the TD CA Pump (B&C SG Only) are open, steam flow will also increase.
OP-MC-STM-IDE (p15) states that limit switches provide control room indications when individual steam dump valves are fully open or closed. Both lights will be lit when valve is modulating.
OP-MC-STM-IDE (p27) states that the C-9 interlock blocks steam dump to the condenser if vacuum is low or there is insufficient circulating water flow. The LOOP will stop RC Pumps and cause Condenser Vacuum to be lost blocking Steam Dump operation.

A. Incorrect. SG PORVs are open causing Steam Flow indication (See B). This is plausible because the operator may believe that the Steam Flow transmitters are downstream of the SG PORVs.
B. Correct. C-9 has blocked the Steam Dump operation, and the Steam Dump Valve position indicating lights will be green (Closed). However, the SG PORVs are set to automatically open at SG Pressure of 1125 psig. Tavg is higher than Tsat of the SG and therefore the SG PORVs will still be open causing steam flow indication on all four SGs (See above).
C. Incorrect. While steam flow will be indicated due to the open SG PORVs (See A), C-9 has blocked Steam Dump Valves from opening. This is Plausible if the operator does NOT recognize that C-9 has blocked Steam Dump System operation.
D. Incorrect. While steam flow will be indicated due to the open SG PORVs, C-9 has blocked Steam Dump Valves from opening. This is Plausible if the operator does NOT recognize that C-9 has blocked Steam Dump System operation.

Technical Reference(s): OP-MC-STM-IDE p15, 28, Rev 29; OP-MC-STM-SM, p15,70 , Rev 25 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: Steam Tables

Learning Objective: STM-IDE #5, 6 (As available)

Question Source: Bank # ____ Modified Bank # 609 (Note changes or attach parent) New ____

Question History: Last NRC Exam ____

| | | |
|---|---|---|
| Question Cognitive Level: | Memory or Fundamental Knowledge | |
| | Comprehension or Analysis | X |
| 10 CFR Part 55 Content: | 55.41 | 7 |
| | 55.43 | |

Comments:
KA is matched because item evaluates abnormal condition where applicant has to determine valve indication as well as whether any steam flow indication will exist

**RFA Concurs 4/18/08**
Question 609 ASTMIDER03 ASTMIDER03
1 Pt Given the following conditions:

- A Loss of Off-site Power is in progress
- Tavg is 554 □F
- Steam dumps are placed in the Steam Pressure mode
- Steam dump demand is manually increased to begin cooldown, but the steam dumps will NOT open

Which one of the following correctly explains why the steam dumps will NOT open?

A. P-12, Lo-Lo Tavg, has disarmed the steam dumps

B. P-4, Reactor Trip, has disarmed the steam dumps

C. C-9, Condenser Available, has disarmed the steam dumps

D. The steam dump demand will not work in manual when the steam dumps are in the Steam Pressure mode

Answer 609
C
STM-IDE, objective 5, 6

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 2 | |
| | Group # | 2 | |
| | K/A # | 071 A1.06 | |
| | Importance Rating | 2.5 | |

(Ability to predict and/or monitor changes in parameters(to prevent exceeding design limits) associated with Waste Gas Disposal System operating the controls including: Ventilation system)

Proposed Question: Common 37

Both Units are at 100% power:

- The VA System is operating normally, with the 1A/1B AHU, Filtered Exhaust Fans, and Unfiltered Exhaust fans all running.
- The Filtered Exhaust Filter is bypassed.
- While operating a valve associated with Waste Gas Compressor A, a leak develops and releases approximately 500 $ft^3$ of radioactive gas into the Auxiliary Building over a 2 hour period.

Which ONE (1) of the following could detect this leak AND cause an automatic response by the VA System?

A. 1EMF-36 (Unit Vent Gas) ONLY

B. 1EMF-41 (Aux Building Ventilation) ONLY

C. EITHER 1EMF-36 (Unit Vent Gas) OR 1EMF-37 (Unit Vent Iodine)

D. EITHER 1EMF-41 (Aux Building Ventilation) OR 1EMF-37 (Unit Vent Iodine)

Proposed Answer: **D**

Explanation (Optional):

A. Incorrect. The only automatic action associated with 1EMF-36 is to close WG-160. (WE-WG, p29)

B. Incorrect. While 1EMF-41 will cause an automatic action (Filter will be placed in service), 1EMF-37 will also cause an action (Shutdown Unfiltered Exhaust Fans/VA AHUs).

C. Incorrect. The only automatic action associated with 1EMF-36 is to close WG-160.

D. Correct. 1EMF-41 will cause Filter to be placed in service, and 1EMF-37 will Shutdown Unfiltered Exhaust Fans/VA AHUs.

| | | |
|---|---|---|
| Technical Reference(s) | OP-MC-WE-WG p29, Rev 11 | (Attach if not previously provided) |
| | OP-MC-PSS-VA p29, Rev 20 | (Including version or revision #) |
| | OP-MC-WE-EMF p21, 27 Rev 28 | |

Proposed references to be provided to applicants during examination: None

Learning Objective: PSS-VA #12, WE-EMF #3 (As available)

Question Source:
- Bank # _____
- Modified Bank # _____ (Note changes or attach parent)
- New X

Question History: Last NRC Exam NA

Question Cognitive Level:
- Memory or Fundamental Knowledge X
- Comprehension or Analysis _____

10 CFR Part 55 Content:
- 55.41 4, 13
- 55.43 _____

Comments:
KA is matched because the item evaluates effect on Aux Building Ventilation (VA) system for a failure of Waste Gas Compressor seals

**RFA Concurs 4/18/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 2 | |
| | Group # | 2 | |
| | K/A # | 086 K5.03 | |
| | Importance Rating | 3.1 | |

(Knowledge of the operational implication of the following concepts as they apply to the Fire Protection System: Effect of water spray on electrical components)

Proposed Question: Common 38

Which ONE (1) of the following describes the primary fire suppression system used in the Unit 2 Cable Spreading Room, and the reason for this type of system?

A. A manually operated Mulsifyre system, because water spray is an effective means for extinguishing deep-seated Class C fires.

B. An automatically operated Mulsifyre system, because water spray reduces the risk of electrical explosion as opposed to deluge systems.

C. A manually operated Halon 1301 system, because halon provides effective extinguishing properties for electrical components with minimal spread of hazardous material.

D. An automatically operated Halon 1301 system, because water spray is NOT an effective means for extinguishing deep-seated Class C fires.

Proposed Answer: **A**

Explanation (Optional):

A. Correct. OP-MC-SS-RFY (p37) states that manually operated mulsifyre systems are provided for the Unit 1 and Unit 2 cable rooms and ETA HVAC equipment rooms. These systems are further described as "Consisting of a number of open spray nozzles with locked closed manual isolation valves."

B. Incorrect. Extensive use of Automatic deluge systems is employed at McGuire, typically protecting systems containing oil, or other class B fuels, as well as ventilation systems. This system is not automatically operated OP-MC-SS-RFY (p37)

C. Incorrect. Halon 1301 Total Flooding systems are used in the DG Rooms, the CA Pump rooms and the Computer Room in the Admin Building.

Plausible because Halon does provide protection against electrical fires by removing oxygen OP-MC-SS-RFY (p35)

D. Incorrect. Halon 1301 Total Flooding systems are used in the DG Rooms, the CA Pump rooms and the Computer Room in the Admin Building. Plausible because Halon does provide protection against electrical fires by removing oxygen OP-MC-SS-RFY (p47)

Technical Reference(s): OP-MC-SS-RFY p35-37, 47 Rev 26 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: _____

Learning Objective: SS-RFY Obj 11 (As available)

Question Source: Bank # _____
Modified Bank # 4578 (Note changes or attach parent)
New _____

Question History: Last NRC Exam NA

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 8
55.43 _____

Comments:
KA is matched because item evaluates knowledge of a system used to extinguish an electrical fire in the cable spreading room

**RFA Concurs 4/18/08**

Question 4578 SSRFY003 SSRFY003
1 Pt In an area where a Sprinkler or Mulsifyre System is the primary fire suppression system, a backup system is also utilized. What type of suppression system is normally used as a backup?

A. Hose Stations

B. A C-02 Suppression System

C. Halon 1301

D. Fire Hydrants

Answer 4578
A

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | (007) G2.4.46 | |
| | Importance Rating | 4.2 | |

(**Reactor Trip** / Emergency Procedures / Plan: Ability to verify that the alarms are consistent with the plant conditions.)

Proposed Question: Common 39

Unit 1 is operating at 100%. The following Main Control Board indications exist:

| | Channel 1 | Channel 2 | Channel 3 | Channel 4 |
|---|---|---|---|---|
| NCP Bus Frequency (Hz) | 55.0 | 56.0 | 57.0 | 58.0 |
| Power Range (%) | 107 | 108 | 108 | 109 |
| S/G B NR Level (%) | 18 | 18 | 19 | 16 |
| Pzr Pressure (psig) | 2383 | 2384 | 2385 | 2386 |

Which ONE (1) of the following identifies the Annunciators that WILL be lit on 1FO-1?

A. F-6, NC Pump Bus Under Freq Rx Trip
B-2, S/G B Lo-Lo Lvl Rx Trip

B. B-7, P/R Hi Flux Hi Stpt Rx Trip
B-5, Pzr Hi Press Rx Trip

C. B-2, S/G B Lo-Lo Lvl Rx Trip
B-7, P/R Hi Flux Hi Stpt Rx Trip

D. B-5, Pzr Hi Press Rx Trip
F-6, NC Pump Bus Under Freq Rx Trip

Proposed Answer: **D**

Explanation (Optional):

According to Figure 7.5 of OP-MC-IC-IPE (p83, Rev 27):

- Low NC Pump Bus Frequency trip occurs when 2 of 4 channels sense NCP Bus frequency $\leq$ 56 hz.
- S/G Narrow Range Level Low trip occurs when 2 of 4 channels in one SG sense narrow range level $\leq$ 17%.

- Power Range Hi Flux trip occurs when 2 of 4 channels sense Power Range Channels ≥ 109%.
- High Pzr Pressure trip occurs when 2 of 4 channels sense Pzr Pressure ≥ 2385 psig.

In this situation two reactor trip signals have satisfied the 2/4 logic: F-6, "NC Pump Bus Under Freq Rx Trip" and B-5, "Pzr Hi Press Rx Trip". The S/G Narrow Range Level Low trip and Power Range Hi Flux trip each have 1/4 channels

A. Incorrect. NCP Low Freq is correct (2/4 logic); S/G Lo Lo Level is incorrect (1/4 logic).
B. Incorrect. PR High Flux trip is incorrect (1/4 logic); PZR Hi Press is correct (2/4 logic)
C. Incorrect. S/G Lo Lo Level is incorrect (1/4 logic); PR Hi Flux trip is incorrect (1/4 logic)
D. Correct. PZR Hi Press is correct (2/4 logic); NCP Lo Freq is correct (2/4 logic)

Technical Reference(s): OP-MC-IC-IPE page 84, Rev 27 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: IC-IPE #8, 10 (As available)

Question Source: Bank # ____
Modified Bank # McGuire NRC Bank #422 (Note changes or attach parent)
New ____

Question History: Last NRC Exam Not on 2005/2007 exams

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis ____

10 CFR Part 55 55.41 7

Content:

55.43

Comments:
KA is matched because item evaluates alarms expected for listed conditions that will result in a reactor trip (selected EPE)

**RFA Concurs 4/18/08**

Modify Question 39

Question 422 ICIPEN03 ICIPEN03
1 Pt If the unit is operating at full load, which one (1) of the following groups of instrument readings will result in an automatic reactor trip?

| | | | | CH1 | CH2 | CH3 | CH4 |
|---|---|---|---|---|---|---|---|
| A. | NCP bus frequency (hertz): | | 56.0 | 57.0 | 57.0 | 58.0 | |
| B. | Power range (percent): | | 107 | 108 | 108 | 109 | |
| C. | S/G B NR level (percent): | | 17 | 18 | 19 | 20 | |
| D. | PZR pressure (psig): | 2383 | 2384 | 2385 | 2386 | | |

Answer 422
*Answer: D*

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | 008 AA1.03 | |
| | Importance Rating | 2.8 | |

(Ability to operate and / or monitor the following as they apply to the Pressurizer Vapor Space Accident: Turbine bypass in manual control to maintain header pressure)

Proposed Question: Common 40

The following conditions exist on Unit 2 following a Reactor Trip from high power:

- A break in the Pzr Steam Space has resulted in a Small Break LOCA.
- The operating crew has entered ES-1.2, Post-LOCA Cooldown and Depressurization.
- Steam Dumps have been placed in the Steam Pressure Mode, and the Steam Dump Cooldown valves are presently throttled open.
- The Steam Dump Pressure Controller potentiometer is presently set at 6.9 Turns, and is operating in AUTO.
- The P-12 Interlock has been defeated.
- NC Temperature is stable.

Which ONE (1) of the following describes the action as stated in ES-1.2 that will be taken to initiate and maintain a constant NC System Cooldown rate of less than 100°F/hour?

A. Lower Steam Dump Pressure Controller potentiometer to 6.5 turns.

B. Raise Steam Dump Controller potentiometer to 7.4 turns.

C. Place the Steam Dump Pressure Controller in manual and raise output.

D. Place the Steam Dump Pressure Controller in manual and lower output.

Proposed Answer: **C**

Explanation (Optional):

A. Incorrect. When implemented in accordance with ES-1.2, the Steam Dump Controller is placed in manual. Lowering the pot setting will have no affect.

B. Incorrect. When implemented in accordance with ES-1.2, the Steam Dump Controller is placed in manual. Additionally, raising the pot setting will raise

the Steam Header Pressure setpoint that the Steam Dump Controller will try to maintain. With setpoint higher than actual Steam Header pressure the Controller error will close the Steam Dump valves resulting in a heatup.

C. Correct. Placing the controller in manual and raising the output will open the Steam Dump valves further, initiating an NC System cooldown at a constant rate.

D. Incorrect. Placing the controller in manual and lowering the output will close the Steam Dump valves further. With the NC System presently stable, lowering the heat removal rate will cause the NC System to heat up.

Technical Reference(s): OP-MC-STM-IDE p31, 33 Rev 29; ES-1.2, Step 11, Rev 10 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: STM-IDE #5 (As available)

Question Source: Bank # ____ Modified Bank # ____ (Note changes or attach parent) New X

Question History: Last NRC Exam NA

Question Cognitive Level: Memory or Fundamental Knowledge ____ Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 4, 10 ____ 55.43 ____

Comments:

KA is matched because item evaluates actions that will be required to ensure Steam Dump operates correctly during a steam space LOCA

**RFA Concurs 4/18/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | 009 EK2.03 | |
| | Importance Rating | 3.0 | |

(Knowledge of the interrelations between the small break LOCA and the following: S/Gs

Proposed Question: Common 41

The following conditions exist on Unit 2 thirty (30) minutes after an automatic Reactor Trip due to a Loss of Offsite Power:

- NC Pressure 1600 psig and going down slowly
- Core Exit Temperature 582°F and stable
- Thot indication 567°F and stable
- Tcold indication 555°F and stable
- Pzr Level 8% and slowly going down
- Containment Pressure 2.5 psig and rising
- Steam Generator Pressures Normal post-trip pressure for plant conditions
- Total CA Flow 270 gpm

Which ONE (1) of the following describes the relationship between the NC System and the Steam Generators, and what procedure would be entered to mitigate the event?

The Steam Generators are a Heat __(1)__ to the NC System, and ___(2)___ will be implemented.

A. (1) SINK
(2) ES-0.2, Natural Circulation

B. (1) SINK
(2) E-1, Loss of Reactor or Secondary Coolant

C. (1) SOURCE
(2) ES-0.2, Natural Circulation

D. (1) SOURCE
(2) E-1, Loss of Reactor or Secondary Coolant

Proposed Answer: **B**

Explanation (Optional):

Based on the Steam Tables, the Tsat for the NC System is at least 605°F while the Tsat for the Steam Generators is 559°F. Since Tsat NC System is > Tsat SG, the Steam Generators are a Heat Sink.

A. Incorrect. Although Heat Sink is identified, the conditions presented indicate that a Small LOCA is occurring inside Containment, and that SI has actuated. While ES-0.2 will utilize the Steam Generators to cooldown the NC System, it will not be addressed if an SI has occurred.

B. Correct. The SGs are a Heat Sink (See above) and the conditions presented indicate that a Small LOCA is occurring inside Containment, and that SI has actuated. E-1 will utilize the Steam Generators to cooldown the NC System under these conditions.

C. Incorrect. The SGs are NOT a Heat Source. While ES-0.2 will utilize the Steam Generators to cooldown the NC System, it will not be addressed if an SI has occurred.

D. Incorrect. The SGs are NOT a Heat Source. E-1 is the correct procedure use for this event

| | | |
|---|---|---|
| Technical Reference(s) | Steam Tables<br>OP-BNT-TH07, p8,11,12 (Rev 5)<br>ECC-ISE, p21 (Rev 30)<br>OP-MC-EP-E0 p119 (Rev 12)<br>OP-MC-EP-E1 p47,49, 99,113 (Rev 17)<br>OP-MC-EP-FRH p19, 27 (Rev 10) | (Attach if not previously provided)<br>(Including version or revision #) |
| Proposed references to be provided to applicants during examination: | Steam Tables | |
| Learning Objective: | EP-E0 #3,10, EP-E1 #2, 6,<br>EP-FRH #2, 6,<br>OP-BNT-TH07, # 4<br>ECC-ISE # 5 | (As available) |
| Question Source: | Bank # | |

| | | |
|---|---|---|
| Modified Bank # | | (Note changes or attach parent) |
| New | X | |

Question History: Last NRC Exam

| | | |
|---|---|---|
| Question Cognitive Level: | Memory or Fundamental Knowledge | |
| | Comprehension or Analysis | X |

| | | |
|---|---|---|
| 10 CFR Part 55 Content: | 55.41 | 10,14 |
| | 55.43 | |

Comments:
KA is matched because item evaluates SG relationship to RCS for a SBLOCA, and also further discriminates by evaluating the understanding of plant conditions leading to different EOP use

**RFA Concurs 4/18/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | 011 EK3.06 | |
| | Importance Rating | 4.3 | |

(Knowledge of the reasons for the following responses as the apply to the Large Break LOCA: Actuation of Phase A and B during LOCA initiation)

Proposed Question: Common 42

After a transient from 100% power, the following conditions exist on Unit 1:

- NC System pressure = Containment Pressure.
- Containment Radiation Monitors in Alarm.
- All systems operated as designed.

Which ONE (1) of the following is an expected response, AND the basis for the response, of the Containment Isolation System?

A. ONLY Phase A Containment Isolation has actuated to ensure that the NCPs will be available later to mitigate the consequences of this event.

B. ONLY Phase A Containment isolation has actuated to ensure that all penetrations that were open directly to the Containment Atmosphere are now isolated.

C. Both Phase A and Phase B Containment Isolation have actuated to ensure isolation of non-ESF related Containment piping penetrations ONLY.

D. Both Phase A and Phase B Containment Isolation have actuated to ensure isolation of ALL Containment piping penetrations.

Proposed Answer: **C**

Explanation (Optional):

A. Incorrect. Both phases actuate (See C below). The distractor is plausible because it recognizes that Phase B actuation limits/prevents NCP Operations. However, the NCPs will NOT be needed to support subsequent operations in a Large Break LOCA, but rather, the Small Break LOCA.

B. Incorrect. Both phases actuate (See C below). While it is true that Phase A isolates all penetrations that open directly to the Containment Atmosphere (i.e. VP), Phase B also actuates.

C. Correct. Section 6.2.4 of the McGuire UFSAR states that the Containment Isolation Systems provide a means of isolating fluid systems that pass through the Containment penetrations to confine radioactivity released during a DBA to the Containment. Section 6.2.4.1.2 of the McGuire UFSAR states that "Upon receipt of either a phase A ($S_T$) Containment Isolation signal which is derived from the Safety Injection signal or a phase B ($S_P$) Containment Isolation signal which is derived from the high-high Containment Pressure signal, the Containment Isolation System closes fluid line penetrations not required for ESF operation. In other words, all non-essential lines are isolated to ensure that Containment Leakage is prevented. With the stated conditions, a Safety Injection signal ($S_S$) will have occurred causing the Phase A signal. Because of the Large break LOCA conditions, Containment Pressure would be > 3 psig (high-high Containment Pressure) causing the Phase B signal. Both Phase A and B actuate to prevent Containment leakage.

D. Incorrect. Containment Phase A and B actuations close CIVs, they do not close all valves in all piping penetrations into and out of the Containment (i.e. ECCS piping which provide flowpath to inject FWST water into the reactor have valves that auto open under these conditions).

| | | |
|---|---|---|
| Technical Reference(s) | UFSAR Section 6.2.4 (11/06) | (Attach if not previously provided) |
| | OP-MC-ECC-ISE p21, 27,29 Rev 30 | (Including version or revision #) |

Proposed references to be provided to applicants during examination: None

Learning Objective: ECC-ISE #5, 6 (As available)

Question Source:
- Bank # _____
- Modified Bank # _____ (Note changes or attach parent)
- New X

Question History: Last NRC Exam _____

Question Cognitive Level:
- Memory or Fundamental Knowledge X
- Comprehension or Analysis _____

| | | |
|---|---|---|
| 10 CFR Part 55 Content: | 55.41 | 7 |
| | 55.43 | |

Comments:
KA is matched because the item directly evaluates knowledge of reason for containment isolation

**RFA Concurs 4/18/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | 015/017 AA1.16 | |
| | Importance Rating | 3.2 | |

(Ability to operate and / or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): Low Power Reactor Trip Block Status Lights)

Proposed Question: Common 43

Unit 2 is in Mode 1 when the safety breaker to 2C NCP inadvertently opens.

- The reactor did NOT trip.

The following Permissive Bistable Status light conditions are observed:

- P-7 Lo Power Rx Trips Blocked – DARK
- P-8 Hi Pwr Lo Flo Rx Trip Blocked – LIT
- P-10 Nuclear At Power – LIT
- P-13 Turbine Not At Power – LIT

Which ONE (1) of the following identifies initial plant condition and identifies the expected plant response?

Initial reactor power was _____ and _____.

A. less than 10%
plant response is correct

B. greater than 10%
plant response is correct

C. less than 10%
auto reactor trip has failed

D. greater than 10%
auto reactor trip has failed

Proposed Answer: **B**

Explanation (Optional):

A. Incorrect. P-7 Status light will be DARK if P-10 is LIT (2of4 PR >10%) OR P-13 is DARK (1of2 TIP > 10%). In this case, P-7 is DARK because P-10 is LIT indicating PR >10%. If P-10 is LIT, power level cannot be < 10%.

B. Correct. P-7 is Dark indicating power level (Nuclear or Turbine) is > 10%. When P-7 actuates (DARK) the lower power trips are NOT blocked which means that among others the low NC System flow trip is active at 2of4 logic. Since only one NCP has tripped the required logic for an automatic trip does NOT exist.

C. Incorrect. P-7 is Dark indicating power level (Nuclear or Turbine) is > 10%. However, insufficient logic exists to demand auto trip (2of4).

D. Incorrect. P-8 light is LIT indicating power is < 48%. If power level > 48%, and P-8 DARK auto trip should occur. For these conditions with power <P-7, P-8 would not be activated and only 1 RCP will not trip the unit

Technical Reference(s): OP-MC-IC-IPE Drawings 7.31, 32 and 36 Rev 28 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: IC-IPE #,10 11 (As available)

Question Source: Bank # ____ Modified Bank # ____ (Note changes or attach parent) New X

Question History: Last NRC Exam ____

Question Cognitive Level: Memory or Fundamental Knowledge ____ Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7 ____ 55.43 ____

Comments:
KA is directly matched because item evaluates status of low power reactor trips and its result on plant response for failure of an NCP (RCP)

**RFA Concurs 4/18/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | 022 AA2.04 | |
| | Importance Rating | 2.9 | |

(Ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Makeup: How long PZR level can be maintained within limits)

Proposed Question: Common 44

Unit 2 is at 100% when:

- All charging flow was lost.
- Letdown was isolated.
- The Standby Makeup Pump cannot be started.
- Seal leakoff flow from #1 Seal on each NC Pump is 3 gpm.

Assuming no further operator action is taken, which ONE (1) of the following predicts the approximate time that Annunciator 2AD-6/E-7, Pzr Lo Level Deviation, will alarm?

**(Reference Provided)**

A. 1 hour

B. 2 hours

C. 4 hours

D. 8 hours

Proposed Answer: **A**

Explanation (Optional):

According to OP/2/A/6100/010G, E-7, "Pzr Lo Level Deviation," will alarm at 5% < Programmed Level.

A. Correct. If charging is lost, the net loss to the NC System is 12 gpm through the NCP seals. Using OP/1/A/6100/022 Enclosure 4.3 the operator

determines that the loss of Pzr Volume required to drop level from 55% to 50% (Alarm setpoint) is ≈600 gallons (X axis to 55% yields ≈7800 gallons(on Y Axis) – X axis to 50% yields ≈7200 gallons (on Y axis) = 600 gallons). A total of 600 gallons/12 gpm = 50 minutes until Low level deviation alarm comes in.

B. Incorrect. Wrong setpoint for level alarm, inaccurate or inappropriate use of Pzr volume vs. level curve, wrong leakage assumed could result in B, C or D being selected.

C. Incorrect. See B

D. Incorrect. See B

Technical Reference(s): OP/2/A/6100/22 Curve 7.38 Rev 434 (Attach if not previously provided)

OP/2/A/6100/010G, E-7 Rev 47 (Including version or revision #)

Proposed references to be provided to applicants during examination: OP/2/A/6100/22 Curve 7.38 Rev 434

Learning Objective: PS-ILE #9 (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam NA

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7 _____

55.43 _____

Comments:

KA is directly matched because a loss of makeup has occurred, and applicant must determine how long PZR level will remain above alarm setpoint, based on interpretation of total seal leakoff flow

**RFA Concurs 4/18/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | 025 AK2.03 | |
| | Importance Rating | 2.7 | |

(Knowledge of the interrelations between the Loss of Residual Heat Removal System and the following: Service water or closed cooling water pumps)

Proposed Question: Common 45

Given the following events and conditions:

- Unit 1 is approaching Mode 5.
- NC Cooldown is in progress.
- A Train ND is in the RHR mode.
- A Train KC is in service at maximum design flow.
- A Train RN is in service.
- 1A1 KC Pump breaker trips.

Which ONE (1) of the following describes the effect on the KC and NC System temperatures?

A. KC is unaffected;
NC heats up.

B. KC heats up;
NC is unaffected.

C. KC heats up;
NC cooldown rate decreases.

D. KC is unaffected;
NC cooldown rate is unaffected.

Proposed Answer: **C**

Explanation (Optional):

A. Incorrect. The NCS will not heatup because flow through the ND HX has not changed, and there is still some KC flow going through the HX. KC will NOT be unaffected, there is less flow trying to cool the same flow of NC. It will heat up.

B. Incorrect. The NCS will be affected. There is now less cooling water then there previously was, and the mass flowrate of the NC System has NOT changed. The KC System will begin heating up as there is less flow trying to cool the same flow of NC.

C. Correct. Previously a cooldown rate was established. The NCS will not heatup because flow through the ND HX has not changed, and there is still some KC flow going through the HX, however the cooldown rate has decreased. The KC System will begin heating up as there is less flow trying to cool the same flow of NC.

D. Incorrect. The ND System maintains a stable system flowrate, cooldown rate is dependent upon cooling system flows (KC/RN).

Technical Reference(s): OP-MC-PS-ND p.13, 27, Rev 37 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: PS-ND, objective 8 (As available)

Question Source: Bank # McGuire NRC Bank # 521

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: Last NRC Exam Not on 2005/2007 Exams

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7 _____

55.43 _____

Comments:

Only formatting changes made from McGuire NRC Bank Question #81.

KA is matched because item evaluates effect of a loss of KC (CCW) on the ND system (RHR) and therefore, RCS

**RFA Concurs 4/18/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | 027 AK1.03 | |
| | Importance Rating | 2.6 | |

(Knowledge of the operational implications of the following concepts as they apply to Pressurizer Pressure Control Malfunctions: Latent heat of vaporization/condensation)

Proposed Question: Common 46

Unit 1 is operating at 50% power. Given the following conditions:

- Pzr pressure is 2235 psig.
- Pzr Relief Tank (PRT) pressure is 20 psig.
- PRT temperature is 125°F.
- PRT level is 81%.
- The PRT is being cooled by spraying from the RMWST.
- A Pzr code safety valve is leaking by its seat.

Which ONE (1) of the following identifies the temperature that would be indicated on the leaking safety valve discharge RTD?

**(Reference Provided)**

A. 258° - 262°F

B. 227° - 231°F

C. 161° - 165°F

D. 123° - 127°F

Proposed Answer: **A**

Explanation (Optional):

Throttling is a constant enthalpy process (OP-BNT-TH04, rev 5, pg 35 – 37). For this condition, go to the 2250 psig point on the saturation line on the Mollier diagram. Cross the constant enthalpy line to the 35 psig line (20 psig + 15 psi atmos = 35 psia). Follow that line up to the saturation curve. The constant temperature line that ends at that point on the curve establishes the temperature of the fluid.

A. Correct. (See Above)

B. Incorrect. Temp is too low - the correct temp is 260 °F. Plausible: If the candidate makes the mistake of not correcting for atmospheric pressure by failing to adding 14.6 psi to the PRT pressure and uses 20 psia.

C. Incorrect. Temp is too low - the correct temp is 260 °F. Plausible: If the candidate reverses the correction for atmospheric pressure by subtracting 14.6 psi from PRT pressure of 20 psig to get 5 psia.

D. Incorrect. Temp is too low - the correct temp is 260 °F. Plausible: If the candidate thinks that the discharge temperature will be at the same temperature as the PRT fluid.

Technical Reference(s): OP-BNT-TH04 p34, 35, 36 Rev 5 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: Steam Tables

Learning Objective: OP-BNT-TH04 #31 (As available)

Question Source: Bank # McGuire NRC Bank # 608

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: Last NRC Exam Not on 2005/2007 Exams

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 3, 14

55.43 _____

Comments:

Only formatting changes made from McGuire NRC Bank Question #608.

KA is directly matched because indications of a PZR pressure control system failure resulting in discharge to the PRT must be interpretated using knowledge of the selected KA topic.

**RFA Concurs 4/18/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | 029 EK2.06 | |
| | Importance Rating | 2.9 | |

(Knowledge of the interrelations between the and the following an ATWS: Breakers, relays, and disconnects)

Proposed Question: Common 47

With Unit 1 at 90% power the following conditions exist:

- RPS Testing is in progress.
- Reactor Trip Breaker A (RTA) is CLOSED.
- Reactor Trip Breaker B (RTB) is OPEN.
- Reactor Trip Bypass Breaker B (BYB) is Racked In and CLOSED.

During the testing the following occurs:

- The A NC Pump Shaft seizes.
- The Reactor fails to automatically trip.
- Manual attempts to trip the Reactor are SUCCESSFUL.

Which ONE (1) of the following identifies the Reactor Trip/Bypass Breaker trip coil that has operated as designed throughout the event?

A. RTA Undervoltage Coil.

B. RTA Shunt Trip Coil.

C. BYB Undervoltage Coil.

D. BYB Shunt Trip Coil.

Proposed Answer: **D**

Explanation (Optional):

A. Incorrect. According to Section 2.5.4 of OP-MC-IC-IPE the RTA has an undervoltage coil that when de-energized will cause trip plunger spring force will automatically open the breaker. This did not occur on the Lo flow Rx Trip signal from SSPS.

B. Incorrect. According to Section 2.5.4 of OP-MC-IC-IPE the RTA has a

shunt trip coil that when energized will move the trip plunger causing the breaker to open. This did not occur on the Lo flow Rx Trip signal from SSPS.

C. Incorrect. According to Section 2.5.4 of OP-MC-IC-IPE the BYB has an undervoltage coil that when de-energized will cause trip plunger spring force will automatically open the breaker. This did not occur on the Lo flow Rx Trip signal from SSPS.

D. Correct. According to Section 2.5.4 of OP-MC-IC-IPE the BYB has a shunt trip coil that energizes for manual Rx trips and SI signals, and will move the trip plunger causing the breaker to open. This occurred as designed.

Technical Reference(s): OP-MC-IC-IPE, p21, 23, 29 Rev 28 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: IC-IPE #3 (As available)

Question Source: Bank # ____ Modified Bank # ____ (Note changes or attach parent) New X

Question History: Last NRC Exam NA

Question Cognitive Level: Memory or Fundamental Knowledge ____ Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7 ____ 55.43 ____

Comments:

KA is matched because operation of trip and bypass breakers is evaluated throughout an event where ATWS occurs but manual trip is successful

**RFA Concurs 4/18/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | 055 EK3.02 | |
| | Importance Rating | 4.3 | |

(Knowledge of the reasons for the following responses as the apply to the Station Blackout: Actions contained in EOP for loss of offsite and onsite power)

Proposed Question: Common 48

As stated in ECA-0.0, Loss of all AC Power, which ONE (1) of the following is the basis for NOT depressurizing the S/Gs to less than 110 psig?

To avoid _____

A. voiding in the head.

B. an inadvertent criticality accident.

C. nitrogen injection into the NC System.

D. the loss of S/G narrow range level.

Proposed Answer: **C**

Explanation (Optional):

A. Incorrect. While the action of depressurizing the Steam Generators will decrease NC Pressure and subcooling, and it is likely that Reactor Head voiding will occur, the Caution is not provided to alert the operator that depressurization should be stopped. In fact, a subsequent Note is provided, also before Step 26, to alert the operator to the fact that it is probable that voiding will occur, and that the depressurization should not be stopped because of this.

B. Incorrect. While the action of depressurizing the Steam Generators will reduce NC System temperature and add positive reactivity, the Caution is not provided to alert the operator that restart will occur at a specific Steam Generator pressure or corresponding NC System temperature. Rather, subsequent steps (27) are provided for the operator to check if a positive SUR exists, and if so, terminate the depressurization to allow NC System heatup and the addition of negative reactivity.

C. Correct. The Caution in ECA-0.0 prior to the performance of Step 26 states

that "Lowering Steam Generator pressures to less than 110 psig will cause injection of CLA N2 into the NC System." The background document (OP-MC-EP-ECA-0) adds that the introduction of N2 into the NC System will impede Natural Circulation in the NC System.

D. Incorrect. While the depressurization will cause narrow range level in the Steam Generators to decrease, the Caution is not provided to alert the operator that the level will be lost at a specific Steam generator pressure. Rather, a substep of Step 26 is provided to direct the operator to terminate the depressurization if narrow range level drops below 11%, restore level, and then re-initiate the depressurization.

| | | |
|---|---|---|
| Technical Reference(s) | ECA-0.0 Rev. 24 | (Attach if not previously provided) |
| | OP-MC-EP-ECA-0 p45, 47, 49 Rev. 12 | (Including version or revision #) |

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # 2348 (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 10
55.43 _____

Comments:
KA is matched because reason for action is evaluated for a blackout condition that requires SG depressurization

**RFA Concurs 4/18/08**

Question 2348 EPECA0016 EPECA0016
1 Pt(s) During performance of ECA-0.0, (Loss of All AC Power), the S/Gs are depressurized to 210 psig.

What is the purpose of the depressurization?

A. Reduce NCS pressure to inject water from the accumulators.

B. Reduce NCS temperature to prevent inadvertent criticality.

C. Reduce decay heat load to minimize possibility of S/G dryout.

D. Reduce S/G pressure and temperature to prevent chemical hideout return.

Answer 2348

A
EP-ECA0, objective 4

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | 056 AA1.12 | |
| | Importance Rating | 3.2 | |

(Ability to operate and / or monitor the following as they apply to the Loss of Offsite Power: Reactor building cooling unit)

Proposed Question: Common 49

Unit 2 is operating at 100% power when a loss of off-site power (LOOP) occurred.

Which ONE (1) of the following describes the expected operation of Containment Ventilation Systems ONE (1) minute after the event?

| | VU Ventilation Units | VL Fans | Pipe Tunnel Booster Fans |
|---|---|---|---|
| A. | Running | Low Speed | Running |
| B. | Running | Low Speed | Off |
| C. | Running | High Speed | Off |
| D. | Off | High Speed | Running |

Proposed Answer: **A**

Explanation (Optional):

A. Correct. All of the listed fans will be running, with VL fans in SLOW speed following a LOOP.
B. Incorrect. Pipe tunnel fans will restart, but other booster fans will NOT restart. Therefore, plausible.
C. Incorrect. VL fans will be running in Low Sped, and Pipe Tunnel Booster Fans will be running.
D. Incorrect. VU ventilation units will be running, but plausible if applicant believes that they will only be running if SI occurs

Technical Reference(s): OP-MC-CNT-VUL p41 Rev 27 (Attach if not previously provided)

_____
_____ (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: CNT-VUL #5 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 7, 10
55.43 _____

Comments:
KA is matched because Containment Cooling system operation after a loss of offsite power is the entire basis for the test item

**RFA Concurs 4/18/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | 057 AK3.01 | |
| | Importance Rating | 4.1 | |

(Knowledge of the reasons for the following responses as they apply to the Loss of Vital AC Instrument Bus: Actions contained in EOP for loss of vital ac electrical instrument bus)

Proposed Question: Common 50

Unit 1 is at full power with all systems selected to automatic. Given the following event:

- All Channel 1 Status lights are LIT.

Which ONE (1) of the following identifies why the crew would have to place Rod Control in Manual?

Because....

A. Power Range N41 has failed high.

B. Loop A Tavg has failed low.

C. Turbine Impulse Pressure Channel 1 has failed low.

D. Turbine Impulse Pressure Channel 1 has failed high.

Proposed Answer: **C**

Explanation (Optional):

A. Incorrect. While it is true that Power Range Channel 41 does fail on loss of 1EKVA (Indicated by Channel 1 Status lights LIT), it fails low, and auctioneered high power is used to develop the Rod Control signal. This failure will have no affect on Rod Movement.

B. Incorrect. While it is true that Loop A Tavg does fail on loss of 1EKVA (Indicated by Channel 1 Status lights LIT), it fails low, and auctioneered high Tavg is used to develop the Rod Control signal. This failure will have no affect on Rod Movement.

C. Correct. According to the AP15 Background Document, the failure of 1EKVA (Indicated by Channel 1 Status lights LIT) would cause Turbine Impulse

Pressure to fail low. Since this input is used to compare Turbine power to Reactor power in the rod control circuitry, rod control would inappropriately think turbine power has gone down, and drive rods in an attempt to match reactor power.

D. Incorrect. According to the AP15 Background Document, the failure of 1EKVA (Indicated by Channel 1 Status lights LIT) would cause Turbine Impulse Pressure to fail low.

| | | |
|---|---|---|
| Technical Reference(s) | AP-15 Background Document p14, 6 Rev 20 | (Attach if not previously provided) |
| | OP-MC-IC-IRX p13, 15, 17, 43, 45 Rev 23 | (Including version or revision #) |
| | AP-15, p3 Rev 19 | |

Proposed references to be provided to applicants during examination: None

Learning Objective: IC-IRX Obj 4, 5, 6, 11 AP-15, Obj 3 (As available)

Question Source: Bank # ____ Modified Bank # ____ New X (Note changes or attach parent)

Question History: Last NRC Exam ____

Question Cognitive Level: Memory or Fundamental Knowledge ____ Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7 ____ 55.43 ____

Comments:
KA is matched because the applicant must determine that a loss of power has occurred, and evaluate the reason for the action taken (rods in manual due to Tref failed low from loss of power – prevent rod motion)

**RFA Concurs 4/18/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | 058 AK1.01 | |
| | Importance Rating | 2.8 | |

(Knowledge of the operational implications of the following concepts as they apply to Loss of DC Power: Battery charger equipment and instrumentation)

Proposed Question: Common 51

Unit 1 was operating at 100% power when a total loss of onsite and offsite power occurred. Given the following events and conditions:

- 1EVDA is supplying normal full power loads.
- NO battery charger is available.

Which ONE (1) of the following statements describes the MINIMUM length of time that bus 1EVDA is designed to sustain loads AND what action will protect the DC bus loads?

A. 1 hour;
The vital battery bus breaker will open automatically when bus voltage falls to 105 volts.

B. 1 hour;
The vital battery breaker must be manually opened when bus voltage falls to 105 volts.

C. 4 hours;
The vital battery breaker will open automatically when bus voltage falls to 107 volts.

D. 4 hours;
The vital battery breaker must be manually opened when bus voltage falls to 107 volts.

Proposed Answer: **B**

Explanation (Optional):

A. Incorrect. The vital battery breaker does not automatically open. Plausible: partially correct - the design time for sustaining loads is 1 hour.

B. Correct. Below this value the battery could be damaged or components will begin to fail.

C. Incorrect. The battery is expected to last for 1 hour and there is no automatic trip associated with low voltage. Plausible: the 4 hour requirement for battery performance is typical of the aux batteries - voltage limit is 107 volts. (AP-15, Note prior to Step 1)

D. Incorrect. The vital batteries are not designed to sustain loads for 4 hours. Plausible: partially correct - DC bus protection is achieved by manually opening the breaker - voltage limit is 107 volts.

Technical Reference(s): OP-MC-EL-EPL p2, 25, Rev 22; ECA-0.0 Step 23 Rev 24; AP7 Enclosure 7 Step 31, Rev 27A; AP-15, p 51 Rev 19; AP-7 Basis Document p 118, 119 Rev 6 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: EL-EPL Obj 12 (As available)

Question Source: Bank # McGuire NRC Bank # 79

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: Last NRC Exam Not on 2005/2007 Exams

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis _____

| | | |
|---|---|---|
| 10 CFR Part 55 Content: | 55.41 | 7, 10 |
| | 55.43 | |

Comments:
Only formatting changes made from McGuire NRC Bank Question #79.

KA is matched because a loss of DC will occur after 1 hour, and 105 volts will be minimum indication for use of battery without damage to components.

**RFA Concurs 4/24/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | 062 AA2.06 | |
| | Importance Rating | 2.8 | |

(Ability to determine and interpret the following as they apply to the Loss of Nuclear Service Water: The length of time after the loss of SWS flow to a component before that component may be damaged)

Proposed Question: Common 52

With Unit 1 at 100% power, a total loss of RN occurs and cannot be restored.

The following pumps were running at the start of the event:

- 1A NV Pump
- 1A1 KC Pump
- 1A2 KC Pump

Which ONE (1) of the following identifies the pump(s) that will reach an operating limit and the MINIMUM time frame within which the limit will be reached?

A. 1A NV Pump;
15-20 minutes.

B. 1A1 and 1A2 KC Pumps;
15-20 minutes.

C. 1A NV Pump;
90-120 minutes.

D. 1A1 and 1A2 KC Pumps;
90-120 minutes.

Proposed Answer: **A**

Explanation (Optional):

A. Correct. The AP20 Background document states that the operating NV Pump will approach its operating limit in approx. 15 min.

B. Incorrect. The AP20 Background document states that with RN isolated to

the KC pumps, actual operating experience has shown that the KC pumps should operate under normal flow conditions for 50 - 60 minutes prior to reaching the high temp limit.

C. Incorrect. The AP20 Background document states that the operating NV Pump will approach its operating limit in approx. 15 min.

D. Incorrect. The AP20 Background document states that with RN isolated to the KC pumps, actual operating experience has shown that the KC pumps should operate under normal flow conditions for 50 - 60 minutes prior to reaching the high temp limit.

Technical Reference(s): AP20 Background Document p11-13, Rev 2 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: AP-AP20 #2 (As available)

Question Source: Bank # ____ Modified Bank # ____ (Note changes or attach parent) New X

Question History: Last NRC Exam ____

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis ____

10 CFR Part 55 Content: 55.41 5

55.43 ____

Comments:
KA is directly matched because item evaluates loss of RN to components and length of time they may operate without RN (Service Water) Cooling

**RFA Concurs 4/24/08**

Examination Outline Cross-reference: Level RO SRO

| | |
|---|---|
| Tier # | 1 |
| Group # | 1 |
| K/A # | 065 AA2.08 |
| Importance Rating | 2.9 |

(Ability to determine and interpret the following as they apply to the Loss of Instrument Air: Failure modes of air-operated equipment)

Proposed Question: Common 53

Both Units are at 100% power when:

- MNS experiences a loss of VI.
- VI Header pressure on both units is 30 psig and continues to decrease.

Which ONE (1) of the following will be FIRST to trip the reactor and its basis?

A. OT Delta T trip due to the MSIVs failing closed.

B. High-High SG level trip because the Feedwater Reg Valves fail open.

C. Turbine Trip due to Feed Pump Trip because the Feedwater Reg Valves fail closed.

D. High Pzr Level trip due to the Charging Flow Control Valve failing open with Letdown isolated.

Proposed Answer: **C**

Explanation (Optional):

A. Incorrect. If MSIVs fail closed it could cause a trip on LO-LO SG level or on OTDT due to Tave rising. FRVs failing will cause the trip significantly faster than MSIV failure. Plausible because until a recent mod, the MSIVs did fail close on a loss of VI.

B. Incorrect. Feedwater reg valves fail closed, but plausible because this is the reactor trip mechanism if they did fail open.

C. Correct. Reactor trip will occur due to turbine trip. If fedwater reg valves fail closed, Feed Pumps will trip on high discharge pressure, which directly causes a turbine trip.

D. Incorrect. This would cause a reactor trip, but at a significantly later time than feedwater reg valve failure. Charging flow control valve fails open and letdown isolates on loss of air, so PZR level will be rising

Technical AP-22 Background (Attach if not previously

Reference(s) Document (p22 Rev 12) provided)
AP/1/A/5500/22 Enclosure 12 p104 106, Rev 27 (Including version or revision #)
CF-CF p19 Rev 32

Proposed references to be provided to applicants during examination: _____

Learning Objective: CF-CF Obj 4 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 5
55.43 _____

Comments:
KA is matched because item evaluates the failure mode of air operated equipment that will cause a reactor trip
**RFA Concurs 4/24/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | E04 EK1.2 | |
| | Importance Rating | 3.5 | |

(Knowledge of the operational implications of the following concepts as they apply to the (LOCA Outside Containment): Normal, abnormal and emergency operating procedures associated with (LOCA Outside Containment).)

Proposed Question: Common 54

Given the following:

- Unit 1 has tripped.
- A LOCA Inside AND Outside Containment is in progress.
- ND relief valves are lifting and stuck open.
- The PRT has ruptured.
- Containment pressure is rising.
- NS actuation has occurred.
- The crew is performing ECA-1.2, LOCA Outside Containment.

The following conditions exist:

- ND Pumps are secured.
- The leak has NOT been isolated.
- Containment pressure 8.5 psig.
- BOTH trains of NS are operating, aligned to FWST.

Which ONE (1) of the following describes the action required for NS operation in accordance with ECA-1.2?

A. Both NS Pumps must be stopped to conserve FWST inventory.

B. ONLY ONE (1) NS pump must be stopped to minimize depletion rate of FWST.

C. Both NS Pumps must remain running as directed by FR-Z.1, Response to High Containment Pressure.

D. At least ONE (1) NS pump must remain running until no longer required after transition to E-1, Loss of Reactor or Secondary Coolant.

Proposed Answer: **A**

Explanation (Optional):

A. Correct. If Containment Pressure is below 10 psi, then both NS pumps must be secured.

B. Incorrect. Plausible because it is the action that would be taken if containment pressure was above 10 psi

C. Incorrect. ECA-1.2 provides its own guidance for operation of NS pumps. FR-Z.1 would also provide guidance, but ECA-1.2 would be the governing procedure

D. Incorrect. Plausible because operation of NS pumps is addressed in E-1, but ECA-1.2 is the governing procedure for operation of these pumps at this time.

Technical Reference(s): ECA-1.2 Rev. 3 (Attach if not previously provided)

EP-E1 p251 Rev 17 (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: EP-E1 #4 (As available)

Question Source: Bank # ____

Modified Bank # ____ (Note changes or attach parent)

New X

Question History: Last NRC Exam ____

Question Cognitive Level: Memory or Fundamental Knowledge ____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 10 ____

55.43 ____

Comments:
KA is matched because the item evaluates operation of NS (containment spray)

during specific conditions with a LOCA Outside Containment
**RFA Concurs 4/24/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | (E11) G2.1.23 | |
| | Importance Rating | 4.3 | |

(Loss of Emergency Coolant Recirculation / Conduct of Operations: Ability to perform specific system and integrated plant procedures during all modes of plant operation.)

Proposed Question: Common 55

Unit 1 has experienced a Large Break LOCA inside Containment.

- The 1B NV Pump is NOT available.
- The ND Pumps are NOT available.
- The crew has implemented ECA-1.1, Loss of Emergency Coolant Recirc.
- 1A NV Pump is running at 400 gpm.
- 1A NI Pump is running at 400 gpm.
- 1B NI Pump is running at 400 gpm.
- The Standby Makeup Pump is NOT available.
- The Reactor Trip occurred 31 minutes ago.

You have been directed to determine minimum required SI flow per Enclosure 9, Flow Required to Match Decay Heat, of ECA-1.1 to minimize SI flow while maintaining greater than or equal to the required flow.

Which ONE (1) of the following will result in the LEAST number of running pumps which will satisfy the MINIMUM SI flow requirement?

**(Reference Provided)**

A. Stop both NI pumps.

B. Stop one NI pump ONLY.

C. Stop the NV pump AND one NI pump.

D. All available pumps must remain running.

Proposed Answer: **B**

Explanation (Optional):

The direction is provided by Step 21 RNO of ECA-1.1. This step would be implemented if Cold Leg recirculation is unavailable, the reactor core is cooled, but sufficient subcooling does not exist to terminate SI flow altogether. In this situation the basis of the step is balancing the need for ECCS flow, and the need to minimize FWST depletion.

Using Enclosure 9, the operator will find the small 3 between the large 10 and 100 on the X axis, and then travel up the vertical line until the curve is intersected. At the intersection point, the operator will read the corresponding value of Minimum SI Flowrate on the Y Axis (≈445 gpm). With all three pumps delivering 400 gpm, two of the three will need to remain operating. The lowest volume pump should be selected to remain operating. The 1A NV Pump should be maintained operating because seal flow should be maintained to the NCPs, and the Standby Makeup pump is unavailable. At least one of the two NI pumps will be required to remain operating. The remaining pump(s) should be stopped. In this case either 1A or 1B NI Pumps should be stopped.

A. Incorrect. This will create a situation where there is insufficient SI flow for the stated conditions. 445 gpm of SI flow is required, and stopping both the 1A and 1B NI Pump will leave SI flow only from the 1A NV Pump at 400 gpm.
B. Correct. (See above).
C. Incorrect. This will create a situation where there is insufficient SI flow for the stated conditions. 445 gpm of SI flow is required, and stopping the 1A NV Pump, and either the 1A and 1B NI Pump will leave SI flow only from the 1A NV Pump at 400 gpm.
D. Incorrect. This response does not follow the direction to stop one or more pumps.

Technical Reference(s): ECA-1.1 Step 21, Rev 10 (Attach if not previously provided)
EP-E1 p213 Rev 17 (Including version or revision #)

Proposed references to be provided to applicants during examination: ECA-1.1, Enclosure 9

Learning Objective: EP-E1 #6 (As available)

Question Source: Bank # ____
Modified Bank # ____ (Note changes or attach parent)
New X

Question History: Last NRC Exam ____

| | | | |
|---|---|---|---|
| Question Cognitive Level: | Memory or Fundamental Knowledge | | |
| | Comprehension or Analysis | | X |
| 10 CFR Part 55 Content: | 55.41 | 10 | |
| | 55.43 | | |

Comments:
KA is matched because applicant must determine procedure actions for loss of Emergency Coolant Recirc based upon a specific set of plant conditions

**RFA Concurs 4/24/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 1 | |
| | K/A # | (E12) G2.1.20 | |
| | Importance Rating | 4.6 | |

(Uncontrolled Depressurization of all S/Gs / Conduct of Operations: Ability to interpret and execute procedure steps.)

Proposed Question: Common 56

With Unit 2 at 100% power the following events occur:

- A steam line rupture has occurred on the common header downstream of the MSIVs.
- All four MSIVs have failed to automatically or manually close from the Main Control Board.
- The crew has entered ECA-2.1, Uncontrolled Depressurization of All Steam Generators.

Which ONE (1) of the following describes the NEXT action taken to attempt closure of the MSIVs?

Dispatch an operator to the.....

A. Battery Room to open the EVDA and EVDD breakers powering the MSIV control circuits.

B. Doghouse to isolate and bleed VI via the manual loader to the MSIVs.

C. Doghouse to RAISE VI pressure in the MSIV Air Assist Accumulator.

D. Doghouse to LOWER VI pressure in the MSIV Air Assist Accumulator.

Proposed Answer: **A**

Explanation (Optional):

A. Correct. Step 3 of ECA-2.1 addresses the status of the MSIVs. If they are NOT closed, the operator is directed to Enclosure 3 which provides two separate steps for closing the valves; removing control power (preferred), and bleeding off air.

B. Incorrect. Enclosure 3 identifies this action as a back up to the preferred method.

C. Incorrect. Not listed as an action on Enclosure 3 to locally close valves. Plausible because OP-MC-STM-SM (p31, Rev 25) indicates that normal air pressure is 82 to 105 psi. If press is < 60 psi the valve is considered inoperable.

D. Incorrect. Not listed as an action on Enclosure 3 to locally close valves. Plausible because OP-MC-STM-SM (p31, Rev 25) indicates that normal air pressure is 82 to 105 psi. If press is < 60 psi the valve is considered inoperable.

Technical Reference(s): ECA-2.1 Step 3, Enclosure 3 Rev 13; EP-E2 p37 Rev 08; OP-MC-STM-SM p31, Rev 25 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: EP-E2 #6 (As available)

Question Source: Bank # ____ Modified Bank # ____ (Note changes or attach parent) New X

Question History: Last NRC Exam ____

Question Cognitive Level: Memory or Fundamental Knowledge X; Comprehension or Analysis ____

10 CFR Part 55 Content: 55.41 10; 55.43 ____

Comments:
KA is matched because given plant conditions, the applicant must execute a procedure step in an attempt to mitigate the event
**RFA Concurs 4/24/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 2 | |
| | K/A # | 005 AA1.02 | |
| | Importance Rating | 3.7 | |

(Ability to operate and / or monitor the following as they apply to the Inoperable / Stuck Control Rod: Rod selection switches)

Proposed Question: Common 57

Unit 2 is operating at 100% power when a runback occurs.

- The Rod Control System responds as designed.
- Rod M-12 in C/B D has stopped moving.
- The OATC leaves rods in AUTO and allows the rest of the C/B D rods to respond.
- A Rod Control Urgent Failure alarm is received due to a Regulation Failure on Rod M-12 in Power Cabinet 1BD.
- The OATC places the C/R Bank Select Switch in MANUAL and attempts to insert Control Rods.

Which ONE (1) of the following describes the response of the Rod Control System and the effect of the Power Cabinet 1BD Rod Control Urgent Failure on the Rod Control System?

Rod motion _____ occur and _____

A. will;
Bank D, Group 2 rods ONLY will insert. Group 1 rods in C/B Bank D will not move.

B. will;
rod motion for the affected Banks and Groups is ONLY affected in Auto.

C. will NOT;
both Auto and Manual rod demand signals are blocked. Rods may ONLY be moved with the selector switch in the C/B D position.

D. will NOT;
both Auto and Manual rod demand signals are blocked. Rod motion is ONLY possible if the alarm is manually reset.

Proposed Answer: **A**

Explanation (Optional):

A. Correct. If Power Cabinet Urgent Failure is in power cabinet 1BD, then *group 1* of Bank *B* and Bank *D* will not move. However rod motion in manual or automatic or individual bank selection is still possible in Group *2* of Bank *B* or Bank *D* and all groups of other banks.

B. Incorrect. This would be true if the individual group was selected not for Manual. Reduced Current is only ordered for the Gp 1 rods not the Gp. 2 Rods in C/B B and D.

C. Incorrect. Plausible if the candidate confuses the Power Cabinet Urgent Failure with a Logic Cabinet Urgent Failure which will stop all rod motion in Auto and Manual.

D. Incorrect. Plausible if the candidate thinks that rod motion is not possible with the bank selector switch selected to C/B D. Also Reduced Current is only ordered for the Gp 1 rods not the Gp. 2 Rods in C/B B and D.

Technical Reference(s): OP-MC-IC-IRE p25-29, Rev 18 (Attach if not previously provided)

(Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam NA

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 6, 10

55.43

Comments:
**RFA Concurs 5/1/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 2 | |
| | K/A # | 024 AA2.03 | |
| | Importance Rating | 2.9 | |

(Ability to determine and interpret the following as they apply to the Emergency Boration: Correlation between boric acid controller setpoint and boric acid flow)

Proposed Question: Common 58

The following conditions exist on Unit 2:

- Power is reduced to 30% using AP/2/A/5500/04, Rapid Downpower.
- 2AD-2/B-9, Rod Control Bank Lo-Lo Limit, is LIT.
- A boration of 18 gpm is required to restore rods above RIL.

Which ONE (1) of the following identifies the number of turns from zero that the potentiometer setting on NVSS5450, Boric Acid Flow Controller, must be set to establish this boration rate AND what the Total Blender Flowrate would indicate?

A. 4.5 Turns;
90 gpm.

B. 4.5 Turns;
18 gpm.

C. 1.8 Turns;
90 gpm.

D. 1.8 Turns;
18 gpm.

Proposed Answer: **B**

Explanation (Optional):

A. Incorrect. BA Flowrate/4 = 18/4 = 4.5 turns and the normal makeup flowrate (90 gpm) of boric acid and demin water does not apply.

B. Correct. BA Flowrate/4 = 18/4 = 4.5 turns and only boric acid flow of 18 gpm flows through the instrument.

C. Incorrect. BA Flowrate/4 = 18/10 = 1.8 turns and the normal makeup flowrate (90 gpm) of boric acid and demin water does not apply.

D. Incorrect. BA Flowrate/4 = 18/10 = 1.8 turns and only boric acid flow of 18 gpm flows through the instrument.

| | | |
|---|---|---|
| Technical Reference(s) | OP/2/A/6100/010 C<br>OP/2/A/6100/022, Table 5.2, Rev 434<br>PS-NV P49 Rev 55<br>OP/2/A/6150/009 Encl 4.2 Rev 74 | (Attach if not previously provided)<br>(Including version or revision #) |
| Proposed references to be provided to applicants during examination: | None | |
| Learning Objective: | PS-NV #5 | (As available) |
| Question Source: | Bank # _____<br>Modified Bank # _____<br>New X | (Note changes or attach parent) |
| Question History: | Last NRC Exam NA | |
| Question Cognitive Level: | Memory or Fundamental Knowledge X<br>Comprehension or Analysis _____ | |
| 10 CFR Part 55 Content: | 55.41 6, 10<br>55.43 _____ | |

Comments:
KA Match:
This event could be considered "emergency boration" because we are in a TS action statement. We could use the "Borate" enclosure to borate and would set the potentiometer to achieve the desired flow rate.

**RFA Concurs 4/24/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 2 | |
| | K/A # | 032 AK1.01 | |
| | Importance Rating | 2.5 | |

(Knowledge of the operational implications of the following concepts as they apply to the loss of Source Range Instrumentation: Effects of voltage changes on performance)

Proposed Question: Common 59

Given the following:

- A reactor startup is in progress.
- Intermediate Range indication is coming on scale.
- Proper NI detector overlap is observed.

With no rod motion in progress, Count Rate on N-31 is $10^3$ CPS and lowering. All other NI indications remain normal.

Which ONE (1) of the following describes the possible reason(s) for the Source Range N-31 indication?

A. Pulse Height Discriminator fails low ONLY.

B. Pulse Height Discriminator fails high ONLY.

C. Either the Pulse Height Discriminator fails low OR the Source Range High Voltage power supply fails.

D. Either the Pulse Height Discriminator fails high OR the Source Range High Voltage power supply fails.

Proposed Answer: **D**

Explanation (Optional):

A. Incorrect. If the PHD failed low, actual indication for the affected channel would rise, because less gamma would be discriminated out.

B. Incorrect. If the PHD failed low, actual indication for the affected channel would lower, because more gamma would be discriminated out. However, failure of the SR High Voltage Power supply would have the same effect.

C. Incorrect. If the PHD failed low, actual indication for the affected channel

would rise, because less gamma would be discriminated out.

D. Correct. If the PHD failed low, actual indication for the affected channel would lower, because more gamma would be discriminated out. If the voltage driving the detector fails low, then indication for that detector would also lower.

Technical Reference(s): IC-ENB, p15-21Rev 26 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: IC-ENB #3 (As available)

Question Source: Bank # ____ Modified Bank # ____ (Note changes or attach parent) New X

Question History: Last NRC Exam ____

Question Cognitive Level: Memory or Fundamental Knowledge ____ Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7 ____ 55.43 ____

Comments:

KA is matched because item evaluates knowledge of a loss of SR high voltage on the detector itself, and resulting operation of the detector. The applicant must determine that this particular failure has caused the observed indication.

**RFA Concurs 4/24/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 2 | |
| | K/A # | 033 AA1.02 | |
| | Importance Rating | 3.0 | |

(Ability to operate and / or monitor the following as they apply to the Loss of Intermediate Range Nuclear Instrumentation: Level trip bypass)

Proposed Question: Common 60

Given the following:

- A reactor startup is in progress.
- IR power indicates 8 X $10^{-11}$ amps on both channels and stable.
- SR High Flux Trip has NOT been blocked.
- IR N-35 starts behaving erratically.
- All other NI indications are normal.
- The crew enters the appropriate AP and places N-35 Level Trip Bypass Switch in BYPASS.

Which ONE (1) of the following describes the effect of placing the N-35 Level Trip Bypass Switch in the BYPASS position? In addition, if the ___(1)___ power fuse fails, the reactor ___(2)___ trip.

A. ONLY the Intermediate Range High Flux Trip is bypassed.
(1) Instrument
(2) will

B. The Intermediate Range High Flux Trip AND the Intermediate Range High Flux Rod Stop are bypassed.
(1) Instrument
(2) will NOT

C. ONLY the Intermediate Range High Flux Trip is bypassed.
(1) Control
(2) will

D. The Intermediate Range High Flux Trip AND the Intermediate Range High Flux Rod Stop are bypassed.
(1) Control
(2) will NOT

Proposed Answer: **B**

Explanation (Optional):

Per IC-ENB, pg 25, the Level Trip Bypass switch prevents a high flux reactor trip when testing the channel. It also bypasses the Intermediate Range High Flux Rod Stop (IC-ENB, pg 123). IC-ENB, p25 states that if either instrument or control power fuses are removed, the bistables will trip. Level Trip Bypass will prevent bistable trip for Instrument Power fuses by maintaining the trip bistable energized when in "Bypass." Control Power fuse failure will deenergize the channel, causing a trip anyway

A. Incorrect. Level Trip Bypass will bypass rod stop as well as trip. Plausible because it is one of 2 functions affected. Level Trip Bypass will prevent trip on Instrument Power Fuse failure.

B. Correct. Level Trip Bypass will bypass rod stop as well as trip. Level Trip Bypass will prevent trip on Instrument Power Fuse failure.

C. Incorrect. Level Trip Bypass will bypass rod stop as well as trip. Plausible because it is one of 2 functions affected. Level Trip Bypass will not prevent a reactor trip on Control Power Fuse failure.

D. Incorrect. Level Trip Bypass will bypass rod stop as well as trip. Level Trip Bypass will not prevent a reactor trip on Control Power Fuse failure

Technical Reference(s): OP-MC-IC-ENB p23, 25 Rev 26; AP16 Rev 10; AP16 Background Document p13, Rev 4 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: IC-ENB Obj 8 (As available)

Question Source: Bank # ____ Modified Bank # ____ (Note changes or attach parent) New X

Question History: Last NRC Exam NA

Question Cognitive: Memory or Fundamental Knowledge X

Level: _____

Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 10 _____

55.43 _____

Comments:
KA is matched because item evaluates operation of the selected switch during a loss of IR Nuclear Instrument

**RFA Concurs 4/24/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 2 | |
| | K/A # | 036 AK2.01 | |
| | Importance Rating | 2.9 | |

(Knowledge of the interrelations between the Fuel Handling Incidents and the following: Fuel handling equipment)

Proposed Question: Common 61

Unit 1 is refueling, with Fuel Handling operations in progress in the Spent Fuel Pool, when the following occurs:

- 1KF-122 is OPEN.
- 1EMF-17, Spent Fuel Bldg Refuel Bridge, is in trip 2.
- Spent Fuel Pool Level is (+) 0.4 feet and stable.
- Spent Fuel Pool Temperature is 90°F and stable.
- The 1A KF Pump is operating.

Which ONE (1) of the following is the most likely cause of these conditions?

A. Complete stoppage of air flow through a NAC-UMS dry storage cask within the last 30 minutes.

B. Damage to a Fuel Assembly while being lifted or lowered.

C. Failure of the KF System.

D. A Cavity Seal Failure.

Proposed Answer: **B**

Explanation (Optional):

A. Incorrect. NAC-UMS FSAR indicates that total loss of air flow for periods of days, rather than minutes will cause fuel damage. If applicants believes that loss of convection cooling to the dry storage canister would cause fuel damage in the 30 minute time it lost cooling flow. Per the FSAR, pg 11.1.4-1, it would take longer than 24 hours before approaching temp limits. ). Plausible if the applicant thinks that 2 trains are always running during refueling or if he thinks level is too low. AP25 Background Document indicates that inadvertent lifting and dropping an assembly are common causes of fuel handling incidents in the industry. The stated symptoms

(1EMF 17) in alarm is an identified.

B. Correct. According to the AP25 Background document, inadvertent lifting of a fuel assembly is a common cause (refer to IN 80-01 and IN 86-58) because in a lot of cases the assembly ends up in an unintended location, which can result in striking objects. Dropping an assembly is also a fairly common cause (refer to IN 80-01).

C. Incorrect. Only 1 train is needed due to heat load (FH-KF, page 43). KF failure is plausible if applicant thinks that level is too low.

D. Incorrect. Pool level is above normal (KF, pg 27 Low flow through demineralizer means less clean up of activity. Low level could mean less scrubbing of volatile activity. Symptom of AP25, Spent Fuel Damage. SFP Level is normal. If Cavity Seal Failure, level would be going down if KF-122 is open.

| | | |
|---|---|---|
| Technical Reference(s) | AP25 Rev 8 | (Attach if not previously provided) |
| | AP25 Background Document, p2 Rev 4 | (Including version or revision #) |
| | OP-MC-FH-KF p19, 23, 27, 43, Rev 29 | |
| | NAC-UMS FSAR | |

Proposed references to be provided to applicants during examination: None

Learning Objective: AP-AP25 # 2 (As available)

Question Source:

| | | |
|---|---|---|
| Bank # | | |
| Modified Bank # | | (Note changes or attach parent) |
| New | X | |

Question History: Last NRC Exam NA

Question Cognitive Level:

| | |
|---|---|
| Memory or Fundamental Knowledge | |
| Comprehension or Analysis | X |

10 CFR Part 55 Content:

| | |
|---|---|
| 55.41 | 10,11 |
| 55.43 | |

Comments:
KA Match:
Improper operation or **malfunction of fuel handling equipment** could result in dropping a fuel assembly, potentially damaging one or more fuel assemblies. This is considered a **Fuel Handling Incident**

**RFA Concurs 4/24/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 2 | |
| | K/A # | 067 AA2.12 | |
| | Importance Rating | 2.9 | |

(Ability to determine and interpret the following as they apply to the Plant Fire on Site: Location of vital equipment within fire zone)

Proposed Question: Common 62

With Unit 1 at 100% power the following occurs:

- Zone 148 Alarm on EFA Computer, RCP 1B Motor.

After acknowledging this alarm, the operator notes the following:

- Lower Containment Weighted Average Hourly is 100°F and slowly increasing.
- Containment pressure is 0.11 psig and slowly increasing.
- 1B NC Pump Motor Stator Winding Temperature is 265°F.
- 1B NC Pump Motor Bearing Temperature is 140°F.

Which ONE (1) of the following identifies the REQUIRED plant procedure(s) that must be implemented to identify vital equipment that may be affected, and actions taken to protect this equipment?

A. AP/1/A/5500/08, NC Pump Malfunction AND AP/1/A/5500/45, Plant Fire.

B. AP/1/A/5500/24, Loss of Plant Control Due to Fire or Sabotage ONLY.

C. AP/1/A/5500/45, Plant Fire ONLY.

D. AP/1/A/5500/08, NC Pump Malfunction AND AP/1/A/5500/24, Loss of Plant Control Due to Fire or Sabotage.

Proposed Answer: **C**

Explanation (Optional):
The indications provided indicate that an actual fire event is taking place at the 1B NC Pump (Zone 148 Alarm – RCP 1B Motor). The mitigation strategy will be handled by addressing AP45, and dispatching the Fire Brigade into the Containment.

A. Incorrect. The purpose of AP8 is to ensure proper response in the event of a malfunction of an NC pump and to identify the appropriate actions in the event of an NC Pump Seal or Pump Lower Bearing Malfunction, an NC Pump Motor or Motor Bearing Malfunction, or Excessive Vibration. While the event may degrade to these types of problems, the entry conditions are not yet met. The distractor is plausible because the fire event is associated with the 1B NC Pump motor, and the operator may believe that this is a result of a malfunction of the 1B NC Pump.

B. Incorrect. The purpose of AP24 is to describe steps to be taken to achieve and maintain Hot Standby following a fire event that results or could result in a loss of plant control from the Control Room or Aux Shutdown Panel. This procedure will also be used following security events that could result in a loss of plant control from the Control Room or Aux Shutdown Panel. This procedure will also be used when referenced by any procedure that requires plant shutdown using the SSF. While the event may degrade to these types of problems, the entry conditions are not yet met.

C. Correct. AP45 provides guidance to mitigate the effects of a fire that has the potential of causing loss of control of safeguards systems during MODEs 1-3. It will send the operator to an Enclosure based on the determination of an active fire, and then identify vital equipment within the area, and steps that must be taken to protect the equipment.

D. Incorrect. Both of these procedures are inappropriate (See A and B).

Technical Reference(s): AP/1/A/5500/08 Rev 9; AP/1/A/5500/24 Rev 26; AP/1/A/5500/45 Rev 6; AP 45 Background Document Rev 7 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: AP-AP45 #1, 2 (As available)

Question Source: Bank # ____ Modified Bank # ____ (Note changes or attach parent) New X

Question History: Last NRC Exam NA

| | | |
|---|---|---|
| Question Cognitive Level: | Memory or Fundamental Knowledge | X |
| | Comprehension or Analysis | |
| 10 CFR Part 55 Content: | 55.41 | 10 |
| | 55.43 | |

Comments:

KA Match:

**Plant Fire on Site** – fire is in Unit 1 containment; **Location of vital equipment** – recognition that NC Pump 1B is in the fire zone that is in alarm.

**RFA Concurs 4/24/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 2 | |
| | K/A # | 069 AK3.01 | |
| | Importance Rating | 3.8 | |

(Knowledge of the reasons for the following responses as they apply to the Loss of Containment Integrity: Guidance contained in EOP for loss of containment integrity)

Proposed Question: Common 63

Which ONE (1) of the following Emergency Procedure actions is taken to MINIMIZE radiological releases?

A. Feeding a Ruptured Steam Generator until level is above the tubes and then stopping feedflow.

B. Stopping and isolating the ND pumps from the FWST during a LOCA outside containment.

C. Isolating steam flow from and feed into a Faulted Steam Generator.

D. Maintaining a minimum CA flow to a hot dry Steam Generator.

Proposed Answer: A

Explanation (Optional):

A. Correct. The E-3 background document (EP-E-3 p57 Rev 6) states that feeding a ruptured SG until the tubes are covered, and then stopping flow will minimize radiological releases.

B. Incorrect. The E-1 Background document (EP-E-1 p250 Rev 17) states that Stopping the ND Pumps and isolating them from the FWST during a LOCA Outside Containment is done to ensure that FWST inventory is available to the NV and NI to cool the core.

C. Incorrect. The E-2 Background document (EP-E-2 p 25 Rev 8) states that isolation of the steam and feed out of and into a Faulted SG is accomplished to limit the NC Cooldown and maintain the inventory for cooldown capability.

D. Incorrect. ECA-2.1 Background document (EP-E-2 p39 Rev 8) indicates that CA flow should be maintained to a Hot, Dry SG to ensure that thermal shock of the SG internals does NOT occur on a later reinitiation of feed

flow.

| | | |
|---|---|---|
| Technical Reference(s) | EP-E-3 p57 Rev 6 | (Attach if not previously provided) |
| | EP-E-1 p249 Rev 17 | (Including version or revision #) |
| | EP-E-2 p 25, 39 Rev 8 | |
| | | |

Proposed references to be provided to applicants during examination: _____

Learning Objective: EP-E3 #4, EP-E1 #4, EP-E2 #4, EP-ECA #4 (As available)

Question Source:
- Bank # _____
- Modified Bank # _____ (Note changes or attach parent)
- New X

Question History: Last NRC Exam NA

Question Cognitive Level:
- Memory or Fundamental Knowledge X
- Comprehension or Analysis _____

10 CFR Part 55 Content:
- 55.41 10
- 55.43 _____

Comments:
KA Match:
**Loss of Containment Integrity** – SGTR event; **guidance in EOP for loss of containment integrity** – ensuring level in ruptured S/G covers the tubes to prevent thermal stratification, possibly increasing primary to secondary leak.

**RFA Concurs 4/24/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 2 | |
| | K/A # | 076 AK2.01 | |
| | Importance Rating | 2.6 | |

(Knowledge of the interrelations between the High Reactor Coolant Activity and the following: Process radiation monitors)

Proposed Question: Common 64

Unit 2 was operating at 100% power when a loss of power to 2B NCP occurred and was compounded by an ATWS event.

Given the following events and conditions:

- The Control rods were locally tripped two minutes after the NCP lost power.
- Emergency boration has increased NC boron concentration by 15 ppm.
- Pzr pressure has stabilized at 1780 psig.
- The 2B NCP has been restarted.
- Containment radiation levels have doubled as indicated by:
    - 2EMF-2, Rx Bldg Incore Inst Rm
    - 2EMF-3, Rx Bldg Refuel Bridge
    - 2EMF-5, NC Flt.2A

Which ONE (1) of the following describes the most probable cause of the increase in containment radiation levels following the event?

NCS activity has increased due to…

A. NCP cycling OR mechanical shock of ECCS actuation.

B. the boron concentration change OR NCP cycling.

C. the boron concentration change OR mechanical shock of ECCS actuation.

D. a loss of letdown flow through the NV Demineralizers OR reactor trip.

Proposed Answer: **A**

Explanation (Optional):

A. Correct. Mechanical shock (Rx trip, NCP cycling and ECCS actuation)

causes a crud burst.

B. Incorrect. Activity increases are primarily due to mechanical shock. Plausible: based on the amount of boric acid, the NCS will not change enough to see any difference in activity. A larger pH change can cause a crud burst (chemical shock) - but this emergency boration will not cause a significant pH change.

C. Incorrect. 1st part incorrect (See B), and part correct (See A).

D. Incorrect. 1st part incorrect because letdown has not isolated or been diverted. 2nd part is correct (See A).

Technical Reference(s): OP-MC-CH-PC p21, Rev 17 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: CH-PC #4 (As available)

Question Source: Bank # McGuire NRC Bank # 119

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: Last NRC Exam Not on 2005/2007 Exams

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 5, 11, 14

55.43 _____

Comments:
Only formatting changes made from McGuire NRC Bank Question #119.

KA Match:
Question deals with a mechanically induced crud burst causing **High Reactor Coolant Activity.**

The higher activity will be detected by the **process radiation monitors** in the rx building and the NC filter in service.

**RFA Concurs 4/24/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 1 | |
| | Group # | 2 | |
| | K/A # | (E02) G2.4.8 | |
| | Importance Rating | 3.8 | |

(SI Termination / Emergency Procedures / Plan: Knowledge of how abnormal operating procedures are used in conjunction with EOP's.)

Proposed Question: Common 65

Unit 1 is at 100% power when an inadvertent SI actuation occurred.

The crew is performing ES-1.1, SI Termination.

- Normal Charging is aligned.
- NI Pumps are stopped.
- ND Pumps are stopped.
- Pzr level is rising.
- Normal Letdown is established.

Subsequently, during verification of NC Pump cooling in ES-1.1, the following occurs:

- Seal Injection flow is lost to all NC Pumps.
- Charging flow indicates 0 GPM.
- Pzr level is going down and results in letdown isolation.
- Pzr level stabilizes prior to reaching SI reinitiation criteria.

Which ONE (1) of the following describes the procedure usage required for these conditions?

A. Return to step 1 of ES-1.1 and reestablish Charging and Letdown.

B. Continue in ES-1.1 until completed, and then proceed to OP/1/A/6100/002, Controlling Procedure for Unit Shutdown.

C. Continue in ES-1.1 and concurrently attempt to restore Charging and Seal Injection in accordance with AP-12, Loss of Letdown, Charging, or Seal Injection.

D. Immediately suspend ES-1.1; GO TO AP-12 to restore Charging and Seal Injection. When Seal Injection is restored, return to ES-1.1, step in effect.

Proposed Answer: **C**

Explanation (Optional):

A. Incorrect. If Charging and letdown are lost, the crew will not go back to the original steps, but will perform actions based on continuous action requirements or foldout page items

B. Incorrect. Plausible because concurrent AP use is typically not recommended per OM-4.3.

C. Correct. ES-1.1 directs performance of the AP if Charging/Seal Injection is lost.

D. Incorrect. ES-1.1 would not be suspended, but the AP would be 'handed off' to an available RO to perform while the EPs were still being followed.

Technical Reference(s): OMP-4.3 p22 Rev 26 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam NA

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7, 10
55.43 _____

Comments:

KA is matched because item evaluates use of AOPs in conjunction with selected topic (SI Termination)

**RFA Concurs 4/24/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 3 | |
| | Group # | NA | |
| | K/A # | G2.1.18 | |
| | Importance Rating | 3.6 | |

(Ability to make accurate, clear and concise logs, records, status boards, and reports.)

Proposed Question: Common 66

After two hours into a shift on Unit 1, the OATC reviews the Control Room Unit Log and identifies the following:

- A plant transient occurred on the previous shift.
- A momentary entry into a Technical Specification Action Statement occurred.
- The event was NOT logged.
- No TSAIL entry was made.

Which ONE (1) of the following describes the MINIMUM required course of action?

A. The CRSRO makes a TSAIL entry, and then clears the entry because the condition no longer exists. The CRSRO makes the correction to the previous shift's log.

B. The OATC makes a follow-up entry in the current shift's log explaining the situation. A TSAIL entry is NOT required.

C. The CRSRO makes the correction to the previous shift's log. A TSAIL entry is NOT required.

D. The OATC makes the TSAIL entry, and then clears the entry because the condition no longer exists. The CRSRO follows up with an entry in the current log.

Proposed Answer: **B**

Explanation (Optional):

A. Incorrect. Section 7.2 of OMP 5-2 states that entry into a TS Action Statement for which a TSAIL entry will NOT be made requires entry into the Control Room Unit Log. If conditions no longer exist, then TSAIL entry will not be required

B. Correct. Section 6.4 of OMP 5-2 states that the OATC can make Control Room Log entries. Section 6.15.2 of OMP 5-2 states that editing of archived logs should NOT normally be done. Rather, errors in archived logs should be explained in follow-up entries in current active logs.

C. Incorrect. Section 6.12 of OMP 5-2 states that log archiving is to take place in the first 15 minutes of the shift. Therefore, the previous shift logs are archived logs. Section 6.15.2 of OMP 5-2 states that editing of archived logs should NOT normally be done.

D. Incorrect. TSAIL entry is not required, and OATC would not perform that action if it was required.

Technical Reference(s): OMP 5-2 Section 6.4, 6.106.12, 6.15, and 7.2 Rev 14 (Attach if not previously provided)

(Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: ADM-OMP #9 (As available)

Question Source: Bank # ____

Modified Bank # ____ (Note changes or attach parent)

New X

Question History: Last NRC Exam NA

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis ____

10 CFR Part 55 Content: 55.41 10

55.43 ____

Comments:
KA Match:
Make accurate, clear, and concise **logs**, records, status boards and reports. Question addresses how to properly **update the Control Room Unit Log**

**RFA Concurs 4/25/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 3 | |
| | Group # | NA | |
| | K/A # | G2.1.13 | |
| | Importance Rating | 2.5 | |

(Knowledge of facility requirements for controlling vital / controlled access.)

Proposed Question: Common 67

A maintenance worker must enter a Vital Area to complete a task that will only take 5 minutes. He has unescorted access but his security badge is not coded to allow access to this area.

An operator is making rounds in the area. The maintenance worker asks the operator to open the CAD door and allow him access.

Which ONE (1) of the following identifies the correct response from the operator?

A. The worker may NOT enter the Vital Area. He must first go to the Security Badging Office and obtain approval for permanent change to include the Vital Area.

B. The operator can escort the worker provided he first calls Security Badging Office to obtain permission to assume visitor escort duties for the worker.

C. The operator is allowed to escort the worker into the area provided that he maintains the worker under his control at all times.

D. The operator can escort the worker provided they first go to the Security Badging Office and obtain an escorted visitor's badge.

Proposed Answer: **A**

Explanation (Optional):

NSD-217 (section 271.9, pg 7) states that individuals with picture badges (unescorted access) can not be escorted into an area that they have not been authorized to enter. If access is needed, forms must be filled out and approval for unescorted access must be made. This section also states that temporary unescorted access is not allowed.

A. Correct. See explanation above. Also, the Plant Access Training Student

Guide indicates that "Tailgating" occurs when one individual follows another individual into a vital area without swiping their Security Badge. This practice is prohibited.

B. Incorrect. Person with unescorted access can not be escorted into an area for which he is not authorized.

C. Incorrect. Person with unescorted access can not be escorted into an area for which he is not authorized.

D. Incorrect. Must be granted permanent escorted access to enter.

Technical Reference(s): 2008 PAT Student Guide Slide 27; Duke 2008 PAT p7; NSD-217, pg 7 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

Question Source: Bank # McGuire NRC Bank # 5

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: Last NRC Exam Not on 2005/2007 Exams

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 10

55.43 _____

Comments:

Only formatting changes made from McGuire NRC Bank Question #5.

KA Match:

Question deals with the escorting **requirements for access to a vital area**.

**RFA Concurs 4/25/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 3 | |
| | Group # | NA | |
| | K/A # | G2.1.8 | |
| | Importance Rating | 3.4 | |

(Ability to coordinate personnel activities outside the control room.)

Proposed Question: Common 68

Unit 1 is in Mode 6:

- Fuel movement is in progress.
- A leak has developed which has caused Spent Fuel Pool level to drop.
- The Spent Fuel Pool Level Low computer alarm is activated.
- The SFP was initially at normal level and radiation level was 7 mr/hr.
- After 20 minutes, Pool level has decreased by more than 12 inches and radiation level is now 18 mr/hr.

Which ONE (1) of the following will be the MINIMUM required action(s) to terminate the loss of level in the Spent Fuel Pool per AP- 41, Case 2, Loss of Spent Fuel Pool Level AND AP- 40, Loss of Refueling Cavity Level?

A. Direct the Fuel Handling Crew to move the fuel transfer cart to the reactor side and dispatch operators to close 1KF-122, Fuel Transfer Tube block valve ONLY.

B. Direct the Fuel Handling Crew to move the fuel transfer cart to the reactor side and dispatch operators to close 1KF-122, Fuel Transfer Tube block valve AND place the Weir Gate in position and inflate the seals.

C. Direct the Fuel Handling Crew to move the fuel transfer cart to the spent fuel pool side and dispatch operators to close 1KF-122, Fuel Transfer Tube block valve ONLY.

D. Direct the Fuel Handling Crew to move the fuel transfer cart to the spent fuel pool side and dispatch operators to close 1KF-122, Fuel Transfer Tube block valve AND place the Weir Gate in position and inflate the seals.

Proposed Answer: **C**

Explanation (Optional):

A. Incorrect. The transfer cart will be placed on the SFP side prior to closing KF-122.

B. Incorrect. The transfer cart will be placed on the SFP side prior to closing KF-122.

C. Correct. The operator would enter AP-41 and then transition to AP-40 at Step 2 RNO. Step 3 of AP-40 would then require the operator to move the fuel transfer cart to the spent fuel pool side and dispatch operators to close 1KF-122.

D. Incorrect. Action may be performed later, but will take a significant amount of time to complete. Action would not be required if action in C was successful

| | | |
|---|---|---|
| Technical Reference(s) | AP-41 p7 Rev 6 | (Attach if not previously provided) |
| | AP-40 p3, 4, 7 Rev 6 | (Including version or revision #) |
| | FH-KF p21, 23 Rev 29 | |
| | AP-40 Basis Document p 4, 5 Rev 2 | |
| | OP/1/A/6200/005, Encl 4.4 | |

Proposed references to be provided to applicants during examination: None

Learning Objective: AP-AP-40 Obj 2; FH-KF Obj 4 (As available)

Question Source:

| | | |
|---|---|---|
| Bank # | | |
| Modified Bank # | | (Note changes or attach parent) |
| New | X | |

Question History: Last NRC Exam

Question Cognitive Level:

| | |
|---|---|
| Memory or Fundamental Knowledge | |
| Comprehension or Analysis | X |

| | | |
|---|---|---|
| 10 CFR Part 55 Content: | 55.41 | 10 |
| | 55.43 | |

Comments:
KA is matched because item involves direction of activities outside control room during a fuel handling incident

**RFA Concurs 4/25/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 3 | |
| | Group # | NA | |
| | K/A # | G2.2.40 | |
| | Importance Rating | 3.4 | |

(Ability to apply technical specifications for a system.)

Proposed Question: Common 69

While performing a cooldown on Unit 1 from Mode 3 to Mode 5 the following parameters were logged.

| Time | NC Press | NC Temp | Pzr Liq Space Temp |
|---|---|---|---|
| 0200 | 2200 psig | 553°F | 650°F |
| 0230 | 1550 psig | 527°F | 606°F |
| 0300 | 1135 psig | 505°F | 560°F |
| 0330 | 765 psig | 447°F | 494°F |
| 0400 | 400 psig | 402°F | 440°F |

Which ONE (1) of the following describes the Technical Specification/Selected License Commitment (TS/SLC) implications of these conditions?

A. NCS AND Pzr cooldown rate limits were exceeded;
TS/SLC action is required within a maximum of 30 minutes.

B. NCS AND Pzr cooldown rate limits were exceeded;
TS/SLC action is required within a maximum of 60 minutes.

C. ONLY NCS cooldown rate limits were exceeded;
TS/SLC action is required within a maximum of 30 minutes.

D. ONLY NCS cooldown rate limits were exceeded;
TS/SLC action is required within a maximum of 60 minutes.

Proposed Answer: **C**

Explanation (Optional):

Per TS 3.4.3, the NC cooldown limit is 100 °F/hour. Per SLC 16.5.8 the PZR

cooldown limit is 200 °F/hour. Action required for both is 30 minutes.

A. Incorrect. Cooldown rate in PZR has NOT been exceeded. Plausible if applicant applies the 100 degree per hour limit to PZR. Correct response time.

B. Incorrect. Cooldown rate in PZR has NOT been exceeded. Plausible if applicant applies the 100 degree per hour limit to PZR. 60 minutes is incorrect. It is plausible because it is within 1 hour, but is outside of the required action time.

C. Correct. NCS cooldown rates have been exceeded, but not the PZR cooldown rate. Correct response time.

D. Incorrect. NCS cooldown rates have been exceeded, but not the PZR cooldown rate. Incorrect response time.

Technical Reference(s): TS 3.4.3 (Attach if not previously provided)

SLC 16.5.8 (Including version or revision #)

Proposed references to be provided to applicants during examination: _____

Learning Objective: PS-NC Obj 24, 25 (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam Various similar – different times

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 5

55.43 _____

Comments:

KA is matched because TS actions for violation of RCS cooldown limits are being applied

**RFA Concurs 4/25/08**

| Examination Outline Cross-reference: | Level | RO | SRO |
|---|---|---|---|
| | Tier # | 3 | |
| | Group # | NA | |
| | K/A # | G2.2.13 | |
| | Importance Rating | 4.1 | |

(Knowledge of tagging and clearance procedures.)

Proposed Question: Common 70

At the end of a shift, there is an outstanding Configuration Control Card (CCC), because a component could not be returned to its AS FOUND position.

Which ONE (1) of the following describes the correct disposition of the CCC?

A. Document the CCC as part of your turnover at shift relief.

B. Return the CCC to the CRSRO to determine whether it should be turned over, or if a procedure change will be required.

C. Return the CCC to the OSM. An R&R will be issued prior to shift turnover.

D. Return the CCC to the WCC SRO. The CCC will be tracked as open until the component can be repositioned to it's AS FOUND position.

Proposed Answer: **C**

Explanation (Optional):

A. Incorrect. Component will be out of position. Must be resolved more than just document.

B. Incorrect. Plausible because conditions may exist for either, but the actual CCC will NOT be turned over

C. Correct. Tags would be required if a component could not be returned to as found. This would be done prior to turnover.

D. Incorrect. CCC goes to CRSRO, not WCC SRO. CCC will not be left open for turnover.

Technical Reference(s): SOMP 2-1 Rev 3 (Attach if not previously provided) (Including version or revision #)

Proposed references to be provided to applicants during examination: None

Learning Objective: ADM-OP #40 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 10
55.43 _____

Comments:
KA is matched because the applicant must determine when an R&R (tagout) must be issued for configuration control
**RFA Concurs 4/25/08**