRESS LO"
"SW FW RBCU 1A/2A FLO LO"
"SW FR RBCU 1A/2A PRESS LO"

SWBP "A" discharge flow rate indicates 3800 gpm on **FI-4466**.

Which ONE of the following describes a condition that could cause these indications?

- A. A piping failure has occurred downstream of the train "A" RBCU SW backpressure orifices.
- B. A piping failure has occurred upstream of the 1"A" RBCU.
- C. The "A" Service Water booster pump has failed.
- D. The "A" Service Water booster pump discharge isolation valve has failed closed.

Summer Bank Question # **4956**.

Summer Objective # **18-4-43**.

- A. Incorrect, a break downstream of the train A RBCU would not give these indications. Flow on **FI-4468** would be high and these annunciators would not be in.
- B. Correct, this could cause these indications.
- C. Incorrect, flow on **FI-4466** would not be **this** high.
- D. Incorrect, flow on **FI-4466** would not be this high.

44. 062K1.02 001

- The Plant is operating at 80% power.
- A Fault occurs on XTF-31, "Emergency Auxiliary Transformer," causing its associated 86 lockout relay to energize.
- Eight (8) seconds after the fault a Start Failure is received on the "B" Diesel Generator.

Which ONE of the following describes the status of the 7.2 KV busses, 1BA and 1DB?
(assume no operator actions taken)

- A. 1DA energized from offsite, 1DB energized from "B" BIG.
- B. 1DA energized from offsite, 1DB de-energized.
- C. 1DA energized by "A" D/G, 1DB energized from offsite.
- D. 1DA energized by "A" DIG, 1DB energized from B D/G.

Modified from Summer bank question # 1068.
Summer Objectives GS-2-06 and 20.

- A. Incorrect, 1DB will not be energized from B D/G with a start failure.
- B. Correct, 1DA will be energized from offsite and 1DB will be de-energized.
- C. Incorrect, 1BA will not be energized from A DIG and 1DB will not be energized from offsite.
- D. Incorrect, 1DA will not be energized from A D/G and 1DB will not be energized from B D/G with a start failure.

45.063A2 01 001

- The Unit is at 100% power.
- Annunciator XCP-637 (4-5), "DC SYS TRAIN B GND TRBL" illuminates.
- An operator is dispatched to reset the alarm and the alarm returns immediately after the appropriate time delay has passed.

Which ONE of the actions should the operator take next in accordance with ARP XCP-637 (4-5)?

- A. Begin isolating loads one at a time to find the ground to prevent spurious equipment operation.
- B. Assign additional operators to help locate the ground to minimize equipment damage as a result of the ground.
- C. Bake the associated power lockout switches to "lock out" to prevent spurious equipment operation.
- D. Write an MWR to have electrical maintenance investigate the ground to minimize equipment damage as a result of the ground.

New Question. Ref: Panel XCP-637 (4-5) annunciator response procedure.
Summer Objective **GS-3-20**.

- A. Incorrect, operators do not isolate loads nor search for grounds.
- B. Incorrect, operators do not search for grounds.
- C. Incorrect, this is not done unless an actual ground is found following troubleshooting.
- D. Correct, This is required per the ARP.

46. 063A4.03 001

The plant has experienced a loss of **ALL** AC power.

Which ONE of the following describes when the operator would have to reduce load on the 125 VDC batteries in accordance with EOP-6.0, "Loss of All ESF AC Power?"

- A. DC loads should be reduced as necessary to maintain battery bus voltage greater than 111 VDC.
- B. DC loads should be reduced as necessary upon receipt of the "DC SYS OVRVOLT/UNDRVOLT" annunciator XCP-636 (3-6).
- C. DC loads should be reduced as necessary to maintain battery bus voltage greater than, 108 VDC.
- D. DC loads should be reduced as necessary upon receipt of the "DG A LOSS OF DC" annunciator XCP-636 (4-3).

Summer Bank Question # 48. Slightly modified using question 4918.
Objective # GS-3-20.

- A. Incorrect, this voltage is the minimum voltage for per STP-501.004 Battery Capacity Test.
- B. Incorrect, this alarm comes in at 126 VDC, and EOP-6.0 has the operator maintain voltage above 108 VDC.
- C. Correct, this is the direction given in the reference page of EOP-6.0.
- D. Incorrect, this annunciator is received upon the opening of breakers not voltage.

47. 064A1.03 001

The " A DIG is being tested IAW STP-125.002 and is operating **in** parallel with off-site power.

Which ONE **of** the following describes how to reduce reactive load **while** maintaining D/G real load constant?

- A. Go to raise on the Voltage controller.
- B. Go **to** raise on the Governor controller.
- C. **Go** to lower on the Voltage controller.
- D. Go to lower on the Governor controller.

Summer Bank question 1054.
Objective # **IB-5-19**

- A. Incorrect, this would increase amps.
- B. Incorrect this would raise amps and increase load.
- C. Correct this would decrease amps, and would not effect load.
- D. Incorrect, this would lower real load.

48.064A4.09 001

- A loss of off site power has occurred.
- The " A D/G is supplying the 1DA bus.
- A recovery of the normal off site power is in progress.

Which ONE of the following describes actions that must be completed to parallel the off site source to the 1DA bus?

- A. "A" D/G Test Stat? switch is placed in start, the D/G "A" sync switch is placed in NORM, and the synchroscope should be rotating slow in the fast direction.
- B. " A D/G Test Start switch is placed in start, the D/G "A" sync switch is placed in NORM, and the synchroscope should be rotating slow in the slow direction.
- C. "A" D/G Test Start switch is placed in stop, the D/G "A" sync switch is placed in DSL, and the synchroscope should be rotating slow in the fast direction.
- D. "A" D/G Test Start switch is placed in stop, the D/G "A" sync switch is placed in DSL, and the Synchroscope should be rotating slow in the slow direction.

New question developed from Summer question 1144, to meet K/A.
Summer Objective # **GS-2-06**.

- A. Incorrect, the synchroscope should be rotating in the slow direction.
- B. Correct.
- C. Incorrect, the test start switch should be in the test position and sync scope should rotate in the slow direction.
- D. Incorrect, the test start switch should be in the test position.

49. 065AA1.03 001

- The plant is operation at 100% power.
- The "B" Reactor Building and the "B" Station Air compressors are in operation.
- A sustained loss of all offsite power occurs.
- The "A" and "B" DG's start and load normally.

Which ONE of the following describes the response of the Instrument Air System, and what operator actions are necessary for air system restoration?

- A. The " A Station air compressor automatically restarts, and PVT 2659 "INST AIR TO RB AIR SERV" must be manually opened to supply RB IA loads.
- B. The "B" Station air compressor auto starts on low pressure, and PVA 2659 "INST AIR TO RB AIR SERV" must be manually opened to supply RB IA loads.
- C. PVA 2659 "INST AIR TO RB AIR SERV" automatically opens on low pressure to supply RB IA loads, manually start the Supplemental air compressor and ensure it is aligned to the IA header.
- D. PVA 2659 "INST AIR TO RB AIR SERV" automatically opens on low pressure to supply RB IA loads, manually start the Diesel Sullair air compressor and align it to the IA header.

Modified from Summer Bank question # 3628. Licensee requested to use a drawing. Summer objective AB-14-06, and 17. (Licensee requested change from original question)

- A. Incorrect, the A station air compressor is lost due to non ESF lockout, and 2659 will automatically open.
- B. Incorrect, B station air compressor is unavailable without offsite power to nonvital AC busses, and 2659 will automatically open.
- C. Incorrect, the supplemental instrument air compressor is lost due to non ESF lockout.
- D. Correct, an operator must be dispatched to start the Diesel air compressor and restore air header pressure.

50_067AA1.08.001

- The Unit is operating at 100% power with all control systems normally aligned.
- A sustained loss of offsite power occurs.

Which ONE of the following ensures that the water extinguishing fire protection system is available during this time?

- A. The diesel driven fire pump will start automatically **15** seconds after the loss of AC power occurs provided a low system pressure condition exists.
- B. The electric fire pump will be manually aligned to a vital bus and will be started locally if required.
- C. The diesel driven fire pump will start automatically **15** seconds after a loss of AC regardless of system pressure.
- D. The electric fire pump will be sequenced onto a vital bus after step 8 of the ESFLS blackout sequence.

Summer Bank Question # 4922.
Summer Objective GS-1 1-05.

- A. Incorrect, a low pressure condition is not required
- B. Incorrect, the electric driven fire pump is not started by procedure.
- C. Correct, the diesel driven fire pump will auto start **15** seconds after a loss of AC occurs.
- D. Incorrect, the electric fire pump does not sequence on to a **bus**.

51. 072G2 1 14 001

- The Plant is in Mode 6 conducting a core off load.
- The level in the refueling cavity has started decreasing rapidly due to an unknown cause.
- AOP-123.1, "Decreasing Level in the Spent Fuel Pool or Refueling Cavity During Refueling," has been entered.

Which ONE of the following is the **minimum** dose rate on the refueling bridge (RM-G17A/B) that requires **immediate** evacuation of all personnel from the Reactor Building and Fuel Handling Building?

- A. 5 R/HR
- B. 10 R/HR
- C. 20 R/HR
- D. 25 R/HR

Summer Bank Question #4206. Objective AOP-123.1 Lesson Plan # 2337.

- A. Incorrect, the evacuation should have started at 20 R/HR on RM-G-17A/B.
- B. Incorrect. the evacuation should start at 20 R/HR on RM-G-17A/B.
- C. Correct, this is when the evacuation should occur.
- D. Incorrect. the evacuation should start at 20 R/HR on RM-G-17A/B.

52. 073K5.01 001

Which ONE of the following Process Radiation Monitors uses a Geiger-Muller detector?

- A. RM-L1 Primary Coolant Letdown Monitor.
- B. RM-L5 Liquid Waste Effluent Monitor.
- C. RM-L7 Nuclear Blowdown Waste Effluent Monitor.
- D. RM-L11 Condensate Polishing Monitor.

New Question. Summer Objective GS-9-06.

- A. Correct, the high range monitor on the RM-L1 uses a GM detector.
- B. Incorrect, the RM-L5 uses a scintillation detector.
- C. Incorrect, the RM-L7 uses a scintillation detector.
- 5. Incorrect, the RM-L11 uses a scintillation detector.

53. 076AK2.01 001

Which ONE of the following would provide the earliest indication of a gross fuel failure in the control room?

- A. RM-A13, Main Plant Vent Hi Range.
- B. Reactor Coolant Dose Equivalent Iodine sample.
- C. RM-L1 Primary Coolant Letdown Monitor.
- D. Reactor Coolant E-Bas calculation.

Bank Question from Vogtle Exam, Modified for Summer.
Objective GS-9-05.

- A. Incorrect, the main plant vent Hi range may see some activity but it would require another leak and it would not be the earliest.
- B. Incorrect, this is a method of obtaining specific activity, but it will not be the earliest.
- C. Correct, this is the function of this radiation monitor.
- D. Incorrect, this is a calculation taken from data obtained on an RCS sample and will not be the earliest indication.

54. 076G2.1.30 001

- FEP-4.0, "Control Room Evacuation," has been entered due to fire.
- The crew is at the step for initiating Reactor Building Cooling.

Which ONE of the following describes which service water booster pump should be started and where the pump will be started from?

- A. The "A" SW Booster Pump should be started from the "A" CREP.
- B. The "B" SW Booster Pump should be started from the "B" CREP.
- C. The " A SW Booster Pump should be started locally from XSWIDA1.
- D. The "B" SW Booster Pump should be started locally from XSWIDB1.

FEP-4.0 and IB-01 Service water system.
Summer Objective # IB-1-22, and IB-1-17.

- A. Incorrect, according to the lesson plan only B train SW is used during a fire (appendix R).
- B. Incorrect, this is the correct SW booster pump but it is not controlled from the CREP.
- C. Incorrect, according to the lesson plan only B train SW is used during a fire (appendix R).
- D. Correct, this is the correct SW booster pump and location.

55. 076K4.02 001

Which **ONE** of the following describes the Auto-Start feature of the "A" Service Water pump?

- A. EFW low suction pressure (2/4) **and** no SI/Blackout signal present.
- B. MVG-1037A, "EF SERVICE WATER HDR A XCONN ISOL VALVE," open and no SI/Blackout signal present.
- C. EFW low suction pressure (2/4) coincident with an SI/Blackout
- D. MVG-1037A, "EF SERVICE WATER HDR A XCONN ISOL VALVE," open coincident with an SI/Blackout.

Summer Bank Question # 225. Summer Objective # IB-1-16

- A. Incorrect, the low pressure **only** opens the valves, does not auto start the pump.
- B. Correct, this will cause the A SW pump to auto start
- C. Incorrect, the low pressure **only** opens the valves, does not auto start the pump.
- D. Incorrect, the auto **start** on 1037A open is locked out **by** the sequencer.

56.078K2.02 001

- A Reactor trip has occurred due to a Small break LOCA.
- A Safety injection ~~s~~ is in progress.
- All electrical busses are energized as designed.

Which ONE of the following air compressor is supplying the Instrument Air system and from which AC source is it being powered from?

- A. Instrument Air Comp "B" (XAC-3B) powered from XSW1DB1.
- B. Instrument Air Comp "B" (XAC-3B) powered from XSWIA1.
- C. Supp Instrument Air Compressor (XAC-12) powered from XSWIDB1.
- D. Supp Instrument Air Compressor (XAC-12) powered from XSW1A1.

Summer Bank Question# 1840. objective# AB14-12, TB-12-03,05, and 19

- A. Incorrect, this is not the correct power supply.
- B. Correct, this is the correct air compressor and correct power supply
- C. incorrect, incorrect air comp and power supply.
- D. Incorrect, incorrect air comp.

57. 078K3.01 001

A **Loss of** Reactor Building Instrument Air has occurred.

Which ONE of the following describes the effects this will have on the Reactor Coolant System, if air to the Reactor Building cannot be restored? (assume no operator action)

- A. Pressurizer level will decrease due to FCV-122 failing closed.
- B. RCS Pressure will decrease due to a PZR PORV failing open,
- C. Pressurizer level will increase due to PCV-145 failing closed.
- D. **RCS Pressure will increase due to LCV-459 failing closed.**

Modified Bank Question 326 from equal bank. Summer Objective # AB-14-17.

- A. Incorrect, FCV-122 fails open on a **loss** of air, this would cause pressurizer level to increase.
- B. Incorrect, PZR PORVs fail closed on a **loss** of air, however if they were open RCS pressure would decrease.
- C. Incorrect, PCV-145 fails open on a **loss** of air, this would cause pressurizer level to decrease. (assumption made from comments on question 316, PCV-145 may fail open if it does this needs to be revised).
- D. Correct, Letdown will isolate, with continued charging flow and heaters on RCS pressure will increase.

58.086K5.03 001

- The Unit was operating at 100% power.
- An electrical fire started inside the CB Cable Spreading Room. (CB-448')

Which ONE of the following describes the type of fire suppression system that is installed inside of the CB Cable Spreading Room and what are the effects of fighting this type of fire with the extinguishing agent?

- A. An automatic wet pipe sprinkler system is installed. An electrical shock hazard exists due to the use of water to combat an electrical fire.
- B. An automatic low pressure CO₂ system is installed. An asphyxiation hazard exists due to the presence of CO₂ gas.
- C. An automatic pre-action sprinkler system is installed. An electrical shock hazard exists due to the use of water to combat an electrical fire.
- D. An automatic Halon 1301 system is installed. An asphyxiation hazard exists due to the presence of Halon gas.

Modified from a recent NRC exam.
Summer objective # GS-11-04 and 07.

- A. Incorrect, the cable spreading room is protected by a pre-action sprinkler system.
- B. Incorrect, the cable spreading room is protected by a pre-action sprinkler system.
- C. Correct, this is the type of protection that is used on the CB Cable spreading room and an effect of using water to fight an electrical fire.
- D. Incorrect, the cable spreading room is protected by a pre-action sprinkler system.

59. 103G2.4.4.001

Which ONE of the following combinations of signals is required to cause an **automatic** actuation of Reactor Building Spray flow?

- A. A Phase "B" Containment Isolation and Containment Pressure at 6.5 psig.
- B. A Phase "A" Containment Isolation and Containment Pressure at 6.5 psig.
- C. A Phase "B" Containment Isolation and Containment Pressure at 13 psig.
- D. A Phase "A" Containment Isolation and Containment Pressure at 13 psig.

Summer Bank Question 3012.

Summer Objective AB-8-19.

- A. Incorrect, a phase 'A' is required along with containment pressure greater than 12.05 psig.
- B. Incorrect, a phase 'A' is required along with containment pressure greater than 12.05 psig.
- C. Incorrect, a phase 'A' is required along with containment pressure greater than 12.05 psig.
- D. Correct, a phase A with containment pressure greater than 12.05 psig is required for actuation.

60. G2 1.19001

After starting a pump *from* the MCB the operator checks the IPCS to determine *system status* and observes the following:

The pump indicates solid RED.
The discharge valve indicates solid GREEN.

Which ONE of the following describes **the** status of the components?

- A. The pump is sunning and could be approaching runcut conditions.
- B. The pump has tripped and the discharge valve is closed.
- C. The pump is running and pumping against a shutoff head.
- D. The pump has tripped and the discharge valve is open.

Summer objective GS-13-04. Combined two bank questions. 4266 and 4269.

- A. Incorrect, the pump is running but the discharge valve indicates closed.
- B. Incorrect, the pump is running and the discharge valve indicates closed.
- C. Correct, The pump is running and the discharge valve is closed therefore the pump is at shut-off head.
- D. Incorrect the pump is running and the discharge valve is closed

61. G2.1.28001

Which **ONE** of the following is an **ESSENTIAL** function of the Component Cooling Water system during the **injection** phase of a Safety Injection actuation?

- A. Remove heat from the Letdown heat exchanger.
- B. Remove heat from the **RHR** heat exchanger.
- C. Provide cooling to the Reactor Coolant Pump thermal barriers.
- D. Provide cooling to the **Charging/SI** pump gear and pump **oil** coolers.

Summer Objectives 1B-2-01, 02, 03, and 05.
Modified from Bank question 2012.

- A. Incorrect, this is not an essential load and is not required during the injection phase.
- b. Incorrect, this is not required during the injection phase.
- C. Incorrect, this is not an essential **load**.
- D. Correct, this *is* an essential load during the injection phase of an SI.

62. G2.1.9 001

- You are the NROACT on shift.
- The Shift supervisor and CRS are **both** unavailable.
- A Loss of letdown has occurred.
- AOP-101.1, "Loss of Reactor Coolant, Not Requiring SI," has been entered.
- Charging flow has been maximized.
- Pressurizer level is 16% and decreasing.

Which ONE of the following describes the NROATC responsibilities during this event in accordance with SAP-200, "Conduct of Operations?"

- A. An Automatic Trip should have occurred, wait to inform the Supervision, then trip the reactor manually.
- B. Trip the reactor and turbine, upon completion of immediate operator actions direct a safety injection.**
- C. Take the actions required to raise pressurizer level and wait for supervision to direct further actions.
- D. Trip the reactor and ensure that the turbine is tripped, initiate a safety injection when directed by the Supervision.

New question. REF: SAP-200, 6.7.8 (B), and AOP-102.1, objective-3097.

- A. Incorrect, an automatic trip would not have occurred.
- B. Correct, IAW SAP-200 Conduct of Operation this is the responsibility of the NRQATC.**
- C. Incorrect, the conditions are calling for a reactor trip and SI
- D. Incorrect, the **SAP** assigns this responsibility to the NROATC.

63. G2.2.22 001

- The Unit is in mode 2, starting up the main feed system.
- An event occurred that has caused RCS pressure to rise to 2785 psig before it was stabilized.

Which ONE of the following describes the correct actions to take in accordance with Technical Specifications?

- A. The Unit must be cooled down to cold shutdown to evaluate the effect the transient had on the **RCS** pressure boundary.
- B. The Unit must be placed in Hot Shutdown within **1** hour, with pressure ~~at~~ 2235 psig within 5 minutes.
- C. RCS pressure must be reduced to less than 2735 psig, and the unit placed in Hot Standby within **1** hour.
- D. RCS pressure must be reduced to less than 2735 psig within 5 minutes.

Original used on Last Summer **SWO** exam. Modified by changing **mode**.
Summer Objective **AB-2-25**

- A. Incorrect, the TIS does not direct this.
- 5. Incorrect. the TIS does not direct this.
- C. Correct, this **is** the action in the **LCO** of TIS, for this mode.
- D. Incorrect, this is for mode **3, 4. and 5.**

64.G2.2.25.001

Which ONE of the following is the Technical Specification bases for the pressurizer water level reactor trip?

- A. Protects against **loss** of pressure control due to the spray **nozzle** being submerged.
- B. Protects the pressurizer safety valves against water relief.
- C. Prevents exceeding containment design pressure in the event of a **LOCA**.
- D. Prevents **solid** plant operation while the reactor is critical.

Bank Question from farley exam bank.

Objective **IC-9-38**.

- A. Incorrect, this is not the bases *for* the trip.
- B. Correct this is the bases for the High Pressurizer level trip.
- C. Incorrect, mass in the secondary side (**S/G**) is limited to prevent this.
- D. Incorrect, the RCS could be solid with the reactor critical if power was less than **P-10**.

65.ci2.2.28 001

Which ONE of the following describes the minimum water cover for shielding of irradiated fuel assemblies during all handling operations, and the expected dose rate at the water surface?

- A. 9.5 feet above the fuel assembly being moved, 2.5 mr/hr.
- B. 9.5 feet above the racks, 0.5 mr/hr.
- C. 23 feet above the fuel assembly being moved, 2.5 mr/hr.
- D. 23 feet above **the racks**, 0.5 mr/hr.

Summer Bank Question. # 4898 (Old NRC RO exam question) need to verify. Bid not send fuel handling Procedures.

66.G2.3.10002

-A large Break LOCA has occurred.

Which ONE of the following should have the least impact on Auxiliary Building Radiation Levels?

- A. Shifting RHR Pump suction to the RB Sump in accordance with EOP-2.2, "Transfer to Cold Leg Recirculation."
- 5. Performing Post Accident Sampling in accordance with EOQ-2.0, "Loss of Reactor or Secondary Coolant."
- C. Initiating Cold leg Safety Injection in accordance with EOP-1.0, "Reactor Trip or Safety Injection."
- D. Shifting Charging Pump Suction to RHR in accordance with EOP-2.2, "Transfer to Cold Leg Recirculation."

Summer Bank Question # 963, added procedures.

- A. Incorrect, this will bring primary coolant into the Aux bldg and raise radiation levels.
- 5. Incorrect, this will bring primary coolant into the Aux bldg and raise radiation levels.
- C. Correct, this water comes from the RWST to the RCS and should have the least effect on radiation levels.
- D. Incorrect, this will bring primary coolant into the Aux bldg and raise radiation levels.

67. G2.3.11 001

Which **ONE** of the following radiation monitor signals/actions ensures that liquid effluent releases do not inadvertently exceed desired quantities of radionuclides?

- A. A high radiation signal on **RM-L9** will close PVB-6910, "Liquid Waste Discharge Header Isolation valve."
- B. A high radiation signal on **RM-L9** will close RCV-018, "Liquid Radioactive Waste Control Valve."
- C. A high radiation level sensed by **RM-L5** will close PVB-6910, "Liquid Waste Discharge Header Isolation valve."
- D. A high radiation level on **RM-L11** will close the Back Wash Transfer **pumps** discharge valves.

Combination of several Summer bank questions.
Objectives GS-9-16 and 18.

- A. Correct, a high radiation signal on **RM-L9** will close PVD-6910.
- B. Incorrect, **this** signal comes from **RM-L5**.
- C. Incorrect, this signal comes from **RM-L9**.
- D. Incorrect, this monitor will secure the Back wash transfer pumps.

68. G2.4.1 001

Which **ONE** of the following describes how EQP, Immediate Operator Actions, are to be performed?

- A. EOP Immediate action steps **SHALL** be performed from memory, the immediate action steps of EOP-1.0, "Reactor Trip/Safety Injection Actuation", EOP-6.0, "Loss of All ESF AC Power", and EOP-13.0, "Response to Abnormal Nuclear Power Generation," shall be performed sequentially, and are denoted by a circle around the step number.
- B. EOP Immediate action steps **SHOULD** be performed from memory, the immediate action steps of all EOPs must be performed sequentially, and are denoted by a circle around the step number.
- C. EOP Immediate action steps **SHOULD** be performed from memory, the immediate action steps of EOP-1.0, EOP-6.0, and EOP-13.0 shall be performed sequentially, and are denoted by a bracket around the step number.
- D. EOP immediate action steps **SHALL** be performed from memory, the immediate action steps of EOP-1.0, and EOP-2.0, "Loss of Reactor or Secondary Coolant," shall be performed sequentially, and are denoted by a circle around the step number.

From a Bank Question (used at North Anna). -Needs to be verified.

Used OAP-103.4 as a reference. Licensee changed answer **A** to include EOP-1, 6, and 13, with titles.

A. Correct, IAW OAP-103.4 EOP immediate operator actions shall be committed to memory. Steps that are to be performed in order are numbered. and Immediate operator action steps are circled.

B, C, and D do not meet these criteria.

69..G2.4.35.001

- A Plant Fire has occurred.
- FEP-2.0, " " A Brain Plant Shutdown to Hot Standby due to Fire," has been entered.

Which ONE of the following describes the duties of the Intermediate Building Operator in response to this event?

- A. Place the LOCALIREMOTEIMAIN switch for the "A" Diesel Generator in MAINT within 30 minutes to disable the diesel.
- B. Place the LOCALIREMOTEIMAIN switch for the "B" Diesel Generator in MAINT within 30 minutes to disable the diesel.
- C. Place the LOCAL/REMOTE/MAINT switch for the "A" Diesel Generator in LOCAL immediately to allow the NRQATC to start the diesel.
- D. Place the LOCAL/REMOTE/MAINT switch for the "B" Diesel Generator in LOCAL immediately to allow the NROATC to start the diesel.

new question, developed from 2 Summer bank questions. Need objective when FEP lesson plans are sent.

- A. Incorrect, it is not desired to disable the A train Diesel in this procedure.
- B. Correct, it is an action for the Intermediate operator to perform this within 30 minutes.
- C. Incorrect, the procedure does not have the Intermediate building operator perform actions to prepare the diesel for local start in this procedure.
- D. Incorrect this would be the correct action if FEP-4.0 was being implemented.

70. WE01EG2.4.24 001

- A Reactor Trip and Safety Injection has occurred.
-EOP-1.0, "Reactor Trip/Safety Injection Actuation," has been completed and the crew could not diagnose the event.
A Transition to EOP-1.5, "Rediagnosis," has been made.

Which ONE of the following correctly describes the major actions that will be taken in EOP-1.5?

- A. Verify that a primary LOCA does not exist, then transition to EOP-4.0, "Steam Generator Tube Rupture".
- B. Verify that a SGTR does not exist, then transition to EOP 3.0, "Faulted Steam Generator Isolation."
- C. Verify that a Faulted S/G or SGTR does not exist, then transition to EOP-2.0, "Loss of Reactor or Secondary Coolant."
- D. Verify that a SGTR or LOCA does not exist, then transition to EOP-1.2, "SI Termination."

Summer Objective 1819 and 1824 of eOP-1.5 Lesson Plan.

- A. Incorrect, the procedure checks for a Faulted S/G, SGTR, and if these are not present directs transition to EOP-2.0 "Loss of Reactor or Secondary Coolant".
- B. Incorrect, the procedure checks for a Faulted S/G, SGTR, and if these are not present directs transition to EOP-2.0 "Loss of Reactor or Secondary Coolant".
- C. Correct, the procedure checks for a Faulted S/G, SGTR, and if these are not present directs transition to EOP-2.0 "Loss of Reactor or Secondary Coolant".
- D. Incorrect, the procedure checks for a Faulted S/G, SGTR, and if these are not present directs transition to EOP-2.0 "Loss of Reactor or Secondary Coolant".

71. WE02EK3.2 001

- The crew is responding to a Faulted S/G.
- The S/G has blown dry.
- The crew has transitioned to EOQ-I.2, "SI Termination."
- The crew has just aligned for operation with only one Charging pump running.

Which ONE of the following describes the reason for verifying **RCS Pressure Stable Or Increasing** at this point of the procedure?

- A. RCS pressure stable or increasing ensures that a heat sink still exists.
- B. To confirm that SI flow from one charging pump is adequate to maintain control.
- C. To determine if the low head safety injection pumps should be secured.
- D. To verify that natural circulation flow is adequate to maintain RCS temperature.

New Question, used summer bank question # 3038 as a guide.
Objective #1787 of EOP-2.1 Lesson Plan.

- A. Incorrect, RCS pressure would increase if the heat sink was lost.
- B. Correct, according to lesson material and WOG background document.
- C. Incorrect, This may be done at some point during the procedure, but not at this point. (Should have already been secured).
- D. Adequate Natural circulation flow would lower RCS pressure.

72. WE04EK1.3.001

- The Unit has had a LOCA.
- Actions of EOP-1.0, "Reactor Trip / Safety Injection" have been completed.
- The crew is performing Actions in EOP-2.0, "Loss of Reactor or Secondary Coolant."

-The following indications/alarms are observed:

RM-A3, "MAIN PLANT VENT EXH ATMOS MONITOR," is trending up.
RM-A13, "PLANT VENT HI RANGE," is trending up.
Annunciator XCP-606 3-4, "LD TRBL AB SMP," and XCP-607 3-4, "FLDRN LVL HI," are both lit.

Which ONE of the following describes plant conditions and the major action that the crew should take to mitigate this event?

- A. A LOCA has occurred outside the Reactor Building; use EOP-2.1 "Post LOCA Cooldown and Depressurization," to perform a cooldown.
- B. A LOCA has occurred inside the Reactor Building; use EOP-2.4, "Loss of Emergency Coolant Recirculation," to minimize SI flow.
- C. A LOCA has occurred outside the Reactor Building; use EOP-2.5 "LOCA Outside of Containment," to attempt to isolate the leak.
- D. A LOCA has occurred inside the Reactor Building; use **EOP-2.1** "Post LOCA Cooldown and Depressurization," to perform a cooldown.

Developed from several bank questions.

Summer Objective # 1883 and 1885 of EOP-2.5 Lesson Plan.

- A. Incorrect, the indications given those of a LOCA outside of containment, to mitigate the event **EOP-2.5** would be entered.
- B. Incorrect, the indications given those of a LOCA outside of containment, to mitigate the event **EOP-2.5** would be entered.
- C. Correct, with the current indications **EOP-2.5** should be entered to isolate the leak.
- D. Incorrect, the indications given those of a LOCA outside of containment, to mitigate the event **EOP-2.5** would be entered.

73. WE05EA2.2 001

Which **ONE** of the following describes the sequence of actions required to establish bleed and feed heat removal, in accordance with, EQP-15.0, "Response to loss of Secondary Heat Sink?"

- A. "Feed" is established first by initiating Main Feed to a S/G, then "Bleed" is established by depressurizing a S/G with an atmospheric steam dump.
- B. "Bleed" is established first by opening Both Pressurizer PORVs, then "Feed" is established by initiating Safety Injection.
- C. "Feed" is established first by initiating Safety Injection, then "Bleed" is established by opening All Pressurizer PORVs.
- D. "Bleed" is established first by depressurizing a S/G with an atmospheric steam dump, then "Feed" is established by initiating Main Feed to a S/G.

Summer Bank Question # 3076.

- A. Incorrect, feed *is* established first, however it is with **SI** flow, and Bleed is with pressurizer PORVs.
- B. Incorrect, bleed is established after Feed is established.
- C. **Correct**, Feed by initiating an SI is established first, and then the Pressurizer PORVs are opened to establish a **bleed** path.
- D. Incorrect, bleed is established after Feed is established, and not from these **sources**.

74. WE11EG2.4.7 001

- The crew is responding to a Primary LOCA outside of the Reactor Building.
- The Reactor was tripped and an SI was manually actuated.
- EOP-2.5, "LOCA Outside Containment," has been completed.
- EOP-2.4, "Loss of Emergency Coolant Recirculation," has been entered.

Which **ONE** of the following correctly describes the **strategies/priorities** that will be used to mitigate these conditions?

- A. Initiate an WCS cooldown at the maximum rate, maximize ECCS flow, and begin efforts to makeup **to** the RWST.
- B. Initiate an RCS cooldown at the maximum rate, establish only one train of ECCS flow and maintain subcooling $> 80^{\circ}\text{F}$ and begin **efforts** to makeup to the RWST.
- C. Begin efforts to makeup to the RWST, initiate a cooldown to cold shutdown at $< 100^{\circ}\text{F}/\text{HR}$, ensure RBCUs are in **slow** speed.
- D. Begin efforts to makeup to the RWST, establish **only** one train of ECCS flow and maintain subcooling $> 80^{\circ}\text{F}$, verify both **RB** spray pumps in operation.

Bank Question, modified for Summer. (Farley question #1494).

- A. Incorrect, makeup to the RWST **is** the first concern for these conditions, and the cooldown should be limited to **less** than $100^{\circ}\text{F}/\text{HR}$.
- B. Incorrect cooldown should be $< 100^{\circ}\text{F}/\text{HR}$ and the RWST makeup should be done first.
- C. Correct, these are the strategies that are used in EOP-2.4
- D. Incorrect, a cooldown must be started and **RB** sprays should be minimized.

75. WE15EA1.1 001

Which ONE of the following is a MAJOR action performed in EOP-17.1 "Reactor Building Flooding?"

- A. Check for a Feed line break inside Reactor Building (RB).
- B. Verify a Containment Isolation has occurred.
- C. Identify and Isolate unexpected sources of water in the RB.**
- B. Check for Reactor Building Spray Actuation.

Summer Objective # 2182.

- A. Incorrect, the procedure Books for unexpected sources of leakage, this is designed for.
- B. Incorrect, the procedure does not direct the operator to verify a containment isolation, it is assumed that this has already taken place.
- C. Correct, the procedure directs the crew to identify and isolate unexpected leakage.
- B. Incorrect, the procedure does not direct the operator to check for this, RB spray, along with water from the RCS is assumed to already be in the sump.