Draft Submittal
(Pink Paper)

Senior Reactor Operator Written Exam

VOGTLE NOVEMBER RETAKE 2005 EXAM

05000424/2005302 AND 05000425/2005302

WRITTEN ONLY ON
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2/1/06

QUESTIONS REPORT

for Questions Draft NRC Exam

1. During a Control Bank D group I dropped rod recovery, you directed the BOP to open all lift coil disconnect switches for control bank D except for the affected rod.

   As soon as the RO started rod withdrawal with the bank select switch in the Control Bank D position, a Rod Control Urgent Failure alarm illuminates.

   You should direct the RO to:

   A. Stop rod withdrawal because the pulser / oscillator is inhibited.

   B. Continue rod withdrawal, this alarm is expected and is due to a regulation failure in group 2 of Control Bank D.

   C. Stop rod withdrawal since holding currents are being simultaneously applied to the stationary and moveable gripper coils in Control Bank D.

   D. Continue rod withdrawal, this alarm is expected due to being in the bank select position resulting in a loss of proper bank overlap.

K/A

001 Control Rod Drive System.

A2.20 Ability to (a) predict the impacts of the following malfunctions or operations on the CRDS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

Isolation of lift coil on affected rod to prevent coil burnout.

K/A MATCH ANALYSIS

Question gives a plausible scenario with a dropped control rod which is being withdrawn in accordance with the AOP for rod retrieval. During retrieval a Rod Control Urgent Failure annunciator is received. Candidate decide whether to stop or continue rod retrieval and why.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Plausible, Pulser Oscillator is normally inhibited on an urgent failure.

B. Correct. Regulation failure is reason per ARP for Urgent Failure.

C. Incorrect. Plausible, this action occurs if urgent failure is due to a logic problem.

D. Incorrect. Plausible, this is expected alarm, but bank overlap does not feed into the urgent failure alarm.

REFERENCES

AOP-18003, Rod Control Malfunction, section A for Dropped Rods in Mode 1

ARP-17010 window B06 for ROD CONTROL URGENT FAILURE

V-LO-LP-60303, page 12

VEGP learning objectives:

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

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

Scramble Range: A - D

2. The plant has just entered Mode 4 and currently has the following conditions:

   * RCS temperature - 340 degrees F

   * RCPs # 1 and # 4 - running

   * All SG levels are approximately 65% on NR.

   * SG ARVs have just been shut and placed in auto.

   * RHR Train "B" placed in service in the shutdown cooling mode.

   * RHR Train "A" is aligned for ECCS injection.

   The RO is controlling the RCS cooldown rate to approximately 50 degrees F per hour when RHR pump "B" unexpectedly trips for reasons unknown.

   As the SS, which **ONE** of the following would be the **CORRECT** actions for you to direct the crew to take and why ?

   A. Align RHR Train "A" to the shutdown cooling mode of operation, continue the cooldown. ARVs cannot provide adequate cooldown at lower RCS temperatures.

   B. Leave RHR Train "A" aligned for ECCS injection and use the ARVs to continue the cooldown. Aligning RHR "A" to the shutdown cooling mode could lead to steam binding and / or water hammer if RHR "A" realigned back to the injection mode.

   C. Align RHR Train "A" to the shutdown cooling mode of operation and continue the cooldown. Tech Specs considers RHR "A", OPERABLE in Mode 4 as long as it can still be manually aligned to the injection mode.

   D. Leave RHR Train "A" aligned for ECCS injection. In Modes 1 through 4 one train of RHR must always be aligned for the ECCS injection mode per Tech Specs.

K/A

006 Emergency Core Cooling System (ECCS).

A2.06 Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations.

Water Hammer

K/A MATCH ANALYSIS

Question places candidate in a Loss of RHR scenario just after entering Mode 4 when an RHR pump trips. Has to decide whether to align the standby train of RHR from the ECCS injection mode to shutdown cooling mode. With other equipment available, he

should not. Doing so would cause steam binding / water hammer to other ECCS components.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. RHR Train "A" should NOT be aligned to shutdown cooling mode as long as RCPs, SG levels, ARVs and / or steam dumps available to prevent steam binding / water hammer of ECCS piping. At lower RCS temperatures it is true that you can not achieve a high cooldown rate. No procedural limitations though.

B. Correct. As long as RCS > 250 degrees F, use ARVs / dumps for cooldown to prevent Wolf Creek Event where ECCS can steam binding / water hammer.

C. Incorrect. Should not be aligned to prevent steam binding / water hammer. The Tech Spec part is correct and plausible.

D. Incorrect. Train "A" should be left in the ECCS injection mode alignment.Tech Specs does allow alignment to shutdown cooling if neccessary as long as you can manually align to ECCS phase which makes this answer plausible.

REFERENCES

18019-C, "Loss of Residual Heat Removal", section A.

Technical Specifications 3.5.2, "ECCS - Operating"

Technical Specifications 3.5.3, "ECCS - Shutdown"

Technical Specification Bases for 3.5.2, "ECCS - Operating"

Technical Specification Bases for 3.5.3, "ECCS - Shutdown"

VEGP learning objectives:

V-LO-LP-60315-04, "Given the entire AOP, describe:

a. Purpose of selected steps.

b. How and why the step is being performed.

c. Expected response to plant/parameter(s) for the step".

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

3. After swapping from 120 gpm letdown to 75 gpm letdown, the RO has adjusted letdown pressure with the letdown pressure controller PIC-0131 and placed in automatic.

   Shortly after the evolution, Letdown Hx temperature element TE-0130 begins to oscillate and fails downscale low with TIC-0130 in automatic.

   Which **ONE** of the following **CORRECTLY** describes plant response to this malfunction and the first action(s) you should direct the RO to take ?

   A. Letdown temperature would increase, the bypass valve around the CVCS demins would automatically open, an inadvertent RCS boration could occur.

      Manually control ACCW flow to the Letdown Hx using TIC-0130 to control cooling.

   B. Letdown temperature would decrease, the bypass valve around the CVCS demins would remain shut, an inadvertent RCS dilution could occur.

      Open bypass valve around CVCS demins, divert to RHUT to minimize the dilution.

   C. Letdown temperature would increase, the bypass valve around the CVCS demins would automatically open, an inadvertent RCS dilution could occur.

      Manually control ACCW flow to the Letdown Hx using TIC-0130 to control cooling.

   D. Letdown temperature would decrease, the automatic bypass around the CVCS demins would remain shut, an inadvertent RCS boration could occur.

      Open bypass valve around CVCS demins, divert to RHUT to minimize the boration.

K/A

008 Component Cooling Water (ACCW cools Letdown Hx at Vogtle)

A2.09 Ability to (a) predict the impacts of the following malfunctions or operations on the CCWS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations.

Results of excessive exit temperatures from the letdown cooler, including the temperature effects on ion-exchange resins.

K/A MATCH ANALYSIS

Question gives a plausible failure of ACCW temperature controller to the Letdown Hx. CVCS demins would bypass on high temperature. Higher temperature at demins would result in a possible boration of the RCS.

ANSWER / DISTRACTOR ANALYSIS

A. Correct. As described above.

B. Incorrect. Ltdn temp would increase. Demin would bypass releasing boron.

C. Incorrect. Ltdn temp would increase. Demin would bypass releasing boron.

D. Incorrect. Ltdn temp would increase. Demin would bypass releasing boron.

REFERENCES

ARP-17007, ALB07 window D03 for LTDN HX OUT HI TEMP

ARP-17007, ALB07 window F04 for LTDN HX HI TEMP DEMIN DIVERT

VEGP learning objectives:

LO-PP-09100-02, "Describe how the following systems interact with the Chemical Volume Control System (CVCS):

c. Aux. Closed Cooling Water System

g. Reactor Coolant System"

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

e. Letdown heat exchanger temperature divert valve, TV-130.

g. Demineralizer divert valve, TV-129".

LO-PP-09100-05, "State how letdown temperature is controlled, relative to the following:

b. Demineralizer performance".

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

4. Given the following conditions:

* A Reactor Trip and Safety Injection have occurred due to a small break LOCA in the pressurizer steam space.

* The crew transitioned to 19011-C, "SI Termination" and is preparing to establish normal letdown flow.

* The Reactor Operator points out SI Reinitiation Criteria has been met on the Foldout Page due to loss of subcooling and inability to maintain pressurizer level.

* RCS pressure is 1700 psig and lowering.

While performing Attachment C for Re-establishing CCP Cold Leg Injection the team inadvertently opens the BIT DISCH ISOLATION valves (HV-8801A and B) and fails to shut the CHARGING TO RCS ISOLATION valves (HV-8105 and HV-8106).

* The Reactor Operator points out that CCP discharge pressure is low and oscillating.

Which **ONE** of the following actions should be taken by the crew ?

A. Isolate the charging line due to the CCP alternate mini flows are lifting, continue in 19011-C, "SI Termination".

B. Isolate the charging line due to the CCPs possibly operating at runout conditions, transition to 19010-C, "Loss of Reactor or Secondary Coolant".

C. Isolate the charging line due to the CCP alternate mini flows are lifting, transition to 19010-C, "Loss of Reactor or Secondary Coolant".

D. Isolate the charging line due to the CCPs possibly operating at runout conditions, continue in 19011-C, SI Termination".

K/A

009 Small Break LOCA

G2.4.7 Emergency Procedures Plan

Knowledge of event based EOP mitigation strategies.

K/A MATCH ANALYSIS

Question gives a condition during a small break LOCA and a transition to SI Termination, SS has to determine proper actions taken in response to required Foldout Page actions and a valve misalignment.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Foldout page requires transition to 19010-C, "Loss of Reactor or Secondary Coolant if subcooling or pressurizer level cannot be maintained. Bases of shutting normal charging valves before opening BIT discharge valves is to prevent possible CCP runout. RCS pressure is also below the setpoint for the CCP miniflows to be open.

B. Correct. Foldout page requires transtion to 19010-C, "Loss or Reactor or Secondary Coolant" if subcooling or pressurizer level cannot be maintained. Bases of shutting normal charging valves before opening BIT discharge valves is to prevent possible CCP runout. RCS pressure is also below the setpoint for the CCP miniflows to be open.

C. Incorrect. See A and B above.

D. Incorrect. See A and B above.

REFERENCES

1. 19011-C, "SI Termination" foldout page and attachment C for realigning CCP flow to the BIT.

2. 13006-1/2, Limitation 2.2.17 for CCP miniflow operation.

3. HL-AW-37000-00-004, HL-13 Audit bank not previously used.

4. ES-1.1, SI Termination step deviation document.

VEGP learning objectives:

LO-LP-37022-04, "Using EOP 19011-C, briefly describe how each step is accomplished".

LO-LP-37022-05, "State the ECCS reinitiation criteria. Include how the operator would carry out this directive".

LO-LP-37022-08, "Given a scenario requiring use of the foldout page, state the actions that the operator would be required to take".

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

5. The operating crew has energized 1 set of PRZR backup heaters to equalize PRZR and RCS boron concentrations.

   Both pressurizer spray valves show dual indication with approximately 5% demand controlling pressurizer pressure approximately 2260 psig.

   The RO notes several alarms and reports:

   * PORV PV-455A is fully open.

   * Pressurizer sprays are now fully closed.

   Identify the problem and it's associated corrective action you should direct the RO to take.

   A. The PORV cycled open due to the integrating response of the master controller. Verify the PORV shuts at 2185 psig.

   B. The PORV has failed open, manually shut the PORV and / or it's block valve.

   C. The PORV cycled open due to the integrating response of the master controller. Take the pressurizer master controller to 25% demand and verify the PORV closes.

   D. The controlling PRZR pressure channel has failed high, manually close the PORV and / or it's block valve.

K/A

010 Pressurizer Pressure Control System (PZR PCS).

A2.03 Ability to (a) predict the impacts of the following malfunctions or operations on the PZR PCS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

PORV failures.

K/A MATCH ANALYSIS

Question gives plant conditions with a stuck open PORV and asks why it is open and actions to take to mitigate event.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. PORV no longer has integrating function and now open only on a fixed PRZR pressure setpoint.

B. Correct. Response correct per AOP-18000-C, Response to Pressurizer Spray, Safety, or Relief Valve Malfunction.

C. Incorrect. Integrating function has been removed from the PORVs.

D. Incorrect. Closing the PORV is correct, but spray valves closed eliminate the possibility of a failed pressure instrument channel.

REFERENCES

AOP-18000, "Pressurizer Spray, Safety, or Relief Valve Malfunction"

Current Events RQ-LP-63177 and 63180

VEGP learning objectives:

V-LO-PP-16303-02 Describe the response of the pressurizer control system to the following failures:

a. controlling channel fails low

b. controlling channel fails high

c. controller high or low failure

V-LO-PP-16303-05 State the setpoint, coincidence, and protective actuations with the low pressurizer PORV interlock.

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

Scramble Range: A - D

6. The following sequence of events has occurred:

* Reactor trip from 100% RTP
* All RCPs lose seal injection and ACCW cooling
* Engineering recommends not re-starting the RCPs
* Natural Circulation cooldown started due to possible damage to RCP seals
* Small break LOCA through RCP seals develops
* Red path on Core Cooling occurs due to CETs > 711 degrees F with RVLIS Full Range level < 39%
* Crew implements 19221-C, FR-C.1, "Response to Inadequate Core Cooling"
* Steam generators have been depressurized, with no ECCS flow established
* CETs currently 879 degrees F and slowly rising

Which **ONE** of the following would be **CORRECT** regarding starting the RCPs while in 19221-C, "Response to Inadequate Core Cooling" ?

A. Due to the previous loss of ACCW and Seal Injection. RCPs should not be started until evaluated by engineering. The TSC will provide direction to start the RCPs.

B. Initiate starting RCPs one at a time regardless of SG levels until CETs begin to lower. Support conditions are desired but not required to start.

C. Do not start RCPs until CETs > 1200 degrees F. and SG levels are > 10% NR for the loops desired to start. Support conditions are desired but not required to start.

D. Initiate starting RCPs one at a time regardless of SG levels until CETs begin to lower. Support conditions are required to start until CETs exceed 1200 degrees.

K/A

015 Reactor Coolant Pump (RCP) Malfunctions

AA2.11 Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions.

When to jog RCPs during ICC.

K/A MATCH ANALYSIS

Question gives a scenario requiring RCPs to be stopped due to loss ACCW and Seal Injection. Engineering recommends not starting. Then a LOCA with ICC conditions follows. Candidate has to determine if RCP start would be allowed or not and why.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Engineering evaluation can not over rule the Red Path for ICC. RCPs should be started if proper conditions met.

B. Incorrect. RCPs not sacrificed until CETs > 1200 degrees F by procedure.

C. Correct. RCPs should be started with CETs > 1200 degrees F and adequate SG NR level (10%) in loop desired to start. 10% NR SG level prevents clad creep failure.

D. Incorrect. RCPs should not be sacrificed until CETs > 1200 degrees F by procedure.

REFERENCES

19002-C, "Natural Circulation Cooldown" note prior to step # 1.

19221-C, "Response to Inadequate Core Cooling" step # 2

VEGP learning objectives:

LO-LP-37061-02, "Using EOP 19221-C as a guide, briefly describe how each step is accomplished".

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

7. You are the SS. Based on the following scenarios, which **ONE** of the following would require a Technical Specification LCO entry ?

   A. Containment pressure relief scheduled for beginning of shift has been delayed. Tech Spec rounds finds containment pressure has risen to +1.6 psig.

   B. Containment coolers are stopped for slave relay testing when the test is delayed. Tech Spec rounds finds containment air temperature has risen to 122 degrees F.

   C. Containment pressure relief is in progress when the BOP is distracted by other activities. Tech Spec rounds finds containment pressure has fallen to -0.22 psig.

   D. Containment coolers are all running during extremely cold outside air conditions. Tech Spec rounds finds containment air temperature has fallen to 88 degress F.

K/A

022 Containment Cooling.

G2.1.33 Conduct of Operations.

Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

K/A MATCH ANALYSIS

Question gives 4 plausible scenarios for containment parameters and candidate must choose the one that requires entry into Technical Specifications.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Containment pressure limit is + 1.8 psig.

B. Correct. Containment air temperature limit is 120 degrees F.

C. Incorrect. Containment pressure limit is - 0.3 psig.

D. Incorrect. Containment does not have a low temperature limit.

REFERENCES

Technical Specification 3.6.4 "Containment Pressure"

Technical Specification 3.6.5 "Containment Air Temperature"

VEGP learning objectives:

LO-LP-39210-01, "For any given item in section 3.6 of Tech Specs, be able to:

a. State the LCO

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

8. Following an RCS Large Break LOCA, containment Hydrogen concentration has been discovered to be 6.8 %.

   Which **ONE** of the following would be **CORRECT** regarding the containment Hydrogen concentration and the actions you should direct as SS ?

   A. 6.8 % is below the flammable concentration threshold. No actions would be necessary at this concentration but periodic monitoring is required.

   B. 6.8 % is above the flammable concentration threshold. It would be preferred to place the Post LOCA Containment Hydrogen Purge system in service.

   C. 6.8 % is below the flammable concentration threshold. It would be preferred to place the Post LOCA Hydrogen Recombiners in service.

   D. 6.8 % is above the flammable concentration threshold. It would be preferred to Dilute the Containment With Service Air.

K/A

028 Hydrogen Recombiner and Purge Control System.

A2.03 Ability to (a) predict the impacts of the following malfunctions or operations on the HRPS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations.

The hydrogen air concentration in excess of limit flame propagation or detonation with resulting equipment damage in containment.

K/A MATCH ANALYSIS

Question gives a Hydrogen concentration in containment following a LOCA. Candidate must discriminate whether this is above or below the flammable limit and actions he would direct as SS.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Concentration is in the flammable range. We would continue to monitor.

B. Incorrect. In flammable range. However, Post LOCA Hydrogen Purge is a last resort.

C. Incorrect. Concentration is in the flammable range. Hydrogen Recombiners deleted.

D. Correct. In flammable range. Dilution with service air is the method per procedure.

REFERENCES

13130-1/2, "Post Accident Hydrogen Control".

19010-C, "Response to Loss of Reactor or Secondary Coolant"

VEGP learning objectives:

LO-LP-37111-08, "Using EOP-19010-C as a guide, briefly describe how each step is accomplished".

LO-PP-29101-03, "List the systems that are designed to control and mitigate hydrogen gas buildup in containment".

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

9. As Shift Supervisor you must ensure a surveillance is performed on the Par Refueling Machine within 100 hours prior to movement of fuel assemblies, RCCAs, thimble plugs, or control rod drive shafts within the reactor vessel.

   The Par Refueling Machine has a specific interlock required by the TRM to prevent damage to fuel assemblies and other core components which if found INOPERABLE would require an Immediate Tech Spec action to stop refueling operations.

   This interlock would be ?

   A. Slack Cable Interlock.

   B. Hoist Overload Interlock.

   C. Core Boundary Interlock.

   D. Machine Off Index Interlock.

K/A

034 Fuel Handling Equipment.

K6.01 Knowledge of the effect of a loss or malfunction of the following will have on the Fuel Handling System:

Fuel Handling Equipment.

K/A MATCH ANALYSIS

Question gives four Par Console interlocks and candidate must choose which one would have Tech Spec / TRM actions of 1 hour or less.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Slack Cable interlock not in TRM.

B. Correct. Hoist Overload has TRM actions.

C. Incorrect. Core Boundary interlock not in TRM.

D. Incorrect. Machine Off Index interlock not in TRM.

REFERENCES

Technical Requirements Manual 13.9.3 - Refueling Machine

HL-AW-25000-00-001 from question bank

VEGP learning objectives:

LO-LP-39213-03, "For any given item in section 13.9 of the TRM, be able to:

a. State the TR for operaton

b. State any one hour or less required action".

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

10. You are the Unit SS when the following has occurred:

PORV 455A has developed excessive seat leakage and the appropriate Tech Spec actions were taken. The PORV is capable of being manually cycled if necessary.

PORV 456A & block valve are in their normal alignments and will function as designed.

Subsequently a SGTR has occurred and 19030-C, Steam Generator Tube Rupture" is in progress. 19030-C has directed you to ensure power to the block valves, check PORVs shut, and at least one block valve open. RCS pressure is currently 1860 psig and slowly rising due to injection flow.

Which **ONE** of the following would be **CORRECT** regarding the Tech Spec actions previously taken and directions you should give the crew regarding the train "A" PORV and it's block valve ?

A. The block valve should have been closed within 1 hour with power maintained. WHEN PRZR pressure > 2185 psig, THEN open block valve.

B. The block valve should have been closed within 1 hour with power removed. Restore power to block valve, WHEN PRZR pressure > 2185 psig, do not open block valve.

C. The block valve should have been closed within 1 hour with power maintained. WHEN PRZR pressure > 2185 psig, do not open block valve.

D. The block valve should have been closed within 1 hour with power removed. Restore power to block valve, WHEN PRZR pressure > 2185 psig, THEN open block valve.

K/A

038 Steam Generator Tube Rupture

EG2.1.11 Conduct of Operations

Knowledge of less than one hour technical specification action statements for systems.

K/A MATCH ANALYSIS

Question gives a PORV with excessive seat leakage and requires the candidate to know the correct choice of 1 hour or less Tech Spec actions from memory. A SGTR develops and the candidate must choose the correct action from 19030-C.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Block valve should remain shut to isolate the PORV seat leakage.

B. Incorrect. The block valve should have remained energized per Tech Specs.

C. Correct. Do not open the block valve since Train B PORV & Block still operable.

D. Incorrect. The block valve should have remained energized per Tech Specs.

REFERENCES

19030-C, "Steam Generator Tube Rupture", step 23.

Tech Spec 3.4.11 for PORVs and Block valves.

Tech Spec Bases 3.4.11 for PORVs and Block valves.

VEGP learning objectives:

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

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

a. State the LCO

b. State any one hour or less required actions"

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

11. You are the Shift Supervisor when:

    * An LOSP occurs when RAT 1A and RAT 1B both trip.

    * A Reactor Trip and Safety Injection (SI) occurs.

    During the load sequencing for SI / LOSP the following occurs:

    * DG1A trips

    * DG1B maintains rated speed and voltage while energizing it's associated 1E bus

    Which ONE of the following would CORRECTLY describe the status of the control board valve indication for the AFW system ?

    A. Train A illuminated, Train B illuminated, Train C illuminated.

    B. Train A extinguished, Train B illuminated, Train C extinguished.

    C. Train A extinguished, Train B illuminated, Train C illuminated.

    D. Train A illuminated, Train B illuminated, Train C extinguished.

K/A

056 Loss of Off-site Power

AA2.69 Ability to determine and interpret the following as they apply to the Loss of Offsite Power.

Valve position.

K/A MATCH ANALYSIS

Question poses a scenario where an LOSP occurs to both of the RATs with an SI. Question asks for AFW valve position for all 3 trains following an LOSP.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Train A would be de-energized, Train C maintained by CD1 battery.

B. Incorrect. Train A would be de-energized, Train C maintained by CD1 battery.

C. Correct. Train A would be de-energized, Train C maintained by CD1 battery.

D. Incorrect. Train A would be de-energized, Train C maintained by CD1 battery.

REFERENCES

V-LO-TX-20101, Auxiliary Feedwater System page # 25

VEGP learning objectives:

V-LO-PP-20101-09, Determine the impact to AFW system operation and the overall integrated plant operations to the following types of power supply failures:

a. U/V condition on either AA02 or BA03 with the bus being re-energized from the EDG while at 100% power.

b. U/V condition on either AA02 or BA03 with the bus remaining de-energized while at 100% power.

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

12. Unit 1 is in mode 3 when the following occur:

* Trouble alarms are recieved for 1AY1A / 1AY2A and 1AD1
* Indicating lights for the train A MSIVs and the loop 1 1E RCP breaker are off

Which of the following procedures should the SS enter?

A. 18032-C, for loss of 120 VAC vital bus 1AY1A.

B. 18032-C, for loss of 120 VAC vital bus 1AY2A.

C. 18034-C, for loss of 125 VDC 1E bus 1AD1.

D. 18031-C, for loss of 4160 VAC 1E bus 1AA02.

K/A

058 Loss of DC Power

AA2.02 Ability to determine and interpret the following as they apply to the Loss of DC Power.

125V dc bus voltage, low/critical low, alarm

K/A MATCH ANALYSIS

Question tests candidates knowledge of actions to take when a bus problem is indicated with Train A 125V DC bus and 120V AC bus AY1A and AY2A.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Annunciators are indicative of loss of 1AD1 125V DC 1E bus.

B. Incorrect. Annunciators are indicative of loss of 1AD1 125V DC 1E bus.

C. Correct. Symptoms for loss of 125V DC bus 1AD1.

D. Incorrect. Annunciators are indicative of loss of 1AD1 125V DC bus.

REFERENCES

AOP-18034, Loss of 1E DC Bus

VEGP learning objectives:

V-LO-LP-60329-04 Given conditions and/or indications, determine the required AOP to enter (including subsections, as applicable).

QUESTIONS REPORT

for Questions Draft NRC Exam

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

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

13. You are the Shift Supervisor when:

A trip of a running Train A NSCW pump with failure of the standby pump to auto start has resulted in entrance of 18021-C, "Loss of Nuclear Service Cooling Water". Attempts to manually start the standby pump were not successful and Train A NSCW was eventually shutdown.

Due to CCP "B" repairs in progress, a Tech Spec shutdown is required within the next 7 hours.

You desire "Emergency Maintenance" work authorization to attempt to restore Train A NSCW to operable status.

Which **ONE** of the following is **CORRECT** regarding if "Emergency Maintenance" is required and who makes this determination ?

A. Conditions justify Emergency Maintenance. Shift Supervisor determines.

B. Conditions do not justify Emergency Maintenance. Shift Manager determines.

C. Conditions justify Emergency Maintenance. Shift Manager determines.

D. Conditions do not justify Emergency Maintenance. Shift Supervisor determines.

K/A

062 Loss Nuclear Service Water

EG2.2.19 Equipment Control

Knowledge of Maintenance work order requirements.

K/A MATCH ANALYSIS

Question gives situation where NSCW has placed plant in motherhood and requires shutdown within 7 hours. Asks what conditions emergency maintenance could be authorized and who can authorize.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Tech Spec shutdown within 7 hours allows, SM authorization required.

B. Incorrect. Tech Spec shutdown within 7 hours allows, SM authorization required.

C. Correct. Tech Spec shutdown within 7 hours allows, SM authorization required.

D. Incorrect. Tech Spec shutdown within 7 hours allows, SM authorization required.

REFERENCES

00350-C, "Maintenance Work Program". Definition 2.8 for "Emergency Maintenance" and step 3.11.1.1 for who determines if work is Emergency Maintenance.

VEGP learning objectives:

LO-LP-63350-04, "Describe the requirements for emergency maintenance and when emergency maintenance can be performed".

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

14. With the unit at 100% power a loss of 4.16 kV bus 2BA03 occurs. EDG-2B starts and re-energizes 2BA03. Automatic load sequencing is in progress when the following occur:

    * ALB38, Window C04 "DG2B HIGH TEMP JACKET WATER OUT" alarms

    * The BOP reports only NSCW pump # 6 has auto started

    Which **ONE** of the following is a **CORRECT** action(s) for the SS to direct ?

    A. Emergency trip DG2B which should have automatically tripped, enter section A of AOP 18031-C, "Loss of Class 1E Electrical Systems With DG Failure To Tie".

    B. Emergency trip DG2B if a second NSCW pump cannot be started, enter section A of AOP 18031-C, "Loss of Class 1E Electrical Systems With DG Failure To Tie".

    C. Enter section B of AOP 18031-C, "Loss of Class 1E Electrical Systems With DG Tying", enter section A of 18031-C if DG2B trips on high jacket water temperature.

    D. Enter section B of AOP-18031-C, "Loss of Class 1E Electrical Systems With DG Tying", align NSCW for single pump operation to provide cooling to DG2B.

K/A

064 Emergency Diesel Generator (ED/G) System.

G2.4.4 Emergency Procedures / Plan

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

K/A MATCH ANALYSIS

This question test the knowledge of AOP entry conditions for malfunctions with the emergency diesel generators.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect - Plausible since this is the section of AOP you would enter. However, DG will not auto trip on high JW during Emergency starts.

B. Correct - step B3a RNO of 18031-C, directs the crew to start 2 NSCW pumps on the affected train. If 2 NSCW pumps cannot be started, then emergency trip the DG and go to section A. Step 1 RNO of 18021 "Loss of NSCW also directs to trip DG if 2 NSCW pumps can't be started.

C. Incorrect - Plausible since 18031-C section B would be entered if DG left running, however DG will not auto trip on high JW temperature.

D. Incorrect - Plausible since there is direction for single pump operations for NSCW, but only if both NSCW trains not available or in lower modes of operation.

REFERENCES

1. AOP 18031-C, "Loss of Class 1E Electrical Systems"

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

VEGP learning objectives:

LO-LP-60323-04, "Given conditions and/or indications, determine the required AOP to enter (including subsections, as applicable).

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

15. You are the SS when:

A plant event has resulted in the crew entering 19221-C, FR-C.1 "Response to Inadequate Core Cooling".

CCP "A" was tagged out and CCP "B" unexpectedly tripped during the event. Neither pump will be available in the near future. You are at step 2 of procedure 19221-C and have just checked the CCP flow indicators for BIT flow which shows none.

Which **ONE** of the following **CORRECTLY** describes the next sequence of actions you expect to have the crew perform to mitigate the event ?

A. Reset Safety Injection and start the NCP.
Check for SI flow and start SI Pumps and align valves if necessary.
Check for RHR flow and start RHR pumps and align valves if necessary.

B. Rapidly depressurize the Steam Generators to depressurize the RCS.
Check for SI flow and start SI pumps and align valves if necessary.
Check for RHR flow and start RHR pumps and align valves if necessary.

C. Check for SI flow and start SI pumps and align valves if necessary.
Rapidly depressurize the Steam Generators to depressurize the RCS.
Check for RHR flow and start RHR pumps and align valves if necessary.

D. Rapidly depressurize the Steam Generators to depressurize the RCS.
Start all RCPs one at a time and open all RCS vent paths to containment.
Isolate the SI accumulators.

K/A

074 Inadequate Core Cooling

EG2.4.6 Emergency Procedures / Plan

Knowledge of symptom based EOP mitigation strategies.

K/A MATCH ANALYSIS

Question gives scenario in 19221-C, "FR-C.1 "Response to Inadequate Core Cooling" and candidate must determine proper response with symptoms / conditions given.

ANSWER / DISTRACTOR ANALYSIS

A. Correct. Reset SI and start NCP and other ECCS pumps is the first major action of this EOP.

B. Incorrect. Starting ECCS pumps is the first major action and should be performed prior to rapid depressurization.

C. Incorrect. Starting ECCS pumps is the first major action and should be performed prior to rapid depressuriztion.

D. Incorrect. Starting ECCS pumps is the first major action and should be performed ahead of all the actions listed in this choice.

REFERENCES

19221-C, FR-C.1 "Response to Inadequate Core Cooling", step # 2

VEGP learning objectives:

LO-LP-37061-02, "Using EOP 19221-C as a guide, briefly describe how each step is performed".

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

16. Given the following:

A tour group with 9 individuals from Nustart Energy has arrived for a tour of Plant Vogtle. One of the group members is the minor daughter of another utiliities CEO.

Which **ONE** of the following would be **CORRECT** regarding Visitor Access to the Protected Area and/or Personnel Escort Duties and Responsibilities ?

A. The Shift Manager or Shift Supervisor would have to authorize visitor access for the minor.

B. Visitor authorization expires at the end of shift or completion of visit, whichever occurs first. No visitor authorization shall exceed a 12 hour period.

C. A female tour group member needs to use a restroom which has only one door. A male escort would need to transfer escort responsibility to a female escort.

D. One escort would be required for this group as long as a vital area is not entered. To enter a vital area would require an additional escort.

K/A

G2.1.13 Knowledge of facility requirements for controlling vital / controlled areas.

K/A MATCH ANALYSIS

Question gives scenarios regarding allowing access of visitors inside the protected or vital areas. Candidate must pick out the correct choice that would be allowed.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Minors need to be authorized by General Manager or AGMs.

B. Incorrect. Expires at midnight or completion with a 24 hour time limit.

C. Incorrect. With only one door change of escort not required.

D. Correct. Would need another escort if entering the vital area since limit is 5 persons.

REFERENCES

00652-C, "Personnel Escort - Duties and Responsibilities"

00653-C, "Protected Area Entry/Exit Control"

VEGP learning objectives:

None - GET handbook.

QUESTIONS REPORT
for Questions Draft NRC Exam

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

Scramble Range: A - D

17. Given the following plant conditions:

* Unit 2 at 100% power for the past three weeks.

* Chemistry has just provided the following results from RCS chemistry samples that were taken within the last hour.

  - RCS Fluroide = 0.15 ppm
  - RCS Chloride = 0.15 ppm
  - RCS Oxygen = 0.15 ppm

Which ONE of the following describes the above conditions and appropriate actions to be taken by the SS ?

A. Chloride concentration is above the TRM limit. Corrective action must be taken to bring Chloride concentration within limits. The plant must be taken to Cold Shutdown if outside of limits after 24 hours.

B. Oxgen concentration is above the TRM limit. Corrective action must be taken immediately to bring the plant to Cold Shutdown conditions.

C. Chloride concentration is above the TRM limit. Corrective action must be taken immediately to bring the plant to Cold Shutdown conditions.

D. Oxygen concentration is above the TRM limit. Corrective action must be taken to bring Oxygen concentration within limits. The plant must be taken to Cold Shutdown if outside of limits after 24 hours.

K/A

G2.1.34 Ability to maintain primary and secondary plant chemistry within allowable limits.

K/A MATCH ANALYSIS

Question tests the correct knowledge of TRM actions for RCS chlorides, flourides, and dissolved oxygen being out of limits.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. RCS Chloride is within limits.

B. Incorrect. Plant does not immediately need to be taken to cold shutdown per TRM.

C. Incorrect. RCS Chloride is within limits.

D. Correct. TRM action is to immediately try to restore and go to cold shutdown if not in limits within 24 hours.

REFERENCES

1. Surry 2004 NRC Exam question # 88

2. TRM 13.4.1 for RCS Chemistry

VEGP learning objectives:

LO-LP-39208-03, "For any given item in section 13.4 of the TRM:

a. State the TR for operaton"

b. State any one hour or less actions.

LO-LP-39208-01, "Given the TRM, determine for a specific set of plant condition, equipment availability, and operational mode:

a. Whether any TR of section 13.4 has been exceeded.

b. The required actions for all sections of 13.4 TRs.

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

18. Given the following:

* A TCP has been written for the IST surveillance procedure for CCP "A" to test whether the discharge MOV will stroke against full pump dP and to collect MOV and pump motor data during the surveillance.

* The plant conditions required for the evolution are NOT described in current procedures or the Final Safety Analysis Report.

* The author of the TCP is the responsible system engineer who has brought the TCP to the Shift Manager for review and approval.

the Shift Manager should.....

A. review and **approve** the TCP for 14 days as long as the engineering manager has reviewed and approved the TCP.

B. **disapprove** the TCP. A 50.59 screening / evaluation would need to be performed. A special test procedure approved by the PRB and General Manager is required .

C. review and **approve** the TCP for 14 days as long as the responsible supevisor has reviewed and approved the TCP.

D. **disapprove** the TCP. A 50.59 screening / evaluation is not required. A special test procedure approved by the PRB and General Manager is required for this test.

K/A

G2.2.10 Knowledge of the process for determining if the margin of safety, as defined in the basis of any technical specification is reduced by a proposed change, test or experiment.

K/A MATCH ANALYSIS

Question gives a condition where system engineer has written a temporary change to a CCP IST procedure to determine if the discharge valve will stroke against full pump dP. Condition is not described in FSAR or Tech Spec Bases. Candidate must choose whether or not to allow procedure to be performed.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. A 50.59 evaluation is required and requires higher approval.

B. Correct.

C. Incorrect. A 50.59 evaluation is required and requires higher approval.

D. Incorrect. A 50.59 evaluation is required and requires higher approval.

REFERENCES

Prairie Island 2004 NRC Exam SRO Question # 21

00052-C, "Temporary Changes to Procedures"

00056-C, "10CFR50.59 Screening and Evaluations"

00053-C, "Temporary Procedures and Special Tests"

VEGP learning objectives:

LO-LP-63052-02, "In application of temporary changes to procedures, describe the following:

a. Review/approval responsiblity

b. Time period a TCP is valid and processing of expired of disapproved TCPs.

c. Interim approval process.

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

19. Given the following conditions to perform work at the Radwaste Processing Facility:

* Radiation level at the work site is 80 mrem/hr.

* Radiation level with shielding would be 20 mrem/hr.

* Time for one worker to install and remove shielding is 30 minutes.

* Time to perform the work with one person is 2 hours.

* Time to perform the work with two persons is 40 minutes.

Assume the following:

* A dose rate of 80 mrem/hr will be received installing and removing the shielding.

* Shielding is to be installed and removed by one worker only.

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

A. one worker with shielding.

B. one worker without shielding.

C. two workers with shielding.

D. two workers without shielding.

K/A

G2.3.10 Ability to perform procedures to reduce excessive levels of radiation and guard against personnel radiation exposure.

K/A MATCH ANALYSIS

Question gives a plausible scenario where the candidate must evaluate which method would achieve ALARA to perform a job. Has to calculate whether or not installing shielding and whether one worker or two could do the job with the least dose.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. 40 mr to install + (20 mr X 2 hours = 40 mr) = 80 mr total

B. Incorrect. 0 mr to install + (80 mr X 2 hours = 160 mr) = 160 mr total

C. Correct. 40 mr to install + (13.33 mr each to work = 26.66 mr) = 66.67 mr total

D. Incorrect. 0 mr to install + (53.33 mr each to work - 106.66 mr) = 106.66 mr total

REFERENCES

Turkey Point December 2003 NRC Exam Question # 83

VEGP learning objectives:

None - ALARA per GET.

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

20. Given the following:

* The plant is near full power at EOL preparing for unit shutdown for outage in 1 week.

* A Unit 2 liquid waste permit has been issued for Waste Monitor Tank # 9.

* The source check on Liquid Proceesing System Effluent Monitor 2-RE-0018 has failed.

* The radiation monitor will not come off of the low end of scale.

* The Shift Supervisor has declared 2-RE-0018 Inoperable.

Which **ONE** of the following statements is **CORRECT** regarding approving the permit for the release of Waste Monitor Tank # 9 ?

A. Approve. As long as independent samples of tank contents are analyzed and the discharge valve alignment and release rate calculations are independently verified.

B. Disapprove. The release CANNOT proceed until 2-RE-0018 has been returned to Operable status in accordance with ODCM requirements.

C. Approve. As long as 1-RE-0018 remains Operable tank contents shall be routed through the opposite units radiation monitor.

D. Disapprove. The release CANNOT proceed because the discharge flow path cannot be aligned with 2-RE-0018 failed offscale low.

K/A

G2.3.6 Knowledge of the requirements for reviewing and approving release permits.

K/A MATCH ANALYSIS

Question gives conditions for a waste monitor tank release with RE-0018 inoperable and candidate will have to determine correct choices to approve the release.

ANSWER / DISTRACTOR ANALYSIS

A. Correct. ODCM action 37 allows with independent samples, discharge path IV, and release rate calculation IV.

B. Incorrect. Release could occure per ODCM Table 1 for Liquid Radwaste.

C. Incorrect. No provisions in SOP for cross unit release operations.

D. Incorrect. Valves could be aligned for Waste Montitor Release since interlock to shut valve is rad monitor failing high.

REFERENCES

1. 13216-1, "Liquid releases"

2. ODCM Section 2.1, Table 2.1 section 1 for LIQUID RADWASTE TREATMENT SYSTEM.

3. Arkansas Nuclear One 2005 NRC Exam question # 98

VEGP learning objectives:

LO-PP-47101-10, "State the ODCM, TR, applicabilities, and any one hour or less actions required for the Liquid Waste Processing System."

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

21. Given the following conditions:

The plant is operating at 100% power.

* DG "A" is tagged out for an AOT and will not be returned to service for 24 hours.

* A sudden thunderstorm sweeps through the area causing a Loss of Offsite Power to both RATs.

* The Reactor has tripped, the crew has entered E-0, "Reactor Trip or Safety Injection"

* An SI has actuated due to a stuck open PRZR safety valve.

* After exiting E-0 the crew has transitioned to 19010-C, "Response to Primary or Secondary Loss of Coolant"

* A valid red path CSFST for Heat Sink has been identified and 19231-C is identified as the required procedure per the decision tree.

Subsequently, DG "B" output breaker trips due to a bus fault.

Which **ONE** of the following actions should you take as the SS ?

A. Transition to 19231-C and remain there until exit criteria are met or a higher priority red path procedure is identified.

B. Transition to 19100-C, Loss of All AC Power and remain there until power restored. Then immediately transiton to 19231-C.

C. Transition to 19231-C and remain there unless RCS pressure is lower than steam generator pressure which would require a return to 19010-C.

D. Transition to 19100-C, Loss of All AC Power and remain there until power restored. Transition to 19231-C only when FRP implementation is procedurally directed.

K/A

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 plant conditions which would result in a Loss of All AC power and candidate has to determine appropriate procedure implementation.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Loss of All AC Power procedure would be implemented.

B. Incorrect. Loss of All AC is correct procedure. However, you remain in this series of procedures until directed to implement the FRPs

C. Incorrect. Loss of All AC Power procedure would be implemented.

D. Correct. Loss of All AC Power is correct procedure and a transition to FR-H.1 not made until procedures direct FRP implementation again.

REFERENCES

19231-C, FR-H.1 "Loss of Secondary Heat Sink"

19100-C, ECA-0.0, "Loss of All AC Power"

19102-C, ECA-0.2, "Loss of All AC Power SI Recovery Required"

Beaver Valley 2004 NRC Exam Question # 100

VEGP learning objectives:

LO-LP-37031-07, "State the bases for "Loss of All AC Power" procedure".

LO-LP-37031-08, "Using EOP 19100-C as a guide, describe how each step is accomplished."

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

22. The unit has had a transient compounded by AFW equipment inoperabilties which has led to a red path on the Heat Sink CSFST.

    Which one of the following choices correctly describes a loss of heat sink (LOHS) and the recovery strategy used?

    A. An LOHS occurs when all SG NR levels are < 10% and total FW flow is < 570 gpm. The recovery methods are to use a high pressure feed source to a SG if available, if not a SG is depressurized below the discharge pressure of condensate pumps to establish feed flow. RCS bleed and feed is used when the SGs dry out to provide temporary core cooling.

    B. An LOHS occurs when AFW flow is < 570 gpm and RCS pressure is > intact SG pressures. RCS bleed and feed is immediately established to provide a long term method of core cooling while the crew attempts to feed a selected SG from any available source of water.

    C. An LOHS occurs when all SG NR levels are < 10% and total FW flow is < 570 gpm. RCS bleed and feed is immediately established to provide a temporary method of core cooling while the crew attempts to feed a selected SG from any available source of water.

    D. An LOHS occurs when AFW flow is < 570 gpm and RCS pressure is < intact SG pressures. The recovery methods are to use a high pressure feed source to a SG if available, if not a SG is depressurized below the discharge pressure of condensate pumps to establish feed flow. RCS bleed and feed is used when the SGs dry out to provide temporary core cooling.

K/A

G2.4.6 Knowledge of symptom based EOP mitigation strategies.

K/A MATCH ANALYSIS

Question directly tied to the K/A.

ANSWER / DISTRACTOR ANALYSIS

A. Correct.

B. Incorrect. Plausible since RCS pressure check > intact SG pressure is performing in the FRP to see if FRP implementation is required. Also RCS bleed & feed is likely to be estalblished but it is not an immediate action.

C. Incorrect. Plausible since the paramters stated are correct for a loss of heat sink. RCS bleed & feed is most likely established as a temporary source of core cooling but it is not an immediate action.

D. Incorrect. Plausible the recovery methods listed are correct. The heat sink is correct except for the RCS pressure check which is done in the body of the FRP and is not a part of the heat sink CSFST.

REFERENCES

1. 19200-C, Critical Safety Function Status Trees
2. 19231-C, FR-H.1, Response to Loss of Secondary Heat Sink

VEGP learning objectives:

LO-LP-37051-07, "State the intent of 19231-C, "Response to Loss of Secondary Heat Sink".

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

23. Following a plant event requiring the crew to enter the EOPs. The SS has implemented 19005-C, "Rediagnosis".

    Which **ONE** of the following could operators have been performing that would allow the use of Rediagnosis ?

    A. 19010-C, "Response to RCS LOCA" in effect. A Loss of Offsite Power (LOSP) occurs and the Train "A" DG re-energizes AA02.

    B. 19000-C, "Reactor Trip or Safety Injection" in effect. The SS has reached the steps for transition diagnostics and is not sure which procedure to implement.

    C. 19231-C, "Loss of Secondary Heat Sink" in effect. The OAO operator successfully resets the Trip and Throttle valve re-establishing AFW flow.

    D. 19002-C, "Natural Circulation Cooldown" is in effect. An RCP has just been started and the SS is not sure which procedure to implement.

K/A

WE01 Rediagnosis

EA2.2 Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

K/A MATCH ANALYSIS

Question gives several different scenarios which do not allow use of Rediagnosis. Candidate has to pick the condition which would allow use of 19005-C.

ANSWER / DISTRACTOR ANALYSIS

A. Correct. Rediagnosis may be entered from 19010-C.

B. Incorrect. E-0 must be completed and a transtition made to allow use of Rediagnosis.

C. Incorrect. Rediagnosis cannot be entered from a Red Path.

D. Incorrect. ECCS must be in service or required to allow use of Rediagnosis.

REFERENCES

19005-C, "Rediagnosis", step # 1.

VEGP learning objectives:

LO-LP-37002-12, State the intent and entry conditions for EOP 19005-C, Rediagnosis.

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for Questions Draft NRC Exam

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

Scramble Range: A - D

24. The crew is implementing EOP 19012-C, "ES-1.2 Post-LOCA Cooldown and Depressurization", in response to the following sequence of events:

    * Unit at 100% RTP
    * RCS cold leg temps 557 degrees F
    * Reactor trip and SI due to small break LOCA
    * RCS cold leg temperatures stabilize at 511 degrees F.
    * Both trains of ECCS are in service
    * 15 minutes have elapsed since the reactor trip

    The crew is cooling down and depressuring the RCS in accordance with 19012-C. Which of the following describes the proper implementation of RCS cooldown?

    A. The instantaneous cooldown rate of the RCS cold legs is limited to 100 deg F / hour to comply with technical specifications requirements.

    B. The cooldown of the RCS cold legs is limited to 100 deg F over the next 60 minutes once cooldown is initiated per 19012-C.

    C. The cooldown of the RCS cold legs is limited to 54 deg F over the next 45 minutes to comply with technical specification requirements.

    D. The cooldown of the RCS cold legs is limited to 100 deg F / hour instantaneous rate or 54 deg F over the next 45 minutes, which ever is more limiting.

K/A

WE03 LOCA Cooldown - Depressurization.

EA2.2 Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

K/A MATCH ANALYSIS

Question deals with RCS cooldown as directed in the Post LOCA Cooldown EOP ES-1.2. The limit on the cooldown rate is to comply with technical specification requirements.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. You may exceed the instanteous rate. Many operators use this parameter as the goal of their cooldown but it is not the actual limit.

B. Incorrect. Plausible since the operator may think the cooldown rate limit only applies from the begining of the EOP ES-1.2. This is incorrect in this case because the tech limits always apply.

C. Correct. The operator must account for the previous 1 hour history of RCS cold leg temperatures to determine the allowable cooldown.

D. Incorrect. Plausible, since many operators conservatively apply the most limiting of these two related parameters.

REFERENCES

1. 19012-C, "ES-1.2 Post-LOCA Cooldown and Depressurization" step 13b, page 8.
2. VEGP LCO 3.4.3, RCS Pressure and Temperature Limits
3. WOG ERG background document, ES-12.doc, page 98
4. Operations Instructor Handbook page 28.

VEGP learning objectives:

LO-LP-37112-01, "USing EOP 19012-C as a guide, describe how each step is accomplished".

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

25. The crew is responding to a red path on the Integrity CSFST using 19241-C, "Response to Pressurized Thermal Shock". All of the following were performed:

    * A temperature soak was required.

    * The RCS was not cooled down for 1 hour.

    * RCS pressure was not raised for 1 hour.

    Once the temperature soak was completed.

    * RCS cooldown rate established in cold legs < 50 degrees F in 60 minutes period.

    * RCS pressure is being maintained within the requirements of the POST SOAK COOLDOWN LIMIT CURVE.

    The actions taken in 19241-C are based on.....

    A. minimizing tensile stresses in the reactor vessel upper head to reduce the likelihood of plastic deformation.

    B. minimizing the compressive stresses in the reactor vessel hot leg nozzles to reduce the likelihood of rapid propagation of an existing flaw.

    C. minimizing tensile stresses in the reactor vessel downcomer beltline area to reduce the likelihood of rapid propagation of an existing flaw.

    D. minimizing compressive stresses in the reactor vessel cold leg nozzles to reduce the likelihood of plastic deformation.

K/A

WE08 RCS Overcooling - PTS.

EG2.2.25. Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

K/A MATCH ANALYSIS

Question tests the knowledges contained in the tech spec bases for LCO on RCS pressure temperature limits applied to use in a PTS condition.

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect. Plausible since your are minimize tensile stresses but the upper head is not the most limiting component and you must know the difference between plastic and brittle deformation.

B. Incorrect. Plausible since rapid propagation is correct, you must know that the most limiting stress is tensile versus compressive.

C. Correct.

D. Incorrect. Plausible because you must know the limiting component, type of failure of concern and the type of stresses that are more limiting.

REFERENCES

1. LCO bases 3.4.3 pages 1 & 2.

2. 19241-C, "Response to Pressurized Thermal Shock (PTS), pages 22, 28, and 29.

VEGP learning objectives:

LO-LP-39208-04, "Describe the bases for any given Tech Spec in section 3.4"

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