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Date: 29-Nov-05 8:11:13 PM
Subject: December 2005 Operator Licensing Examination

!!!!!!!!!!!!!!!!!! THINK EXAM SECURITY PLEASE !!!!!!!!!!!!!!!!!!!

This is our fifth submission for the December 2005 ILO exam. These are the questions that we discussed on Monday, 28 November, by telephone. The questions reflect the changes we agreed to during that call. However, the revised questions have not been reviewed by the NRC's Chief Examiner assigned to this project nor approved by the Region 1 Operator Licensing Branch Chief. Although NRC approval is still pending, they are available for your use during your planned validation on Wednesday, 30 November.

Questions 2, 12, 12, 14, 16, 18, 26, 31, 33, 35, 49, 53, 56, 58, 59, 63, 66, 72, 74, 78, 79, 80, 85, 89, 95, and 96 contain editorial changes.

Also, confirming our discussion concerning Applicant references, the following questions require references:

<u>Question</u>	<u>Reference</u>
9	ON-204-201
14	EOPs without entry conditions
15	EOPs without entry conditions and Steam Tables
23	EOPs without entry conditions
29	ON-204-202
34	T.S. 3.1.7
41	Steam Tables
59	Power to Flow map for the applicable unit.
73	EOPs without entry conditions
78	EOPs without entry conditions
79	EOPs without entry conditions and EAL Tables.
89	ON-102-610
90	OP-024-001 and SO-024-001
92	M-142, Sheets 1 & 2 and Tech Specs (all LCOs only)
95	Tech Specs (all LCOs only) - SROs
97	NDAP-QA-1901

During your reviews this week, please confirm that none of the references for questions 76 and higher will provide answers for questions 1 through 75.

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!!!!!!!!!!!!!!!!!! THINK EXAM SECURITY PLEASE !!!!!!!!!!!!!!!!!!!

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Question Number: 2

2

RO

SRO

Question ID: 29693 Origin: Mod

Memory Level

Given the following conditions:

- SSES Unit 1 recently entered Mode 4 to start a refueling outage following a 500 day run.
- SSES Unit 2 is in mode 1 at full power and flow.
- The station experiences a loss of Startup Transformer T-20.
- All Unit 1 and Unit 2 equipment is in the normal alignment for these conditions.

Which ONE of the following actions must be accomplished, in a short amount of time to maintain Unit 1 in Mode 4?

- A** Restore Power to RPS Bus "A"
- B** Restore Power to RPS Bus "B"
- C** Restore the CRD System to service
- D** Start the ESW system

Question Number: 2

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - NO
WRONG: does not de-energize

CHOICE (B) - YES
T-20 causes loss of RPS "B".

CHOICE (C) - NO
Will not cause major damage in short amount of time.

CHOICE (D) - NO
WRONG: EDGs should NOT have started. ESW required to cool EDGs.

References

SSES Bank

Comments and Question Modification History

GXJ

THF

RJC

SSES

1. (HB 09/08/05) Modified from SSES Bank.

24 month 700 days or 18 month 500 days for SQ to answer

2. THF 09/08/05 - clarified stem.

3. Gil 09/09/05 - concerned about K/A match.

4. Gil 09/26/05 - K/A mismatch. Relationship between containment isolation and EAL?
R: on a loss of T-20, RPS buss "B" is deenergized. This causes Primary CTMT isolation including isolation of RHR in SDC mode. The successful Applicant must recognize the reason PCIS isolated is the loss of RPS buss "B" and that the isolation interrupted SDC which must be restored to prevent entry into an EAL. If SDC not restored, the threshold for an EAL will be crossed.

5. Todd 09/30/05 - OK.

6. Rich 10/03/05 - odd way to ask response question?
R: change to "why did the SM declare the event". Saved original question as number 21.

7. SQ 10/14/05 - TOSS
a - Not RO level
b - K/A miss (reason for isolation under loss of AC)
c - Technically not correct.

8. SQ 10/17/05 - rejected attempt to modify and used original BANK question. Changed T-10 to T-20 and RPS "A" to "B" to make it less recognizable. But essentially still the same question.

9. SQ 11/04/05 - questioned SSES directly about K/A match. SSES states that this is an adequate fit to the K/A because the Applicant must understand the reasoning for power restoration is to clear the CTMT ISO. SSES concedes that the K/A match is indirect but still considers it adequate.

10. SQ 11/14/05 - added condition that all equipment is normal alignment. changed stem "maintain Unit 2 in mode 4" instead of prevent damage to major plant equipment.

11. SQ 11/28/05 - changed Unit 2 to Unit 1 to match condition of maintaining mode 4.

NRC K/A System/E/A

System 2950 Partial or Complete Loss of A.C. Power
03

Number AK3.06 **RO** 3.7 **SRO** **CFR Link**

AK3. Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER :
AK3.06 Containment isolation

NRC K/A Generic

Question Number: 12

12

RO

SRO

Question ID: 29690 Origin: New

Memory Level

SSES Unit 2 Operators are responding to a High Drywell Pressure condition by venting the drywell per OP-273-003, Primary Containment Nitrogen Makeup and Venting. There is no failed fuel and the Containment atmosphere is below minimum detectable activity (MDA). How does the method of Drywell venting per Section 2.3 of OP-273-003, Venting Drywell, prevent an UNMONITORED and UNCONTROLLED release?

The Drywell is vented . . .

- A** . . . to the Standby Gas Treatment Exhaust Vent via the Standby Gas Treatment system.
- B** . . . to the Zone 3 Filtered Exhaust via the Recirculation Plenum.
- C** . . . to the SSES Unit 2 Filtered Exhaust via the Recirculation Plenum.
- D** . . . to the SSES Unit 2 Turbine Building Filtered Exhaust via the Ambient Offgas Charcoal system.

Question Number: 12

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - YES

CHOICE (B) - NO

WRONG: This is not the vent path

VALID DISTRACTOR: From the Training diagram, this appears to be a possible flow path.

CHOICE (C) - NO

WRONG:

VALID DISTRACTOR: Plausible to believe that the Nitrogen gas could be compressed and reused. However, it's not done this way.

CHOICE (D) - NO

WRONG:

VALID DISTRACTOR: Plausible method of venting the Drywell. However, it's not done this way.

References

TM-OP-70 (46) and 73 (10)

Comments and Question Modification History

CXJ

THF

RJC

SSES

1. (HB 09/08/05) New by Gil. Check TRM 3.6.1.

2. THF 09/08/05 - no comment

3. Gil 09/09/05 - no comment

4. Gil 09/26/05 - Is the flow path in distracter "B" possible?

R: No. none of the distracter flow paths are possible. Replaced "The Drywell is vented to the Offgas Recombiner via the Main Condenser." with new distracter.

5. SQ 10/14/05 - editorial change to stem and complete rewrite of the distractors. Saved original version as 121.

6. SQ 11/14/05 - deleted " to assure radiation exposures remain as low as reasonably achievable (ALARA)" from stem per SSES suggestion.

7. SQ 11/28/05 - SSES considers "D" as implausible and will attempt to develop better distractor.

NRC K/A System/E/A

System 2950
24

Number

RO

SRO

CFR Link

NRC K/A Generic

System 2.3 Radiation Control

Number 2.3.2

RO 2.5

SRO 2.9

CFR Link (CFR: 41.12 / 43.4. 45.9 / 45.10)

Knowledge of facility ALARA program.

Question Number: 14

14

RO

SRO

Question ID: 29696 Origin: Mod

Memory Level

A Main Generator trip and a Plant Aux load shed occurred while SSES Unit 1 was operating at 100% power. The following conditions exist:

- A failure to scram occurred.
- Initial Reactor power was 4%.
- SRVs are cycling to maintain Reactor Pressure.
- Suppression Chamber pressure is 18 psig.
- Drywell Temperature is 220 degrees Fahrenheit.
- Suppression Pool water level is 31 feet.
- Suppression Pool Temperature is 135 degrees Fahrenheit and slowly lowering.

Which ONE of the following states the required Operator action and the basis of that action?

- A** Perform an emergency cooldown using the Main Turbine Bypass Valves to prevent the impulse load on the Supression Pool from exceeding design loads.
- B** Perform a rapid depressurization using the SRVs to ensure Primary Containment vent valve opening pressure will not be exceeded following RPV depressurization.
- C** Transfer HPCI suction from the Condensate Storage Tank to the Suppression Pool to prevent further Suppression Pool water level increase.
- D** Reduce Reactor pressure using SRVs and stop HPCI and RCIC to prevent operation with water in the turbine exhaust lines.

Question Number: 14

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - NO

WRONG: TBVs unavailable due to load shed & loss of Circ Water.

VALID DISTRACTOR: may want to remove energy via normal means.

CHOICE (B) - NO

WRONG: HCTL NOT exceeded. This is a key mod to the original question.

VALID DISTRACTOR: Applicant may recognize past question or misread HCTL curves.

CHOICE (C) - YES per SP/L-12.

CHOICE (D) - NO

WRONG: SP/L-11 prefers running HPCI and RCIC to prevent auto start with water in Turbine Exhaust.

VALID DISTRACTOR: play on actual requirements.

References

SSES ILO Exam of August 2004.

EO-000-103.

Comments and Question Modification History

CXJ

THF

RJC

SSES

New question after SSES review determined that original had little or no plant relevance.

SQ 11/14/05 - changed Unit 2 to Unit 1 in stem because Applicants will only have Unit 1 EOPs. Changed Drywell Pressure to Suppression Chamber Pressure per SSES recommendation. Added "and slowly lowering" to SP temp conditions. Validation Week.

SQ 11/28/05 - editorial change from "Auxiliary Buss load shed" to "Plant Aux load shed" to conform to SSES vernacular. Condition change DW Temp from 149 to 220 to be more realistic.

NRC K/A System/E/A

System 2950 Suppression Pool High Water Temperature
26

Number EK1.02 **RO** 3.5 **SRO** 3.8 **CFR Link** (CFR 41.8 to 41.10)

Knowledge of the operational implications of the Steam condensation as it applies to SUPPRESSION POOL HIGH WATER TEMPERATURE

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 16

16

RO

SRO

Question ID: 29577 Origin: New

Memory Level

Which of the following describes the method that provides the highest flow rate of makeup to the Suppression Pool per OP-159-001, Suppression Pool Cleanup System, during Mode 1 operation?

- A** Pump the Condensate Storage Tank with the Condensate Transfer Pump to the CORE SPRAY CONDENSATE TRANSFER ISOLATION TO LOOP "B" MINIMUM FLOW LINE 152028.
- B** Gravity drain the Condensate Storage Tank through the Reactor Core Isolation Cooling (RCIC) Pump Casing to the RCIC MIN FLOW TEST LINE HV-149-F019.
- C** Pump the Condensate Storage Tank with the Reactor Core Isolation Cooling (RCIC) Pump to the RCIC MIN FLOW TEST LINE HV-149-F019.
- D** Gravity drain the Condensate Storage Tank through CORE SPRAY CST SUPPLY ISOLATION 152021 and CORE SPRAY PUMP B&D CST SUCTION SUPPLY 152F002B to the Core Spray suction strainers.

Question Number: 16

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - NO
WRONG: lower flow rate than the correct response.
VALID DISTRACTOR: normal method of makeup.

CHOICE (B) - NO
WRONG: Not procedurally authorized.
VALID DISTRACTOR: would work.

CHOICE (C) - NO
WRONG: Not procedurally authorized.
VALID DISTRACTOR: Would work

CHOICE (D) - YES

References

Section 3.4 of OP-159 and SP/L-1 specify use of the Suppression Pool Cleanup system.

Comments and Question Modification History

GXJ

THF

RJC

SSES

Inspired by Peach Bottom 2 September 2002 exam (Question ID 24782)

Gil 09/09/05 - editorial change to stem

CONSIDER CHANGING ALL DISTRACTORS TO: Gravity drain CST through RHR, HPCI, RCIC suction strainers.
?????????

Gil 09/26/05 - Correct answer is longest. Should balance with other distracters.
R: added full noun name descriptions to "B" and "C" for HPCI and RCIC. However, unable to perfect length of selections without degrading operational validity of the distracters or creating new psychometric clues.

Todd 09/30/05 - deleted "SSES Unit 1 is operating at full power. A failure of PSV152-F032B, the "B" Core Spray loop pump suction relief valve has lowered Suppression Pool water level. PSV152-F032B has been gagged shut. However, Suppression Pool water level has been below 22 feet for one hour. Per Emergency Operating Procedure EO-100-103, step SP/L-1, the Unit Supervisor has directed you to raise Suppression Pool water level to 23 feet." from stem.

SQ 10/14/05 - OK

SQ 11/14/05 - no comments during validation week.

SQ 11/28/05 - change distractor "A" from Line Fill Pp to Condensate Transfer Pp to conform to SSES configuration. Changed distractor "C" to return to RCIC using the Min Flow line. Added "... during Mode 1" to end of stem to emphasize that EOPs are not in use.

NRC K/A System/E/A

System 2950 Low Suppression Pool Water Level
30

Number EA1.06 **RO** 3.4 **SRO** 3.4 **CFR Link** (CFR 41.7, 45.6)

Ability to operate and/or monitor the Condensate storage and transfer (make up to the suppression pool) (Plant-Specific) as it applies to LOW SUPPRESSION POOL WATER LEVEL

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 18

18

RO

SRO

Question ID: 29660 Origin: New

Memory Level

SSES Unit 1 has an Anticipated Transient Without Scram (ATWS). The control room operating crew initiate Standby Liquid Control (SBLC) per LQ/Q-3. You observe the following:

- "A" SBLC Pump RED indicating light ILLUMINATES,
- "B" SBLC Pump RED indicating light does NOT illuminate,
- ONE SBLC SQUIB READY A-B White indicating light extinguishes,
- ONE SBLC SQUIB READY A-B White indicating light remains energized,
- SBLC SQUIB VALVES LOSS OF CKT CONTINUITY (A03) Energizes.

What actions, if any, are necessary to establish REQUIRED flow (86 gpm)?

- A** OPEN the second SBLC SQUIB Valve to establish sufficient flow path for full flow.
- B** Determine & correct the cause for the "B" SBLC Pump failure to start and START it.
- C** INJECT Boron with RCIC IAW ES-150-002 to establish full flow.
- D** No action is necessary because a single pump and valve will provide rated flow.

Question Number: 18

Answers:

A

B

C

D

References Provided to Applicant:

Justification

New - inspired by Browns Ferry 2 exam of September 2001 (Question ID 21039)

SSES requires both SBLC pumps to start to ensure reactor safety following an ATWS. The expected flow rate is approximately 86 gpm. In this case, the flow rate is one-half of expected (43 gpm) because one SBLC pump failed to start. The alarm will energize when 4742 less 4587 (155) gallons have been injected. This will occur in 155 divided by 43 or 3.6 minutes.

The failure of one SQUIB Valve to fire has no effect on the solution because the pumps discharge to a common header. The common header then flows through two parallel SQUIB valves.

A - Only one valve opened. Plausible if the Applicant believes that the failed SQUIB valve blocks SBLC flow to the RPV and that opening the valve will restore full flow.

C - LQ/Q-4 requires this if Boron can NOT be injected with SBLC. Here, SBLC is injecting, albeit at half the required rate.

D - SSES requires both SBLC pumps to start to ensure reactor safety following an ATWS

References

TM-OP-053

Comments and Question Modification History

GXJ

THF

RJC

SSES

Gil 09/09/05 - editorial change to stem

Gil 09/26/05 - Distracter "A" not plausible with one pump running and one squib fired; should have some flow.

R: revised "Never" to "16 minutes". Applicant may misapply pump laws.

Todd 09/30/05 - why give set point?

R: w/o set point, it may become LOD=5 because not expected to know this.

Rich 10/03/05 - K/A mismatch. CE view?

R: agreed. Changed stem and distracters to require Applicant to demonstrate ability to manipulate controls. Saved original question as 181.

* * * Ask SSES to evaluate distracter "C" as a potentially second correct answer.

SQ 10/14/05 - editorial changes to stem and answer.

SQ 11/04/05 - SSES considered distracter "C" to be second correct answer. Changed "RCIC" to "HPCI" to make it absolutely incorrect.

SQ 11/14/05 - changed answer to "Determine & correct the cause for the "B" SBLC Pump failure to start and START it." to be more realistic. Control Room has little to do if SBLC pump fails to start otherwise.

SQ 11/28/05 - SSES to determine why 86 gpm is required. They questioned the wording. Verified requirement against the lesson plan. Changed distracter "C" back to RCIC based on SSES opinion that it is more plausible and clearly wrong.

NRC K/A System/E/A

System 2950
37

Number RO SRO CFR Link

NRC K/A Generic

System 2.2 Equipment Control

Number 2.2.2 RO 4.0 SRO 3.5 CFR Link (CFR: 45.2)

Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.

Question Number: 26

26

RO

SRO

Question ID: 29711 Origin: Mod

Memory Level

A non-isolable leak develops in the suction line of the "B" Residual Heat Removal (RHR) pump on SSES Unit 1.

- (1) At what level, if any, will Suppression Pool level stabilize at and?
- (2) What EOP(s) must you enter?

- A** (1) The Suppression Pool will continue to drain until 161121 (RHR Pump B & D Room Drain Iso Vlv.) is closed.
(2) EO-100-104, SECONDARY CONTAINMENT CONTROL only.
- B** (1) The Suppression Pool will continue to drain until 161121 (RHR Pump B & D Room Drain Iso Vlv.) is closed.
(2) EO-100-103, PC CONTROL only.
- C** (1) Suppression Pool level will lower to 13 feet.
(2) EO-100-103, PC CONTROL and EO-100-104, SECONDARY CONTAINMENT CONTROL.
- D** (1) Suppression Pool level will lower to 17 feet.
(2) EO-100-103, PC CONTROL and EO-100-104, SECONDARY CONTAINMENT CONTROL.

Question Number: 26

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - NO

WRONG: SP will not continue to drain because the Unit 1 and 2 floor drains are not cross-connected.

VALID DISTRACTOR: Correct EOP and each unit's ECCS room floor drains are cross-connected to other ECCS room of the same unit.

CHOICE (B) - NO

WRONG: PC CONTROL requires SP level below 22 feet. However, the SP will not continue to drain because the Unit 1 and 2 floor drains are not cross-connected.

VALID DISTRACTOR: The stem conditions give sufficient information to correctly conclude that the Suppression Pool will stabilize at 17 feet (Table 18 of EO-100-103). Therefore, Applicant may reasonably select this.

CHOICE (D) - YES

Table 18 of EO-100-103 tells us that SP will stabilize at 17 feet.

EO-100-104 requires entry on RB Water Level above high alarm.

CHOICE (C) - NO

WRONG: PC CONTROL requires SP level below 22 feet.

VALID DISTRACTOR: Correct SP level. The stem conditions give sufficient information to correctly conclude that the Suppression Pool will stabilize at 17 feet (Table 18 of EO-100-103). Therefore, Applicant may reasonably select this.

References

EO-100-103, 104

AR-111, 112, 113, 125

ON-169-002

Comments and Question Modification History

GXJ

THF

RJC

SSES

NM2 August 2002 (Question ID 22279)

1. Gil 09/26/05 - could not validate the 17 feet because EO-100-103 not included in work papers

R: it is 17 feet. Ask Chief Examiner to independently validate.

2. Todd 09/30/05 - changed "(1) What level will SSES Unit 2 Suppression Pool stabilize at?" to "(1) How will Suppression Pool level respond?"

changed part (1) of distracters "C" and "D" from "(1) 17 feet" to "(1) Suppression Pool level will lower to 17 feet and stabilize."

3. SQ 10/17/05 - system will continue draining until isolated. Stick to only one unit for plausibility.

R - only unit 1 and changed "C" and "D" to correct technical error.

4. SQ 11/14/05 - major rewrite during validation week. Saved original as 261.

5. SQ 11/28/05 - correct answer incorrectly labeled "C" - s/b "D". Made correction - considered typo / editorial.

NRC K/A System/E/A

System 2950 Secondary Containment High Sump/Area Water Level
36

Number EA1.01 **RO** 3.2 **SRO** 3.3 **CFR Link** (CFR 41.7, 45.6)

Ability to operate and/or monitor the Secondary containment equipment and floor drain systems as it applies to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL

NRC K/A Generic

System

Number

RO

SRO

CFR Link

Question Number: 27

27

RO

SRO

Question ID: 29597 Origin: New

Memory Level

Following a loss of coolant accident, the Primary Containment Hydrogen and Oxygen (H₂O₂) Analyzers are placed in service per OP-173-001, Section 2.8, H₂O₂ ANALYZER OPERATION DURING EMERGENCY. The following conditions exist:

- Analyzer "A" is aligned to the SUPPRESSION POOL.
- Analyzer "A" O₂ reads 2%.
- Analyzer "A" H₂ reads 9%

- Analyzer "B" is aligned to the DRYWELL.
- Analyzer "B" O₂ reads 6%
- Analyzer "B" H₂ reads less than 1%

- Sample flow to both analyzers was restored 35 minutes ago.
- Both analyzers are on the 10% range.

Which ONE of the following statements is correct?

All Hydrogen Recombiners, Drywell Fans and Drywell Coolers MUST . . .

- A** . . . be Operated to adequately mix the Primary Containment atmosphere.
- B** . . . be Operated to adequately recombine Hydrogen in the Primary Containment atmosphere.
- C** . . . be Shutdown because Hydrogen and Oxygen concentrations are above combustible limits
- D** . . . be Shutdown because Hydrogen and Oxygen concentrations can NOT be determined.

Question Number: 27

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - NO

WRONG: EO-100-103 requires that Recombiners, Fans and Coolers be secured when H2>6% AND O2>5% whether the gases are in the same CTMT section or not because migration is possible.

VALID DISTRACTOR: EO-103-113 calls for mixing and recombining for the individual CTMT sections (SP or DW) given the individual conditions.

CHOICE (B) - NO

WRONG: EO-100-103 requires that Recombiners, Fans and Coolers be secured when H2>6% AND O2>5% whether the gases are in the same CTMT section or not because migration is possible.

VALID DISTRACTOR: EO-103-113 calls for mixing and recombining for the individual CTMT sections (SP or DW) given the individual conditions.

CHOICE (C) - YES

Analyzers have been in-service for >30 minutes.

H2 and O2 conditions exceed combustibile limits.

CHOICE (D) - NO

WRONG: The Analyzers require 30 minutes to stabilize. They've had 35 minutes.

VALID DISTRACTOR: Applicant may consider the Analyzers inoperable due to the disparate SP and DW readings or because Analyzers have been in service for a short time period. (Note: 1 hour at PB)

References

EO-000-103

Comments and Question Modification History

GXJ

THF

RJC

SSES

Gil 09/26/05 - OK

Todd 09/30/05 - OK

SQ 10/14/05 - moved "All Hydrogen Recombiners, Drywell Fans and Drywell Coolers MUST" to the stem.

SQ 11/14/05 - no comments during validation week.

NRC K/A System/E/A

System 5000 High Containment Hydrogen Concentration
00

Number EA2.04 **RO** 3.3 **SRO** 3.3 **CFR Link** (CFR 41.10, 43.5, 45.13)

Ability to determine and / or interpret Combustible limits for wetwell as it applies to HIGH PRIMARY CONTAINMENT HYDROGEN CONCENTRATIONS

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 31

31

RO

SRO

Question ID: 29601 Origin: New

Memory Level

With the plant at full power, quarterly surveillance testing of the High Pressure Coolant Injection (HPCI) system per SO-152-002 causes the HPCI system to be __ (1) __. The liquid flow path is __ (2) __.

- A** (1) NOT OPERABLE because injection valve HV155F006 is deenergized in the closed position.
(2) from the Suppression Pool to the Pumps and return to the Suppression Pool.
- B** (1) NOT OPERABLE because injection valve HV155F006 is deenergized in the closed position.
(2) from the Condensate Storage Tank to the Pumps and return to the Condensate Storage Tank.
- C** (1) OPERABLE because HPCI will automatically realign to the injection mode upon receipt of an initiation signal.
(2) from the Suppression Pool to the Pumps and return to the Suppression Pool.
- D** (1) OPERABLE because HPCI will automatically realign to the injection mode upon receipt of an initiation signal.
(2) from the Condensate Storage Tank to the Pumps and return to the Condensate Storage Tank.

Question Number: 31

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - No
WRONG: Path is CST to Pps to CST
VALID DISTRACTOR: system is Inoperable.

CHOICE (B) - YES

CHOICE (C) - No
WRONG: Path is CST to Pps to CST. System is NOT operable (no auto realign)
VALID DISTRACTOR: mirror imaging distracters.

CHOICE (C) - No
WRONG: System is NOT operable (no auto realign)
VALID DISTRACTOR: correct flow path

References

SO-152-002

Comments and Question Modification History

GXJ

THF

RJC

SSES

Get the correct surveillance (I've got the 24 month one)

Gil 09/26/05 - OK

Todd 09/30/05 - ask SSES if initial power level changes the answer.

SQ 10/14/05 - inserted HPCI into stem before system.

SQ 11/04/05 - initial power could change the answer because HPCI not required below 150 psig. Changed stem accordingly.

SQ 11/14/05 - no comments during validation week.

SQ 11/28/05 - SSES concerned that Applicants will not know this even though Validators do know it. Validators will know it because they run the surveillance each quarter. Applicants may not recognize that HV155F006 is deenergized during the surveillance. Will obtain Validators' input before final decision.

NRC K/A System/E/A

System 2060
00

Number RO SRO CFR Link

NRC K/A Generic

System 2.2 Equipment Control

Number 2.2.12 RO 3.0 SRO 3.4 CFR Link (CFR: 41.10 / 45.13)

Knowledge of surveillance procedures.

Question Number: 33

33

RO

SRO

Question ID: 29691 Origin: New

Memory Level

Both SSES units are at full power. During shift turnover, you determine that:

- the white indicating light for Standby Liquid Control (SBLC) squib valve 148F004A is EXTINGUISHED
- the white indicating light for Standby Liquid Control (SBLC) squib valve 148F004B is ILLUMINATED
- BOTH lightbulbs are GOOD.
- AR-107-001, A03 (SBLC SQUIB VALVES LOSS OF CKT CONTINUITY) is energized

Before accepting the shift, you go to the Relay Room and determine that the Unit 1 SBLC squib valve CONTINUITY METERS read:

- 0.1 milliamps (ma) for squib valve 148F004A.
- 4.7 milliamps (ma) for squib valve 148F004B.

Which ONE of the following correctly describes the status of the SBLC squib valves?

- A** 148F004A will fire.
148F004B will fire.
- B** 148F004A will NOT fire.
148F004B will fire.
- C** 148F004A will fire.
148F004B will NOT fire.
- D** 148F004A will NOT fire.
148F004B will NOT fire.

Question Number: 33

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - YES

The stem establishes conditions indicative of an inoperable "B" valve

References

AR-107-A03

TM-OP-053

Comments and Question Modification History

GXJ

THF

RJC

SSES

Gil 09/26/05 - suggest using 5 milliamps in stem if this is technically correct, albeit a little higher than normal. 4 milliamps is too easily recognizable.

R: accepted. Changed from 4 to 5 and deleted sentence saying "These are the NORMAL values". Recategorized to Higher Cognitive Level.

Todd 09/30/05 - added "Unit 1" before SBLC in the stem.

SQ 10/14/05 - changed stem to indicate INOPERABLE Squib valve because not realistic to not replace bulb before going to the Relay Room. Saved original question as 331.

SQ 11/14/05 - changed references to Operability to will/will NOT fire. Added AR-107-A03.

SQ 11/28/05 - changed correct answer from "C" to "B". Considered typo / editorial.

NRC K/A System/E/A

System 2110 Standby Liquid Control System
00

Number K4.04 **RO** 3.8 **SRO** 3.9 **CFR Link** (CFR 41.7)

Knowledge of STANDBY LIQUID CONTROL SYSTEM design feature(s) and/or interlocks which provide for Indication of fault in explosive valve firing circuits

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 35

35

RO

SRO

Question ID: 29605 Origin: Bank

Memory Level

SSES Unit 2 scrams from full power. All systems, structures and components operated as expected EXCEPT the Scram Pilot Solenoid Valves for all twenty (20) Group 2 Hydraulic Control Units (HCU) on Reactor Side 2 failed to vent their associated HCUs.

Which ONE of the following describes the Control Rod response?

- A** All control rods will insert at the same time and
All control rods will insert at the same speed.
- B** Group 2 control rods will insert LATER than all other control rods and
Group 2 control rods will insert at a SLOWER speed than all other control rods.
- C** Group 2 control rods will insert LATER than all other control rods and
All control rods will insert at the same speed.
- D** All control rods will insert at the same time and
Group 2 control rods will insert at a SLOWER speed than all other control rods.

Question Number: 35

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - No

WRONG: The rods will INSERT at a slower rate as ARI and Backup Scram valves act to depressurize the air header
VALID DISTRACTOR: The rod still inserts

CHOICE (B) - No

WRONG: The rods will insert without Operator action
VALID DISTRACTOR: valid method directed by EO-100-113, Control Rod Insertion

CHOICE (C) - YES

CHOICE (D) - No

WRONG: The rods will insert without Operator action
VALID DISTRACTOR: using RMC may be plausible once the Scram and ARI are reset.

References

Taken directly from SSES Exam Bank.
TM-OP-055, 055B, 058.

Comments and Question Modification History

GXJ

THF

RJC

SSES

Gil 09/26/05 - Once a rod is scrammed (from any means) it will insert at the same rate (about 4 seconds).

Recommends:

A - All control rods will automatically insert in < 10 seconds.

C - All control rods will automatically insert in > 10 seconds.

R: no known basis for the 10 second threshold. Will request SSES input. Not sure I accept the proposition that all rods will insert at the same rate. Seems reasonable to believe that the rods for which the Scram Pilot Solenoid Valves did NOT open would move a bit slower because their air is vented through a smaller area.

09/27/05: Now understand the issue. All rods insert at the same rate once the scram valves open. However, for the affected 20 HCU's, the scram valves take longer to open. Must have SSES verify/evaluate the 10 second threshold.

Todd 09/30/05 - replaced "Both units are at full power when one unit scrams for unknown reasons." with "SSES Unit 2 scrams from full power."

SQ 10/14/05 - major changes to improve/clarify. Original not saved.

SQ 11/14/05 - no comments during validation week.

SQ 11/28/05 - SSES concerned that "B" is arguably correct because once the Scram Pilot Solenoid Valves finally open (when ARI & B/U scram valves vent the header) the Scram Discharge Volume will have some pressure in it. Therefore, the d/p between the HCU & Rod Control Hydraulics and the SDV will be reduced. This could cause the rod to move slower. SSES to investigate.

NRC K/A System/E/A

System 2120 Reactor Protection System
00

Number K4.09 **RO** 3.8 **SRO** 3.9 **CFR Link** (CFR 41.7)

Knowledge of REACTOR PROTECTION SYSTEM design feature(s) and/or interlocks which provide for the Control rod insertion following RPS system electrical failure

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 49

49

RO

SRO

Question ID: 29618 Origin: Bank

Memory Level

250 VDC Battery Charger 2D663 has the following front panel indications:

- Battery Charger Float-Equalize switch is in FLOAT.
- Battery Charger Interval Timer set to FIVE HOURS.

Which ONE of the following is correct concerning charger operation?

- A** Output voltage will be between 279 and 287 VDC for five hours, then LOWER to between 265 and 271 VDC thereafter.
- B** Output voltage will be between 265 and 271 VDC for five hours, then RISE to between 279 and 287 VDC thereafter.
- C** Output voltage will be between 279 and 287 VDC for five hours and will remain between 279 and 287 VDC thereafter.
- D** Output voltage will be between 265 and 271 VDC for five hours and will remain between 265 and 271 VDC thereafter.

Question Number: 49

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - YES

Per TM-OP-088 and OP-1(2)88-001, this provides Equalizing Charge for five hours, then automatically reconfigures to the FLOAT mode.

CHOICE (B) - No

WRONG: Reverse of correct answer

VALID DISTRACTOR: First FLOAT, then EQUALIZE

CHOICE (C) - No

WRONG: Stay on EQUALIZE

VALID DISTRACTOR: Correct if Float-Equalize switch in EQUALIZE

CHOICE (D) - No

WRONG: Stay on Float

VALID DISTRACTOR: Applicant my believe that the Float-Equalize switch must be in EQUALIZE to conduct charge.

References

TM-OP-088

OP-1(2)88-001.

Comments and Question Modification History

GXJ

THF

RJC

SSES

Gil 09/26/05 - add to stem: ...switch has just been placed in FLOAT. This ensures the full five hours at 279-287 will occur; making "A" correct

R: added "up to" in each answer choice. Pfd concept of Operator on tour discovering these conditions.

deleted "up to" and added "is" to the stem.

Todd 09/30/05 - OK

SQ 10/14/05 - change lower to rise in "B".

SQ 11/14/05 - no comments during validation week.

SQ 11/28/05 - changed 287 to 271 in distractor "D".

NRC K/A System/E/A

System 2630 D.C. Electrical Distribution
00

Number K1.02 **RO** 3.2 **SRO** 3.3 **CFR Link** (CFR 41.2 to 41.9 / 45.7 to 45.8)

Knowledge of the physical connections and/or cause-effect relationships between D.C. ELECTRICAL DISTRIBUTION and Battery charger and battery

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 55

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - YES
Both references support this.

CHOICE (B) - No
WRONG: The Rod Motion Timer Card does this.
VALID DISTRACTOR: This is part of the Rod Drive Control Cabinet

CHOICE (C) - No
WRONG: The Transponder does this.
VALID DISTRACTOR: This is part of the Rod Drive Control Cabinet

CHOICE (D) - No
WRONG: The Analyzer does this.
VALID DISTRACTOR: This is part of the Rod Drive Control Cabinet

References

SSES Bank
TM-OP-078K
TM-OP-056A

Comments and Question Modification History

GXJ

THF

RJC

SSES

Gil 09/26/05 - No references were included to validate the answer as correct. Otherwise looks OK.
R: Low likelihood of error because this is a BANK question.

Todd 10/05/05 - change question to statement.

SQ 11/14/05 - no comment during validation week.

NRC K/A System/E/A

System 2010 Reactor Manual Control System
02

Number K1.04 **RO** 3.5 **SRO** 3.6 **CFR Link** (CFR 41.2 to 41.9 / 45.7 to 45.8)

Knowledge of the physical connections and/or cause-effect relationships between REACTOR MANUAL CONTROL SYSTEM and the Rod block monitor (Plant-Specific)

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 56

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - No

WRONG: No rod motion blocks imposed in Category I (100% to 75% rod density)

VALID DISTRACTOR: Rod motion blocks are imposed at N1, N2, N3, N4 in Category II (75% to 50% rod density)

CHOICE (B) - YES

Rod motion blocks are imposed at N1, N2, N3, N4 in Category II (75% to 50% rod density)

Rod motion blocks are imposed at N1 in Category III (50% rod density to LPSP)

CHOICE (C) - No

WRONG: No rod motion blocks imposed in Category IV (LPSP to 100% CTP)

VALID DISTRACTOR: Rod motion blocks are imposed at N1 in Category III (50% rod density to LPSP)

CHOICE (D) - No

WRONG: No rod motion blocks imposed in Category IV (LPSP to 100% CTP)

WRONG: No rod motion blocks imposed in Category I (100% to 75% rod density)

VALID DISTRACTOR: mirror image. Also the correct answer on the BANK question from which this was drawn.

References

Bank question

TM-OP-056Z

Comments and Question Modification History

GXJ

THF

RJC

SSES

Gil 09/26/05 - Add to stem: "...WITHDRAWAL between notches 00 and 12..."

R: done.

SQ 11/14/05 - changed from I, II, III, IV format to answers in the choices. Saved original as 561

SQ 11/28/05 - deleted I, II, III, IV from stem. Forgot to do it during revision described above.

NRC K/A System/E/A

System 2010 Rod Sequence Control System (Plant Specific)
04

Number A3.05 **RO** 3.5 **SRO** 3.7 **CFR Link** (CFR 41.7 / 45.7)

Ability to monitor automatic operations of the ROD SEQUENCE CONTROL SYSTEM (PLANT SPECIFIC) including: †
Verification of proper function/ operability: BWR-4,5

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 58

58

RO

SRO

Question ID: 29672 Origin: New

Memory Level

Which ONE of the following correctly describes the operation of Reactor Recirculation System (RRS) valves when starting the "A" Reactor Recirculation Pump (RRP)?

- A** The RRS Recirculation Pump Trip (RPT) breakers will close if:
- the ASSOCIATED RRP Suction Valve HV-F023A is 100% OPEN and
 - the ASSOCIATED RRP Discharge Bypass Valve HV-F32A is 100% OPEN.
 - the ASSOCIATED RRP Discharge Valve HV-F031A will OPEN when the RRP reaches rated speed.
- B** The RRS Motor-Generator Drive Motor breaker will close if:
- the ASSOCIATED RRP Suction Valve HV-F023A is 100% OPEN and
 - the ASSOCIATED RRP Discharge Valve HV-F031A is 100% CLOSED.
 - the ASSOCIATED RRP Discharge Valve HV-F031A will OPEN when the RRP reaches rated speed.
- C** The RRS Recirculation Pump Trip (RPT) breakers will close if:
- the ASSOCIATED RRP Suction Valve HV-F023A is 100% OPEN and
 - the ASSOCIATED RRP Discharge Valve HV-F031A is 100% CLOSED and
 - the ASSOCIATED RRP Discharge Bypass Valve HV-F32A is 100% OPEN.
- D** The RRS Motor-Generator Drive Motor breaker will close if:
- the ASSOCIATED RRP Suction Valve HV-F023A is 100% OPEN and
 - the ASSOCIATED RRP Discharge Valve HV-F031A is 100% CLOSED and
 - the ASSOCIATED RRP Discharge Bypass Valve HV-F32A is 100% OPEN.

Question Number: 58

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - No

WRONG: The RPT breakers are not affected. The discharge valve does not AUTO open.

VALID DISTRACTOR: mirror image

CHOICE (B) - No

WRONG: The discharge valve does not AUTO open.

VALID DISTRACTOR: Applicant may misunderstand the start circuit or system configuration. Some CW pumps operate in this manner.

CHOICE (C) - No

WRONG: The RPT breakers are not affected.

VALID DISTRACTOR: Applicant may misunderstand purpose of the RPT breakers.

CHOICE (D) - YES

References

TM-OP-064C

Comments and Question Modification History

CXJ

THF

RJC

SSES

Gil 09/26/05 - OK.

Todd 10/05/05 - focus is on Pumps, not valves. Explained operating and accepted but need to fix distracters.

Difference is ONLY "and" v. "or". Therefore, amended "A" and "B" to both improve focus on valves and make sharper distinctions between the distracters. Saved original as 581.

SQ 11/14/05 - typographical error (HVF-32 s/b HV-F32).

SQ 11/28/05 - changed question from "A/B" to "A" only to make it easier to read on SSES suggestion.

NRC K/A System/E/A

System 2020 Recirculation System
01

Number A4.02 **RO** 3.5 **SRO** 3.4 **CFR Link** (CFR 41.7 / 45.5 to 45.8)

Ability to manually operate and/or monitor System valves in the control room

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 59

59

RO

SRO

Question ID: 29703 Origin: Mod

Memory Level

SSES Unit 2 is operating at 49% reactor power on a SINGLE Recirculation Loop with the following conditions:

- Reactor Recirculation Pump (RRP) "B" is secured.
- Reactor Recirculation Pump (RRP) "A" speed is 80%.
- Rods are withdrawn to 80% (80% Rod Line).

The SCOOP TUBE of RRP "A" fails and repositions itself to the LOWER ELECTRICAL STOP.

Which ONE of the following correctly describes:

- (1) the expected change in core flow and
- (2) Operator actions required to mitigate this event?

- A** (1) Core Flow will INCREASE and
(2) Lower RRP Speed to 80% or be in Mode 3 within 12 hours.
- B** (1) Core Flow will DECREASE and
(2) Raise RRP Speed or Insert Control Rods to Exit Stability Region II
- C** (1) Core Flow will INCREASE and
(2) Lower RRP Speed to 80% or enter Technical Specification 3.0.3 immediately.
- D** (1) Core Flow will DECREASE and
(2) Reduce RRP Speed or Withdraw Control Rods to Exit Stability Region II

Question Number: 59

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - No

WRONG: Flow will decrease.

VALID DISTRACTOR: If Applicant believes speed increases, there is a TS limit on how the speed.

CHOICE (B) - YES

CHOICE (C) - No

WRONG: Flow decreases.

VALID DISTRACTOR: Applicant may go to 3.0.3 if speed can't be reduced.

CHOICE (D) - No

WRONG: further speed reduction or rod withdrawal pushes plant into Region I - worsens the situation

VALID DISTRACTOR: mirror imaging.

References

Dresden 2 exam of February 2001

NDAP-QA-0338

TM-OP-084A & C

TS 3.4.1

GO-200-009

Comments and Question Modification History

GXJ

THF

RJC

SSES

Applicant must have NDAP-QA-0338 or other source of Power-to-Flow map.

SQ 11/14/05 - inserted "A" into second bullet of stem.

SQ 11/28/05 - confirmed that Power-to-Flow map is to be issued as an authorized reference.

NRC K/A System/E/A

System 2020 Recirculation Flow Control System
02

Number K3.01 **RO** 3.5 **SRO** 3.5 **CFR Link** (CFR 41.7 / 45.4)

Knowledge of the effect that a loss or malfunction of the RECIRCULATION FLOW CONTROL SYSTEM will have on Core flow

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 63

63

RO

SRO

Question ID: 29633 Origin: New

Memory Level

SSES Unit 1 has recently completed a routine Technical Specification Surveillance of the High Pressure Coolant Injection (HPCI) system. Residual Heat Removal (RHR) loop "B" is in the Suppression Pool Cooling (SPC). A small steam leak develops on SSES Unit 1 and raises Drywell Pressure to 1.5 psig. At the Unit Supervisor's direction, the Operating Crew manually initiates Divisions I and II LOCA signals.

(1) What effect does this have on SSES Unit 1 RHR system?

(2) What must the Operating Staff do to initiate Suppression Chamber Spray?

- A** (1) RHR Loop "A" starts in the LPCI mode. RHR Loop "B" automatically reconfigures to the Suppression Chamber Spray mode.
(2) Depress the RHR LOOP B INIT SIG RESET PUSHBUTTON (HS-151-1S56A/B) and manually reconfigure the selected RHR loop.
- B** (1) RHR Loop "A" starts in the LPCI mode. RHR Loop "B" automatically reconfigures to the LPCI mode.
(2) Place LOCA ISOLATION MANUAL OVERRIDE (HS-E11-1S17B) to OVERRIDE and manually reconfigure the selected RHR loop.
- C** (1) RHR Loop "A" starts in the LPCI mode. RHR Loop "B" remains in the Suppression Pool Cooling mode.
(2) Place LOCA ISOLATION MANUAL OVERRIDE (HS-E11-1S17B) to OVERRIDE and manually reconfigure the selected RHR loop.
- D** (1) RHR Loop "A" starts in the LPCI mode. RHR Loop "B" remains in the Suppression Pool Cooling mode.
(2) Depress the RHR LOOP B INIT SIG RESET PUSHBUTTON (HS-151-1S56A/B) and manually reconfigure the selected RHR loop.

Question Number: 63

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - No

WRONG: This switch will NOT clear the LOCA signal because the low level is still present (below -129)

VALID DISTRACTOR: mirror imaging.

CHOICE (B) - YES

CHOICE (C) - No

WRONG: RHR Loop "B" auto reconfigs to LPCI.

VALID DISTRACTOR: correct switch.

CHOICE (D) - No

WRONG: This switch will NOT clear the LOCA signal because the low level is still present (below -129)

VALID DISTRACTOR: correct effect on RHR.

References

TM-OP-049

OP-149-004

Comments and Question Modification History

CXJ

THF

RJC

SSES

1. Gil 09/26/05 - what is TAF (-XXX)? "C" not plausible at -140". There may, also be a cue from another question to help answer this.

R: 366.3 inches from bottom of RPV. Instrument zero is 527.5 inches. 527.5 minus 366.3 yields 161.2 inches.

Therefore, TAF is ~ -161. Don't know what other question is cuing the Applicant.

Unclear why "C" is implausible.

Changed A & C to auto reconfigure to SPS only to improve plausibility.

The following Lesson Objectives support this question:

181 Describe the following Residual Heat Removal System design features and interlocks, including initiating signals, setpoints, automatic actions, and control logic, as applicable:

- a. Automatic LPCI initiation/injection
- v. Suppression Pool cooling
- w. SDC actions on LPCI initiation

10495 Predict the Residual Heat Removal System response to manipulation of the following controls:

- d. LOCA isolation manual override switches

Unable to adequately test both ability to predict and use procedures of this two part K/A. Per authority of NUREG 1021, ES401, Section D.2.a., second paragraph [When selecting or writing questions for K/As that test coupled knowledge or abilities (e.g., the A.2 K/A statements in Tiers 1 and 2 and a number of generic K/A statements, such as 2.4.1, in Tier 3), try to test both aspects of the K/A statement. If that is not possible without expending an inordinate amount of resources, limit the scope of the question to that aspect of the K/A statement requiring the highest cognitive level (e.g., the (b) portion of the A.2 K/A statements) or substitute another randomly selected K/A.], the test question tests the ability to predict the impact of an air dryer malfunction.

SQ 11/14/05 - deleted "Subsequently, the leak worsens and Reactor Pressure Vessel level lowers and stabilizes at -140 inches." from the stem because manual initiation does the same thing as automatic initiation. Therefore, no necessary to have this.

SQ 11/28/05 - dispute within SSES whether the Auto Signal needs to be locked in. Second reviewer considered "D" a second correct answer and I agreed with his reasoning. Changed distractor "D" to make it absolutely incorrect without reinserting the low RPV level to provide an Automatic ES signal that requires override. Also changed DW Spray to Suppression Chamber Spray in the stem to improve realism at SSES' suggestion.

NRC K/A System/E/A

System 2260 RHR/LPCI: Containment Spray System Mode
01

Number A2.03 **RO** 3.1 **SRO** 3.1 **CFR Link** (CFR 41.5 / 45.6)

Ability to (a) predict the impacts of the following on the RHR/LPCI: CONTAINMENT SPRAY SYSTEM MODE ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Valve closures

Question Number: 63

NRC K/A Generic

**System
Number**

RO

SRO

CFR Link

Question Number: 66

66

RO

SRO

Question ID: 29643 Origin: New

Memory Level

You are preparing to conduct a Technical Specification Surveillance and retrieve a Controlled Copy of the applicable Plant Procedure from NIMS. You notice that three PCAFs are attached to the Plant Procedure.

Per NDAP-QA-0002, PROCEDURE PROGRAM AND PROCEDURE CHANGE PROCESS, you must:

- A** Print and use the Plant Procedure. NIMS automatically inserts the attached PCAFs.
- B** Print and use the Plant Procedure. It is NOT necessary to incorporate the PCAFs.
- C** Print both the PCAFs and the Plant Procedure. Page insert the PCAFs before procedure use. Additional Unit Supervisor authorization is NOT required before using the procedure with PCAFs inserted.
- D** Print both the PCAFs and the Plant Procedure. Page insert the PCAFs before procedure use. Additional Unit Supervisor authorization IS REQUIRED before using the procedure with PCAFs inserted.

Question Number: 66

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - No

WRONG: DCS does NOT insert PCAFs

VALID DISTRACTOR: Applicant could believe that attached PCAFs are automatically inserted.

CHOICE (B) - No

WRONG: PCAFs must be inserted

VALID DISTRACTOR: Applicant could believe that PCAFs are not substantive changes requiring inclusion.

CHOICE (C) - YES

CHOICE (D) - No

WRONG: PCAFs must be included.

VALID DISTRACTOR: Applicant could believe that US can authorize use.

References

NDAP-QA-002, Section 6.12.2.a.(5)

Comments and Question Modification History

GXJ

THF

RJC

SSES

PCAF used to be the SSES acronym for "Procedure Change Authorization Form". The PCAF no longer exists at SSES procedure control process. However, the acronym lives on as part of institutional knowledge. Therefore, PCAF is not defined in the question.

Gil 09/28/05: Change distracter "D" "Obtain Unit Supervisor authorization before using the PCAF's". This will make the distracter more plausible and balance with other distracters.

R: done.

Todd 10/05/05 - changed distracter "D" to more closely mirror answer "C". Added statement concerning US authorization wrt PCAFs.16 November

SQ 11/14/05 - no comments during validation week.

SQ 11/28/05 - added "Additional" to distractors "C" and "D" to ensure Applicant would not misread the question and infer that US Authorization had already been given. SSES argued that the RO would not do this unless the US already directed the RO to perform this activity. Thus, authorization to use the PCAFs is already granted and "D" becomes implausible.

NRC K/A System/E/A

System

Number

RO

SRO

CFR Link

NRC K/A Generic

System

2.1

Conduct of Operations

Number

2.1.21

RO 3.1

SRO 3.2

CFR Link (CFR: 45.10 / 45.13)

Ability to obtain and verify controlled procedure copy.

Question Number: 72

72

RO

SRO

Question ID: 29641 Origin: Bank

Memory Level

A job must be completed in a room in the plant. The value for the general radiation levels if NO shielding is installed, and the value for the work area if shielding is installed is listed below:

- Unshielded general radiation field: 100 millirem per hour.
- Shielded general radiation field: 10 millirem per hour.

Which ONE of the following methods of performing the job will result in the radiation exposures as low as reasonably achievable (ALARA)?

- A** One person does the job without shielding in 2.5 hours.
- B** Two people do the job without shielding in 1.5 hours.
- C** One person installs shielding in 1 hour. Then a second person does the job in 2.5 hours.
- D** Two people install shielding in 45 minutes. Then another two people do the job in 1.5 hours.

Question Number: 72

Answers:

A

B

C

D

References Provided to Applicant:

Justification

Total exposure is calculated by multiplying the time by the number of people by the dose rate. For the correct answer, the total exposure is 100 mR/hr times 1 hour to install shielding plus 10 mR/hr times 2.5 hours to do the job for a total of 125 mR. The Applicant must select the answer that yields the lowest total cumulative dose for the job.

CHOICE (A) - No

VALID DISTRACTOR: Total dose is 250 mR.

CHOICE (B) - No

VALID DISTRACTOR: Total dose is 300 mR.

CHOICE (C) - YES, total dose is 125 mR.

CHOICE (D) - No

VALID DISTRACTOR: Total dose is 180 mR.

References

SSES Bank
NDAP-QA-0625

Comments and Question Modification History

GXJ

THF

RJC

SSES

Gil 09/28/05: Question OK. Add to justification: "...that yields the lowest total ..."

Todd 10/05/05 - delete conversion of hours to hours, minutes.

Rich 10/19/05 - acceptable if 71 changed.
R - 71 changed.

SQ 11/14/05 - no comments during validation week (minor typographical error in explanation to "B")

SQ 11/28/05 - deleted paranthetical converting mRem to Rem per SSES suggestion.

NRC K/A System/E/A

System

Number

RO

SRO

CFR Link

NRC K/A Generic

System 2.3 Radiation Control

Number 2.3.2

RO 2.5

SRO 2.9

CFR Link (CFR: 41.12 / 43.4. 45.9 / 45.10)

Knowledge of facility ALARA program.

Question Number: 74

74

RO

SRO

Question ID: 29713 Origin: Mod

Memory Level

SSES Unit 2 has the following conditions:

- A Reactor Scram condition is present.
- 24 Control Rods are at Position 04.
- All other Control Rods are at Position 00.
- Reactor Pressure Vessel level is stable at +35 inches.
- IRMs are not yet fully inserted.

Per EO-000-113, what is the status of the Reactor?

- A** The Reactor IS shutdown and WILL remain shutdown under ALL conditions without Boron.
- B** The Reactor IS shutdown but WILL NOT remain shutdown under ALL conditions without Boron.
- C** The Reactor MAY NOT be shutdown and MAY NOT remain shutdown under ALL conditions WITH Boron
- D** The Reactor MAY NOT be shutdown and WILL NOT remain shutdown under ALL conditions without Boron.

Question Number: 74

Answers:

A

B

C

D

References Provided to Applicant:

Justification

Per EO-000-113, LQ-2, the Reactor is shutdown and expected to remain shutdown under all conditions without Boron if no more than one rod position is greater than 00. Alternatively, with more than one rod above position 00, the Reactor is shutdown and expected to remain shutdown under all conditions without Boron if all Control Rods are inserted to the Maximum Subcritical Banked Withdrawal Position (MSBWP). For SSES Unit 2, the MSBWP is 02.

CHOICE (A) - No

WRONG: SSES Unit 2 MSBWP is 02. Here, 24 rods are at position 04.

VALID DISTRACTOR: Applicant could erroneously apply Unit 1 data to Unit 2. Good question on unit differences.

CHOICE (B) - No

WRONG: the Reactor can NOT be deemed shutdown under all conditions . . .

VALID DISTRACTOR: Applicant could erroneously believe that the Reactor is S/D but not assured to remain shutdown under all conditions . . .

CHOICE (C) - No

WRONG: the reactor can NOT be deemed to be SHUTDOWN.

VALID DISTRACTOR: Applicant could erroneously believe that the Reactor will remain S/D even though it's not currently declared S/D with more than rod above 00.

CHOICE (D) - YES

References

Limerick Unit 1 exam of October 2002, (Question ID 24312)
EO-000-113, LQ-2

Comments and Question Modification History

GXJ

THF

RJC

SSES

Gil 09/28/05: Distracter "C" is implausible NO not shutdown and Yes it will remain shutdown. Change part (2) to "Indeterminate. Need input from Reactor Engineering"
R: done.

Todd 10/05/05 - changed question call and choices from (1)-(2) selection to single bullet/sentence.

Harry 10/05/05 - changed distracter "C" from implausible "NOT S/D and INDETERMINANT" to more plausible "IS S/D but future status is INDETERMINANT".

SQ 11/04/05 - SSES does not like this question. Concern is that distracter "C" is not clearly wrong because all Operators are taught that S/D requires all but the most reactive rod fully inserted. Unable to reach resolution.

SQ 11/14/05 - generated significant discussion during validation week. Greatest concern is that Applicant could select "C" believing that a Reactor Engineer determined the Rx was S/D and would remain S/D. Editorial changes to stem, entirely new distracter "C" and reworded answer "D" to accommodate this concern. Saved original as 741.

SQ 11/28/05 - capitalized all instances of IS, WILL, NOT, MAY in the distractors per SSES suggestion.

NRC K/A System/E/A

System

Number RO SRO CFR Link

NRC K/A Generic

System 2.4 Emergency Procedures /Plan

Number 2.4.17 RO 3.1 SRO 3.8 CFR Link (CFR: 41.10 / 45.13)

Knowledge of EOP terms and definitions.

Question Number: 78

78

RO

SRO

Question ID: 29653 Origin: New

Memory Level

The control room has been evacuated and, as Unit Supervisor, you are directing SSES Unit 2 operations from the Remote Shutdown Panel. The following conditions exist:

- Suppression Pool temperature is 86 degrees Fahrenheit and steady.
- Residual Heat Removal (RHR) pump 2P202A is running
- RHR is operating in the Suppression Pool Cooling (SPC) and Suppression Pool Spray (SPS) mode.
- Drywell Pressure is 1.2 psig and lowering.
- Reactor Pressure Vessel (RPV) pressure is 90 psig and slowly lowering.
- Reactor Pressure Vessel (RPV) water level is 60 inches and rising.
- You have directed the PCO to establish RPV water level above 90 inches and below 100 inches.

Which ONE of the following correctly describes your priorities?

- A** Reconfigure RHR loop "A" to the Drywell Spray mode.
- B** Maintain Suppression Pool Cooling and Spray using either RHR loop.
- C** Reconfigure RHR loop "A" to the Shutdown Cooling mode using RHR pump 2P202A only.
- D** Locally start RHR pump 2P202C and use RHR loop "A" to provide SPC, SPS & Shutdown Cooling concurrently.

Question Number: 78

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - NO

WRONG: Drywell spray is not necessary because DW pressure is lowering via SGTS

VALID DISTRACTOR: PC/P-7 requires DW spray if needed to reduce DW press and if RHR not needed for core cooling.

CHOICE (B) - YES

EO-200-113 takes precedence over ON-200-009. SP/T-2 requires that RHR be used to maintain SP temps below 90.

ON-200-009 directs user to align RHR for SDC. The EOP has priority over the ON.

CHOICE (C) - NO

WRONG: EO-200-113 takes precedence over ON-200-009. SP/T-2 requires that RHR be used to maintain SP temps below 90. ON-200-009 directs user to align RHR for SDC. The EOP has priority over the ON.

VALID DISTRACTOR: ON-200-009 directs the user to establish SDC.

CHOICE (D) - NO

WRONG: Not possible because even with operation shifted to RSD, F004A and F006A are interlocked to prevent concurrent opening. Also, this would cross-connect the RPV with the SP through the RHR suction lines. Consequently, there is no procedure that directs this activity.

VALID DISTRACTOR: Plausible if the Applicant sees the conflict between establishing SDC and maintaining SPC/SPS but forgets the design of the RHR system.

References

EO-100-113

ON-100-009

TM-OP-049

Comments and Question Modification History

GXJ

THF

RJC

SSES

10 CFR 55.43 (b)(5)

Gil 10/16/05 - none

SQ 11/14/05 - deleted bullet " - The Drywell is being vented through the Standby Gas Treatment System (SGTS)." Changed DW Press from 1.7 to 1.2 to get further from setpoint.

SQ 11/28/05 - changed SP temp from 96 to 86 and correct answer from "B" to "C" to eliminate potentially correct second answer. Agreed that references are to be provided to the Applicants (EOPs w/o entry conditions).

NRC K/A System/E/A

System 2950
16

Number **RO** **SRO** **CFR Link**

NRC K/A Generic

System 2.4 Emergency Procedures /Plan

Number 2.4.22 **RO** 3.0 **SRO** 4.0 **CFR Link** (CFR: 43.5 / 45.12)

Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.

Question Number: 79

79

RO

SRO

Question ID: 29654 Origin: Bank

Memory Level

A spent fuel bundle just removed from the Reactor Vessel has been dropped into the Fuel Pool. Health Physics reports that general area dose rates on the Refuel Floor are 1,200 millirem (1.2 Rem) to 1,400 millirem (1.4 Rem) per hour.

The "B" channel of the Refuel Floor High Exhaust duct monitor and the Refuel Floor Wall Exhaust duct monitors do NOT respond to the increased radiation levels.

- (1) The radioactive release caused by the dropped fuel bundle will be . . .
(2) What is the minimum initial emergency classification level?

A (1) . . . less than 10 CFR 100 (REACTOR SITE CRITERIA) limits.
(2) ALERT.

B (1) . . . greater than Updated Final Safety Analysis Report (UFSAR) values.
(2) ALERT.

C (1) . . . less than 10 CFR 20 (STANDARDS FOR PROTECTION AGAINST RADIATION) limits.
(2) UNUSUAL EVENT.

D (1) . . . less than 10 CFR 50.72 (IMMEDIATE NOTIFICATION REQUIREMENTS FOR OPERATING NUCLEAR POWER REACTORS) limits.
(2) UNUSUAL EVENT.

Question Number: 79

Answers: **A** **B** **C** **D**

References Provided to Applicant:

Justification

CHOICE (A) - YES

CHOICE (B) - NO

WRONG: Wrong EAL and TS basis is 10 CFR 100

VALID DISTRACTOR: One channel still works to limit values. UFSAR describes expected consequences.

CHOICE (C) - NO

WRONG: Rad Monitors not designed to 10 CFR 20 limits.

VALID DISTRACTOR: correct EAL

CHOICE (D) - NO

WRONG: Rad Monitors not designed to 10 CFR 50.72 limits.

VALID DISTRACTOR: This may be a REPORTABLE event.

References

Applicants must be provided with EAL tables.

Comments and Question Modification History

GXJ **THF** **RJC** **SSES**

10 CFR 55.43 (b)(4)

Gil 10/16/05 - "C" also appears correct. With 1200 mr release it should be >10CFR20 limits

R - changed from > to < per the original Bank question.

Todd/Rich 10/31/05 - deleted sentence referring to fuel bundle dropped onto another recently removed bundle.

SQ 11/14/05 - reversed UE and ALERT for all four choices. Uncertain if original error was typographical, substantive or caused by EAL changes. Question was originally BANK - recategorized to MOD after determining that original question was correctly copied.

SQ 11/28/05 - changed "A" and "B" to ALERT and "C" and "D" to UNUSUAL EVENT. Second SSES technical reviewer disagrees with first. Now back to the BANK question with insignificant change to distractors "B" and "C".

NRC K/A System/E/A

System 2950 Refueling Accidents
23

Number AA2.05 **RO** 3.2 **SRO** 4.6 **CFR Link** (CFR: 41.10 / 43.5 / 45.13)

Ability to determine and/or interpret the following as they apply to REFUELING ACCIDENTS : †Entry conditions of emergency plan

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 80

80

RO

SRO

Question ID: 29665 Origin: Bank

Memory Level

A seismic event has occurred and the following conditions exist on SSES Unit 1:

- Complete loss of offsite power (LOOP).
- Steam leak inside the drywell.
- ESS bus1C (1A203) is deenergized due to a fault.
- All ON-100-101 (SCRAM, SCRAM IMMINENT) actions are complete.
- Reactor Pressure Vessel (RPV) LEVEL is 27 inches and lowering at 2 inches per minute.
- Reactor Pressure Vessel (RPV) PRESSURE is 720 psig and lowering.
- Drywell (DW) TEMPERATURE is 255 degrees Fahrenheit and rising at 5 degrees per minute.
- Drywell (DW) PRESSURE is 18.2 psig and rising.
- Suppression Pool (SP) TEMPERATURE is 104 degrees Fahrenheit.
- Suppression Pool (SP) PRESSURE is 13.1 psig and rising.

Which ONE of the following describes the next required action?

- A** RHR Pumps will be continuously needed for Adequate Core Cooling.
- B** Perform a Rapid Depressurization
- C** Initiate Suppression Pool (SP) Cooling.
- D** Initiate Drywell (DW) Spray.

Question Number: 80

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - NO

WRONG: Core Cooling is assured by core submergence. With level at 27 inches and dropping by 2 ipm, it will take 78 minutes to reach L1 (-129) where LPCI will be needed.

VALID DISTRACTOR: Core cooling is a plausible alternative given the dropping pressure - especially if the Applicant sees a need to Depressurize.

CHOICE (B) - NO

WRONG: Rapid Depressurization would be required if HCTL limits of Figure 2 or PSL limits of Figure 4 were threatened. The given conditions do NOT provide justification for depressurization.

VALID DISTRACTOR: SBLOCA could cause Applicant to depressurize and utilize low pressure ECCS injection sources.

CHOICE (C) - NO

WRONG: DW spray lineup would be complicated by SPC and DW spray takes priority.

VALID DISTRACTOR: Temperature is above 90 deg F.

CHOICE (D) - YES

Loss of 1A203 causes loss of RHR Pp 1C, CS Pp 1C, RHR SW Pp 1A, 1B230.

Loss of 1B230 causes loss of 1B236 which causes loss of "C" RHR valves.

The "A" loop s/b available with one pump.

Therefore, this condition complicates the Applicant's analysis but has no effect on the result.

References

NM1 Exam of October 2002 (Question ID 22128)
EO-000-103

Comments and Question Modification History

GXJ

THF

RJC

SSES

10 CFR 55.43 (b)(5)

Gil 10/16/05 - Did not have Figures 2 and 4 to complete technical review. Could not verify distractors A, B and C wrong.

Todd/Rich 10/31/05 - OK

SQ 11/14/05 - no changes during validation week.

SQ 11/14/05 - changed DW Press from 9 to 18.2 and SP Press from 8 to 13.1 to make distractor "C" absolutely incorrect.

NRC K/A System/E/A

System 2950 High Drywell Temperature
28

Number EA2.04 **RO** 4.1 **SRO** 4.2 **CFR Link** (CFR 41.10, 43.5, 45.13)

Ability to determine and/or interpret Drywell pressure as it applies to HIGH DRYWELL TEMPERATURE

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 85

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - YES

CHOICE (B) - NO

WRONG: OSCAR readings as release rate increases. Release rate increases through the siding failure.

VALID DISTRACTOR: Applicant may misunderstand how OSCAR works and think it sees the increased release. SBGT part is correct.

CHOICE (C) - NO

WRONG: The panel failure cause bypass of SBGT.

VALID DISTRACTOR: OSCAR does see increase

CHOICE (D) - NO

WRONG: The panel failure causes bypass of SBGT

VALID DISTRACTOR: Applicant may misunderstand how OSCAR works and think it sees the increased release. Mirror imaging.

References

SSES Bank
TM-OP-070

Comments and Question Modification History

GXJ

THF

RJC

SSES

10 CFR 55.43 (b)(4).

Gil 10/16/05 - No K/A statement with question. Looks like a system-level, not SRO level (no choice of procedures).

How does OSCAR "see" the release?

R - K/A statement added. OSCAR is an Off-site Rad Monitoring team.

Gil 10/17/05 - K/A match is acceptable. Accepts SRO under (b)(4).

Todd/Rich 10/31/05 - editorial changes.

SQ 11/14/05 - significant editorial changes. Saved original as 851.

SQ 11/28/05 - corrected spelling of "initiates" in the stem.

NRC K/A System/E/A

System 2950 Secondary Containment High Differential Pressure
35

Number EA2.02 **RO** 2.8 **SRO** 4.1 **CFR Link** (CFR 41.8 to 41.10)

Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: Off-site release rate: Plant-Specific.

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 89

89

RO

SRO

Question ID: 29678 Origin: New

Memory Level

Both units are at full power with an Equalizing Battery charge in progress on 1D610. The feeder breaker to 1D614 trips open and 1D614 is deenergized. Choose from the list of procedures below, the ORDER in which these procedures will be implemented.

- a. AR-106-001, 125V DC PANEL 1L610 SYSTEM TROUBLE (A12).
- b. ON-102-610, LOSS OF 125V DC BUS 1D610.
- c. LA-1L610-001, 125 VDC Panel 1L610.
- d. EO-100-102, RPV CONTROL.

A b - c - a - d

B a - c - b - d

C c - a - b - d

D d - b - a - c

Question Number: 89

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - No

VALID DISTRACTOR: Applicant may recognize entry conditions for the ON, then work toward the EO.

CHOICE (B) - No

VALID DISTRACTOR: Applicant may select the AR because it is the first indication.

CHOICE (C) - No

VALID DISTRACTOR: Exact opposite of correct answer.

CHOICE (D) - YES

On loss of 1D610, both RRP's trip because the closed indication for RPT breakers is lost. ON-164-002 requires the user to scram the Rx if both RRP's trip. Per SSES, a scram from high power will cause RPV level to go below +13 inches - an entry condition for EO-100-102.

References

ON-102-610

Comments and Question Modification History

GXJ

THF

RJC

SSES

10 CFR 55.43 (b)(5)

Gil 10/16/05 - OK.

Todd/Rich 10/31/05 - changed "should" to "will" in stem.

SQ 11/14/05 - significant discussion. Jointly agreed that only "D" is correct because it begins with the EOP and that all other distractors are absolutely wrong because they do not begin with the EOP (d).

SQ 11/28/05 - agreed to provide Applicants with copy of ON-102-610 because SSES indicated that Applicant's may not recognize that this DC buss causes both RRP's to trip.

NRC K/A System/E/A

System 2630
00

Number RO SRO CFR Link

NRC K/A Generic

System 2.4 Emergency Procedures /Plan

Number 2.4.5 RO 2.9 SRO 3.6 CFR Link (CFR: 41.10 / 43.5 / 45.13)

"Knowledge of the organization of the operating procedures network for normal, abnormal, and emergency evolutions."

Question Number: 95

95

RO

SRO

Question ID: 29682 Origin: Mod

Memory Level

The time is 19:00.

SSES Unit 1 is operating at FULL rated power.

SSES Unit 2 was required to shutdown pursuant to Technical Specification 3.0.3. SSES Unit 2 entered MODE 3 earlier this same day at 06:00 and is continuing to cool down. The current RPV pressure is 85 psig.

The Outside NPO reports that Spray Pond level is 678 feet.

If Spray Pond level remains at 678 feet, how much time does each unit have to reach mode 4?

- A** SSES Unit 1: 48 hours.
SSES Unit 2: 24 hours.
- B** SSES Unit 1: 24 hours.
SSES Unit 2: 24 hours.
- C** SSES Unit 1: 36 hours.
SSES Unit 2: 36 hours.
- D** SSES Unit 1: 36 hours.
SSES Unit 2: 24 hours.

Question Number: 95

Answers:

A

B

C

D

References Provided to Applicant:



Justification

SSES Unit 1:
TS 3.7.1.C - 12 hours to Mode 3. When in Mode 3, TS 3.4.8 becomes applicable.
TS 3.4.8.A3 - 24 hours to Mode 4.
TS 3.7.1.C - 36 hours to Mode 4.

SSES Unit 2:
TS 3.0.3 - 24 hours {06:00 to 19:00 is 13 hours. TS 3.0.3 allows 37 hrs to 4 from 3 (37 less 13 is 24)}
TS 3.4.8.A3 - 24 hours again.
TS 3.7.1.C - 36 hours.

References

Tech Specs.
SSES Bank Question.

Comments and Question Modification History



GXJ



THF



RJC



SSES

10 CFR 55.43 (b)(2)

Gil 10/16/05 - delete "can NOT be raised" replace with "remains at 678 feet"
R - done.

Todd/Rich 10/31/05 - OK

SQ 11/14/05 - no questions during validation week.

SQ 11/28/05 - SSES pointed out that the correct answer is "D" and not "B" because TS 3.4.8 is not applicable until unit 1 reaches mode 3. Unit 1 has 12 hours to reach mode 3. SSES indicated that the original technical reviewer now agreed with this interpretation. NRC Author concurs.

NRC K/A System/E/A

System

Number **RO** **SRO** **CFR Link**

NRC K/A Generic

System 2.1 Conduct of Operations

Number 2.1.12 **RO** 2.9 **SRO** 4.0 **CFR Link** (CFR: 43.2 / 43.5 / 45.3)

Ability to apply technical specifications for a system.

Question Number: 96

96

RO

SRO

Question ID: 29717 Origin: New

Memory Level

Following significant maintenance to HV-152-F001B, Core Spray Suction valve, the stroke time is reduced to 72 seconds.

The current acceptable stroke time for HV-152-F001B is 62.9 to 83.0 seconds per Technical Specification 5.5.6, INSERVICE TESTING PROGRAM and SO-151-B04, CORE SPRAY VALVE EXERCISING DIV II.

The current reference value for HV-152-F001B stroke time is 80 seconds. Before this maintenance, the stroke time has consistently been within 1 second of the reference value.

Which ONE of the following correctly describes the required screening to establish a new reference value?

- A** ONLY an APPLICABILITY DETERMINATION because the activity requires a change to the IST Program Plan.
- B** ONLY an APPLICABILITY DETERMINATION because the activity is controlled by ECCS Acceptance Criteria.
- C** An APPLICABILITY DETERMINATION and a 50.59 SCREEN because the activity requires a change to the IST Program Plan.
- D** An APPLICABILITY DETERMINATION, a 50.59 SCREEN, and a 50.59 EVALUATION because the activity is controlled by ECCS Acceptance Criteria.

Question Number: 96

Answers:

A



B



C



D



References Provided to Applicant:



Justification

References

Comments and Question Modification History



GXJ



THF



RJC



SSES

SQ 11/28/05 - SSES second technical reviewer considered it too easy because "A" is the only choice referring to the IST program. This was the first review of this entirely new question. Changed distractors to be more plausible and make question more discriminating.

NRC K/A System/E/A

System

Number

RO

SRO

CFR Link

NRC K/A Generic

System

2.2

Equipment Control

Number

2.2.7

RO 2.0

SRO 3.2

CFR Link (CFR: 43.3 / 45.13)

Knowledge of the process for conducting tests or experiments not described in the safety analysis report.

From: Harry Balian
To: Richard J Brooks
Date: 30-Nov-05 8:55:37 AM
Subject: December 2005 ILO Examination

!!!!!!!!!!!!!!!!!! THINK EXAM SECURITY PLEASE !!!!!!!!!!!!!!!!!!!!!

Questions 53, 56 and 85 are attached because they were inadvertently omitted in the file I sent last night.

This is our fifth submission for the December 2005 ILO exam. These are the questions that we discussed on Monday, 28 November, by telephone. The questions reflect the changes we agreed to during that call. However, the revised questions have not been reviewed by the NRC's Chief Examiner assigned to this project nor approved by the Region 1 Operator Licensing Branch Chief. Although NRC approval is still pending, they are available for your use during your planned validation on Wednesday, 30 November.

Questions 2, 12, 12, 14, 16, 18, 26, 31, 33, 35, 49, 53, 56, 58, 59, 63, 66, 72, 74, 78, 79, 80, 85, 89, 95, and 96 contain editorial changes.

Also, confirming our discussion concerning Applicant references, the following questions require references:

<u>Question</u>	<u>Reference</u>
9	ON-204-201
14	EOPs without entry conditions
15	EOPs without entry conditions and Steam Tables
23	EOPs without entry conditions
29	ON-204-202
34	T.S. 3.1.7
41	Steam Tables
59	Power to Flow map for the applicable unit.
73	EOPs without entry conditions
78	EOPs without entry conditions
79	EOPs without entry conditions and EAL Tables.
89	ON-102-610
90	OP-024-001 and SO-024-001
92	M-142, Sheets 1 & 2 and Tech Specs (all LCOs only)
95	Tech Specs (all LCOs only) - SROs
97	NDAP-QA-1901

During your reviews this week, please confirm that none of the references for questions 76 and higher will provide answers for questions 1 through 75.

A hard-copy or paper version will NOT be sent unless you expressly request one. Please use the project password to access these protected files.

!!!!!!!!!!!!!!!!!! THINK EXAM SECURITY PLEASE !!!!!!!!!!!!!!!!!!!!!

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CC: Cynthia Bixler; Gilbert Johnson; Todd Fish

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Question Number: 53

53

RO

SRO

Question ID: 29622 Origin: New

Memory Level

Both units are at full power when the following conditions develop on SSES Unit 1:

- RBCCW HEAD TANK HI-LO LEVEL (AR-123-001, E06) annunciates.
- NPOs check RBCCW DEMIN WTR SUPPLY ISO 113024 Closed.
- NPOs drain the RBCCW Head tank to 5/8 full.

After several hours:

- RBCCW HEAD TANK HI-LO LEVEL (AR-123-001, E06) annunciates.
- All other conditions in the plant are NORMAL.
- The NPO reports that RBCCW Head Tank level has been slowly rising since it was drained several hours ago and that all other RBCCW indications are normal.
- All Reactor Water Cleanup (RWCU) parameters are normal.
- Reactor Recirculation Pump (RRP) Motor Winding temperatures are normal.

Per established SSES procedures, the Operating Crew must drain the RBCCW Head Tank to 5/8 full again and . . .

- A** . . . then swap CRD Pumps and isolate the previously running CRD Pump.
- B** . . . then remove the RWCU system from service and isolate RBCCW to the NRHX.
- C** . . . then swap RBCCW Heat Exchangers (1E201A/B) and isolate the previously in-service Heat Exchanger.
- D** . . . then swap Containment Cooling from Reactor Building Chilled Water (RBCW) to RBCCW.

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - No

WRONG: This is a TBCCW load

VALID DISTRACTOR: Might work for high TBCCW Surge Tank.

CHOICE (B) - No

WRONG: This would be correct if higher radiation levels accompanied the high level. However, no radiation present.

VALID DISTRACTOR: correct if higher rad levels evident.

CHOICE (C) - YES

CHOICE (D) - No

WRONG: already did this once.

VALID DISTRACTOR: Per AR-123-001, E06 - time to suspect the RBCCW HX and isolate it.

References

AR-123-E06

ON-114-001

Comments and Question Modification History

CXJ

THF

RJC

SSES

Gil 09/26/05 - OK

Rich 10/09/05 - If not immediate action, should we specify procedure?

R: the action required by answer "C" is part of the alarm response and not part of the ON. Given these indications and choices, the successful Applicant should be able to recognize "C" as the only answer that would address these conditions. "A" is obviously wrong because it is NOT a RBCCW load. "B" is wrong because all conditions are otherwise normal which implies no radiation or high temperatures to indicate NRHX leak. "D" has already been done and will not alleviate the continuing rise in level. I did add another bullet to drive the Applicant further away from "D".

Todd 10/17/05 - 2-part K/A at the RO level.

The following SSES Learning Objectives support this question:

10258 Given appropriate alarm response procedures, determine the following for any annunciator associated with the Reactor Building Closed Cooling Water System:

1. Probable cause of the alarm
2. Adverse consequences of continued operation in the alarm state
3. Appropriate course of action

Applicant should be able to reason the correct course of action without the Alarm Response Procedure.

1676 Predict the effect that the following conditions will have on the Reactor Building Closed Cooling Water System:

- h. High or low RBCCW Head Tank level

Unable to adequately test both ability to predict and use procedures of this two part K/A. Per authority of NUREG 1021, ES401, Section D.2.a., second paragraph [When selecting or writing questions for K/As that test coupled knowledge or abilities (e.g., the A.2 K/A statements in Tiers 1 and 2 and a number of generic K/A statements, such as 2.4.1, in Tier 3), try to test both aspects of the K/A statement. If that is not possible without expending an inordinate amount of resources, limit the scope of the question to that aspect of the K/A statement requiring the highest cognitive level (e.g., the (b) portion of the A.2 K/A statements) or substitute another randomly selected K/A.], the test question tests the ability to predict the impact of an air dryer malfunction.

18 October 2005.

SQ 11/14/05 - added two additional bullets:

- All Reactor Water Cleanup (RWCU) parameters are normal.
- Reactor Recirculation Pump (RRP) Motor Winding temperatures are normal.

also changed STA to NPO and added Re- and again to "D" to emphasize that this was intended to be a repeat.

SQ 11/28/05 - significant changes. Added retraining the head tank to all distractors to improve plausibility and realism. Changed Distractor "D" completely to eliminate a second correct answer. Original was merely to repeat the IMAs of the AR which was arguably correct.

Question Number: 53

System 4000 Component Cooling Water System (CCWS)
00

Number A2.02 **RO** 2.8 **SRO** 3.0 **CFR Link** (CFR 41.5 / 45.6)

Ability to (a) predict the impacts of High/low surge tank level on the CCWS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 56

56

RO

SRO

Question ID: 29712 Origin: Mod

Memory Level

The Rod Sequence Control System (RSCS) PREVENTS continuous Control Rod WITHDRAWAL between notches 00 and 12 in which of the following categories:

- A** 100% rod density to 75% rod density
- B** 75% rod density to Low Power Set point (LPSP)
- C** 50% rod density to 100% rated Core Thermal Power (CTP)
- D** 100% rod density to 100% rated Core Thermal Power (CTP)

Question Number: 56

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - No

WRONG: No rod motion blocks imposed in Category I (100% to 75% rod density)

VALID DISTRACTOR: Rod motion blocks are imposed at N1, N2, N3, N4 in Category II (75% to 50% rod density)

CHOICE (B) - YES

Rod motion blocks are imposed at N1, N2, N3, N4 in Category II (75% to 50% rod density)

Rod motion blocks are imposed at N1 in Category III (50% rod density to LPSP)

CHOICE (C) - No

WRONG: No rod motion blocks imposed in Category IV (LPSP to 100% CTP)

VALID DISTRACTOR: Rod motion blocks are imposed at N1 in Category III (50% rod density to LPSP)

CHOICE (D) - No

WRONG: No rod motion blocks imposed in Category IV (LPSP to 100% CTP)

WRONG: No rod motion blocks imposed in Category I (100% to 75% rod density)

VALID DISTRACTOR: mirror image. Also the correct answer on the BANK question from which this was drawn.

References

Bank question

TM-OP-056Z

Comments and Question Modification History

GXJ

THF

RJC

SSES

Gil 09/26/05 - Add to stem: "...WITHDRAWAL between notches 00 and 12..."

R: done.

SQ 11/14/05 - changed from I, II, III, IV format to answers in the choices. Saved original as 561

SQ 11/28/05 - deleted I, II, III, IV from stem. Forgot to do it during revision described above.

NRC K/A System/E/A

System 2010 Rod Sequence Control System (Plant Specific)
04

Number A3.05 **RO** 3.5 **SRO** 3.7 **CFR Link** (CFR 41.7 / 45.7)

Ability to monitor automatic operations of the ROD SEQUENCE CONTROL SYSTEM (PLANT SPECIFIC) including: †
Verification of proper function/ operability: BWR-4,5

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**

Question Number: 85

85

RO

SRO

Question ID: 29715 Origin: Bank

Memory Level

OSCAR has been dispatched as a result of a refueling accident on the refuel floor (818'). The Standby Gas Treatment System (SGTS) automatically initiates. The following conditions exist:

- Zone 1 and III differential pressure is -0.31 inches WG.
- SGTS SPING Noble Gas is 1.0E06 (1,000,000) micro curies per minute.
- OSCAR whole body dose readings are 0.05 millirem per hour.

A siding panel fails on the Refuel Floor. Zone III differential pressure now indicates 0 inches WG.

- (1) How do SPING readings relate to the offsite release rate and
- (2) How will OSCAR whole body dose readings respond to the panel failure?

- A** (1) SBGT SPING Noble Gas is NOT representative of the Total Offsite Release.
(2) OSCAR whole body dose readings will increase.
- B** (1) SBGT SPING Noble Gas is NOT representative of the Total Offsite Release.
(2) OSCAR whole body dose readings will NOT change.
- C** (1) SBGT SPING Noble Gas IS representative of the Total Offsite Release.
(2) OSCAR whole body dose readings will increase.
- D** (1) SBGT SPING Noble Gas IS representative of the Total Offsite Release.
(2) OSCAR whole body dose readings will NOT change.

Question Number: 85

Answers:

A

B

C

D

References Provided to Applicant:

Justification

CHOICE (A) - YES

CHOICE (B) - NO

WRONG: OSCAR readings as release rate increases. Release rate increases through the siding failure.

VALID DISTRACTOR: Applicant may misunderstand how OSCAR works and think it sees the increased release. SBGT part is correct.

CHOICE (C) - NO

WRONG: The panel failure cause bypass of SBGT.

VALID DISTRACTOR: OSCAR does see increase

CHOICE (D) - NO

WRONG: The panel failure causes bypass of SBGT

VALID DISTRACTOR: Applicant may misunderstand how OSCAR works and think it sees the increased release. Mirror imaging.

References

SSES Bank
TM-OP-070

Comments and Question Modification History

GXJ

THF

RJC

SSES

10 CFR 55.43 (b)(4).

Gil 10/16/05 - No K/A statement with question. Looks like a system-level, not SRO level (no choice of procedures).

How does OSCAR "see" the release?

R - K/A statement added. OSCAR is an Off-site Rad Monitoring team.

Gil 10/17/05 - K/A match is acceptable. Accepts SRO under (b)(4).

Todd/Rich 10/31/05 - editorial changes.

SQ 11/14/05 - significant editorial changes. Saved original as 851.

SQ 11/28/05 - corrected spelling of "initiates" in the stem.

NRC K/A System/E/A

System 2950 Secondary Containment High Differential Pressure
35

Number EA2.02 **RO** 2.8 **SRO** 4.1 **CFR Link** (CFR 41.8 to 41.10)

Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: Off-site release rate: Plant-Specific.

NRC K/A Generic

System

Number **RO** **SRO** **CFR Link**