

QUESTION 76

Given the following conditions:

- The plant is in Operational Condition 3 with the Electrical Distribution System aligned in the Normal plant lineup
- The E3-B4 STA SERVICE TRANSFORMER 1BX501 TRBL alarm is received in the control room
- A Field Operator subsequently reports that the F-1 FAULT PRESSURE alarm is lit on the 1BX501 local alarm panel.
- No other actions have been taken

Which ONE of the following is the status of power for the vital buses and what is required by Technical Specifications (TS)?

The diesel generators for the affected ESF buses _____ .

- A. will assume the load. Verify correct breaker alignments and indicated power availability for all channels of the 1E distribution system.
- B. will NOT assume the load. Verify correct breaker alignments and indicated power availability for all channels of the 1E distribution system.
- C. will assume the load. Verify correct breaker alignments and indicated power availability for ONLY the B and D channels of the 1E distribution systems.
- D. will NOT assume the load. Verify correct breaker alignments and indicated power availability for ONLY the B and D channels of the 1E distribution systems.

K&A Rating: 295003 2.4.31 (4.2/4.1)

K&A Statement: Partial or complete loss of AC: **2.4.31** Knowledge of annunciator alarms, indications, or response procedures.

Justification:

- A. **Incorrect but plausible:** Power from 1AX501 is available. 13kV bkr BS 2-3 and BS 1-2 trip open and Bus section 2 is de-energized. The bus infeed bkr swaps to the 1AX501 feed and the loads remain energized. The EDGs do NOT start because one infeed is always available.
- B. **Correct:** Power from 1AX501 is still available, only the 1BX501 xfmr is OOS as indicated by two alarms given in stem. 13kV bkr BS 2-3 and BS 1-2 trip open and Bus section 2 is de-energized. The bus infeed bkr swaps to the 1AX501 feed and the loads remain energized. The EDGs do not start because one infeed is always available. IAW TS 3.8.1.1 (applicable in Modes 1, 2, and 3) with one offsite circuit unavailable (1BX501 xfmr OOS), demonstrate operability of the remaining AC sources by performing SR 4.8.1.1.1.a within 1hr and at least once per 8 hours thereafter. SR 4.8.1.1.1.a requires that each of the required independent circuits shall be determined operable by verifying correct breaker alignments and indicated power availability.
- C. **Incorrect but plausible:** Power from 1AX501 is available. The bus infeed bkr swaps to the 1AX501 feed and the loads remain energized and the EDGs do NOT start. However, TS 3.8.1.1 requires that SR 4.8.1.1.1.a be performed within 1hr. SR 4.8.1.1.1.a states that each of the required independent circuits be determined operable by verifying correct breaker alignments and indicated power availability. The SR checks all 4 channels, not just B and D.
- D. **Incorrect but plausible:** TS 3.8.1.1 requires that SR 4.8.1.1.1.a be performed within 1hr. SR 4.8.1.1.1.a states that each of the required independent circuits be determined operable by verifying correct breaker alignments and indicated power availability. The SR checks all 4 channels, not just B and D.

SRO Only Justification: This question is SRO only as it requires assessing facility operating limitations in the Tech Specs and their bases, cannot be answered solely by knowing <= 1hr TS actions or above the line information, cannot be answered by knowing TS safety limits, and involves application of TS required actions and surveillance requirements. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: TS 3.8.1.1.a
DWG E-0001

Student Ref: None

Learning Objective: 1EAC00E015

Question Source: Bank

Question History: HC Bank #446 (stem modified slightly, but still counts as Bank)

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.10/45.3

Comments:

QUESTION 77

Hope Creek is at 20% power following a startup from a refueling outage when the plant scrams.

You have entered HC.OP-AB.ZZ-0000, Reactor Scram and note the following plant conditions:

- RPV Level - (+33" stable)
- RPV Pressure - 1000 psig stable
- Mode Switch - Locked in Shutdown position
- All Control Rods fully inserted

You have reached step S-8:

IF Conditions permit
THEN RESET the Scram
AND INSERT a Half Scram (if required)

Which of the following conditions would REQUIRE you to INSERT a Half Scram?

- APRM channels "A" and "C" INOP
- IRM channels "E" and "F" INOP
- 1 Reactor Vessel Steam Dome Pressure High Transmitter INOP

- I only
- II only
- I, II only
- I, II, and III

K&A Rating: 295006G2.4.47 (4.2/4.2)

K&A Statement: SCRAM **2.4.47** Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.

Justification:

- A. **Correct:** Per TS 3.3.1.a. With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement for both trip systems, place at least 1 trip system in the tripped condition within one hour and take the ACTION required by Table 3.3.1-1. For the APRM's in OPCIION 3 - Minimum OPERABLE Channels per Trip System is 2, therefore if 2 APRM were INOP you would only have 1 in that Trip System OPERABLE and would need to insert a Half-scrum
- B. **Incorrect but plausible:** Per TS 3.3.1-1 in OPCIION 3 you are only required to have 2 IRM's OPERABLE per trip system, since you have 3 available having 1 INOP still leaves 2 that are OPERABLE and so you would NOT have to insert a Half-Scram
- C. **Incorrect but plausible:** see answer choice 'B' above
- D. **Incorrect but plausible:** see answer choice 'B' above, also Reactor Steam Dome Pressure High transmitter is only required in OPCIION 1 or 2, since the stem indicates that the plant is in OPCIION 3 this would be N/A

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References: TS 3.3.1.a

Student Ref: NONE

Learning Objective:

Question Source: Bank

Question History: HC Bank #479 (2005 NRC Exam, 2009 NRC Audit)

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.10/43.5/45.12

Comments: Used on 2005 NRC exam and 2009 NRC audit exam with no reference given.

QUESTION 78

Given the following conditions:

- Reactor power at 100%
- "A" SACS Loop is declared inoperable at 0930 today (9/13)
- Delaware river temperature is 86F and steady
- No other systems or components are OOS/Inoperable

Which ONE of the following correctly identifies the latest times/dates for completion of the FIRST Tech Spec required action?

- A. Immediately
- B. 1130 9/13
- C. 0930 9/16
- D. 0930 10/16

(Note: Tech Spec Sections 3.7.1.1-3.7.1.3 provided)

K&A Rating: 295018G2.2.40 (2.7/4.5)

K&A Statement: Partial or Total Loss of CCW **2.2.40** Ability to apply Technical Specifications for a system.

Justification:

- A. **Incorrect but plausible:** Plausible if the applicant believes that 3.7.1.3 is the most restrictive applicable action -> Immediately commence a down power to hot shutdown.
- B. **Correct:** IAW TS 3.7.1.1 Action 2, with one SACS subsystem inoperable (as given in the stem -> one SACS loop OOS), and if continued plant operation is permitted by LCO 3.7.1.3 (even with river temperature above 3.7.1.3 limit of 85F, continued operation is allowable due to the fact that both emergency discharge valves are open and emergency discharge pathways are available -> no other systems OOS in stem), realign at least one affected EDG to the OPERABLE SACS subsystem within 2 hours -> 1130 on 9/13.
- C. **Incorrect but plausible:** Plausible if the applicant believes that 3.7.1.1 Action a.1.b is the most restrictive applicable action -> the HX must be restored within 72hrs.
- D. **Incorrect but plausible:** Plausible if the applicant believes that 3.7.1.1 Action a.1.a is the most restrictive applicable action -> the SACS pump must be restored within 30 days.

SRO Only Justification: This question is SRO only as it requires assessing facility operating limitations in the Tech Specs and their bases, cannot be answered solely by knowing <= 1hr TS actions or above the line information, cannot be answered by knowing TS safety limits, and involves application of TS required actions and surveillance requirements. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: TS 3.7.1.1-3.7.1.3

Student Ref: TS 3.7.1.1-3.7.1.3

Learning Objective: 0302-000.00H-000110-10 Obj 8

Question Source: Modified

Question History: Modified from HC Bank #325

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.10/43.5/45.11

Comments:

QUESTION 79

A malfunction in the recirculation pump trip circuitry causes a trip of the 'A' Recirculation pump resulting in the following plant conditions:

- Core Flow 45 percent
- Reactor power 50 percent

Subsequently, the 'B' Recirculation pump trips.

All appropriate operator actions are taken for the given plant conditions.

Based on this, the...

- A. NRC must be notified no later than one hour.
- B. NRC must be notified no later than four hours.
- C. NRC must be notified no later than eight hours.
- D. State of New Jersey must be notified no later than 15 minutes.

Question 79

K&A Rating: 295001 G2.4.30 (4.1)

K&A Statement: 295001 Partial or Complete Loss of Forced Core Flow Circulation
G 2.4.30 Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.

Justification:

- A. **Incorrect but plausible:** No EAL or one hour notification thresholds reached.
- B. **Correct:** NRC must be notified in four hours. - RAL 11.3 for manual RPS actuation.
- C. **Incorrect but plausible:** Eight hour reports are for actuations other than RPS.
- D. **Incorrect but plausible:** No EAL thresholds reached therefore no 15 minute notification required.

SRO Only Justification: This question is SRO only as it requires determining off site notifications which is a SRO ONLY function. .

References: RAL 11.3.

Student Ref: EALs and RALs

Learning Objective: NA

Question Source: HC Bank 112333

Question History: N/A

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.10/43.5/45.11

Comments:

QUESTION 80

The plant is operating at 100% power with the following:

- I&C has just discovered that all suppression pool temperature indicating channels have a calibration error
- Average suppression pool temperature was indicating 82°F
- Actual average suppression pool temperature has just been confirmed as 112°F
- HPCI is running as part of the quarterly HC.OP-IS.BJ-0001 HPCI MAIN AND BOOSTER PUMP SET IST
- No other actions have been taken

Which ONE of the following identifies the Technical Specification required action?

- A. Restore suppression pool average water temperature to within limits within 1hr or be in at least HOT SHUTDOWN within the next 24hrs and in COLD SHUTDOWN within the following 24hrs.
- B. Stop all testing which adds heat to the suppression pool and restore the average temperature to less than 95°F within 24hrs or be in at least HOT SHUTDOWN with the next 12hrs and in COLD SHUTDOWN within the following 24hrs.
- C. Place the reactor mode switch in the Shutdown position and operate at least one residual heat removal loop in the suppression pool cooling mode.
- D. Depressurize the reactor pressure vessel to less than 200 psig within 12hrs.

K&A Rating: 295026EA2.01 (4.1/4.2)

K&A Statement: Ability to determine and/or interpret the following as they apply to
SUPPRESSION POOL HIGH WATER TEMPERATURE: **EA2.01** Suppression Pool
Temperature

Justification:

- A. **Incorrect but plausible:** With suppression pool water temperature >95F (112F) TS 3.6.2.1.b is applicable. The 1hr action reference is for 3.6.2.1.a suppression pool water level outside limits, not temperature.
- B. **Incorrect but plausible:** The given TS action is required if suppression pool average temperature is greater than 105F but less than 110F.
- C. **Correct:** Per TS 3.6.2.1, with suppression pool average water temperature greater than 110F, place the reactor mode switch in the Shutdown position and operate at least one RHR loop in the suppression pool cooling mode.
- D. **Incorrect but plausible:** The given TS action is required if suppression pool average temperature is greater than 120F (Given as 112F in the stem).

SRO Only Justification: This question is SRO only as it involves application of required TS actions, cannot be answered by solely knowing <= 1hr TS actions, cannot be answered by solely knowing above the line LCO information, and cannot be answered solely by knowing TS safety limits. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: TS 3.6.2.1

Student Ref: NONE

Learning Objective:

Question Source: New

Question History: N/A

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.10/43.5/45.13

Comments:

QUESTION 81

Given:

- A Loss of Off Site Power has occurred
- The reactor has scrammed (all control rods at 00)
- HPCI and RCIC have tripped
- All low pressure ECCS has started on the Level 1 RPV water level signal
- ADS is inhibited

Current Plant conditions are:

- RPV level: -140 inches and dropping slowly
- RPV pressure: 900 psig and slowly rising
- SP level: 76 inches
- SP temperature: 113° F

IAW HC.OP-EO.ZZ-0101, which ONE of the following does the CRS direct?

- A. Use the main turbine bypass valves to lower reactor pressure to 400 psig to allow the ECCS systems to inject
- B. Immediately emergency depressurize the reactor using alternate depressurization systems
- C. Ensure that one or more low pressure ECCS systems are available and before -185 inches emergency depressurize the reactor
- D. Use the Safety Relief Valves to lower reactor pressure to 600 psig and restore level with the secondary condensate pumps

K&A Rating: 295031 EA2.04 (4.6/4.8)

K&A Statement: Ability to determine and/or interpret the following as they apply to
REACTOR LOW WATER LEVEL: **EA2.04** Adequate Core Cooling

Justification:

- A. **Incorrect but plausible:** Guidance IAW AL/C-10 of HC.OP-EO.ZZ-0101, guidance is to perform an ED before -185 inches. With a loss of offsite power, there is no power for EHC pumps, and MSIV are closed
- B. **Incorrect but plausible:** ED criteria is not currently met, ED not permitted
- C. **Correct:** IAW AL/C-10 of HC.OP-EO.ZZ-0101, with one or more low pressure ECCS pumps running and lined up for injection, ED is required before -185 inches which will allow for low pressure ECCS restoration of RPV level.
- D. **Incorrect but plausible:** Loss of offsite power, no power to secondary condensate pumps

SRO Only Justification: This question is SRO only as it requires assessing plant conditions and then selecting a procedure or section of a procedure to mitigate, recover or with which to proceed. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: HC.EO-OP.ZZ-0101, Rev. 11
HC.EO-OP.ZZ-0101 Bases, Rev. 4

Student Ref: NONE

Learning Objective: EO101E006

Question Source: HC Bank 34404

Question History: None

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.10/43.5/45.13

Comments:

QUESTION 82

Given the following conditions:

- The plant is operating at 100% power
- LAC Police report a marsh fire directly beneath the New Freedom 500kV line (5023)

Which ONE of the following identifies the required procedures?

The SRO should now anticipate implementing procedures that will:

- A. SCRAM the Reactor
- B. Remove the 5023 line from service
- C. Result in a Reactor power reduction
- D. Declare all off-site power sources inoperable per TS 3.8.1.1 or 3.8.1.2

K&A Rating: 70000AA2.02 (3.2/3.8)

K&A Statement: Ability to determine and/or interpret the following as they apply to
GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES: **AA2.05** Operational status
of offsite circuit

Justification:

- A. **Incorrect but plausible:** A Reactor SCRAM is not required per HC.OP-AB.BOP-004. However, a Reactor SCRAM would be required if the applicant mistakenly believes that a fire off site would result in entry into HC.OP-AB.ZZ-0135 SBO/LOOP/EDG Malfunctions.
- B. **Correct:** IAW HC.OP-AB.BOP-0004, Grid Disturbances, part D, if a fire is reported that threatens or has the poses a threat to an off-site distribution line, measures should be taken to remove the line from service expeditiously .
- C. **Incorrect but plausible:** A power reduction is not required per HC.OP-AB.BOP-0004 in the event of a gr
- D. **Incorrect but plausible:** Entry into TS would only be required per HC.OP-AB.BOP-0004 if the 500kV switchyard voltage falls below 493kV.

SRO Only Justification: This question is SRO only as it requires assessing plant conditions and then selecting a procedure or section of a procedure to mitigate, recover or with which to proceed. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: HC.OP-AB.BOP-0004
HC.OP-AB.ZZ-0135

Student Ref: NONE

Learning Objective:

Question Source: New

Question History: N/A

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.5/43.5/45.5/45.7/45/8

Comments:

QUESTION 83

Given the following conditions:

- A LOCA has occurred
- All rods are full in
- RHR pumps "A" and "B" are NOT available
- HPCI and RCIC are not available
- Reactor water level is -100 inches and steady
- Reactor Pressure is 700 psig
- Drywell pressure is 25 psig and rising at 5 psig per minute
- Suppression Chamber Pressure is 23 psig and rising at 5 psig per minute
- Suppression Pool level is 106 inches and rising at 2 inches per minute
- Secondary Condensate Pumps total flow is 12,000 gpm

Which ONE of the following is the correct EOP mitigation strategy for this event?

- A. Emergency Depressurize and then inject with sources internal to the containment.
- B. Emergency Depressurize and then inject with sources external to the containment.
- C. Inhibit ADS and remain at pressure to conserve inventory; inject with sources internal to the containment.
- D. Inhibit ADS and remain at pressure to conserve inventory; inject with sources external to the containment.

Question 83

K&A Rating: 295009 G 2.4.6 (4.7)

K&A Statement: Knowledge of EOP Mitigation Strategies

Justification:

- A. **Correct:** Since PSP can not be maintained ED is required. If adequate core cooling is assured then terminate injection from outside containment.
- B. **Incorrect but plausible:** SP is high and going higher, do not want to continue with injection external to containment. .
- C. **Incorrect but plausible:** Need to ED because PSP can not be maintained.
- D. **Incorrect but plausible:** SP is high and going higher, do not want to continue with injection external to containment. .

SRO Only Justification: This question is SRO only as it requires assessing plant conditions and then selecting a procedure or section of a procedure to mitigate, recover or with which to proceed. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: EOP 101 and 102

Student Ref: EOP 101 and 102 without
entry conditions

Learning Objective: NA

Question Source: HC Bank 34414

Question History: NA

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.10/43.5/45.13

Comments:

QUESTION 84

Given the following conditions:

- Unit 1 is at 60% power for waterbox cleaning and control rod pattern adjustment
- Control rods 18-43, 18-19, 42-43, and 42-19 have just been inserted for maintenance
- 1A CRD pump is currently blocked for repair of a lube oil leak
- At 0127, 1B CRD pump trips on overcurrent
- At 0128, accumulator trouble alarms are received for HCU 30-31 and 42-43
- At 0130, charging header pressure <940 psig
- At 0131, NPO reports HCU pressure for HCU 30-31 and 42-43 are 925 psig
- At 0133, accumulator trouble alarms are received for HCU 18-15 and 22-31, also confirmed with NPO at 930 psig

In accordance with HC.OP-AB.IC-0001, Control Rod:

- (1) Which of the following actions is required?
- (2) What is the basis for the requirement of that action?

- A. (1) Place the mode switch in SHUTDOWN immediately
(2) Allow reactor shutdown based upon average control rod scram times
- B. (1) Place the mode switch in SHUTDOWN immediately
(2) Allow charging header pressure alone to fully insert control rods
- C. (1) Place the mode switch in SHUTDOWN by 0153
(2) Allow adequate time to restore a CRD pump to service
- D. (1) Place the mode switch in SHUTDOWN by 0153
(2) Allow charging header pressure alone to fully insert control rods

K&A Rating: 295022 AA2.01 (3.5/3.6)

K&A Statement: Ability to determine and/or interpret the following as they apply to LOSS OF CRD PUMPS: **AA2.01** Accumulator Pressure

Justification:

- A. **Incorrect but plausible:** If applicant believes that immediate action is required. This would be required with RPV pressure <900 psig. While control rod scram times are affected by lower accumulator pressures, this is not the reason for the required action
- B. **Incorrect but plausible:** If applicant believes that immediate action is required. This would be required with RPV pressure <900 psig. Accumulator pressure is the first to start control rod motion for a scram, which is followed up by reactor pressure completing the control rod scram; this is not the reason for the required action
- C. **Correct:** IAW HC.OP-AB.IC-0001 and TS 3.1.3.5, if reactor pressure is >900 psig the mode switch must be placed in SHUTDOWN within 20 minutes if: two or more scram accumulators are inoperable coincident with charging header pressure <940 psig. The basis for this action is that it allows for adequate time to return a CRD pump to service to restore charging header pressure.
- D. **Incorrect but plausible:** If applicant believes that 20 minutes is allowed. Accumulator pressure is the first to start control rod motion for a scram, which is followed up by reactor pressure completing the control rod scram; this is not the reason for the required action

References: HC.OP-AB.IC-0001, Rev. 14
TS 3.1.3.5 Bases, Amendment 183

Student Ref: NONE

Learning Objective: NOH01CRMECHC: 13

Question Source: New

Question History: None

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.10/43.5/45.13

Comments:

QUESTION 85

The plant is at 100% power with all systems operational and in a normal lineup. A LOCA occurs, and all systems respond as designed and initiate injection into the vessel.

Given the following conditions:

- RPV Pressure is 60 psig and lowering slowly
- RPV water level is -66 inches and rising slowly
- Torus level is 126 inches and rising slowly
- Drywell Sprays are in service
- Drywell pressure is 7 psig, down slow

In accordance with HC.OP-EO.ZZ-0102, Primary Containment Control, which ONE of the following systems should be terminated?

- A. Drywell Sprays
- B. HPCI
- C. Core Spray
- D. RCIC

K&A Rating: 295029 EA2.01 (3.9/3.9)

K&A Statement: Ability to determine and/or interpret the following as they apply to HIGH SUPPRESSION POOL WATER LEVEL: **EA2.01** Suppression Pool Water Level

Justification:

- A. **Correct:** Per SP/L-19 and SP/L 20 of HC.OP-EO.ZZ-0102, Primary Containment Control, termination of drywell sprays is required if Torus Level cannot be maintained below 124 inches. This is to ensure operability of the suppression chamber to drywell vacuum breakers, to relieve noncondensibles into the drywell and equalize drywell and suppression chamber pressures.
- B. **Incorrect but plausible:** If applicant does not recall that HPCI suction has transferred to the Torus with Torus level at 126 inches. Additionally, if applicant does not recall that HPCI isolates on low steam pressure at 100 psig, may also choose this answer.
- C. **Incorrect but plausible:** If applicant does not recall that termination of systems injecting into the RPV is only required for those systems with suction outside of primary containment.
- D. **Incorrect but plausible:** If applicant does not recall either (1) that RCIC suction does not realign to Torus on high Torus water level (2) RCIC isolates on low steam pressure at 64.5 psig.

SRO Only Justification: This question is SRO only as it requires assessing plant conditions and then selecting a procedure or section of a procedure to mitigate, recover or with which to proceed. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: HC.OP-EO.ZZ-0102, Primary Containment Control Student Ref: NONE
HC.OP-EO.ZZ-0102 Bases

Learning Objective: EOP102E009

Question Source: Modified HC Bank ID 35663

Question History: None

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.10/43.5/45.13

Comments:

QUESTION 86

Plant conditions are as follows:

- Reactor shutdown and all control rods are fully inserted
- No High Pressure Injection is available
- Reactor water level –130 inches and dropping slowly
- Reactor pressure 330 psig and dropping slowly
- Drywell pressure 19 psig and rising slowly

HV-F017B, LPCI Injection Valve, starts to auto open and, with all ECCS Pumps available and reactor level rising, the PRO manually overrides the '2B' LPCI valve closed.

One minute later, a 10A401 Bus Lockout causes a trip of '2A' RHR and '2A' Core Spray resulting in reactor level dropping to –170 inches. The PRO places the HV-F017B handswitch in OPEN and it spring-returns to NORMAL AFTER OPEN.

As the valve begins to open the following alarms and indications are observed:

- "RHR DIV 2 OUT OF SERVICE" computer alarm
- Amber status light next to HV-F017B is flashing
- HV-F017B Valve shows dual indication
- '2B' RHR Pump Flow is 1,500 gpm and steady

Which ONE of the following identifies the impact on '2B' RHR and the action required to inject with '2B' RHR per HC.OP-EO.ZZ-0101, RPV Control?

	<u>Impact on 2B RHR</u>	<u>Action Required to Inject with '2B' RHR</u>
A	Pump continues to run with Min Flow Valve closed	Reset MCC breaker for LPCI valve and place valve handswitch in OPEN
B	Pump continues to run with Min Flow Valve open	Reset MCC breaker for LPCI valve and place valve handswitch in OPEN
C	Pump continues to run with Min Flow Valve closed	Place LPCI Valve handswitch in OPEN and hold until valve indicates full open
D	Pump continues to run with Min Flow Valve open	Place LPCI Valve handswitch in OPEN and hold until valve indicates full open

K&A Rating: 203000 A2.11 (3.4/3.6)

K&A Statement: Ability to (a) predict the impacts of the following on the RHR/LPCI: INJECTION MODE (PLANT SPECIFIC); and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: **A2.11** Motor operated valve failures

Justification:

- A. **Incorrect but plausible:** With RHR pump flow above 1270 gpm, the min flow valve will be closed. The flashing indicator next to F017 is indicative of tripping of valve thermal overloads. Resetting the MCC breaker will not correct the thermal overload condition.
- B. **Incorrect but plausible:** With RHR pump flow above 1270 gpm, the min flow valve will not be open. The flashing indicator next to F017 is indicative of tripping of valve thermal overloads. Resetting the MCC breaker will not correct the thermal overload condition.
- C. **Correct:** With RHR pump flow above 1270 gpm, the min flow valve will be closed. The flashing amber indicator next to the F017 valve indicates that the valve has stopped traveling due to thermal overload actuation. Valve can be operated under accident conditions, MCC breaker reset not required
- D. **Incorrect but plausible:** With RHR pump flow above 1270 gpm, the min flow valve will not be open. The flashing indicator next to F017 is indicative of tripping of valve thermal overloads. Valve can be operated under accident conditions, MCC breaker reset not required

SRO Only Justification: This question is SRO only as it requires assessing plant conditions and then selecting a procedure or section of a procedure to mitigate, recover or with which to proceed. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: NOH01RHRSYSC, Rev. 10
HC.OP-EO.ZZ-0101, Rev. 11
HC.OP-AR.ZZ-0005, Rev. 22

Student Ref: NONE

Learning Objective: RHRSYSE007

Question Source: New

Question History: None

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.5/45.6

QUESTION 87

Given the following conditions:

- The plant is operating at 90% power
- The HPCI Pump is being operated in the Full Flow Test Lineup
- HPCI discharge pressure is 1150 psig

While attempting to adjust pump flow, the flow controller setpoint remains stationary at 5300 gpm in AUTO. Subsequently, the PO shifts the HPCI to flow controller to MANUAL and reports that the pump develops rated flow.

How does this condition affect HPCI Operability?

- A. HPCI is Operable
- B. HPCI is Inoperable
- C. HPCI is Operable But Degraded
- D. HPCI is Operable But Non-Conforming

K&A Rating: 206000A2.14 (3.3/3.4)

K&A Statement: Ability to (a) predict the impacts of the following on the HIGH PRESSURE COOLANT INJECTION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: **A2.14** Flow controller failure

Justification:

- A. **Incorrect but plausible:** IAW the TS Bases, HPCI must be in AUTO with a setpoint of 5700gpm and be capable of rated flow and discharge pressure to be declared Operable.
- B. **Correct:** HPCI is inoperable because it is NOT capable of meeting all surveillance requirements listed in the TS. IAW the TS 3.5.1 Bases, HPCI must be in AUTO with a setpoint of 5700gpm and be capable of rated flow and discharge pressure to be declared operable.
- C. **Incorrect but plausible:** HPCI could not be considered Operable But Degraded unless the setpoint was stuck at 5700gpm in AUTO.
- D. **Incorrect but plausible:** Operable But Non-Conforming is not applicable to the conditions given in the stem.

SRO Only Justification: This question is SRO only as it requires knowledge of information in the TS Bases. No reference was provided (similar to example IV of the NRC "Clarification Guidance for SRO-Only Questions"). The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: HC.OP-SO.BJ-0001
SH.OP-AP.ZZ-0108
TS 3.5.1

Student Ref: NONE

Learning Objective: HPCI00E013

Question Source: Bank

Question History: HC Bank #48 (Used on 2003 NRC Exam)

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.5/45.6

Comments:

QUESTION 88

Given the following conditions:

- Refueling is in progress.
- The Reactor Mode Switch is locked in REFUEL.
- Source Range Monitors A, C, and D are operable
- SRM B is inoperable.
- Shutdown margin has been verified.
- All control rods are at position 00.

As a fuel assembly is taken to the fuel pool through the transfer canal, I&C determines that the 'C' SRM has failed its weekly surveillance test.

IAW Hope Creek Technical Specifications, core alterations:

- A. can continue with no restrictions.
- B. must be immediately suspended.
- C. can continue if no fuel movement occurs.
- D. can continue only in the quadrants monitored by SRMs A and D.

Question 88

K&A Rating: 215004 G 2.2.25 (4.2)

K&A Statement: Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.

Justification:

- A. **Incorrect but plausible:** Must restrict movement in quadrants that have no SRM's operable.
- B. **Incorrect but plausible:** Suspending all moves is overly restrictive. Moves can be performed if there is SRMs operable in the quadrant and an adjacent quadrant.
- C. **Incorrect but plausible:** Core alterations other than fuel moves are also effected by this TS.
- D. **Correct:** One operable SRM must be in the quadrant where the core alteration is taking place and one in an adjacent quadrant..

SRO Only Justification: This question is SRO only as it requires knowledge of the Bases in the technical specifications which is a SRO function.

References: TS 3.9.2 Bases

Student Ref: NONE

Learning Objective: NA

Question Source: HC Bank #34795

Question History: NA

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 43.2

Comments:

QUESTION 89

IAW HC.OP-EO.ZZ-0202, 'EOP Bases', which ONE of the following states the MINIMUM number of Safety Relief Valves (SRVs) that must be opened during an Emergency Depressurization and the basis for that minimum number?

- A. 4 SRVs; To remove all decay heat from the core at a pressure sufficiently low that the ECCS with the lowest head will be capable of making up the SRV steam flow.
- B. 4 SRVs; To provide the minimum depressurization rate required to ensure the low pressure ECCS systems inject soon enough to minimize the amount of time water level is below the top of active fuel.
- C. 5 SRVs; To remove all decay heat from the core at a pressure sufficiently low that the ECCS with the lowest head will be capable of making up the SRV steam flow.
- D. 5 SRVs; To provide the minimum depressurization rate required to ensure the low pressure ECCS systems inject soon enough to minimize the amount of time water level is below the top of active fuel.

K&A Rating: 218000G2.4.18 (3.3/4.0)

K&A Statement: ADS **2.4.18** Knowledge of the specific bases for EOPs.

Justification:

- A. **Incorrect but plausible:** See answer choice 'C' explanation. Plausible if the applicant does not recall that 5 SRVs are required.
- B. **Incorrect but plausible:** See answer choice 'C' explanation. Plausible if the applicant does not recall that 5 SRVs are required and/or the bases for requiring 5 SRVs.
- C. **Correct:** IAW HC.OP-EO.ZZ-0202, 5 ADS valves are required for RPV-ED. The Minimum Number of SRVs Required for Emergency Depressurization (MNSRED) is the least number of SRVs which corresponds to a Minimum Steam Cooling Pressure (MSCP) sufficiently low that the ECCS with the lowest head will be capable of making up the SRV steam flow at the corresponding MSCP. The MNSRED is utilized to ensure the RPV will depressurize and remain depressurized when emergency depressurization is required.
- D. **Incorrect but plausible:** See answer choice 'C' explanation. Plausible if the applicant does not recall the bases for requiring 5 SRVs.

SRO Only Justification: This question is SRO only as it requires assessing plant conditions and then selecting a procedure or section of a procedure to mitigate, recover or with which to proceed. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: HC.OP-EO.ZZ-0202

Student Ref: NONE

Learning Objective: EOP202E003

Question Source: Bank

Question History: HC Bank #138

Cognitive Level: Memory/Fundamental Knowledge: X
Comprehensive/Analysis:

10CFR55: CFR 41.10/43.1/45.13

Comments:

QUESTION 90

Given the following conditions:

- The plant is in OPCON 4
- RCS Temperature is 182 °F with a 10°F/hr heat up rate
- RPV Level is 88 inches
- RHR is in the Shutdown Cooling mode of operation with the 'B' Loop in service
- The 'A' and 'C' EDGs are tagged out for planned maintenance

A Loss of Offsite Power occurs. Following the Emergency start of the 'B' and 'D' EDGs, a generator differential overcurrent condition occurs on the 'B' EDG.

Assuming no additional action, which ONE of the following identifies the required actions for this event IAW HC.OP-AB.RPV-0009, 'Shutdown Cooling'?

- A. CLOSE the MSIVs
- B. Restore the 'B' RHR pump
- C. Place RWCU in service and fully OPEN ED-V035
- D. Cross tie the Loop B RHR Pumps for alternate suction from the RPV

K&A Rating: 2640002.4.9 (3.8/4.2)

K&A Statement: EDGs **2.4.9** Knowledge of low power/shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.

Justification:

- A. **Incorrect but plausible:** IAW HC.OP-AB.RPV-0009, the MSIVs should only be closed if forced circulation cannot be established using preferred RHR loops or reactor recirculation IF RPV level cannot be maintained <90 inches.
- B. **Incorrect but plausible:** HC.OP-AB.RPV-0009 does direct the restoration of the tripped RHR pump, however, due to the trip of the 'B' EDG, the 'B' RHR pump cannot be returned to service.
- C. **Incorrect but plausible:** HC.OP-AB.RPV-0009 does direct that RWCU be placed in service as an alternate means of decay heat removal, however, RWCU is not available due to the LOOP (power supplies: 10B254 and 10B264).
- D. **Correct:** Upon LOOP, 10A401 and 10A403 are denergized due to the A and C EDGs being tagged out. The generator differential on the B EDG will trip the B EDG rendering the 10A402 vital bus denergized. The only bus with power will be the 10A404 bus being supplied by the D EDG. Loop B RHR S/D Cooling will deenergize (B RHR Pump). IAW HC.OP-AB.RPV-0009, Step E.5, operators should attempt to cross tie the D RHR pump into the B Loop of S/D cooling using Attachment 3 to restore core cooling.

SRO Only Justification: This question is SRO only as it requires assessing plant conditions and then selecting a procedure or section of a procedure to mitigate, recover or with which to proceed. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: NOH01RHRSYSC-10
HC.OP-AB.RPV-0009

Student Ref: NONE

Learning Objective: RHRSYSE001

Question Source: New

Question History: N/A

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.10/43.5/45.13

Comments:

QUESTION 91

Given the following conditions:

- The plant is operating at 100 percent power
- The Steam Vent Blowout Panel 1 AS224 indicates open on the RM-11
- Visual observation confirms that 1AS224 is NOT fully closed
- Reactor Building d/p is holding steady at $-.28''$ WG

Which ONE of the following describes the operational impact and actions (if any) required?

- A. Loss of secondary containment integrity. Take actions IAW HC.OP-AB.CONT-0003, Reactor Building.
- B. Loss of secondary containment integrity. Take actions IAW EOP-103/4, Reactor Building and Rad Release Control.
- C. Potential loss of secondary containment. Start an additional RBVS exhaust fan IAW HC.OP-SO.GR-0001, Reactor Building Ventilation System Operation.
- D. Potential loss of secondary containment. NO additional actions are required unless Reactor Building d/p is greater than $-.30''$ WG.

Question 91

K&A Rating: 290001 A2.02 (3.7)

K&A Statement: Ability to (a) predict the impacts of the following on the SECONDARY CONTAINMENT; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: **A2.02** Excessive outleakage

Justification:

- A. **Correct:** By TS definition, TS 3.6.5.1, secondary containment integrity is lost because the blowout panel is not closed and sealed. AB.CONT-0003, Reactor Building discusses mitigation actions.
- B. **Incorrect but plausible:** No entry condition exists for EOP 103/4.
- C. **Incorrect but plausible:** secondary containment integrity is lost because the blowout panel is not closed and sealed.
- D. **Incorrect but plausible:** secondary containment integrity is lost because the blowout panel is not closed and sealed.

SRO Only Justification: This question is SRO only as it requires assessing plant conditions and then selecting a procedure or section of a procedure to mitigate, recover or with which to proceed. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: TS 3.6.5.1 AB.CONT-0003

Student Ref: NONE

Learning Objective: ABCNT3E007

Question Source: HC Bank 80648

Question History: HC NRC Exam 2010

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 43.5

Comments:

QUESTION 92

Given the following conditions:

- Main Generator output is 915 MWe
- The 'B' Instrument Gas Compressor is tagged for routine maintenance
- An electrical transient caused a trip of the 'A' Instrument Gas Compressor
- Instrument Gas pressure is 55 psig and slowly lowering
- All attempts to restore Instrument Gas pressure have failed

If Instrument Gas pressure continues to lower to 50 psig, the CRS should direct ____ (1) ____ in order to prevent ____ (2) ____.

- A. (1) the closure of the Inboard MSIVs before they drift closed, THEN locking the Mode Switch in Shutdown.
(2) the pressure and power spike from the Inboard MSIVs drifting closed
- B. (1) reducing Recirc Pump speed to Minimum, THEN locking the Mode Switch in Shutdown
(2) the pressure and power spike from the Outboard MSIVs drifting closed
- C. (1) reducing Recirc Pump speed to Minimum, THEN locking the Mode Switch in Shutdown
(2) the pressure and power spike from the Inboard MSIVs drifting closed
- D. (1) the closure of the Outboard MSIVs before they drift closed, THEN locking the Mode Switch in Shutdown.
(2) the pressure and power spike from the Outboard MSIVs drifting closed

K&A Rating: 239001 2.4.11 (4.0/4.2)

K&A Statement: Main and Reheat Steam: **2.4.11** Knowledge of abnormal condition procedures.

Justification:

- A. **Incorrect but plausible:** MSIV closure is an RPS actuation
- B. **Incorrect but plausible:** PCIG has no effect on outboard MSIVs, RRP's are at minimum due to the PCP trip.
- C. **Correct:** IAW HC.OP-AB.COMP-0002 Retainment Override (not an Immediate Action), if Instrument Gas Pressure is ≤ 50 psig, reduce recirc pump speed to minimum, lock the mode switch in shutdown, place RCIC and/or HPIC in service, close the Inboard MSIVs, and Close HV-5124A and HV-5124B.
- D. **Incorrect but plausible:** MSIV closure is an RPS actuation. Outboard MSIVs are not affected by a loss of instrument gas.

SRO Only Justification: This question is SRO only as it requires assessing plant conditions and then selecting a procedure or section of a procedure to mitigate, recover or with which to proceed. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: HC.OP-AB.COMP-0002

Student Ref: NONE

Learning Objective: ABCMP2E001

Question Source: Bank

Question History: HC Bank #226

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.10/43.5/45.13

Comments:

QUESTION 93

Given the following conditions:

- The plant is operating at 30 percent power.
- I&C reports that reactor pressure transmitter SA-PT-N403B on instrument rack C027 has a diaphragm leak and the pressure transmitter must be replaced.

Based on these conditions which ONE of the following actions is required IAW Hope Creek Technical Specifications?

- A. Channel must be placed in the tripped condition within one hour.
- B. The Trip System must be placed in the tripped condition within one hour.
- C. Channel must be placed in the tripped condition within twelve hours.
- D. Restore Trip System to operable status within 72 hours.

Question 93

K&A Rating: 216000 G 2.2.22 (4.0)

K&A Statement: Knowledge of limiting conditions for operations and safety limits

Justification:

- A. **Correct:** Operator must determine the transmitter feeds RRCS Logic from M-42-1 Sht 1 & 2. The operator then determines LCO 3.3.4.1 ATWS RPT action b. is applicable.
- B. **Incorrect but plausible:** Plausible if the candidate determines the Trip system is inoperable.
- C. **Incorrect but plausible:** Action for RPS pressure transmitter.
- D. **Incorrect but plausible:** Action for if Trip system is inoperable.

SRO Only Justification: This question is SRO only as it requires assessing operability and technical specifications which is an SRO function.

References: Tech Spec sections 3.3.1 through 3.3.4; P&ID M-42-1 Sheet 1

Student Ref: Tech Spec sections 3.3.1 through 3.3.4; P&ID M-42-1 Sheet 1

Learning Objective: NA

Question Source: HC Bank #35477

Question History: Used on HC 2003 NRC Exam

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.5/43.5

Comments:

QUESTION 94

Given the following conditions:

- The plant is in Operational Condition 4
- The Reactor Head detensioning machine is being lowered into position to detension the reactor head

Which ONE of the following personnel grants permission to begin detensioning of the first RPV Head Stud IAW HC.OP-IO.ZZ-0005, Cold Shutdown to Refueling?

- A. Control Room Supervisor
- B. Reactor Engineer
- C. Refueling Floor SRO
- D. Refueling Outage Manager

K&A Rating: 2.1.41 (3.7)

K&A Statement: Knowledge of the refueling process

Justification:

- A. **Correct:** IAW HC.OP-IO.ZZ-0005, Step 5.4.22, this direction comes from the SM/CRS
- B. **Incorrect but plausible:** Non-licensed personnel are not authorized to direct mode changes
- C. **Incorrect but plausible:** Even though the refueling floor SRO is a licensed operator, this direction must come from the licensed SRO in the MCR
- D. **Incorrect but plausible:** The refueling outage manager may recommend mode changes, but direction for making mode changes comes from the licensed SRO in the MCR

SRO Only Justification: This question is SRO only as it requires assessing plant conditions and then selecting a procedure or section of a procedure to mitigate, recover or with which to proceed. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: HC.OP-IO.ZZ-0005, Rev. 35

Student Ref: NONE

Learning Objective:

Question Source: HC Bank #35519

Question History: HC NRC Exam 2003

Cognitive Level: Memory/Fundamental Knowledge: X
Comprehensive/Analysis:

10CFR55: CFR 41.2/41.10/43.6/45.13

Comments:

QUESTION 95

It is 0200 during normal full power operation. The CRS needs to leave the site due to a personal emergency.

- At 0205 the CRS departs as directed by the Shift Manager (SM).
- At 0210 the SM calls the Operations Manager to inform him of the reduction in crew composition.
- At 0220 the SM reaches a relief watch stander for the CRS and directs the relief to come to work.
- At 0415 the CRS relief arrives and completes a turnover with the SM.

IAW Technical Specification 6.2, which ONE of the following is correct?

- A. The operating crew has complied fully with shift manning requirements.
- B. The CRS position should have been manned by a relief by 0405.
- C. The CRS should not have left until the Operation Manager gave him permission.
- D. The CRS should not have left until his relief had arrived and turnover was completed.

K&A Rating: G2.1.4 (3.3/3.8)

K&A Statement: Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, “no-solo” operation, maintenance of active license status, 10CFR55, etc.

Justification:

- A. **Incorrect but plausible:** Plausible if the applicant recalls that a reduction in shift crew composition is allowable per Tech Specs as long as immediate action is taken to restore compliance, but does not recall that minimum shift crew composition must be restored within two hours.
- B. **Correct:** Correct response. Tech Spec 6.2.2 allows shift crew composition to be less than the minimum requirements Table 6.2.2-1 for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore shift crew composition.
- C. **Incorrect but plausible:** The Operation Manager needs to only be notified. Operations manager permission does not need to be obtained.
- D. **Incorrect but plausible:** Tech Specs allow for a two hour window to restore minimum shift crew composition.

SRO Only Justification: This question is SRO only as it requires knowledge of facility operating limitations in the Technical Specifications and their bases (minimum shift crew staffing requirements).

References: Tech Spec 6.2 Student Ref: NONE

Learning Objective:

Question Source: Modified

Question History: Modified from 2005 VY LOI Exam

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.10/43.2

Comments:

QUESTION 96

Surveillance HC.OP-IS.BC-0004(Q), 'DP202, D RESIDUAL HEAT REMOVAL PUMP IN-SERVICE TEST', is scheduled to be performed seven days from now.

The system engineer wants to perform a One-Time Only Temporary Change related to minimum flow valve, HV-F0007D.

The change will involve cycling HV-F007D, D RHR PUMP MIN FLOW ISLN VLV with HV-F010B D RHR Pump Test Return Vlv OPEN, and taking readings on discharge pressure and flow.

Which ONE of the following is correct IAW AD-AA-101, 'PROCESSING OF PROCEDURES AND T&RMS'?

- A. The test is NOT allowed to be conducted as a Temporary Change. The procedure changes should be processed as an Interim Change IAW AD-AA-101.
- B. The test may be conducted as a Temporary Change. Obtain an approval signature from a station qualified reviewer (SQR) and a Senior Reactor Operator (SRO) ONLY.
- C. The test is NOT allowed to be conducted as a Temporary Change. The procedure changes should be processed as an On The Spot Change IAW AD-AA-101-101.
- D. The test may be conducted as a Temporary Change. Perform a full review, approval and authorization within 14 days of implementing the Temporary Change.

K&A Rating: G.2.2.5 (3.2)

K&A Statement: Knowledge of the process for making design or operating changes to the facility.

Justification:

- A. **Correct:** The proposed test represents a change of intent to the procedure. IAW AD-AA-101 4.2.3, Temporary Changes are only allowed if they DO NOT change the intent of a procedure. Since the proposed test changes plant configuration, it should be processed as a Interim Change per section 4.2.2 of AD-AA-101
- B. **Incorrect but plausible:** Plausible if the applicant does not recognize that the proposed test represents a change of intent to the procedure.
- C. **Incorrect but plausible:** Plausible if the applicant recognizes that the test should not be processed as a Temporary Change, but does not recognize that an Interim Change should be used instead of an On The Spot Change.
- D. **Incorrect:** Plausible if the applicant does recognize that the proposed test represents a change of intent to the procedure.

SRO Only Justification: This question is SRO only as it requires This question, from the Generic portion of the written exam, is SRO only as it requires application of 10CFR55.43(b)(3), facility licensee procedures required to obtain authority for design and operating changes to the facility.

References: AD-AA-101, "Processing of Procedures and T&RMs. Student Ref: NONE

Learning Objective: NA

Question Source: NEW

Question History: NA

Cognitive Level: Memory/Fundamental Knowledge: X
Comprehensive/Analysis:

10CFR: CFR 41.10/43.5/45.13

Comments:

QUESTION 97

The plant is operating at rated conditions when the N010A, N011A, N012A, and N013A Steam Tunnel Temperature switches fail low due to a common cause failure (all four switches sense temperature from Main Steam Line 'A').

Which ONE of the following describes the required Technical Specification actions?

(Note: Technical Specification Section 3.3.2 provided)

- A. Place the inoperable channel(s) in the tripped condition within 1hr ONLY.
- B. Place the inoperable channel(s) in the tripped condition within 24hrs ONLY.
- C. Place the inoperable channel(s) in one trip system in the tripped condition within one hour, AND place the inoperable channel(s) in the remaining trip system in the tripped condition within 1hr.
- D. Place the inoperable channel(s) in one trip system in the tripped condition within one hour, AND place the inoperable channel(s) in the remaining trip system in the tripped condition within 24hrs.

K&A Rating: 2.2.37 (3.6/4.6)

K&A Statement: Ability to determine operability and/or availability of safety related equipment.

Justification:

- A. **Incorrect but plausible:** Plausible if the applicant misinterprets the TSs and believes they are in TS 3.3.2.b.1.a.
- B. **Incorrect but plausible:** Plausible if the applicant misinterprets the TSs and believes they are in TS 3.3.2.b.1.c.
- C. **Correct:** All 4 steam tunnel temperature switches on the 'A' Main Steam Line are inoperable as given in the stem (N010A, 11A, 12A & 13A). TS Table 3.3.2-1 (3.f) states that a minimum of 2 operable channels per trip system are required in OPCONS 1,2 and 3. The inoperable temp switches result in 0 Operable channels on the 'A' Steam Line for BOTH the A and B trip systems. Therefore, TS 3.3.2 action c.1 and 2.1 are applicable.
- D. **Incorrect but plausible:** Plausible if the applicant misinterprets the TSs and believes they are in TS 3.3.2.c.2.3.

SRO Only Justification: This question is SRO only as it involves application of required TS actions, cannot be answered by solely knowing <= 1hr TS actions, cannot be answered by solely knowing above the line LCO information, and cannot be answered solely by knowing TS safety limits. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: TS 3.3.2 Student Ref: NONE

Learning Objective:

Question Source: New

Question History: N/A

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.7/43.5/45.12

Comments:

QUESTION 98

Given the following conditions:

- You are filling out a dose extension IAW RP-AA-203 for an operator to enter the Drywell
- The operator's current annual dose is 3500 mrem TEDE
- The operator is expected to receive 400-450 mrem on this job.

IAW RP-AA-203, Exposure Control and Authorization, which of the following personnel must approve this extension?

1. Work Group Supervisor
2. RP Manager
3. Station Manager
4. Site Vice President

- A. 1 and 3 only.
- B. 2 and 4 only.
- C. 1, 2, and 3 only.
- D. 1, 2, 3, and 4.

K&A Rating: 2.3.4 (3.2/3.7)

K&A Statement: **2.3.4** Knowledge of radiation exposure limits under normal or emergency conditions.

Justification:

- A. **Incorrect but plausible:** See response C.
- B. **Incorrect but plausible:** See response C.
- C. **Correct:** IAW RP-AA-203, to raise the ADCL to 3000 mrem, 1 & 2 are required. To raise the ADCL to 4000mrem, 1, 2, and 3 are required. To raise the ADCL above 4000mrem, 1, 2, 3 and 4 are required. The stem indicates that a maximum ADCL of 3950 will be required for the job (3500mrem + 450mrem), therefore 1, 2, and 3 are required.
- D. **Incorrect but plausible:** See response C.

SRO Only Justification: This question is SRO only as it requires knowledge of radiation hazards that may arise including maintenance activities and various contamination conditions. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: RP-AA-203 Student Ref: NONE

Learning Objective: NOH04ADM024E-004

Question Source: Bank

Question History: HC Bank # 213

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.12/43.4/45.10

Comments:

QUESTION 99

During a fire in the Turbine Building, a Fire Department Liaison is required to be assigned by the Shift Manager.

IAW OP-HC-112-101-1001 "Shift Turnover Responsibilities", who, by title, can be assigned this role and what is their duty?

- A. STA AND the Auxiliary Building EO; Communicates to the MCR on status of the event.
- B. WCC Supervisor AND the Radwaste EO; Communicates to the MCR on status of the event.
- C. STA AND the CRS; Advises the Shift Manager on what equipment needs to be removed from service.
- D. WCC Supervisor AND the CRS; Advises the Shift Manager on what equipment needs to be removed from service.

Question 99

K&A Rating: G.2.4.27 (3.4/3.9)

K&A Statement: Knowledge of "fire in the plant" procedures.

Justification:

- A. **Incorrect but plausible:** Cannot fill dual function of STA and Fire Liason, see OP-AA-101-111 Attachment 1 Hope Creek Shift Complement note 3
- B. **Correct:** OP-AA-101-111 Attachment 1 Hope Creek Shift Complement note 3 states: the SM should designate an appropriate EO, RWEO, RO or SRO (cannot be concurrently assigned to fill the position of SM, CRS, STA, NCO(2), CM1, CM2 or OSCC in Attachment 2 table) to function as the station fire brigade liaison. They should also function as liaison for other emergencies (ex. chemical spill, toxic gas, environmental, etc.). The purpose of the liaison is to provide real time communication to the control room regarding the status of the event.
- A. **Incorrect but plausible:** Cannot fill dual function of STA and Fire Liason see OP-AA-101-111 Attachment 1 Hope Creek Shift Complement note 3
- C. **Incorrect but plausible:** Cannot fill dual function of CRS and Fire Liason, see OP-AA-101-111 Attachment 1 Hope Creek Shift Complement note 3

SRO Only Justification: This question is SRO only as it requires assessing plant conditions and then selecting a procedure or section of a procedure to mitigate, recover or with which to proceed. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: OP-HC-112-101-1001

Student Ref: None

Learning Objective: ADMPRO5CE001

Question Source: Bank

Question History: HC Bank #221

Cognitive Level: Memory/Fundamental Knowledge: X
Comprehensive/Analysis:

10CFR55: CFR 41.3/43.5/45/13

Comments:

QUESTION 100

The plant is at 100% power.

Which ONE of the following, BY ITSELF, constitutes sufficient information to declare the associated SSC INOPERABLE?

- A. Receipt of OHA B1-C4 HPCI TURBINE TROUBLE concurrent with CRIDS point D5430 HPCI VACUUM TANK LEVEL HI and indication the Vacuum tank Condensate Pump is NOT running
- B. Receipt of OHA E4-A2 DIESEL GEN PNL A/B/C/D C422 concurrent with CRIDS points D4581 DIESEL GENERATOR A RCP 1AC422 TRBL AND D3776 DG A REGULAR LOCKOUT RELAY TRIPPED
- C. Receipt of OHA C6-D4 CRD ACCUM TROUBLE concurrent with CRIDS point D5268 CRD ACCUM AND an amber ACCUM light for 02-19 on the Full Core Display
- D. Receipt of OHA C1-E1 SLC TANK TROUBLE concurrent with CRIDS point D2382 SLCS TANK LEVEL HILO and an indicated SLC tank level of 4640 gallons

K&A Rating: 2.4.45 (4.3)

K&A Statement: Ability to prioritize and interpret the significance of each annunciator or alarm

Justification:

- A. **Incorrect but plausible:** Pump down of the HPCI vacuum tank is NOT required for HPCI to perform its safety function. Although the alarm condition is valid, it does NOT inherently render HPCI inoperable
- B. **Correct:** A trip of the Regular Lockout Relay will prevent the EDG from starting under ANY conditions. IAW HC.OP-AR.ZZ-0017, Lockout Relays Activated is one of the inputs into E4-A2. IAW HC.OP-SO.KJ-0001, an EDG trips upon receipt of an 86R lockout. This will prevent it from fulfilling its safety function. The CRIDS points identify the 'A' EDG as the affected EDG
- C. **Incorrect but plausible:** IAW HC.OP-AR.ZZ-0011, this alarm may be due to EITHER high water level OR low gas pressure. Only low gas pressure would be indicative of an inoperable condition. Additionally, the allowable alarm setpoint could be above the pressure that requires declaring the HCU inoperable. Local investigation is required to provide sufficient information erode confidence in the assumption of operability. (Note that under different conditions, such as a current gas leakage problem with the associated HCU and knowledge that it alarms very close to the point at which it becomes inoperable, the assessment might be different)
- D. **Incorrect but plausible:** SLC operability is a combination of tank level and solution concentration. The tank low level alarm is within the allowable operating region for the SLC tank IAW T/S 3.1.5. Comparison of the SLC tank level with the solution concentration is required to assess operability

SRO Only Justification: This question is SRO only as it requires assessing plant conditions and then selecting a procedure or section of a procedure to mitigate, recover or with which to proceed. The question cannot be answered by solely knowing systems knowledge, immediate operator actions, AOP or EOP entry conditions, or the purpose, overall sequence of events, or overall mitigative strategy of a procedure.

References: HC.OP-AR.ZZ-0107, Rev. 6
HC.OP-AR.ZZ-0011, Rev. 58
HC.OP-AR.ZZ-0008, Rev. 43
TS 3.5.1

Student Ref: NONE

Learning Objective:

Question Source: HC Bank 65479

Question History: None

Cognitive Level: Memory/Fundamental Knowledge:
Comprehensive/Analysis: X

10CFR55: CFR 41.10/43.5/45.3/45.12

Comments: