

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

1. 001K6.03 001/2/2/RODS - TRIP BREAKERS/C/A - 3.7/NEW/R/NRC RO/TNT / RLM
Given the following:

- The reactor trips from 100% power.
- One reactor trip breaker fails to open.
- The BPLP C-7 status light is illuminated.

Which **ONE** of the following would be **CORRECT** regarding RCS Tave control assuming no operator action and all other systems function as designed?

- A. If Rx. Trip Breaker "A" failed to open, ARVs control Tave at 562 degrees F.
- B. If Rx. Trip Breaker "B" failed to open, ARVs control Tave at 562 degrees F.
- C. If Rx. Trip Breaker "A" failed to open, steam dumps control Tave at 557 degrees F.
- D. If Rx. Trip Breaker "B" failed to open, steam dumps control Tave at 557 degrees F.

Feedback

K/A

001 Control Rod Drive System:

K6.03 Knowledge of the effect of a loss or malfunction on the following CRDS components.

Reactor trip breakers, including controls.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a Reactor Trip Breaker fails to open after a reactor trip. Candidate must determine the effects on a plant control system (steam dump controls) to determine the final RCS Tave and method of control.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Steam dumps would arm on C-7. Plausible candidate may recall P-4 train "A" arms dumps but not recall C-7 would also arm the dumps. Dumps should control Tave at 559 degrees F in this situation and not ride on the ARVs at 562 degrees F.
- B. Incorrect. Steam dumps would arm on C-7 and P-4 Train "A". Plausible candidate may confuse which train arms dumps and not recall C-7 also arms the dumps. Dumps should control Tave at 557 degrees F in this situation and not ride on the ARVs at 562 degrees F.

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

- C. Correct. Steam dumps would arm on C-7 and P-4 Train "B" would shift their operation to the "plant trip mode". Dumps should control Tave at 557 degrees F in this situation.
- D. Incorrect. Steam dumps would arm on C-7 and P-4 Train "A". Plausible candidate may confuse which train shifts dumps to the plant trip mode. If Train "B" trip breaker failed to open, steam dumps operate in the "load reject mode". Dumps would control Tave at 559 degrees F in this situation.

REFERENCES

Power Point Presentation, V-LO-PP-21201, Revision # 2, Steam Dumps (slides 59 - 88 in particular cover this question)

Vogtle Text, V-LO-TX-21201, Revision # 1, Steam Dumps (pages # 14, 20 - 22, 34 - 36 in particular cover this question)

VEGP learning objectives:

LO-PP-21201-07, Discuss how the Steam Dump System will respond to a Reactor Trip from Reactor Power level.

LO-PP-21201-11, Identify all the conditions that will arm the Steam Dump System and when they're normally activated.

LO-PP-21201-17, Discuss how the Steam Dump System will respond to a large temperature error signal in the Tavg Mode of operation.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C A D B D A D D C B Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

2. 003G2.4.11 001/1/2/DROPPED ROD - AOP/MEM - 3.4/MODIFIED/R/NRC RO/TNT / RLM

Given the following conditions / events:

- Plant was at 100%.
- A rod drops in CBD, crew enters AOP-18003-C, "Rod Control System Malfunction".
- Crew is preparing to realign the dropped rod to the other rods in CBD.
- All lift coils have been disconnected for the unaffected rods in CBD.
- Bank selector switch is selected to CBD.
- ROD CONTROL URGENT FAILURE annunciator illuminates at the start of rod pull and the RO acknowledges the alarm.

Which **ONE** of the following is **CORRECT** concerning the "ROD CONTROL URGENT FAILURE" annunciator and actions the crew should take in accordance with 18003-C?

- A. EXPECTED alarm, continue the rod pull. A multiplexing failure occurs due to the lift coils of all the other rods in the bank being disconnected.
- B. EXPECTED alarm, continue the rod pull. A regulation failure occurs due to the lift coils of all the other rods in the bank being disconnected.
- C. UNEXPECTED alarm, stop the rod pull. A multiplexing failure occurs due to the lift coils of all the other rods in the bank being disconnected.
- D. UNEXPECTED alarm, stop the rod pull. A regulation failure occurs due to the lift coils of all the other rods in the bank being disconnected.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

003 Dropped Control Rod:

G2.4.11 Knowledge of abnormal condition procedures.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a dropped rod has occurred. The candidate must pick the correct reason for a ROD CONTROL URGENT FAILURE alarm and whether rod withdrawal may continue.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Rod pull is allowed, however the annunciator is caused by a regulation failure, not multiplexing.
- B. Correct. Rod withdrawal is allowed, regulation is cause of Urgent Failure.
- C. Incorrect. Alarm is expected, action is from AOP if alarm inhibits rod motion. Plausible candidate may choose this as Urgent Failure normally inhibits rod motion. Rod withdrawal is also allowed.
- D. Incorrect. Alarm is expected. However, action is from RNO for rod motion inhibited. Plausible the candidate could think the alarm must be reset to allow motion and think rod withdrawal is not allowed.

REFERENCES

AOP-18003-C, "Rod Control Malfunction" section A for Dropped Rods in Mode 1. (Step A22 in particular AER and RNO and preceding note.)

LO-LP-60303-03-003 from Vogtle LO Active Exam Bank

V-LO-PP-27101, "Rod Control System" Power Point pages 85 and 86 in particular)

V-LO-TX-27101, "Rod Control System" Vogtle Text page # 55

VEGP learning objectives:

LO-PP-27201-20, Describe what happens upon receipt of a Rod Control Systems Urgent Failure; include how rod motion is inhibited.

LO-PP-60303-03, State why an urgent failure alarm will sound during a dropped rod retrieval.

Notes

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

3. 003K5.02 001/2/1/RCP - CSTDWN RCS/C/A - 2.8/MODIFIED/R/NRC RO/TNT / RLM
The unit is at 100% power:

- RCP # 3 trips due to an operator error on the QMCB .
- The crew verifies reactor trip.

Which **ONE** of the following would be **CORRECT** regarding the affected loop # 3 SG level and RCS delta T **INITIAL** responses following the RCP trip?

- A. SG level would shrink lower than the other SGs immediately after the RCP trips. RCS loop delta T would be lower than the other RCS loop delta T's.
- B. SG level would swell higher than the other SGs immediately after the RCP trips. RCS loop delta T would be lower than the other RCS loop delta T's.
- C. SG level would swell higher than the other SGs immediately after the RCP trips. RCS loop delta T would be higher than the other RCS loop delta T's.
- D. SG level would shrink lower than the other SGs immediately after the RCP trips. RCS loop delta T would be higher than the other RCS loop delta T's.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

003 Reactor Coolant Pumps:

K5.02 Knowledge of the operational implications of the following concepts as they apply to the RCS.

Effects of RCP coastdown on RCS parameters.

K/A MATCH ANALYSIS

Question gives a plausible scenario with an RCP trip. The candidate must choose the correct SG level response and RCS delta T response immediately following the RCP trip (during RCP coastdown).

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. SG level will shrink immediately following the RCP trip due to less heat input. Loop delta T will lower due to no heat removal through the affected loop.
- B. Incorrect. Plausible candidate could think SG level would swell due to no heat removal from the loop. Delta T response is correct.
- C. Incorrect. Plausible candidate could think SG level would swell due to no heat removal from the loop and think delta T could rise for the same reason.
- D. Incorrect. SG level response is correct. Plausible candidate could think no heat removal from the loop could cause a higher delta T.

REFERENCES

Vogtle May 2006 NRC RO Retake Exam question # 2 (used as a base to modify)

Various Vogtle LO Active Bank questions (LO-LP-60305-01, 02, and 03)

VEGP learning objectives:

LO-LP-60305-01 Describe how and why, during a partial loss of flow condition, the affected loop steam generator level will be affected.

LO-LP-60305-09 Given the entire AOP, describe:

- a. Purpose of selected steps.
- b. How and why the step is being performed.
- c. **Expected response of the plant / parameter(s) for the step.**

Notes

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

4. 004K6.09 001/2/1/CVCS - VCT DIVERT/C/A - 2.8/BANK/R/NRC RO/TNT / RLM

Given the following:

- The plant is at 40% power with 120 gpm letdown in service.
- VCT level transmitter, LT-112 fails HIGH.
- At the time of failure VCT level transmitter LT-185 reads 50%.

What **ONE** of the following is **CORRECT** if **NO** operator action is taken ?

VCT level lowers.....

- A. until charging pumps lose suction and start to cavitate.
- B. faster than auto makeup input and charging suction shifts to the RWST.
- C. with NO auto makeup capability and charging suction shifts to the RWST.
- D. until auto makeup starts and maintains VCT level between 30% and 50%.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

004 Chemical Volume Control System (CVCS):

K6.09 Knowledge of the effect of a loss or malfunction on the following CVCS components.

Purpose of VCT divert valve.

K/A MATCH ANALYSIS

Question asks plausible scenario on the effect of a failure of VCT LT-112A.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. LT-112 failing high will cause letdown divert to RHUT via LV-112A. VCT level will lower, RWST auto swapover is defeated and charging pumps lose suction due to VCT auto makeup capability is defeated (2 / 2 coincidence)
- B. Incorrect. Plausible the candidate may invert the instrument that initiates auto makeup to the VCT with a swap to the RWST on low level with full letdown divert.
- C. Incorrect. Plausible the candidate may invert the instrument that initiates auto makeup to the VCT and no makeup occurs. RWST auto swapover is defeated and requires a 2 / 2 coincidence.
- D. Incorrect. Plausible the candidate may invert the instrument that initiates auto makeup to the VCT and level will cycle between 30 to 50% with auto makeup.

REFERENCES

ARP-17007-1/2, window E05 for VCT HI / LO LEVEL annunciator.

LO-PP-09200-01-001 from Vogtle LO Active Exam Bank.

LO-PP-09100 CVCS Letdown (pages 113 and 129 in particular)

VEGP learning objectives:

LO-PP-09100-03, State the purpose and describe the control signals, setpoints, and any interlocks for the following:

- b. VCT divert valve, LV-112A

Notes

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

5. 005A4.03 001/2/1/RHR- TEMP, HTRS, FLO/MEM - 2.8/NEW/R/NRC RO/TNT / RLM

Given the following Unit 1 conditions:

- Two RCPs are in service
- Both Trains of RHR are in service
- HV-606 and HV-607 (RHR Hx outlets) are 50% open.
- RHR flow is 3000 gpm per train.
- PRZR level is being maintained at 25%.
- RCS is stable at 180 degrees F and 340 psig.
- All mode 4 entry requirements have been completed.

The Shift Supervisor has directed an RCS heatup to 330 degrees F to begin.

Which **ONE** of the following describes the **CORRECT** actions to take to commence the **MAXIMUM** heatup rate allowed in accordance with UOP 12001-C "Unit Heatup to Hot Shutdown (Mode 5 to Mode 4)"?

- A. Adjust FV-0618 / FV-619 to establish a heatup rate not to exceed the procedural limit of 50 F per hour.
- B. Adjust HV-606 / HV-607 to establish a heatup rate not to exceed the procedural limit of 100 F per hour.
- C. Adjust HV-606 / HV-607 to establish a heatup rate not to exceed the procedural limit of 50 F per hour.
- D. Adjust FV-618 / FV-619 to establish a heatup rate not to exceed the procedural limit of 100 F per hour.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

005 Residual Heat Removal System (RHR):

A4.03 Ability to manually operate and / or monitor in the control room.

RHR temperature, PRZR heaters and flow, and nitrogen.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a heatup to Mode 4 from 180 degrees F has been initiated. The candidate must determine the proper heatup rate to establish using RHR and the correct RHR valves to use.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Per Tech Specs and procedure there is a 100 F hour heatup rate limit. Plausible the candidate may confuse heatup rate limit or confuse the valves used to establish the heatup rate. HV-606 / 607 are the valves to use to throttle cooling.
- B. Correct. Heatup limited to 100 F per hour and HV-606 / 607 are the correct valves.
- C. Incorrect. Per Tech Specs and procedure there is a 100 F hour heatup rate limit. This is the correct valves to use but the wrong heatup rate.
- D. Incorrect. Per Tech Specs and procedure the heatup limit is 100 F per hour and this part is correct. However, this is the wrong RHR valves to use for starting heatup. Valves should be HV-606 / 607..

REFERENCES

UOP-12001-C, Steps 4.5.1, 4.5.2, and 4.5.3 for Mode 4 entry and heatup to 330 F.

VEGP learning objectives:

LO-LP-61209-12, Describe basically how an RCS heatup is performed.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B B B C A D C C A B Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

6. 005K2.03 001/2/1/RHR-BOUNDARY MOV/S/MEM - 2.7/NEW/R/NRC RO/TNT / RLM

Given the following conditions:

- Unit 1 at 100% power.

The following alarm status exists on the Unit 1 QEAB.

- ALB34 window E06 for STARTER 1CD1I5N TROUBLE is illuminated.
- ALB34 window F06 for INVERTER 1CD1I5 TROUBLE is illuminated.
- ALB34 window E07 for STARTER 1DD1I6N TROUBLE is extinguished.
- ALB34 window F07 for INVERTER 1DD1I6 TROUBLE is extinguished.

Which **ONE** of the following is **CORRECT** regarding the status of the RHR pump loop suction valve power supplies ?

- A. Train "A" RHR pump loop suction power status is correct, the valve is energized.
- B. Train "A" RHR pump loop suction power status is correct, the valve is de-energized.
- C. Train "B" RHR pump loop suction power status is correct, the valve is energized.
- D. Train "B" RHR pump loop suction power status is correct, the valve is de-energized.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

005 Residual Heat Removal System (RHR):

K2.03 Knowledge of the bus power supplies to the following.

RCS pressure boundary motor-operated valves.

K/A MATCH ANALYSIS

Question gives a plausible scenario with a wrong unit clearance results in misoperation of an RHR loop suction power supply. Candidate must choose from indications which loop suction power supply status is correct.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Annunciator status is correct for Train "A" loop suction. The valve is normally de-energized at power. Plausible the candidate could confuse the annunciator status and / or the valve power status.
- B. Correct. Annunciators normally illuminated at power (green windows normally lit like RCP oil lift pumps). Valve is normally de-energized.
- C. Incorrect. Annunciators normally illuminated at power with the valve de-energized. Plausible the candidate could confuse the annunciator status and / or the valve power supply status.
- D. Incorrect. Annunciators normally illuminated at power with the valve de-energized. Plausible the candidate could confuse the annunciator status.

REFERENCES

ARP 17034 for QEAB, windows E06, E07, F06, and F07.

SOP-13011-1, Residual Heat Removal System, pages 12, 13, 17, and 18.
{This is steps 4.1.4.b(3), 4.1.7.m.

VEGP learning objectives:

LO-PP-12101-12 Briefly describe the RHR system alignment during normal power operations and during RCS cooldown.

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

7. 006A4.02 001/2/1/ECCS- VALVES/C/A - 4.0/BANK/R/NRC RO/TNT / RLM

Given the following sequence of events:

- An SI occurs on Unit 1
- The crew enters 19011-C, "SI Termination"
- SI is reset and the ECCS pumps shut down
- The Rx. Trip Breakers were cycled to defeat the P-4 seal in.
- Containment Sump to RHR Pump Suction valves HV-8811A and HV-8811B are shut
- RWST level over time lowers to less than 39%

Which **ONE** of the following is **CORRECT** regarding the status of HV-8811A / B valve positions and the RWST auto swapover function?

- A. Automatically open, this function is always active and cannot be defeated.
- B. Remain closed, this function is defeated by resetting the SI actuation signal.
- C. Remain closed, this function was defeated by the cycling of the trip breakers.
- D. Automatically open, this function is defeated by the RWST SI reset handswitches.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

006 Emergency Core Cooling System (ECCS):

A4.02 Ability to manually operate and / and or monitor in the control room.

Valves

K/A MATCH ANALYSIS

Question gives a plausible scenario where an SI actuation has occurred and SI has been reset and Rx. Trip Breakers cycled to clear P-4 seal in. Candidate has to choose the correct response of RWST auto swapover function if RWST level lowers to < 39%.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. RWST SI Reset can defeat this function. Plausible candidate may not recall this since the switches are not manipulated that often. Valves coming open part would be correct.
- B. Incorrect. Valves would automatically open. Plausible candidate could confuse the RWST SI Reset function with resetting of SI.
- C. Incorrect. Plausible candidate could confuse the cycle of the Rx. Trip Breakers to clear P-4 seal in with other functions such as FWI or SI on Hi Hi SG level.
- D. Correct. In this condition the function would still occur and the valves would open until the RWST SI reset handswitches are reset.

REFERENCES

LO-PP-13101-04-008 Vogtle LO Active Bank question.

LO-PP-13101 "ECCS" Power Point (pages 57 and 58 in particular)

VEGP learning objectives:

LO-PP-13101-03, Describe all valve interlocks associated with the ECCS system.

HV-8811A / B

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

8. 006K6.19 001/2/1/ECCS-MODE CHANGE/MEM - 3.7/BANK/R/NRC RO/TNT / RLM

Given the following conditions:

- The plant is at 360 degrees F with a cooldown in progress for a refueling outage.
- SI pump A has been declared INOPERABLE due to pump seizure.

Based on the above conditions, which ONE of the following would be CORRECT and why?

- A. Mode 4 entry is allowed. The minimum requirements of one high head subsystem and one RHR subsystem is available.
- B. Mode 4 entry is allowed. The minimum requirements of one high head subsystem, one SI subsystem and one RHR subsystem is available.
- C. Mode 4 entry is not allowed. The minimum requirements of two high head subsystems and two SI subsystems is not available.
- D. Mode 4 entry is not allowed. The minimum requirements of two high head subsystems, two SI subsystems and two RHR subsystems is not available.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

006 Emergency Core Cooling System (ECCS):

K6.19 Knowledge of the effect of a loss or malfunction of the following will have on the ECCS:

HPI / LPI systems (mode change)

K/A MATCH ANALYSIS

Question gives a plausible scenario where a Unit 2 cooldown for a refueling outage is in progress. The candidate must determine the minimum required ECCS trains for Mode 4 entry.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. One high head and one low head available allows the mode change.
- B. Incorrect. Plausible the candidate may think the SIP subsystem is also required for this mode as minimum required equipment.
- C. Incorrect. Plausible the candidate may think 2 high head and 2 intermediate head systems required for this mode and the change would not be allowed.
- D. Incorrect. Plausible the candidate may think all ECCS systems required for the mode and would prevent a mode change.

REFERENCES

Technical Specifications and bases for 3.5.3 ECCS - Shutdown.

LO-PP-13101-14-009 from Vogtle LO Active Exam bank.

VEGP learning objectives:

LO-PP-13101-14, State the Technical Specification, LCO, bases, applicability, and one hour or less actions for the Emergency Core Cooling Systems.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A C A C A C A A B C Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

9. 007K4.01 001/2/1/QUENCH TK COOLING/MEM - 2.6/BANK/R/NRC RO/TNT / RLM

Which **ONE** of the following is a **CORRECT** method to cooldown the PRT in accordance with 13004-1/2, "Pressurizer Relief Tank Operation"?

- A. Drain the PRT to the CNMT sump while making up to the PRT from the RMWST.
- B. Drain the PRT to the CNMT sump while making up to the PRT from Demin Water.
- C. Recirculate the PRT through the RCDT using NSCW to cool the heat exchanger.
- D. Recirculate the PRT through the RCDT using ACCW to cool the heat exchanger.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

007 Pressurizer Relief Tank (Quench Tank):

K4.01 Knowledge of PRTS design feature(s) and / or interlock(s) which provide for the following:

Quench tank cooling.

K/A MATCH ANALYSIS

Question gives a plausible scenario where the PRT has high temperature. The candidate must pick the correct description of the 8 hour PRT cooldown method.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. This method not described in procedures, plausible candidate could confuse with bleed and feed actions of other procedures such as CCW.
- B. Incorrect. This method not described in procedures and the makeup source is wrong too. Plausible candidate could confuse the cooldown methods and many of our makeup sources are from the DWST.
- C. Incorrect. Method describes is correct but cooling water to RCDT Hx is wrong. Plausible candidate could confuse cooling medium as NSCW services many loads including loads in the containment where RCDT is located.
- D. Correct. Method and cooling medium for RCDT are both correct.

REFERENCES

V-LO-PP-16301-09-003 Vogtle LO Active Exam Bank

Harris February 2006 NRC RO Exam question # 8

VC Summer October 2006 NRC SRO Retake Exam question # 13

Harris March 2004 NRC RO Exam question # 23

LO-PP-16301 "Pressurizer and Pressurizer Relief Tank" (pages 20 and 21 in particular)

V-LO-PP-04101, "ACCW" slide # 12 in particular

VEGP learning objectives:

LO-PP-16301-09, Describe the methods for cooling the PRT.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

10. 008A4.10 001/2/1/CCW - TWO COOLERS/MEM - 3.1/NEW/R/NRC RO/TNT / RLM
Regarding the CCW and ACCW system heat exchangers:

Which **ONE** of the following is **CORRECT** regarding when you need **both** of either systems heat exchangers in service?

- A. ACCW - to provide necessary cooling to both Diesel Generators during an LOSP event on both RATs.
- B. CCW - to provide necessary cooling to both RHR pump seal water heat exchangers during the ECCS injection phase of a DBA LOCA.
- C. ACCW - to provide necessary cooling to all RCPs during a small break LOCA event.
- D. CCW - to provide necessary cooling to the Spent Fuel Pool Cooling System to maintain SFP temperature < 120 degrees F during a full core offload.

Feedback

K/A

008 Components Cooling Water System (CCW):

A4.10 Ability to manually operate or monitor in the control room:

Conditions that require the operation of two CCW coolers.

K/A MATCH ANALYSIS

Question gives plausible scenarios for the candidate to choose involving ACCW and CCW that require the candidate to determine which event requires both trains of the Hx to be in service.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may recall the ACCW / NSCW Hx. alignment where NSCW is sometimes tagged out to the ACCW Hx with one train bypassed. One train of ACCW Hx. is adequate and does not affect NSCW flow to the DGs.
- B. Incorrect. Although CCW normally aligned for seal cooling to RHR pumps, during the ECCS injection phase with RWST low water temperature CCW cooling would not be required. During Cold and Hot Leg recirculation phases it would. Plausible the candidate may think CCW required during injection phase.
- C. Incorrect. Plausible the candidate may think both ACCW HX necessary to cool RCPs during a small break LOCA.
- D. Correct. Design of SFP is to be maintained less than 120 degrees F with a full core

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

offload and both Hx in service. For this you would need both trains of CCW in service.

REFERENCES

V-LO-PP-25102, Spent Fuel Pool Cooling (slide # 12 in particular)

V-LO-PP-04101, ACCW slide # 12 in particular shows both Hx to limit to 120 degrees F

V-LO-PP-10101, CCW slide # 9 in particular shows CCW cools SFP Hx.

SOP-13011-1/2, Residual Heat Removal System, Prerequisites & Initial Conditions 3.3

VEGP learning objectives:

LO-PP-25101-03, Explain how the Spent Fuel Pool and Purification System performs the following functions:

- a. cooling

LO-PP-25101-06, Explain the function of the following components:

- b. SFPCPS heat exchangers

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
 Answer: D C A B C A B D B A Scramble Range: A - D

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

11. 008K3.03 001/2/1/CCW - RCP/MEM - 4.1/BANK/R/NRC RO/TNT / RLM

Given the following:

- Unit 2 is at 30% power.
- ACCW pump # 1 is tagged out.
- At 0115, ACCW pump # 2 trips
- The RCP temperatures and vibrations are being monitored.
- The current time is 0130.

Which **ONE** of the following is **CORRECT** regarding operation of the RCPs?

- A. Trip the reactor, trip any RCP with shaft vibration in excess of 5 mils.
- B. Trip the reactor, trip any RCP that has # 1 seal leakoff greater than 5 gpm.
- C. Trip the reactor, trip all Reactor Coolant Pump due to total loss of ACCW.
- D. Trip the reactor, trip any RCP if stator temperature exceeds 230 degrees F.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

008 Components Cooling Water System (CCW):

K3.03 Knowledge of the effect that a loss or malfunction of the CCWS will have on the following:

RCP

K/A MATCH ANALYSIS

Question gives a plausible scenario where ACCW flow is lost. The candidate must choose the correct action to take regarding RCP operations.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible candidate may confuse this with frame vibration limit of 5 mils. Limit for shaft vibration is 20 mils.
- B. Incorrect. Plausible candidate may think seal degradation a reason to trip the RCP which would be in the abnormal operating range. However, this is not an immediate trip criteria until greater than 5.5 gpm.
- C. Correct. All RCPs should be stopped if ACCW flow lost for more than 10 minutes. This would require a reactor trip, then stopping of the RCPs per AOP for Total Loss of ACCW and SOP-13003-1/2 for RCP Operations.
- D. Incorrect. Plausible candidate may confuse this with seal water inlet temperature limit of 230 degrees F.

REFERENCES

LO-LP-60318-05-003 from Vogtle LO Active Exam Bank

VC Summer April 2004 NRC RO Exam question # 8

SOP-13003-1/2, "Reactor Coolant Pump Operation", Precaution & Limitation 2.2.10, pages 29 and 30 for Operation with a Seal Abnormality Flow Chart Figures 1 & 2

AOP-18022-C, "Loss of Auxiliary Component Cooling Water", step # 6.

VEGP learning objectives:

LO-LP-16401-07, List the RCP components that are cooled by the ACCW system.

LO-LP-60318-05, Describe the operator actions required during a loss of ACCW with the plant in operation and the RCP temperature limits are exceeded.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

12. 009EK1.01 001/1/1/SM LOCA - NAT CIRC/MEM - 4.2/BANK/R/NRC RO/TNT / RLM

Which **ONE** of the following describes **reflux cooling** flow following a small break LOCA?

- A. Liquid heated by the core is subsequently cooled inside the steam generator tubes and returned to the core via gravity counterflow along the bottom of each partially filled hot leg pipe.
- B. Steam produced inside the core is condensed in the steam generator tubes and returned to the core via gravity counterflow along the bottom of each partially filled hot leg pipe.
- C. Steam produced inside the core is condensed in the steam generator tubes and returned to the core via natural circulation flow along the bottom of each partially filled cold leg pipe.
- D. Liquid heated by the core is subsequently cooled inside the steam generator tubes and returned to the core via natural circulation flow along the bottom of each partially filled cold leg pipe.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

009 Small Break LOCA

EK1.01 Knowledge of the operational implications of the following concepts as they apply to the small break LOCA.

Natural circulation and cooling, including reflux.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a small break LOCA exists and asks the cooling mechanism for reflux cooling. The candidate must determine the proper description of reflux cooling from the choices listed.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Reflux flow occurs after core boiling starts. Steam has formed over the top of the core. Student may select due to liquid flow and reflux flow. Hot leg pipe would be the correct transport pipe.
- B. Correct. Reflux flow is the transport of steam to the SGs where it is condensed and travels back to the core along the hot leg pipe.
- C. Incorrect. Steam produced in the core is transported via the hot leg pipe where it is cooled and travels back along the same hot leg pipe to the core. Natural circulation has stopped at this point. Student may see this as natural circulation, however flow will not return in the cold leg pipe.
- D. Incorrect. Reflux flow occurs after core boiling starts. Steam has formed over top of the core. Student may select due to liquid flow and reflux flow. Cold leg pipe is also incorrect.

REFERENCES

Watts Bar July 2004 NRC RO exam question # 2.

LO-PP-36101 "MCD - Mitigating Core Damage" slide # 26 & 27 in particular.

VEGP learning objectives:

LO-PP-36101-11, "Define the term "Pool Boiling".

LO-PP-36101-15, "State the effectiveness of steam cooling versus water cooling in core heat removal".

Notes

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

13. 010K3.02 001/2/1/PRZ PRESS - RPS/C/A - 4.0/BANK/R/NRC RO/TNT / RLM

Given the following conditions and events on Unit 1:

- The unit is at 100% power.
- Pressurizer pressure control is selected to the 457 / 456 position.
- PRZR pressure is 2235 psig.
- 1PT-457 fails high

Which **ONE** of the following is the **CORRECT** plant / system response?

- A. PORV 1PV-455 opens, both spray valves remain closed and all PRZR heaters will energize. Pressure will stabilize near 2185 psig.
- B. PORV 1PV-456 opens, both spray valves remain closed and all PRZR heaters will energize. Pressure will stabilize near 2185 psig.
- C. PORV 1PV-455 opens, both spray valves open and all PRZR heaters turn off. Pressure will continue to decrease causing a reactor trip and safety injection.
- D. PORV 1PV-456 opens, both spray valves open and all PRZR heaters turn off. Pressure will continue to decrease causing a reactor trip and safety injection.

Feedback

K/A

010 Pressurizer Pressure Control System (PZR PCS):

K3.02 Knowledge of the effect that a loss or malfunction of the PZR PCS will have on the following:

RPS

K/A MATCH ANALYSIS

Question gives a plausible scenario with a PRZR pressure instrument failing high. The candidate must determine from the control switch selection and the channel failure the proper plant response.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. This would be the response if PT-456 failed high with the current control channel selection but with the wrong PORV opening. Plausible the candidate could confuse the channel selection.

B. Incorrect. This would be the correct plant response if PT-456 failed high with the

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

current control channel selection. Plausible candidate could confuse the channel selection.

- C. Correct. This is the correct plant response which would result in an RPS actuation.
- D. Incorrect. This would be the correct plant response but with the wrong PORV opening. Plausible the candidate could confuse the channel selection.

REFERENCES

LO-LP-60301-10-007 Vogtle LO Active Exam Bank

LO-PP-16303, Pressurizer Pressure Control slides 29, 36, 37, 151, and 152 in particular.

VEGP learning objectives:

LO-LP-60301-10, Given that the channel selector switch is in the NORMAL position (455/456), describe how and why the plant will respond to the following pressure instrument failures. Consider each separately and include the effects of the Pressurizer Pressure Control System response, alarms, RPS, and ESFAS actuations.

- a. 455 fails high
- b. 455 fails low
- c. 456 fails high
- d. 456 fails low

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

14. 011EK2.02 001/1/1/LG LOCA - PUMPS/C/A - 2.6/BANK/R/NRC RO/TNT / RLM

Given the following conditions:

- A large break LOCA occurred.
- Operators have just completed 19013-C, "Transfer to Cold Leg Recirculation".
- A loss of offsite power occurs, the diesel generators start and load the class 1E 4160 buses.

Which **ONE** of the following describes the actions required for this condition in accordance with 19010-C, Loss of Reactor or Secondary Coolant?

- A. Ensure all ECCS pumps are started by the blackout sequencer.
- B. Manually start the RHR pumps, then manually start the SIPs as needed.
- C. Place in Pull to Lock the SIPs and CCPs until the RHR pumps are started by the blackout sequencer.
- D. Ensure both RHR pumps are started by the blackout sequencer, then manually start CCPs and SIPs as needed.

Feedback

K/A

011 Large Break LOCA

EK2.02 Knowledge of the interrelations between the following and a large break LOCA.

Pumps.

K/A MATCH ANALYSIS

Question gives a plausible scenario during a DBA LOCA where a LOSP occurs after aligning to Cold Leg Recirculation. Candidate must choose the correct response to address the ECCS pumps after the DGs start and reload the buses.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. All ECCS pumps are not started by the sequencer after SI is reset. SI is reset early in 19013-C, Transfer to Cold Leg Recirculation. Plausible candidate may not think SI reset since not stated in the stem. Blackout sequencer does not start RHR pumps and SI pumps.
- B. Correct. RHR pumps and SI pumps would have to be manually started, they do not get a start signal from the blackout sequencer.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

15. 011K2.01 001/2/2/PRZR LVL- CHRG PUMPS/C/A - 3.6/NEW/R/NRC RO/TNT / RLM

Given the following conditions:

- Plant at 100% power, all systems in normal alignment.
- LOSP occurs when RAT 1A and RAT 1B trip open during a severe thunderstorm.
- Several minutes later a reactor trip occurs.
- DG1B trips on low lube oil pressure just after the reactor trip.

Which **ONE** of the following is **CORRECT** regarding the charging pumps status?

- A. NCP - running, CCP "A", running, CCP "B" stopped.
- B. NCP - stopped, CCP "A" stopped, CCP "B" running.
- C. NCP - stopped, CCP "A" running, CCP "B" stopped.
- D. NCP - running, "CCP "A", stopped, CCP "B" running.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

011 Pressurizer Level Control System:

K2.01 Knowledge of bus power supplies to the following:

Charging Pumps

K/A MATCH ANALYSIS

Question gives a plausible scenario where an LOSP, reactor trip, and trip of a running DG occur. The candidate has to determine the status of all the charging pumps.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may think the NCP running and CCP "A".
The NCP would be de-energized on bus transfer to a dead RAT post reactor trip.
- B. Incorrect. Plausible the candidate may recognize the NCP is de-energized and not recognize CCP "B" is de-energized.
- C. Correct. The NCP is de-energized on fast bus transfer to a dead bus, CCP "A" should have started on LOSP sequence. CCP "B" should be stopped due to DG1B tripping de-energizing it's power supply.
- D. Incorrect. Plausible the candidate may think the NCP running, however, the NCP is de-energized on fast bus transfer to a dead bus. Also plausible the candidate may invert the power supplies to the CCPs.

REFERENCES

LO-PP-09200, "CVCS Charging" slides # 22 and # 23

Simplified Electrical Drawing from LO-PP-01101, "Electrical Distribution" slide # 20

VEGP learning objectives:

LO-PP-09200-02, State the power supply for the charging pumps.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C A C C B A B B A A Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

16. 012G2.4.31 001/2/1/RPS-ALARMS/ANNUNC/C/A - 3.3/NEW/R/NRC RO/TNT / RLM

Given the following:

The following annunciator windows illuminate.

- ALB06 window A06 for CNMT HI-1 PRESS ALERT ADVERSE CNMT
- ALB06 window B06 for CNMT HI-2 PRESS ALERT
- ALB06 window C06 for CNMT HI-3 PRESS ALERT
- The HI-1, HI-2, and HI-3 MLBs for PI-0934 are all illuminated.
- Containment Pressure Recorder PR-0934 reads 40 psig.
- QMCB meter for PI-0934 reads 40 psig.

The following annunciator windows are extinguished.

- ALB06 window D06 for CNMT SPRAY ACTUATION
- ALB09 window D06 for HI CNMT PRESS SI RX TRIP ADVERSE CNMT (first out)
- The HI-1, HI-2, and HI-3 MLBs for PI-0935, PI-0936, and PI-0937 are extinguished.
- QMCB meters for PI-0935, PI-0936, and PI-0937 all read 2.5 psig.

Which **ONE** of the following operator actions would be **CORRECT**?

- A. Actuate Containment Spray since to containment pressure is > 21.5 psig.
- B. Perform a "crew briefing" to inform the crew of the failed pressure channel.
- C. Perform a "crew briefing" to inform the crew to use "Adverse CNMT" values.
- D. Manually start / align Containment Spray using the pump and valve handswitches.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

012 Reactor Protection System (RPS):

G2.4.31 Knowledge of annunciators, alarms, and indications, and use of the response instructions.

K/A MATCH ANALYSIS

Question gives a plausible scenario during a LOCA where a Containment pressure channel fails high resulting in annunciators, MLBs, indicators showing PI-0934 reading 40 psig. Pressure channel 0934 is an input into the SI-Rx Trip circuitry.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible since several annunciators, MLBs, meters, and the recorder indicate > 21.5 psig and is RNO for Initial Operator Actions of E-0.
- B. Correct. Per indications and annunciator response procedures, a single failed pressure channel has occurred.
- C. Incorrect. Plausible the candidate may see the Adverse Containment annunciator and inform the crew to use adverse values.
- D. Incorrect. Plausible since several annunciators, MLBs, meters, and the recorder indicate > 21.5 psig and is RNO for Initial Operator Actions of E-0.

REFERENCES

Annunciator response for ALB06 windows A06, B06, C06, D06.

Annunciator response for ALB09 window D06.

LO-PP-15101, "Containment Spray" slide # 10

VEGP learning objectives:

LO-PP-15101-02, Describe what will actuate the Containment Spray System, including coincidences and setpoint.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B A B A C D D C C B Scramble Range: A - D

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

17. 012K5.02 001/2/1/RPS - POWER DENSITY/MEM - 3.1/NEW/R/NRC RO/TNT / RLM

Which **ONE** of the following **correctly** describes the **Over Power Delta T** reactor trip?

- A. The setpoint will adjust on change in Tave, Pressurizer Pressure, and Delta I. Protects against DNB.
- B. The setpoint will adjust on change in Tave, rate of change of Tave, and Delta I. Protects against power density (KW / ft).
- C. The setpoint will adjust on change in Tave, Pressurizer Pressure, the Delta I input is zeroed out. Protects against DNB.
- D. The setpoint will adjust on change in Tave, rate of change of Tave, the Delta I input is zeroed out. Protects against power density (KW / ft).

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

012 Reactor Protection System (RPS):

K5.02 Knowledge of the operational implications of the following concepts as they apply to the RPS.

Power Density

K/A MATCH ANALYSIS

Question asks the candidate which parameters cause the Over Power Delta T reactor trip setpoint to adjust and what protection is afforded the reactor ?

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. This is the inputs and description for the OT delta T reactor trip. Plausible the candidate could confuse the bases and inputs for the trip.
- B. Incorrect. Delta I input is zeroed out and will not cause the setpoint to adjust. The bases for the trip is correct. Plausible candidate may recognize Delta I is an input but not realize it is zeroed out in the setpoint calculation.
- C. Incorrect. This is the inputs and description for the OT delta T reactor trip with Delta I incorrectly zero'd out. Plausible the candidate may recognize the OT delta T inputs and confuse Delta I being zeroed out or confuse the bases.
- D. Correct. Inputs and bases for OP delta P.

REFERENCES

Vogtle Tech Specs and Bases for 3.3.1 Reactor Trip Instrumentation

V-LO-PP-28103, "Reactor Trip and ESFAS Signals" Power Point slide # 101

VEGP learning objectives:

LO-LP-39207-04, Describe the Bases for any given Tech Spec in section 3.3

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: D C D D A B C B B B Scramble Range: A - D

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

18. 013K1.13 001/2/1/ESFAS - HVAC/C/A - 2.8/BANK/R/NRC RO/TNT / RLM

Given the following:

- Both Units are at 3565 MWt with all systems in their normal alignment.
- Unit 1 annunciator windows for INTMD RADIATION ALARM and HIGH RADIATION are illuminated.
- The SRDC shows Control Room Air Intake Rad Monitor 1RE-12116 yellow and red indication lights are illuminated.
- Unit 2 has NO alarms associated with radiation monitors.

Which **ONE** of the following describes the **CORRECT** Control Room HVAC response?

- A. Only Unit 1 Train B CREF unit starts and both ESF chillers start.
- B. Unit 1 Train A and B CREF units start and both ESF chillers start.
- C. Both Unit 1 CREF units start and only the Train B ESF Chiller Starts.
- D. Both Units Train B CREF units start, both Trains of ESF chillers start on both units.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

013 Engineered Safety Features Actuation System (ESFAS):

K1.13 Knowledge of the physical connections and / or cause effect relationships between the ESFAS and the following systems.

HVAC

K/A MATCH ANALYSIS

Question gives a plausible scenario where a HIGH radiation alarm is received on the Control Room Air Intake Radiation Monitor. The candidate has to determine the correct Control Room HVAC response.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. Unit 1 Train B CREF starts and both ESF chillers start.
- B. Incorrect. Only Train B CREF starts, plausible the candidate would think that both CREFs units start on high rad such as FHB HVAC does by starting all units.
- C. Incorrect. Plausible the candidate may think both CREF units start and know only the Train B ESF Chiller starts.
- D. Incorrect. Plausible since control rooms are crosstied that the candidate would know the B CREF and both chillers start and think they should start on both units.

REFERENCES

LO-PP-23301-05-003 Vogtle LO Active Exam Bank

LO-PP-23301, Control Room HVAC slide # 17, 21, and 22

LO-PP-28103, Reactor Trip and ESFAS signals slide # 147

VEGP learning objectives:

LO-PP-23301-05, List the actuating signals for CRI including indications and automatic actions.

Notes

Response form

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

19. 014A1.03 001/2/2/DRPI-LOW LIMITS/C/A - 3.6/BANK/R/NRC RO/TNT / RLM

The RO withdraws control bank C rods to establish conditions for a dilution to criticality.

Prior to the rod withdrawal the following conditions existed:

DRPI: 42 steps

Group 1 Step Counter: 42 steps

Group 2 Step Counter: 41 steps

After the rod withdrawal the following conditions exist:

DRPI: 42 steps

Group 1 Step Counter: 56 steps

Group 2 Step Counter: 55 steps

Based on these indications, which **ONE** of the following **CORRECTLY** describes the status of the "ROD DEV" and "ROD BANK LO-LO LIMIT" annunciators?

REFERENCE PROVIDED

- A. The "ROD DEV" annunciator alarms and the "ROD BANK LO-LO LIMIT" annunciator clears.
- B. The "ROD DEV" annunciator alarms and the "ROD BANK LO-LO LIMIT" annunciator remain illuminated.
- C. The "ROD DEV" annunciator does not alarm and the "ROD BANK LO-LO LIMIT" annunciator remains illuminated.
- D. The "ROD DEV" annunciator does not alarm and the "ROD BANK LO-LO LIMIT" annunciator clears.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

014 Rod Position Indication System (RPI):

A1.03 Ability to predict and / or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RPIS controls, including:

PDIL, PPDIL

K/A MATCH ANALYSIS

Question gives a plausible scenario during rod withdrawal where the RO notes a discrepancy between demand (step counter) and actual (DRPI) indications. Candidate also has to determine if the rods are above or below the Rod Bank Lo-Lo Limit and the alarm condition.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. Rod Dev should be lit at > 11 steps, Rod Bank Lo-Lo should clear at 46 steps on CBC.
- B. Incorrect. Rod Dev alarm status is correct. Plausible the candidate could confuse the Rod Bank Lo Limit annunciator setpoint with the Rod Bank Lo-Lo Limit setpoint.
- C. Incorrect. Plausible the candidate may not correlate the DRPI status with the Rod Dev annunciator or confuse the control bank for which Lo-Lo limit clears.
- D. Incorrect. Plausible the candidate may not correlate the DRPI status with the Rod Dev annunciator. Plausible the candidate could confuse the Rod Bank Lo Limit annunciator setpoint with the Rod Bank Lo-Lo Limit setpoint.

REFERENCES

Vogle May 2005 NRC RO Exam question # 18 same KA #.

NOTE: This is one of 3 questions of 4 allowed re-used from previous 2 RO exams.

ARP 17010 window D06 rod ROD DEV

COLR Figure 3 for Rod Insertion Limits

VEGP learning objectives:

LO-PP-27101-21, State the alarms associated with the rod insertion limits; include set points and source of the set points.

Notes

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

20. 015/017AA1.11 001/1/1/RCP MALF - INDICATOR/MEM - 2.5/NEW/R/NRC RO/TNT / RLM

Given the following:

- RCS LOCA in progress.
- RCP Immediate Trip Criteria was met
- The RCPs were all stopped.
- Later, procedure directs restart of an RCP.

Which **ONE** of the following is **CORRECT** regarding the method to stop / start the RCPs using the QMCB handswitches?

- A. Open the non-1E handswitches first when stopping the pumps.
Close the non-1E handswitches first when starting the pumps.
- B. Open the non-1E handswitches first when stopping the pumps.
Close the 1E handswitches first when starting the pumps.
- C. Open the 1E handswitches first when stopping the pumps.
Close the non-1E handswitches first when starting the pumps.
- D. Open the 1E handswitches first when stopping the pumps.
Close the non-1E handswitches first when starting the pumps.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

015 / 017 RCP Malfunctions

AA1.11 Ability to operate and / or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):

RCP on / off and run indicators

K/A MATCH ANALYSIS

Question gives a plausible scenario during an RCS LOCA where the RCPs would be stopped. The procedures in many scenarios have the RCPs started later if possible. The candidate has to pick the correct starting sequence to open / close the RCP handswitches.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may know to open non-1E first for stopping the RCP and think the same is true for starting.
- B. Correct. The RCP non-1E handswitches should be manipulated first when stopping an RCP as protection for the electrical penetrations into containment. The 1E breakers are closed first when starting an RCP. This would prevent a possible electrical arc on a fault from damaging the penetration.
- C. Incorrect. Plausible the candidate may invert the proper order for manipulating the RCP breakers and think it would be the opposite for the other evolution.
- D. Incorrect. Plausible candidate may invert the proper order for breaker manipulation while knowing he is supposed to operate the same breaker first for either evolution.

REFERENCES

SOP-13003-1/2, "Reactor Coolant Pump Operation" steps 4.1.2.15 and 4.2.1.4.

VEGP learning objectives:

LO-PP-16401-09 Describe the following for the RCP supply breakers.

a. Breaker arrangement

c. Protection features

Notes

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

21. 016A4.02 001/2/2/NNIS - RECORDERS/C/A - 2.7/NEW/R/NRC RO/TNT / RLM

Given the following conditions:

- Unit 1 is at 100% power.
- All control systems are in normal alignment.
- All SG level, steam flow and feed flow instruments controlling channel selector switches EXCEPT ONE are positioned pointing to the Channel I direction.
- Controlling channel for SG # 4 steam flow is pointing to the Channel II direction.
- Channel II SG pressure instrument for SG # 4 fails low.

As the control systems respond to the above conditions, which **ONE** of the following would be **CORRECT** regarding the feedwater flow and steam flow recorder indications for SG # 4?

- A. Recorder feed and steam flow indications would both lower.
- B. Recorder feed flow indication would lower, steam flow indication would rise.
- C. Recorder feed flow indication would rise, steam flow indication would lower.
- D. Recorder feed and steam flow indications would both rise.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

016 Non-Nuclear Instrumentation System (NNIS):

A4.02 Ability to manually operate or monitor in the control room:

Recorders

K/A MATCH ANALYSIS

Question gives a plausible scenario where all SG levels, steam and feed flow controlling channels are selected to the normal position (left - channel I). SG # 4 controlling steam flow channel is selected to channel II. The candidate has to determine the effect of a SG # 4 channel II pressure channel failure on SG # 4 feedwater flow and recorder steam flow indication.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. Channel II steam pressure failure would affect the feedwater flow and the recorder steam flow indication, both would lower.
- B. Incorrect. Plausible the candidate may confuse the direction of the steam flow indication on the failure.
- C. Incorrect. Feedwater flow would be lower and plausible the candidate could invert the direction, steam flow direction is correct.
- D. Incorrect. Plausible candidate could confuse the direction and think both feed and steam flow indications could rise.

REFERENCES

AOP018001-C, section F for Failure of SG Pressure Instrumentation

V-LO-PP-18101, "Condensate and Feedwater" slides 156 - 160.

VEGP learning objectives:

LO-PP-18101-22, Discuss the SGWLC SYstem to include:

- a. The 3 inputs into the system

LO-PP-18101-23, Discuss how the SGWLC system will respond to the following controlling channel failures:

- d. Steam flow channel fails low

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

22. 017K3.01 001/2/2/CETS-NAT CIRC INDICA/C/A - 3.5/BANK/R/NRC RO/TNT / RLM

Which **ONE** of the following is the **CORRECT** indication representation if 5 core exit TC's are failed due to an **OPEN** circuit?

- A. The Core Exit Temperature indications will be **HIGHER** than actual.
RCS Subcooling will indicate **MORE** subcooling than actual.
- B. The Core Exit Temperature indications will be **HIGHER** than actual.
RCS Subcooling will indicate **LESS** subcooling than actual.
- C. Core Exit Temperature indications will indicate **LOWER** than actual.
RCS Subcooling will indicate **MORE** subcooling than actual.
- D. Core Exit Temperature indications will indicate the **SAME** as actual.
RCS Subcooling will indicate the **SAME** as actual.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

017 In-core Temperature Monitor (ITM):

AK3.01 Knowledge of the effect that a loss or malfunction of the ITM system will have on the following:

Natural Circulation Indications

K/A MATCH ANALYSIS

Question gives a plausible scenario following a reactor trip where the operator is attempting to verify natural circulation. Five (5) CETs are failed due to an open circuit which would cause them to fail low. Candidate has to determine how failure would affect indications used for natural circulation verification. It would not since CETs only take the highest five (5) indications.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible since the CETs are failed, but the failed CET would indicate low and not high, therefore, top 5 temps used to determine subcooling are unaffected.
- B. Incorrect. Plausible since the CETs are failed, but the failed CET would indicate low and not high, therefore, top 5 temps used to determine subcooling are unaffected.
- C. Incorrect. Plausible since the CETs are failed low, but the subcooling calculation uses the 5 highest CET temperatures, not the lowest.
- D. Correct. The failed CETs are not used to process the subcooling calculation, since they are not used, the top 5 CETs would indicate the proper subcooling margin.

REFERENCES

Harris February 2006 NRC RO Exam, question # 19.

Harris March 2004 NRC RO Exam, question # 70.

V-LO-PP-17301, Incore TCs and Moveable Incore Detectors slide # 6

VEGP learning objectives:

LO-PP-17301-01, Discuss the Operation of the Core Exit Thermocouples to include:

a. How the operator can tell when they fail

Notes

This question was rated C/A on the Harris exam with a difficulty rating of 3.0

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

23. 022A2.01 001/2/1/CTMT COOL - FAN CURR/MEM - 2.5/BANK/R/NRC RO/TNT / RLM

Given the following conditions:

- Main steamline break has occurred inside Containment.
- The crew is performing Initial Operator Actions of E-0, Reactor Trip or SI.
- The RO reports the Containment Coolers are running in FAST speed.

Which **ONE** of the following describes the **CORRECT** required action (if any) and the reason for the decision?

- A. Allow the coolers to continue running in FAST speed to assist in the prevention of explosive hydrogen pockets.
- B. Shift the coolers to SLOW speed to reduce the electrical load on AB04 and BB06 1E electrical buses in the event of an LOSP.
- C. Shift the coolers to SLOW speed to prevent fan motor overcurrent due to the more dense containment atmospheric conditions.
- D. Allow the coolers to continue running in FAST speed to offset the loss of NSCW flow to the Reactor Cavity Coolers and Auxiliary Coolers.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

022 Containment Cooling System:

A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the CCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations.

Fan motor over-current

K/A MATCH ANALYSIS

Question gives a plausible scenario where the containment coolers are running in FAST speed during a steam line break in containment. The candidate must determine the proper action to take and the reason why.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible since one of the design features of the containment cooling system is to prevent explosive hydrogen pockets from forming. BUT, coolers should be running in SLOW speed to prevent from tripping on overcurrent due to the more dense containment atmospheric conditions.
- B. Incorrect. Plausible the candidate may think a slower speed would reduce load to the 1E electrical switch gear. The reason for slow speed stated in A above.
- C. Correct. SLOW speed is to protect the containment coolers from the more dense atmosphere during DBA events inside containment.
- D. Incorrect. Plausible since NSCW to Cavity and Aux. coolers does isolate on an SI and coolers may need to operate in FAST to offset the cooling water loss.

REFERENCES

V-LO-PP-29101, Containment HVAC Systems slide # 22

V-LO-PP-29101-14-01 Vogtle LO Active Exam Bank

VEGP learning objectives:

LO-PP-29101-04, State how the Containment atmosphere changes following a LOCA and why.

LO-PP-29101-13, State why two speeds are provided for the Containment Coolers and when each speed is used.

Notes

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

24. 022AK1.03 001/1/1/LOSS RX MU - PRZR LV/C/A - 3.0/MODIFIED/R/NRC RO/TNT / RLM
Given the following conditions:

- Reactor power is at 100%.
- ALB07 window A05 for **REGEN HX LETDN HI TEMP** alarm lit.
- ALB07 window B06 for **CHARGING LINE HI / LO FLOW** alarm lit.
- ALB07 window D03 **LETDN HX OUTLET HI TEMP** alarm lit.
- ALB08 window F06 for **RCP SEAL WATER INJ LO FLOW** alarm lit.
- All other plant conditions are normal.

Which **ONE** of the following **CORRECTLY** explains the given conditions?

- A. PRZR level would be rising, HV-0182 seal flow control valve has failed shut.
- B. PRZR level would be lowering, HV-0182 seal flow control valve has failed open.
- C. PRZR level would be rising, FV-0121 charging flow control valve has failed open.
- D. PRZR level would be lowering, FV-0121 charging flow control valve has failed shut.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

022 Loss of Rx. Coolant Makeup

AK1.03 Knowledge of the operational implications of the following concepts as they apply to the Loss of Reactor Coolant Pump Makeup.

Relationship between charging flow and PRZR level.

K/A MATCH ANALYSIS

Question gives several charging, letdown, and RCP seal alarms that are consistent with a loss of charging flow. Candidate must pick out the correct pressurizer level response and malfunction which caused the indications.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. PRZR level response is correct for HV-0182 failed shut, however, the annunciators listed are not consistent with this condition. Seal water flow lo annunciator would be illuminated, the others would not. Plausible candidate may invert valve failure direction on charging flow / PRZR level effects
- B. Incorrect. PRZR level response is correct for HV-0182 failed open, however, the annunciators listed are not consistent with this condition. Seal water flow lo annunciator would not be illuminated, the others would. Plausible candidate may invert valve failure direction on charging flow / PRZR level effects.
- C. Incorrect. PRZR level response is correct for FV-0121 failed open, however, the annunciators listed are not consistent with this condition. None of the annunciators listed would be illuminated except possibly Charging Line Hi / Lo flow.
- D. Correct. PRZR level response and annunciators would be correct for the failure.

REFERENCES

LO-PP-09100-005-003 Vogtle LO Active Exam Bank question.

V-LO-PP-09200, CVCS Charging System

VEGP learning objectives:

LO-PP-09200-01, State the purpose and describe the control signals, setpoints, and any interlocks for the following:

- c. charging flow control valve, FV-121
- d. seal injection flow control valve, FV-182

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

25. 022G2.4.4 001/2/1/CTMT COOL - FAN CURR/C/A - 4.0/MODIFIED/R/NRC RO/TNT / RLM

The unit is at 100% when the following occurs:

- ALB01, window F05 for CNMT HI TEMP illuminates.

The BOP operator starts additional Containment Coolers per the ARP guidance. Later in the shift:

- ALB01, window F06 for CNMT HI MSTR illuminates.
- ALB62, window E05 for CNMT CLR COND LEAK illuminates.
- Containment relative humidity and temperatures are slowly rising.
- No other alarms are present.
- Containment pressure has risen from 0.1 psig to 0.6 psig and is **rising**.
- PRZR level and pressure and RCS Tavg have remained stable.

Which **ONE** of the following is **CORRECT** regarding these indications?

- A. NSCW leak, perform a CNMT Cooler Condensate Collection Calculation.
- B. RCS leak, perform a leak rate and enter AOP-18004 for RCS Leakage
- C. Feedwater leak, enter AOP-18008 for Secondary Leakage
- D. Steam leak, enter AOP-18008 for Secondary Leakage

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

022 Containment Cooling System:

G2.4.4 Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

K/A MATCH ANALYSIS

Question gives a plausible scenario with containment temperature, moisture, and humidity rising with associated alarms. Candidate has to choose the event and corrective action in response.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. NSCW leak would not cause pressure, temperature, and humidity to rise. Plausible candidate could think NSCW leak causing humidity and pressure to rise.
- B. Incorrect. RCS leak not present due to no radionuclides. Plausible candidate may think symptoms of RCS leak and not recognize radiation not present.
- C. Correct. Feedwater line leak would give these indications. Different from steam leak due to RCS cooldown would be present for a steam leak.
- D. Incorrect. Plausible candidate could think a small steam leak present but Tave stable would rule this out.

REFERENCES

ARP-17001 windows E06 and F06 for Containment Hi Temp and Containment Hi Moist

ARP-1706262, window E05 for CNMT CLR COND LEAK illuminates.

LO-OR-60308-03-001 from Vogtle LO Active Exam Bank

Vogtle May 2006 NRC RO Exam question # 60

Vogtle May 2005 NRC RO Exam question # 37

VEGP learning objectives:

LO-LP-60308-04, Discuss the parameters that distinguish primary coolant leakage from secondary coolant leakage.

Notes

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

26. 026A1.04 001/2/1/C. SPRAY - HUMIDITY/MEM - 3.1/NEW/R/NRC RO/TNT / RLM

To prevent challenging containment design pressure and rendering equipment inoperable due to high moisture (humidity), the Containment Spray System _____

- A. suction valves have to be manually opened following a manual spray actuation.
- B. discharge valves have to be manually opened following a manual spray actuation.
- C. relays are "de-energize to actuate" preventing inadvertent actuation during testing.
- D. actuation requires operation of 2 of 2 handswitches at either control board location.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

026 Containment Spray System (CSS):

A1.04 Ability to predict and / or mitigate changes in parameters (to prevent exceeding design limits) associated with operating the CSS controls including:

Containment humidity

K/A MATCH ANALYSIS

Question asks plausible methods to prevent an inadvertent spray actuation from challenging containment design pressure and rendering equipment inoperable due to high moisture / humidity. Candidate has to choose a correct design feature that prevents inadvertent spray actuation.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible candidate may think suction valves required to be opened following a manual spray actuation by confusing with RHR suctions which auto open on RWST lo lo level. Suction valves normally open.
- B. Incorrect. Discharge valves auto open following a spray actuation. Plausible the candidate may confuse by to manually align for recirculation mode instead of the semi-auto swapover like RHR suctions from RWST.
- C. Incorrect. Relays are "energize to actuate" preventing loss of power from initiating a spray actuation. Plausible candidate could confuse with other system bistables which are "de-energize to actuate".
- D. Correct. 2 of 2 handswitches at either QMCB location is required for spray actuation.

REFERENCES

V-LO-PP-15101, Containment Spray System slides 10 and 17

Tech Specs 3.3.2 ESFAS for C. Spray Instrumentation and Bases

VEGP learning objectives:

LO-PP-15101-02, Describe what will actuate the Containment Spray System, including coincidence and set point.

LO-PP-15101-04, List all components that receive a Containment Spray actuation signal and their change in status.

Notes

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

27. 026AA1.05 001/1/1/CCW SURGE TANK/C/A - 3.1/BANK/R/NRC RO/TNT / RLM

The following conditions exist for Unit 1 Train "A" CCW system:

- CCW pumps # 1 and # 3 are running.
- CCW pump # 5 handswitch is in AUTO.

A single CCW level transmitter on the Train "A" surge tank fails LOW.

Which **ONE** of the following describes a **CORRECT** system response to the failure?

- A. One of the running CCW pumps trip, the standby CCW pump starts.
The reactor makeup water valve to the CCW surge tank auto opens.
- B. One of the running CCW pumps trip, the standby CCW pump starts.
The demin water makeup valve to the CCW surge tank remains shut.
- C. Both the running CCW pumps trip, the standby CCW pump starts and trips.
The demin water makeup valve to the CCW surge tank auto opens.
- D. Both the running CCW pumps trip, the standby CCW pump starts and trips.
The reactor makeup water valve to the CCW surge tank remains shut.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

026 Loss of Component Cooling Water (CCW):

AA1.05 Ability to operate and / or monitor the following as they apply to the Loss of Component Cooling Water:

The CCWS surge tank, including level control and level alarms, and radiation alarms.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a single CCW Surge Tank level transmitter fails low. The candidate must pick the correct effect on the pumps and the auto makeup valve to the tank.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Pump response is correct, however, Reactor Makeup Water does not have an auto open function. Plausible candidate may know pump response and think auto makeup should occur from RMWST.
- B. Correct. Pump response / Demin Water auto makeup valve responses are correct.
- C. Incorrect. Only one pump would trip and Demin Water auto makeup response is incorrect too. Plausible candidate may think surge tank level low would trip all pumps and call for auto makeup from Demin Water Storage Tank.
- D. Incorrect. Only one pump would trip but part about Reactor Makeup water valve is correct. Plausible candidate may realize makeup valve stays shut but confuse the pump trip circuitry interlocks.

REFERENCES

LO-PP-10101-04-011 Vogtle LO Active Bank question.

LO-PP-10101, Component Cooling Water (CCW) slides 16, 20 and 21

VEGP learning objectives:

LO-PP-10101-04, From memory, describe the expected system response and operator corrective actions for each of the following:

d. Surge Tank Low Level

Notes

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

28. 027AK3.02 001/1/1/PRZR LVL CONT - ALT/MEM - 2.9/NEW/R/NRC RO/TNT / RLM

Given the following plant conditions:

- The plant is at 100% power.
- PRZR Pressure Channel control selected to the 455 / 456 position.
- PRZR Pressure transmitter PT-455 fails high.
- PRZR Master Controller output is reading 100%.
- Control selector switch has been placed to the 457 / 456 position.

Which **ONE** of the following actions is **CORRECT** per 18001-C, "Primary Instrumentation Malfunction"?

- A. Leave Master Controller output at 100%, select recorder to channel 457.
- B. Take Master Controller output to 25% in manual, select recorder to channel 457.
- C. Leave Master Controller output at 100%, select recorder to channel 456.
- D. Take Master Controller output to 25% in manual, select recorder to channel 456.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

027 Pressurizer Pressure Control System (PZR PCS) Malfunction:

AK3.02 Knowledge of the reasons for the following responses as they apply to the Pressurizer Pressure Control Malfunctions:

Verification of alternate transmitter and / or plant computer prior to shifting flow chart transmitters.

K/A MATCH ANALYSIS

Question gives a plausible scenario with failure of controlling PRZR Pressure Channel PT-455. Candidate must pick the correct choice to place the channel back in AUTO.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Master controller should be placed to 25% demand prior to placing the control system back in auto. Recorder should be selected to same channel as the controlling channel which would be 457.
- B. Correct. These are the correct actions per the AOP.
- C. Incorrect. Master controller should be placed to 25% demand prior to placing the control system back in auto. Recorder should be selected to the primary controlling channel, plausible the candidate may confuse the channels.
- D. Incorrect. This is the correct AOP action for the Master Controller. Recorder should be selected to the primary controlling channel, plausible the candidate may confuse the channels.

REFERENCES

AOP-18001, Primary Instrumentation Malfunction section C for Failure of Pressurizer Pressure Instrumentation steps C5 and RNO and C11.

VEGP learning objectives:

LO-PP-16303-02, Describe how the response of pressurizer pressure control to the following failures:

b. controlling primary channel fails high

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

29. 028AK2.02 001/1/2/PRZR LVL - SNSRS/C/A - 2.6/MODIFIED/R/NRC RO/TNT / RLM

The plant is operating at 50% power with all control systems in automatic, except for Rod Control.

- A leak on the **REFERENCE LEG** of a pressurizer level transmitter occurs.
- The Letdown System remains in service for the duration of the event.

Which **ONE** of the following is a **CORRECT** description of the failure where letdown would remain in service indefinitely? (assuming no operator actions are taken)

- A. **LI-459** has failed **LOW** with the control selector switch in the **461 / 460** position.
- B. **LI-460** has failed **LOW** with the control selector switch in the **459 / 461** position.
- C. **LI-459** has failed **HIGH** with the control selector switch in the **459 / 460** position.
- D. **LI-460** has failed **HIGH** with the control selector switch in the **461 / 460** position.

Feedback

K/A

028 Pressurizer Level Malfunction:

AK2.02 Knowledge of the interrelations between the Pressurizer Level Control Malfunctions and the following:

Sensors and detectors

K/A MATCH ANALYSIS

Question gives a plausible scenario with a reference leg break on a PRZR level control instrument. Candidate has to choose the correct description of the failure (high / low) and which one Letdown would remain in service for an indefinite time.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Reference leg failure would result in high failure versus low. Plausible that the candidate could invert the failure direction. Channel is also not selected which make even more plausible.
- B. Incorrect. Reference leg failure would result in a high failure versus low. Plausible that candidate could invert the failure direction. Channel is also not selected which makes it even more plausible.
- C. Incorrect. High failure part is correct. However, with controlling channel failed high, charging flow would reduce until letdown isolates on PRZR low level < 17%.

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

D. Correct. High failure would result, with LT-460 failed high and not the controlling channel, a PRZR HI LEVEL alarm would be the only result.

REFERENCES

LO-PP-16302-07-03, Vogtle LO Active Exam Bank

LO-PP-16302-02-11, Vogtle LO Active Exam Bank

V-LO-PP-16302, Pressurizer Level Control Power Point slide # 47

Watts Bar September 2006 NRC RO exam question # 35

Prairie Island August 2005 NRC RO exam question # 21 (this was a NOT question)

VEGP learning objectives:

LO-PP-16302-02, Describe how the response of pressurizer level control to the following failures:

b. controlling (primary and secondary) channel fails high

LO-PP-16302-05, Describe the consequences of a leak on or isolation of the common reference leg.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D A A D B A C C B C Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

30. 029A2.04 001/2/2/PURGE-HP NOTIFY/MEM - 2.5/NEW/R/NRC RO/TNT / RLM

Given the following timeline:

- 0200 on 08-16-2007 HP / Chemistry samples the containment atmosphere for a mini-purge relief.
- 0300 on 08-16-2007 Shift Supervisor approves the release permit.

Due to manpower shortage on day shift, the mini-purge relief is not performed.

- 0330 on 08-17-2007 Control Room operators are ready to initiate the mini-purge relief.

Which **ONE** of the following is **CORRECT** regarding the mini-purge relief evolution?

- A. The relief can be started immediately.
- B. The relief can be started at any time.
- C. The relief cannot be started since more than 24 hours have passed from the containment air sample.
- D. The relief cannot be started since more than 24 hours have passed since the approval of the permit.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

029 Containment Purge System (CPS):

A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the Containment Purge System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

Health physics sampling of containment atmosphere.

K/A MATCH ANALYSIS

Question gives a plausible scenario timeline where a mini-purge relief (release) evolution is approved by HP / Chemistry but a manpower shortage delays the initiation of the release. The candidate must determine if the release is allowed to be started.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. The relief cannot be started since > 24 hours have passed since the chemistry sample was taken.
- B. Incorrect. The relief cannot be started at any time since > 24 hours have passed since the chemistry sample was taken.
- C. Correct. The relief cannot be started since > 24 hours have passed since the chemistry sample was taken.
- D. Incorrect. The relief cannot be started since > 24 hours have passed since the chemistry sample was taken, while true > 24 hours has passed since permit approval, this is not a restriction on start of the relief.

REFERENCES

SOP-13125-1/2, "Containment Purge System"

VEGP learning objectives:

LO-PP-29101-08, Describe routine actions taken to adjust Containment pressure and temperature.

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

31. 029EA1.05 001/1/1/ATWT - BIT OUTLET SW/C/A - 3.7/MODIFIED/R/NRC RO/TNT / RLM

The following plant conditions exist:

- Unit 2 has experienced an Anticipated Transient Without Trip (ATWT) and has implemented FRP-19211, Response to Nuclear Power Generation ATWT.
- A Charging Pump is running.
- Boric Acid Transfer Pump # 1 is tagged out.
- Boric Acid Transfer Pump # 2 trips on start.
- SI has **NOT** actuated at this time.
- The SS has directed the RO to establish Emergency Boration in accordance with SOP-13009, "CVCS Reactor Makeup Control System".

Which **ONE** of the following actions would establish a **CORRECT** emergency boration flow path in accordance with the SOP? (Assume 12 gpm seal return flow)

- A. 1) Open HV-8104 EMERGENCY BORATE Valve.
- 2) Adjust charging flow controller FIC-0121 to obtain > 42 gpm flow through the Normal Charging flow path.
- B. 1) Open LV-0112D and LV-0112E RWST TO CHARGING PUMP SUCT valves.
- 2) Adjust charging flow controller FIC-0121 to obtain > 42 gpm flow through the Normal Charging flow path.
- C. 1) Open FV-110A BA to Blender and FV-110B BLENDER OUTLET TO CHARGING PUMPS SUCT.
- 2) Adjust charging flow controller FIC-0121 to obtain > 100 gpm flow through the Normal Charging Path.
- D. 1) Open LV-0112D and LV-0112E RWST TO CHARGING PUMP SUCT valves and HV-8801A and HV-8801B BIT DISCHARGE ISOLATION valves.
- 2) Verify BIT flow (FI-0917A), plus total seal injection flow, minus total seal return flow is > 100 gpm.

Feedback

K/A

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

029 Anticipated Transient Without Scram (ATWS):

EA1.05 Ability to operate and monitor the following as they apply to an ATWS.

BIT outlet valve switches.

K/A MATCH ANALYSIS

Question gives a plausible scenario with an ATWT in progress. Neither Boric Acid Transfer Pump is available. Candidate must choose a correct emergency boration flow path that would achieve Emergency Boration Flow.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Without BA Transfer Pumps available there would be no flow through HV-8104. Plausible the candidate may not realize BA Transfer Pump impact on flow path. Flow rates given would satisfy the flow path if BA Transfer Pumps available.
- B. Incorrect. LV-112D and LV-112E would satisfy the flow path requirements but the minimum flow requirement via this path would be 100 gpm. Plausible candidate could recognize a correct flow path but confuse the flow rate requirements.
- C. Incorrect. FV-0110A and FV-0110B would not have flow through this path without the Boric Acid Transfer Pumps available. Plausible candidate may not realize BA Transfer Pump impact on the flow path and confuse the flow rate requirements.
- D. Correct. Opening LV-112D and LV-112E would establish boration flow from RWST and flow requirements would be satisfied with 100 gpm to BIT. 100 gpm used to sound more like choice B to make question symmetrical with choices and NOT be a NOT question.

REFERENCES

19211-C, Nuclear Power Generation ATWT page 4

13009-1/2, CVCS Makeup Control System section 4.9 for Emergency Boration pages 38 through 41.

LO-PP-09300-06-001, 003, and 004 from Vogtle LO Active Exam Bank

VEGP learning objectives:

LO-PP-09300-06, Describe all emergency flow path

- a. borated water source and discharge flow path
- b. minimum flow requirements

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

32. 032AK1.01 001/1/2/SR NIS - VOLT CHANGE/C/A - 2.5/BANK/R/NRC RO/TNT / RLM

Given the following conditions:

- Reactor Startup in progress.
- Startup is on hold due to a problem with SR N-31.
- SR N-32 indicates 1000 cps.
- SR N-31 is in Level Trip Bypass

Which **ONE** of the following will occur if the control power fuse for SR N-31 blows?

- A. A reactor trip will occur on SR Hi Flux.
- B. Rod withdrawal is blocked in automatic or manual.
- C. SR indication for N-31 is lost on the QMCB and NIS cabinets
- D. Rod withdrawal is blocked in automatic only.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

032 Loss of Source Range Nuclear Instrumentation

AK1.01 Knowledge of the operational implications of the following concepts as they apply to Loss of Source Range Nuclear Instrumentation:

Effects of voltage changes on performance.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a SR instrument is lost due to loss of control power below P-6 while in "Bypass". The candidate must choose the correct response to the instrument failure.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. Loss of control power de-energizes bistables and initiates a reactor trip signal as the 1 / 2 coincidence is made up for SR Hi Flux Trip.
- B. Incorrect. Source range instruments do not have rod stops associated with them. Plausible since SR / IR instruments combined that candidate may think C-1 rod stop would be affected.
- C. Incorrect. Not all indications are lost since the instrument power is still available. Plausible candidate may think control power causes a loss of indication.
- D. Incorrect. Source range instruments do not have rod stops associated with them. Plausible since SR / IR instruments combined that candidate may think C-1 rod stop would be affected.

REFERENCES

Vogtle 2002 NRC RO Exam question # 38.

VEGP learning objectives:

LO-PP-17201-01, Discuss the operation of the Source & Intermediate range detectors to include:

g. Power supplies (also including the effects on loss of instrument or control power)

LO-PP-17201-02, Discuss the operation of the Source & Intermediate range switches.

a. Level Trip Bypass

Notes

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

33. 033A3.01 001/2/2/SFPCS-TCVS/MEM - 4.2/MODIFIED/R/NRC RO/TNT / RLM

Given the following conditions:

- Unit 1 refueling outage in progress.
- A total loss of CCW has occurred.
- Per AOP-18030-1, "Loss of Spent Fuel Pool Cooling", the SS has directed that "Feed and Bleed" be initiated.

Which **ONE** of the following is **CORRECT** regarding temperature control during the feed and bleed evolution?

- A. Train A is the preferred train, simultaneous feed and bleed can be performed, SFP temperature is controlled using an auto Temperature Control Valve (TCV).
- B. Either Train A or Train B allows for simultaneous feed and bleed to be performed, SFP temperature is controlled using an auto Temperature Control Valve (TCV).
- C. Train B is the preferred train, simultaneous feed and bleed can be performed, SFP temperature is controlled using manually throttled valves, no auto TCV exists.
- D. Either Train A or Train B allows for simultaneous feed and bleed to be performed, SFP temperature is controlled using manually throttled valves, no auto TCV exists.

Feedback

K/A

033 Spent Fuel Pooling Cooling System (SFPCS):

A3.01 Ability to monitor automatic operation of the Spent Fuel Pool Cooling System including:

Temperature Control Valves

K/A MATCH ANALYSIS

Question gives a plausible scenario requiring SFP feed and bleed. The candidate has to determine which train is preferred and whether manual control or an auto TCV exists to control SFP temperature.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible candidate may not know Train B is preferred, due to makeup valve arrangement train B is only train simultaneous feed and bleed can be performed. Candidate may think a TCV exists a some point in the flow path.
- B. Incorrect. Plausible candidate may not know Train B is preferred, due to makeup

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

valve arrangement train B is only train simultaneous feed and bleed can be performed. Candidate may think a TCV exists a some point in the flow path.

C. Correct. Train B is preferred train and manual valve manipulation controls the spent fuel pool temeprature.

D. Incorrect. Plausible candidate may not know Train B is preferred, due to makeup valve arrangement train B is only train simultaneous feed and bleed can be performed. Candidate may know manual manipulation only is performed but not know there is a preferred train.

REFERENCES

AOP-18030-C, "Loss of Spent Fuel Pool Cooling"

LO-LP-60322-05-001 and 003 Vogtle LO Active Exam Bank questions.

VEGP learning objectives:

LO-PP-25102-09, Describe the impacts of the following conditions:

b. Loss of CCW to the SFPCS heat exchangers.

LO-LP-60322-02, Describe why you are cautioned in AOP-18030-C not to align the Spent Fuel Pool System to provide bleed to the RWST if spent fuel pool level is less than 217 ft elevation.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

34. 035K1.02 001/2/2/SG-MRSS/C/A - 3.2/NEW/R/NRC RO/TNT / RLM

A reactor trip has occurred and the plant has entered Mode 3.

- Steam dump valve 1PV-507C is stuck open and cannot be shut.
- All SG Pressures and PT-507 Steam Header Pressure are lowering.
- The BOP operator actuates SLI using the Train "A" SLI handswitch only.

Which **ONE** of the following is **CORRECT** regarding the plant response?

- A. BOTH Trains MSIVs and Bypasses close.
Steam Generator Pressures will stabilize or rise.
- B. ONLY Train "A" MSIVs and Bypasses close.
Steam Generator Pressures will continue to lower.
- C. BOTH Trains MSIVs and Bypasses close.
Steam Header Pressure read on PT-507 will stabilize or rise.
- D. ONLY Train "A" MSIVs and Bypasses close.
Steam Header Pressure read on PT-507 will continue to lower.

Feedback

K/A

035 Steam Generator System (SGS):

K1.02 Knowledge of the physical connections and / or cause effect relationships between the S/Gs and the following systems:

MRSS

K/A MATCH ANALYSIS

Question asks a plausible scenario with a steam dump valve stuck open and the BOP taking action to stop an uncontrolled cooldown by performing an SLI. Candidate must pick the correct response of the MSIVs and the SG Pressures or Steam Header Pressure response.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. Either SLI handswitch taken to actuate will cause BOTH trains of MSIVs and Bypasses to shut. SG pressures should begin to rise once the steam flow path has been isolated.
- B. Incorrect. Either SLI handswitch taken to actuate causes BOTH trains of MSIVs and

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

Bypasses to shut. Plausible candidate may think only Train "A" isolates. Also, Plausible candidate could still think a steam flow path exists via bypasses and SG pressures still be lowering.

C. Incorrect. MSIV and Bypass response is correct. However, PT-507 pressure should continue to lower with steamlines isolated and steam dump valve stuck open. Plausible candidate could confuse location of PT-507 relative to MSIVs.

D. Incorrect. Either SLI handswitch taken to actuate causes BOTH trains of MSIVs and Bypasses to shut. Plausible candidate may think only Train "A" isolates. PT-507 response is correct.

REFERENCES

Power Point V-LO-PP-21101 Main Steam System (slide # 139 for HS actuations)

Power Point V-LO-PP-21201 Steam Dump System

VEGP learning objectives:

LO-PP-21101-12, Discuss the following concerning the "Main Steam Isolation Valves" (MSIVs)

b. Basic description of how they operate

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

35. 037AA2.10 001/1/2/SGTL - TECH SPEC LCO/C/A - 3.2/MODIFIED/R/NRC RO/TNT / RLM

Given the following conditions with Unit 2 at 100% power:

The RCS Leak Rate surveillance indicates the following:

- Total RCS leakage is 9.2 gpm
- Leakage to the PRT is 5.9 gpm
- Leakage to the RCDT is 2.0 gpm

Primary to Secondary Leakage is as follows:

- S/G # 1 = 0.08 gpm
- S/G # 2 = 0.09 gpm
- S/G # 3 = 0.10 gpm
- S/G # 4 = 0.11 gpm

Which **ONE** of the following would be **CORRECT** regarding RCS Leakage limits in accordance with Tech Specs?

- A. No RCS leakage limits have been exceeded.
- B. The RCS Unidentified leakage limit has been exceeded.
- C. The Total Primary-to-Secondary leakage limit of 500 gpd has been exceeded.
- D. The Primary-to-Secondary leakage limit through any ONE S/G has been exceeded.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

037 Steam Generator (S/G) Tube Leak

AA2.10 Ability to determine and interpret the following as they apply to the Steam Generator Tube Leak.

Tech Spec Limits for RCS Leakage

K/A MATCH ANALYSIS

Question gives a plausible scenario where an RCS Leak Rate has been performed. The candidate must determine if any RCS Leakage Tech Spec thresholds have been exceeded from the given data.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. > 150 gpd through S/G # 4 exists. Plausible candidate could miscalculate from the given data to determine no leak limits are exceeded.
- B. Incorrect. Unidentified leakage from given data is 0.92 gpm. Plausible candidate could miscalculate from the given data and choose Unidentified leakage.
- C. Incorrect. Total from all S/Gs is 547.2 gpd ($.38 \times 1440 = 547.2$). This answer is plausible since Vogtle until recently had a 500 gpd limit for leakage through all S/Gs. Candidates could still recall this number since it is a very recent change to TS.
- D. Correct. S/G # 4 has 158.4 gpd leakage ($1440 \times .11 = 158.4$) which exceeds the threshold for entering LCO 3.4.13 for RCS Leakage.

REFERENCES

Technical Specification 3.4.13 for RCS Operational Leakage

HL-AU-39000-00-002 from Vogtle LO Active Exam Bank (base for modification)

VEGP learning objectives:

LO-LP-39208-01, For any given item in section 3.4 of Tech Specs, be able to:

a. State the LCO

Notes

Response form

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

36. 038G2.1.14 001/1/1/SGTR - NOTIFICATIONS/MEM - 2.5/MODIFIED/R/NRC RO/TNT / RLM
A Steam Generator Tube Rupture (SGTR) is in progress on Unit 1.

- The crew is performing steps of 19030-C, "Steam Generator Tube Rupture" to "minimize secondary system and environmental contamination".

In accordance with 19030-C, which **ONE** of the following is the **CORRECT** plant personnel to notify prior to performing this procedurally driven evolution?

- A. HP, notify prior to draining potentially contaminated water to the TB sumps.
- B. Chemistry, notify prior to resetting CIA and repositioning valves in the plant.
- C. HP, notify prior to draining potentially contaminated Hotwell water to the CSTs.
- D. Chemistry, notify upon relief of ruptured steam generator ARV.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

038 Steam Generator Tube Rupture (SGTR):

G2.1.14 Knowledge of system status criteria which require the notification of plant personnel.

K/A MATCH ANALYSIS

Question gives a plausible scenario during a SGTR where alignment / draining of plant systems must be performed to minimize secondary and environmental contamination. The candidate must pick the correct personnel to notify for the evolution as specified in the E-3 procedure.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. Health Physics personnel must be notified for personnel protection and monitoring purposes.
- B. Incorrect. Plausible the candidate could confuse and think chemistry notified before resetting CIA, HP would be the proper department to notify.
- C. Incorrect. Plausible the but Hotwell dump to the CST is isolated during performance of this procedure using LV-4415 and / or manual isolations in the Turbine Building.
- D. Incorrect. Plausible the candidate may think notification of chemistry appropriate on ARV lifting, HP would be the correct department to notify.

REFERENCES

Harris February 2006 NRC RO Exam question # 16

19030-C, "Steam Generator Tube Rupture" step # 59 and Attachment "D" step # 1.

VEGP learning objectives:

LO-LP-37311-07, Using EOP 19030-C as a guide, briefly describe how each step is accomplished.

LO-LP-37311-11, Given a NOTE or CAUTION statement from the EOP, state the bases for that NOTE or CAUTION statement.

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

37. 039A2.01 001/2/1/MAIN RHT - LOCA PATH/C/A - 3.1/NEW/R/NRC RO/TNT / RLM

Given the following conditions:

- Unit 1 at 30% power, Turbine has just been synchronized to the grid.
- Steam flow suddenly increases on the BOP panel.
- Plant personnel report a steam leak in the Turbine Building.
- The RO trips the reactor, the turbine auto trips.
- The MSIVs and Bypasses are still open.
- The steam leak appears to have stopped.

Which **ONE** of the following would be **CORRECT** regarding the indications above?

- A. Break on the main steam cross-tie header line.
- B. Break on the steam supply line to the Auxiliary Steam Header.
- C. Break on the steam supply lines to the Main Feed Pump Turbines.
- D. Break on the lines between the stop valves and the Main Turbine.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

039 Main and Reheat Steam System (MRSS):

A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the MRSS; and (b) based on predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

Flow paths of steam during a LOCA.

K/A MATCH ANALYSIS

Question gives a plausible scenario with a Turbine Building steam leak which stops with a Reactor-Turbine trip and MSIVs still open. The candidate must determine from the choices the location of the steam leak.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible candidate could confuse the location of the main steam cross-tie header and think the leak was isolated.
- B. Incorrect. Plausible the candidate may confuse the location of the Aux. Steam header and think the leak was isolated.
- C. Incorrect. Plausible the candidate may confuse the location of the MFPT steam supply lines.
- D. Correct. Turbine trip would isolate a leak between the stop valves and Main Turbine.

REFERENCES

V-LO-PP-21101, "Main Steam System" slide # 150

VEGP learning objectives:

LO-PP-21101-09 Describe the Main Steam flow path to include:

- b. Major steam loads downstream of the Main Steam Isolation Valves.

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

38. 045G2.1.33 001/2/2/TURB/GEN-TECH SPECS/MEM - 3.4/NEW/R/NRC RO/TNT / RLM

Which **ONE** of the following conditions would require an LCO entry per Technical Specifications?

- A. Failure of PT-505 while in Mode 1.
- B. Failure of C-16 in Mode 1 greater than P-9.
- C. Failure of Main Turbine Vibration Instrumentation.
- D. Failure of Main Turbine Overspeed Test in Mode 2 with MSIVs closed.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

045 Main Turbine Generator (MT/G) System:

G2.1.33 Ability to recognize indications for system operating parameters which are entry-level conditions for Technical Specifications.

K/A MATCH ANALYSIS

Question asks plausible scenario for an LCO entry per Technical Specifications related to the Main Turbine Generator. Candidate must choose the correct test failure and power level that would require a Tech Spec LCO entry.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. PT-505 Turbine Impulse Pressure failure would require LCO entry.
- B. Incorrect. Plausible candidate could consider C-16 but is not Tech Spec.
- C. Incorrect. Plausible candidate would consider Turbine Vibration instrumentation but is not in Tech Specs.
- D. Incorrect. Plausible candidate could consider but is not applicable with MSIVs shut and Turbine Overspeed is not Tech Spec.

REFERENCES

Technical Specification 3.3.1 for Reactor Trip Instrumentation Fu 16f for Turbine Impulse Pressure P-13.

VEGP learning objectives:

LO-LP-39207-02, Given a set of Tech Specs and bases, determine for a specific set of plant conditions, equipment availability, and operational mode:

- a. Whether any Tech Spec LCOs of section 3.3 are exceeded.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A B A C B D C B C D Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

39. 054G2.4.49 001/1/1/LOSS MFW - IOAS/MEM - 4.0/NEW/R/NRC RO/TNT / RLM

Given the following:

- Plant is at 77% with all systems in normal alignment.
- MFPT "A" trips due to a hydraulic oil pressure leak.
- MFPT "B" rpms are increasing with discharge pressure reading 0 psig.
- ALB15 window B05 for MFPT LOW DISHCH HDR PRESSURE is lit.
- Steam Generator Flow Mismatch Annunciators are present for all S/Gs.
- S/G levels are rapidly lowering.
- No actions have yet been taken by the operating crew.

Which **ONE** of the following is the **first CORRECT** action(s) for the crew to perform?

- A. Verify rapid insertion of control rods to match Tavg and Tref.
- B. Trip the reactor and go to 19000-C, "E-0, Reactor Trip or Safety Injection".
- C. Reduce Turbine Load as necessary, IF SG NR levels cannot be maintained greater than 40%, trip the reactor, go to E-0, Reactor Trip or Safety Injection.
- D. Press the "Start Setback" pushbutton and ensure the generator output reduces to less than 850 MWe, start the third condensate pump, raise running MFPT speed.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

054 Loss of Main Feedwater:

G2.4.49 Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

K/A MATCH ANALYSIS

Question gives a plausible scenario with a MFPT trip and the other running MFPT has apparently sheared a shaft or has some other malfunction. The candidate has to pick the correct IOA to perform in accordance with AOP-18016-C, section A.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate would consider rapid insertion of control rods to match Tavg and Tref, this is no longer one of the first IOAs to perform as a recent procedure change made this IOA step A7 coming late in the IOAs. (11-26-2006)
- B. Correct. With reactor power > 75% and at least one MFPT not providing flow the RNO has the crew perform a reactor trip and go to E-0.
- C. Incorrect. Plausible the candidate would consider this since it is step A2 RNO, however, with reactor power > 75% this RNO should not be performed and the crew should proceed to step A3.
- D. Incorrect. Plausible the candidate would consider this since with at least one MFPT providing flow this would be the next IOA step A4.

REFERENCES

AOP-18016-C, Condensate and Feedwater Malfunction section A for MFP Malfunction IOAs steps A1 through A7.

VEGP learning objectives:

LO-LP-60314-02, Describe the operator actions required if during the performance of AOP-18016-C, "Condensate and Feedwater Malfunction" a loss of SG level is imminent.

LO-LP-60314-03, State actions required on loss of both SGFPTs with power > 20% and power < 20%

Notes

Response form

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

40. 055EK1.01 001/1/1/LOSS AC - BATT CAPAC/MEM - 3.3/BANK/R/NRC RO/TNT / RLM
Unit 2 has tripped and a Loss of All AC power event is in progress.

The battery chargers to the 125V DC buses have been de-energized for approximately one hour. It is estimated another 4 hours until AC power is restored. DC bus loads are consistent with design bases.

From this point on, operators can expect the 125V DC bus voltages to drop _____ at first, then later drop _____.

- A. slowly, faster due to high load.
- B. quickly, more slowly due to battery depletion
- C. quickly, more slowly due to low load.
- D. slowly, faster due to battery depletion.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

055 Loss of Offsite and Onsite Power (Station Blackout)

EK1.01 Knowledge of the operational implications of the following concepts as they apply to the station blackout:

Effect of battery discharge rates on capacity.

K/A MATCH ANALYSIS

Question gives a plausible during a loss of All AC Power (Station Blackout) where the 1E 125V DC buses are being supplied from the batteries only. The candidate must choose whether the discharge rates of the batteries will get faster or slower over the course of the event and why.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Rate of decay slow at first then increases due to battery depletion.
- B. Incorrect. Rate of decay slow at first then increases due to battery depletion.
- C. Incorrect. Rate of decay slow at first then increases due to battery depletion.
- D. Correct. Rate of decay slow at first then increases due to battery depletion.

REFERENCES

Vogtle May 2006 NRC RO Retake Exam.

NOTE: This question is a re-use from the May 2006 NRC RO Retake exam and 1 of 4 or less that can be used from last 2 previous exams (May 2006 NRC RO Retake Exam and May 2005 NRC RO Exam)

North Anna June 2004 NRC RO Exam question # 50

VEGP learning objectives:

Not applicable.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D D B B A B D D B D Scramble Range: A - D

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

41. 057AA2.19 001/1/1/VITAL AC - AUTO ACT/C/A - 4.0/MODIFIED/R/NRC RO/TNT / RLM

The following conditions exist:

- A plant startup is in progress.
- Reactor power is currently 12% and rising.
- All control systems are in normal alignment.
- A loss of 120V AC Vital instrument bus 2AY1A occurs.

Which **ONE** (1) of the following describes the effect on the plant?

- A. Reactor automatically trips due to loss of one Intermediate Range instrument.
- B. Rapid Control Rod insertion due to loss of Turbine Impulse Pressure instrument.
- C. Manual reactor trip by Reactor Operator performing Immediate Operator Actions.
- D. Letdown isolates due to failure of the controlling Pressurizer Level instrumentation.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

057 Loss of Vital AC Instrument Bus:

AA2.19 Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus.

The plant automatic actions that will occur on the loss of a vital ac electrical instrument bus.

K/A MATCH ANALYSIS

Question gives a plausible scenario with failure of a 120V AC Vital Instrument Bus. The candidate has to choose the correct plant response to the failed instrument.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Reactor will not trip as plant is > P-10 and IR trips should be blocked per the controlling UOP. Plausible candidate may not recall block of IR and a reactor trip would occur if the plant was < P-10.
- B. Incorrect. Control Rods should not be in auto until reactor power > 15%. Plausible candidate may not recall rods not in auto per controlling UOP or during startup. IOA is to place rods in manual. PT-505 failure would cause rapid insertion at power.
- C. Incorrect. IOA is to perform manual reactor trip if power < P-10. Plausible candidate could confuse IOA and think manual trip should be performed.
- D. Correct. Channel 1 failure would cause a failure of LT-459 resulting in a letdown isolation with LV-459 isolation valve closing.

REFERENCES

Harris February 2006 NRC RO Exam question # 41.

AOP-18032-2, section A for Loss of Vital Instrument Bus Panel 2AY1A steps A1 - A6.

VEGP learning objectives:

LO-LP-60324-02, Given that a loss of 120VAC instrument power has occurred to any of the following panels, and given the appropriate plant procedures, describe the operator actions required and why these actions are taken.

a. AY1A

Notes

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

42. 058AK3.01 001/1/1/LOSS DC - EDG CONT/C/A - 3.4/BANK/R/NRC RO/TNT / RLM

Given the following:

- DG1B running for the monthly surveillance.
- A loss of 125V DC 1E bus 1BD1 occurs.
- The Shift Supervisor directs you to shutdown DG1B.

Which **ONE** of the following is the **CORRECT** action to shutdown DG1B?

- A. Depress the normal stop pushbutton on the QEAB.
- B. Depress BOTH Emergency Stop pushbuttons on the QEAB.
- C. Depress the Emergency Stop pushbutton on the local Diesel Control Panel.
- D. Depress the Pull to Run / Push to Stop pushbutton at the DG front standard area.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

058 Loss of DC Power:

AK3.01 Knowledge of the reasons for the following responses as they apply to the Loss of DC Power.

Use of dc control power by D/Gs.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a DG is running for a monthly surveillance when a loss of DC control power occurs. Candidate must choose the correct method to shutdown the DG.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Normal starting and stopping circuitry is disabled with a loss of DC control power to BD11 / BD12. Plausible candidate may think normal shutdown from QEAB still available since no SI or LOSP in progress.
- B. Incorrect. Normal starting and stopping circuitry is disabled with a loss of DC control power to BD11 / BD12. Plausible candidate may think an emergency trip using QEAB pushbuttons may still function.
- C. Incorrect. Normal starting and stopping circuitry is disabled with a loss of DC control power to BD11 / BD12. Plausible candidate may think the local emergency trip may still function..
- D. Correct. None of the QEAB or local pushbuttons will function to stop the DG with a loss of DC control power to BD11 / BD12. The Pull to Run / Push to Stop pushbutton uses pneumatic air to shut the combustion air intake dampers and place the fuel racks to the no fuel position using the shutdown cylinder.

REFERENCES

V-LO-PP-11101-40-001 from Vogtle LO Active Exam bank was used as the base for this question (slightly modified from bank).

AOP-18034-C, "Loss of Class 1E 125V DC Power" step # B6.b

VEGP learning objectives:

LO-PP-11101-40, Predict the effect on the following malfunctions on the operation of the diesel engine:

- b. Loss of engine (A, B, or C) control power.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

43. 059A3.06 001/2/1/MFW - FWI/MEM - 3.2/NEW/R/NRC RO/TNT / RLM
A reactor trip with no safety injection has occurred from 30% power.

- RCS Tavg is 560 degrees F and stable.
- Both Reactor Trip breakers are open.
- The Shift Supervisor directs you to "**verify feedwater isolation**" (FWI).

Which **ONE** of the following identifies the locations where the operator would verify FWI?

- A. MFIVs and BFIVs on the QMCB handswitches.
MFRVs and BFRVs on the QMCB Hagen controllers.
- B. MFIVs and BFIVs on the QMCB RO panel MLBs.
MFRVs and BFRVs on the QMCB RO panel ZLBs.
- C. MFIVs and BFIVs on the QMCB RO panel MLBs.
MFRVs and BFRVs on the QMCB RO panel MLBs.
- D. MFIVs and BFIVs on the QMCB handswitches.
MFRVs and BFRVs on the QMCB BOP panel ZLBs.

Feedback

K/A

059 Main Feedwater (MFW) System:

A3.06 Ability to monitor automatic operation of the MFW, including:

Feedwater Isolation

K/A MATCH ANALYSIS

Question gives a plausible scenario requiring a FWI. The candidate must determine locations that FWI can be verified from the choices.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. MFIV and BFIV positions can be determined from either the QMCB HS or the RO panel MLBs on TSLB-4. The MFRVs and BFRVs can only be determined from the BOP panel ZLB-04, not the Hagen controllers. Plausible candidate could think the Hagen controllers could be used for verification.
- B. Incorrect. MFIV and BFIV positions can be determined from either the QMCB HS or the RO panel MLBs on TSLB-4. The MFRVs and BFRVs can only be determined from the BOP panel ZLB-04, not the Hagen controllers. Plausible candidate may

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

think there is a ZLB on the RO panel for MFRVs and BFRVs.

C. Incorrect. MFIV and BFIV positions can be determined from either the QMCB HS or the RO panel MLBs on TSLB-4. The MFRVs and BFRVs can only be determined from the BOP panel ZLB-04, not the Hagen controllers. Plausible candidate may think there are MLB indications on the RO panel for the MFRVs and BFRVs.

D. Correct. MFIV and BFIV positions can be determined from either the QMCB HS or the RO panel MLBs on TSLB-4. The MFRVs and BFRVs can only be determined from the BOP panel ZLB-04.

REFERENCES

V-LO-PP-18101, "Condensate and Feedwater System" slide # 167

Simulator QMCB panels, ZLBs, and MLBs.

VEGP learning objectives:

LO-PP-18101-18, Discuss the basic operation of the MFRVs.

LO-PP-18101-19, Discuss the basic operation of the MFIVs.

LO-PP-18101-20, Discuss the basic operation of the BFRVs.

LO-PP-18101-21, Discuss the basic operation of the BFIVS.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D D A A C B C C C A Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

44. 059K3.04 001/2/1/MFW - RCS/C/A - 3.6/BANK/R/NRC RO/TNT / RLM

Given the following conditions:

- The plant is at 100% power with all systems in automatic.
- The RO has recently performed a small dilution for Tavg control.

The following indications are observed in the control room.

- Power Range NI's are rising.
- Tavg is lowering.
- Steam flow and feed flow are stable.
- Reactor power is 101% and rising slowly.

Which **ONE** of the following is the **CORRECT** event in progress and required/preferred action in accordance with AOP-18016-C, "Condensate Feedwater Malfunction"?

- A. Inadvertent RCS dilution, reduce power by reducing turbine load as necessary.
- B. Inadvertent RCS dilution, reduce power and Tavg by inserting control rods.
- C. Loss of Feed Water heating, reduce power by reducing turbine load as necessary.
- D. Loss of Feed Water heating, reduce power and Tavg by inserting control rods.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

059 Main Feedwater (MFW) System:

K3.04 Knowledge of the effect that a loss or malfunction of the MFW will have on the following:

RCS

K/A MATCH ANALYSIS

Question gives a plausible scenario where a reactor over power event is occurring. The candidate must determine the cause of the event and the correct action to take.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may think the dilution caused reactor power to rise, however, the other indications rule this out. Correct actions per AOP 18016-C.
- B. Incorrect. Plausible the candidate may think the dilution caused reactor power to rise, however, the other indications rule this out. Actions not those of AOP 18016-C.
- C. Correct. Loss of Feed Water heating and actions are correct.
- D. Incorrect. Plausible candidate could identify the loss of Feed Water heating but the actions are not those of AOP 18016-C.

REFERENCES

AOP-18016-C, "Condensate Feedwater Malfunction" section C for Loss of FW Heaters

V-LO-LP-60314-01-001 Vogtle LO Active Exam Bank

Beaver Valley March 2005 NRC RO Exam question # 88

VEGP learning objectives:

LO-PP-60314-05, Given the entire AOP, describe:

- a. Purpose of the selected steps.
- b. How and why the step is performed.
- c. Expected response of the plant / parameter(s) for the step.

Notes

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

45. 061K5.01 001/2/1/AFW - RCS HEAT XFER/MEM - 3.6/BANK/R/NRC RO/TNT / RLM

Following a reactor trip with no SI required, the crew has transitioned to 19001, Reactor Trip Response.

Step 3c AER says "**Check SGs NR level - ONE GREATER THAN 10%**".

1) If yes, AER says "**throttle total AFW flow as necessary**".

2) If no, RNO says "**Verify total AFW flow greater than 570 gpm**".

Which **ONE** of the following is **CORRECT** regarding the basis for the Step 3 actions?

- A. 1) To limit runout of the AFW pumps.
2) Ensures adequate AFW flow for decay heat removal.
- B. 1) To limit runout of the AFW pumps.
2) Ensures enough flow for AFW pump protection.
- C. 1) To limit overcooling of the RCS.
2) Ensures adequate AFW flow for decay heat removal.
- D. 1) To limit overcooling of the RCS.
2) Ensures enough flow for AFW pump protection.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

061 Auxiliary Feedwater (AFW) System:

K5.01 Knowledge of the operational implications of the following concepts as they apply to the AFW:

Relationship between AFW flow and RCS heat transfer.

K/A MATCH ANALYSIS

Question gives a plausible scenario following a plant trip where AFW flow control is directed by the Reactor Trip Recovery procedure. Candidate must choose the correct basis for the throttling / maintaining of AFW flow.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. AFW pumps are protected from runout by flow orifices. Decay heat removal portion is correct. Plausible candidate may think flow is throttled to prevent runout of the pumps.
- B. Incorrect. AFW pumps are protected from runout by flow orifices. AFW pumps are protected from low flow by miniflow line. Plausible candidate may think flow is throttled to prevent runout or kept high enough for pump protection.
- C. Correct. Limit RCS overcooling and adequate decay heat removal is correct.
- D. Incorrect. Limit RCS overcooling is correct. AFW pumps are protected from low flow by miniflow line. Plausible candidate may think flow is maintained for pump protection.

REFERENCES

DC Cook February 2006 NRC RO Exam question # 55

V-LO-PP-20101 Auxiliary Feedwater Power Point slide # 158

VEGP learning objectives:

LO-LP-37011-08, State why the control of AFW is so important following a reactor trip.

Notes

Response form

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

46. 062AK3.03 001/1/1/LOSS NSCW - EOP/C/A - 4.0/NEW/R/NRC RO/TNT / RLM

Given the following sequence of events:

- Train "A" NSCW is drained and tagged out for leak repair.
- Train "A" DG has been emergency tripped per the AOP.
- Train "A" components placed in PTL and / or stop per the AOP.
- A reactor trip and SI occur due to an RCS LOCA.
- LOSP occurs on Train "B" and DG1B reloads bus 1BA03.

While performing the RO Initial Operator Actions of E-0 the RO points out to the crew that NSCW Train "B" has failed to automatically start.

Which **ONE** of the following is the **CORRECT** action for the crew to take?

- A. Trip all reactor coolant pumps and isolate letdown.
- B. Place all Train "B" components in PTL and / or stop as necessary.
- C. Manually start two Train "B" NSCW pumps, ensure tower basin return is in auto.
- D. Emergency trip DG1B using the QEAB pushbuttons, go to Loss of All AC power.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

062 Loss of Nuclear Service Water:

AK3.03 Knowledge of the reasons for the following responses as they apply to the Loss of Nuclear Service Water.

Guidance actions contained in EOP for Loss of Nuclear Service Water.

K/A MATCH ANALYSIS

Question gives a plausible scenario where one NSCW train is unavailable and the other train fails to automatically start to perform its safety function. The candidate must choose the correct action to take in response.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible action from AOP-18021 for Loss of NSCW step # 4 RNO.
- B. Incorrect. Plausible action from AOP-18021 for Loss of NSCW step # 14.
- C. Correct. Verify means "make it so", crew should start two NSCW pumps and ensure Tower Return Bypass handswitches in auto per Initial Operator Actions of E-0.
- D. Incorrect. Plausible action from AOP-18021-C for Loss of NSCW step # 3, step # 6 RNO.

REFERENCES

AOP-18021-C, "Loss of Nuclear Service Cooling Water".

EOP-19000-C, "E-0, Reactor Trip or Safety Injection".

VEGP learning objectives:

LO-LP-37002-19, State how each of the following EOP format elements are used to guide the operator in proper performance of the steps of the procedure.

g. high level tasks / subtasks

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: C B D D B C B D B D Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

47. 062K1.02 001/2/1/AC DIST - EDG/C/A - 2.5/MODIFIED/R/NRC RO/TNT / RLM
Given the following:

- An SI has occurred and is **NOT** reset.
- An LOSP occurs a few minutes later.
- 1AA02 is powered from DG1A
- 1BA03 is powered from DG1B

While the DG's are operating, an electrical perturbation results in the following;

- DG1A 186A lockout relay energizes (Generator Differential)
- DG1B 186B lockout relay energizes (Phase Overcurrent)

Which **ONE** of the following is **CORRECT** with respect to the status of power to the 4160 1E Emergency Buses at this time?

- A. Both 4160 1E emergency buses would be energized.
- B. Both 4160 1E emergency buses would be de-energized.
- C. 1AA02 would be energized, 1BA03 would be de-energized.
- D. 1BA03 would be energized, 1AA02 would be de-energized.

Feedback

K/A

062 AC Electrical Distribution System:

K1.02 Knowledge of the physical connections and / or cause effect relationships between the AC distribution system and the following systems:

ED/G

K/A MATCH ANALYSIS

Question gives a plausible scenario with SI occurring and not yet reset. An LOSP results in the EDG's carrying both 4160 1E emergency buses. Different overcurrent relays energize on each EDG and the candidate must determine the power supply status of both 4160 1E emergency buses.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Generator Differential (186A) lockout will emergency trip DG1A under all

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

conditions resulting in bus AA02 de-energization. Plausilble candidate may not recognize this as an emergency trip or that it will trip DG during SI condition.

- B. Incorrect. DG1B or breaker would not trip on Phase Overcurrent (186B) as this trip is not active during SI conditions and output breaker would remain closed. Plausible candidate may think both DG and / or output breakers could trip with the listed conditions since the 186A lockout would trip DG1A.
- C. Incorrect. As stated above 186A lockout would trip DG1A resulting in AA02 being de-energized. Plausible candidate could invert the malfunctions or not recognize the effect of SI on the DG's and breakers.
- D. Correct. AA02 would de-energize on DG1A trip, BA03 would remain energized as 186B lockout does not trip DG or output breaker on SI.

REFERENCES

LO-PP-11101-31-003 from Vogtle LO Active Exam Bank

LO-PP-11101-55-001 from Vogtle LO Active Exam Bank

VC Summer 2004 NRC RO Exam question # 44

SOP-13145-1/2, "Emergency Diesel Generators", Precaution 2.1.3

VEGP learning objectives:

LO-PP-11101-55, Identify the primary relays which will actuate each of the following lockout relays and how the diesel generator will respond to each normal start from SI, UV, Local Emergency Start, and Normal Start.

a. 186A lockout relay

b. 186B lockout relay

Notes

Response form

Answers

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9
					Answer:	DBDBCDDDBC
					Scramble Range:	A - D

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

48. 063A2.01 001/2/1/DC - GROUNDS/MEM - 2.5/BANK/R/NRC RO/TNT / RLM
While at 100% power, the following annunciator illuminates.

- ALB35, window D01 for 125V DC SWGR AD1 TROUBLE
- The Control Building Operator (CBO) has been dispatched to investigate and reports a ground.

Which **ONE** of the following is **CORRECT** regarding indications / actions to take if a **GROUND** has occurred?

- A. There are no bus ground detection targets associated with AD1, de-energize all loads on AD1M, AD11, and AD12 one at a time until the alarm clears.
- B. A bus ground detection target would be dropped on AD1, de-energize selected loads on AD1M, AD11, and AD12 one at a time to locate the source of the ground.
- C. There are no local ground detection targets associated with AD1, the CBO would have no indications of a ground, maintenance would have to determine the cause.
- D. A bus ground detection target would be dropped on AD1, de-energize panels AD1M, AD11, and AD12 one at a time to locate the panel with the ground.

Feedback

K/A

063 DC Electrical Distribution System:

A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the DC electrical systems; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations.

Grounds

K/A MATCH ANALYSIS

Question gives a plausible scenario where a ground fault has appeared on a 125V DC electrical bus. The operator must choose which of the indications would be available to determine the source of the ground and corrective action to take. Ground fault indication is available on AD1 but not the panels fed from AD1. The panels fed from AD1 should have loads selectively de-energized one at a time to determine the source of the ground. Not all loads can be de-energized. MSIVs and MFIVs in particular are powered from AD11 / AD12 and would result in a plant trip if de-energized.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. There is ground fault indication available for AD1. However, ALL loads on

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

49. 064A3.06 001/2/1/EDG - START/STOP/C/A - 3.3/NEW/R/NRC RO/TNT / RLM

Given the following conditions:

- DG1A is running, an extra licensed operator is dispatched to monitor and observes the green "**LOSS OF OFFSITE PWR OR SAFETY INJ SIGNAL**" lamp is lit.

- The operator checks the status of the red "**SHUTDOWN SYSTEM ACTIVE**" lamp.

Which **ONE** of the following is **CORRECT** regarding the status of the SHUTDOWN SYSTEM ACTIVE lamp ?

The SHUTDOWN SYSTEM STATUS lamp should be _____

- A. Extinguished, indicating the DG Normal trips are active.
- B. Illuminated, indicating the DG Emergency trips are active.
- C. Extinguished, indicating the DG Normal trips are bypassed.
- D. Illuminated, indicating the DG Emergency trips are bypassed.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

064 Emergency Diesel Generator (ED/G) System:

A3.06 Ability to monitor automatic operation of the ED/G system, including:

Start and stop

K/A MATCH ANALYSIS

Question gives a plausible scenario with local indications showing an emergency start of the DG. The candidate must determine the correct status of the SHUTDOWN SYSTEM ACTIVE lamp which indicates whether normal trips are active or bypassed.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. During an emergency start, the normal trips should be bypassed and this lamp should be extinguished. Plausible the candidate may invert the purpose of the lamp thinking the normal trips are active.
- B. Incorrect. Plausible the candidate may think the lamp indicates the Emergency Trips are active by being illuminated.
- C. Correct. During an emergency start, the normal trips should be bypassed and this lamp should be extinguished.
- D. Incorrect. Plausible the candidate may think the light should be illuminated indicating the Emergency Trips are bypassed.

REFERENCES

SOP-13145-1/2, "Diesel Generators" section 4.1.5 for Local Emergency Startup of DG and section 4.4.3 for DG Operation Under Emergency Conditions.

VEGP learning objectives:

LO-PP-11101-31, List the diesel engine trips and for each:

- a. State the setpoint and coincidence if applicable.
- b. Identify as emergency or non-emergency trip.

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

50. 065AA2.08 001/1/1/LOSS AIR - FAILURES/C/A - 2.9/BANK/R/NRC RO/TNT / RLM

Which ONE of the following valves will fail CLOSED on a loss of instrument air?

- A. Main Feed Pump Miniflow (FV-5201)
- B. Main Feed Regulating Valve (FV-540)
- C. RHR Heat Exchanger Outlet (HV-606)
- D. Charging Flow Control Valve (FV-121)

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

065 Loss of Instrument Air:

AA2.08 Ability to determine and interpret the following as they apply to the Loss of Instrument Air.

Failure modes of air-operated equipment.

K/A MATCH ANALYSIS

Question asks from a list of air operated valves which one will fail shut on a loss of air.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Main Feed Pump Mini Flow fails open on loss of air.
- B. Correct. Main Feed Regulating Valves fail shut on loss of air.
- C. Incorrect. RHR Heat Exchanger outlets fail open on loss of air.
- D. Incorrect. Charging flow control valve FV-121 fails open on loss of air.

REFERENCES

18028-C, section B for Loss of Instrument Air while in Modes 3, 4, or 5

VEGP learning objectives:

LO-LP-60321-02, State the fail position of the following valves on loss of instrument air.

- f. SGFP mini-flow valves
- g. FRV
- i. RHR heat exchanger outlet valve
- o. FV-121 (Charging Flow Control Valve)

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B A C D A D B B D B Scramble Range: A - D

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

51. 068AK3.18 001/1/2/EVAC - EOP ACTIONS/MEM - 4.2/BANK/R/NRC RO/TNT / RLM
Evacuation of the Control Room is required due to a Control Room fire.

- Personnel safety is NOT in jeopardy.

The actions of AOP-18038-1, "Operation From Remote Shutdown Panels", prior to evacuating the control room, include which ONE of the following?

- A. Trip all reactor coolant pumps (RCPs) to minimize heat input.
- B. Trip both main feedwater pumps (MFPTs) to limit RCS cooldown.
- C. Place the pressurizer (PZR) pressure control in MANUAL to prevent inadvertent heater and spray actuations.
- D. Ensure CCP suction aligned to the VCT with makeup in AUTO to ensure adequate NPSH to the charging pumps.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

068 Control Room Evacuation

AK3.18 Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation.

Actions contained in the EOP for control room evacuation emergency task.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a fire requires evacuation of the control room but personnel safety is not jeopardized. The candidate must choose which control room action would be performed prior to leaving the control room.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible since RCPs are tripped to minimize heatup during other procedures such as loss of heat sink. In this procedure they are tripped to prevent an inadvertent depressurization due to open spray valves.
- B. Correct. Both MFPTs are required to be tripped whether personnel safety is jeopardized or not and reason is to limit RCS cooldown.
- C. Incorrect. PORV block valves are shut prior to leaving control room eliminating the use of PORVs for pressure control. Placing PRZR pressure control in MANUAL is not directed per the AOP.
- D. Incorrect. Ensuring CCP suction aligned to VCT is incorrect, should be aligned to the RWST to ensure suction.

REFERENCES

Vogtle 2002 NRC RO Exam question # 66

AOP-18038-1, "Operation From Remote Shutdown Panels" steps 1 - 6

VEGP learning objectives:

LO-LP-60328-07, Given the enter AOP, describe:

b. how and why each step is performed.

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

52. 073K4.01 001/2/1/PROC RAD-TERM RELEAS/C/A - 4.0/MODIFIED/R/NRC RO/TNT / RLM

Given the following:

- Unit 2 refueling outage in progress with several systems draining in progress.
- The Auxiliary Building Clean Water Sump is being pumped to the Turbine Building Drain system to the Waste Water Retention Basins.
- A misalignment drains a radioactive system into the Aux. Building Clean Water Sump.
- A **HIGH** radiation alarm is received for RE-0848, "Turbine Building Drain" rad monitor.

Which **ONE** of the following describes how the release would automatically terminate?

- A. The Aux. Building Clean Water sump pumps automatically trip.
- B. The Turbine Building Drain System re-aligns to the TB Dirty Drain Tank.
- C. The Turbine Building Drain System sump pumps automatically trip.
- D. The Aux. Building Clean Water sump pumps re-align to the Floor Drain Tank.

Feedback

K/A

073 Process Radiation Monitoring (PRM) System:

K4.01 Knowledge of PRM system design feature(s) and / or interlock(s) which provide for the following:

Release termination when radiation exceeds setpoint.

K/A MATCH ANALYSIS

Question gives a plausible scenario during an outage with system draining in progress. A misalignment results in radioactive water drainage into a clean water system. The candidate must determine upon receipt of HIGH radiation how the release would be terminated.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Auxiliary Building Clean Water Sump pumps do not have a High radiation automatic trip function. Plausible candidate could think a clean water sump pump could have a high rad trip interlock. Some sumps such as FHB are interlocked with tank pumps to prevent inadvertent releases.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

53. 076AK2.01 001/1/2/HIGH ACT - PRO RAD/MEM - 2.6/BANK/R/NRC RO/TNT / RLM

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

- A. RE-12442 Main Plant Vent Radiogas Hi Range monitor
- B. Reactor Coolant Dose Equivalent I-131 sample
- C. RE-48000 CVCS Letdown radiation monitor
- D. Reactor Coolant E-Bar calculation

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

076 High Reactor Coolant Activity

AK2.01 Knowledge of the interrelations between the High Reactor Coolant Activity and the following:

Process radiation monitors.

K/A MATCH ANALYSIS

Question asks which indication would be the earliest indication of gross failed fuel to the control room operators. Candidate must pick the correct choice from the list.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible candidate may pick this since some accidents result in high radiation on the plant vent. Since this is high range, it is least likely for radiation to appear first. While the Plant Vent Radiogas may see some activity, an RCS leak would be required for it to detect gross failed fuel.
- B. Incorrect. This is a method of obtaining specific activity but it will not be the earliest. Plausible candidate may choose this if not aware of function of letdown rad monitor.
- C. Correct. This is the function of this radiation monitor and failed fuel is listed as a cause in the annunciator response procedures.
- D. Incorrect. This is a method that requires an RCS sample and a calculation. While failed fuel could be detected by this method, it would not be the earliest. Plausible candidate could choose this if unaware of function of the letdown rad monitor.

REFERENCES

VC Summer April 2004 NRC RO Exam question # 53

Annunciator response 17100 for RE-48000 (page 73)

VEGP learning objectives:

Not applicable

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

54. 076G2.1.2 001/2/1/SERV H2O- OPER RESP/MEM - 3.0/NEW/R/NRC RO/TNT / RLM

Given the following:

- Train "A" NSCW is Danger Tagged out under a clearance for maintenance.
- A catastrophic leak occurs on NSCW Train "B".
- The crew enters 18021-C, "Loss of Nuclear Service Cooling Water".

Which **ONE** of the following is the **first** action required by the operating crew?

- A. Place Train "B" NSCW in single pump operation and initiate a unit shutdown.
- B. Place all 3 Train "B" NSCW pumps in pull-to-lock (PTL).
- C. Depress both DG1B QEAB "Emergency Stop" pushbuttons to disable DG1B.
- D. Place Train "B" equipment cooled by NSCW into PTL for equipment protection.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

076 Service Water System (SWS):

G2.1.2 Knowledge of operator responsibilities during all modes of plant operation.

K/A MATCH ANALYSIS

Question gives a plausible scenario with one train of NSCW tagged out and a catastrophic leak occurs on the other train. The candidate must determine the first course of action he must take once AOP-18021-C for Loss of NSCW is entered.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may think single pump operation would be performed but this is only done after a reactor trip has been performed. A controlled unit shutdown would not be performed. Also, not the first action.
- B. Correct. Placing the pumps into PTL is the first action required on a leak.
- C. Incorrect. Plausible the candidate may think Emergency Trip of DG1B is the next action to perform, it is the 2nd action after placing the pumps into PTL.
- D. Incorrect. Plausible the candidate may think placing running components into PTL for equipment protection but this is directed later in the procedure.

REFERENCES

18021-C, "Loss of Nuclear Service Cooling Water"

VEGP learning objectives:

LO-LP-60317-04, Given the entire AOP, describe:

b. How and why the step is being performed.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B D C B D D C B A D Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

55. 076K4.02 001/2/1/SERV H2O-AUTO STARTS/C/A - 2.9/BANK/R/NRC RO/TNT / RLM
Given the following:

- Unit 1 is at 100% power.
- NSCW pumps 1, 2, 5, and 6 are in service.
- NSCW pump 3 and 4 handswitches are in AUTO.
- A fault on RAT 1A result in an LO SP to 1AA02.
- DG1A starts and re-energizes 1AA02.
- Two minutes later an SI signal occurs due to low PRZR pressure.

Which **ONE** of the following is the **CORRECT** response of the NSCW pumps?

- A. All six NSCW pumps operating.
- B. Only two NSCW pumps operating per train.
- C. Two Train A NSCW pumps operating, three Train B NSCW pumps operating.
- D. Three Train A NSCW pumps operating, two Train B NSCW pumps operating.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

076 Service Water System (SWS)

K4.02 Knowledge of the SWS design feature(s) and / or interlocks which provide for the following:

Automatic start features associated with SWS pump controls.

K/A MATCH ANALYSIS

Question gives a plausible scenario with an NSCW pump alignment given followed by a safety injection and LOSP. Candidate must determine the correct status of the NSCW pumps which were in AUTO standby.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect, plausible the candidate may think the SI starts NSCW pumps 3 and 4 but forgets the load shed on train A would only re-start 2 Train A pumps.
- B. Incorrect, plausible the candidate may confuse the load shed and SI sequence and think only 2 pumps started by the SI in each train and forget the Train B standby pump would still be running after SI.
- C. Correct. Two train A pumps start after the load shed, the 3rd pump on Train B starts on SI and does not load shed.
- D. Incorrect, Plausible the candidate may invert the sequence of events and get the status of the systems backwards.

REFERENCES

LO-PP-06101-09-003 Vogtle LO Active Exam Bank

VEGP learning objectives:

LO-PP-06101-09, Describe the NSCW system response to an SI or LOSP signal.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C B A B D D C A A C Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

56. 078K2.01 001/2/1/IAS-AIR COMPRESSORS/C/A - 2.7/NEW/R/NRC RO/TNT / RLM

Given the following conditions:

- Unit 1 is at 100% power.
- RATs 1A and 1B are de-energized due to an LOSP.
- Both DGs start and re-energize 1AA02 and 1BA03.
- A reactor trip has NOT occurred.
- Swing air compressor (AC) # 4 was aligned to Unit 1

Which **ONE** of the following is **CORRECT** regarding the Swing AC # 4 power supply ?

- A. AC # 4 was de-energized and remains de-energized.
- B. AC # 4 was briefly de-energized and then re-energized.
- C. AC # 4 is energized and will be de-energized if a Unit 1 reactor trip occurs.
- D. AC # 4 is energized and will remain energized if a Unit 1 reactor trip occurs.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

078 Instrument Air System (IAS):

K2.01 Knowledge of power supplies to the following:

Instrument Air Compressor.

K/A MATCH ANALYSIS

Question gives a plausible scenario where an LOSP occurs with the DGs re-energizing the 4160 1E buses AA02 and BA03. The candidate has to pick the correct status of Swing AC # 4 power supply.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. The swing AC # 4 is powered from 1NB12 which is powered ultimately from the "B" UAT while at power via 1NA04. Plausible the candidate may think that 1NA04 power is lost on the LOSP and think the AC # 4 is de-energized. RAT 1B would normally power 1NA04 - 1NB12 during plant shutdown and low power conditions.
- B. Incorrect. This would imply the swing AC # 4 is powered from a switchgear from the stub bus and would have reloaded on the LOSP sequence. Plausible the candidate could think the swing AC # 4 power is from a stub bus switchgear.
- C. Correct. If a reactor trip occurs, power will swap from the UATs to the RATs which are currently de-energized resulting is a loss of power to AC # 4.
- D. Incorrect. If a reactor trip occurs, power will swap from the UATs to the RATs which are currently de-energized resulting is a loss of power to AC # 4. Plausible the candidate could think AC # 4 is energized from stub bus and will not de-energize on reactor trip. Also, candidate may not recall swap to UATs on a reactor trip.

REFERENCES

Simulator HS for AC # 4 and QEAB electrical boards.

LO-PP-01101, "Electrical Distribution" slide # 20

LO-PP-02101, "Service and Instrument Air", slide # 9

LO-TX-02101, Vogtle Text for Service and Instrument Air, page # 5

VEGP learning objectives:

Not applicable

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

57. 086K4.01 001/2/2/FIRE PROT-H2O SUPPLY/MEM - 3.1/BANK/R/NRC RO/TNT / RLM

The Fire Protection System is in normal alignment with virtually no system leakage.

- The Pre-action sprinkler system has actuated at the Diesel Generator Building on Unit 1.
- The Fire Water header system pressure has LOWERED to 88 psig.

Which **ONE** of the following describes the **AUTOMATIC** response of the Fire Protection System to ensure adequate system pressure is maintained?

- A. ONLY the Electric Fire Water Pump STARTS.
- B. ONLY the Standby Jockey Water Pump STARTS.
- C. The Electric Fire Pump and Diesel Fire Pump # 1 both START.
- D. The Standby Jockey Water Pump and the Electric Fire Pump both START.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

086 Fire Protection System (FPS)

K4.01 Knowledge of design feature(s) and / or interlock(s) which provide for the following:

Adequate supply of water for FPS.

K/A MATCH ANALYSIS

Question gives a plausible scenario with a Pre-action sprinkler system actuation with a corresponding drop in fire header pressure. Candidate must determine the proper fire protection system response to maintain adequate fire water supply.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Electric Fire Pump will start with system pressure dropping below 110 psig but so would the Diesel Fire Pump # 1.
- B. Incorrect. The Standby Jockey pumps is normally turned OFF. Plausible candidate may think standby jockey pump starts and is sufficient to maintain header pressure.
- C. Correct. The Electric Fire Pump would start at this pressure and the Diesel Fire Pump # 1 would start.
- D. Incorrect. The Electric Fire Pump would start at this pressure but the Standby Jockey Pump is normally OFF and would not have started.

REFERENCES

Vogtle LO Active Exam bank question # V-LO-LP-43101-05-001.

Callaway February 2004 NRC RO Exam question # 65.

SOP-13903-C, "Fire Protection System Operation"

LO-PP-43101, "Fire Protection System" slides # 7, 8 and 23.

VEGP learning objectives:

LO-PP-43101-04, Discuss normal operation of system jockey pumps including where they are operated from.

LO-PP-43101-05, Discuss the system response to an auto sprinkler actuation or fire hose operation which lowers system header pressure.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
 Answer: C D B A A B D B A D Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

58. 103A1.01 001/2/1/CNMT - PRESS TEMP/C/A - 3.7/BANK/R/NRC RO/TNT / RLM

Given the following plant conditions:

- The plant is in Mode 1 with all systems in normal alignment.
- Containment pressure is 1.9 psig and slowly rising due to a small air leak.
- Containment temperature is 122 degrees F and slowly rising.
- 4 containment coolers are currently running.

Which **ONE** of the following is **CORRECT** regarding containment pressure and temperature and the actions to take to comply with Tech Specs?

- A. Pressure is within Tech Spec limits, use mini-purge to allow containment to vent.
- B. Pressure exceeds Tech Spec limits, use mini-purge to allow containment to vent.
- C. Temperature is within Tech Spec limits, start additional coolers in slow speed.
- D. Temperature exceeds Tech Spec limits, start additional coolers in slow speed.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

103 Containment System:

A1.01 Ability to predict and / or monitor changes in parameters (to prevent exceeding design limits) associated with operating the containment system controls including:

Containment pressure, temperature, and humidity.

K/A MATCH ANALYSIS

Question gives a plausible scenario with containment parameters out of Tech Spec limits or approaching Tech Spec limits. Candidate must choose whether in limits and the correct action to take.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Containment pressure out of limits, mini-purge would be a correct action.
- B. Correct. Containment pressure exceeds limits and mini-purge is correct action.
- C. Incorrect. Temperature exceeds limits and coolers should be started high speed.
- D. Incorrect. Temperature exceeds limits but coolers should be started high speed.

REFERENCES

Technical Specifications 3.6.4 for Containment Pressure

Technical Specifications 3.6.5 for Containment Air Temperature.

ARP-17001 window E06 directs start of additional coolers.

SOP-13120-1/2, Containment Building Cooling Systems normally has coolers running in high speed except during LOCA events.

VEGP learning objectives:

LO-PP-29101-08, Describe routine actions taken to adjust Containment pressure and temperature.

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

59. G2.1.31 001/1/2/CR HS-PROPER LU/MEM - 4.2/NEW/R/NRC RO/TNT / RLM

Given the following:

- Unit 1 is at 100% power with all systems in normal alignment.

Which **ONE** of the following would provide a method for verifying accumulator valve positions in the main control room?

- A. Using the QMCB handswitches.
- B. Using the QMCB monitor light boards (MLBs).
- C. Using the PSMS - Plant Safety Monitoring System.
- D. Using the ACCUM TANK VALVE FULL OPEN annunciator

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

G2.1.31 Ability to locate control room switches, controls and indications and to determine that they are correctly reflecting the desired plant lineup.

K/A MATCH ANALYSIS

Question gives a plausible scenario where the RO is performing the Daily Tech Spec rounds and need to verify Accumulator Isolation Valve position. The candidate has to choose the method required SR 3.5.1.1 as specified in the surveillance.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate could consider the isolation valve handswitches, however, these are normally de-energized at power once the valves are open.
- B. Correct. These are the indicators specified by the CR Tech Spec rounds.
- C. Incorrect. Plausible the candidate could consider the PLASMA display but this panel is for PAM system and does not have accumulator valve positions.
- D. Incorrect. Plausible candidate could confuse the alarm which is for ACCUM VALVE NOT FULL OPEN versus ACCUM VALVE FULL OPEN.

REFERENCES

Tech Spec 3.5.1 and Bases for ECCS Accumulators

OSP-14000-1, "Operations Shift and Daily Surveillance Logs" (CR Tech Spec Rounds)

VEGP learning objectives:

LO-LP-39209-02, Given a set of Tech Specs and the bases, determine for a set of plant conditions, equipment availability, and operational mode:

- a. Whether any Tech Spec LCOs of section 3.5 are exceeded.

LO-LP-39209-03, Describe the bases for any given Tech Spec in section 3.5

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B B C C D A D C C B Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

60. G2.1.9 001/1/2/DIRECT ACTIVITY CR/MEM - 2.5/NEW/R/NRC RO/TNT / RLM

Given the following conditions:

- A prolonged loss of All AC power has occurred, 19100-C, "Loss of All AC Power" is in effect.
- Power is restored to an emergency bus and the crew is preparing to transition to 19102-C, "Loss of All AC Power Recovery With SI Required".
- The person monitoring the CSFSTs points out an ORANGE path on CORE COOLING exists.
- The SS announces entry into FRP 19222-C, "Response to Degraded Core Cooling".

Which **ONE** of the following conditions would require the RO to dispute this course of action by the SS (I.E., prevents transition to the ORANGE path)?

- A. Transition should not be made unless a RED path FRP exists during performance of the Loss of All AC series of procedures.
- B. Transition should not be made until the 19102-C attachment for performing the first 16 steps of E-0 has been completed.
- C. Transition should not be made until completion of 19102-C directs return to another optimal recovery procedure.
- D. Transition should not be made until the step where 19102-C directs implementation of the FRPs is appropriate.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

G2.1.9 Ability to direct personnel activities from inside the control room.

K/A MATCH ANALYSIS

Question gives a plausible scenario with a loss of all AC power in progress and a transition from 19100 when power is recovered. The candidate must determine the correct reason a transition to a CSFST ORANGE path procedure should not be made.

In order to correctly direct control room activities, the operator must possess the knowledge of what procedure needs to be utilized. This question tests the knowledge of when FRP procedures should be implemented following a Loss of All AC power. ROs are required to know when FRP procedures should be implemented and entered.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible since that candidate may know a special rule for implementation exists and think transition only on a RED path is required.
- B. Incorrect. Plausible since several FRPs such as ATWT and LOHS direct the performance of the first 16 steps of E-0. However, 19102-C has no such attachment to perform this action which also would not prohibit a transition to another FRP if appropriate.
- C. Incorrect. Plausible since normally transitions to other FRPs can occur when transitioning out of an FRP to another procedure. However, in this instance 19102-C states FRPs are not to be implemented until later in the procedure which would come before a transition to another FRP.
- D. Correct. FRPs are not to be implemented until step 16 of 19102-C..

REFERENCES

19100-C, "Loss of All AC Power.

19102-C, "Loss of All AC Power Recovery With SI Required.

Vogtle May 2005 NRC RO Exam question # 68

VEGP learning objectives:

LO-LP-37031-09, Given a NOTE or CAUTION statement from the EOP, state the bases for that NOTE or CAUTION statement.

LO-LP-37033-03, State when the CSFSTs should be monitored / implemented during 19102-C.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

61. G2.2.13 001/1/2/C & T PROCEDURES/MEM - 3.6/BANK/R/NRC RO/TNT / RLM

Which **ONE** of the following is **CORRECT** regarding an **OPERATING PERMIT TAG** present on a component per NMP-AD-003 "Equipment Clearance and Tagging"?

- A. Component position can NOT be changed - The equipment is isolated for maintenance or testing.
- B. Component position can NOT be changed - The equipment is operating for maintenance or testing.
- C. Component position can be changed - The equipment is under the control of a Tagout Holder for the purpose of position alignment, testing, or maintenance.
- D. Component position can be changed - The equipment has been Danger Tagged but can be manipulated for the purpose of alignment, testing, or maintenance.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

62. G2.2.22 001/1/2/LCO AND SAFETY LIMIT/C/A - 3.4/BANK/R/NRC RO/TNT / RLM

Which **ONE** of the following sets of conditions represents a violation of a Technical Specification Safety Limit and the required action?

(REFERENCE PROVIDED)

- A. Power = 10%, Pressure = 2400 psig, Tavg = 655 degrees F
Restore to within limits OR be in Mode 3 within 1 hour.
- B. Power = 80%, Pressure = 2250 psig, Tavg = 640 degrees F
Restore to within limits AND be in Mode 3 within 1 hour.
- C. Power = 10%, Pressure = 2400 psig, Tavg = 655 degrees F
Restore to within limits in 2 hours OR be in Mode 3 in 6 hours.
- D. Power = 80%, Pressure = 2250 psig, Tavg = 640 degrees F
Restore to within limits in 2 hours OR be in Mode 3 in 2 hours.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

G2.2.22 Knowledge of limiting conditions for operations and safety limits.

K/A MATCH ANALYSIS

Question asks a straight forward which condition violates Tech Spec Safety Limits and the required action.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Within limits, Plausible candidate may think a parameter out of limits. Tech Spec action would be incorrect also, restore AND be in Mode 3.
- B. Correct. Out of limits and the action is correct per Tech Specs.
- C. Incorrect. Within limits, plausible candidate may think a parameter out of limits. Tech Spec action is incorrect also, this is the action for the DNB Parameters spec.
- D. Incorrect. Out of limits but the action is incorrect per Tech Specs. Plausible candidate may confuse with the DNB Parameters Tech Spec actions.

REFERENCES

NOTE: A reference is to be provided of the RCS Core Safety Limit Figure 2.1.1-1.

Vogtle Tech Specs for Reactor Core Safety Limit 2.1.1

Vogtle 2002 NRC RO Examination question # 84.

VEGP learning objectives:

LO-LP-39203-02, Given the Safety Limit curve and appropriate plant parameter values, determine if the Safety Limits are being exceeded.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B B A B A C B B C B Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

63. G2.2.27 001/1/2/REFUELING PROCESS/MEM - 2.6/MODIFIED/R/NRC RO/TNT / RLM

Given the following conditions:

- Unit 1 refueling outage in progress.
- The SRO Fuel Handling Supervisor (FHS) and refueling crew are in containment.
- Control rod latching and verification is in progress.
- The RO notices a significant increase in Source Range (SR) counts during a 10 foot control rod withdrawal for latching verification.

Which **ONE** of the following would be the **CORRECT** action for the RO to take?

- A. Allow rod withdrawal to continue, this is an expected response.
- B. Suspend refueling operations on his own authority due to the SR indications.
- C. Allow rod withdrawal to continue, the RO should suspend the operation only if the SR Hi Flux at Shutdown Alarm is received.
- D. Notify the FHS and SS of the SR count indications, FHS or SS authority is required to suspend control rod withdrawal during latching.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

G2.2.27 Knowledge of the refueling process.

K/A MATCH ANALYSIS

Question gives a plausible scenario during a refueling evolution, control rod latching and verification. A significant increase in SR counts occurs during rod withdrawal. The candidate must determine the correct action for the RO to perform.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. A significant increase in SR counts is not expected during this evolution. The RO should suspend the evolution. Plausible the candidate may expect the SR counts to increase significantly during this evolution.
- B. Correct. The RO should suspend the evolution on his own authority as stated in 10000-C, Conduct of Refueling Operations.
- C. Incorrect. Plausible the candidate would consider suspension at the SR Hi Flux at Shutdown alarm. However, he should not wait until SR counts increase to this level to suspend the evolution at a point requiring Containment Evacuation.
- D. Incorrect. Plausible the candidate may consider the notification of the FHS and SS to be appropriate, however, they are not the only ones with authority to suspend the control rod latching evolution. The RO has this authority level.

REFERENCES

10000-C, "Conduct of Refueling Operations" section 4.4 for Reactor Operator Responsibilities and Precaution and Limitation 3.1 for Personnel with Authority to Suspend Refueling Operations

LO-PP-25101-19-003 Vogtle LO Active Exam Bank

VEGP learning objectives:

LO-PP-25101-19, State which members of the refueling team have the authority to suspend refueling operations.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B B B D C B B C A C Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

64. G2.3.1 001/1/2/10CFR20 RAD CONTROL/C/A - 2.6/BANK/R/NRC RO/TNT / RLM

An individual received the following radiation dose at Plant Vogtle during the first half of the calendar year:

Committed Dose Equivalent (CDE):	85 mrem
Deep Dose Equivalent (DDE):	55 mrem
Shallow Dose Equivalent (SDE), skin of Whole Body:	75 mrem
Committed Effective Dose Equivalent (CEDE):	55 mrem

Which **ONE** of the following **CORRECTLY** states the individual's total whole body occupational dose for the first half of the calendar year?

- A. 110 mrem
- B. 130 mrem
- C. 140 mrem
- D. 195 mrem

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

G2.3.1 Radiation Control - Knowledge of 10CFR20 and related facility radiation control requirements.

K/A MATCH ANALYSIS

Question requires applicant to calculate occupational whole body dose using knowledge of internal and external dose terminology found in 10CFR20.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. Whole Body (TEDE) = DDE + CEDE = 55 mrem + 55 mrem = 110 mrem.
- B. Incorrect. Plausible, 130 mrem = 55 mrem (DDE or CEDE) + 75 mrem (SDE).
- C. Incorrect. Plausible, 140 mrem = 55 mrem (DDE or CEDE) + 85 mrem (CDE).
- D. Incorrect. Plausible, 195 mrem = 110 mrem (DDE + CEDE) + 85 mrem (CDE).

REFERENCES

Watts Bar September 2006 NRC RO Exam question # 72.

VEGP learning objectives:

LO-LP-63920-07, State the VEGP Administrative Exposure Guidelines for any or all of the following workers:

- a. Annual limits for TEDE, TODE, LDE, SDE, ME, exposure to the whole body and extremities.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A B C D B B B B C C Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

65. G2.3.2 001/1/2/ALARA PROGRAM/C/A - 2.5/MODIFIED/R/NRC RO/TNT / RLM

A job must be performed under the following conditions:

Dose rate at the job is 80 mrem / hr.

Airborne Radioactivity Area due to noble gasses present.

- Total Internal dose for the job if respirator is worn is 0 mrem.
- Total Internal dose for the job if no respirator is worn is 72 mrem.

- Time to complete job while wearing a respirator is 3.25 hours.
- Time to complete job without wearing a respirator is 2.25 hours.

Which **ONE** of the following describes whether a respirator will be worn, and why?

- A. No, wearing a respirator will raise total exposure.
- B. Yes, wearing a respirator will lower total exposure.
- C. No, wearing a respirator will result in the same exposure.
- D. Yes, respirators are required anytime airborne radiation is present.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

G2.3.2 Knowledge of facility ALARA program.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a job will be performed at a given dose rate with airborne particulates present. Candidate must determine whether a respirator should be worn and why. (no, raises total dose received)

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. 252 total mrem without respirator, 260 total mrem with respirator.
- B. Incorrect. 252 total mrem without respirator, 260 total mrem with respirator.
- C. Incorrect. 252 total mrem without respirator, 260 total mrem with respirator.
- D. Incorrect. Plausible that candidate may think respirators required anytime airborne radiation is present.

REFERENCES

Wolf Creek 2006 NRC RO Exam question # 72

Harris February 2006 NRC RO Exam question # 72

V. C. Summer October 2006 NRC RO Exam question # 95

NOTE: This was the exact same question at all three of these plants.

00910-C, VEGP ALARA Program

This question was significantly modified from the 3 NRC exam questions above to make the answer different. Choices "C" and "D" were also modified to make different.

VEGP learning objectives:

LO-LP-63930-03, Given a set of conditions involving radiation and/or contamination control, state the applicable personnel responsibilities, according to procedure 00930.

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

66. G2.4.11 001/1/2/ABNORMAL OPER PROCS/C/A - 3.4/BANK/R/NRC RO/TNT / RLM

Given the following plant conditions:

- Charging flow at 100 gpm
- Letdown flow at 75 gpm
- Total seal leakoff flow at 12 gpm
- PRZR level and pressure are stable.
- 2RE-0724 "rate of change" (ROC) has remained stable at 75 gpd / hr for 21 minutes.
- 2RE-12839, 2RE-0019, and 2RE-0021 exhibit an increasing trend of higher than normal readings.
- The crew has entered AOP-18009-C, "Steam Generator Tube Leakage"

Based on the above indications, which **ONE** of the following would be the **CORRECT** response for the crew to take?

- A. Shutdown the plant to Mode 3 within one (1) hour using AOP-18013-C, Rapid Power Reduction".
- B. Continue plant operations and monitor the SG tube leak for increasing indications above the administrative limits.
- C. Shutdown the plant to Mode 3 within six (6) hours using UOP-12004, "Power Operation (Mode 1) section 4.2 for Power Descent.
- D. Shutdown the plant to < 50% power within one (1) hour using AOP-18013-C, Rapid Power Reduction", be in Mode 3 within the next two (2) hours.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

G2.4.11 Knowledge of abnormal condition procedures.

K/A MATCH ANALYSIS

Question gives a plausible scenario with a SGTL and the candidate must choose whether to continue plant operations or shutdown the plant with time limits. Candidate will have to perform a rough flow balance to determine shutdown time frame.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. This is RNO actions for step # 5 RNO for leakage greater than 5 gpm.
- B. Incorrect. Plausible actions if candidate does not recognize limits are exceeded.
- C. Incorrect. Plausible, actions for step 8 RNO if candidate determines leakage > 150 gpd but doesn't recall the 5 gpm 1 hour shutdown limit.
- D. Incorrect. Plausible, actions for step 7 RNO if candidate determines leakage > 75 gpm but doesn't recall the 5 gpm 1 hour shutdown limit.

REFERENCES

Vogtle 2002 NRC RO Exam question # 90

LO-LP-60309-05-005 Vogtle LO Active Exam Bank

Pages 6 and 7 of 18009-C, "Steam Generator Tube Leakage"

VEGP learning objectives:

LO-LP-60309-12, Discuss the major actions taken for a leaking SG for a leak exceeding shutdown requirements.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A C B C D C D B A B Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

67. G2.4.23 001/1/2/EOP PRIORITY BASES/MEM - 2.8/BANK/R/NRC RO/TNT / RLM

Given the following conditions:

- Large break LOCA has resulted in Unit 1 Reactor trip and Safety Injection.
- RWST level is 36% and lowering.
- The crew is performing the actions of 19013-C, "Transfer to Cold Leg Recirculation".
- Critical Safety Function Status Trees (CSFSTs) are as follows:
 - Subcriticality - Green
 - Core Cooling - Orange
 - Heat Sink - Yellow
 - RCS Integrity - Yellow
 - Containment - Red
 - Inventory - Yellow

Which **ONE** of the following is the **CORRECT** crew response and why?

- A. Immediately exit 19013-C and transition to the RED path for Containment to verify containment isolation and heat removal.
- B. Immediately exit 19013-C and transition to the ORANGE path for Core Cooling to verify Safety Injection is established to the RCS.
- C. Simultaneously perform 19013-C and the RED path for Containment to ensure suction to ECCS pumps and to verify containment isolation and heat removal.
- D. Remain in 19013-C and establish a flow path from CNMT sumps to RCS Cold Legs to ensure suction to ECCS pumps and coolant flow to the core is maintained.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

68. G2.4.48 001/1/2/SYS STATUS INDICATIO/C/A - 3.5/BANK/R/NRC RO/TNT / RLM

Given the following:

- Unit 1 is at 100% power.
- Annunciator ALB13 window D01 for STM GEN 1 HI / LO LVL DEVIATION alarm is illuminated.
- Only S/G # 1 level is rising.
- Both MFPTs speeds are rising.

Which **ONE** of the following describes the (1) cause, (2) required action, (3) direct consequence of an operator failing to take action?

- A. (1) # 1 S/G FRV is opening, (2) stabilize # 1 S/G at the new level, (3) Turbine Runback Initiated.
- B. (1) # 1 S/G FRV is opening, (2) return # 1 S/G level to program, (3) Feedwater Isolation Initiated.
- C. (1) MFP master controller failing high, (2) control MFP speed in manual, (3) Auto Turbine Trip initiated.
- D. (1) MFP master controller failing high, (2) manually trip the turbine, (3) Feedwater Isolation initiated.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

G2.4.48 Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a SG # 1 level alarm is received with other indications of a FW perturbation. Candidate must choose the failure, required actions, and consequences of not taking the action.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible that a single FRV failing open could cause the indications. AOP actions however have the operator return level to program versus stabilizing at the new S/G level.
- B. Correct. Cause, actions, and consequences are correct for this.
- C. Incorrect. Plausible with MFP speeds rising the candidate could consider a common failure to MFPs, however with a single S/G level alarm illuminated the other 3 S/Gs would also be affected. Auto turbine trip would also occur on S/G high high level.
- D. Incorrect. Plausible with MFP speeds rising the candidate would consider a common failure to MFPs, however with a single S/G level alarm illuminated the other 3 S/Gs would also be affected. A manual turbine trip would also be considered prior to exceeding the S/G High High level auto turbine trip. FWI part is correct.

REFERENCES

Vogtle 2002 NRC RO Exam question # 48

AOP-18016-C, Condensate Feedwater Malfunction section D for Main Feedwater Valve Malfunction.

VEGP learning objectives:

LO-PP-18101-25, Describe the protective functions generated from Steam Generator Level to include:

- a. High level condition including bases.

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

69. WE04G2.4.20 001/1/1/LOCA OUTSIDE CTMT/C/A - 3.3/NEW/R/NRC RO/TNT / RLM
Given the following:

- The crew is performing 19112-C, "LOCA Outside Containment".
- The LOCA is successfully isolated.
- Crew transitions to 19010-C, "Response to Loss of Primary or Secondary Coolant".
- Crew then transitions to 19012-C, "Post LOCA Cooldown and Depressurization".
- The crew is at the step to use the tables to determine if CCPs and SIPs can be stopped based on the subcooling criteria.
- Subcooling criteria is met.
- CCP "A" has been stopped.

Which **ONE** of the following is the **CORRECT** method for stopping the ECCS pumps based on subcooling criteria?

- A. Subcooling criteria is not required to be checked again before stopping another pump, more subcooling is required if RCPs are running.
- B. Subcooling criteria is not required to be checked again before stopping another pump, more subcooling is required if RCPs are stopped.
- C. Subcooling criteria is required to be checked again before stopping another pump, more subcooling is required if RCPs are running.
- D. Subcooling criteria is required to be checked again before stopping another pump, more subcooling is required if RCPs are stopped.

Feedback

K/A

WE04 LOCA Outside Containment:

G2.4.20 Knowledge of operational implications of EOP warnings, cautions, and notes.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a LOCA Outside Containment occurs and the crew has finally transitioned to 19012-C, Post LOCA Cooldown and Depressurization. The candidate must determine the proper method for stopping the CCPs and SIPs.

ANSWER / DISTRACTOR ANALYSIS

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

- A. Incorrect. Plausible the candidate may think the SI termination sequence is like that in SGTR procedure or LOHS where a one time check for subcooling is performed and ECCS pumps stopped on that criteria. Less subcooling is required if RCPs are running and plausible the candidate may invert.
- B. Incorrect. Plausible the candidate may think the SI termination sequence is like that in SGTR procedure or LOHS where a one time check for subcooling is performed and ECCS pumps stopped on that criteria. .More subcooling is required if RCPs are stopped is correct.
- C. Incorrect. Subcooling is required to be checked again before stopping another pump, plausible the candidate may invert the subcooling requirement for RCPs and think more required if running.
- D. Correct. Subcooling is required to be checked again before stopping another pump and more subcooling is required if RCPs are stopped.

REFERENCES

19112-C, "LOCA Outside Containment".

19010-C, Loss of Primary or Secondary Coolant".

19012-C, "Post LOCA Cooldown and Depressurization" steps # 25 with associated NOTE prior to the step.

VEGP learning objectives:

LO-LP-37112-01, Using EOP 19012 as a guide, briefly describe how each step is accomplished.

LO-LP-37112-04, Given a NOTE or CAUTION statement from the EOP, state the bases for that NOTE or CAUTION statement.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

70. WE05EA2.2 001/1/1/LOCA OUTSIDE CTMT/MEM - 3.7/BANK/R/NRC RO/TNT / RLM

The crew has entered 19231-C, "Response to Loss of Secondary Heat Sink" due to no feedwater capability to the steam generators and have initiated RCS "bleed and feed".

Which **ONE** of the following describes the sequence of actions required to establish an **adequate** RCS bleed and feed heat removal flow path in accordance with 19231-C?

- A. "Feed" is established first by initiating SI flow, then "Bleed" is established by opening at least one Pressurizer PORV and a Reactor Vessel Head Vent.
- B. "Bleed" is established first by opening at least one Pressurizer PORV and opening the Reactor Vessel Head Vents, then "Feed" is established by initiating SI flow.
- C. "Feed" is established first by initiating SI flow, then "Bleed" is established by opening both Pressurizer PORVs.
- D. "Bleed" is established first by opening both Pressurizer PORVs, then "Feed" is established by initiating SI flow.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

WE05 Inadequate Heat Transfer - Loss of Secondary Heat Sink:

EA2.2 Ability to determine and interpret the following as they apply to the Loss of Secondary Heat Sink.

Adherence to appropriate procedures and operation within the limitations in the facilities license and amendments.

K/A MATCH ANALYSIS

Question gives a plausible scenario during a loss of heat sink where RCS bleed and feed is required to be established. Candidate must pick the correct sequence and flow path for adequate heat removal.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible since RNO in 19231 step # 37 has the Reactor Vessel Head Vents opened if both PORVs cannot be opened. However, a low pressure water source must be aligned in this instance to insure adequate heat removal. Bleed and feed sequence portion is correct.
- B. Incorrect. Plausible candidate may choose Bleed first since the procedure is worded this way. Plausible since RNO in 19231 step # 37 has the Reactor Vessel Head Vents opened if both PORVs cannot be opened. However, a low pressure water source must be aligned in this instance to insure adequate heat removal.
- C. Correct. Sequence correct and both PORVs must be open for adequate bleed.
- D. Incorrect. Both PORVs must be open for adequate bleed but sequence is reversed. Plausible candidate may choose this since procedure is worded this way.

REFERENCES

19231-C, "Response to Loss of Secondary Heat Sink" pages 16 and 17.

VC Summer April 2004 NRC RO Exam question # 73.

VEGP learning objectives:

LO-LP-237051-08, Using EOP 19231 as a guide, briefly describe how each major step is accomplished. Describe the bases for each. (Commitment).

Notes

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

71. WE09G2.4.6 001/1/2/NAT CIRC - EOP MITIG/C/A - 3.1/MODIFIED/R/NRC RO/TNT / RLM

A reactor trip has occurred with an LOSP. Power will not be restored for at least 8 hours and a Natural Circulation Cooldown is desired.

- RCS Tavg is currently 557 degrees F
- Only one (1) CRDM fan is operable and running.

Which **ONE** of the following are **CORRECT** procedural actions to mitigate the event in accordance with 19002-C, "Natural Circulation Cooldown"?

- A. The upper head cannot be prevented from voiding with only 1 CRDM fan, transition to 19003-C, "Natural Circulation Cooldown with Voids with RVLIS".
- B. Maintain greater minimum subcooling during RCS cooldown and depressurization, and the upper head cooldown rate will be less.
- C. Raise the RCS cooldown rate from 50 degrees F to 100 degrees F to facilitate a faster cooldown and depressurization of the upper head area.
- D. Continue at the initial required subcooling margin and cooldown rate, heat removal from a CRDM fan is insignificant compared to steaming the secondary plant.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

WE09 Natural Circulation Operations

G2.4.6 Knowledge of symptom based EOP mitigation strategies.

K/A MATCH ANALYSIS

Question gives a plausible scenario during a natural circulation cooldown. CRDM fans trips below minimum level as specified in the procedure and the candidate must determine the correct action to take per 19002-C, Natural Circulation Cooldown.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible candidate may think a void cannot be prevented with only one CRDM fan and a transition to 19003 required.
- B. Correct. More subcooling is required and the head will cool off at a slower rate.
- C. Incorrect. A faster cooldown rate will lead to RCS depressurization with a void formation in the head more likely. Plausible the candidate may think a higher cooldown rate may prevent a void in the head.
- D. Incorrect. Higher subcooling margin is required. Plausible the candidate may not think higher margin required due to one CRDM fan is not near the secondary steaming rate.

REFERENCES

19002-C, "Natural Circulation Cooldown".

LO-OR-37012-05-007 Vogtle LO Active Exam Bank

VEGP learning objectives:

LO-LP-37012-15, State the limitations on subcooling and cooldown rate associated with natural circulation cooldown. Include the bases for any variations. (commitment).

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: B B D C C B A C D B Scramble Range: A - D

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

72. WE11EK2.2 001/1/1/LOSS RECIRC - OPERAT/C/A - 3.9/BANK/R/NRC RO/TNT / RLM

Given the following:

- RCS LOCA is in progress.
- 19111-C, Loss of Emergency Coolant Recirculation in effect.
- Containment pressure at 18 psig and rising slowly.
- The crew is at the step to initiate a cooldown to Cold Shutdown conditions.

What method will the crew use to establish this cooldown?

- A. Dumping steam to the main condenser using the steam dumps.
- B. Dumping steam to atmosphere using the Atmospheric Relief Valves (ARVS).
- C. Reducing RCS pressure using the PRZR PORVs to increase ECCS pump injection.
- D. Feeding the Steam Generators at maximum rate using Auxiliary Feedwater pumps.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

WE11 Loss of Emergency Coolant Recirculation:

EK2.2 Knowledge of the interrelations between the Loss of Emergency Coolant Recirculation and the following:

Facilities heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

K/A MATCH ANALYSIS

Question gives a plausible scenario where the crew is initiating a cooldown per the Loss of Emergency Coolant Recirculation procedure. Candidate must choose the correct method for performing the cooldown.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible candidate would choose this since it is the preferred method. However with CTMT pressure at 18 psig, SLI would have occurred making the steam dumps to condenser unavailable.
- B. Correct. With steam dumps not available, use of the ARVs is procedurally directed.
- C. Incorrect. Plausible since RCPs would be stopped and later in the procedure PORVs would be used to depressurize the RCS to limit break flow and increase injection.
- D. Incorrect. Plausible since increasing AFW flow can result in an RCS cooldown, however filling the SGs for cooldown purposes is not procedurally directed.

REFERENCES

Wolf Creek 2004 NRC RO Exam question # 17

19111-C, "ECA-1.1 Loss of Emergency Coolant Recirculation"

VEGP learning objectives:

LO-LP-37114-12, State the intent of EOp-19111, Loss of Emergency Coolant Recirculation

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

73. WE12EK2.2 001/1/1/UNCONT DEPRESS - OPE/C/A - 3.6/BANK/R/NRC RO/TNT / RLM

Given the following plant conditions:

- Reactor trip and Safety Injection have occurred.
- 19121-C, ECA-2.1 Uncontrolled Depressurization of All Steam Generators is in effect.
- All Steam Generator Pressures (SG) are lowering uncontrollably.
- Containment pressure is 8 psig and rising.
- AFW flow to each SG has been throttled to 30 gpm to limit the RCS cooldown.

Which **ONE** of the following conditions would **require** increasing AFW flow to more than 30 gpm per SG in accordance with 19121-C?

- A. All SG levels are less than 10% NR.
- B. SG # 3 level is less than 9% WR.
- C. RCS hot leg temperatures are increasing.
- D. Source of SG depressurization has been identified.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

WE12 Uncontrolled Depressurization of all Steam Generators:

EK2.2 Knowledge of the interrelations between the Uncontrolled Depressurization of all Steam Generators and the following:

Facilities heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

K/A MATCH ANALYSIS

Question gives a plausible scenario during 19121-C where crew has throttled AFW flow to 30 gpm per SG due to excessive cooldown. Crew must pick the choice which would require raising AFW flow to > 30 gpm.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible since 10% NR corresponds to the SG level for maintaining 570 gpm AFW flow. Procedures step 4d RNO directs to maintain a minimum of 30 gpm flow to each SG with level < 10% NR.
- B. Incorrect. Plausible since 9% WR corresponds to the SG level for a Dry steam generator in LOHS procedure 19231-C. Candidate may think raising flow correct for a Dry SG.
- C. Correct. If Hot Leg temperatures rising, procedure directs raising AFW flow to stabilize the Hot Leg temperatures.
- D. Incorrect. Plausible candidate may confuse this with isolation of the faulted SG. However, until isolated and transition to E-2, AFW should be maintained 30 gpm.

REFERENCES

VC Summer October 2006 NRC RO Exam question # 81.

19121-C, "Uncontrolled Depressurization of All Steam Generators" page 6 and FOP.

VEGP learning objectives:

Not applicable.

Notes

Response form

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

74. WE14EA1.2 001/1/2/CTMT PRESS - OPERATE/C/A - 3.3/BANK/R/NRC RO/TNT / RLM

Given the following conditions:

- A large steam break has occurred inside containment.
- During performance of E-0, the crew discovered containment pressure to be 22 psig.
- Proper operation of the Containment Spray System was verified.
- The crew has transitioned to 19020-C, "E-2 Faulted Steam Generator Isolation".
- Containment pressure is now 26 psig and slowly lowering.

The crew should **immediately** transition to 19251-C, "FR-Z.1 Response to High Containment Pressure" _____.

- A. if pressure rises to > 52 psig.
- B. since pressure has remained > 21.5 psig
- C. to verify proper alignment of the NSCW system.
- D. to verify proper operation of the Containment Coolers.

Feedback

K/A

WE14 High Containment Pressure

EA1.2 Operating Characteristics of the Facility.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a steam line break has occurred resulting in a high containment pressure above C. Spray actuation setpoint. Crew has to pick the correct procedural action to take from the given conditions.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. With spray pump proper operation a transition to 19251-C is not required since this is a yellow path. Pressure > 52psig would result in a RED path and would require a transition.
- B. Incorrect. Plausible since > 21.5 psig at one time was an ORANGE path, with spray pumps running this is a YELLOW path. Spray pumps should eventually reduce pressure and the liner will act as a gas membrane to maintain leakage within limits for up to 24 hours at nearly design pressure. Transition not immediately required

QUESTIONS REPORT

for HL-14 NRC RO DRAFT EXAM

unless pressure > 52 psig (RED path).

- C. Incorrect. Plausible since containment coolers assist spray system in reducing containment pressure, however, this is a YELLOW path only. Candidate could think the condition is ORANGE or RED with the listed conditions requiring an immediate transition to address the challenge to a barrier.
- D. Incorrect. Plausible since NSCW is checked in 19251-C to ensure cooling, but the listed conditions are YELLOW path only. Crew should focus on the Faulted SG isolation. Candidate could think the condition is ORANGE or RED with the listed conditions requiring an immediate transition to address the challenge to a barrier.

REFERENCES

V-LO-PP-37002-08-005 from Vogtle LO Initial Active Exam Bank question.

Harris 2004 March NRC RO Exam question # 5 was referenced by our bank question. Both are attached for a reference.

NOTE: Reworded stem and distractors to make question more efficient and less verbose by eliminating verbage repeated in each choice and moved this to the stem.

VEGP learning objectives:

LO-LP-37002-07, State how the Critical Safety Functions (CSFs) are prioritized. Be able to demonstrate how the highest priority CSF is selected and addressed.

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

75. WE16EA2.1 001/1/2/CTMT PRESS - OPERATE/C/A - 2.9/MODIFIED/R/NRC RO/TNT / RLM

Given the following conditions:

- A small break LOCA has occurred on Unit 1.
- 19010-C, "Loss of Reactor or Secondary Coolant" is in progress.
- RCS pressure is 1635 psig with CETCs reading 540 degrees F.
- Containment Emergency Sump levels are 17" and slowly rising.
- Containment Low Range Radiation Monitors RE-002 and 003 read 795 MR / HR.
- SG # 3 pressure is 1190 psig and stable, the ARV is non-functional and one (1) code safety appears to be open.
- The person monitoring Critical Safety Functions announces an entry criteria for a YELLOW path procedure.

Based on the indications above, which **ONE** of the following procedures should be implemented at SS discretion?

- A. 19252-C, "Response to Containment Flooding".
- B. 19223-C, "Response to Saturated Core Cooling".
- C. 19232-C, "Response to Steam Generator Overpressure".
- D. 19253-C, "Response to High Containment Radiation Level".

QUESTIONS REPORT
for HL-14 NRC RO DRAFT EXAM

Feedback

K/A

WE16 High Containment Radiation

EA2.1 Ability to determine and interpret the following as they apply to the High Containment Radiation.

Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

K/A MATCH ANALYSIS

Question gives a plausible scenario with an RCS LOCA in progress and associated plant parameters. The candidate must choose the correct YELLOW path FRP to enter.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may consider Containment Flooding due to emergency sump level. However, Containment Flooding is an ORANGE path and the threshold (> 105 inches) has not been exceeded.
- B. Incorrect. Plausible the candidate may think the RCS saturated during a LOCA. However, with conditions stated in the stem RCS is 69 degrees subcooled.
- C. Incorrect. Plausible candidate could consider SG Overpressure since riding on the Code Safety. However, to threshold for entry not met since SG pressure has to be higher than the highest Code Safety valve setpoint.
- D. Correct. Containment radiation levels exceed 750 MR / HR on RE-002 and 003.

REFERENCES

- 19200-C, "Critical Safety Function Status Trees"
 - 19223-C, "Response to Saturated Core Cooling"
 - 19232-C, "Response to Steam Generator Overpressure"
 - 19252-C, "Response to Containment Flooding"
 - 19253-C, "Response to Containment High Radiation Level"
- Farley December 2003 NRC RO Exam question # 75.

VEGP learning objectives:

Not applicable.

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

1. 001AA2.01 001/1/2/RODS- TRIP BREAKERS/C/A - 4.2/NEW/S/NRC SRO/TNT / RLM

The RO withdraws control rods 3 steps, upon release of the IN-HOLD-OUT switch, rods continue to withdraw and cannot be stopped.

Which **ONE** of the following reactor trips is **based** on this event and would result in the reactor trip breakers opening to mitigate the event without any operator action?

(Assume all appropriate procedural actions have been performed to this point)

- A. SR Hi Flux reactor trip, power at the point for taking critical data.
- B. IR Hi Flux reactor trip, power at 4% just prior to entering Mode 1.
- C. PR Low Setpoint Hi Flux reactor trip, power at 18% power during swap to MFRVs.
- D. PR Positive Rate Trip, power near 100% power performing rod operability testing.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

001 Continuous Rod Withdrawal

AA2.01 Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal.

Reactor tripped breaker indicator

K/A MATCH ANALYSIS

Question gives a plausible scenario where an uncontrolled rod motion occurs after the RO releases the reactor trip breakers. The candidate has to pick which Reactor Trip setpoint is based on this event and power level.

Question meets 10CFR55.43(b) criteria item 2 - Facility operating limits in Tech Specs and their bases.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may know the bases for SR Hi Flux is uncontrolled rod withdrawal but the trip is blocked above P-6 when critical data is taken.
- B. Correct. IR Hi Flux based on uncontrolled rod withdrawal and would not be blocked at this power level.
- C. Incorrect. Plausible the candidate may know the bases for PR Low Setpoint Hi Flux is for an uncontrolled rod withdrawal but this trip should be blocked per UOP actions when P-10 is received, far below the current power level stated in the question.
- D. Incorrect. Plausible the candidate may confuse the bases for PR High Positive Rate reactor trip which is an ejected rod event with uncontrolled rod motion.

REFERENCES

Technical Specifications 3.3.1 and Bases for Reactor Trip Instrumentation.

VEGP learning objectives:

LO-LP-39207-02, Given a set of Tech Specs and the bases, determine for a specific set of plant conditions, equipment availability, and operational mode:

- a. Whether any Tech Spec LCOs of section 3.3 are exceeded.

Notes

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

2. 002A2.04 001/2/2/RCS - LOHS/C/A - 4.6/NEW/S/NRC SRO/TNT / RLM

Given the following conditions:

- Crew is performing the actions of 19231-C, "Loss of Heat Sink" due to a prolonged loss of feedwater.
- RCS Bleed and Feed has been initiated.
- SG WR levels are all approximately 15%.
- Containment pressure is 0.2 psig
- RE-002 and RE-003 are in INTERMEDIATE alarm
- AFW flow has just been restored to a single Steam Generator

Based on the above conditions, which **ONE** of the following describes the plant response and the actions the SS should take?

- A. Containment pressure will remain stable, immediately transition to 19010-C, Loss of Reactor or Secondary Coolant.
- B. Containment pressure will rise over time, immediately transition to 19010-C, Loss of Reactor or Secondary Coolant.
- C. Containment pressure will remain stable, remain in 19231-C, Loss of Secondary Heat Sink to perform further actions.
- D. Containment pressure will rise over time, remain in 19231-C, Loss of Secondary Heat Sink to perform further actions.

Feedback

K/A

002 Reactor Coolant System (RCS).

A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the containment system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations.

Loss of heat sinks.

K/A MATCH ANALYSIS

Questions gives a scenario during a Loss of Heat Sink where the crew has just established AFW flow to a SG. Conditions show the PRT has ruptured and the crew has to determine whether to remain in the LOHS FRP and impact on containment.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Question meets 10CFR55.43(b) criteria item # 5 - Assessment of facility conditions and selection of procedures during normal, abnormal, and emergency conditions. Therefore, the question is SRO only.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may not recall PORVs open causing containment pressure to rise but rad monitors indicate PRT ruptured. 19010 is improper due to PORVs must be sequentially closed before the transition.
- B. Incorrect. Plausible the candidate may recognize PORVs cause containment pressure to rise and think transition to 19010 is appropriate and not think of terminating feed and bleed.
- C. Incorrect. Plausible the candidate may not recall PORVs open causing containment pressure to rise but rad monitors indicate PRT ruptured. Remaining in 19231 to terminate SI is correct.
- D. Correct. Containment pressure should rise and remain in 19231 is correct.

REFERENCES

19231-C, Loss of Secondary Heat Sink pages 21 - 24, and 31 - 36.

VEGP learning objectives:

LO-LP-37051-08, Using EOP 19231 as a guide, briefly describe how each major step is accomplished. Describe the bases for each. (commitment)

LO-LP-37051-10, State all conditions when the procedure 19231, Response to Loss of Secondary Heat Sink, would be terminated.

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

3. 007G2.4.6 001/1/1/RX TRIP - EOP STRAT/C/A - 4.0/NEW/S/NRC SRO/TNT / RLM

The unit trips from 100% power when a lightning strike causes a fault on 13.8 Kv bus 1NAB.

- The other 13.8Kv bus, 1NAA fails to fast bus transfer but is capable of being re-energized.
- 4160 non-1E buses 1NA01, 1NA04, and 1NA05 are still energized.
- The crew is performing the actions of 19001-C, "Reactor Trip Response.
- Control bank D (CDB) rod M12 indicates 18 steps on DRPI.
- CST # 1 level is 52% and slowly lowering.
- CST # 2 level is 74% and stable.
- Letdown isolates post Rx. trip, attempts to re-establish are unsuccessful because LV-460 will not re-open.

Which **ONE** of the following would be the **CORRECT** actions to take ?

- A. Re-energize 1NAA per 13420-1, "13.8Kv Electrical Distribution System" and start RCP # 1 per 19001-C Attachment "A", "Starting a Reactor Coolant Pump".
- B. Perform an Emergency Boration of the RCS in accordance with SOP-13009-1/2, CVCS Reactor Makeup Control System and perform a Shutdown Margin.
- C. Perform the actions of AOP-18007-C, section A for Loss of Letdown and place Safety Grade Letdown in service per 13006, "Chemical Volume Control System".
- D. Immediately swap AFW pump suction to CST # 2 per 13610-1, "Auxiliary Feedwater System" and transition to 19002-C, "Natural Circulation Cooldown".

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

007 Reactor Trip - Stabilization - Recovery

G2.4.6 Knowledge of Symptom based EOP mitigation strategies

K/A MATCH ANALYSIS

Question gives a plausible scenario post reactor trip with several malfunctions, the candidate must choose the correct action / procedure to respond to the symptoms.

Question meets 10CFR55.43(b) item # 5 - Assessment of facility conditions and selection of procedures during normal, abnormal, and emergency conditions.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. 13.8 Kv bus should be re-energized and RCP # 1 started.
- B. Incorrect. Plausible the candidate may consider this action but the emergency boration is only required for 2 or more stuck rods. Shutdown margin is required.
- C. Incorrect. Plausible the candidate would consider performing the actions for the Loss of Letdown AOP in parallel, however, Excess Letdown would be placed in service versus Safety Grade Letdown which is used on a loss of instrument air. Safety Grade Letdown is mentioned in notes and cautions of 19001-C.
- D. Incorrect. AFW suction should only be swapped when one CST level lowers to less than 15%, there would be no reason to go to 19002 for Natural Circ cooldown when it is possible to start an RCP and CST levels are not a problem.

REFERENCES

19001-C, "Reactor Trip Response".

18007-C, "CVCS Malfunction section A for Loss of Letdown."

VEGP learning objectives:

LO-LP-37011-03, State the bases for the "Reactor Trip Recovery" procedure.

LO-LP-37011-04, State and describe the major action categories of 19001, "Reactor Trip Recovery".

Notes

Response form

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

4. 008AA2.15 001/1/1/PRZR VAPOR SPACE ACC/C/A - 4.2/NEW/S/NRC SRO/TNT / RLM

Given the following plant conditions with both units at 100% power:

- Unit 1 has one Block valve closed and de-energized to isolate a PORV that is partially stuck open.
- Unit 2 has both Block valves closed and still energized to isolate both PORVs which have excessive seat leakage.

Which **ONE** of the units would be required to shutdown due to **INOPERABLE** PORV / Block valve status per Tech Specs and what is the **CORRECT** bases?

- A. Unit 1 - both PORVs are required to be capable of automatically cycling to limit RCS pressure following the blowdown of a faulted Steam Generator.
- B. Unit 2 - both PORVs are required to be capable of automatically cycling to mitigate events such as a Steam Generator Tube Rupture or Loss of Heat Sink.
- C. Unit 1 - both PORVs are required to be capable of being manually cycled to mitigate events such as a Steam Generator Tube Rupture or Loss of Heat Sink.
- D. Unit 2 - both PORVs are required to be capable of being manually cycled to limit RCS pressure following the blowdown of a faulted Steam Generator.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

008 Pressurizer Vapor Space Accident

AA2.15 Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident.

ESF control board, valve controls, and indicators

K/A MATCH ANALYSIS

Question gives a plausible scenario where both units have PORVs closed to due either excessive seat leakage or stuck open PORVs. The candidate must determine which unit is required to shutdown per Tech Specs and the Tech Spec bases.

Question meets 10CFR55.43(b) criteria for item # 2 - Facility operating limits in Tech Specs and their bases.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may think both PORVs have to automatically cycle and this is not a correct bases.
- B. Incorrect. Plausible the candidate may think both PORVs have to automatically cycle and this is the correct bases.
- C. Correct. Both PORVs must be capable of being manually cycled and this is a correct bases.
- D. Incorrect. Plausible the candidate may know both capable of manually cycling but this is an incorrect bases.

REFERENCES

Technical Specification 3.4.11 and bases for PORVs and Block Valves

VEGP learning objectives:

LO-LP-39208-02, Given a set of Tech Specs and the bases, determine for a specific set of plant conditions, equipment availability, and operational mode:

- a. Whether any Tech Spec LCOs of section 3.4 are exceeded.

Notes

Response form

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

5. 015/017G2.4.4 001/1/1/RCP MALF - EOP ENTRY/C/A - 4.3/MODIFIED/S/NRC SRO/TNT / RLM
Unit 2 is at 25% power when the following annunciators are received.

- ALB08 window B05 for RCP # 3 CONTROLLED LKG HI / LO FLOW
- ALB08 window B04 for RCP # 3 NO. 2 SEAL LKOF HI FLOW

The RO reports the following indications:

- RCP # 3 seal leakoff flow Hi Range meter is 6.0 gpm.
- RCP # 3 seal injection flow is 7.9 gpm.
- RCP # 3 Seal Water Inlet temperature is 223 degrees F and stable.

Which **ONE** of the the following is the **CORRECT** procedurally directed action(s) for the SS to take?

- A. Per UOP-12004-C, "Power Operations (Mode 1)", commence a unit shutdown to be in Mode 3 in 8 hours.
- B. Trip the reactor and enter E-0, "Reactor Trip and Safety Injection", per SOP-13003, "RCP Operation", stop RCP # 3 and close seal leakoff valve HV-8141C.
- C. Per SOP-13003, stop RCP # 3, close seal leakoff valve HV-8141C, enter AOP-18005, "Partial Loss of RCS Flow", commence unit shutdown per UOP-12004.
- D. Per UOP-12004, maintain reactor power at 25%, monitor the RCP per SOP-13003 section 4.2.1 "Pump Operation With A Seal Abnormality", contact Duty Engineering.

Feedback

K/A

015 / 017 RCP Malfunctions

G2.4.4 Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

K/A MATCH ANALYSIS

Question gives a plausible scenario with indications of an RCP # 3 seal failure. Candidate must choose the correct procedural actions to address the failure.

Question meets 10CFR55.43(b) criteria item # 5 - Assessment of facility conditions and selection of procedures during normal, abnormal, and emergency situations.

ANSWER / DISTRACTOR ANALYSIS

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

6. 025AA2.03 001/1/1/LOSS RHR - CTMT SUMP/C/A - 3.8/MODIFIED/S/NRC SRO/TNT / RLM

Given the following conditions:

- Unit 1 RCS drain down for refueling outage in progress.
- RCS temperature is 185 degrees F.
- Charging and letdown flows are balanced.
- RHR pump 1B is operating in shutdown cooling mode, RHR pump 1A is in standby.

The following occurs:

- Containment sump levels begin to rise with radiation alarms received on RE-002 and RE-003.
- RCS level decreases to 189' 6" and lowering.

The Unit SS should implement which **ONE** of the following:

- A. 18004-C, RCS Leakage, section C for RCS Leakage (Mode 5).
- B. 18004-C, RCS Leakage, section B for RCS Leakage (Mode 3 < 1000 psig and 4).
- C. 18019-C, Loss of RHR, section A for Loss of RHR capability in Mode 4 or Mode 5 with PRZR Level in the IR.
- ~~D.~~ 18019-C, Loss of RHR section B for Loss of RHR in Mode 5 or 6 Below PRZR IR or SG Nozzle Dams Installed.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

025 Loss of Residual Heat Removal (RHR) System

AA2.03 Ability to determine and interpret the following as they apply to the Loss of Residual Heat Removal System.

Increasing reactor building sump level.

K/A MATCH ANALYSIS

Question gives a plausible scenario where Containment sump levels, radiation, and PRZR level indicate an RCS leak in Containment. The candidate must determine the plant Mode from the given conditions and select the appropriate section of 18004 for RCS Leakage or 18019 for Loss of RHR to enter.

Question meets 10CFR55.43(b) criteria for item # 5 - Assessment of facility conditions and selection of procedures during normal, abnormal, or emergency conditions.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. 18019-C, section B should be used for this condition.
- B. Incorrect. Plausible the candidate may not properly recognize the plant mode and think section B of 18004 is appropriate.
- C. Incorrect. Plausible the candidate may select this section of 18019-C since the description fits the plant conditions, section A is just for loss of capability, not leakage.
- D. Correct. With PRZR level below the indicating range, 18019-C section B should be the section to use.

REFERENCES

18004-C, RCS Leakage

18019-C, Loss of Residual Heat Removal (RHR)

VEGP learning objectives:

LO-LP-60304-08, Given conditions and/or indications, determine the required AOP to enter (including subsections, as applicable). (18004 objective)

LO-LP-60314-04, Given conditions and/or indications, determine the required AOP to enter (including subsections, as applicable). (18019 objective)

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

7. 026G2.2.25 001/2/1/C. SPRAY - TS & BASE/MEM - 3.7/MODIFIED/S/NRC SRO/TNT / RLM

The Containment Spray System is designed to reduce containment pressure during a LOCA or a _____(1)_____. In addition, the Containment Spray System is designed to retain _____(2)_____ in water solution.

- A✓ (1) Main Steamline Break IRC, (2) Iodine
- B. (1) Main Steamline Break IRC, (2) Cesium
- C. (1) Main Feedwater Line Rupture IRC, (2) Iodine
- D. (1) Main Feedwater Line Rupture IRC (2) Cesium

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

026 Containment Spray.

G2.2.25 Knowledge of bases in Technical Specifications for limiting conditions for operations and safety limits.

K/A MATCH ANALYSIS

Question asks which DBA event will produce the highest peak containment temperature and the specific isotope C. Spray enhances retaining in solution.

Question meets 10CFR55.43(b) criteria for item # 2 - Facility operating limits in Tech Specs and their bases.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. DBA event is correct and iodine is the proper isotope to remove.
- B. Incorrect. Plausible the candidate may think a SLB is the proper event and Cesium is to be removed as it is one of the most common radioisotopes in radwaste.
- C. Incorrect. Plausible the candidate may think that a FLB produces a high pressure and iodine is the correct isotope.
- D. Incorrect. Plausible the candidate may think a FLB produces high pressure and Cesium is to be removed as it is one of the most common radioisotopes in radwaste.

REFERENCES

Technical Specifications 3.6.6 and bases for Containment Spray and Cooling Systems.

LO-PP-15101-01-001, Vogtle LO Active Exam Bank.

VEGP learning objectives:

LO-PP-15101-08, State the LCO, applicability, and the bases of all Containment Spray related technical specifications.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A D A C A D A B C A Scramble Range: A - D

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

8. 034G2.1.32 002/2/2/FH EQUIP - P & L/MEM - 3.8/MODIFIED/S/NRC SRO/TNT / RLM

Which **ONE** of the following describes a condition that would require the SS to direct suspension of fuel movement?

- A. Both trains of FHB Post Accident Ventilation are declared INOPERABLE.
- B. SR channel N31 High Flux At Shutdown Alarm is declared INOPERABLE.
- C. RHR flow is reduced from 3200 gpm to 3100 gpm.
- D. Spent Fuel Pool level drops to 217' 4".

Feedback

K/A

034 Fuel Handling Equipment.

G2.1.32 Ability to explain and apply all system limits and precautions.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a

Question meets 10CFR55.43(b) criteria item # 7 - Fuel handling facilities and procedures.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. Both FHB Post Accident Ventilation units INOPERABLE require an immediate suspension of fuel movement.
- B. Incorrect. HFASA is only required in Mode 5 but plausible the candidate may think the Containment Evacuation alarm is affected during fuel movement. There is no Tech Spec action with this alarm to stop fuel movement either.
- C. Incorrect. RHR flow is required to be > 3000 gpm. Plausible candidate may confuse with the Tech Spec round requirement to maintain 3200 gpm in higher modes.
- D. Incorrect. Spent Fuel Pool level is still > Tech Spec limit of 217 feet. Plausible the candidate may confuse with the normal level of 218' 6".

REFERENCES

TRM 13.9.5 for Fuel Handling Building Post Accident Ventillation System

Tech Spec 3.3.8 for High Flux At Shutdown Alarm (HFASA)

Tech Spec 3.9.5 for RHR and Coolant Circulation (High Water Level)

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

9. 039A2.03 001/2/1/MSL RAD MNTR - SGTR/MEM - 3.7/MODIFIED/S/NRC SRO/TNT / RLM

The plant has experienced a SGTR with the following radiation monitors in alarm:

- RE-12839, Condenser Air Ejector and Steam Packing Exhaust Effluent Monitor
- RE-13121, Main Steam Line Radiation Monitor for SG # 2 read on the SRDC.

The crew entered and is currently implementing the steps of E-0, "Reactor Trip or Safety Injection".

- Both MDAFW pumps are UNAVAILABLE.
- The TDAFW pump is RUNNING.

The BOP requests permission to isolate the steam supply to the TDAFW pump from the ruptured steam generator.

Which **ONE** of the following actions should the Unit SS take regarding the requested operator action?

- A. Allow isolation of steam to the TDAFW pump only if S/G # 2 wide range level is > 29%.
- B. Allow the BOP to shut the Trip and Throttle Valve to the TDAFW pump to isolate the steam supply.
- C. Do Not allow isolation of steam to the TDAFW pump because the ruptured S/G is not positively identified.
- D. Do Not allow isolation of steam to the TDAFW pump, this action will be performed after transition to 19030-C.

Feedback

K/A

039 Main and Reheat Steam.

A2.03 Ability to (a) predict the impacts of the following malfunctions or operations on the MRSS; and (b) based on predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

Indications and alarms for main steam and area radiation.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a SGTR has taken place on SG # 2. The BOP asks for permission to isolated the steam supply to the TDAFW pump. The candidate must determine the correct operator action.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

This question meets 10CFR55.43(b) criteria for item # 4 - Radiation hazards that may arise during normal, abnormal, and situations, including maintenance activities and various contamination conditions. The SS has to make a decision on whether to perform early isolation of the radiation release to limit contamination.

This question meets 10CFR55.43(b) criteria for item # 5 - Assessment of facility conditions and selections of procedures during normal, abnormal, and emergency conditions. Per Vogtle Rules of EOP Usage procedure 10020-C, isolation would not be allowed until a transition to 19030-C has occurred. This implies a selection or transition of procedures must take place before the isolation is allowed.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may confuse this with the isolation of AFW / feed flow to the S/G which should not occur until S/G level is > 10% NR.
- B. Incorrect. Plausible the candidate may choose this as it is method to shut down the TDAFW pump, however, it is an RNO action if the individual steam supply is not able to be closed. Early actions are not allowed per 10020-C, Vogtle's EOP Rules of Usage Procedure.
- C. Incorrect. Plausible the candidate may not feel there is enough information to identify the ruptured S/G, but with the given indications and the BOP requesting permission to isolate implies he has identified the SG that is ruptured. However, per our EOP Rules of Usage this action would not be allowed early and is the reason it cannot be performed.
- D. Correct. S/G # 2 should NOT be isolated until procedurally directed per 10020-C, "EOP Rules of Usage".

REFERENCES

- 19030-C, "Steam Generator Tube Rupture" steps # 7 and # 8 in particular.
- 10020-C, "EOP Rules of Usage" steps 3.1.2 and 3.1.3 for early operator actions.
- V. C. Summer October 2006 NRC SRO Retake Exam question # 40.

VEGP learning objectives:

Not applicable.

Notes

Response form

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

10. 040G2.2.22 001/1/1/SLB - TECH SPECS LCO/MEM - 4.1/BANK/S/NRC SRO/TNT / RLM

Which **ONE** of the following describes the **MOST** restrictive condition assumed to ensure that the minimum shutdown reactivity of accident analysis is met during a guillotine break of a main steam line inside containment?

- A. At the beginning of core life, with Tavg at full load operating temperature.
- B. At the beginning of core life, with Tavg at no load operating temperature.
- C. At the end of core life, with Tavg at full load operating temperature.
- D. At the end of core life, with Tavg at no load operating temperature.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

040 Steam Line Break - Excessive Heat Transfer

G2.2.22 Knowledge of limiting conditions for operations and safety limits.

K/A MATCH ANALYSIS

Question asks the basis for the minimum shutdown reactivity accident analysis for Shutdown Margin during a main steam line break IRC. Candidate must choose the correct bases.

Question meets 10CFR55.43(b) criteria item # 2 - Facility operating limits in Tech Specs and their bases.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. EOL, no load Tavg is bases.
- B. Incorrect. EOL, no load Tavg is bases.
- C. Incorrect. EOL, no load Tavg is bases.
- D. Correct. Per bases of Tech Spec

REFERENCES

Technical Specifications and Bases for 3.1.1, "Shutdown Margin".

Farley December 2003 NRC SRO Exam question # 8.

VEGP learning objectives:

LO-LP-39205-02, Given a set of Tech Specs and the Bases, determine for a specific set of plant conditions, equipment availability, and operational mode:

- a. Whether any Tech Spec LCOs of section 3.1 are exceeded.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D A D C B C D C B C Scramble Range: A - D

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

11. 056AA2.24 001/1/1/LOSP - CCW PUMP AMPS/C/A - 3.1/NEW/S/NRC SRO/TNT / RLM

Given the following conditions:

- The crew is in 18031-C due to an LOSP on 2BA03 with DG2B tying to the bus.
- Various CCW Train B low flow and pressure alarms annunciate, then clear.
- The crew notes 3 CCW train B pump red lights illuminated on the QMCB.

Which **ONE** of the following is **CORRECT** regarding CCW Train B and the actions the SS should take?

- A. CCW pump locked rotor has occurred. Monitor pump amps on the QEAB to determine which pump to stop. Enter LCO 3.7.7 for CCW.
- B. CCW pump locked rotor has occurred. Monitor pump amps on the QEAB to determine which pump to stop. Enter INFO LCO 3.7.7 for CCW.
- C. CCW pump shaft shear has occurred. Monitor pump amps locally at 2BA03 to determine which pump to stop. Enter LCO 3.7.7 for CCW.
- D. CCW pump shaft shear has occurred. Monitor pump amps locally at 2BA03 to determine which pump to stop. Enter INFO LCO 3.7.7 for CCW.

Feedback

K/A

056 Loss of Off-site Power

AA2.24 Ability to determine and interpret the following as they apply to the Loss of Offsite Power.

CCW pump ammeter, flowmeter and run indicator

K/A MATCH ANALYSIS

Question gives a plausible scenario during an LOSP on a class 1E electrical bus which starts the DG and the bus is re-energized. Three CCW pumps will be running due to low pressure. The candidate must determine which pump to stop and if an LCO entry is required.

Question meets 10CFR55.43(b) criteria for item # 2 - Facility operating limits in Tech Specs and their bases.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Locked rotor would result in a breaker trip. Pump amps not available on the QEAB. Plausible the candidate may think amps available on QEAB or an LCO

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

12. 063A2.02 001/2/1/ELEC - VENT BATTERY/MEM - 3.1/MODIFIED/S/NRC SRO/TNT / RLM

The SO reports the 125V DC class 1E battery room fans have tripped while the batteries were being charged.

Which **ONE** of the following describes the primary concern and actions the SS should direct the SO to take based on the above conditions?

- A. Battery room temperatures exceeding Tech Spec limits. Direct the SO to perform 13405, "125V DC Electrical Distribution System" to stop the battery chargers and prop open the battery room doors per 00310-C, "Standards for Use of Doors".
- B. Explosive Hydrogen gas could accumulate in the battery rooms. Direct the SO to prop the doors open per 00310-C, "Standards for Use of Doors" and establish portable ventilation per 13302, "Control Building ESF Ventillation Systems".
- C. Smoke purge function may be lost in the event of a battery room fire. Direct the BOP to place the battery rooms in the smoke purge mode per 13302, "Control Building ESF Ventillation Systems".
- D. Toxic fume buildup could affect battery room habitability / personnel safety. Direct the SO to prop doors open per 00310-C, "Standards for Use of Doors" and establish portable ventilation per 13302, "Control Building ESF Ventillation Systems".

Feedback

K/A

063 DC Electrical Distribution.

A2.02 Ability to (a) predict the impacts of the following malfunctions or operations on the DC electrical systems; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations.

Loss of ventilation during battery charging.

K/A MATCH ANALYSIS

Question gives a plausible scenario where the 1E battery room fans are lost while the batteries are charging. The candidate must determine the primary concern and the correct actions to mitigate.

Question meets 10CFR55.43(b) criteria item # 5 - assessment of facility conditions and selection of procedures during normal, abnormal, and emergency situations.

Question is also SRO only by KA Catalog # for SRO giving an importance factor rating of 3.1 while the RO importance factor rating is only 2.3.

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may recall Tech Spec limits on room temperature and consider stopping charging of the battery chargers but is not the primary concern, propping open the doors is a correct action.
- B. Correct. Explosive Hydrogen gas is the main concern and 13302 gives direction to establish portable ventilation and to prop open room doors per 00310-C.
- C. Incorrect. Battery room ventilation fans do not perform a smoke purge function but plausible the candidate may consider the use of Smoke Purge Mode to remove hydrogen or fumes, smoke purge would not be used until after a fire is out to prevent feeding O2 to the fire.
- D. Incorrect. Plausible the candidate may consider toxic fumes to be a personnel hazard and actions same as that for "B" above but not the primary concern.

REFERENCES

SOP-13302-1/2, CB ESF Ventillation Systems, Precautions 2.1.1 and 2.1.2

13404-1/2, "125V DC Electrical Distribution Systems" Precaution 2.1.3.

00310-C, "Standard For Use of Doors".

Vogtle October 2005 SRO Audit Exam question # 21 modified to meet 10CFR55.43(b).

VEGP learning objectives:

Not applicable.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: B C C A D A A A C C

Scramble Range: A - D

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

13. 067G2.1.33 001/1/2/FIRE - TECH SPEC S/MEM - 4.0/NEW/S/NRC SRO/TNT / RLM

Given the following:

- The Unit is at 100% Rated Thermal Power (RTP).
- SIP "A" inoperable, Tech Spec LCO 3.5.2 for ECCS - Operating in Effect
- A fire occurs at DG1B
- At 0400 LCO 3.8.1, A. C. Sources Operating is entered due to DG1B inoperable.

Which **ONE** of the following is **REQUIRED** in accordance with Tech Specs?

- A. Immediately take actions of LCO 3.0.3 (Motherhood)
- B. No other LCO entry is required, LCO 3.8.1 addresses this condition.
- C. By 0800 take actions of LCO 3.5.2 for both trains of ECCS inoperable.
- D. Immediately take actions of LCO 3.5.2 for both trains of ECCS inoperable.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

067 Plant Fire on Site

G2.1.33 Ability to recognize indications for system operating parameters which are entry level conditions for Technical Specifications.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a fire at a DG has resulted in inoperable

Question meets 10CFR55.43(b) criteria for item # 2 - Facility operating limits in Tech Specs and their bases.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible candidate may think motherhood is immediately required to be entered.
- B. Incorrect. Plausible candidate may think no other LCO required. SIP "A" has to be declared inoperable at 0800.
- C. Correct. At 0800 SIP "B" would have to be declared inoperable.
- D. Incorrect. Plausible candidate may think actions required for LCO 3.5.2 but there is 4 hours to try to restore per 3.8.1.

REFERENCES

Technical Specification 3.8.1 for A. C. Sources - Operating and the bases.

Technical Specification 3.5.2 for ECCS - Operating

VEGP learning objectives:

LO-LP-39209-02, Given a set of Tech Specs and the Bases, determine for a specific set of plant conditions, equipment availability, and operational mode:

- a. Whether any Tech Spec LCOs of section 3.5 are exceeded.

LO-LP-39212-02, Given a set of Tech Specs and the Bases, determine for a specific set of plant conditions, equipment availability, and operational mode:

- a. Whether any Tech Spec LCOs of section 3.8 are exceeded.

Notes

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

14. 078G2.1.32 001/2/1/IAS - PREC & LIMITS/MEM - 2.9/BANK/S/NRC SRO/TNT / RLM

The following annunciators / indications are present in the Unit 1 Control Room:

- ALB01 window B05 for "SERVICE AIR CMPSR TROUBLE".
- ALB01 window C06 for "SERVICE AIR HDR LO PRESS".
- Instrument air pressure is slowly decreasing as read on QMCB meter PI-9361.
- All available compressors are running and the Turbine Building Operator (TBO) reports all compressors are loading and unloading properly.
- The TBO reports an air dryer is malfunctioning.

Which **ONE** of the following is **CORRECT** actions for the Unit SS to take / direct?

- A. Direct the TBO to implement SOP-13710-1, "Instrument Air System", if an instrument air dryer malfunction, bypass the instrument air dryer by opening the air dryer bypass, then slowly close the air dryer outlet, then close the air dryer inlet.
- B. Enter AOP-18028-C, "Loss of Instrument Air", if a service air dryer malfunction, isolate control air to the service air dryer by manually closing the petcock valve located on the air regulator at the dryer inlet.
- C. Direct the TBO to implement SOP-13711-1, "Service Air System", if a service air dryer malfunction, bypass the service air dryer by bleeding off control air to the dryer by depressing the Sullicon controller pushbutton at the dryer inlet.
- D. Enter AOP-18028-C, "Loss of Instrument Air", if an instrument air dryer malfunction, place the instrument air dryer in the two chamber full flow mode by depressing the pushbutton at the front end of the dryer.

Feedback

K/A

078 Instrument Air System.

G2.1.32 Ability to explain and apply all system limits and precautions.

K/A MATCH ANALYSIS

Question gives a plausible scenario with either an instrument or service air dryer malfunction. The candidate must pick the appropriate procedure and actions to mitigate the event.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Plausible, action is a correct action for a service air dryer.

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

Instrument air dryers do not have a bypass. 13710-1/2 is the correct procedure for normal instrument air evolutions.

- B. Incorrect. Plausible, this is the old method for placing a service air dryer in 2 flow full chamber mode but no longer directed per procedure. Note in procedure says NOT to isolate control air to a dryer, an incorrect action. AOP-18028-C, is the proper procedure to use.
- C. Incorrect. Procedure directs placing in 2 chamber full flow mode by depressing button at front of dryer, not by bleeding off control air. This is method for causing a rotary air compressor to fully load. 13711-1/2 is the correct procedure for normal service air evolutions.
- D. Correct. Placing air dryer in two chamber full flow mode by depressing the pushbutton at the front of the dryer is the proper response. AOP-18028-C is the proper procedure to use.

REFERENCES

NOTE: This is a re-use question from Vogtle May 2006 NRC SRO Exam question # 15 with KA # (078A2.01). This is the only question re-used from the last 2 previous SRO exams given at Plant Vogtle. This question will also fit KA # 078G2.1.32 as it tests system limits and precautions for instrument air dryers.

AOP-18028-C, "Loss of Instrument Air"

SOP-13710-1/2, "Instrument Air System".

SOP-13711-1/2, "Service Air System".

VEGP learning objectives:

LO-LP-60321-06 Describe the operator actions required during normal full power operation when instrument air header pressure falls to < 80 psig or < 70 psig.

Notes

Response form

Answers

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: D C A C B C A A C C Scramble Range: A - D

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

15. 079A2.01 001/2/2/SERVICE AIR - XTIE/C/A - 3.2/NEW/S/NRC SRO/TNT / RLM

Given the following conditions:

- Unit 1 at 100% RTP and Unit 2 at 55% RTP.
- All Unit 1 Air Compressors are available.
- The "Swing" Air compressor has been aligned to Unit 2 and the air headers crosstied.
- No Unit 2 air compressors are available.
- Unit 2 air pressure is 73 psig and slowly lowering, service air is isolated.
- Unit 1 air pressure is 78 psig and slowly lowering for both instrument and service air.
- The Unit 1 SERVICE AIR LO PRESS annunciator is illuminated.
- AOP-18028-C, "Loss of Instrument Air" section A for Mode 1 is in effect.

Which **ONE** of the following are the **CORRECT** actions that should be performed?

- A✓ Per AOP-18028-C, isolate / separate the unit air headers and continue with actions of 18028-C, section A for Mode 1.
- B. Per AOP-18028-C", verify Unit 1 service air isolates, maintain the unit air headers crosstied and continue with actions of 18028-C, section A for Mode 1.
- C. Per AOP-18028-C, isolate / separate the unit air headers, trip the Unit 2 Main Turbine and implement 18011-C, Turbine Trip Below P-9, continue with 18028-C.
- D. Per AOP-18028-C, verify Unit 1 service air isolates, maintain the air headers crosstied, trip Unit 2 enter and E-0, perform AOP-18028-C section B for Mode 3.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

079 Station Air.

A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the SAS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

Cross connection with IAS.

K/A MATCH ANALYSIS

Question gives a plausible scenario where one unit has lost all available air compressors, the candidate has to determine if crosstie of headers is allowed and at what point to isolate the headers and trip the affected unit.

Question meets 10CFR55.43(b) criteria item # 5 - Assessment of facility conditions and selection of procedures during normal, abnormal, and emergency situations.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. Air headers should be separated, Unit 2 trip criteria of 70 psig not met yet.
- B. Incorrect. Plausible the candidate may think verification of Unit 1 service air isolation should be verified to stabilize pressure. AOP directs isolation of air headers if Unit 1 pressure drops below 80 psig.
- C. Incorrect. Plausible the candidate may feel a Unit 2 Turbine trip is imminent and entry into 18012 appropriate. Air headers isolated part is correct.
- D. Incorrect. Plausible the candidate may feel reactor trip appropriate but Unit trip criteria of 70 psig not reached yet. Also, air headers should have been separated at 80 psig.

REFERENCES

18028-C, "Loss of Instrument Air" section A for Mode 1 operations.

VEGP learning objectives:

LO-LP-60321-06 Describe the operator actions required during normal full power operation when instrument air header pressure falls to < 80 psig or < 70 psig.

Notes

Response form

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

16. 103A2.01 001/2/1/CTMT - ILRT/C/A - 2.6/NEW/S/NRC SRO/TNT / RLM
The following conditions exist on Unit 2 while at 100% power.

- The Shift Manager receives word that the containment air lock has failed the leakage rate surveillance test due to excessive air lock leakage.
- The Containment overall leak rate is now being exceeded.

Which **ONE** of the following is the **CORRECT** required Tech Spec action(s)?

- A. Apply Tech Spec 3.6.1, "Containment", restore Containment to operable status within 7 days or be in Mode 3 in the following 6 hours and in Mode 5 in 36 hours.
- B. Apply Tech Spec 3.6.2, "Containment Air Locks", within 1 hour close and lock at least 1 Air Lock door. Restore leakage within limits within 7 days or apply Tech Spec 3.6.1 "Containment" actions.
- C✓ Apply Tech Spec 3.6.1, "Containment", restore Containment to operable status within 1 hour or be in Mode 3 in the following 6 hours and in Mode 5 in 36 hours.
- D. Apply Tech Spec 3.6.2, "Containment Air Locks", immediately close and lock both Air Lock doors. Restore leakage within limits within 7 days or apply Tech Spec 3.6.1 "Containment" actions.

Feedback

K/A

103 Containment.

A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the containment system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations.

Integrated Leak Rate Test

K/A MATCH ANALYSIS

Question gives a plausible scenario where Containment Air Lock doors cause Containment overall leak rate to exceed leakage limits. Note 3 of Tech Spec 3.6.2 states if Air Lock Leakage causes Containment Leakage to exceed limits, apply Tech Spec 3.6.1, "Containment". Candidate must determine the correct Tech Spec actions.

Question meets 10CFR55.43(b) criteria item # 2 - Facility Operating limits in Tech Specs and their bases.

Question is also SRO due to KA # for SRO has an importance factor of 2.6 where the KA # for RO only has an importance factor of 2.0.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

17. G2.1.34 001/3/N/A/CHEMISTRY LIMITS/MEM - 2.9/BANK/S/NRC SRO/TNT / RLM

Given the following conditions:

- Unit 1 has just tripped from 100% power and is at no-load temperature and pressure.
- Chemistry has sampled the primary and secondary plants.

Which **ONE** of the following **CORRECTLY** states the Tech Spec limits for RCS Dose Equivalent I-131 and Secondary Specific Activity?

<u>RCS Dose Equivalent I-131</u>	<u>Secondary Specific Activity</u>
A. 0.15 micro curies per gram	1.5 micro curies per gram
B. 1.5 micro curies per gram	0.15 micro curies per gram
C. 0.10 micro curies per gram	1.0 micro curies per gram
<input checked="" type="radio"/> D. 1.0 micro curies per gram	0.10 micro curies per gram

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

G2.1.34 Ability to maintain primary and secondary plant chemistry within allowable limits.

K/A MATCH ANALYSIS

Question gives a plausible scenario .

Question is SRO and meets 10CFR55.43(b) criteria item # 2 - Facility operating limits in Tech Specs and their bases.

Question is also SRO due to the KA Catalog importance factor for this KA # is only a 2.3 for RO and is 3.4 for SRO. Therefore, it is an SRO level question.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may confuse the limit with the values for Chlorides or Fluorides from the TRM and invert the numbers.
- B. Incorrect. Plausible the candidate may confuse the limit with the values for Chlorides or Fluorides from the TRM.
- C. Incorrect. Plausible the candidate may invert the correct values for primary and secondary I-131.
- D. Correct.

REFERENCES

TRM 13.4.1 Reactor Coolant System - Chemistry.

HL-AW-39000-00-016 Vogtle SRO Audit question from HL-13.

VEGP learning objectives:

LO-LP-64101-03, State the LCO applicability and any action statement required within one hour for the following Technical Specifications:

- a. T.R.M. 13.4.1 Chemistry
- b. T.S. 3.4.16 Specific Activity

Notes

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

18. G2.1.5 001/3/N/A/SHIFT STAFFING/C/A - 3.4/BANK/S/NRC SRO/TNT / RLM

The shift supervisor is confronted with four personnel scenarios. Which **ONE** of the following would be acceptable per 10003-C, "Manning the Shift"?

- A. An SO has called in just prior to shift turnover and will be about an hour late due to a flat tire. This would put staffing 1 below the minimum. It will not be necessary to hold anyone over since he will arrive at the plant within the next hour.
- B. An SO has unexpectedly failed an FFD test and is not allowed back on site. This puts staffing 1 below the minimum. This would be acceptable for a time period not to exceed 1 shift.
- C. 2 licensed control room operators have become extremely sick due to something they ate and have to leave work. This puts staffing 1 below the minimum. This would be acceptable for a time period not to exceed 2 hours.
- D. An RO has called in sick just prior to shift turnover. Another RO has been called in and can arrive within 2 hours. This puts staffing 1 below minimum until he arrives. It would not be necessary to hold over the day shift RO.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

G2.1.5 Ability to locate and use procedures and directives related to shift staffing and activities.

K/A MATCH ANALYSIS

Questions gives several plausible scenarios the candidate may encounter as an SRO regarding minimum shift staffing and the candidate has to determine the correct action.

Question meets 10CFR55.43(b) criteria item # 2 - Facility operating limits in Tech Specs and their bases. There is no bases for the Shift Mannin Admin requirements.

Question also is SRO due to KA importance factor for this topic is only 2.3 for the RO level and 3.4 for the SRO level. Therefore, it is an SRO only topic.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. You can only go below minimum staffing for an exepcted absence of duty. In this instance, there would be time to hold shift personnel over to maintain the minimum staffing. Plausible the candidate could think it would be OK to allow the personnel to leave as long as the off duty person arrives within 2 hours or not think of minimun requirements pertaining to non-licensed personnel.
- B. Incorrect. Miminum for unexpected on duty person is limited to 2 hours. Would need a replacement within 2 hours. Plausible the candidate could think there is one shift to replace the persons since a lot of other admin requirements are within one shift.
- C. Correct. Could go below minimum due to unexpected absense but would be required to replace the personnel within 2 hours.
- D. Incorrect. There is a 2 hour time limit for unexpected absence of on duty personnel. Would have to hold someone over. Plausible the candidate would think it is OK to allow the person to leave since a replacement should arrive within 2 hours.

REFERENCES

10003-C, "Manning the Shift", REQUIREMENT # 3.8

G2.1.5 from Vogtle October 2005 SRO Audit Exam

VEGP learning objectives:

Not applicable.

Notes

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

19. G2.2.14 001/3/N/A/CONFIGURATION CHANGE/MEM - 3.0/MODIFIED/S/NRC SRO/TNT / RLM

Which **ONE** of the following situations would require a piece of equipment to be added to the CAUTION Tag log?

- A. A normally locked open valve is tagged out in accordance with a clearance, the clearance is expected to be released on the following shift.
- B. Opening a normally closed valve in accordance with a troubleshooting work document that addresses promptly returning the valve to normal alignment.
- C. Placing a safety related pump handswitch in PTL in accordance to a surveillance procedure and will be placed back to normal by the end of shift.
- D. A pump breaker is opened per SS direction due to a low oil level, the pump will be restored to normal on the next shift.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

G2.2.14 Knowledge of the process for making configuration changes.

K/A MATCH ANALYSIS

Question gives a plausible scenario where the candidate has to determine which component will require an entry to be made into the CAUTION Tag Log.

Question meets SRO only criteria by 10CFR55.43(b) item # 3 - Facility licensee procedures required to obtain authority for design and operating changes in the facility.

Positions off normal condition require entry into logs such as OOPL and CAUTION Tag Log and this requires SRO authorization. Also, G2.2.14 in KA Catalog only has an importance factor of 2.1 for the RO level and an importance factor of 3.0 for the SRO level. Therefore, this is an SRO only level question.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible, however configuration would be controlled by the clearance and would not require a CAUTION Tag Log entry.
- B. Incorrect. Plausible, not required since procedurally driven by the MWO with specific controls in place to return the equipment to normal configuration.
- C. Incorrect. Plausible, not required since the surveillance procedure drives this and the component will be placed back in normal by the end of shift.
- D. Correct. A component is added to the CAUTION TAG Log if it will not be restored prior to the end of shift.

REFERENCES

10000-C, "Conduct of Operations" section 4.6 "Tracking Out of Position Components".

Vogtle May 2006 SRO Retake Exam question # 18

Watts Bar July 2004 NRC SRO Exam question # 21.

VEGP learning objectives:

LO-LP-63500-03, Describe General work practices associated with Conduct of Operations.

- i. Equipment return to service.

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

20. G2.2.7 001/3/N/A/TESTS NOT IN FSAR/MEM - 3.2/BANK/S/NRC SRO/TNT / RLM

A new system engineer has requested that CCP 1A be started with the discharge valve throttled to determine current and flow rate data under these conditions.

Which **ONE** of the following describes the process for evaluating this test and who can perform this evaluation ?

The 10CFR50.59 process is required to determine if.....

- A. NRC review of the results is required after conducting the test and the 50.59 evaluation can be performed by any currently licensed SRO.
- B. NRC approval is required prior to conducting the test and the 50.59 evaluation can only be performed by a Qualified Reviewer.
- C. PRB approval is required prior to conducting the test and the 50.59 evaluation can be performed by any currently licensed SRO.
- D. PRB review of the results is required after conducting the test and the 50.59 evaluation can only be performed by a Qualified Reviewer.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

G2.2.7 Knowledge of the process for conducting tests or experiments not described in the safety analysis report.

K/A MATCH ANALYSIS

Question gives a plausible scenario where engineering wants to perform a test on a safety related MOV. The candidate must determine what is required to allow performance of the test.

Questions meets 10CFR55.43(b) criteria for item # 3 - Facility license procedures required to obtain authority for design and operating changes in the facility.

Question also is SRO only due to the KA catalog # for RO only rates a 2.0 importance factor while the rating is 3.2 for SRO. Therefore, question is an SRO only question.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible candidate may think an NRC review of the test results is required and any qualified SRO may perform.
- B. Correct. Determines if NRC approval is required and a Qualified Reviewer to review.
- C. Incorrect. Plausible the candidate may think the PRB is highest level of approval but 10CFR50.59 is to determine if NRC approval required. Also, plausible the candidate may think the SRO level is all that is required.
- D. Incorrect. Plausible the candidate may think a PRB review of the test results is required and must be performed by a qualified reviewer.

REFERENCES

NMP-AD-010, "10CFR50.59 Screening and Evaluations"

Oconee June 2004 NRC SRO Exam question # 21

VEGP learning objectives:

LO-LP-63400-01 Explain the purpose of plant design control (SRO only)

Notes

Response form

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

21. G2.3.6 001/3/N/A/REVIEW RELEASE PERMIT/C/A - 3.1/NEW/S/NRC SRO/TNT / RLM

Given the following:

- The Shift Supervisor has declared A-RE-0014 Inoperable.
- The radiation monitor will not come off the low end of scale.

Which **ONE** of the following statements is **CORRECT** regarding approving a permit for the release of Waste Gas Decay Tank # 3?

- A. Approve. As long as the Shift Manager and the Chemistry Manager concurrently give permission to perform the release.
- B. Disapprove. The release CANNOT proceed because the discharge flow path cannot be aligned with A-RE-0014 failed offscale low.
- C. Disapprove. The release CANNOT proceed until A-RE-0014 has been returned to Operable status in accordance with ODCM requirements.
- D. Approve. As long as independent samples of tank contents are analyzed and the discharge valve alignment and release rate calculations are independently verified.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

G2.3.6 Knowledge of the requirements for reviewing and approving release permits.

K/A MATCH ANALYSIS

Question gives a plausible scenario where A-RE-0014 is inoperable and a release permit needs to be approved. The candidate must determine which requirement must be met to approve the release permit.

Question meets 10CFR55.43(b) SRO criteria item # 4 - Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

Question meets 10CFR55.43(b) SRO criteria item # 2 - Facility operating limits in Tech Specs and their bases.

Question is also SRO only from KA Catalog since RO importance factor is only 2.1 and SRO importance factor is 3.1 for this topic. Therefore, question is SRO only.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may think a higher level of authority from the two departments who normally approve releases is required.
- B. Incorrect. Plausible the candidate may think that the RE failure prevents opening RV-0014, this would be true on high failure, but not low.
- C. Incorrect. Plausible the candidate may think RE-0014 inoperable would prevent the release, ODCM actions allow.
- D. Correct. ODCM action # 45 requirements.

REFERENCES

ODCM Table 3-1 for Radioactive Gaseous Effluent Monitoring Instrumentation for ARE-0014, action # 45.

Similar to Vogtle 2005 SRO Retake but for a different system and ODCM action.

VEGP learning objectives:

LO-PP-46101-10, Describe the major steps involved in releasing a gas decay tanks contents to the environment.

LO-PP-46101-15, State the LCO, ODCM LCO, or TR, applicability, and any one hour or less actions for the GWPS.

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

22. G2.3.8 001/3/N/A/GAS RELEASE PROCESS/C/A - 3.2/BANK/S/NRC SRO/TNT / RLM

A release of Waste Gas Decay Tank # 1 is in progress when the following occurs during the tank release.

- RE-0013, Waste Gas Process Monitor fails and is declared Inoperable.
- Auxiliary Building Continuous Exhaust Unit # 1 has just tripped on low flow.
- Waste Gas Decay Tank # 2 pressure is noted to be lowering by the ABO.
- The inlet Oxygen analyzer on the recombiner panel is declared Inoperable.

Which **ONE** of the conditions listed above would **REQUIRE** release termination?

- A. RE-0013 monitor Inoperable.
- B. Auxiliary Building Continuous Exhaust trip.
- C✓ Waste Gas Decay Tank # 2 pressure lowering.
- D. Inlet Oxygen analyzer for recombiner inoperable.

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

G2.3.8 Knowledge of the process for performing a planned gaseous radioactive release.

K/A MATCH ANALYSIS

Question gives a plausible scenario where a Waste Gas Decay Tank release is in progress with several malfunctions occurring. The candidate must determine which of the malfunctions would require termination of the release.

Question meets 10CFR55.43(b) criteria item # 4 - Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

Question is also SRO only since RO importance factor is 2.3 for this KA #, the SRO importance factor for this KA # is 3.2. Therefore, this is an SRO only question.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. RE-0013 not required per ODCM for Waste Gas Decay Tank release. Plausible the candidate may consider this since it is a gaseous radiation monitor but would only indicate radiation during processing, not releases. Not required to terminate the release.
- B. Incorrect. Plausible the candidate may consider an Aux. Building Exhaust unit trip as requiring to terminate the release as it could affect Aux. Building Pressure.
- C. Correct. Procedure specifically states to stop release if more than 1 tank lowering.
- D. Incorrect. Plausible but no procedure requirement to terminate due to this. Candidate may consider possible O₂ or H₂ concentrations a reason to stop the release.

REFERENCES

SOP-13202-1/2, "Gaseous Releases" step 4.2.13 and preceding CAUTION.

Vogtle 2002 NRC SRO Exam question # 85

VEGP learning objectives:

LO-PP-46101-11, State the events that require immediate termination of a gaseous release.

Notes

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

23. G2.4.46 001/3/N/A/ALARMS & CONDITIONS/C/A - 3.6/NEW/S/NRC SRO/TNT / RLM

Given the following conditions:

- Unit 1 at 100% power.
- A reactor trip and SI occur due to a large LOCA, on the reactor trip, an LOSP occurs to both RAT 1A and RAT 1B.
- Both DGs re-energize 4160 1E busses 1AA02 and 1BA03.

The following alarms are noted by the RO during the Initial Operator Actions of E-0.

- ACCW LO HDR PRESSURE
- ACCW RPC 1 (2, 3, 4) CLR LO FLOW
- ACCW RCP 1 (2, 3, 4) CLR OUTLET HI TEMP
- ACCW RX COOLANT DRN TK HX LO FLOW
- ACCW EXCESS LTDN HX LO FLOW
- ACCW RTN HDR FROM RCP LO FLOW

Which **ONE** of the following is **CORRECT** regarding the alarms and the actions the SS should direct the crew to perform?

- A✓ Direct the RO to start an ACCW pump per direction of E-0 RO Initial Operator Actions.
- B. Direct the RO to trip the RCPs, direct an operator to perform actions of 18022-C, "Loss of ACCW" in parallel with E-0.
- C. Direct the RO to trip the RCPs, direct an operator to perform actions of 18022-C in parallel with E-0, if ACCW is restored, re-start the RCPs.
- D. Take no action at this time, the EOP network will address the loss of ACCW pumps in later steps of E-0 or upon transition to another EOP.

Feedback

K/A

G2.4.46 Ability to verify that the alarms are consistent with the plant conditions.

K/A MATCH ANALYSIS

Question gives a plausible scenario during a simultaneous LOSP / SI where the ACCW pumps aren't running due to being locked out by the SI sequence. The candidate must

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

determine the correct course of action / procedure to use to address the condition.

Question meets 10CFR55.43(b) criteria item # 5 - Assessment of facility conditions and selection of procedures during normal, abnormal, and emergency situations.

ANSWER / DISTRACTOR ANALYSIS

- A. Correct. ACCW pumps would not be running on a simultaneous LOSP / SI as SI sequence prevails and locks out the pumps. Initial Operator Actions of E-0 would have the RO notify the SS of the condition and request permission to start the ACCW pumps, if they can't be started, trip the RCPs.
- B. Incorrect. Plausible if the candidate does not realize E-0 initial actions address restoring ACCW or recognize why the pumps are stopped. An ACCW pump should be started and the RCPs not tripped.
- C. Incorrect. Plausible that candidate may realize why the ACCW pumps are stopped but not realize E-0 Initial Operator Actions addresses. Stopping RCPs to protect them is a logical choice on loss of ACCW and AOP could be run in parallel by another operator. Restart of RCPs when available is also directed in many EOPs.
- D. Incorrect. Plausible the candidate may not recognize why the pumps are stopped or that E-0 Immediate Operator Actions will address the condition. It is plausible that E-0 would address the situation later, other EOPs such as the LOCA procedure which is the most likely transition in this situation would address the loss of ACCW pumps.

REFERENCES

19000-C, "E-0 Reactor Trip or Safety Injection", RO Initial Operator Actions step # 11.

18022-C, "Loss of ACCW", in particular symptoms and entry conditions for low flow annunciators which would occur on a loss of ACCW.

LO-PP-04101, ACCW Power Point slides 14 - 19, 14 & 15 included here.

VEGP learning objectives:

LO-PP-04101-04, From memory describe the expected system response and operator corrective actions for each of the following:

c. SI followed by LOSP

Notes

Response form

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

24. WE03EA2.1 001/1/2/POST LOCA CD - PROCS/C/A - 4.2/NEW/S/NRC SRO/TNT / RLM

Given the following conditions:

- The crew is performing the steps of 19010-C, "Loss of Reactor or Secondary Coolant".
- RCS pressure is 450 psig and relatively stable.
- RHR flow is reading 0 gpm on both trains.
- PRZR level is offscale low.

Which **ONE** of the following procedures would be the **CORRECT** procedure to perform with the given conditions?

- A. Transition to 19011-C, "SI Termination".
- B. Continue with subsequent steps of 19010-C.
- C. Transition to 19111-C, "Loss of Emergency Coolant Recirculation".
- D. Transition to 19012-C, "Post LOCA Cooldown and Depressurization".

QUESTIONS REPORT
for HL-14 NRC SRO DRAFT Exam

Feedback

K/A

WE03 Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

EA2.1 Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

K/A MATCH ANALYSIS

Question gives a plausible scenario where the crew is performing 19010-C. A transition point has been reached and the candidate must determine the proper procedure transition to make.

Question meets 10CFR55.43(b) criteria item # 5 - Assessment of facility conditions and selection of procedures during normal, abnormal, and emergency conditions.

ANSWER / DISTRACTOR ANALYSIS

- A. Incorrect. Plausible the candidate may think 19011-C would be appropriate since RCS pressure is stable.
- B. Incorrect. Plausible the candidate may think continuing with 19010-C is appropriate.
- C. Incorrect. Plausible the candidate may think a transition to 19111-C, Loss of Emergency Coolant Recirculation is appropriate due to no RHR flow.
- D. Correct. Transition to 19012-C, Post LOCA Cooldown and Depressurization is required per the 19010-C step.

REFERENCES

19011-C, "SI Termination.

19012-C, "Post LOCA Cooldown and Depressurization".

VEGP learning objectives:

LO-LP-37111-08, Using EOP 19010 as a guide, briefly describe how each step is accomplished.

Notes

Response form

QUESTIONS REPORT

for HL-14 NRC SRO DRAFT Exam

25. WE08G2.1.14 001/1/2/PTS - NOTIFICATIONS/C/A - 3.3/MODIFIED/S/NRC SRO/TNT / RLM

Given the following plant conditions:

- A LOCA has just occurred at 0742 hours.
- RHR flow is approximately 4500 gpm per train.
- RCS lowest Cold leg temperature is 282 degrees F and stable.

The Shift Manager (SM) makes an emergency classification at 0750 hours.

Which **ONE** of the following is **CORRECT** regarding the emergency classification and required notifications?

- A. The SM was required to declare an NOUE and was expected to notify plant personnel by 0747 hours.
- B. The SM was required to declare an ALERT and was expected to notify plant personnel by 0755 hours.
- C. The SM was required to declare an NOUE and was expected to notify plant personnel by 0757 hours.
- D. The SM was required to declare an ALERT and was expected to notify plant personnel by 0805 hours.

Feedback

K/A

WE08 RCS Overcooling - PTS.

G2.1.14 Knowledge of system status criteria which require the notification of plant personnel.

K/A MATCH ANALYSIS

Question gives a plausible scenario where an RCS LOCA has occurred resulting in two different reasons the RCS Barrier is challenged (Potential Loss) and requires an emergency declaration. The candidate must determine if an NOUE is required or an ALERT emergency and the time frame for notifying plant personnel.

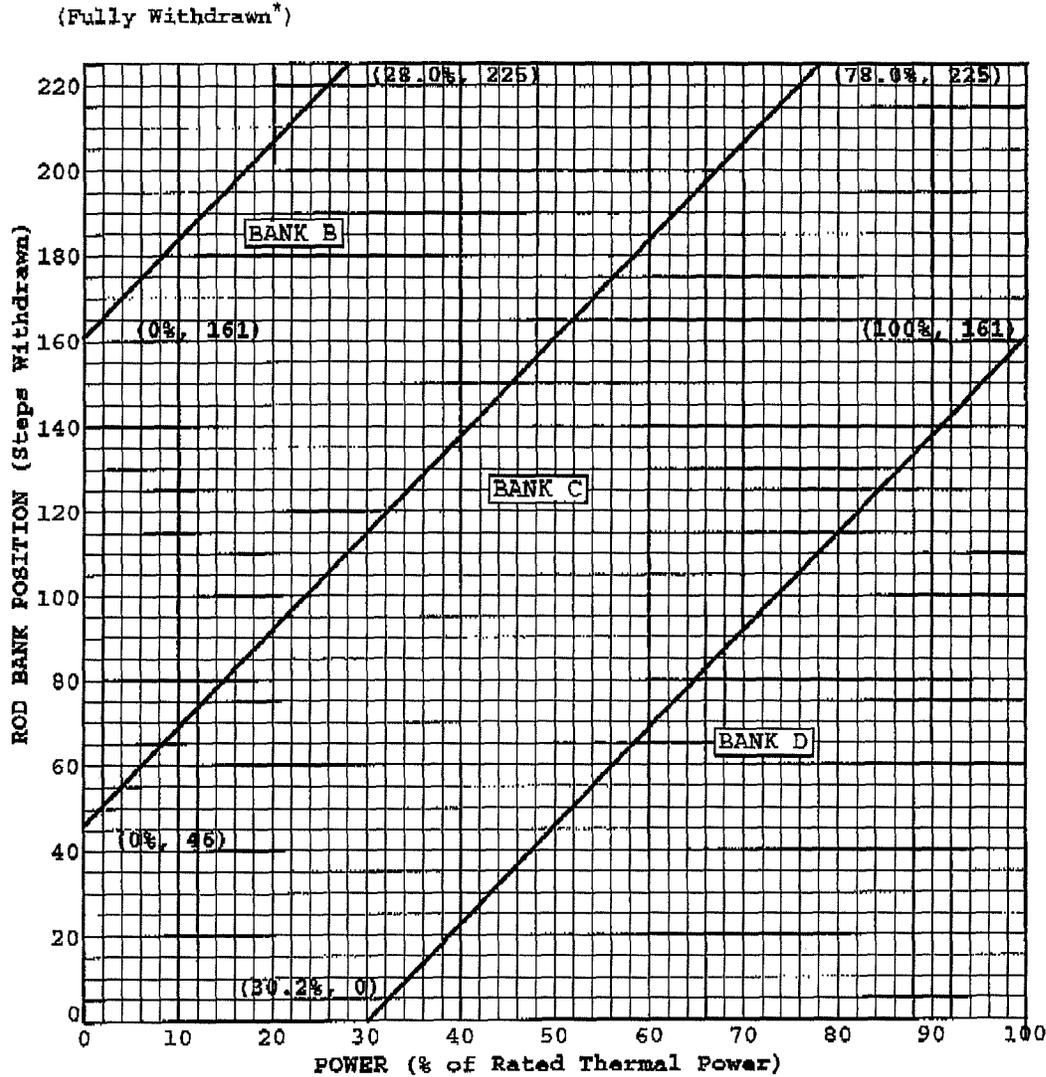
Questions meets SRO only threshold by requirement of a classification in addition to the notification requirement. Per the KA Catalog Knowledge of Emergency action level thresholds and classification is an SRO importance factor of 4.1 with the RO importance factor level being only a 2.3. Therefore, this is an SRO only level question.

Vogtle also has specific objectives for classification which are SRO only objectives.

1 - 2000

REFERENCE FOR RO QUESTION # 19

COLR for VEGP UNIT 1 CYCLE 14



*Fully withdrawn shall be the condition where control rods are at a position within the interval ≥ 225 and ≤ 231 steps withdrawn.

NOTE: The Rod Bank Insertion Limits are based on the control bank withdrawal sequence A, B, C, D and a control bank tip-to-tip distance of 115 steps.

FIGURE 3

ROD BANK INSERTION LIMITS VERSUS % OF RATED THERMAL POWER

REFERENCE FOR RO QUESTION # 62

SLs
2.0

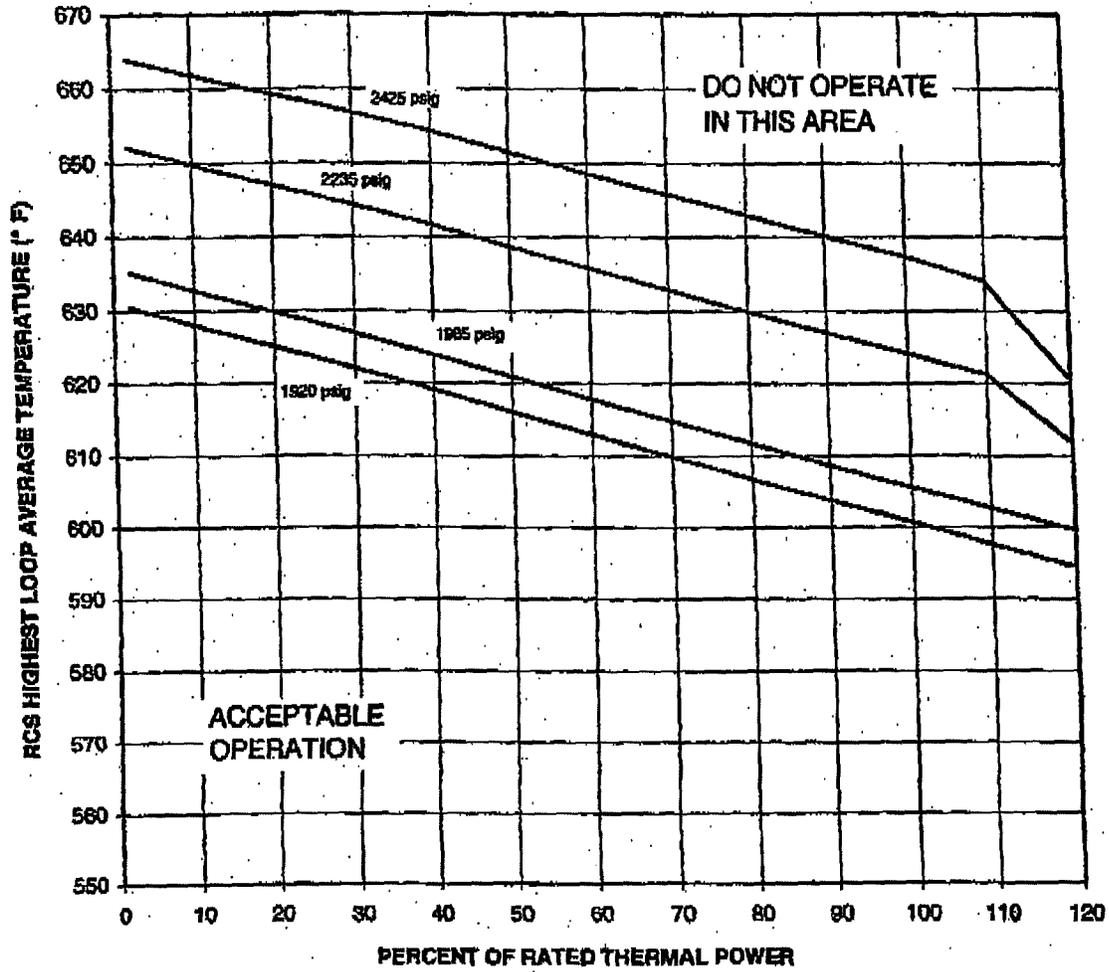


Figure 2.1.1-1
Reactor Core Safety Limits

**GENERIC FUNDAMENTALS EXAMINATION
EQUATIONS AND CONVERSIONS HANDOUT SHEET**

EQUATIONS

$$\dot{Q} = \dot{m}c_p\Delta T$$

$$\dot{Q} = \dot{m}\Delta h$$

$$\dot{Q} = UA\Delta T$$

$$\dot{Q} \propto \dot{m}_{\text{Nat Circ}}^3$$

$$\Delta T \propto \dot{m}_{\text{Nat Circ}}^2$$

$$K_{\text{eff}} = 1/(1 - \rho)$$

$$\rho = (K_{\text{eff}} - 1)/K_{\text{eff}}$$

$$\text{SUR} = 26.06/\tau$$

$$\tau = \frac{\bar{\beta} - \rho}{\lambda_{\text{eff}} \rho}$$

$$\rho = \frac{\ell^*}{\tau} + \frac{\bar{\beta}}{1 + \lambda_{\text{eff}}\tau}$$

$$\ell^* = 1 \times 10^{-4} \text{ sec}$$

$$\lambda_{\text{eff}} = 0.1 \text{ sec}^{-1} \text{ (for small positive } \rho)$$

$$\text{DRW} \propto \Phi_{\text{tip}}^2 / \Phi_{\text{avg}}^2$$

$$P = P_o 10^{\text{SUR}(\tau)}$$

$$P = P_o e^{(t/\tau)}$$

$$A = A_o e^{-\lambda t}$$

$$\text{CR}_{\text{STD}} = S/(1 - K_{\text{eff}})$$

$$\text{CR}_1(1 - K_{\text{eff}1}) = \text{CR}_2(1 - K_{\text{eff}2})$$

$$1/M = \text{CR}_1/\text{CR}_x$$

$$A = \pi r^2$$

$$F = PA$$

$$\dot{m} = \rho A \bar{v}$$

$$\dot{W}_{\text{pump}} = \dot{m}\Delta P v$$

$$E = IR$$

$$\text{Eff.} = \text{Net Work Out/Energy In}$$

$$v(P_2 - P_1) + \frac{(\bar{v}_2^2 - \bar{v}_1^2)}{2g_c} + \frac{g(z_2 - z_1)}{g_c} = 0$$

$$g_c = 32.2 \text{ lbf-ft/lbf-sec}^2$$

CONVERSIONS

$$1 \text{ Mw} = 3.41 \times 10^6 \text{ Btu/hr}$$

$$1 \text{ hp} = 2.54 \times 10^3 \text{ Btu/hr}$$

$$1 \text{ Btu} = 778 \text{ ft-lbf}$$

$$^\circ\text{C} = (5/9)(^\circ\text{F} - 32)$$

$$^\circ\text{F} = (9/5)(^\circ\text{C}) + 32$$

$$1 \text{ Curie} = 3.7 \times 10^{10} \text{ dps}$$

$$1 \text{ kg} = 2.21 \text{ lbfm}$$

$$1 \text{ gal}_{\text{water}} = 8.35 \text{ lbfm}$$

$$1 \text{ ft}^3_{\text{water}} = 7.48 \text{ gal}$$