

References provided to applicants for PVNGS November 5, 2010 Written Exam

- Steam Tables. – Both RO and SRO.
- 40EP-9EO10 (Standard Appendices) Appendix 2 Figures pages 1 and 2 of 3 ONLY. – Both RO and SRO.
- COLR Figure 3.1.5-1 Unit 1 Rev 21. RO Only.
- Emergency Action Level (EAL) HOT/COLD Chart. SRO Only.

KEY ID

(A) (B) (C) (D)

SCORING &
PRINTING
OPTIONS:

☐ RESCORE

☐ MULTIPLE ANSWER SCORING

☐ CORRECT ANSWER

☐ MARK X

☐ TOTAL ONLY

MARK ONLY ONE

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ANSWER KEY INFO.			
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ITEM COUNT			
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PERFORMANCE ASSESSMENT			
% OF TOTAL SCORE		POINTS EARNED	
60 = 100%			
E	0	0	0
C	1	1	1
A	2	2	2
P	3	3	3
T	4	4	4
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↑ FEED IN THIS DIRECTION

NUMBER CORRECT	NO
PERCENT CORRECT	100
ROSTER NUMBER	NAME
SCORE	
RESCORE	

COMBINED POINTS EARNED	
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CERTIFICATION: I have reviewed all questions which were missed, have had an opportunity to ask questions, and understand the correct answer to each question. All work on this examination is my own, I have neither given or received help.

DATE

SIGNATURE

MARKING INSTRUCTIONS

Use a No. 2 Pencil or blue or black ink pen only.

Fill oval completely

Erase cleanly

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NAME NRC RO EXAM
COURSE EXAM ANSWER KEY
DATE 11-5-10

KEY ID

(A) (B) (C) (D)

SCORING & PRINTING
OPTIONS:

☐ RESCORE

☐ MULTIPLE ANSWER SCORING

☒ CORRECT ANSWER

☐ MARK X

☐ TOTAL ONLY

MARK ONLY ONE

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- 1 (A) (B) (C) (D) A
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ANSWER KEY INFO.	
# OF KEYS	ITEM COUNT
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1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1

PERFORMANCE ASSESSMENT	
% OF TOTAL SCORE	POINTS EARNED
00 = 100%	
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

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↑ FEED IN THIS DIRECTION

NUMBER CORRECT	NO.
PERCENT CORRECT	100
ROSTER NUMBER	NAME
SCORE	
RESCORE	

COMBINED POINTS EARNED	
COMBINED PERCENT CORRECT	
LETTER GRADE	
SCORE	
RESCORE	

11/5/2010

MARKING INSTRUCTIONS

Use a No. 2 Pencil or blue or black ink pen only.

Fill oval completely

Erase cleanly

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CERTIFICATION: I have reviewed all questions which were missed, have had an opportunity to ask questions, and understand the correct answer to each question. As a work on this examination is my own, I have neither given or received help.

DATE

SIGNATURE

NAME NRC SRO EXAM
COURSE EXAM ANSWER KEY
DATE 11-5-10

Given the following conditions:

- Unit 1 is operating at 100% power.
- B05 indicates VOPT on all 4 channels are tripped.
- Phase current lights on B05 are lit.
- CRS has entered SPTAs.

Which ONE of the following describes the next appropriate action in accordance with SPTAs?

- A. Direct an AO to manually trip RTCBs.
- B. Borate the RCS at full charging pump capacity.
- C. Open Load Center Breakers L3 and L10 from B01.
- D. RO will depress all 4 Reactor Trip pushbuttons on B05.

Answer: D

Question 1 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	22660
User-Defined ID:	Q22660
Cross Reference Number:	
Topic:	Q22660 RO ATWS L3L10 BREAKER OPS
Num Field 1:	3.9
Num Field 2:	4.1
Text Field:	4.1 029 EA1.11
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>KA STATEMENT: Ability to operate and monitor the following as they apply to a ATWS: Manual opening of the CRDS breakers.</p> <p>TECHNICAL REFERENCE: 40EP-9EO01 SPTAs</p> <p>JUSTIFICATION:</p> <ul style="list-style-type: none"> A. Incorrect – Only the FRP directs this action per RC-1 CEA Insertion step 3. B. Incorrect – This would be correct if opening the LC Breakers L3 and L10 was unsuccessful. This is the next contingency to be taken per the SPTAs step 2. C. Incorrect – This would be correct if depressing the RT pushbuttons on B05 was unsuccessful. This is the next contingency to be taken per the SPTAs step 2. D. Correct – This action is directed in the SPTAs, step 2. This will manually open the RTCBs from the control room.

Question 1 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.9

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Given a reactor trip describe the EOP expectation concerning the operation of the input breakers for L03 and L10

2**ID: Q6331****Points: 1.00**

Given the following conditions:

- A LOCA event results in a Reactor trip.
- Containment Pressure is 3.5 psig and rising.
- The SPTAs are in progress.
- RCS Subcooling indicates 20 °F.

Which ONE of the following describes the guidance regarding the operation of the RCPs?

- A. Trip Two RCPs now (in SPTAs).
- B. Trip Four RCPs now (in SPTAs).
- C. The CRS shall not direct tripping of RCPs until an EOP is entered.
- D. The running RCPs shall remain operating until saturation conditions exist (0 °F subcooling).

Answer: B

Question 2 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	6331
User-Defined ID:	Q6331
Cross Reference Number:	
Topic:	Q6331 GEN EOP LBLOCA RCP operation without NPSH
Num Field 1:	2.6
Num Field 2:	2.7
Text Field:	41011EK202
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>TECHNICAL REFERENCE: 40EP-9EO01 SPTAs</p> <p>KA STATEMENT: 4.1 011EK2.02 Knowledge of the interrelations between the pumps and the following: Large break LOCA: Pumps.</p> <p>JUSTIFICATION:</p> <p>A. Incorrect – All RCPs are to be secured with subcooling < 24 °F. Candidate may confuse the trip 2 leave 2 strategy with RCS pressure remaining below the SIAS setpoint.</p> <p>B. Correct – This is the SPTA contingency for loss of subcooling. RCPs should not be operated without adequate subcooling.</p> <p>C. Incorrect – The expectation is that these pumps will be secured prior to exiting the SPTAs. Candidate may think that this is an early step of the LOCA EOP.</p> <p>D. Incorrect – This does not meet the standards set by the EOP Technical Guideline. Candidate may understand loss of subcooling as < 0 °F subcooling, not the procedurally directed < 24 °F.</p>

Question 2 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

4.1

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

describe the EOP expectation concerning the operation of the RCPs when subcooling is lost

3**ID: Q22668****Points: 1.00**

Given the following conditions:

- Unit 1 is operating at 100% power.
- The power supply for CHE-P01 ('E' Charging Pump) is aligned to PBA-S03.
- Charging Pump selector switch is in the 1-2-3 position.
- PBA-S03 experiences a LOP.

Assuming NO operator action, which ONE of the following describes the plant response?

- A. PZR Level will remain constant.
- B. PZR Level will lower until letdown isolates on high temperature.
- C. PZR Level will immediately rise due to letdown isolating on the LOP.
- D. PZR Level will initially lower then return to program as letdown adjusts to the new charging flow.

Answer: B

Question 3 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	22668
User-Defined ID:	Q22668
Cross Reference Number:	
Topic:	Q22668 LOP EFFECTS ON CH AND PZR LEVEL
Num Field 1:	3.2
Num Field 2:	3.7
Text Field:	4.2 022 AA2.02
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>KA STATEMENT: Ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Makeup: Charging pump problems</p> <p>TECHNICAL REFERENCE: 40AO-9ZZ12 Degraded Electrical AOP, Operator Information Manual.</p> <p>JUSTIFICATION:</p> <p>Letdown does not isolate on Low PZR level. See Appendix E of 40AO-9ZZ05 (Loss of Letdown) for causes of loss of letdown.</p> <p>A. Incorrect – Candidate may believe that letdown will be able to adjust quickly enough to maintain the PZR level constant.</p> <p>B. Correct – A/E CCPs will be secured on the LOP, therefore charging flow will be 44 gpm and initial letdown flow is 78 gpm plus 8.8 gpm of seal bleedoff flow. Charging vs. Letdown mismatch will cause PZR level to initially lower until Letdown isolates on high temp at the regen Hx. Letdown temps rise due to the reduced charging flow available to cool the letdown flow.</p> <p>C. Incorrect – Candidate may think the LOP will cause letdown isolation valves to close.</p> <p>D. Incorrect – Candidate may not understand the charging vs. letdown relationship as it relates to rise in temp over time. The may think that letdown will back off enough to maintain letdown in service.</p>

Question 3 Table-Item Links

Q - 10CFR Sections

55.41 (6) Design, components, and functions of reactivity control mechanisms and instrumentation.

Q - Reactor Operator K & A Importance classification

3.2

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the automatic functions associated with the Charging Pumps.

Given the following conditions:

- Unit 1 RCS level is at mid-loop at 101 ft. 4 in.
- SDC is aligned to 'A' Train with LPSI 'A' running.
- SDC TRAIN A/B FLOW LO (2B06A) is alarming.
- LPSI 'A' amps are oscillating.

Which ONE of the following actions will mitigate this condition?

- A. Line up make-up from the RWT.
- B. Start CS Pump 'A' and Secure LPSI Pump 'A'.
- C. Start CS Pump 'A' in parallel operation with LPSI 'A'.
- D. Place SDC Train 'B' in parallel operation with SDC Train 'A'.

Answer: A

Question 4 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	4.00
System ID:	43744
User-Defined ID:	Q43744
Cross Reference Number:	
Topic:	Q43744 LOSS OF SDC
Num Field 1:	2.9
Num Field 2:	2.8
Text Field:	4.2 025 AA1.22
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>KA STATEMENT: Ability to operate and / or monitor the following as they apply to the Loss of Residual Heat Removal System: Obtaining of water from BWST for LPI system</p> <p>TECHNICAL REFERENCE: 40AL-9RK2B, SDC Train A/B FLOW LO Alarm Response.</p> <p>JUSTIFICATION:</p> <p>A. Correct – Raising level will eliminate the vortexing issue that is causing the flow oscillations.</p> <p>B. Incorrect – Shifting pumps will not correct the issue of vortexing, it will result in the issue being exhibited by the other pump.</p> <p>C. Incorrect – Parallel pump operations will make the issue worse by raising flow.</p> <p>D. Incorrect – Placing the other train in parallel service will result in the issue being exhibited by both SDC trains.</p>

Question 4 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

2.9

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

RO Exam 2010

Associated objective(s):

Identify the limitations associated with the SDC Low Flow Alarms for the RK, SESS and ERFDADS systems.

Given the following conditions:

- Unit 1 has tripped from 100% power.
- RDT level and pressure are rising slowly.
- Pressurizer Relief Valves Status Panel on B04 shows a 9% Red LED lit for PSV-200.

Which ONE of the following describes the Pressurizer level response and the Pressurizer level Technical Specification 3.4.9?

Pressurizer level will ____ (1) _____. Enter Technical Specification 3.4.9 when Pressurizer level reaches ____ (2) _____.

- A. (1) rise (2) 65%
- B. (1) rise (2) 56%
- C. (1) lower (2) 27%
- D. (1) lower (2) 25%

Answer: B

Question 5 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	43773
User-Defined ID:	Q43773
Cross Reference Number:	
Topic:	Q43773 LCO 3.4.9 PZR SAFETY LIFTS
Num Field 1:	3.4
Num Field 2:	3.7
Text Field:	2.2.40
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>TECHNICAL REFERENCE: 40DP-9AP06, SPTA Tech Guideline, TS 3.4.9</p> <p>KA STATEMENT:</p> <p>Ability to apply Technical Specifications for a system. Pressurizer Vapor Space Accident.</p> <p>JUSTIFICATION:</p> <ol style="list-style-type: none"> 1. Incorrect – Level will rise post trip. 65% is the top of the SPTAs PZR level Setpoint. 2. Correct – Level will rise and the high level TS limit is 56%. 3. Incorrect – Level will rise but the 27% level represents the low level TS limit of 27%. 4. Incorrect – Level will rise and the 25% level represents the Low Level Heater cutout setpoint.

Question 5 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

3.4

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe LCO 3.4.9, Pressurizer, and its basis.

6**ID: Q22656****Points: 1.00**

Given the following conditions:

- Unit 1 is operating at 100% power.
- Pressurizer level is 52% and stable.
- Pressurizer pressure is 2295 psia and rising slowly.
- Pressurizer Pressure Master Controller has a 0 output.
- Pressurizer Main Spray valves RC-PV-100E and 100F are closed.
- All pressurizer heaters are energized ON.
- RRS system Tavg is selected to Tavg 1 (Loop 1).

Which ONE of the following describes the current condition?

- A. Pressurizer Main Spray valves are failed closed.
- B. Pressurizer Pressure Master Controller has failed.
- C. Selected Pressurizer Level Instrument has failed high.
- D. Selected Pressurizer Pressure Transmitter has failed low.

Answer: D

Question 6 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	22656
User-Defined ID:	Q22656
Cross Reference Number:	
Topic:	Q22656 RO APE PPCS Malfunction
Num Field 1:	3.8
Num Field 2:	3.9
Text Field:	4.2 027 AK2.03
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>TECHNICAL REFERENCE: Operators Information Manual.</p> <p>KA STATEMENT:</p> <p>Knowledge of the interrelations between the Pressurizer Pressure Control Malfunctions and the following: Controllers and positioners.</p> <p>JUSTIFICATION:</p> <p>A. Incorrect – Spray valves are closed due to failing low PZR Press instrument, PPCS Master Control thinks pressure is lower than setpoint.</p> <p>B. Incorrect – RRS system provides the output to PLCS for Tavg level setpoint, therefore failure of master pressure controller would not support this condition.</p> <p>C. Incorrect – Level transmitter failure would cause pressurizer heaters to energize on surge, but actual pressure would have spray valves open, PPCS Master Control thinks pressure is lower than setpoint.</p> <p>D. Correct – PPCS Master Control thinks pressure is lower than setpoint, therefore pressure will rise due to the heaters on and spray valves shut.</p>

Question 6 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

2.6

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the response of the Pressurizer Pressure Control System to a failure of an input transmitter.

Given the following conditions:

Initial Conditions:

- Unit 1 is operating at 100% power.
- CRS is performing 40AO-9ZZ02 (Excessive RCS leakage).
- All Three (3) Charging Pumps are operating.
- Letdown is still in service.
- Leakrate is approximately 70 gpm.

Subsequently:

- A 12 Finger CEA slips, resulting in a Reactor Trip.
- 40EP-9EO01 (SPTAs) are in progress.
- No operator actions have been taken.
- Pressurizer Pressure is 2000 psia and stable, and was never any lower.
- CTMT Pressure is 0.5 psig and slowly rising.
- RU-1 is in ALERT alarm and slowly trending up.

Assuming No Operator Action, which ONE of the following Pressurizer Level responses would the Reactor Operator observe?

PZR level is 26% and will...

- A. lower until Safety Injection actuates and restores level.
- B. restore to 33% with charging pumps due to automatic PLCS control.
- C. rise until in a solid condition or charging pumps are manually secured.
- D. restore to 52.5% with charging pumps due to automatic PLCS control.

Answer: B

Question 7 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	4.00
System ID:	22625
User-Defined ID:	Q22625
Cross Reference Number:	
Topic:	Q22625 EOP RO SBLOCA PZR LEVEL Response
Num Field 1:	3.2
Num Field 2:	3.5
Text Field:	4.4 A16 AK2.1
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>TECHNICAL REFERENCE: 40AO-9ZZ04, RCP Emergencies</p> <p>KA STATEMENT: 4.1 009 EK3.10 Knowledge of the reasons for the following responses as they apply to the small break LOCA: Observation of PZR Level.</p> <p>JUSTIFICATION:</p> <p>A. Incorrect – The current RCS Leakrate is within the capacity of the charging system, therefore pressure and level will not lower to the point of SIAS.</p> <p>B. Correct – Charging Capacity is 132 gpm and Leakrate plus seal bleedoff is approx 109 gpm. Automatic PLCS control will maintain at the 0% power setpoint of 33%.</p> <p>C. Incorrect – Letdown is still in service therefore PLCS will maintain level at the 0% power setpoint of 33%.</p> <p>D. Incorrect – The 100% setpoint level for PLCS is 52%, candidate may use this for the setpoint.</p>

Question 7 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

3.4

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Given conditions of LOCA describe how the plant would respond to various types of RCS leaks in accordance with 40EP-9EO03.

Given the following conditions:

- Unit 1 has been tripped from 100% power due to a SGTR.

Which ONE of the following describes when the affected SG will be isolated.

- A. $T_{\text{hot}} < 540^{\circ}\text{F}$.
- B. $T_{\text{cold}} < 540^{\circ}\text{F}$.
- C. $T_{\text{hot}} < 540^{\circ}\text{F}$ **AND** RCS pressure within 50 psia of faulted SG.
- D. $T_{\text{cold}} < 540^{\circ}\text{F}$ **AND** RCS pressure within 50 psia of faulted SG.

Answer: A

Question 8 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	22663
User-Defined ID:	Q22663
Cross Reference Number:	
Topic:	Q22663 RO EPE SGTR WHEN TO ISOLATE
Num Field 1:	4.1
Num Field 2:	4.7
Text Field:	4.1 038 EA2.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>TECHNICAL REFERENCE: 40EP-9EO04 SGTR</p> <p>KA STATEMENT:</p> <p>Ability to determine or interpret the following as they apply to a SGTR: When to isolate one or more S/Gs.</p> <p>JUSTIFICATION:</p> <p>A. Correct – This is done to prevent lifting an MSSV after the SG is isolated.</p> <p>B. Incorrect – Isolation is done when $T_{hot} < 540^{\circ}\text{F}$. Candidate may not understand the T_{cold} vs. T_{hot} and why T_{hot} is used for isolation.</p> <p>C. Incorrect – Isolation is done when $T_{hot} < 540^{\circ}\text{F}$. RCS pressure is lowered to within 50 psia but not a criteria for isolating. The pressure portion of the procedure is used to ensure that the size of the leak is reduced and to minimize the dilution of the RCS.</p> <p>D. Incorrect – Isolation is done when $T_{hot} < 540^{\circ}\text{F}$. RCS pressure is lowered to within 50 psia but not a criteria for isolating. The pressure portion of the procedure is used to ensure that the size of the leak is reduced and to minimize the dilution of the RCS.</p>

Question 8 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

4.1

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

RO Exam 2010

Associated objective(s):

describe how and why a ruptured SG will be isolated and confirmed to be the leaking SG

Given the following conditions:

- Unit 1 is operating at 100% power.
- 2A RCP Upper Thrust Bearing temperature is observed to be in alarm at 230 °F and rising.

In accordance with 40AO-9ZZ04 (RCP Emergencies), which ONE of the following actions can be performed to slow the rate of temperature rise?

- A. Start the 2A hydraulic oil lift pump PO2C.
- B. Start the standby Nuclear Cooling Water pump.
- C. Increase the output of CHN-FIC-243, Seal Injection Flow Controller.
- D. Stop all but one Normal Chiller; ensure that only one Nuclear Cooling Water outlet valve is open.

Answer: A

Question 9 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	1
Difficulty:	2.00
System ID:	7243
User-Defined ID:	Q7243
Cross Reference Number:	40AO-9ZZ04, RCP EMERG
Topic:	Q7243 RCP Thrust bearing failure indications
Num Field 1:	4.0
Num Field 2:	4.2
Text Field:	2.4.11
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AO-9ZZ04, RCP Emergencies</p> <p>K&A:</p> <p>Knowledge of abnormal condition procedures as it relates to RCP malfunctions.</p> <p>Justification:</p> <p>A. Correct – RCP Emergencies procedurally directs this action for a high temperature bearing condition.</p> <p>B. Incorrect – RCP Emergencies procedurally directs this in the case of high temperature and loss of cooling water.</p> <p>C. Incorrect – These are reverse acting controllers, increasing output would cause a reduction in flow and increase temperature.</p> <p>D. Incorrect – directed in the case of high temperature and a loss of cooling water.</p>

Question 9 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

4.0

Q - Cognitive Level

Memory

Q - Question Source

PV Bank NOT Modified

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

2009 RO Exam

2010 RO NRC

Associated objective(s):

Given RCP motor amps and Upper Thrust Bearing Temperature

Given the following conditions:

- Unit 1 has been in a Blackout condition for 1 hour.
- The crew is performing action of 40EP-9EO08 (Blackout).
- Attempts to restore power from other sources have been unsuccessful.

The following parameters exist:

- REP CET indicated 589°F and stable.
- RCS pressure indicates 1660 psia and slowly lowering.
- Pressurizer level indicates 7% and slowly lowering.

Which ONE of the following actions (if any) should be taken by the crew to ensure Natural Circulation conditions exist?

- A. No action required.
- B. Raise RCS pressure.
- C. Raise Pressurizer level.
- D. Control steam generator feed and steam.

Answer: D

Question 10 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	43812
User-Defined ID:	Q43812
Cross Reference Number:	
Topic:	Q43812 Blackout action to maintain subcooling
Num Field 1:	4.1
Num Field 2:	4.4
Text Field:	4.1 055 EK1.02
Comments:	<p>Proposed reference to be provided to applicant during examination: Steam Tables</p> <p>Technical Reference: 40EP-9EO08, BLACKOUT / 40DP-9AP13. BO Tech Guideline</p> <p>K&A:</p> <p>Knowledge of the operational implications of the following concepts as they apply to the Station Blackout : Natural circulation cooling.</p> <p>Justification:</p> <p>A. Incorrect - Conditions per Blackout of 24 °F superheat are not met, therefore action is required to restore subcooling.</p> <p>B. Incorrect - Raising RCS pressure would improve subcooling, but the conditions of blackout do not support energizing of heaters.</p> <p>C. Incorrect - Raising PZR level will not support Natural Circulation conditions, also the conditions of blackout do not support the use of a charging pump.</p> <p>D. Correct - Per Step 21 Blackout EOP, if the conditions are met, ENSURE proper control of steam generator steaming and feeding.</p>

Question 10 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

55.41 (8) Components, capacity, and functions of emergency systems.

Q - Reactor Operator K & A Importance classification

4.1

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

state the action necessary to maintain subcooling margin

Given the following conditions:

- Unit 1 has tripped from 100% power.
- Pressurizer pressure is 2000 psia and lowering.
- Pressurizer level is 19% and lowering.
- Containment pressure is 6.5 psig and rising.
- RCS subcooling is 50°F and rising.
- SG 1 pressure is 1170 psia and stable.
- SG 1 level is 20% NR and rising.
- SG 2 pressure is 950 psia and lowering.
- SG 2 level is 40% WR and lowering.

In addition to SIAS/CIAS, which ONE of the following sets of alarms, are consistent with **CURRENT** plant conditions?

- A. MSIS and AFAS-2.
- B. CSAS and AFAS-2.
- C. MSIS and SG 1 > SG 2 CH TRIP.
- D. CSAS and SG 1 > SG 2 CH TRIP.

Answer: C

Question 11 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	10383
User-Defined ID:	Q10383
Cross Reference Number:	
Topic:	Q10383 EOP determine an ESD and correct alarms
Num Field 1:	4.2
Num Field 2:	4.2
Text Field:	2.4.46
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 41AL-1RK5A, window 5A07C; 40AL-9RK5B, window 5B07C; 40EP-9EO05 Excess Steam Demand.</p> <p>K&A: Ability to verify that the alarms are consistent with the plant conditions: Steam Line Rupture</p> <p>Justification:</p> <p>A. Incorrect – MSIS setpoint is 960 psia and AFAS setpoint is 25.8% Therefore the distracter is partially correct.</p> <p>B. Incorrect – Containment pressure is rising, the CSAS setpoint is not exceeded and the AFAS-2 setpoint is not exceeded.</p> <p>C. Correct – MSIS setpoint is 960 psia and SG DP Lockout alarm setpoint is exceeded.</p> <p>D. Incorrect – Containment pressure is rising, the CSAS setpoint is not exceeded but the SG DP Lockout alarm is exceeded.</p>

Question 11 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

4.2

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

O - SRO Tier Group Designation

Tier 3

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

RO Exam 2010

Associated objective(s):

respond to a Plant Annunciator alarm

Given the following conditions:

- Unit 1 is operating in Mode 2.
- The supply breaker to inverter PNC-N13 is inadvertently opened at PKC-M43.

Based on these conditions, PNC-D27 will:

- A. lose its alternate power supply but remain energized.
- B. automatically align to its alternate power supply and remain there until manually transferred back to the inverter.
- C. automatically align to its alternate power supply and then, when the inverter is restored, automatically transfer back to its normal source.
- D. be de-energized for as long as the supply breaker is open. Power can be restored by manually swapping the inverter output to its alternate supply.

Answer: D

Question 12 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	43746
User-Defined ID:	Q43746
Cross Reference Number:	
Topic:	Q43746 PN Unit 1 inverter failure
Num Field 1:	3.7
Num Field 2:	3.7
Text Field:	4.2 057 AA1.01
Comments:	<p>Proposed reference to be provided to applicant during examination: None</p> <p>Technical Reference: 40AO-9ZZ13 (Loss of Class Instrument or Control Power)</p> <p>K&A:</p> <p>Ability to operate and / or monitor the following as they apply to the Loss of Vital AC Instrument Bus: Manual inverter swapping.</p> <p>Justification:</p> <p>A. Incorrect – The supply breaker for the inverter is the normal power supply and the backup supply must be closed manually.</p> <p>B. Incorrect – Unit 1 does not have a static transfer switch, This would be correct in Units 2 and 3.</p> <p>C. Incorrect – Unit 1 does not have a static transfer switch, and the inverters are not self normalizing, therefore even if Unit 1 had the static transfer switch, the inverter would have to be manually aligned upon restoration of power.</p> <p>D. Correct – Unit 1 does not have a static transfer switch, so all lineups will be manual.</p>

Question 12 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.7

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 1

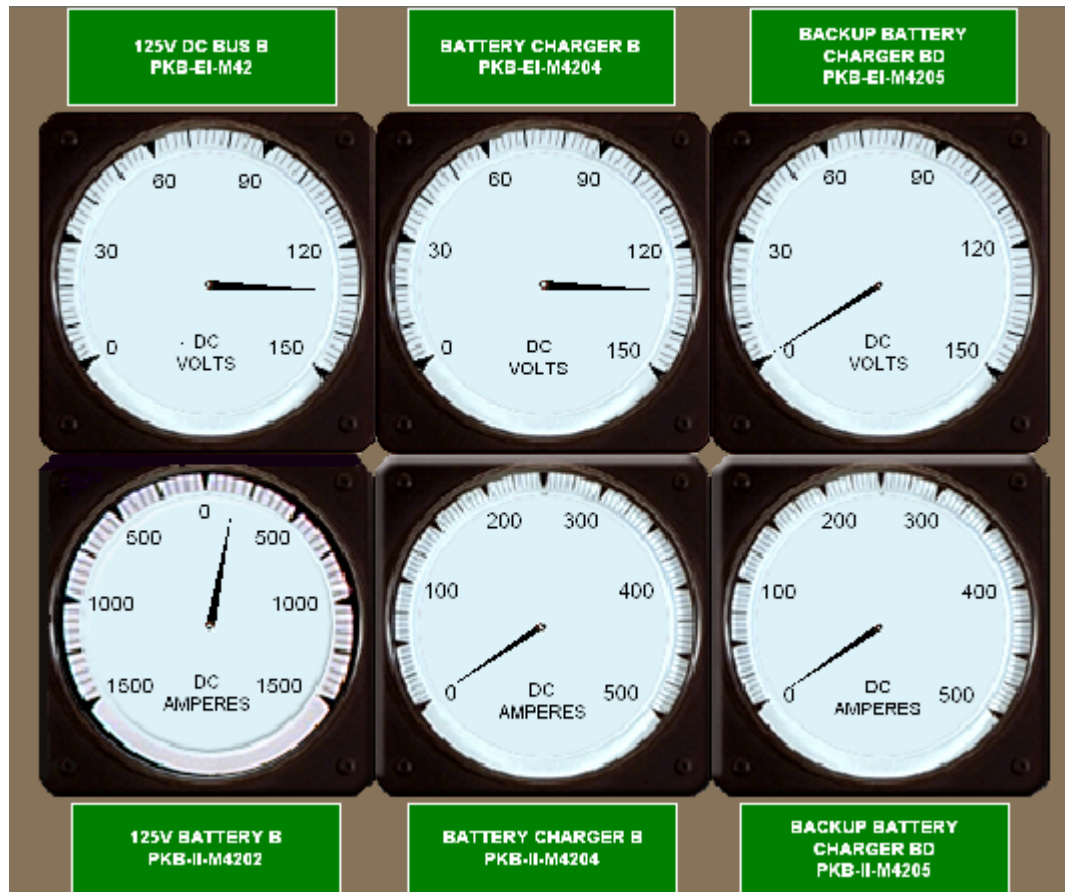
Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of the Static Transfer Switch which is provided on Inverters in Units 2 and 3. Manual Transfer Switch in Unit 1.

Given the following B01 indications:



Which ONE of the following conditions is indicated?

The "B"...

- A. PK train is in a normal alignment.
- B. Battery output breaker has tripped.
- C. Battery charger output breaker has tripped.
- D. Battery charger 'BD' supply voltage has been lost.

Answer: C

Question 13 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	22669
User-Defined ID:	Q22669
Cross Reference Number:	
Topic:	Q22669 Loss of DC battery charger.
Num Field 1:	3.7
Num Field 2:	4.1
Text Field:	4.2 058 AA2.01
Comments:	<p>Proposed reference to be provided to applicant during examination: None</p> <p>Technical Reference: 40OP-9PK01(125 VDC 1E Electrical System)</p> <p>K&A:</p> <p>Ability to determine and interpret the following as they apply to the Loss of DC Power: That a loss of dc power has occurred; verification that substitute power sources have come on line.</p> <p>Justification:</p> <p>A. Incorrect – In a normal alignment, Battery Charger “B” DC amps would be approximately 120 DC amps.</p> <p>B. Incorrect – If the “B” battery output breaker had tripped open, Battery “B” DC amps would be 0 DC amps.</p> <p>C. Correct – In a normal alignment, Battery Charger “B” DC amps would be approximately 120 DC amps.</p> <p>D. Incorrect – In a normal alignment Battery Charger “BD” DC amps would be 0 DC amps. This is normal indication when the BD Battery Charger is not aligned. The BD battery charger is not normally aligned.</p>

Question 13 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.7

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the Control Room indications associated with the Class IE 125 VDC Power system.

Given the following conditions:

- Unit 1 has tripped from 100% power due to a Loss of Offsite Power (LOOP) event.
- The crew has cross connected Essential Cooling Water (EW) system "A" to Nuclear Cooling Water per Standard Appendix 63.

Which ONE of the following describes the reason for throttling closed EWA-HCV-53 (SDCHX 'A' Outlet Isolation) to a minimum EW system flow of 8500 gpm or until the RCP LO NC FLOW alarms are clear?

- A. Maintain operability of the EW "A" system.
- B. Provide the NCW priority loads with adequate flow.
- C. Ensure adequate flow to the Fuel Pool Heat Exchangers.
- D. Prevent EW pump damage due to operating in a runout condition.

Answer: B

Question 14 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	10499
User-Defined ID:	Q10499
Cross Reference Number:	
Topic:	Q10499 X-tie EW to NC during a LOOP
Num Field 1:	4.0
Num Field 2:	4.2
Text Field:	4. 2 062 AK3.03
Comments:	<p>Proposed reference to be provided to applicant during examination: None</p> <p>Technical Reference: SA-63 and Tech Guide/ 40DP-9AP12, LOOP Tech Guide /</p> <p>K&A: Knowledge of the reasons for the following responses as they apply to the Loss of Nuclear Service Water: Guidance actions contained in EOP for Loss of nuclear service water</p> <p>Justification:</p> <ul style="list-style-type: none"> A. Incorrect - EW is INOP when cross tied. B. Correct - this is to ensure adequate flow to NCW priority loads. C. Incorrect- One train of EW not sized to provide both NCW and Fuel Pool cooling, this would require aligning the other train. D. Incorrect- not for runout but examinee could believe this to be true when taking systems out of normal alignment.

Question 14 Table-Item Links

Q - 10CFR Sections

55.41 (4) Secondary coolant and auxiliary systems that affect the facility.

55.41 (8) Components, capacity, and functions of emergency systems.

Q - Reactor Operator K & A Importance classification

4.0

Q - Cognitive Level

Memory

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

RO EXAM QUESTION 2008

2010 RO NRC

Associated objective(s):

Cross tie EW to NC while in the LOOP/LOFC EOP.

15

ID: Q43742

Points: 1.00

Which ONE of the following describes why the AOP directs aligning a Fuel Building Essential AFU to the auxiliary building during a complete loss of Instrument Air?

- A. The essential AFU simply augments the normal AFUs, ensuring a negative pressure is maintained.
- B. Due to the number of additional heat loads (motors and piping), additional air movement is necessary.
- C. The essential AFU will circulate air below the 100' elevation, which may contain nitrogen from leaking air connections.
- D. Since the normal AHUs and AFUs trip on a loss of Instrument Air, the Fuel Building essential AFUs will ensure Aux Building ventilation is maintained.

Answer: C

Question 15 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	43742
User-Defined ID:	Q43742
Cross Reference Number:	
Topic:	Q43742 HF alignment on loss of IA
Num Field 1:	3.0
Num Field 2:	3.2
Text Field:	4.2 065 AK3.04
Comments:	<p>Proposed reference to be provided to applicant during examination: None</p> <p>Technical Reference: 40OP-9HF01(Fuel Building HVAC), 40AO9ZZ06 (Loss of IA)</p> <p>K&A:</p> <p>Knowledge of the reasons for the following responses as they apply to the Loss of Instrument Air: Cross-over to backup air supplies</p> <p>Justification:</p> <p>A. Incorrect – The normal AFUs are not lined up to the aux bldg at all times, candidate may think that normal AFUs are always lined up to the lower levels of the aux building.</p> <p>B. Incorrect – Heat generation is not a concern in this event, therefore the AHUs would not be needed to dissipate the heat. During a SIAS, the heat generated from the pumps and possibility of radioactive gasses is the reason for shifting suctions.</p> <p>C. Correct – N2 buildup is a concern, the fuel building AFU has suctions on the lower levels of the Aux Building, therefore removing the N2.</p> <p>D. Incorrect – The normal AHUs do not trip on loss of IA. Candidate may think that the dampers are air powered and therefore would be lost.</p>

Question 15 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

55.41 (8) Components, capacity, and functions of emergency systems.

Q - Reactor Operator K & A Importance classification

3.0

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Identify when the Nitrogen backup will begin supplying the system and what equipment should be monitored if the backup is in service.

Given the following conditions:

Initial Conditions:

- Unit 2 has tripped from 100% power.
- SG #1 is 1000 psia and lowering.
- SG #1 is 40% WR and lowering.
- SG #2 is 800 psia and lowering.
- SG #2 is 10% WR and lowering.
- PZR level is at 30% and slowly lowering.
- Containment Pressure is 1 psig and rising.

At the time that the ORP is entered the conditions are as follows:

- Containment pressure peaked and is stable at 9.8 psig.
- Containment temperature is 185°F.
- PZR level is 12% and rising.
- RVUH level is 67%.
- RCS subcooling is 98°F.
- SG #1 is at 34% WR (rising) and being fed from AFW at 500 gpm.
- SG #2 is below the indicated level.
- Both HPSI pumps are injecting into the RCS.

Based on these conditions, you should obtain CRS concurrence and throttle HPSI...

- A. immediately.
- B. when PZR level reaches 15%.
- C. when RVUH is equal to 100%.
- D. when SG #1 Level are 45%-60% NR.

Answer: B

Question 16 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	43747
User-Defined ID:	Q43747
Cross Reference Number:	
Topic:	Q43747 EOP ESD Throttling HPSI
Num Field 1:	2.9
Num Field 2:	3.2
Text Field:	4.4 E05 EK1.1
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40EP-9EO05, Excess Steam Demand, 40EP-9EO10 Appendix 2 SI Throttle Criteria</p> <p>K&A:</p> <p>Knowledge of the operational implications of the following concepts as they apply to the (Excess Steam Demand) Components, capacity, and function of emergency systems.</p> <p>Justification:</p> <p>A. Incorrect – PZR level requirement is > 15% for Harsh CTMT conditions. Candidate may believe the 10% non harsh CTMT criteria is met.</p> <p>B. Correct – PZR level requirement for throttling HPSI is > 15% level when in Harsh CTMT conditions.</p> <p>C. Incorrect – RVUH level must be greater than 16% to throttle HPSI, which it is. Candidate may not understand RVUH and Plenum relationship.</p> <p>D. Incorrect – The SG requirement is RESTORING to 45-60% NR level. Candidate may believe that SG levels must be in the band.</p>

Question 16 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

55.41 (8) Components, capacity, and functions of emergency systems.

Q - Reactor Operator K & A Importance classification

3.0

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

describe the mitigating strategy outlined in the ESD EOP

Given the following conditions:

- Unit 1 has tripped from 100% power.
- SPTAs are complete and Reactor Trip EOP has been entered.
- The following electrical buses are available:
 - NAN-S01.
 - NBN-S01.
 - PBA-S03.
 - PKA-M41.
 - PNA-D25.

Which ONE of the following describes the status of the Maintenance of Vital Auxiliaries safety function and actions (if any) required to satisfy the safety function?

The Maintenance of Vital Auxiliaries safety function is...

- A. satisfied.
- B. not satisfied, energize PNB-D26.
- C. not satisfied, energize PKB-M42.
- D. not satisfied, energize PKC-M43.

Answer: D

Question 17 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	43748
User-Defined ID:	Q43748
Cross Reference Number:	
Topic:	Q43748 MVA SFSC RT
Num Field 1:	3.0
Num Field 2:	3.4
Text Field:	4.4 E02 EK1.2
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40EP-9EO02, Reactor Trip</p> <p>K&A:</p> <p>Knowledge of the operational implications of the following concepts as they apply to the (Reactor Trip Recovery) Normal, abnormal and emergency operating procedures associated with (Reactor Trip Recovery).</p> <p>Justification:</p> <p>A. Incorrect – not satisfied due to requiring a PK bus on the same side as the vital 4.16 kV bus.</p> <p>B. Incorrect – not satisfied due to requiring a PK bus on the same side as the vital 4.16 kV bus. PNB-D26 is downstream of PBB-S04(Which is not available).</p> <p>C. Incorrect – not satisfied due to requiring a PK bus on the same side as the vital 4.16 kV bus. PKB-M42 is downstream of PBB-S04.</p> <p>D. Correct – not satisfied due to requiring a PK bus on the same side as the vital 4.16 kV bus. PKC-M43 is downstream of PBA-S03.</p>

Question 17 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

3.0

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

analyze the MVA to determine if the SFSC acceptance criteria is satisfied

Given the following conditions:

- Unit 2 has tripped from 100% power.
- SPTAs are complete and the CRS has entered 40EP-9EO06 (LOAF).
- SG #1 level is 24% WR.
- SG #1 pressure is 1195 psia.
- SG #2 level is 22% WR.
- SG #2 pressure is 1040 psia.

Based on the above indications, which ONE of the following actuations (if any) has occurred?

- A. None.
- B. AFAS-1 Only.
- C. AFAS-2 Only.
- D. AFAS-1 and AFAS-2.

Answer: D

Question 18 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	43818
User-Defined ID:	Q43818
Cross Reference Number:	
Topic:	Q43818 AFAS SETPOINT
Num Field 1:	3.3
Num Field 2:	3.7
Text Field:	4.4 E06 EK2.1
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: EOP Setpoint Document, LOIT Lesson Plan.</p> <p>K&A: Knowledge of the interrelations between the (Loss of Feedwater) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.</p> <p>Justification:</p> <p>A. Incorrect – SG #1 level is 24% and SG #2 level is at 20%, candidate may not know the AFAS setpoint and believe that both SGs still greater than the setpoint.</p> <p>B. Incorrect – SG #2 Pressure is 150 psia < SG #1, candidate may believe that only SG #1 will have the AFAS due to a D/P lockout (actual setpoint of 185 psid).</p> <p>C. Incorrect – SG #2 level is at 20%, candidate may not know the AFAS setpoint and believe that SG #1 is still greater than the setpoint.</p> <p>D. Correct – AFAS setpoint is 25.8% WR, therefore both SG #1 and SG #2 will initiate an AFAS signal.</p>

Question 18 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.3

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe what automatically initiates Auxiliary Feedwater Actuation Signal (AFAS) and its function.

Given the following conditions:

- Unit 1 is operating at 100% power with CEAs ARO.
- A single Group 5 CEA drops into the core.
- Pulse Counter Rod Position Indication for the single Group 5 CEA 150 inches.
- Actual Rod position for the single Group 5 CEA is 15 inches.

Which ONE of the following explains the difference between the actual and the pulse counter CEA position?

The...

- A. Lower Group Stop (LGS) has NOT been met.
- B. Lower Electrical Limit (LEL) has NOT been met.
- C. Dropped Rod Contact (DRC) has NOT been activated.
- D. Pulse Counters DO NOT reset until a Rod Motion demand is sensed.

Answer: C

Question 19 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	43761
User-Defined ID:	Q43761
Cross Reference Number:	
Topic:	Q43761 Explain the operation of the RSPT (Reed Switch Position Transmitter).
Num Field 1:	3.7
Num Field 2:	3.9
Text Field:	4.2 003 AA2.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: CEDMCS Lesson Plan, Operator Information Manual.</p> <p>K&A: Ability to determine and interpret the following as they apply to the Dropped Control Rod: Rod position indication to actual rod position.</p> <p>Justification:</p> <ul style="list-style-type: none"> A. Incorrect – Lower Group Stop does not input to RPI but is part of the PC which will stop group motion at $\frac{3}{4}$ step withdrawn. B. Incorrect – Lower Electrical Limit does not input to RPI but is part of the RSPTs which do provide the DRC. C. Correct – The DRC will send the signal to the Plant Computer which provides the Rod Position to B05. D. Incorrect – Pulse Counters do provide RPI to the PC that will be indicated on B05, but not until the DRC is met. Candidate may confuse the reset when demand is sensed with the AMI reset associated with the RRS.

Question 19 Table-Item Links

Q - 10CFR Sections

55.41 (2) General design features of the core, including core structure, fuel elements, control rods, core instrumentation and coolant flow.

Q - Reactor Operator K & A Importance classification

3.7

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of the RSPT (Reed Switch Position Transmitter).

Given the following conditions:

- Unit 1 was initially at 100% power (250 EFPD).
- CRS has directed an Emergency Boration due to a loss of Shutdown Margin.
- 1000 gallons of boron have been sent to the Charging Pump suction at 40 gpm.
- Turbine load has been adjusted to maintain RCS temperature on program.

From memory, using the STA reactivity control worksheet approximate values.

Which ONE of the following describes the current condition?

- A. Reactor Power is ~ 90%, Tave has risen and Tcold has risen.
- B. Reactor Power is ~ 80%, Tave has lowered and Tcold has risen.
- C. Reactor Power is ~ 90%, Tave has risen and Tcold has lowered.
- D. Reactor Power is ~ 80%, Tave has lowered and Tcold has lowered.

Answer: B

Question 20 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	22435
User-Defined ID:	Q22435
Cross Reference Number:	
Topic:	Q22435 Reactor power response to emergency boration
Num Field 1:	3.6
Num Field 2:	3.9
Text Field:	4.2 024 AK1.02
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Basic Operator knowledge Per UIC16 Rev 0. Current Simulator Setup.</p> <p>K&A: Knowledge of the operational implications of the following concepts as they apply to Emergency Boration: Relationship between boron addition and reactor power</p> <p>Justification: Per UIC16 Rev 0. Current Simulator Setup. Updated from 2008 RO NRC Exam.</p> <p>U1C16 STA Reactivity Control Worksheet quick reference numbers or Core Data Book state, 53 gal of Boration per 1% power Tave is 585°F (100%) to 564°F (0%) T cold is 558°F (100%) to 564°F (0%) Boron addition rate of 40 gpm means xenon has had little effect at this time</p> <p>A. Incorrect – Candidate may not know the reference values and may not understand how the RCS will respond to a lowering Rx Power with Tcold being maintained on program with a Lowering Turbine Load.</p> <p>B. Correct – $(1000 \text{ gal}) / (53 \text{ gal boration} / 1\% \text{ power}) = 18.9\% \text{ power change}$. Tave will lower due to Thot lowering with Tcold remaining Constant.</p> <p>C. Incorrect – Incorrect – Candidate may not know the reference values and may not understand how the RCS will respond to a lowering Rx Power with Tcold being maintained on program with a Lowering Turbine Load.</p> <p>D. Incorrect – Incorrect – Candidate may not know the reference values and may not understand how the RCS will respond to a lowering Rx Power with Tcold being maintained on program with a Lowering Turbine Load.</p>

Question 20 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

55.41 (8) Components, capacity, and functions of emergency systems.

Q - Reactor Operator K & A Importance classification

3.6

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 1 Group 2

Q - RO Exam

RO EXAM QUESTION 2008

2010 RO NRC

Associated objective(s):

identify entry and exit of Emergency Boration

Which ONE of the following would result in a Loss of the Start Up Channel NIs?

Loss of power to...

- A. 125 vdc Class Control Power (PK).
- B. 125 vdc Non-Class Control Power (NK).
- C. 120 vac Class Instrument and Control Power (PN).
- D. 120 vac Non Class Instrument and Control Power (NN).

Answer: D

Question 21 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	43762
User-Defined ID:	Q43762
Cross Reference Number:	
Topic:	Q43762 LOSS OF PWR ON SR NIs
Num Field 1:	2.7
Num Field 2:	3.1
Text Field:	4.2 032 AK2.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Power Supply Table</p> <p>K&A: Knowledge of the interrelations between the Loss of Source Range Nuclear Instrumentation and the following: Power supplies, including proper switch positions.</p> <p>Justification: A. Incorrect – Candidate may not know the power supply to the Start Up Nis and may pick the Class DC control power. B. Incorrect – Candidate may not know the power supply to the Start Up Nis and may pick the Non Class DC control power. C. Incorrect – PN is the power supply to the Log Safety Channels. Candidate may not know the power supply to the Start Up Nis and may pick the Class AC instrument and control power. D. Correct – The Power Supplies to the Startup Channel NIs is NNN-D11 and D12.</p>

Question 21 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

2.7

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe how the Nuclear Instrumentation System is supported by the following systems:

- Class IE Instrument 120 V AC Power System (PN)
- Containment Building HVAC (HC)
- Non-Class IE Instrument 120 V AC Power System (NN)

Given the following conditions:

- Unit 1 was tripped due to a degrading condenser vacuum.
- Immediately after the trip, the Secondary Operator became involved with the B01 report.
- When this operator returns to B06, condenser backpressure is 6.0" HgA (highest shell).
- Steam Generator levels are both 65% WR.

Assuming no other Operator actions on B06, which ONE of the following describes the condition of the secondary plant?

- A. No feed with SBCS valves 1001 & 1004 maintaining SG pressure until Condenser pressure reaches 7.5 inches HgA.
- B. Main Feed Pumps feeding in RTO with SBCS valves 1001 & 1004 maintaining SG pressure until Condenser pressure reaches 7.5 inches HgA.
- C. No feed, SBCVs 1001 thru 1006 locked out to prevent Condenser over pressurization and SBCVs 1007 & 1008 maintaining SG pressure.
- D. Main Feed Pumps feeding in RTO, SBCVs 1001 thru 1006 locked out to prevent Condenser over pressurization and SBCVs 1007 & 1008 maintaining SG pressure.

Answer: D

Question 22 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	7819
User-Defined ID:	Q7819
Cross Reference Number:	
Topic:	Q7819 AOP 40AO-9ZZ07 Impact of rising backpressure
Num Field 1:	2.8
Num Field 2:	3.1
Text Field:	4.2 051 AK3.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AO-9ZZ07, Loss of Vacuum</p> <p>K&A: Knowledge of the reasons for the following responses as they apply to the Loss of Condenser Vacuum: Loss of steam dump capability upon loss of condenser vacuum</p> <p>JUSTIFICATION:</p> <p>A. Incorrect – Main feed pumps (MFPs) don't trip till 13.5 inches HgA, SBCS condenser valves (1001 – 1006) lock out on condenser interlock at 5.5 inches HgA.</p> <p>B. Incorrect – MFPs are feeding but 1001 -1006 locked out at 5.5 inches HgA.</p> <p>C. Incorrect – MFPs are supplying feedwater, but the SBCS valves 1007/1008 are correct.</p> <p>D. Correct – MFPs are feeding in RTO with SBCS valves 1007/1008 maintaining RCS heat removal automatically to atmosphere.</p>

Question 22 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

2.8

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 1 Group 2

Q - RO Exam

RO Exam Question 2007
2010 RO NRC

Associated objective(s):

Describe the main condenser vacuum interlock associated with the SBSCS System including how it is reset.

23

ID: Q43774

Points: 1.00

Given the following conditions:

- RU-145 (Fuel Building Ventilation, Low Range Gas) is in ALERT alarm.
- RU-31 (Spent Fuel Pool Area) is in HIGH alarm.

74RM-9EF41 (Radiation Monitoring System Alarm Response) requires the operator to verify FBEVAS and CREFAS have actuated.

Which ONE of the following describes the reason for performing this action?

- A. FBEVAS and CREFAS both actuated off the HIGH alarm.
- B. FBEVAS actuated off the HIGH alarm; CREFAS actuated off the cross trip.
- C. CREFAS actuated off the HIGH alarm; FBEVAS actuated off the cross trip.
- D. FBEVAS actuated off the HIGH alarm; CREFAS actuated off the ALERT alarm.

Answer: B

Question 23 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	43774
User-Defined ID:	Q43774
Cross Reference Number:	
Topic:	Q43774 ARM RU-31
Num Field 1:	3.4
Num Field 2:	3.6
Text Field:	4.2 061 AK3.02
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 74RM-9EF41, RMS Alarm Response Procedure.</p> <p>K&A: Knowledge of the reasons for the following responses as they apply to the Area Radiation Monitoring (ARM) System Alarms: Guidance contained in alarm response for ARM system.</p> <p>Justification:</p> <p>A. Incorrect – FBEVAS ONLY comes off the HIGH Alarm. The cross trip from FBEVAS initiated the CREFAS.</p> <p>B. Correct – RU-31 HIGH Alarm initiated FBEVAS and FBEVAS will initiate a cross trip of CREFAS.</p> <p>C. Incorrect – This is the opposite way of how the activations will occur.</p> <p>D. Incorrect – An Alert Alarm will not actuate the CREFAS, only a HIGH Alarm.</p>

Question 23 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

3.4

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the operator's responsibility when acknowledging RMS alarms in accordance with 74RM-9EF41.

Given the following conditions:

- Unit 1 is operating at 100% power.
- Due to a hazardous gas condition, the SM and CRS have directed the evacuation of the control room.
- The CRS directs you to take all initial operator actions prior to leaving the control room.

Which ONE of the following describes the appropriate action?

- A. All RCPs must be tripped.
- B. Ensure PLCS is in remote auto.
- C. One RCP in each loop must be tripped.
- D. Initiate a RPCB Large Load Reject from B04.

Answer: C

Question 24 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	8251
User-Defined ID:	Q8251
Cross Reference Number:	40AO-9ZZ18, SD OUTSIDE CR
Topic:	Q8251 AOP Immed actions following CR evac
Num Field 1:	4.1
Num Field 2:	4.5
Text Field:	2.4.6
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AO-9ZZ18, Shutdown Outside Control Room</p> <p>K&A: Knowledge of EOP mitigation strategies as it applies to Control Room Evacuation.</p> <p>Justification:</p> <p>A. Incorrect – Correct answer is trip 2 RCPs, candidate may think that tripping all 4 RCPs is required per step 2 of Shutdown outside the CR.</p> <p>B. Incorrect – Step 4 states if time permits, place in PLCS master controller in Local Auto.</p> <p>C. Correct – This is directed per step 2 of the procedure.</p> <p>D. Incorrect – Step 1 states ensure the reactor is tripped and Step 3 states ensure Main Turbine is tripped, therefore the candidate could interpret this as Perform a RPCB.</p>

Question 24 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

3.7

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

Active Question Bank 2004

State the operator actions that are required to be performed prior to Control Room evacuation.

discuss the actions prior to Control Room evacuation for reasons other than a fire

Given the following conditions:

- Unit 1 is operating at 100% power and stable.
- PZR Level is 52% and stable.
- 2 charging pumps are operating.
- Letdown flow is 56 gpm and lowering slowly.
- RCS Pressure is 2225 psia and stable.
- RCS Subcooling is 41 °F and stable.
- SG 1 level is 48% NR and slowly rising.
- SG 2 level is 50% NR and stable.
- CTMT Pressure is 0.4 psig and stable.
- CTMT Humidity is rising slowly.
- RU-1 CTMT Atmosphere monitor is slowly trending up.
- RU- 139/140 Main Steam Line SG#1/#2 are stable.

Which ONE of the following describes the current event?

- A. RCS Cold Leg Leak.
- B. Stuck Open PZR Safety Valve.
- C. Steam Generator Tube Rupture.
- D. Excessive Steam Demand inside CTMT.

Answer: A

Question 25 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	22624
User-Defined ID:	Q22624
Cross Reference Number:	
Topic:	Q22624 Excessive RCS Leakage Location
Num Field 1:	3.2
Num Field 2:	3.5
Text Field:	4.4 A16 AK2.1
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40EP-9EO03, LOCA</p> <p>K&A: Knowledge of the interrelations between the (Excess RCS Leakage) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.</p> <p>Justification:</p> <p>A. Correct – Charging/Letdown mismatch are indicative of a RCS Leak and the other conditions support RCS Cold Leg location.</p> <p>B. Incorrect – Steam Space Leaks will cause PZR level to rise.</p> <p>C. Incorrect – At power the Main Steam Line N-16 monitors would provide indication of a SGTR.</p> <p>D. Incorrect – Rx Power and subcooling would rise on an ESD event due to the increase in steam demand resulting in a colder RCS.</p>

Question 25 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.2

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

Given conditions of LOCA describe how the plant would respond to various types of RCS leaks in accordance with 40EP-9EO03.

Given the following conditions:

- Unit 1 has tripped from 100% power.
- AFA-P01(Essential Turbine Driven Aux Feed Pump) is out of service.
- NAN-S03 and NAN-S04 are de-energized.
- Emergency DG 'A' is out of service.
- ADVs are being used to control SG pressures.

Which ONE of the following correctly identifies the Optimal Recovery Procedure to implement after the SPTAs are completed?

- A. 40EP-9EO06 (LOAF).
- B. 40EP-9EO08 (Blackout)
- C. 40EP-9EO02 (Reactor Trip).
- D. 40EP-9EO07 (LOOP/LOFC).

Answer: D

Question 26 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	7654
User-Defined ID:	Q7654
Cross Reference Number:	
Topic:	Q7654 EOP Selecting proper ORP
Num Field 1:	2.7
Num Field 2:	3.7
Text Field:	4.4 A13 AA2.1
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40EP-9EO07, LOOP/LOFC</p> <p>K&A: Ability to determine and interpret the following as they apply to the (Natural Circulation Operations) Facility conditions and selection of appropriate procedures during abnormal and emergency operations.</p> <p>Justification:</p> <ul style="list-style-type: none"> A. Incorrect – AFB-P01 is available to feed SGs, therefore LOAF entry conditions are not met. B. Incorrect – PBB-S04 is energized by its EDG, therefore no Blackout condition exists. C. Incorrect – Rx Trip Safety Functions not met due to not having a 13.8 kV AC energized therefore Rx Trip is not to be utilized. D. Correct – NAN-S03 and S04 not being energized results in a loss of RCPs, therefore entry conditions for Loss of offsite power/Loss of forced circulation entry conditions are met.

Question 26 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

2.7

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 1 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

determine whether or not entry into the LOOP/LOFC EOP is appropriate

Given the following conditions:

- You are making a tour of the Turbine Building.
- You discover an Oil leak at Main Feed Pump B.
- The oil has caught on FIRE.
- You have made the required notifications.

In accordance with PVNGS plant policies and procedures which type of fire extinguisher is recommended for use on this class of fire?

- A. CO₂ extinguisher.
- B. Pressurized water extinguisher.
- C. Any type of fire extinguisher is acceptable.
- D. ABC Multipurpose Dry Chemical extinguisher.

Answer: D

Question 27 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	10330
User-Defined ID:	Q10330
Cross Reference Number:	
Topic:	Q10330 fire extinguishers and their uses
Num Field 1:	3.4
Num Field 2:	3.7
Text Field:	4.2 067 AA1.08
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: PVNGS Safety Manual, Site Access Training Handbook</p> <p>K&A: Ability to operate and / or monitor the following as they apply to the Plant Fire on Site: Fire fighting equipment used on each class of fire</p> <p>JUSTIFICATION:</p> <p>A. Incorrect – This is used on electrical fires.</p> <p>B. Incorrect – This is used on ash producing fires.</p> <p>C. Incorrect – This is not in accordance with PVNGS procedures.</p> <p>D. Correct – This is the correct extinguisher for this class of fire.</p>

Question 27 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.4

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 1 Group 2

Q - RO Exam

RO Exam Question 2007

2010 RO NRC

Associated objective(s):

FIRE EXTINGUISHERS AND THEIR USES

Given the following conditions:

- Unit 1 is operating at 100% power.
- You as the RO observe the following parameters for the 1A RCP:

Seal Bleedoff flow	0 gpm
#3 Seal Inlet Pressure	22 psig
#2 Seal Inlet Pressure	319 psig
#1 Seal Inlet Pressure	2305 psig
Seal Injection flow	6.7 gpm

Which ONE of the following describes the status of the 1A RCP?

- A. Seal #2 ONLY has failed.
- B. Seal #3 ONLY has failed.
- C. Seals #2 and #3 have failed.
- D. Seals #1 and #3 have failed.

Answer: C

Question 28 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	43884
User-Defined ID:	Q43884
Cross Reference Number:	
Topic:	Q43884 RCP 2 Failed Seals
Num Field 1:	2.6
Num Field 2:	2.9
Text Field:	34003K104

Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Operator Information Manual, LOIT System Lesson Plans</p> <p>K&A: Knowledge of the physical connections and/or cause-effect relationships between the RCPs and the following systems: CVCS.</p> <p>Justification:</p> <p>Normal parameters are as follows:</p> <table data-bbox="467 436 932 604"> <tr><td>Seal Bleedoff flow</td><td>2.2 gpm</td></tr> <tr><td>#3 Seal Inlet Pressure</td><td>319 psig</td></tr> <tr><td>#2 Seal Inlet Pressure</td><td>1305 psig</td></tr> <tr><td>#1 Seal Inlet Pressure</td><td>2288 psig</td></tr> <tr><td>Seal Injection flow</td><td>6.7 gpm</td></tr> </table> <p>A. Incorrect – #2 Only</p> <table data-bbox="467 678 932 846"> <tr><td>Seal Bleedoff flow</td><td>3.5 gpm</td></tr> <tr><td>#3 Seal Inlet Pressure</td><td>485 psig</td></tr> <tr><td>#2 Seal Inlet Pressure</td><td>423 psig</td></tr> <tr><td>#1 Seal Inlet Pressure</td><td>2311psig</td></tr> <tr><td>Seal Injection flow</td><td>6.7 gpm</td></tr> </table> <p>B. Incorrect – #3 Only</p> <table data-bbox="467 919 932 1087"> <tr><td>Seal Bleedoff flow</td><td>0 gpm</td></tr> <tr><td>#3 Seal Inlet Pressure</td><td>22 psig</td></tr> <tr><td>#2 Seal Inlet Pressure</td><td>1165 psig</td></tr> <tr><td>#1 Seal Inlet Pressure</td><td>2316 psig</td></tr> <tr><td>Seal Injection flow</td><td>6.7 gpm</td></tr> </table> <p>C. Correct – as shown in the question</p> <p>D. Incorrect – #1 and 3</p> <table data-bbox="467 1213 932 1381"> <tr><td>Seal Bleedoff flow</td><td>0 gpm</td></tr> <tr><td>#3 Seal Inlet Pressure</td><td>22 psig</td></tr> <tr><td>#2 Seal Inlet Pressure</td><td>2007 psig</td></tr> <tr><td>#1 Seal Inlet Pressure</td><td>2305 psig</td></tr> <tr><td>Seal Injection flow</td><td>6.7 gpm</td></tr> </table>	Seal Bleedoff flow	2.2 gpm	#3 Seal Inlet Pressure	319 psig	#2 Seal Inlet Pressure	1305 psig	#1 Seal Inlet Pressure	2288 psig	Seal Injection flow	6.7 gpm	Seal Bleedoff flow	3.5 gpm	#3 Seal Inlet Pressure	485 psig	#2 Seal Inlet Pressure	423 psig	#1 Seal Inlet Pressure	2311psig	Seal Injection flow	6.7 gpm	Seal Bleedoff flow	0 gpm	#3 Seal Inlet Pressure	22 psig	#2 Seal Inlet Pressure	1165 psig	#1 Seal Inlet Pressure	2316 psig	Seal Injection flow	6.7 gpm	Seal Bleedoff flow	0 gpm	#3 Seal Inlet Pressure	22 psig	#2 Seal Inlet Pressure	2007 psig	#1 Seal Inlet Pressure	2305 psig	Seal Injection flow	6.7 gpm
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Question 28 Table-Item Links

Q - 10CFR Sections

55.41 (3) Mechanical components and design features of the reactor primary system.

Q - Reactor Operator K & A Importance classification

2.6

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

RO Exam 2010

Associated objective(s):

Diagnose which seals have failed

Given the following conditions:

- Unit 1 is operating at 100% power.
- Regenerative HX outlet Temperature is 410 °F and rising at 5 °F/min.

Assuming NO operator action, which ONE of the following describes the impact on PZR Level and pressure over the next two minutes?

PZR level will ____ (1) ____ and PZR pressure will ____ (2) ____.

- A. (1) rise (2) lower.
- B. (1) lower (2) lower.
- C. (1) rise (2) remain constant or rise slightly.
- D. (1) lower (2) remain constant or rise slightly.

Answer: C

Question 29 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	22665
User-Defined ID:	Q22665
Cross Reference Number:	
Topic:	Q22665 PZR LEVEL/PRESS Response to CVCS malfunction.
Num Field 1:	3.8
Num Field 2:	4.1
Text Field:	3.3 004 K3.07
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AL-9RK4A, LD SYS TRBL Alarm Response Procedure</p> <p>K&A:</p> <p>Knowledge of the effect that a loss or malfunction of the CVCS will have on the following: PZR level and pressure.</p> <p>Justification:</p> <p>A. Incorrect – Letdown will isolate at 413 °F which will cause PZR level to rise, letdown has no effect on pressure.</p> <p>B. Incorrect – Letdown will isolate at 413 °F which will cause PZR level to rise, letdown has no effect on pressure. The setpoint was recently changed from 450°F to 413 °F.</p> <p>C. Correct – Letdown will isolate at 413 °F which will cause PZR level to rise, as level goes up the bubble will get compressed so pressure may rise slightly.</p> <p>D. Incorrect – Letdown will isolate at 413 °F which will cause PZR level to rise, as level goes up the bubble will get compressed so pressure may rise slightly. The setpoint was recently changed from 450°F to 413 °F.</p>

Question 29 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.8

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of the following Letdown Isolation Valves, including their Control Room controls, under normal operating conditions:

- Letdown Line to Regen Heat Exch Vlv (CHB-UV-515)
- Letdown Line to Regen Heat Exch Vlv Containment Isolation Vlv (CHA-UV-516)
- Regen Heat Exch to Letdown Heat Exch Containment Isolation Vlv (CHB-UV-523)

Given the following conditions:

- Unit 1 is in Mode 4 at the beginning of a refueling outage.
- Shutdown cooling (SDC) is in service with the 'A' train.
- SIA-HV-306 (SDCHX 'A' Bypass valve) Control Switch develops a short causing the valve to CLOSE.

Which ONE of the following describes the effect on the shutdown cooling system?

RCS Tcold will ____ (1) ____ and SDC flow will ____ (2) ____.

- A. (1) rise (2) rise
- B. (1) rise (2) lower
- C. (1) lower (2) rise
- D. (1) lower (2) lower

Answer: D

Question 30 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	22671
User-Defined ID:	Q22671
Cross Reference Number:	
Topic:	Q22671 SDC MALF SDCHX
Num Field 1:	2.5
Num Field 2:	2.6
Text Field:	3.4 005 K6.03
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40OP-9SI01, SDC Initiation</p> <p>K&A: Knowledge of the effect of a loss or malfunction on the following will have on the RHRS: RHR heat exchanger.</p> <p>Justification:</p> <p>A. Incorrect – Candidate must understand the physical arrangement of the SDCHX and the normal Mode 4 operating lineup with decay heat still a factor.</p> <p>B. Incorrect – Candidate must understand the physical arrangement of the SDCHX and the normal Mode 4 operating lineup with decay heat still a factor.</p> <p>C. Incorrect – Candidate must understand the physical arrangement of the SDCHX and the normal Mode 4 operating lineup with decay heat still a factor.</p> <p>D. Correct – SDC flow is maintained by throttling both the bypass and the outlet valves of the SDCHX. In this case the bypass failing closed will force all the flow through the HX which will lower Tcold. At the same time, the outlet valve is throttled in relationship to the bypass valve, therefore SDC flow will lower.</p>

Question 30 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

2.5

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the flowpath/s associated with the SDC system to include these major components:

- Safety Injection Pumps
- Refueling Water Tank
- Shutdown Cooling heat exchangers
- injection valves

Which ONE of the following describes the power supply to SIA-P01 (LPSI Pump 'A')?

- A. PBA-S03.
- B. PGA-L31.
- C. NBN-S01.
- D. NAN-S03.

Answer: A

Question 31 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	1
Difficulty:	2.00
System ID:	22673
User-Defined ID:	Q22673
Cross Reference Number:	
Topic:	Q22673 LPSI PUMP A POWER SUPPLY
Num Field 1:	3.0
Num Field 2:	3.2
Text Field:	3.4 005 K2.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Power Supply Table</p> <p>K&A: Knowledge of bus power supplies to the following: RHR pumps.</p> <p>Justification:</p> <p>A. Correct – PBA-S03 is the correct 4160V power supply.</p> <p>B. Incorrect – PGA-L31 is a class 480V load center supplied by PBA-S03.</p> <p>C. Incorrect – NBN-S01 is the non class 4160V bus that supplies PBA-S03.</p> <p>D. Incorrect – NAN-S03 is the non class 13.8kV bus that supplies NBN-S01.</p>

Question 31 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.0

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Identify the power supplies to SI related equipment.

Given the following conditions:

- Unit 1 is operating at 100% power.
- An inadvertent CSAS has occurred on Train "A".
- The Operating Crew has stopped all Safety Injection pumps that started per 40AO-9ZZ17 (Inadvertent PPS ESFAS Actuations).
- The CSAS will not reset.
- As I&C is troubleshooting the CSAS problem, a LOCA occurs resulting in a SIAS.

Which ONE of the following describes the status of the 'A' CS Pump and what action(s) (if any) are procedurally directed IAW 40AO-9ZZ17?

The 'A' CS pump is...

- A. operating. No action required.
- B. anti-pumped. The control switch can be taken to START two times in order to start it.
- C. overridden off. The control switch can first be taken to STOP and then back to NORMAL to start it.
- D. anti-pumped. It can NOT be operated from the control room, DC control power must be cycled locally to start it.

Answer: B

Question 32 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	22674
User-Defined ID:	Q22674
Cross Reference Number:	
Topic:	Q22674 INADVERTANT CS RESPONSE TO SIAS
Num Field 1:	4.5
Num Field 2:	4.8
Text Field:	3.2 006 A2.12
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AO-9ZZ17, Inadvertent ESFAS Actuations</p> <p>K&A: Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Conditions requiring actuation of ECCS.</p> <p>Justification:</p> <p>A. Incorrect – The CS pump has been anti-pumped per the AOP, therefore the SIAS signal will not start the CS pump.</p> <p>B. Correct – The CS pump has been anti-pumped per the AOP, therefore to reset the pump relays you must override the SIAS with the first positioning to start, then take it to start again to start the pump.</p> <p>C. Incorrect – The CS pump has been anti-pumped per the AOP, therefore taking the switch to stop just re-enforces the anti pump condition. The positioning of the switch to the start next will bring in the override light but the pump will remain off.</p> <p>D. Incorrect – The CS pump has been anti-pumped per the AOP, cycling the DC control power will start the pump, but the pump may still be operated from the control room. Local operation is not the only method to start the pump.</p>

Question 32 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

4.5

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Given conditions of an inadvertent CSAS actuation describe the conditions necessary to restart a CS pump that has been stopped in accordance with 40AO-9ZZ17.

Given the following conditions:

- Unit 1 is operating at 100% power.
- An inadvertent SIAS results in the 'A' CS pump running.

Which ONE of the following describes how long CS 'A' is procedurally limited to operate in this condition?

- A. 30 minutes.
- B. 1 hour.
- C. 2 hours.
- D. Indefinitely.

Answer: B

Question 33 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	22675
User-Defined ID:	Q22675
Cross Reference Number:	
Topic:	Q22675 ECCS MINI FLOW REQUIREMENTS
Num Field 1:	2.7
Num Field 2:	3.1
Text Field:	3.2 006 K4.06
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40OP-9SI01, SDC Initiation</p> <p>K&A: Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following: Recirculation of minimum flow through pumps.</p> <p>Justification:</p> <p>A. Incorrect – 30 minutes is not a time limit associated with CS pumps. B. Correct – CS pumps can operate for 1 hour when flows are between 150 and 2100 gpm. C. Incorrect – Recirculation Flow is approximately 158 - 228 gpm, therefore the 1 hour limit applies. D. Incorrect – Indefinite operation is allowed at flows > 2100 gpm.</p>

Question 33 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

2.7

Q - Cognitive Level

Memory

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the design characteristics of the LPSI and CS pumps.

Given the following conditions:

- You are the RO in Unit 2.
- You have been directed to pump the Reactor Drain Tank (RDT) to the CVCS HUT.
- Initial RDT level is 72%
- You commenced pumping the RDT at time 0100.
- Level is lowering at 2% / minute.

Which ONE of the following describes the latest time the evolution can be stopped and still maintain the required quench volume in the RDT?

Stop the evolution at time...

- A. 0107.
- B. 0109.
- C. 0111.
- D. 0113.

Answer: B

Question 34 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	22676
User-Defined ID:	Q22676
Cross Reference Number:	
Topic:	Q22676 RDT Minimum Quench Volume
Num Field 1:	2.9
Num Field 2:	3.1
Text Field:	3.5 007 A1.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40OP-9CH01, CVCS Normal Operations.</p> <p>K&A: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PRTS controls including: Maintaining quench tank water level within limits.</p> <p>Justification:</p> <p>A. Incorrect – $(7 \text{ min})(2\%/min) = 14 \%$. $72\% - 14\% = 58\%$. This is $> 52\%$ minimum level requirement but higher than the answer of 54%.</p> <p>B. Correct – $(9 \text{ min})(2\%/min) = 18 \%$. $72\% - 18\% = 54\%$. This is $> 52\%$ minimum level requirement.</p> <p>C. Incorrect – $(11 \text{ min})(2\%/min) = 22 \%$. $72\% - 22\% = 50\%$. This is $< 52\%$ minimum level requirement.</p> <p>D. Incorrect – $(13 \text{ min})(2\%/min) = 26\%$. $72\% - 26\% = 46\%$. This is $< 52\%$ minimum level requirement.</p>

Question 34 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

2.9

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

RO Exam 2010

Associated objective(s):

Explain the operation of the Reactor Drain Tank (CHN-X02) under normal operating conditions.

Given the following conditions:

Initial Conditions:

- Unit 1 is operating at 100% power.
- Both Nuclear Cooling Water (NC) Pumps have faulted.
- EW 'A' has been cross tied to supply NC.

Subsequently:

- RU-2 (EW 'A') alarms in HIGH.

Which ONE of the following describes the cause and impact on the system(s)?

- A. RCP HPSC leak. NC ONLY is contaminated.
- B. Letdown HX leak. NC ONLY is contaminated.
- C. RCP HPSC leak. NC and EW are contaminated.
- D. Letdown HX leak. NC and EW are contaminated.

Answer: C

Question 35 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	43775
User-Defined ID:	Q43775
Cross Reference Number:	
Topic:	Q43775 NC RMS Alarms
Num Field 1:	3.3
Num Field 2:	3.5
Text Field:	3.8 008 A2.04
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 74RM-9EF41, RMS Alarm Response Procedure, System Diagrams.</p> <p>K&A: Ability to (a) predict the impacts of the following malfunctions or operations on the CCWS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: PRMS alarm.</p> <p>Justification:</p> <ul style="list-style-type: none"> A. Incorrect – When NC and EW are X-connected RCPs are an essential load. NC and EW are contaminated by the leak. B. Incorrect – Letdown is isolated when NCV-99 is closed. NC and EW are contaminated by the leak. C. Correct –When NC and EW are X-connected RCPs are an essential load, only RU-2 is in the system. NC piping is still used and NC is contaminated, RU-6 the NC RU monitor is isolated by NCV-99 D. Incorrect – Letdown is isolated when NCV-99 is closed.

Question 35 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

3.3

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of the NC Radiation Monitoring under normal operating conditions.

Given the following conditions:

- Unit 1 is operating at 100% power.
- NCN-P01A (NC Pump 'A') is under permit for performance of a bearing lubrication PM.
- NCN-P01B (NC Pump 'B') experiences an electrical fault.

Which ONE of the following components will experience a temperature rise as **DIRECT** result of this fault?

- A. Gas Stripper.
- B. Air Removal Pumps.
- C. Instrument Air Compressors.
- D. Auxiliary Building Sample Coolers.

Answer: A

Question 36 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	43879
User-Defined ID:	Q43879
Cross Reference Number:	
Topic:	Q43879 NC LOADS Response to a loss of NCW
Num Field 1:	3.4
Num Field 2:	3.5
Text Field:	3.8 008 K3.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT System Lesson Plans</p> <p>K&A: Knowledge of the effect that a loss or malfunction of the CCWS will have on the following: Loads cooled by CCWS.</p> <p>Justification:</p> <ul style="list-style-type: none"> A. Correct – Gas Stripper is cooled by Nuclear Cooling Water. B. Incorrect – Air Removal Pumps are cooled by Plant Cooling Water. C. Incorrect – IA compressors are cooled by Turbine Cooling Water. D. Incorrect – Auxiliary Building Sample coolers are cooled by Normal Chilled Water.

Question 36 Table-Item Links

Q - 10CFR Sections

55.41 (4) Secondary coolant and auxiliary systems that affect the facility.

Q - Reactor Operator K & A Importance classification

3.4

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

RO Exam 2010

Associated objective(s):

Describe how the Nuclear Cooling Water System supports the operation of the following systems:

- Normal Chilled Water System (WC)
- HVAC - Containment Building (HC)
- Nuclear Sampling System (SS)
- Reactor Coolant System (RC)
- Fuel Pool Cooling and Cleanup System (PC)
- Chemical and Volume Control System (CH)
- Liquid Radwaste System (LR)
- Gaseous Radwaste System (GR)
- Secondary Chemical Control System (SC)
- Auxiliary Steam System (AS)

Given the following conditions:

- Unit 1 is operating at 100% power.
- Pressurizer Pressure Control System (PPCS) is in automatic.
- PZR Pressure is 2250 psia and rising slowly.

Which ONE of the following describes the expected response of the PPCS as pressure continues to rise?

- A. All PZR heaters will de-energize at 2285 psia.
- B. PPCS will send a signal to the Plant Protection System to initiate a Reactor Trip at 2383 psia.
- C. PZR back-up heaters will de-energize at 2285 psia and proportional heaters will de-energize at 2300 psia.
- D. PZR proportional heaters will de-energize at 2285 psia and back-up heaters will de-energize at 2300 psia.

Answer: A

Question 37 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	22678
User-Defined ID:	Q22678
Cross Reference Number:	
Topic:	Q22678 PPCS Overpressure Protection
Num Field 1:	3.8
Num Field 2:	4.1
Text Field:	3.3 010 K4.03
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Operator Information Manual, PPCS Lesson Plan</p> <p>K&A: Knowledge of PZR PCS design feature(s) and/or interlock(s) which provide for the following: Over pressure control.</p> <p>Justification:</p> <p>A. Correct – High pressure bistable will de-energize all heaters at 2285 psia.</p> <p>B. Incorrect – PPS receives its pressure input directly from the PZR Pressure Transmitters.</p> <p>C. Incorrect – High pressure bistable will de-energize all heaters, not just the back up heaters, at 2285 psia.</p> <p>D. Incorrect – High pressure bistable will de-energize all heaters, not just the proportional heaters, at 2285 psia.</p>

Question 37 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.8

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the automatic features associated with the Pressurizer Pressure Control System Bistables.

Given the following conditions:

- Group 5 CEAs are inserted from 140" to 125" withdrawn.
- Reactor Power is maintained constant at 100% by dilution.

As CEAs insert, the CPCs Radial Peaking Factors (RPFs) will ...

- A. rise and Local Power Density (LPD) margin to trip rises.
- B. lower and Local Power Density (LPD) margin to trip rises.
- C. rise and Local Power Density (LPD) margin to trip lowers.
- D. lower and Local Power Density (LPD) margin to trip lowers.

Answer: C

Question 38 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	10462
User-Defined ID:	Q10462
Cross Reference Number:	
Topic:	Q10462 SYS CEAs inserting, CPCs respond by RPF increase & LPD margin decrease
Num Field 1:	3.1
Num Field 2:	3.3
Text Field:	3.7 012 K5.02
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT Lesson Plan</p> <p>K&A: Knowledge of the operational implications of the following concepts as they apply to the RPS: Power density.</p> <p>Justification:</p> <p>A. Incorrect – As RPFs rise, this will cause the margin to become smaller.</p> <p>B. Incorrect – RPFs rise on CEA insertions.</p> <p>C. Correct – For a given Reactor Power, CEA insertion will cause <u>power density</u> to rise. This is accounted for with Radial Peaking Factors that are applied to DNBR and LPD calculations.</p> <p>D. Incorrect – RPFs rise on CEA insertions.</p>

Question 38 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

3.1

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of the LPD Calculation in the Core Protection Calculators.

Given the following conditions:

- Unit 2 is operating at 100% power.
- RCS Pressure is 2230 psia.
- The RO performs the following actions on the Control Room Handswitch for a group of non-class pressurizer backup heaters (RCN-HS-100-9) on B04.
 - Turns the handswitch to OFF.
 - Turns the handswitch to ON.

Which ONE of the following describes the status of this group of pressurizer backup heaters?

The pressurizer backup heaters controlled by RCN-HS-100-9 are ____ (1) ____, and it's SETPOINT OVERRIDE light is ____ (2) ____.

- A. (1) ON (2) ON
- B. (1) ON (2) OFF
- C. (1) OFF (2) ON
- D. (1) OFF (2) OFF

Answer: A

Question 39 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	43763
User-Defined ID:	Q43763
Cross Reference Number:	
Topic:	Q43763 PZR BACKUP HEATER SETPOINT OVERRIDE
Num Field 1:	3.6
Num Field 2:	3.4
Text Field:	3.3 010 A4.02
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT PPCS Lesson Plan</p> <p>K&A: Ability to manually operate and/or monitor in the control room: PZR heaters.</p> <p>Justification:</p> <p>A. Correct – Setpoint override is enabled when PZR pressure is > 2200 psia therefore by taking the handswitch to OFF it will enable the setpoint override circuit therefore the light will be lit. Taking the handswitch to ON after picking up the setpoint override circuit will energize the heaters ON until the high pressure bistable is met or the handswitch is taken to OFF. <u>This explanation will prove all distracters Incorrect.</u></p> <p>B. Incorrect – The heaters and the light will both be ON. Candidate may not know the override setpoint is 2200 psia. May also confuse the Setpoint Override with the SIAS Override.</p> <p>C. Incorrect – The heaters and the light will both be ON. Candidate may not know the override setpoint is 2200 psia. May also confuse the Setpoint Override with the SIAS Override.</p> <p>D. Incorrect – The heaters and the light will both be ON. Candidate may not know the override setpoint is 2200 psia. May also confuse the Setpoint Override with the SIAS Override.</p>

Question 39 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.6

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the Control Room controls associated with the Pressurizer Backup Heaters including indications.

Given the following conditions:

- Unit 1 is operating at 100% power.
- An inadvertent CSAS occurs.

The CRS has directed the restoration of NCW to containment, overriding valves as necessary.

Which ONE of the following describes the steps (in correct sequence) that must be taken to restore NCW to the containment?

- A. Override and open the supply valve (NCB-UV-401), then override and open the return valves (NCA-UV-402 and NCB-UV-403).
- B. Override and open the return valves (NCA-UV-402 and NCB-UV-403), then override and open the supply valve (NCB-UV-401).
- C. Open NC CTMT Return Hdr Isol Vlv (NCN-UV-99), then Override and open the return valves (NCA-UV-402 and NCB-UV-403), then override and open the supply valve (NCB-UV-401).
- D. Override and open the instrument air to containment isolation valve (IAA-UV-2) then Override and open the supply valve (NCB-UV-401), then override and open the return valves (NCA-UV-402 and NCB-UV-403).

Answer: B

Question 40 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	1409
User-Defined ID:	Q1409
Cross Reference Number:	
Topic:	Q1409 NC to containment after Inadvertant CSAS
Num Field 1:	4.1
Num Field 2:	4.2
Text Field:	3.2 013 A3.02
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AO-9ZZ17 Inadvertent PPS-ESFAS Actuation.</p> <p>K&A: Ability to monitor automatic operation of the ESFAS including: Operation of actuated equipment.</p> <p>Justification:</p> <p>A. Incorrect – Opening of the NC CTMT supply valve prior to the return valves may result in the lifting of the NC reliefs in CTMT</p> <p>B. Correct – Opening of the NC CTMT return valves prior to the supply valves minimizes the chance of lifting of the NC reliefs in CTMT.</p> <p>C. Incorrect – NC-UV-99 does not close on a CSAS.</p> <p>D. Incorrect – NC CTMT isolation valves are not air operated. The next step in the procedure directs restoring IA to CTMT and directs closing specific valves to prevent inadvertent opening.</p>

Question 40 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

4.1

Q - Cognitive Level

Memory

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Given conditions of an inadvertent CSAS actuation describe the method of restoring NC to containment, including the reasons why this is important in accordance with 40AO-9ZZ17.

41

ID: Q4649

Points: 1.00

Which ONE of the following describes the BOP-ESFAS power supply arrangement?

Each cabinet receives power from its associated train of...

- A. PK and PN, which are auctioneered so that a loss of either supply to the cabinet will NOT impact the operation of the system.
- B. PK ONLY, a loss of this power supply to the cabinet will cause an actuation of the components controlled by that train of BOP-ESFAS.
- C. PN ONLY, a loss of this power supply to the cabinet will cause an actuation of the components controlled by that train of BOP-ESFAS.
- D. PK and PN, a loss of either power supply to the cabinet will prevent those components controlled by the affected BOP-ESFAS cabinet from actuating when needed.

Answer: A

Question 41 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	4649
User-Defined ID:	Q4649
Cross Reference Number:	
Topic:	Q4649 BOP ESFAS Power Supply arrangement
Num Field 1:	3.6
Num Field 2:	3.8
Text Field:	3.2 013 K2.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Power Supply Table.</p> <p>K&A: Knowledge of bus power supplies to the following: ESFAS/safeguards equipment control.</p> <p>Justification:</p> <p>A. Correct – Cabinets are powered by PK and PN and are auctioneered, therefore on a loss on one of the power supplies the other will supply power..</p> <p>B. Incorrect – PK is only one of the two power supplies, therefore due to the auctioneered power supply arrangement a loss of one does not impact the system.</p> <p>C. Incorrect – PN is only one of the two power supplies, therefore due to the auctioneered power supply arrangement a loss of one does not impact the system.</p> <p>D. Incorrect – A loss of either will not impact the system.</p>

Question 41 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.6

Q - Cognitive Level

Memory

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of the BOP ESFAS Cabinets under normal operating conditions.

42

ID: Q43776

Points: 1.00

Given the following conditions:

- Unit 1 is operating at 100% power.
- A break in the Normal Chilled Water supply header has caused a loss of normal chilled water.

Which ONE of the following temperatures will be directly affected?

- A. CEDMs.
- B. Fuel Building.
- C. Generator H₂ Cooler.
- D. Containment Atmosphere.

Answer: D

Question 42 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	43776
User-Defined ID:	Q43776
Cross Reference Number:	
Topic:	Q43776 WC cools CTMT Normal ACUs
Num Field 1:	3.2
Num Field 2:	3.3
Text Field:	3.5 022 A1.04
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT System Lesson Plan</p> <p>K&A: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CCS controls including: Cooling water flow.</p> <p>Justification: A. Incorrect – CEDM ACUs are cooled by Nuclear Cooling Water (NC) B. Incorrect – Fuel Building AHUs do not use a cooling medium. They are an evaporative cooler that uses an air washer supplied by Domestic Water. C. Incorrect – WC cools the Generator Collector Housing not the H₂ coolers. D. Correct – Containment Normal ACUs are cooled by Normal Chill Water (WC).</p>

Question 42 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

3.2

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe how the Containment Building HVAC System is supported by the following systems:

- Nuclear Cooling Water (NC)
- Normal Chilled Water (WC)
- Engineered Safety Features Actuation System (ESFAS)
- Balance of Plant-Engineered Safety Features Actuation System (BOP-ESFAS)

Given the following conditions:

- Unit 1 has tripped from 100% power
- Pressurizer Pressure is 1100 psia and lowering slowly.
- Pressurizer Level is 13% and lowering.
- RCS subcooling is 5 °F and lowering.
- CTMT Pressure is 8.9 psig and rising.
- NBN-X03 (ESF Transformer 'A') has faulted.
- EDG 'B' has a Hi Priority TRBL Alarm (Jacket Water Temperature High)
- SPA-P01 (Essential Spray Pond Pump 'A') has an 86 lockout.
- EDG 'A' has been emergency stopped.

5 minutes into the event, B02 pump ammeters are as follows:

- HPSI 'B' 115 amps.
- LPSI 'B' 75 amps.
- CS 'B' 35 amps.

Which ONE of the following is true?

- A. SBOGs are available to meet MVAC.
- B. EDG 'B' is required to be emergency stopped.
- C. Containment Spray System is below minimum flow.
- D. High Pressure Safety Injection is below minimum flow.

Answer: C

Question 43 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	43777
User-Defined ID:	Q43777
Cross Reference Number:	
Topic:	Q43777 CS Pump Failure
Num Field 1:	3.9
Num Field 2:	4.2
Text Field:	3.5 026 A2.04
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40EP-9EO01, SPTAs, 41AL-1RK1A DG A HI Priority TRBL</p> <p>K&A: Ability to (a) predict the impacts of the following malfunctions or operations on the CSS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of spray pump.</p> <p>Justification:</p> <p>A. Incorrect – SBOGs must be brought on to PBA-S03 which is unavailable due to the ESF transformer fault.</p> <p>B. Incorrect – Only Overspeed, Gen Differential and Low Lube Oil Press will trip the EDG in emergency mode. High Jacket Water Temp would result in a trip if the EDG was running in any mode other than emergency.</p> <p>C. Correct – Normal Pump Amperage is 90 – 100 amps. Sheared shaft amps are 30 – 40 amps. Therefore with a degraded CS 'B' pump and no power available to CS 'A' pump, there is no flow which is less than the minimum 4350 gpm.</p> <p>D. Incorrect – HPSI pump amps are normal and flow will meet the 1 HPSI pump curve. Appendix 2 figures has flow curves for both 1 and 2 pump configurations.</p>

Question 43 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

3.9

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Given plant conditions following a reactor trip analyze whether the Containment Temperature, Pressure and Combustible Gas Control Safety Function is met and what contingency actions are required if it is not in accordance with 40EP-9EO01.

Given the following conditions:

- Unit 1 is operating at 100% power.
- SBCS valve 1007 drifts open.

Which ONE of the following describes the plant response?

- A. TLI will drop below T_{avg} .
- B. An AMI will be generated.
- C. A Quick Open Block will be generated.
- D. Main Condenser Backpressure will degrade.

Answer: A

Question 44 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	4.00
System ID:	43752
User-Defined ID:	Q43752
Cross Reference Number:	
Topic:	Q43752 SBCS Plant Response
Num Field 1:	3.3
Num Field 2:	3.3
Text Field:	3.4 039 K1.02
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Operator Information Manual</p> <p>K&A: Knowledge of the physical connections and/or cause-effect relationships between the MRSS and the following systems: Atmospheric relief dump valves.</p> <p>Justification:</p> <p>A. Correct – TLI is essentially Turbine 1st Stage Pressure, therefore as steam flow goes up as the SBCS valve to atmosphere opens. TLI will lower and Tavg will be > Tref.</p> <p>B. Incorrect – AML is automatic motion inhibit. It is used when there is a mismatch between the Reactor Regulating System inputs. In this case the change in where the steam goes (Condenser via Main Turbine or Atmosphere via SBCS 1007) will affect both RRS inputs the same so no AML.</p> <p>C. Incorrect – Quick Open block is used to ensure that on Rx Trip with Tcold <573 F Group X, Rx Trip Group Y or Loss of Feed pump, that the SBCS valves do not quick open to prevent an unnecessary cooldown and pressure reduction.</p> <p>D. Incorrect – Main Condenser back pressure will not degrade as the steam flow will be directed to atmosphere not the main condenser.</p>

Question 44 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.3

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the consequences of NOT taking CEDMCS out of AUTO with 1007 and 1008 open

Given the following conditions:

- Unit 1 is operating at 100% power and stable.
- The partial stroke exercise test for MSIV SGE-UV-170 has just been performed per 73ST-9SG01 (Train 'A').

The following annunciator is alarming in the Control Room.

(6A07A)



Which ONE of the following is the cause of the alarming condition?

- A. MSIV valve position is at 50% travel.
- B. MSFIS Logic cabinet HIGH temperature.
- C. SG 1 MSIV UV-170 Hydr Accum 'A' Press Lo.
- D. SG 1 MSIV UV-170 Hydr Accum Oil Rsvr Lvl Hi.

Answer: C

Question 45 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	43765
User-Defined ID:	Q43765
Cross Reference Number:	
Topic:	Q43765 MS ALARMS
Num Field 1:	4.2
Num Field 2:	4.2
Text Field:	2.4.46
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AL-9RK6A, B06A ARP</p> <p>K&A: Ability to verify that the alarms are consistent with the plant conditions. As it applies to Main and Reheat Steam system.</p> <p>Justification:</p> <p>A. Incorrect – MSIV valve position is not an input to this alarm. B. Incorrect – MFSIS Cabinet Loss of Power or Door Open will cause this alarm. There are numerous Cabinets that have high temp alarms. C. Correct – This will result in the SG ISOL VLV TRBL alarm. D. Incorrect – A low oil reservoir level will result in the alarm.</p>

Question 45 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

4.2

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the conditions required to generate the following annunciators:

- MN STM SAFETY RELIEF VLV TRBL
- DONWCOM FW VLVS N2 ACCUM PRESS LO
- ADV CONTROL NOT IN CR POS
- SG ISOL VLV TRBL

Which ONE of the following describes the start permissive interlock associated with AFN-P01 (Non-Essential Motor Driven Aux Feed Pump)?

The AFN-P01 start permissive interlock at a minimum is met when CTA-HV-1(AFN-P01 Suction Valve)...

- A. and CTA-HV-4 (AFN-P01 Suction Valve) are both fully open.
- B. and CTA-HV-4 (AFN-P01 Suction Valve) are both > 80% open.
- C. and CTA-HV-4 (AFN-P01 Suction Valve) are both off their closed seats.
- D. is > 80% open and CTA-HV-4 (AFN-P01 Suction Valve) is off its closed seat.

Answer: B

Question 46 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	4713
User-Defined ID:	Q4713
Cross Reference Number:	
Topic:	Q4713 AF AFN suction valve position for start
Num Field 1:	4.0
Num Field 2:	4.2
Text Field:	3. 4 061 K4.06
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT AFW Lesson Plan</p> <p>K&A: Knowledge of AFW design feature(s) and/or interlock(s) which provide for the following: AFW startup permissives.</p> <p>Justification:</p> <p>Incorrect – The interlock is both valves being > 80% open. This would satisfy the interlock seeing as both valves being full open is > 80% open. At a minimum both valves being > 80% open is the correct answer.</p> <p>Correct – The interlock is both valves being > 80% open.</p> <p>Incorrect – The interlock is not met until both valves are > 80% open.</p> <p>Incorrect – The interlock is not met until both valves are > 80% open.</p>

Question 46 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

4.0

Q - Cognitive Level

Memory

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of the Non-Essential AFP Suction Valves (CTA-UV-1) (CTA-UV-4) under normal operating conditions.

Given the following conditions:

- Unit 1 has tripped from 100% power.
- SPTAs are complete and 40EP-9EO06 (LOAF) has been entered.

Assuming the Feedwater to the Steam Generators is not recovered and no further operator actions are taken, which ONE of the following conditions below is most likely?

- A. RCS depressurized with HPSI flow to the RCS.
- B. Pressurizer safety valves open and core uncover.
- C. RCS depressurized with HPSI and LPSI flow to the RCS.
- D. RCS pressure controlled by main spray flow between 2200 and 2300 psia.

Answer: B

Question 47 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	4.00
System ID:	43816
User-Defined ID:	Q43816
Cross Reference Number:	
Topic:	Q43816 RCS response (temperature and pressure) as Steam Generator dryout occurs
Num Field 1:	3.6
Num Field 2:	3.8
Text Field:	3.4 059 K3.04
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT Lesson Plan, UFSAR</p> <p>K&A: Knowledge of the effect that a loss or malfunction of the MFW will have on the following: RCS.</p> <p>Justification:</p> <p>A. Incorrect – Pressure will rise and pressure will remain greater than HPSI pump shutoff head.</p> <p>B. Correct – Loss of Feed is a heatup event due to the loss of SG Heat removal. RCS pressure will rise until PZR safeties lift and RCS inventory is lost. As Inventory is lost with Pressure remaining > shutoff head of the HPSI and LPSI pumps, therefore they will not inject water, resulting in core uncover.</p> <p>C. Incorrect – Pressure will rise and pressure will remain greater than HPSI and LPSI pump shutoff head.</p> <p>D. Incorrect – Main Spray will not be effective in reducing RCS pressure and it will continue to rise until safety valves lift.</p>

Question 47 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.6

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

determine the RCS response (temperature and pressure) as Steam Generator dryout occurs

The RO is preparing to unload EDG 'A' per 40OP-9DG01, section 7 (Unloading DG "A").

Section 7.4.4 contains a note and caution stating that the DG output breaker should be opened immediately once DG load is reduced below 0.5 MW.

Which ONE of the following describes the possible impact of continuing to lower load?

A...

- A. diesel generator differential trip may be activated.
- B. diesel generator undervoltage trip may be activated.
- C. reverse power trip of the DG output breaker may be activated.
- D. negative sequence trip of the DG output breaker may be activated.

Answer: C

Question 48 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	10344
User-Defined ID:	Q10344
Cross Reference Number:	
Topic:	Q10344 EDG Minimum Load for Unloading.
Num Field 1:	3.4
Num Field 2:	3.8
Text Field:	3.6 062 A1.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40OP-9DG01, 40AL-9DG01</p> <p>K&A: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ac distribution system controls including: Significance of D/G load limits.</p> <p>Justification:</p> <p>A- This is not correct. A Generator Differential trip senses a difference in current on the three phases of the neutral side of the generator and the three phases on the bus side of the output breaker.</p> <p>B- This is not correct. This alarm senses a voltage regulator failure. The stem refers to lowering load, not voltage.</p> <p>C- Correct. 40OP-9DG01 (and DG02) state that a reverse power trip can occur in the 0.3 to 0.5 MW indicated range.</p> <p>D- This is not correct. This trip is caused by current differential between phases.</p>

Question 48 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

3.4

Q - Cognitive Level

Memory

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the minimum load required for unloading the DG.

Given the following conditions:

- The Unit 3 Control Room has been evacuated due to a FIRE.
- The CRS is implementing 40AO-9ZZ19 (Control Room Fire)
- You as the RO, have been directed to perform Appendix A (Primary Reactor Operator Actions).

Which ONE of the following describes an Appendix A task and the operational impacts of performing this action?

- A. Ensure EDG 'A' is running to support 'A' Train equipment.
- B. Open the breakers for all charging pumps to prevent inadvertant dilution.
- C. Ensure the 'B' NCW Pump is operating to maintain RCP cooling water flow.
- D. Open breakers for the MSIV Logic Cabinet SGA-C01 at PKA-M41, to prevent un-intended operation of MSIVs.

Answer: D

Question 49 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	43817
User-Defined ID:	Q43817
Cross Reference Number:	
Topic:	Q43817 RO actions on CR FIRE outside CR.
Num Field 1:	4.2
Num Field 2:	4.1
Text Field:	2.4.34
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AO-9ZZ19, Control Room Fire</p> <p>K&A: Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects. DC Electrical Distribution.</p> <p>Justification: A. Incorrect – The action is to secure the EDG 'A' if running. Ensure it is running is wrong. B. Incorrect – CCP 'B' is to remain in operation to ensure seal injection to the RCP seals. C. Incorrect – Appendix 'B' directs securing the NCW pumps. D. Correct – This is accomplished by opening the DC supply breakers on PKA-M41 in the DC Equipment Room.</p> <p>These appendices A and B are used to isolate train B equipment from the control room to prevent fire related operation while allowing for remote operation as well as disabling/de-energizing other equipment to prevent fire initiated operations.</p>

Question 49 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

4.2

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

describe what is accomplished by performing the Primary and Secondary Reactor Operator Actions

Given the following conditions:

- Unit 1 is operating at 15.5% power.
- Power is being raised to 20%.
- Steam Generator #1 downcomer valve position is 80% and is opening slowly.
- Steam Generator #2 downcomer valve position is 70% and is opening slowly.

Concerning the DFWCS, which (if any) of the following automatic actions will occur?

- A. Only Steam Generator #1 will go through swapover.
- B. No DFWCS automatic action will occur until 16.5% power is reached.
- C. Both Steam Generator #1 and Steam Generator #2 will go through swapover.
- D. No DFWCS automatic action will occur until both Steam Generator downcomer valves are 80% open.

Answer: C

Question 50 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	4831
User-Defined ID:	Q4831
Cross Reference Number:	
Topic:	Q4831 Determine if swapover will occur
Num Field 1:	2.7
Num Field 2:	2.9
Text Field:	3. 4 059 A1.03
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Operator Information Manual, 40OP-9ZZ04(Plant Startup Mode 2 to 1)</p> <p>K&A: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MFW controls including: Power level restrictions for operation of MFW pumps and valves.</p> <p>Justification:</p> <p>A. Incorrect – Both SG#1 and SG#2 will go through swapover due to power greater than 15.5% and one downcomer valve > 80% open.</p> <p>B. Incorrect – Both SG#1 and SG#2 will go through swapover due to power greater than 15.5% and one downcomer valve > 80% open.</p> <p>C. Correct – 40OP-9ZZ04(Plant Startup Mode 2 to 1), page 46 states that swapover will occur if power is greater than 16.5% OR between 15 and 16.5% AND one downcomer valve reaches 80%. The simplified drawings show that if one DFWCS meets these criteria, the other will swapover as well. This explanation renders distracters A, B, and D as incorrect.</p> <p>D. Incorrect – Only one of the Downcomer valves must be > 80% open.</p>

Question 50 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

2.7

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

RO Exam Question 2007

2010 RO NRC

Associated objective(s):

Describe the response of the DFWCS to an increase in reactor power to include the following:

- Swapover
- Single - three element control change
- Downcomer reopening

Given the following conditions:

- EDG 'B' is operating at full rated load.
- The associated fuel oil transfer pump has faulted.
- EDG 'B' Fuel Oil Day Tank is at it's Technical Specification Limit of (2.75ft/550 gallons)

Which ONE of the following describes the approximate amount of time EDG 'B' will be able to operate in this condition?

- A. 0.5 hours.
- B. 1.5 hours.
- C. 2.5 hours.
- D. 5.0 hours.

Answer: B

Question 51 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	22680
User-Defined ID:	Q22680
Cross Reference Number:	
Topic:	Q22680 DFO DAY TANK BASIS
Num Field 1:	3.2
Num Field 2:	3.3
Text Field:	3.6 064 K6.08
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT Lesson Plan, Tech Spec 3.8.1 and basis.</p> <p>K&A: Knowledge of the effect of a loss or malfunction of the following will have on the ED/G system: Fuel oil storage tanks.</p> <p>Justification:</p> <p>A. Incorrect – EDG uses 6.4 gpm of fuel oil at rated load, therefore 550 gallons is approximately 1.5 hours of use.</p> <p>B. Correct – EDG uses 6.4 gpm of fuel oil at rated load, therefore 550 gallons is approximately 1.5 hours of use. Basis of the Limit is 1 hour of operation plus 10%.</p> <p>C. Incorrect – Tank capacity is 1100 gallons and sized for 2.5 hours of fuel oil.</p> <p>D. Incorrect – Each EDG has its own tank and each has a capacity of 1100 gallons and sized for 2.5 hours of fuel oil. Therefore if using both tanks you could have approximately 5 hours of fuel oil.</p>

Question 51 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.2

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of the Diesel Fuel Oil sub-system under normal operating conditions.

Given the following conditions:

- EW 'A' is supplying NC.
- A leak develops in the 1A RCP HPSC.
- You are directing the Area 3 operator to adjust EWA-HCV-53 (SDCH 'A' Bypass Valve).

Which ONE of the following describes the radiation intensity and exposure limits for the Area 3 operator?

Radiation Intensity as indicated by RU-2 (EW Train 'A') is ____ (1) ____ and the Federal exposure limit is ____ (2) ____.

- A. (1) rising (2) 2.5 Rem/year.
- B. (1) rising (2) 5.0 Rem/year.
- C. (1) constant (2) 2.5 Rem/year.
- D. (1) constant (2) 5.0 Rem/year.

Answer: B

Question 52 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	43880
User-Defined ID:	Q43880
Cross Reference Number:	
Topic:	Q43880 Radiation Intensity and Exp Limits
Num Field 1:	2.9
Num Field 2:	3.4
Text Field:	3.7 073 K5.03
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Radworker Training.</p> <p>K&A: Knowledge of the operational implications as they apply to concepts as they apply to the PRM system: Relationship between radiation intensity and exposure limits.</p> <p>Justification: Incorrect – As the HPSC leak introduces RCS in the NC and EW systems, RU-2 will show a rising trend in activity and radiation levels. The Federal exposure limit is 5 Rem/year. PVNGS has administrative hold points that the candidate may confuse for the Federal limit. Correct – As the HPSC leak introduces RCS in the NC and EW systems, RU-2 will show a rising trend in activity and radiation levels. The Federal exposure limit is 5 Rem/year. Incorrect – Candidate may not understand the relationship between the HPSC leak and the NC and EW systems, RU-2 will show a rising trend in activity and radiation levels. The Federal exposure limit is 5 Rem/year. PVNGS has administrative hold points that the candidate may confuse for the Federal limit. Incorrect – Candidate may not understand the relationship between the HPSC leak and the NC and EW systems, RU-2 will show a rising trend in activity and radiation levels. </p>

Question 52 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

2.9

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

RO Exam 2010

Associated objective(s):

Radiological questions

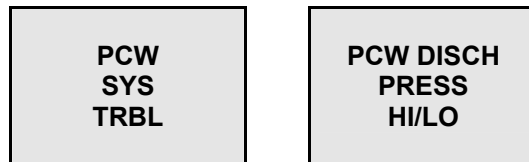
Given the following conditions:

Initial conditions:

- Unit 2 is operating at 100% power.
- Plant Cooling Water pumps PWN-P01A is running with PWN-P01B in standby.

Subsequently:

- The following indications are locked in on B07:



- PWN-P01A has brighter than normal green indication.
- PWN-P01B has both amber and red lights.

Which ONE of the following describes the current status of the Plant Cooling Water Pumps?

- A. A multiplexer failure has caused a trip of both pumps.
- B. Both pumps have locked out and can be reset (if the condition has cleared) from B07.
- C. Both pumps have locked out and must be reset (if the condition has cleared) at the switchgear.
- D. PWN-P01A has tripped and locked out. PWN-P01B is running but has degraded discharge pressure.

Answer: D

Question 53 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	9362
User-Defined ID:	Q9362
Cross Reference Number:	
Topic:	Q9362 PW Controls associated with the PW Pumps
Num Field 1:	2.9
Num Field 2:	2.9
Text Field:	3.4 062 A4.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT PW Lesson Plan</p> <p>K&A: Ability to manually operate and/or monitor in the control room: SWS pumps.</p> <p>Justification:</p> <ul style="list-style-type: none"> A. Incorrect – A multiplexer failure applies to the circulating water system and would result in no indications on B07. B. Incorrect – Only P01A has tripped due to the brighter than normal green on B07, the 86 lockout can only be reset from the switchgear on non class pumps. C. Incorrect – Only P01A has tripped due to the brighter than normal green on B07, the 86 lockout can only be reset from the switchgear on non class pumps. D. Correct –The brighter than normal green shows that P01A has tripped, the P01B indications of amber means started in standby, red means running and the PCW low discharge pressure alarm means that the pump is not pumping properly.

Question 53 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

2.9

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the Control Room controls associated with the PW Pumps, including their indications.

Which ONE of the following describes the order in which the Instrument Air (IA) system will respond to a lowering IA header pressure?

- A. IA Header low pressure alarm, Standby compressor starts, Nitrogen backup supply opens.
- B. Standby compressor starts, IA Header low pressure alarm, Nitrogen backup supply opens.
- C. Standby compressor starts, Nitrogen backup supply opens, IA Header low pressure alarm.
- D. IA Header low pressure alarm, Nitrogen backup supply opens, Standby compressor starts.

Answer: B

Question 54 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	8375
User-Defined ID:	Q8375
Cross Reference Number:	
Topic:	Q8375 SYS Automatic functions IA
Num Field 1:	3.1
Num Field 2:	3.2
Text Field:	3.8 078 A3.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40OP-9IA0, IA normal ops, 40AL-9RK7B, alarm response.</p> <p>K&A: Ability to monitor automatic operation of the IAS, including: Air pressure</p> <p>Justification: There is only one correct sequence for this scenario. Candidate may not fully understand the IA system/setpoints and choose any one of the choices for the same reasons.</p> <p>A. Incorrect – Only one correct sequence for this scenario.</p> <p>B. Correct – Normally one compressor is running maintaining 115 psig. The first standby compressor will start at 109 psig and the second standby compressor starts at 105 psig (40OP-9IA01). The instrument air low pressure alarm is at 95 psig (40AL-9RK7B) and the N2 backup opens at 85.</p> <p>C. Incorrect – Only one correct sequence for this scenario.</p> <p>D. Incorrect – Only one correct sequence for this scenario.</p>

Question 54 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.1

Q - Cognitive Level

Memory

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

RO Exam Question 2007

2010 RO NRC

Associated objective(s):

Describe the automatic functions associated with the Instrument Air System.

55

ID: Q43767

Points: 1.00

Given the following conditions:

- Unit 1 has tripped from 100% power.
- A LOCA has occurred inside containment.
- Pressurizer pressure is 1475 psia and lowering.
- Containment pressure is 9.5 psia and rising.

Which ONE of the following describes the signal(s) that closed the Normal Chill Water (WC) Containment Isolation Valves?

- A. SIAS Only.
- B. CIAS Only.
- C. CSAS Only.
- D. SIAS and CIAS Only.

Answer: B

Question 55 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	43767
User-Defined ID:	Q43767
Cross Reference Number:	
Topic:	Q43767 WC Containment Isolation Valves
Num Field 1:	3.9
Num Field 2:	4.1
Text Field:	3.5 103 K1.02
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: WC Containment Isolation Valve Electrical Print.</p> <p>K&A: Knowledge of the physical connections and/or cause-effect relationships between the containment system and the following systems: Containment isolation/containment integrity.</p> <p>Justification:</p> <p>A. Incorrect – SIAS closes the SG Blowdown containment isolation valves.</p> <p>B. Correct – CIAS is the only ESFAS signal that will close the WC containment isolation valves.</p> <p>C. Incorrect – CSAS closes the IA header containment isolation valves.</p> <p>D. Incorrect – SIAS does not close the WC containment isolation valves.</p>

Question 55 Table-Item Links

Q - 10CFR Sections

55.41 (9) Shielding, isolation, and containment design features, including access limitations

Q - Reactor Operator K & A Importance classification

3.9

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 1

Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of the WC Containment Isolation Valves under normal operating conditions.

Given the following conditions:

- Unit 1 has tripped from 100% power.
- This trip was due to a sheared shaft on the 1A RCP.
- SG #1 level is noticed to be higher than SG #2 with the same feed flow.

Which ONE of the following describes the SG level difference?

SG #1 level is higher than SG #2 due to...

- A. SG #2 is generating more steam due to the greater RCS flow.
- B. the lower Tcold condition in the loop with only 1 RCP operating.
- C. SG #1 having significantly less pump heat to transfer out of the RCS.
- D. RCS flow reversing in the loop with 1 RCP operating and two pumps operating in the opposite loop.

Answer: A

Question 56 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	22681
User-Defined ID:	Q22681
Cross Reference Number:	
Topic:	Q22681 UNBALANCED RCS FLOW EFFECTS
Num Field 1:	3.6
Num Field 2:	3.8
Text Field:	3.2 002 K6.02
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT Lesson Plan</p> <p>K&A: Knowledge of the effect of a loss or malfunction on the following RCS components: RCP.</p> <p>Justification:</p> <p>A. Correct – With unbalanced RCS flow (one pump secured), the SG with two RCPs will transfer more heat than the other one. Based on this, its level will drop more quickly with equal feed flow to both SGs.</p> <p>B. Incorrect – Tcold is approximately the same due to SBCS maintaining SG pressure.</p> <p>C. Incorrect – SG #1 will have less pump heat to transfer, but it will not have the effect that the decay heat being pushed through SG #2 will have on level.</p> <p>D. Incorrect – Unbalanced RCS loop flows will not cause flow reversals.</p>

Question 56 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.6

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

Given conditions of a reactor trip describe SG response when unbalanced RCS flow is established in accordance with 40EP-9EO01.

Given the following conditions:

- Gaseous Radwaste (GR) is lined up to receive gas from surge header.
- Oxygen content in the Volume Control Tank (VCT) is 1.8% and rising.
- Oxygen content in the surge header is 1.8% and rising.

Which ONE of the following describes the action(s) that will occur to reduce the risk or prevent flammability as oxygen concentration continues to rise?

- A. VCT to GR header ONLY isolates automatically.
- B. All inputs to GR header will isolate automatically.
- C. GRN-AV-169 (Auto N2 Dilution) automatically opens.
- D. Waste gas compressors will start and cycle on surge tank pressure.

Answer: C

Question 57 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	43769
User-Defined ID:	Q43769
Cross Reference Number:	
Topic:	Q43769 GR--Nitrogen Dilution
Num Field 1:	2.5
Num Field 2:	3.1
Text Field:	3.9 071 K5.04
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AL-9ZR1A, Alarm Response Procedure</p> <p>K&A: Knowledge of the operational implication of the following concepts as they apply to the Waste Gas Disposal System: Relationship of hydrogen/oxygen concentrations to flammability.</p> <p>Justification:</p> <p>A. Incorrect – VCT to GR header isolation is a manual valve that has no automatic functions. GR-UV-34A/B auto close on high discharge flow, high rad levels or high pressure.</p> <p>B. Incorrect – RDT, EDT, VCT and Gas Stripper all have manual valves that have on automatic functions.</p> <p>C. Correct – At 3.75% O2 the Auto N2 Dilution Valve will open and the Waste Gas Compressor(s) will stop.</p> <p>D. Incorrect – WG compressors stop on high-high O2 concentrations and will not start until reset manually.</p>

Question 57 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

2.5

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the automatic functions / interlocks associated with the following:
Gaseous Discharge Isolation Valves, Gas Compressors (GRN-C01A, C01B),
Gaseous Discharge Header Isolation Valves (HS-34A and 34B), Radiation
Monitor (RU-12).

Given the following conditions:

- A reactor startup is in progress
- The HI LOG PWR LVL BYP PERM (5A15B) annunciator alarms.

Which ONE of the following describes the current conditions and appropriate response?

- Rx power is greater than $10^{-4}\%$, manually bypass the Hi Log Power trips.
- Count rate is greater than 2000 cps, manually bypass the Hi Log Power trips.
- Rx power is greater than $10^{-4}\%$, verify that the Hi Log Power trips have been automatically bypassed.
- Count rate is greater than 2000 cps, verify that the Hi Log Power trips have been automatically bypassed.

Answer: A

Question 58 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	22683
User-Defined ID:	Q22683
Cross Reference Number:	
Topic:	Q22683 NI TRIP BYPASSES
Num Field 1:	3.8
Num Field 2:	3.9
Text Field:	3.7 015 A4.03
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40OP-9ZZ03, Reactor Startup</p> <p>K&A: Ability to manually operate and/or monitor in the control room: Trip bypasses.</p> <p>Justification:</p> <p>A. Correct – Alarm is generated at $10^{-4}\%$ on start ups to remind the operator to bypass the Hi Log Power trip that is set at $10^{-2}\%$.</p> <p>B. Incorrect – Start Up channels will be de-energized at 2000 cps when the S/U Channel TRBL alarm is energized.</p> <p>C. Incorrect – Hi Log Power trip will automatically become active below $10^{-4}\%$.</p> <p>D. Incorrect – Start Up channels will be de-energized at 2000 cps therefore when the S/U Channel TRBL alarm is energized. Log Power trip will automatically become active below $10^{-4}\%$.</p>

Question 58 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.8

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the Control Room controls associated with the Safety Channels, including their indications.

Core Exit Thermocouples (CETs) provide a DIRECT input to which ONE of the following?

- A. COLSS.
- B. QSPDS.
- C. ERFDADS.
- D. B02 Post Accident Meters.

Answer: B

Question 59 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	43753
User-Defined ID:	Q43753
Cross Reference Number:	
Topic:	Q43753 ITM CET QSPDS
Num Field 1:	3.2
Num Field 2:	3.2
Text Field:	3.7 017 K1.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT Lesson Plan</p> <p>K&A: Knowledge of the physical connections and/or cause effect relationships between the ITM system and the following systems: Plant computer.</p> <p>Justification:</p> <p>A. Correct – CET detectors are connected to the QSPDS cabinet by a chromel aluminum lead which removes the need for a temperature controlled environment junction box.</p> <p>B. Incorrect – COLSS receives inputs from the Incore detectors which are on the same instrument string as the CETs.</p> <p>C. Incorrect – ERFDADS receives CET data from QSPDS.</p> <p>D. Incorrect – B02 Post Accident Monitors receive data from QSPDS to display Core Exit Temps and Saturation Margins.</p>

Question 59 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

3.2

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of the Core Exit Thermocouples (CETs) associated with the Incore Instrumentation System.

Which ONE of the following describes the power supply to the 'B' Hydrogen Recombiner?

- A. NBN-S02.
- B. PBB-S04.
- C. PHB-M34.
- D. PGB-L36.

Answer: C

Question 60 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	22685
User-Defined ID:	Q22685
Cross Reference Number:	
Topic:	Q22685 H2 RECOMB POWER SUPPLY
Num Field 1:	2.5
Num Field 2:	2.8
Text Field:	3.5 028 K2.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AO-9ZZ12, Degraded Electrical PHB M34 Loads</p> <p>K&A: Knowledge of bus power supplies to the following: Hydrogen Recombiners.</p> <p>Justification:</p> <p>A. Incorrect – 4160V Non Class power supply. B. Incorrect – 4160V Class power supply. C. Correct – 480V Class MCC is the power supply to the H2 Recombiners. D. Incorrect – 480V Class Load Center.</p>

Question 60 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

2.5

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of the Hydrogen Recombiner under normal operating conditions.

Given the following conditions:

- Unit 1 has tripped from 100% power (10) ten minutes ago.
- SG #1 level is 48% NR.
- SG #2 level is 53% NR.
- T_c is 565°F.

Which ONE of the following describes the status of the DFWCS controllers?

SG #1 is in ____ (1) ____ and SG #2 is in ____ (2) ____.

- A. (1) RTO (2) RTO
- B. (1) RTO (2) Single Element Control
- C. (1) Single Element Control (2) RTO
- D. (1) Single Element Control (2) Single Element Control

Answer: B

Question 61 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	43732
User-Defined ID:	Q43732
Cross Reference Number:	
Topic:	Q43732 DFWCS to a Reactor trip condition.
Num Field 1:	4.0
Num Field 2:	3.9
Text Field:	3.4 035 A3.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT DFWCS Lesson Plan</p> <p>K&A: Ability to monitor automatic operation of the S/G including: S/G water level control.</p> <p>Justification:</p> <p>Incorrect – RTO will control the downcomer control valve post trip until SGWL reaches 51.9% NR. Single Element Controller is disabled until SGWL reaches 51.9% NR.</p> <p>Correct – RTO will control the downcomer control valve post trip until SGWL reaches 51.9% NR. Single Element Controller is disabled until SGWL reaches 51.9% NR.</p> <p>Incorrect – RTO will control the downcomer control valve post trip until SGWL reaches 51.9% NR. Single Element Controller is disabled until SGWL reaches 51.9% NR.</p> <p>Incorrect – RTO will control the downcomer control valve post trip until SGWL reaches 51.9% NR. Single Element Controller is disabled until SGWL reaches 51.9% NR.</p>

Question 61 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

4.0

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 2

Q - RO Exam

RO Exam 2010

Associated objective(s):

Describe the response of the DFWCS to a Reactor trip condition.

Given the following conditions:

Initial Conditions:

- Unit 1 is operating at 99%.
- 40AO-9ZZ25 (ECC Directed Turbine Unloading) is in progress.
- Turbine load has been lowered approximately 11%.
- SBCS Master Controller SGN-PIC-1010 is in Local Auto with its setpoint lowered to 1075 psia.
- CEDMCS is in manual sequential.
- Reg Group 5 is 120 inches withdrawn.
- SBCV #1001 is 70% open in automatic with a manual permissive.
- SBCV #1004 is 30% open in manual with a manual permissive.

Subsequently:

- SBCV #1004 fails 100% open.
- Tavg-Tref Hi-Lo window is in alarm (4A08B).
- COLSS CMC (5B01C) & PC (5B01D) windows are in alarm.
- CEA insertion demand (green lights) are present on B05.

SBCV #1001 will ____ (1) _____. The operating crew should ____ (2) _____ to correct this condition.

- A. (1) fast close. (2) reduce power to less than the licensed power limit.
- B. (1) fast close. (2) withdraw CEAs to clear the Tavg - Tref alarm window.
- C. (1) modulate closed. (2) reduce power to less than the licensed power limit.
- D. (1) modulate closed. (2) withdraw CEAs to clear the Tavg - Tref alarm window.

Answer: C

Question 62 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	4.00
System ID:	43885
User-Defined ID:	Q43885
Cross Reference Number:	
Topic:	Q43885 SBCV stuck open affect on SBCS
Num Field 1:	3.6
Num Field 2:	3.9
Text Field:	34041A2.02
Comments:	<p>Proposed reference to be provided to applicant during examination: None</p> <p>Technical Reference: 40AL-9RK5B, ARPs / 40AO-9ZZ25, ECC Directed Turbine Unloading</p> <p>K&A: Ability to (a) predict the impacts of the following malfunctions or operations on the SDS; and (b) based on those predictions or mitigate the consequences of those malfunctions or operations: Steam valve stuck open.</p> <p>Justification:</p> <p>A. Incorrect – SBCV 1001 will modulate closed. Tavg/Tref is a low alarm due to 1004 coming open. CEA wd demand would be expected for turbine power > reactor power.</p> <p>B. Incorrect – SBCV 1001 will modulate closed. CEA wd demand would be expected for turbine power > reactor power.</p> <p>C. Correct – SBCV 1001 will modulate closed. COLSS alarms need to be cleared.</p> <p>D. Incorrect – SBCV 1001 will modulate closed as 1004 comes open. CEA wd demand would be expected for turbine power > reactor power.</p>

Question 62 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

3.6

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 2

Q - RO Exam

2009 RO Exam

RO Exam 2010

Associated objective(s):

Describe the Control Room controls associated with the individual SBCS valves including:

- Emergency Off Reset
- Valve Mode Select

Given the following conditions:

- PCA-P01 (Spent Fuel Pool Cooling Pump A) is operating on the Spent Fuel Pool.
- A large break occurs in the discharge of the pump.

Which ONE of the following will prevent Spent Fuel Pool level from lowering to the point of uncovering fuel assemblies?

- A. Excessive flow check valves will automatically close.
- B. PCA-P01 (Spent Fuel Pool Cooling Pump A) will trip on high discharge flow.
- C. PCA-P01 (Spent Fuel Pool Cooling Pump A) will trip on low suction pressure.
- D. Anti-siphon holes in PC cooling pump suction piping become uncovered by the lowering spent fuel pool level.

Answer: D

Question 63 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	43770
User-Defined ID:	Q43770
Cross Reference Number:	
Topic:	Q43770 PC ANTI SIPHON
Num Field 1:	2.7
Num Field 2:	3.3
Text Field:	3.8 033 A1.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT PC Lesson Plan</p> <p>K&A: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with Spent Fuel Pool Cooling System operating the controls including: Spent fuel pool water level.</p> <p>Justification:</p> <p>A. Incorrect – The check valves installed on the discharge of the pump are not excessive flow check valves as used in other locations in the plant.</p> <p>B. Incorrect – PC Cooling Pumps are not provided with a high discharge flow trip. Some pumps at PVNGS do have a high discharge pressure trip.</p> <p>C. Incorrect – PC Cooling Pumps are not provided with a low suction pressure trip. Some pumps installed at PVNGS do have a low suction trip.</p> <p>D. Correct – Anti Siphon holes are drilled into the PC Cooling Pump suction piping so that a break external to the SFP will not drain the pool.</p>

Question 63 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

2.7

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of the Spent Fuel Pool under normal operating conditions.

64

ID: Q43771

Points: 1.00

Given the following conditions:

- Unit 1 is operating at 100% power.
- Main Condenser shell 'A' vacuum is 2.6 in HgA and degrading.

Which ONE of the following conditions would be the cause of this condition?

- A. Ambient relative humidity lowering.
- B. Circulating Water temperature lowering.
- C. 86 lockout on ARN-P01 (Air Removal Pump 'A').
- D. Vacuum breaker make-up isolation valve leaking by.

Answer: C

Question 64 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	1
Difficulty:	2.00
System ID:	43771
User-Defined ID:	Q43771
Cross Reference Number:	
Topic:	Q43771 AR Pump Malf effect on MC
Num Field 1:	2.5
Num Field 2:	2.7
Text Field:	3.4 055 K3.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT Lesson Plan, Fundamental Knowledge.</p> <p>K&A: Knowledge of the effect that a loss or malfunction of the CARS will have on the following: Main condenser.</p> <p>Justification:</p> <p>A. Incorrect – lowering humidity will raise the efficiency of the main condenser therefore resulting in improved vacuum.</p> <p>B. Incorrect – CW temperature lowering will raise the efficiency of the main condenser therefore resulting in improved vacuum.</p> <p>C. Correct – AR pumps remove air and non condensable gases from the main condenser. 3 of 4 pumps are normally operating. A 4th standby pump will start when vacuum degrades further to excess of 4.5 in HgA.</p> <p>D. Incorrect – Vacuum breaker makeup valve will have no impact due to supplying more water to the vacuum breaker. If the drain valve were to leak by the resultant air in-leakage would result in degrading vacuum.</p>

Question 64 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

2.7

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 2 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

Discuss the purpose and conditions under which the Air Removal System is designed to function.

Given the following conditions:

- An attempt to start a Circulating Water pump has been made and the pump failed to start.

Which ONE of the following describes the interlock that is preventing the pump from starting?

The Circulating Water...

- A. intake canal level is too low.
- B. pump's discharge valve is closed.
- C. loop's condenser outlet valve is closed.
- D. loop's cross-tie valve (CW-HV-11) is closed.

Answer: C

Question 65 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	1
Difficulty:	2.00
System ID:	5534
User-Defined ID:	Q5534
Cross Reference Number:	
Topic:	Q5534 CW pump interlock with condenser valve
Num Field 1:	2.5
Num Field 2:	2.8
Text Field:	3.8 075 K4.01
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40OP-9CW01, Operating the CW system</p> <p>K&A: Knowledge of circulating water system design feature(s) and interlock(s) which provide for the following: Heat Sink.</p> <p>Justification:</p> <p>A. Incorrect – There is no interlock associated with intake canal level. Low level could cause low suction pressure and low flow but will not prevent a pump start.</p> <p>B. Incorrect – The CW pump discharge valve must be closed to start the pump.</p> <p>C. Correct – This ensures that water hammer does not damage the condenser water box when a CW pump is started.</p> <p>D. Incorrect – This valve will close when there is unbalanced flow between CW loops. It will not prevent a pump from starting.</p>

Question 65 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

2.5

Q - Cognitive Level

Memory

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 2 Group 2

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe the automatic interlocks associated with the Circulating Water Condenser Outlet Valves.

66

ID: Q43733

Points: 1.00

Given the following conditions:

- You are scheduled to begin your shift as the RO.
- This is your first day of nights following two days off.

Which ONE of the following describes when the Night Orders shall be reviewed?

- A. After turnover (On-Coming).
- B. Prior to turnover (Off-Going).
- C. Prior to turnover (On-Coming).
- D. Not required to be reviewed since last shift was less than 3 days ago.

Answer: A

Question 66 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	43733
User-Defined ID:	Q43733
Cross Reference Number:	
Topic:	Q43733 REVIEW OF NIGHT ORDERS
Num Field 1:	2.7
Num Field 2:	3.4
Text Field:	2.1.15
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40DP-9OP33, Shift Turnover</p> <p>K&A: Knowledge of administrative requirements for temporary management directives, such as standing orders, night orders, Operations memos, etc.</p> <p>Justification:</p> <p>A. Correct – PER 40DP-9OP33 SECT 5.4. B. Incorrect – RO must ensure PVARs have been issued prior to turnover off-going. C. Incorrect – RO must review numerous logs and data prior to taking the shift. D. Incorrect – RO must review Unit Logs back to the last shift worked or last 3 days, whichever is shorter.</p>

Question 66 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

2.7

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 3

Q - RO Exam

2010 RO NRC

Associated objective(s):

Given the conditions associated with a Control Room relief describe the required review of operating logs prior to this relief in accordance with 40DP-9OP33.

Given the following conditions:

- A Loss of Class DC control power has occurred.
- A Class pump needs to be started.
- The Class pump was in a normal standby line up prior to the Loss of DC control power.

Which ONE of the following describes how this would be accomplished?

- A. Start the pump using the control switch on B02.
- B. Locally start the pump using the local control switch on the breaker cubicle door.
- C. Locally start the pump using the manual close pushbutton located on the breaker.
- D. You must manually charge the closing springs and then start the pump using the manual close pushbutton located on the breaker.

Answer: C

Question 67 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	1
Difficulty:	2.00
System ID:	43778
User-Defined ID:	Q43778
Cross Reference Number:	
Topic:	Q43778 Loss of Control Power Close Breaker
Num Field 1:	4.4
Num Field 2:	4.0
Text Field:	2.1.30
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOIT Lesson Plan PB</p> <p>K&A: Ability to locate and operate components, including local controls.</p> <p>Justification:</p> <p>A. Incorrect – Loss of DC control power to the breaker will prevent controlling the pump from the control room.</p> <p>B. Incorrect – Loss of DC control power to the breaker will prevent controlling the pump from the local hand switch on the breaker cubicle door.</p> <p>C. Correct – You must open the breaker cubicle and press the pushbutton.</p> <p>D. Incorrect – Closing springs get closed when the breaker is opened. If this was not the first time to close the breaker following the loss of DC control power, you would have to charge the closing springs manually and then depress the pushbutton.</p>

Question 67 Table-Item Links

Q - 10CFR Sections

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Q - Reactor Operator K & A Importance classification

4.4

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 3

Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of the 4.16 kV Circuit Breakers under normal operating conditions.

A reactor startup is in progress after a two week mid-cycle outage. The ECC has the following data:

ECRP -500 pcm..... Group 3 at 90 inches

ECRP..... Group 4 at 74 inches

ECRP +500 pcm..... All Rods Out

Criticality is achieved and verified with Group 3 at 50 inches withdrawn.

Which ONE of the following describes the required operator response?

- A. Trip the reactor and emergency borate.
- B. Insert regulating group rods to their lower group stop ONLY.
- C. Insert CEAs as necessary to hold current power level and take critical data.
- D. Insert regulating group rods to their lower group stop and emergency borate.

Answer: A

Question 68 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	21189
User-Defined ID:	Q21189
Cross Reference Number:	
Topic:	Q21189 Required actions if criticality is achieved below the ECRP - 500/-750 pcm position but
Num Field 1:	4.5
Num Field 2:	4.4
Text Field:	2.2.1
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40OP-9ZZ03 Reactor Startup</p> <p>K&A:</p> <p>Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.</p> <p>Justification:</p> <p>A. Correct – This is the correct action per App C of 40OP-9ZZ03 (Reactor Startup) for achieving criticality below the PDIL (Grp 3 at 60 inches)</p> <p>B. Incorrect – This is the correct action when critical below the ECRP - 500 but above the PDIL.</p> <p>C. Incorrect – This is performed if the Reactor goes critical at or near the ECRP.</p> <p>D. Incorrect – This is a combination of the correct responses to early criticality.</p>

Question 68 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

4.5

Q - Cognitive Level

Comprehensive / Anal

Q - Question Source

Bank

O - RO Tier Group Designations

Tier 3

Q - RO Exam

2010 RO NRC

Associated objective(s):

describe the required actions if criticality is achieved below the ECRP - 500/-750 pcm position but above the PDILs

describe the required actions if the Reactor goes critical below the PDILs

determine whether or not the Rx startup in progress must be aborted

Which ONE of the following describes the Reactor Core Safety Limits for DNBR and Peak Fuel Centerline temperature?

DNBR shall be maintained at \geq ____ (1) ____ and Peak Fuel Centerline temperature shall be maintained $<$ ____ (2) ____.

- A. (1) 1.28 (2) 4950 °F
- B. (1) 1.28 (2) 5080 °F
- C. (1) 1.34 (2) 4950 °F
- D. (1) 1.34 (2) 5080 °F

Answer: D

Question 1 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	43734
User-Defined ID:	Q43734
Cross Reference Number:	
Topic:	Q43734 RX CORE SLs
Num Field 1:	4.0
Num Field 2:	4.7
Text Field:	2.2.22
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Technical Specifications</p> <p>K&A: Knowledge of limiting conditions for operations and safety limits.</p> <p>Justification:</p> <p>A. Incorrect – The DNBR SL is 1.34 and Peak Fuel Centerline temperature is 5080 F</p> <p>B. Incorrect – The DNBR SL is 1.34 and Peak Fuel Centerline temperature is 5080 F</p> <p>C. Incorrect – The DNBR SL is 1.34 and Peak Fuel Centerline temperature is 5080 F</p> <p>D. Correct – These are the Safety Limits.</p>

Question 69 Table-Item Links

Q - 10CFR Sections

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Q - Reactor Operator K & A Importance classification

4.0

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 3

Q - RO Exam

RO Exam 2010

Associated objective(s):

state the Safety Limits and describe the bases behind these limits

Which ONE of the following would require entry into a ONE hour or less LCO condition while in Mode 1, steady state conditions?

- A. One LPSI Train Inoperable.
- B. One Automatic RPS trip channel Inoperable.
- C. Containment average air temperature not within limits.
- D. One Safety Injection Tank (SIT) Pressure stable at 560 psig.

Answer: B

Question 70 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	43779
User-Defined ID:	Q43779
Cross Reference Number:	
Topic:	Q43779 1 hour actions for systems
Num Field 1:	3.9
Num Field 2:	4.5
Text Field:	2.2.39
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Tech Specs</p> <p>K&A: Knowledge of less than or equal to one hour Technical Specification action statements for systems.</p> <p>Justification:</p> <p>A. Incorrect – This is a 7 day action per TS 3.1.1. B. Correct – This is a 1 hour action per TS 3.3.1. C. Incorrect – This is a 8 hour action per TS 3.6.5. D. Incorrect – This is a 24 hour action per TS 3.5.1.</p>

Question 70 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

3.9

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 3

Q - RO Exam

2010 RO NRC

Associated objective(s):

apply the one hour or less actions statements of T.S. 3.3

Which ONE of the following describes the use of a hand held frisker?

Frisk the surface of the object at a distance of ____ (1) ____, at a rate of ____ (2) ____ inches per second.

- A. (1) ½ inch (2) 2
- B. (1) 1 inch (2) 4
- C. (1) 1 inch (2) 2
- D. (1) ½ inch (2) 4

Answer: A

Question 71 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	43737
User-Defined ID:	Q43737
Cross Reference Number:	
Topic:	Q43737 FRISKER USE
Num Field 1:	2.9
Num Field 2:	2.9
Text Field:	2.3.5
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Radworker Training Handout</p> <p>K&A: Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.</p> <p>Justification:</p> <p>A. Correct – This is the correct distance and rate of frisk.</p> <p>B. Incorrect – Dose rates are measured at 1 ft. Candidate may think that 1 inch for dose rates is the distance for frisking.</p> <p>C. Incorrect – 4 in² is the size of a swipe, candidate may think that the swipe size is the same as the frisk speed.</p> <p>D. Incorrect – Dose rates are measured at 1 ft. Candidate may think that 1 inch for dose rates is the distance for frisking. 4 in² is the size of a swipe, candidate may think that the swipe size is the same as the frisk speed.</p>

Question 71 Table-Item Links

Q - 10CFR Sections

55.41 (11) Purpose and operation of radiation monitoring systems, including alarms and survey equipment.

Q - Reactor Operator K & A Importance classification

2.9

Q - Cognitive Level

Memory

Q - Question Source

New

O - RO Tier Group Designations

Tier 3

Q - RO Exam

2010 RO NRC

Associated objective(s):

Explain the operation of field units under normal operating conditions.

72

ID: Q43738

Points: 1.00

The following information is posted on a survey map outside a room you are about to enter.

- General Area Radiation levels of 500 mrem/hr.
- Swipes of 150,000 dpm/100cm².

The posting of this room should be a ...

- A. Radiation Area (RA) and Contamination Area (CA).
- B. High Radiation Area (HRA) and Contamination Area (CA).
- C. High Radiation Area (HRA) and High Contamination Area (HCA).
- D. Locked High Radiation Area (LHRA) and High Contamination Area (HCA).

Answer: C

Question 72 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	43738
User-Defined ID:	Q43738
Cross Reference Number:	
Topic:	Q43738 RADIATION AREAS
Num Field 1:	3.4
Num Field 2:	3.8
Text Field:	2.3.14
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Radworker Training Handout</p> <p>K&A:</p> <p>Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.</p> <p>Justification:</p> <p>A. Incorrect – RA > 5 mrem/hr, CA > 1000 DPM/100cm² B. Incorrect – HRA > 100 mrem/hr, CA > 1000 DPM/100cm² C. Correct – HRA > 100 mrem/hr, HCA > 100,000 DPM/100cm² D. Incorrect – LHRA > 1000 mrem/hr, HCA > 100,000 DPM/100cm²</p>

Question 72 Table-Item Links

Q - 10CFR Sections

55.41 (12) Radiological safety principles and procedures.

Q - Reactor Operator K & A Importance classification

3.4

Q - Cognitive Level

Memory

Q - Question Source

Modified PV Bank

O - RO Tier Group Designations

Tier 3

Q - RO Exam

2010 RO NRC

Associated objective(s):

Radiological Questions. Radworker Training.

Given the following conditions:

- Unit 1 tripped from 100% power.
- Main turbine tripped.
- Steam Bypass "Quick Open" failed to actuate.
- Pressurizer safeties lifted and RCE-PSV-200 did not reseal.
- Containment pressure is 16 psig and rising.
- Containment temperature is 195°F and rising.

Which ONE of the following describes the Control Room instruments that are rated for use under these conditions?

- A. ERFDADS only.
- B. Channel 'B' instruments only.
- C. White placard instruments only.
- D. Channel 'A' instruments located on B02 only.

Answer: C

Question 73 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	43739
User-Defined ID:	Q43739
Cross Reference Number:	
Topic:	Q43739 Post Accident Instruments Identification
Num Field 1:	3.7
Num Field 2:	3.9
Text Field:	2.4.3
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40DP-9AP16</p> <p>K&A:</p> <p>Ability to identify post-accident instrumentation.</p> <p>Justification:</p> <p>A. Incorrect – ERFDADS is not rated for LOCA. B. Incorrect – some B instruments are post accident qualified but not exclusive, examine may confuse fire rated with post LOCA C. Correct – Per 40DP-9AP16 sect 23.1. D. Incorrect – these are PAM instrument found in Tech Specs but not all the LOCA rated instruments in the CR.</p>

Question 73 Table-Item Links

Q - 10CFR Sections

55.41 (6) Design, components, and functions of reactivity control mechanisms and instrumentation.

Q - Reactor Operator K & A Importance classification

3.7

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

Q - RO Exam

2010 RO NRC

Associated objective(s):

Given that an ORP is being implemented describe how a parameter's value should be obtained in accordance with 40DP-9AP16.

74

ID: Q43780

Points: 1.00

Given the following conditions AND COLR Figure 3.1.5-1:

- Unit 1 is operating at 76% power.
- A Four (4) Fingered CEA slips into the core 15 inches at time 1500.

Which ONE of the following will meet the requirements of the COLR?

The Reactor is at ____ (1) ____ % power at time ____ (2) ____.

- A. (1) 70 (2) 1535
- B. (1) 67 (2) 1538
- C. (1) 66 (2) 1547
- D. (1) 63 (2) 1555

Answer: B

Question 74 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	43780
User-Defined ID:	Q43780
Cross Reference Number:	
Topic:	Q43780 GEN COLR SLIP CEA
Num Field 1:	3.9
Num Field 2:	4.2
Text Field:	2.1.25
Comments:	<p>Proposed reference to be provided to applicant during examination: COLR Figure 3.1.5-1 Unit 1 Rev 21.</p> <p>Technical Reference: COLR Figure 3.1.5-1 Unit 1 Rev 21.</p> <p>K&A:</p> <p>Ability to interpret reference materials, such as graphs, curves, tables, etc</p> <p>Justification:</p> <p>A. Incorrect – 6 % change must be completed within 30 minutes.</p> <p>B. Correct – 9 % change must be completed within 40 minutes.</p> <p>C. Incorrect – 10 % change must be completed within 45 minutes.</p> <p>D. Incorrect – 13 % change must be completed within 52 minutes.</p>

Question 74 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

3.9

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

O - RO Tier Group Designations

Tier 3

Q - RO Exam

2010 RO NRC

Associated objective(s):

Describe how the plant is stabilized to counter the effect of the dropped/slipped CEA.

Given the following conditions:

- Unit 1 is operating at 50% power coming out of a refueling outage.
- Unit 2 is operating at 100% power.
- Unit 3 is in Mode 3 to repair a Hydrogen Leak on the Main Turbine.
- Severe weather conditions are occurring that require implementation of EPIP-01 (STSC Actions).

Which ONE of the following describes the person responsible for initially classifying the emergency and assuming the position of On-shift Emergency Coordinator?

- A. Unit 1 Shift Manager.
- B. Unit 2 Shift Manager.
- C. Unit 3 Shift Manager.
- D. Unit 3 Work Control SRO.

Answer: A

Question 75 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	7166
User-Defined ID:	Q7166
Cross Reference Number:	
Topic:	Q7166 EC for Multiple Unit Classification
Num Field 1:	3.0
Num Field 2:	4.1
Text Field:	2.4.37
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: EPIP-01, STSC ACTIONS</p> <p>K&A:</p> <p>Knowledge of the lines of authority during an emergency.</p> <p>Justification:</p> <p>A. Correct – Unit 1 SM is the EC for all multi unit events unless another Unit was already in an EAL and a EC was established.</p> <p>B. Incorrect – Unit 2 is the only unit not performing an evolution. Candidate may think that Unit 2 is the choice due to being at a steady state condition.</p> <p>C. Incorrect – Unit 3 is in an outage. Candidate may think that Unit 3 is the choice due to being in an outage with additional personnel to support.</p> <p>D. Incorrect – Unit 3 is in an outage. Candidate may think that Unit 3 WC SRO is the choice due to being available to become EC.</p>

Question 75 Table-Item Links

Q - 10CFR Sections

55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Q - Reactor Operator K & A Importance classification

3.0

Q - Cognitive Level

Memory

Q - Question Source

PV Bank Not Modified

O - RO Tier Group Designations

Tier 3

Q - RO Exam

2010 RO NRC

Associated objective(s):

Identify the on-shift responsibilities for emergency plan implementation including who in the on shift organization is designated as the emergency coordinator.

Given the following conditions:

Initial Conditions

- Unit 1 tripped due to a Loss of Offsite Power (LOOP).
- SPTAs are in progress.

Subsequently:

- RCS pressure is 1800 psia and trending down slowly.
- The RO has throttled HPSI.
- Containment temperature is 150°F and rising slowly.
- Containment pressure is 2.7 psig and rising slowly.
- RU-1 (CTMT ATMOSPHERE) is in ALERT and rising slowly.
- Pressurizer level is 8% and stable.
- RCS subcooling is 40°F and stable.
- AFB-P01 (Essential Motor Driven Aux Feed Pump) is feeding both Steam Generators.
- Steam Generator #1 is 50% WR and rising.
- Steam Generator #2 is 45% WR and rising.

Which ONE of the following describes the appropriate response?

The CRS will direct entering ____ (1) ____ and immediately ____ (2) ____.

- A. (1) 40EP-9EO03 (LOCA) (2) re-initiate HPSI flow to restore PZR level.
- B. (1) 40EP-9EO07 (LOOP/LOFC) (2) re-initiate HPSI flow to restore PZR level.
- C. (1) 40EP-9EO03 (LOCA) (2) restore IA to CTMT to isolate seal bleedoff from RCPs.
- D. (1) 40EP-9EO07 (LOOP/LOFC) (2) restore IA to CTMT to isolate seal bleedoff from RCPs.

Answer: A

Question 1 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	22629
User-Defined ID:	Q22629
Cross Reference Number:	
Topic:	Q22629 SRO EOP GEN analyze whether it is permissible to throttle HPSI flow.
Num Field 1:	4.2
Num Field 2:	4.4
Text Field:	2.2.44
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40EP-9EO10, Appendix 2 figures, 40EP-9EO03, LOCA.</p> <p>K&A: Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.</p> <p>Justification:</p> <p>A. Correct – Pzr Level criteria is not met per standard appendix 2 page 3 of 3. Parameters are consistent with a LOCA inside CTMT. CTMT conditions are not harsh.</p> <p>B. Incorrect – LOOP has occurred which makes this a plausible distracter, only the LOOP EOP does not address the RC Inventory Control Safety Function therefore LOOP is not the appropriate EOP. Partially correct as re-initiating HPSI flow is the correct action.</p> <p>C. Incorrect – Pzr Level criteria is not met per standard appendix 2 page 3 of 3. Parameters are consistent with a LOCA inside CTMT. CTMT conditions are not harsh. Instrument Air Isolates on a CSAS which occurs at 8.5 psig in the CTMT and the Seal Bleedoff valves are powered from IA.</p> <p>D. Incorrect – LOOP has occurred which makes this a plausible distracter, only the LOOP EOP does not address the RC Inventory Control Safety Function therefore LOOP is not the appropriate EOP. Instrument Air Isolates on a CSAS which occurs at 8.5 psig in the CTMT and the Seal Bleedoff valves are powered from IA.</p>

Question 1 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.4

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 1 Group 1

Associated objective(s):

analyze whether it is permissible to throttle HPSI flow.

Given the following conditions:

- Unit 2 has been operating at 100% power for 7 days following a refueling outage.
- A small leak has been identified on the discharge piping of CHA-P01, charging pump A.
- Charging has been secured until the leak can be isolated.
- Letdown has been secured due to the charging pump leak.
- Pressurizer level is 50% and lowering slowly.
- NCN-P01A, Nuclear Cooling Water pump A is under clearance and unavailable.

Subsequently:

- While taking down scaffolding the supply breaker for 4.16 KV bus NBN-S02 is inadvertently tripped.
- RCP LO NC FLOW alarms are LIT on B04.

Which ONE of the following actions is required?

- A. All RCPs must be secured within 3 minutes unless cooling water flow is restored per 40A0-9ZZ03 (Loss of Cooling Water).
- B. All RCPs must be secured within 10 minutes unless cooling water flow is restored per 40A0-9ZZ03 (Loss of Cooling Water).
- C. If seal injection flow is restored within 3 minutes then the RCPs can run indefinitely per 40A0-9ZZ04 (RCP Motor Emergencies).
- D. If seal injection flow is restored within 10 minutes then the RCPs can run indefinitely per 40A0-9ZZ04 (RCP Motor Emergencies).

Answer: A

Question 2 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	43750
User-Defined ID:	Q43750
Cross Reference Number:	
Topic:	Q43750 SRO when to secure RCPs
Num Field 1:	3.7
Num Field 2:	3.7
Text Field:	4.2 015/017 AA2.10
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AO-9ZZ03, Loss of Cooling Water AOP.</p> <p>K&A: Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): <u>When to secure RCPs on loss of cooling or seal injection</u></p> <p>Justification:</p> <p>A. Correct – Candidate must determine that the RCPs are with out seal injection. This is the correct action for a Loss of NC flow with no seal injection available. Loss of Cooling Water AOP will direct this action. <u>Loss of NBN-S02 results in a Loss of Power to NCN-P01B (NCW Pump B). This causes a loss on NC Flow.</u></p> <p>B. Incorrect – RCP operation is allowed for 10 minutes with seal injection flow available without NC flow. Loss of Cooling Water AOP would correct the condition but the time limit is wrong.</p> <p>C. Incorrect – RCP operation is allowed for 10 minutes with seal injection flow available without NC flow. RCP Emergencies directs you to the Loss of Cooling Water AOP. The 3 minutes is the correct time.</p> <p>D. Incorrect – RCP operation is allowed for 10 minutes with seal injection flow available without NC flow. RCP Emergencies directs you to the Loss of Cooling Water AOP.</p>

Question 2 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

3.7

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 1 Group 1

Associated objective(s):

describe the limitations on RCP operation without NC

Given the following conditions:

- SPTAs are in progress.
- 525 kV switchyard voltmeters East and West indicate 000 volts.
- Both EDGs have powered their respective class buses.
- CDN-PI-47 indicates that Main Condenser pressure is 12 inches HgA and continuing to rise.
- SG levels are being restored by AFB-P01 (Ess Motor Driven Aux Feed Pump).
- RCS Tcold is being controlled at 562⁰F with ADVs.
- Ess Spray Pond pump "B" has tripped due to an 86 lockout.
- RO attempted to start AFN-P01 (Non-Ess Motor Driven Aux Feed Pump), but all attempts to open CTA-HV-1 (AFN-P01 Suction Valve) have failed.
- AFA-P01 (Ess Turbine Driven Aux Feed Pump) is running with a maximum discharge pressure of 900 psia.

Which ONE of the following describes the appropriate success path?

The CRS should enter...

- A. 40EP-9EO02 (Reactor Trip) and feed using AFB-P01.
- B. 40EP-9EO09 (Functional Recovery) and feed using AFB-P01.
- C. 40EP-9EO06 (Loss of all Feedwater) and feed using condensate pumps.
- D. 40EP-9EO07 (Loss of Offsite Power/Loss of Forced Circulation) and feed using AFA-P01.

Answer: B

Question 3 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	3.00
System ID:	10275
User-Defined ID:	Q10275
Cross Reference Number:	
Topic:	Q10275 - analyze whether or not entry into the LOAF EOP is appropriate
Num Field 1:	4.2
Num Field 2:	4.4
Text Field:	2.2.44
Comments:	<p>Proposed reference to be provided to applicant during examination: Steam Tables</p> <p>Technical Reference: EOP Operations Expectations & 40EP-9EO01, Standard Post Trip Actions</p> <p>K&A:</p> <p>Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions. <u>Loss of Offsite Power</u></p> <p>Justification:</p> <p>A. Incorrect – AFB-P01 is powered from PBB-S04. The Loss of Offsite Power indicated by the 000 volts has caused both EDGs to start and power their respective electrical bus. EDG 'B' must be emergency stopped due to the 86 lockout on Ess Spray Pond Pump 'B'. Therefore PBB-S04 is de-energized resulting in AFB-P01 losing power. AFN-P01 is powered from PBA-S03, which is still energized but will not start due to its suction valve being failed closed. Therefore the Rx trip EOP entry conditions are no longer met.</p> <p>B. Correct – CRS should realize that only available feed source is AF pump "B" and it must be powered by the "A" DG which requires entry into the FRP.</p> <p>C. Incorrect – Loss of offsite power precludes the use of Condensate pumps</p> <p>D. Incorrect – AFA-P01 discharge pressure is too low for a T-cold of 562 °F. SG Pressures are 1150 psia.</p>

Question 3 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.4

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

Q - SRO Exam

SRO Exam 2007

SRO Exam 2010

O - SRO Tier Group Designation

Tier 1 Group 1

Associated objective(s):

analyze whether or not entry into the LOAF EOP is appropriate

Given the following conditions:

Initial Conditions:

- Unit 1 is operating at 100% power.
- The quarterly Surveillance Test on EDG 'A' is in progress.
- EDG 'A' is paralleled to Off-Site power, PBA-S03B (EDG 'A' Output Breaker) is closed.
- EDG 'A' is carrying 5000 KW.

Subsequently:

- PKA-M41 faults and is de-energized.

Which ONE of the following describes the appropriate response?

- A. Enter 40AO-9ZZ12 (Degraded Electrical) to restore PBA-S03.
- B. Enter 40AO-9ZZ13 (Loss of Class Inst and Cntrl Power) to restore PBA-S03.
- C. Enter 40AO-9ZZ12 (Degraded Electrical) and trip PBA-S03B due to the EDG 'A' tripping and PBA-S03B remaining closed.
- D. Enter 40AO-9ZZ13 (Loss of Class Inst and Cntrl Power) and trip PBA-S03B due to the EDG 'A' tripping and PBA-S03B remaining closed.

Answer: D

Question 4 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	22645
User-Defined ID:	Q22645
Cross Reference Number:	
Topic:	Q22645 SRO APE LOSS of DC
Num Field 1:	4.6
Num Field 2:	4.6
Text Field:	2.1.20
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AO-9ZZ13, Loss of Class Instrument and Control Power.</p> <p>K&A: Ability to interpret and execute procedure steps. Loss of DC.</p> <p>Justification:</p> <ul style="list-style-type: none"> A. Incorrect – PBA-S03 is still supplied by offsite power. Therefore entry conditions for Degraded Electrical AOP are not met. Operator may think Loss of Class DC control power will cause EDG to trip. Similar to Loss of Non Class DC bus NKN-M45. B. Incorrect – Loss of Class instrument and control power will not address direct restoration of PBA-S03. C. Incorrect – Degraded Electrical AOP does not provide direction to trip the EDG. D. Correct – EDG 'A' is now being back fed from the grid due to the Loss of tripping power resulting in the motoring of the EDG 'A', must trip the EDG 'A' output breaker to prevent damage to the EDG per Sect 3.0 step 2 of 40AO-9ZZ13.

Question 4 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.6

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 1 Group 1

Associated objective(s):

determine if the Loss of Class Instrument or Control Power AOP should be executed

Given the following conditions:

- Unit 1 has tripped from 100% power.
- SPTAs are in progress.
- RCS pressure 2150 psia and rising.
- Tcold 560°F and rising.
- DFWCS is in Reactor Trip Override with 0 gpm to each SG.
- 13.8 Kv non class bus NAN-S02 has a fault and is de-energized.
- DG "B" is out of service for scheduled maintenance.
- Class 125 VDC Battery Bus PKC-M43 is de-energized due to an unrelated fault.

Which ONE of the following recovery procedures is designed specifically to mitigate this set of symptoms?

- A. 40EP-9EO06 (LOAF).
- B. 40EP-9EO02 (Reactor Trip).
- C. 40EP-9EO07 (LOOP/LOFC).
- D. 40EP-9EO09 (FRP - MVDC).

Answer: B

Question 5 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	4.00
System ID:	9469
User-Defined ID:	Q9469
Cross Reference Number:	
Topic:	Q9469 SRO CE EPE whether or not entry into the Reactor Trip EOP is appropriate
Num Field 1:	2.7
Num Field 2:	3.7
Text Field:	4.4 E02 EA2.1
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40EP-9EO02, Reactor Trip procedure / 40EP-9EO01, SPTAs</p> <p>K&A:</p> <p>Ability to determine and interpret the following as they apply to the (Reactor Trip Recovery): Facility conditions and selection of appropriate procedures during abnormal and emergency operations.</p> <p>Justification:</p> <ul style="list-style-type: none"> A. Incorrect – Feedrate is correct for current plant conditions. RTO does not feed with $T_{avg} < 564^{\circ}\text{F}$. Operator may see 0 feedrate and choose LOAF EOP. B. Correct – The indications are within the Rx trip Entry conditions and Safety Functions, therefore entering Rx Trip EOP is correct. C. Incorrect – Indications of a Partial Loss of Offsite power, NAN-S01 is not listed as de-energized therefore LOOP is not the correct EOP. D. Incorrect – PBB-S04 is still energized from offsite power, the candidate may interpret the electric plant status not to meet the MVDC safety function in Rx Trip. MVDC safety function directs restoration of a vital DC bus. If examinee believes that PBB-S04 was de-energized due to the loss of PKA-M43, this would appear to be correct.

Question 5 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

3.7

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

Q - SRO Exam

SRO Exam 2009

SRO Exam 2010

O - SRO Tier Group Designation

Tier 1 Group 1

Associated objective(s):

analyze whether or not entry into the Reactor Trip EOP is appropriate

Given the following conditions:

- Unit 1 tripped from 100% power.
- SIAS, CIAS, MSIS, and AFAS-1 have initiated.
- The RCS is in natural circulation due to a Loss of Offsite power (LOOP).
- Steam Generator #1 pressure is 750 psia and dropping rapidly.
- Steam Generator #1 level is 8% WR and dropping rapidly
- Steam Generator #2 pressure is 940 psia and slowly lowering.
- Steam Generator #2 level is 49% WR and slowly lowering.
- Auxiliary feedwater flow is > 2000 gpm to SG #1.
- Auxiliary feedwater flow is 150 gpm to SG #2.
- HPSI pump "B" tripped due to a ground fault.
- AFN-P01 tripped due SIAS initiation.
- SPTAs have just been completed.

Which ONE of the following EOPs should the CRS enter?

- A. 40EP-9EO05 (Excessive Steam Demand).
- B. 40EP-9EO07 (Loss of Offsite Power/Loss of Forced Circulation).
- C. 40EP-9EO09 (Functional Recovery Procedure) - HR-2 is jeopardized.
- D. 40EP-9EO09 (Functional Recovery Procedure) - MVAC-2 is jeopardized.

Answer: A

Question 6 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	10273
User-Defined ID:	Q10273
Cross Reference Number:	
Topic:	Q10273 EOP Select the ESD procedure
Num Field 1:	2.7
Num Field 2:	4.0
Text Field:	4.4 E05 EA2.1
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: EOP Operations Expectations & 40EP-9EO01, Standard Post Trip Actions</p> <p>K&A:</p> <p>Facility conditions and selection of appropriate procedures during abnormal and emergency operations. <u>Steam Line Rupture - Excessive Heat Transfer</u></p> <p>Justification:</p> <ul style="list-style-type: none"> A. Correct – SIAS, CIAS, MSIS and AFAS-1 are consistent with an inside CTMT ESD on SG 1. There should be no AFW flow to SG 1 due to a high D/P lockout at 185 psia, but it has failed. B. Incorrect – Examinee may choose LOOP/LOFC due to the Loss of Offsite Power. C. Incorrect – Examinee may choose HR-2 due to 150 gpm AFW flow to SG 2, SG levels of 49% WR and the tripping of AFN-P01. Excessive AFW flow to #1 SG should be corrected by the board operator once it is known. This is not expected. SGWL > 45% meets the HR-2 Safety Function. D. Incorrect – Examinee may choose MVAC-2 due to the tripping of HPSI pump B.

Question 6 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.0

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 1 Group 1

Associated objective(s):

describe the mitigating strategy outlined in the ESD EOP

Given the following conditions:

- Unit 1 tripped on Low SG pressure caused by a steam line break.
- SG 1 pressure is currently 1170 psia being controlled by ADVs.
- SG 2 pressure is currently 1180 psia being controlled by ADVs.
- 4160 bus PBA-S03 has faulted and is de-energized.
- Both SG levels are 20% WR and slowly lowering.
- AFA-P01 has tripped on overspeed.
- AFB-P01 has tripped due to an 86 lock-out.
- Feed rate to both SGs is 0 gpm.
- All appropriate ESFAS actuations have initiated.

Which ONE of the following is appropriate to restore the RCS Heat Removal Safety Function?

- A. Establish feed using a Main Feedwater pump after 40EP-9EO06 (LOAF) is entered.
- B. Reset AFA-P01 overspeed trip and establish feed prior to exiting 40EP-9EO01 (SPTAs).
- C. Depressurize a SG and establish feed with a Condensate pump after 40EP-9EO09 (FRP) is entered
- D. Override the Downcomer isolation valves and establish feed using AFN-P01 prior to exiting 40EP-9EO01 (SPTAs).

Answer: C

Question 7 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	10381
User-Defined ID:	Q10381
Cross Reference Number:	
Topic:	Q10381 recover the RCS heat sink
Num Field 1:	4.3
Num Field 2:	4.6
Text Field:	4.1 074 EA2.02
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: EOP Operations Expectations, 40EP-9EO01 (SPTAs). Relay Resetting (40DP-9OP02)</p> <p>K&A: Ability to determine or interpret the following as they apply to a Inadequate Core Cooling: Availability of main or auxiliary feedwater</p> <p>Justification:</p> <ul style="list-style-type: none"> A. Incorrect – MFW is not available due to the SLB. Candidate may believe that only one steam line is affected and choose to utilize a MFP in LOAF. B. Incorrect – Resetting AFA in SPTAs is not allowed per procedure. This is a Standard Appendix to the EOPs that will be performed once the SPTAs are exited. C. Correct – Due to the lack of Aux Feed available and the MSIS resulting in a loss of MFW and condenser vacuum, the FRP will direct depressurizing and utilizing CD pumps to restore SG levels. D. Incorrect – AFN is supplied by PBA-S03 therefore the pump does not have electrical power to operate. This action would be performed during the performance of SPTAs if possible.

Question 7 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.6

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

Q - SRO Exam

SRO Exam 2007

SRO Exam 2010

O - SRO Tier Group Designation

Tier 1 Group 2

Associated objective(s):

determine the major mitigating strategies contained in 40EP-9EO06

Given the following conditions:

- Unit 1 is operating at 100% power.
- Pressurizer Level Master Controller is in REMOTE and AUTO..
- Pressurizer Level Control selector switch is in the Y position.
- RRS is aligned to monitor the average Tavg.
- RC N- TT-111Y (Tcold) input into the RRS fails low.
- Tavg/Tref HI-LO (4A08B) Alarm is in.

Which ONE of the following describes how the Pressurizer Level Control System (PLCS) will respond, and the appropriate actions to be taken?

PLCS setpoint goes to...

- A. Maximum, place the PLCS Master Controller in Manual per 40AO-9ZZ16 (RRS Malfunctions).
- B. Minimum, place the PLCS Master Controller in Local Automatic per 40AO-9ZZ16 (RRS Malfunctions).
- C. Minimum, shift the PLCS selector switch to the X position per 40AL-9RK4A (B04A Alarm Response).
- D. Maximum, shift the PLCS selector switch to the X position per 40AL-9RK4A (B04A Alarm Response).

Answer: B

Question 8 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	22640
User-Defined ID:	Q22640
Cross Reference Number:	
Topic:	Q22640 SRO Tcold Failing Low effect on PLCS
Num Field 1:	3.3
Num Field 2:	3.4
Text Field:	4.2 028 AA2.10
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AO-9ZZ16, RRS Malfunction, Operator Information Manual</p> <p>K&A:</p> <p>Ability to determine and interpret the following as they apply to the Pressurizer Level Control Malfunctions: Whether the automatic mode for PZR level control is functioning improperly, necessity of shift to manual modes.</p> <p>Justification:</p> <p>A. Incorrect – Plausible since the setpoint will go to minimum output. Action is correct.</p> <p>B. Correct – The setpoint will go to minimum and RRS Malfunction AOP directs placing the master controller in local auto or manual control mode.</p> <p>C. Incorrect – Plausible since the alarm response directs this operator action for a transmitter failure.</p> <p>D. Incorrect – Plausible since the setpoint will go to minimum and the alarm response directs this operator action for a transmitter failure.</p>

Question 8 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

3.4

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 1 Group 2

Associated objective(s):

describe the impact that a temperature instrument failing LOW would have on the various control systems that rely on this indication

Given the following conditions:

Initially:

- Unit 1 was operating at 100% power prior to the trip.
- A RCS Leak has developed into the RCP 2A HPSC.
- SPTAs are complete and the CRS has entered 40EP-9EO03 (LOCA).

Subsequently:

- A Loss of Offsite Power (LOOP) has occurred.
- EDG 'B' has tripped on Overspeed.
- SIAS, CIAS, MSIS and CSAS have initiated.

SESS Panel has the following alarms:

- BLUE SEAS and WHITE SEIS Light:
 - NCB-UV-401 (NC Supply External CTMT Isolation Valve).
 - NCB-UV-403 (NC Return Internal CTMT Isolation Valve).
- BLUE SEAS Light :
 - NCA-UV-402 (NC Return External CTMT Isolation Valve).

Which ONE of the following describes the appropriate response?

- A. Stay in 40EP-9EO03 (LOCA), close NCB-UV-401/403 (NCW CTMT Isolation valves).
- B. Stay in 40EP-9EO03 (LOCA), close RCN-HV-448/452 (RCP 2A HPSC Isolation Valves).
- C. Go to 40EP-9EO09 (FRP), cross tie EDG 'A' to PBB-S04 and close NCB-UV-401/403 (NCW CTMT Isolation valves).
- D. Go to 40EP-9EO09 (FRP), cross tie EDG 'A' to PBB-S04 and close RCN-HV-448/452 (RCP 2A HPSC Isolation Valves).

Answer: C

Question 9 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	43783
User-Defined ID:	Q43783
Cross Reference Number:	
Topic:	Q43783 CTMT INTEGRITY NCW ALARMS
Num Field 1:	4.2
Num Field 2:	4.2
Text Field:	2.4.46
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40EP-9EO09, FRP.</p> <p>K&A:</p> <p>Ability to verify that the alarms are consistent with the plant conditions: Loss of CTMT Integrity.</p> <p>Justification:</p> <ul style="list-style-type: none"> A. Incorrect – NCB-UV-401/403 do not have electrical power, and LOCA procedure does not provide for restoring bus power to the required electrical bus. B. Incorrect – Closing RCN-HV-448/452 will isolate the leak but will not meet the Containment Isolation safety function. C. Correct – This will provide the electrical power required to restore power to NCB-UV-401/403 to allow them to be closed to Meet Containment Isolation. D. Incorrect – This will provide the electrical power required to restore power to NCB-UV-401/403 but the action of closing RCN-HV-448/452 will isolate the leak but will not meet the Containment Isolation safety function.

Question 9 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.2

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 1 Group 2

Associated objective(s):

Given plant conditions determine whether or not entry into the FRP is appropriate in accordance with 40EP-9EO09.

Which ONE of the following events REQUIRES the Nuclear Regulatory Commission be notified IAW the Event Reporting Manual?

- A. Manual reactor trip during a shutdown entering a refueling outage.
- B. Steam Generator Tube Leak of approximately 275 gallons per day (GPD).
- C. Reactor Protection System instrument placed in BYPASS within 1 hour of inoperability.
- D. Stroking SGE-UV-170 instead of SGE-UV-180 during 73ST-9SG01 (MSIVs - INSERVICE TEST).

Answer: B

Question 10 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	43809
User-Defined ID:	Q43809
Cross Reference Number:	
Topic:	Q43809 Event requiring reporting
Num Field 1:	2.7
Num Field 2:	4.1
Text Field:	2.4.30
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: NUREG 1022, Event Reporting Manual.</p> <p>K&A:</p> <p>Knowledge of which events related to system operations/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator. Steam Generator Tube Leak.</p> <p>Justification:</p> <p>A. Incorrect – Planned Manual Reactor trips IAW plant procedures is not a reportable event.</p> <p>B. Correct – This event is a Tech Spec required shutdown condition which requires NRC notification.</p> <p>C. Incorrect – Tech Spec 3.3.1 Condition ‘A’ is met, and does not require a shutdown.</p> <p>D. Incorrect – Specifically described in NUREG 1022 that a notification is not required.</p>

Question 10 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.1

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 1 Group 2

Associated objective(s):

Describe the event reporting process

Given the following conditions:

Initial Conditions:

- Unit 1 is operating at 100% power.
- NAN-S02 (13.8 Kv non class bus) faults and is de-energized.
- An automatic reactor trip occurs.
- Standard Post Trip Actions (SPTAs) are completed.
- Pressurizer level is 33% and stable.

Subsequently:

- Start-up transformer NAN-X03 faults and is de-energized.

The CRS should now anticipate that Pressurizer level will ...

- A. rise above the control band, level should be controlled by initiating a cooldown per 40EP-9EO07 (LOOP/LOFC).
- B. rise above the control band, level should be controlled by securing all charging pumps per 40EP-9EO02 (Reactor Trip).
- C. drop below the control band, level should be controlled by placing the always running charging pump in the AUTO-AFTER STOP position per 40EP-9EO02 (Reactor Trip).
- D. drop below the control band, level should be restored by placing the always running charging pump in the AUTO-AFTER STOP position per 40EP-9EO07 (LOOP/LOFC).

Answer: A

Question 11 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	22527
User-Defined ID:	Q22527
Cross Reference Number:	
Topic:	Q22527 affect of a LOOP on the RCS
Num Field 1:	4.1
Num Field 2:	4.3
Text Field:	3. 4 002 A2.03
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: LOOP, 40EP-9EO07/ LOIT lesson plan</p> <p>K&A: Ability to (a) predict the impacts of the following malfunctions or operations on the RCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: <u>Loss of forced circulation</u></p> <p>Justification:</p> <p>A. Correct – Increasing Thot and loss of Letdown will cause Pzr level to go high. With no cooling flow (NC) to the RCPs charging flow must be maintained, level is controlled by initiating a cooldown. NAN-S02 is faulted which is the normal 13.8 kV bus for Unit 1. When NAN-X03 faults, this causes NAN-S01 to de-energize which results in no 13.8 kV power in Unit 1 Which is a Loss of Offsite Power (LOOP) and this results in a Loss of Forced Circulation (LOFC), due to no RCPs operating.</p> <p>B. Incorrect – This is a LOOP event, stopping charging pumps is wrong.</p> <p>C. Incorrect – level will go high. Examinee may not correctly associate which buses have de-energized or think that charging pumps have become anti-pumped due to the LOP signals. The Reactor Trip procedure allows for maintaining PZR level manually which would direct the operator to correct the Charging Pump configuration to maintain level.</p> <p>D. Incorrect – level will go high. Examinee may not correctly associate which buses have de-energized or think that charging pumps have become anti-pumped due to the LOP signals. The LOOP/LOFC procedure will allow for maintaining PZR level by cooling down due to no NCW pumps and Charging Pumps required for seal injection.</p>

Question 11 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.3

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

Q - SRO Exam

SRO Exam 2009

SRO Exam 2010

O - SRO Tier Group Designation

Tier 2 Group 2

Associated objective(s):

determine whether or not entry into the LOOP/LOFC EOP is appropriate

Given the following conditions:

Initial Conditions:

- Unit 2 is operating at 85% power with both Circulating Water (CW) Loops in service.
- A Condenser tube leak in the A-B Circulating Water Loop has been confirmed.
- A normal downpower is in progress in order to remove the ruptured CW train from service.
- The ability to stabilize power at 40% has been verified.
- At the present rate 40% power will be achieved in approximately 50 minutes.

Subsequently:

- Chemistry reports that Steam Generator sodium (Na) and chloride (Cl) are rising rapidly.
- It is determined that Steam Generator sodium will be 1.0 ppm in approximately 20 minutes.

Based on this report, which ONE of the following actions should the CRS direct?

- A. Trip the Reactor, Perform SPTAs, trip both Main Feedwater pumps.
- B. Trip the Reactor, Perform SPTAs, align high rate blowdown to the Blowdown Flash Tank (BFT).
- C. Initiate Reactor Power Cutback (Loss of Feedpump), align high rate blowdown to the Blowdown Flash Tank (BFT).
- D. Initiate Reactor Power Cutback (Loss of Feedpump), place all available Condensate Demineralizer beds in service.

Answer: A

Question 12 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	4.00
System ID:	43791
User-Defined ID:	Q43791
Cross Reference Number:	40AO-9ZZ10
Topic:	Q43791 Rx trip based on chemistry trend
Num Field 1:	2.1
Num Field 2:	2.5
Text Field:	3.4 056 A2.05
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AO-9ZZ10, Condenser Tube Rupture</p> <p>K&A: Ability to (a) predict the impacts of the following malfunctions or operations on the Condensate System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Condenser tube leakage.</p> <p>Justification:</p> <p>A. Correct – Per step 3.5 of Cond Tube Rupture 40AO- Correct – Per step 3.5 of Cond Tube Rupture 40AO-9ZZ10 and App M.</p> <p>B. Incorrect – Trip the Rx is correct, but HR BD is not. Candidate may think that since Sect 4.0 describes the use of High Rate Blowdown that it is the correct action. 40OP-9SG03 is the procedure for performing High Rate Blowdown.</p> <p>C. Incorrect – CRS may believe that a rapid downpower is warranted and initiate a RPCB per step 13. This is incorrect due to trending to a trip setpoint.</p> <p>D. Incorrect – Placing all Demins in service is directed in step 3.7-10, which will help with the Sodium ingress to the SGs, but the RPCB is incorrect.</p>

Question 12 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

2.5

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

Q - SRO Exam

SRO Exam 2007

SRO Exam 2010

O - SRO Tier Group Designation

Tier 3

Question Used

NRC SRO 2007

Associated objective(s):

Determine the actions required if it is unlikely that the leak can be isolated using a normal downpower before SG samples reach 1.0 ppm

Given the following conditions:

- Unit 1 has tripped from 100% due to an event.
- RVLMS Upper Head level indicates 47%.
- Both S/G levels are currently at 65% WR and slowly rising.
- Both S/G pressures are at 1100 psia and slowly rising.
- Containment pressure is 12.5 psig and Containment spray flow is adequate.
- Reactor power is 1×10^{-6} and slowly dropping.
- VALID RU-148 reading is $1.2 \text{ E}+7$ mrem/HR
- All three charging pumps are running.
- Dose Assessment is in progress.
- HPSI flow is adequate.
- SIAS, CIAS, and CSAS have actuated.

Given a copy of the EAL Classification Hot and Cold charts and based on the above conditions.

Which ONE of the following is the appropriate EAL classification?

- A. FU1 -- Notification of Unusual Event.
- B. FA1 -- Alert.
- C. FS1 -- Site Area Emergency.
- D. FG1 -- General Emergency.

Answer: D

Question 13 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	43790
User-Defined ID:	Q43790
Cross Reference Number:	
Topic:	Q43790 EP Classification LOCA (GE -- FG1)
Num Field 1:	2.9
Num Field 2:	4.6
Text Field:	2.4.41
Comments:	<p>Proposed reference to be provided to applicant during examination: EAL HOT/COLD Chart.</p> <p>Technical Reference: EPIP-01 STSC ACTIONS, EAL HOT/COLD Chart.</p> <p>K&A:</p> <p>Knowledge of the emergency action level thresholds and classifications: Reactor Coolant.</p> <p>Justification:</p> <ul style="list-style-type: none"> A. Incorrect – NUE is met but it is not the highest EAL classification of the event. Candidate may confuse any of the indications and not properly apply them to the EAL chart. B. Incorrect – Alert is met but it is not the highest EAL classification of the event. Candidate may confuse any of the indications and not properly apply them to the EAL chart. C. Incorrect – SAE is met but it is not the highest EAL classification of the event. Candidate may confuse any of the indications and not properly apply them to the EAL chart. D. Correct – GE is met and is the highest EAL classification of the event. A loss of Fuel Clad is indicated by the RU-148 reading $> 2.1 \text{ E}+05 \text{ mR/hr}$. A potential loss of containment is indicated by the RU-148 reading $> 2.1 \text{ E}+05 \text{ mR/hr}$. And a potential loss of RCS barrier is indicated by the fact that all 3 charging pumps are running but we have lost level in the RVUH.

Question 13 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.6

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 2 Group 2

Associated objective(s):

determine the emergency plan classification.

Given the following conditions:

Initial Conditions:

- Unit 1 is operating at 50% steady state power.

Subsequently:

- Letdown flow as observed on (CHN-FI-202) is lowering.
- All 4 channels of PPS instrumentation for RCS T-hot are lowering.

Which ONE of the following describes these conditions and appropriate response?

- A. VCT level transmitter (CH-LT-227) has failed low, take corrective action per 40AO-9ZZ01 (Emergency Boration).
- B. Loop 1 T-hot instrument (RCN-TT-111X) has failed high, take corrective action per 40AO-9ZZ16 (RRS Malfunctions).
- C. VCT level transmitter (CH-LT-227) has failed low, take corrective actions per alarm window 3A08B (VCT LVL LO-LO).
- D. Loop 1 T-hot instrument (RCN-TT-111X) has failed high, take corrective action per alarm window 4A08B (T-AVG\ T-REF HI-LO).

Answer: C

Question 14 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	22686
User-Defined ID:	Q22686
Cross Reference Number:	
Topic:	Q22686 INADVERTENT BORATION ON CVCS
Num Field 1:	4.2
Num Field 2:	4.3
Text Field:	3.2 004 A2.06
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40AL-9RK3A , 3A08B VCT LVL LO-LO Alarm Response</p> <p>K&A:</p> <p>Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Inadvertent boration/dilution.</p> <p>Justification:</p> <p>A. Incorrect – Failure is correct, the procedure entry conditions are not met and does not contain direction to correct this failure.</p> <p>B. Incorrect – RCN-TT-111X (Thot) failing high will cause the Reactor Regulating System to believe that the RCS is too hot and would respond by inserting CEAs except an AMI will prevent rod motion. This would result in the Actual RCS Thot to lower. RRS Malfunction procedure would correct this issue if it were the cause of the indications. Letdown is lowering due to the RCS cooling down resulting in a shrink in the PZR, therefore letdown flow will lower to maintain PZR level. RRS sends Tavg to PZR Level Control and a failed high instrument will send a maximum level program to PLCS which would result in letdown flow lowering.</p> <p>C. Correct – LT-227 failing low will cause the charging pump suction to shift to gravity feed from the RWT, therefore initiating a constant boration. Only the alarm response procedure will address this condition.</p> <p>D. Incorrect – RCN-TT-111X (Thot) failing high will cause the Reactor Regulating System to believe that the RCS is too hot and would respond by inserting CEAs except an AMI will prevent rod motion. This would result in the Actual RCS Thot to lower. T-AVG\ T-REF HI-LO will not correct this issue. Letdown is lowering due to the RCS cooling down resulting in a shrink in the PZR, therefore letdown flow will lower to maintain PZR level. RRS sends Tavg to PZR Level Control and a failed high instrument will send a maximum level program to PLCS which would result in letdown flow lowering.</p>

Question 14 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.3

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 2 Group 1

Associated objective(s):

Explain the operation of the Volume Control Tank under normal operating conditions.

Given the following conditions:

- Unit 1 has tripped from 100% power.
- Sub-Cooled Margin is 30°F and lowering slowly.
- Containment Pressure is 2.1 psig and rising slowly.
- Containment temperature is 160° F and rising slowly.
- Pressurizer level is 20% and lowering rapidly.
- Reactor vessel head is reading 100% in Outlet Plenum.
- RCS Pressure is 1700 psia and lowering rapidly.
- SG #1 level is 40% WR, SG #2 level is 35% WR.
- SG#1 and SG #2 are being fed with AFN-P01 and rising slowly.
- SPTAs are in progress.

Which ONE of the following describes the expected response by ESFAS to the CURRENT conditions and the appropriate procedure selection?

- A. SIAS, CIAS and MSIS; Enter 40EP-9EO05 (ESD) upon exiting SPTAs.
- B. SIAS and CIAS ONLY; Enter 40EP-9EO04 (SGTR) upon exiting SPTAs.
- C. SIAS and CIAS ONLY; Enter 40EP-9EO003 (LOCA) upon exiting SPTAs.
- D. SIAS, CIAS and MSIS; Enter 40EP-9EO009 (Functional Recovery Procedure) upon exiting SPTAs.

Answer: C

Question 15 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	22646
User-Defined ID:	Q22646
Cross Reference Number:	
Topic:	Q22646 SRO SYS ESFAS
Num Field 1:	4.4
Num Field 2:	4.7
Text Field:	3.2 013 A2.03
Comments :	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40EP-9EO03, LOCA</p> <p>K&A: Ability to (a) predict the impacts of the following malfunctions or operations on the ESFAS; and (b) based Ability on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations; Rapid depressurization.</p> <p>Justification:</p> <p>A. Incorrect – ESD entry conditions not met, Candidate may confuse the indications of LOCA with ESD. MSIS setpoint of 3.0 psig in CTMT not exceeded, candidate may confuse the SIAS/CIAS setpoint with MSIS.</p> <p>B. Incorrect – SGTR entry conditions not met, candidate may confuse the difference in SG levels as a SGTR. MSIS setpoint not exceeded, candidate may confuse the SIAS/CIAS setpoint with MSIS..</p> <p>C. Correct – LOCA entry conditions are met and SIAS and CIAS initiated at 1837 psia in the RCS.</p> <p>D. Incorrect – MSIS set point not exceeded, candidate may confuse the SIAS/CIAS setpoint with MSIS. FRP could be chosen but not the most appropriate recovery procedure.</p>

Question 15 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.7

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 2 Group 1

Associated objective(s):

determine the major mitigating strategies contained in 40EP-9EO03

Given the following conditions:

Initial Conditions:

- Unit 1 is operating at 100% power.

Subsequently:

- COLSS calculated primary calorimetric power (NKBDELT) is rising.
- COLSS calculated turbine power (NKTFSP) is lowering.
- T-cold is 555°F and lowering.
- Pressurizer pressure is 2210 psia and lowering.
- Pressurizer level is lowering.
- Containment pressure is 0.3 psig and stable.
- Containment temperature is 112°F and stable.

Which ONE of the following events and mitigating procedures is correct?

- A. Partial load reject. Implement 40AO-9ZZ08 (Load Rejection).
- B. Partial load reject. Trip the reactor, complete SPTAs and implement 40EP-9EO02 (Reactor Trip).
- C. Steam leak outside containment. Trip the reactor, complete SPTAs and implement 40EP-9EO05 (ESD).
- D. Steam leak outside containment. Maintain reactor power less than 100% per 40OP-9ZZ05 (Power Operations).

Answer: C

Question 16 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	43743
User-Defined ID:	Q43743
Cross Reference Number:	
Topic:	Q43743 analyze whether ESD or Load Reject is appropriate
Num Field 1:	3.3
Num Field 2:	3.6
Text Field:	3.4 039 A2.05
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40EP-9EO05, ESD EOP</p> <p>K&A:</p> <p>Ability to (a) predict the impacts of the following malfunctions or operations on the MRSS; and (b) based on predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Increasing steam demand, its relationship to increases in reactor power.</p> <p>Justification:</p> <ul style="list-style-type: none"> A. Incorrect – Turbine power lowering is an indication of a load rejection. The primary power rising does not support this. The Load Rejection AOP would be appropriate response if it was a Partial Load Rejection. B. Incorrect – Turbine power lowering is an indication of a load rejection. The primary power rising does not support this. Tripping the reactor would only be appropriate in a Load Rejection if RCS temperature was not able to be controlled by SBCS. LR AOP would be the appropriate procedure to address a partial load rejection. C. Correct – NKBDEL T rising is indicative of steam flow rising causing RX power to rise. Since Turbine power is lowering, the steam is not going to the turbine. CTMT conditions are stable; therefore the leak is not inside the CTMT. The correct action is to trip the RX and implement ESD. D. Incorrect – NKBDEL T rising is indicative of steam flow rising causing RX power to rise. Since Turbine power is lowering, the steam is not going to the turbine. CTMT conditions are stable; therefore the leak is not inside the CTMT. The correct action is to trip the RX and implement ESD. In the past, PVNGS has operated with small steam leaks in the Turbine building while repairs and management were contacted. The severity of the steam leaks did not have a significant effect on the RCS temperature and pressure. We would not expect a crew to operate with a steam leak large enough to lower RCS pressure and temperature.

Question 16 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

3.6

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

PV Bank Not Modified

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 2 Group 1

Associated objective(s):

analyze whether or not entry into the ESD EOP is appropriate

Given the following conditions:

Initial Conditions:

- Unit 1 is operating at 100% power.
- AFA-P01 (Ess Turb Driven Aux Feedpump) is out of service.

Subsequently:

- Unit 1 trips.
- PBA-S03 faults.
- Containment Pressure is 2.1 psig and rising.
- Containment Temperature is 113 °F and rising.
- Containment Humidity is rising.
- Containment sump levels are rising.
- PZR Pressure is 2280 psia and rising.
- PZR Level is 56% and rising.
- Tcold is 567 °F and rising.
- SG 1 and 2 levels are 30% WR and lowering.
- SPTAs are complete.

Which ONE of the following describes the appropriate EOP to enter?

- A. 40EP-9EO03 (LOCA).
- B. 40EP-9EO05 (ESD).
- C. 40EP-9EO07 (LOAF).
- D. 40EP-9EO09 (FRP for Dual Event).

Answer: B

Question 17 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	22647
User-Defined ID:	Q22647
Cross Reference Number:	
Topic:	Q22647 SRO SYS GEN FEED RUPTURE
Num Field 1:	4.5
Num Field 2:	4.7
Text Field:	2.4.4
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40EP-9EO05, ESD</p> <p>K&A: Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures. Main Feedwater.</p> <p>Justification:</p> <p>A. Incorrect – Rising PZR level and CTMT conditions are indicative of PZR steam space LOCA. Candidate may confuse the heat up event with the Steam Space LOCA.</p> <p>B. Correct – Feed header rupture is a heat up event, ESD will mitigate this event by isolating the affected SG.</p> <p>C. Incorrect – SG levels lowering are indicative of a LOAF. Candidate may not understand that AFB-P01 is still available for feed; therefore the LOAF entry conditions are not met.</p> <p>D. Incorrect – Due to the multiple indications given that may be confused with any of the other events, candidate may think that 2 events are in progress and enter the FRP. Only one event is in progress that is what makes the FRP wrong.</p>

Question 17 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.7

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 2 Group 1

Associated objective(s):

Given conditions of an ESD analyze whether or not entry into the ESD EOP is appropriate in accordance with 40EP-9EO05.

Given the following conditions:

- Unit 1 is operating in Mode 4 coming out of a refueling outage.
- RU-1 (Containment Atmosphere) is declared inoperable.

Which ONE of the following describes the required action (if any) per Technical Specification 3.4.16 (RCS Leakage Detection Instrumentation)?

- A. No action required in Mode 4.
- B. Perform RCS water balance inventory once per 72 hours.
- C. No action required since containment sump monitor is operable.
- D. Analyze grab samples of the containment atmosphere once per 24 hours.

Answer: D

Question 18 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	43792
User-Defined ID:	Q43792
Cross Reference Number:	
Topic:	Q43792 TS 3.4.16 (RCS Leak Detection Instrumentation) RU-1 INOP
Num Field 1:	3.4
Num Field 2:	4.7
Text Field:	2.2.40
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: Technical Specifications.</p> <p>K&A:</p> <p>Ability to apply Technical Specifications for a system: Process Radiation Monitoring.</p> <p>Justification:</p> <p>A. Incorrect – This TS applies in Modes 1-4. Candidate may think that it only applies in Modes 1 and 2.</p> <p>B. Incorrect – The RCS water balance inventory is a 24 hour action statement.</p> <p>C. Incorrect – Verifying the Containment Sump monitor operable per action D. If it is INOPERABLE you must enter 3.0.3. The CTMT Sump monitor and RU-1 must be operable for the LCO to be met.</p> <p>D. Correct – TS 3.4.16 requires this action to be taken once every 24 hours.</p>

Question 18 Table-Item Links

Q - 10CFR Sections

55.43 (2) Facility operating limitations in the technical specifications and their bases.

Q - Senior Reactor Operator K & A Importance classification

4.7

Q - Cognitive Level

Memory

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 2 Group 1

Associated objective(s):

apply Tech Spec Section 3.4.16 (RCS Leak Detection Instrumentation)

Given the following conditions:

- The Site Control Rooms are presently staffed by the following personnel.

UNIT 1	UNIT 2	UNIT 3
1 Shift Manager	1 Shift Manager	1 Shift Manager
1 STA (Unlicensed)	1 STA (Unlicensed)	1 STA (Unlicensed)
1 CRS	1 CRS	1 CRS
2 ROs	2 ROs	3 ROs

- The Fire Team Advisor is being supplied by the Unit 3 third RO.
- One of the Unit 1 ROs becomes ill and has to leave the site immediately.
- It is three hours until the end of the shift.

Which ONE of the following describes the appropriate response?

The Operating Crew...

- can continue to operate with the reduced manning for the remainder of the shift per ODP-2 (Operations Shift Coverage).
- must commence a plant shutdown to be in MODE 3 within 6 hours per Technical Specification 5.2.2 (Unit Organization Staff).
- can continue to operate with the reduced manning, provided that the FTA from Unit 3 assumes the 2nd RO in Unit 1 per Technical Specification 5.3.1 (Unit Staff Qualifications).
- can continue to operate with the reduced manning for up to 2 hours, provided immediate action is taken to restore crew manning to the minimum requirements per 40DP-9OP02 (Conduct of Shift Operations).

Answer: D

Question 19 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	22659
User-Defined ID:	Q22659
Cross Reference Number:	
Topic:	Q22659 SRO GEN STAFF MANNING
Num Field 1:	2.9
Num Field 2:	3.9
Text Field:	2.1.5
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40DP-9OP02, Conduct of Shift Operations</p> <p>K&A: Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.</p> <p>Justification:</p> <p>A. Incorrect – The unit must take action to remedy the situation immediately with manning restored within 2 hours.</p> <p>B. Incorrect – The TS allows for 2 hours to meet the 10 CFR 50.54 (m) requirements as long as action is taken to restore shift manning.</p> <p>C. Incorrect – While this would make the U1 meet the min manning requirements, the site would not meet the requirement to have a FTA on site for all 3 units.</p> <p>D. Correct – This is correct and will meet all the requirements of site specific procedures and TS.</p>

Question 19 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

3.9

Q - Cognitive Level

Comprehension / Anal

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 3

Associated objective(s):

Describe the required actions if the shift manning is less than the minimum required manning.

Which ONE of the following describes when a plant-wide announcement is required to be made?

- A. Changing from Mode 3 to Mode 2.
- B. Energizing PNA-D25 after a permit has been cleared.
- C. Starting HCN-A01C (CTMT Normal ACU Fan) from the Control Room.
- D. AFB-P01 (Essential Motor Driven Aux Feed Pump) started automatically on AFAS-1.

Answer: A

Question 20 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	43785
User-Defined ID:	Q43785
Cross Reference Number:	
Topic:	Q43785 ODP-1 Plant Announcements
Num Field 1:	3.1
Num Field 2:	3.1
Text Field:	2.1.14
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: ODP-1, Operations Department Principles and Standards</p> <p>K&A:</p> <p>Knowledge of criteria or conditions that require plant-wide announcements, such as pump starts, reactor trips, mode changes etc.</p> <p>Justification:</p> <p>A. Correct – Plant-wide announcements shall be made when changing modes.</p> <p>B. Incorrect – 120 Vac distribution panels are not required to be announced.</p> <p>C. Incorrect – 480 Vac motor starts are not required to be announced.</p> <p>D. Incorrect – Equipment that starts automatically is not required to be announced.</p>

Question 20 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

3.1

Q - Cognitive Level

Memory

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 3

Associated objective(s):

ODP-1 Reactivity Management

Which ONE of the following describes the Temporary Approved Procedure Action (TAPA) process?

As a minimum a TAPA requires approval by two members of Plant Supervisory Staff of which ...

- A. ONE **MUST** hold a SRO license.
- B. BOTH **MUST** must hold a SRO license.
- C. BOTH **MUST** be within the affected discipline.
- D. ONE **MUST** be a Department Leader or above.

Answer: A

Question 21 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	43882
User-Defined ID:	Q43882
Cross Reference Number:	01DP-0AP01
Topic:	Q43882 Describe the process for generating a TAPA.
Num Field 1:	3.0
Num Field 2:	3.6
Text Field:	2.2.6
Comments:	<p>Proposed reference to be provided to applicant during examination: None</p> <p>Technical Reference: 01DP-0AP01, Procedure Process</p> <p>K&A: Knowledge of the process for making changes to procedures.</p> <p>Justification:</p> <p>A. Correct – meets requirements of 01DP-0AP01 section 8.3.5 – 6</p> <p>B. Incorrect – Only one must hold an SRO license.</p> <p>C. Incorrect – One should be from the affected discipline.</p> <p>D. Incorrect – TAPA does not require the Plant supervisory staff to be Department Leader or above.</p>

Question 21 Table-Item Links

Q - 10CFR Sections

Facility licensee procedures required to obtain authority for design and operating changes in the facility.

55.43 (3) Facility licensee procedures required to obtain authority for design and operating changes in the facility

Q - Senior Reactor Operator K & A Importance classification

3.6

Q - Cognitive Level

Memory

Q - Question Source

PV Bank Not Modified

Q - SRO Exam

SRO Exam 2007

SRO Exam 2010

O - SRO Tier Group Designation

Tier 3

Associated objective(s):

Describe the process for generating a TAPA.

Given the following conditions:

- Gaseous radwaste monitor RU-12 **IS NOT** in service.
- A waste gas decay tank release is required.

Which ONE of the following must be performed by Operations IAW 74RM-9EF20 (Gaseous Radioactive Release Permits and Offsite Dose Assessment) prior to the release?

- A. RU-12 must be restored.
- B. The Shift Manager must invoke 50.54(x).
- C. Alternate sampling must be in place per 74RM-9EF60, RMS Sample Collection.
- D. Two independent verifications must be performed of the discharge valve lineup.

Answer: D

Question 22 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	5210
User-Defined ID:	Q5210
Cross Reference Number:	
Topic:	Q5210 GEN SRO ADMIN Effl - gas decay tank release is required
Num Field 1:	3.8
Num Field 2:	4.3
Text Field:	2.3.11
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 74DP - 9CY08, The Radiological Monitoring Program</p> <p>K&A:</p> <p>Ability to control radiation releases.</p> <p>Justification:</p> <p>A. Incorrect – No requirement to restore the RU monitor. B. Incorrect – 50.54(x) is only used when the ODCM will be exceeded. C. Incorrect – This only applies to RU141/143/145. D. Correct – Directed per 74DP-9CY08 The Radiological Monitoring Program.</p>

Question 22 Table-Item Links

Q - 10CFR Sections

55.43 (4) Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

Q - Senior Reactor Operator K & A Importance classification

4.3

Q - Cognitive Level

Memory

Q - Question Source

PV Bank Not Modified

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 3

Associated objective(s):

define Operations responsibilities

Active Question Bank 2004

(1) Which ONE of the following describes the EPA Guidance for Life Saving?

(2) Which ONE of the following positions must approve a PVNGS worker receiving Potassium Iodide (KI)?

____(1)____ TEDE is the EPA Guidance for Life Saving (Non Voluntary Basis).

____(2)____ must approve the PVNGS worker receiving Potassium Iodide (KI).

- A. (1) 10 Rem per event (2) Emergency Coordinator.
- B. (1) ≤ 25 Rem per event (2) Emergency Coordinator.
- C. (1) 10 Rem per event (2) Radiation Protection Monitor.
- D. (1) ≤ 25 Rem per event (2) Radiation Protection Monitor.

Answer: B

Question 23 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	0.00
System ID:	43815
User-Defined ID:	Q43815
Cross Reference Number:	
Topic:	Q43815 SRO GEN EP Authorize Exposre Extension
Num Field 1:	3.2
Num Field 2:	3.7
Text Field:	2.3.4
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: EPIP-01 STSC Actions Sect 10.12</p> <p>K&A:</p> <p>Knowledge of radiation exposure limits under normal or emergency conditions.</p> <p>Justification:</p> <p>A. Incorrect – 10 Rem is the limit for protecting valuable property.</p> <p>B. Correct – Per step 10.12 of EPIP-01 and EPIP-99 App K .</p> <p>C. Incorrect – 10 Rem is the limit for protecting valuable property. RPM is used to consult on such matters, but does not approve the dose.</p> <p>D. Incorrect – Limit is correct. RPM is used to consult on such matters, but does not approve the dose.</p>

Question 23 Table-Item Links

Q - 10CFR Sections

55.43 (4) Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

Q - Senior Reactor Operator K & A Importance classification

3.7

Q - Cognitive Level

Memory

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 3

Associated objective(s):

Identify the Emergency Coordinator's responsibilities associated with Emergency Exposure.

Given the following conditions:

Initial Conditions:

- Unit 1 is operating at 100% power.
- A SGTU has been identified and 40AO-9ZZ02 (Excessive RCS Leakage) is in progress.
- RU-4 (SG #1 Blowdown) is in Alert alarm and trending up.

Subsequently:

- The Reactor trips due to an ESD.

Which ONE of the following describes the appropriate EOP mitigation strategy?

Perform SPTAs and enter...

- A. 40EP-9EO09 (FRP).
- B. 40EP-9EO05 (ESD).
- C. 40EP-9EO04 (SGTR).
- D. 40EP-9EO05 (ESD) and concurrently perform 40AO-9ZZ02 (Excessive RCS Leakage).

Answer: A

Question 24 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	22667
User-Defined ID:	Q22667
Cross Reference Number:	
Topic:	Q22667 SRO GEN SGTR ESD EOP mitigation strategy
Num Field 1:	3.7
Num Field 2:	4.7
Text Field:	2.4.6
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40EP-9EO09, FRP</p> <p>K&A: Knowledge of EOP mitigation strategies.</p> <p>Justification:</p> <p>A. Correct – FRP will address the dual event. HR-2 Step 14 directs mitigating strategy of this instance that you have a tube rupture and are uncontrollably steaming to atmosphere.</p> <p>B. Incorrect – ESD is the major trip initiating event here, CRS may determine that the ESD EOP will mitigate the event.</p> <p>C. Incorrect: Due to the Dual Event must go to FRP, Note in App F of Excessive RCS Leakage states post trip enter SGTR, CRS may choose this based on that note.</p> <p>D. Incorrect – Due to the Dual Event must go to FRP, Note in App F of Excessive RCS Leakage states post trip enter SGTR, CRS may not know this note and use ESD and AOP to mitigate event.</p>

Question 24 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.7

Q - Cognitive Level

Memory

Q - Question Source

PV Bank Not Modified

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 3

Associated objective(s):

determine whether or not entry into the FRP is appropriate

Given the following conditions:

- Unit 3 is operating at 100% power.
- An Abnormal Operating Procedure (AOP) is in progress due to equipment failure.
- Conditions requiring a reactor trip are approaching.
- The CRS will continue to implement the AOP after the reactor has been tripped.
- The RO manually trips the reactor from B05.

Which ONE of the following statements below describe the rules the CRS must follow to continue implementation of the AOP?

The CRS CANNOT continue implementing the AOP until after...

- A. addressing all safety functions in the SPTAs.
- B. all alarm response procedures have been addressed.
- C. addressing the reactivity control safety function in SPTAs.
- D. diagnosing the event and transitioning to the Optimal Recovery or Functional Recovery Procedures.

Answer: C

Question 25 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	43787
User-Defined ID:	Q43787
Cross Reference Number:	
Topic:	Q43787 AOP in EOP USE
Num Field 1:	3.8
Num Field 2:	4.5
Text Field:	2.4.8
Comments:	<p>Proposed reference to be provided to applicant during examination: NONE</p> <p>Technical Reference: 40DP-9AP18, AOP Users Guide.</p> <p>K&A: Knowledge of how abnormal operating procedures are used in conjunction with EOPs.</p> <p>Justification:</p> <ul style="list-style-type: none"> A. Incorrect – Some AOPs must be completed concurrently such as the "PERFORM" direction. B. Incorrect – No actions are permitted until the Reactivity Safety Function is complete. ARPs must be addressed once plant conditions have stabilized. C. Correct – This is correct per 40DP-9AP18 step 17 bullet 1. AOP Users Guide. D. Incorrect – Some AOPs must be exited such as the "Go To" direction.

Question 25 Table-Item Links

Q - 10CFR Sections

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Q - Senior Reactor Operator K & A Importance classification

4.5

Q - Cognitive Level

Memory

Q - Question Source

New

Q - SRO Exam

SRO Exam 2010

O - SRO Tier Group Designation

Tier 3

Associated objective(s):

define the required actions for the conditions given