Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0461 **Rev:** 0 **Rev Date:** 5/7/2002 **Source:** Modified **Originator:** S.Pullin

TUOI: A1LP-RO-CRD **Objective:** 21 **Point Value:** 1

Section: 4.2 **Type:** Generic Abnormal Plant Evolutions

System Number: 003 **System Title:** Dropped Control Rod

Description: Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod: Interaction of ICS control stations as well as purpose, function, and modes of operation of ICS

K/A Number: AK1.13 **CFR Reference:** 41.8 / 41.10 / 45.3

Tier: 1 **RO Imp:** 3.2 **RO Select:** No **Difficulty:** 3

Group: 1 **SRO Imp:** 3.6 **SRO Select:** Yes **Taxonomy:** A

Question:

Given:

- 60% power
- ICS in Full Automatic Operation

  - Group 1 Rod 3 has brought in the outlimit light on C03.
  - Group 2 Rod 4 has brought in the outlimit light on C03
  - Group 3 Rod 1 has brought in the outlimit light on C03
  - Group 4 Rod 4 has brought in the outlimit light on C03

Which of the following would cause an ICS runback?

a. Group one, rod three drops to 30% withdrawn.

b. Two heater drain pumps trip.

c. Group four rod two drops to 30% withdrawn.

d. P32A (RCP) trip.

Answer:

a. Group one, rod three drops to 30% withdrawn.

Notes:

References:

1105.009 CRD System Operating Procedure, Change: 017-01-0, page 14, step 6.5

History:

Modified from regular exambank QID 3750.
Modified for use in 2002 SRO exam.

QID: 0161 **Rev:** 1 **Rev Date:** 4/24/2002 **Source:** Direct **Originator:** J. Cork

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 4.2 **Type:** Generic APEs

System Number: 005 **System Title:** Inoperable/Stuck Control Rod

Description: Knowledge of abnormal condition procedures.

K/A Number: 2.4.11 **CFR Reference:** 41.10 / 43.5 / 45.13

Tier: 1 **RO Imp:** 3.4 **RO Select:** Yes **Difficulty:** 3

Group: 1 **SRO Imp:** 3.6 **SRO Select:** Yes **Taxonomy:** C

Question:

Given:

- Power escalation is in progress following a shutdown.
- Reactor power is 35%.
- Rod 6 of Group 7 drops.

Which of the following actions should be taken?

a. Insert all regulating rods in sequential mode.

b. Trip the reactor and go to Reactor Trip, 1202.001.

c. Verify plant stabilizes at 320 MWe after ICS runback.

d. Verify SDM within COLR limit within one hour.

Answer:

d. Verify SDM within COLR limit within one hour.

Notes:

[a] would only be performed if power was <2%.
[b] would not be done because only one rod dropped.
[c] power is <360 MWe so there wouldn't be any runback, the value given would require a power increase.
[d] is the correct answer per ITS.

References:

1203.003, Control Rod Drive Malfunction Action, change 019-03-0, page 4, step 3.5.3

History:

Developed for A. Morris 98 RO Re-exam.
Used in 2001 RO/SRO Exam.
Selected for 2002 RO/SRO exam. Revised to agree with ITS.

QID: 0452 **Rev:** 0 **Rev Date:** 5/6/2002 **Source:** New **Originator:** S.Pullin

TUOI: A1LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 4.2 **Type:** Generic APEs

System Number: 015 **System Title:** Reactor Coolant Pump Malfunctions

Description: Knowledge of the interrelations between the Reactor Coolant Pump Malfunctions (Loss of RC Flow) and the following: CCWS.

K/A Number: AK2.08 **CFR Reference:** 41.7 / 45.7

Tier: 1 **RO Imp:** 2.6 **RO Select:** No **Difficulty:** 4

Group: 1 **SRO Imp:** 2.6 **SRO Select:** Yes **Taxonomy:** A

Question:

The following conditions exist:

- Plant power escalation in progress, currently at 75% power.
- The following annunciators alarm:

  RCP SEAL INJ FLOW LO (K08-A7)
  RCP SEAL COOLING FLOW LO (K08-E7)
  RCP BLEED OFF TEMP HI (K08-C7)

- CBOT reports that all above annunciators are caused by one RCP, P-32A.

Which of the following actions is procedurally directed for the above conditions?

a. Trip P-32A RCP and verify proper ICS response.

b. Trip all RCPs, trip reactor, and go to 1202.001, Reactor Trip.

c. Trip P-32A RCP and isolate seal bleedoff to all RCPs.

d. Verify Letdown isolated and stop RCP Seal Cooling pumps P-114A/B.

Answer:

a. Trip P-32A RCP and verify proper ICS response.

Notes:

References:

1203.031, Reactor Coolant Pump and Motor Emergency, change 014-04-0, page 10, step 3.1

History:

Created for 2002 SRO exam.

QID: 0417 **Rev:** 0 **Rev Date:** 4/24/2002 **Source:** New **Originator:** S.Pullin

TUOI: A1LP-RO-EOP01 **Objective:** 10 **Point Value:** 1

Section: 4.2 **Type:** Generic APE's

System Number: 024 **System Title:** Emergency Boration

Description: Ability to determine and interpret the following as they apply to the Emergency Boration: Whether boron flow and/or MOVs are malfunctioning, from plant conditions.

K/A Number: AA2.01 **CFR Reference:** 43.5 / 45.13

Tier: 1 **RO Imp:** 3.8 **RO Select:** Yes **Difficulty:** 3

Group: 1 **SRO Imp:** 4.1 **SRO Select:** Yes **Taxonomy:** A

Question:

Given:

- Rx tripped from 100% power.
- Three CRDMs indicate 100% withdrawn.
- Boric Acid Pump P-39A is out of service.

You initiate Emergency Boration per RT-12.
Boric Acid Pump P-39B discharge pressure indicates 12 psig.

What operator actions are required for these conditions?

a. Vent Makup Tank to lower pressure to 10 psig.

b. Raise Batch Controller setting to maximum batch size (999999).

c. Open both BWST Outlet valves CV-1407 & 1408.

d. Verify Batch Controller Flow Control valve, CV-1249, is 100% open.

Answer:

c. Open both BWST Outlet valves CV-1407 & 1408.

Notes:

Answer "c" is correct per RT-12, if Boric Acid pumps or controller is not working (as evidenced by low discharge pressure), then boration from BWST is initiated.
Answer "a" will lower MUT pressure to less than discharge pressure but is not procedurally directed and will not be successful.
Answer "b" is incorrect since Batch Controller should already be at maximum batch size.
Answer "d" is incorrect, while it may appear to increase flow procedure 1103.004 specifies that this valve should not be opened greater than 20%.

References:

1202.012, Repetitive Tasks, RT-12, change 004-02-0, page 23, step B. 1

History:

New for 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0095 **Rev:** 2 **Rev Date:** 04/23/2002 **Source:** Modified **Originator:** JCork

TUOI: ANO-1-LP-RO-EOP10 **Objective:** 6 **Point Value:** 1

Section: 4.2 **Type:** Generic AOPs

System Number: 026 **System Title:** Loss of Component Cooling Water (CCW)

Description: Knowledge of the reasons for the following responses as they apply to the Loss of Component Cooling Water: The automatic actions (alignments) within the CCWS resulting from the actuation of the ESFAS.

K/A Number: AK3.02 **CFR Reference:** 41.5, 41.10 / 45.6 / 45.13

Tier:	1	**RO Imp:**	3.6	**RO Select:**	Yes	**Difficulty:**	3
Group:	1	**SRO Imp:**	3.9	**SRO Select:**	Yes	**Taxonomy:**	C

Question:

Given:

- RCS pressure has dropped to approximately 1500 psig.
- RB pressure has risen to 5 psig.
- CETs are approximately 500 degrees F.

Which of the following best describes the effects on the ICW system or the components it cools?

a. All RCPs must be secured due to loss of motor cooling.

b. All RCPs must be secured due to loss of subcooling margin.

c. ICW Booster pumps are protected by opening of bypass valve.

d. ICW pumps must be secured due to isolation of SW to ICW coolers.

Answer:

a. All RCPs must be secured due to loss of motor cooling.

Notes:

"A" is correct, RCP's are secured due to loss of motor cooling due to ESAS actuation channels 5&6 on RB pressure.
"B" is incorrect since SCM is approximately 100 degrees F.
"C" is incorrect, ICW Booster pumps should be secured during isolation of suction and discharge.
"D" is incorrect, SW will be isolated to coolers but this doesn't require securing ICW pumps.

References:

1202.012, Repetitive Tasks, RT-10, Rev. 004-02-0 page 16 step C

History:

Developed for 1998 SRO exam
Revised after 9/98 exam analysis review.
Used in A. Morris 98 RO Re-exam
Modified for use in 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0344 **Rev:** 0 **Rev Date:** 9-7-99 **Source:** Direct **Originator:** E. Wentz

TUOI: ANO-1-LP-RO-AOP **Objective:** 1 **Point Value:** 1

Section: 4.2 **Type:** Generic Abnormal Plant Evolutions

System Number: 027 **System Title:** Pressurizer Pressure Control Malfunction

Description: Ability to operate and/or monitor the following as they apply to the Pressurizer Pressure Control Malfunctions: PZR heaters, sprays, and PORVs.

K/A Number: AA1.01 **CFR Reference:** 41.7 / 45.5 / 45.6

Tier: 1 **RO Imp:** 4.0 **RO Select:** Yes **Difficulty:** 2.5

Group: 1 **SRO Imp:** 3.9 **SRO Select:** Yes **Taxonomy:** C

Question:

In which of the following sets of post reactor trip responses is the pressurizer spray valve leaking?

a. RCS temperature is going down, RCS pressure is going down, and pressurizer level is going down.

b. RCS temperature is going up, RCS pressure is going up, and pressurizer level is going up.

c. RCS temperature is stable, RCS pressure is going down, and pressurizer level is going down.

d. RCS temperature is stable, RCS pressure is going down, and pressurizer level is stable.

Answer:

d. RCS temperature is stable, RCS pressure is going down, and pressurizer level is stable.

Notes:

A leaking PZR spray valve will cause RCS pressure to decrease without affecting temperature or level, making "d" correct.
"a", "b", and "c" are combinations of these parameters with one parameter moving in the wrong direction.

References:

1203.015, Pressurizer Systems Failure, change 010-03-0, page 11, step 1

History:

Used in 1999 exam.
Direct from ExamBank, QID# 2228 used in class exam
Selected for use in 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0229 **Rev:** 0 **Rev Date:** 11/20/98 **Source:** Direct **Originator:** B. Short

TUOI: ANO-1-LP-AO-MS **Objective:** 13 **Point Value:** 1

Section: 4.2 **Type:** Generic AOP's

System Number: 051 **System Title:** Loss of Condenser Vacuum

Description: 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.

K/A Number: AK3.01 **CFR Reference:** 41.5, 41.10 / 45.6 / 45.13

Tier:	1	**RO Imp:**	2.8	**RO Select:**	Yes	**Difficulty:**	4
Group:	1	**SRO Imp:**	3.1	**SRO Select:**	Yes	**Taxonomy:**	An

Question:

Given:

Plant startup in progress with reactor power at 5 %.

Condenser E-11A Vacuum Pressure Switch (PS-2850) fails to 0" Hg.

What effect will this have on Turbine Bypass Valve (TBV) and Atmospheric Dump Valve (ADV) operations?

a. All TBVs will remain open, both ADV isolations will open and both ADV control valves will remain closed.

b. Only TBVs for E-11A will close, both ADV isolations open and 'A' SG ADV will begin controlling 'A' SG pressure.

c. All TBVs will close, both ADV isolations will open and both ADV control valves control at setpoint

d. Only TBVs for E-11A will close, both ADV control valves and both ADV isolations will open.

Answer:

c. All TBVs will close, both ADV isolations will open and both ADV control valves control at setpoint

Notes:

With only one vacuum pressure switch made up, all condenser TBVs will close, both ADV isolations will open and both ADV control valves will control Steam Generator pressure at a setpoint of 1020 psig. Thus the correct answer is (c) and all other responses are wrong.

References:

1106.016, Condensate Feedwater and Steam system Operation, change 039-05-0, page 12, step 6.4

History:

Developed for use on A. Morris 98 RO Re-exam
Selected for use in 2002 RO/SRO exam.

QID: 0174 **Rev:** 0 **Rev Date:** 11/21/98 **Source:** Direct **Originator:** E. Jacks

TUOI: ANO-1-LP-EOP08 **Objective:** 13.3 **Point Value:** 1

Section: 4.1 **Type:** Generic EOP

System Number: 055 **System Title:** Station Blackout

Description: Knowledge of the interrelations between the Station Blackout and the following: Breakers, relays, and disconnects.

K/A Number: EK2.07 **CFR Reference:** 41.7 / 45.7

Tier: 1 **RO Imp:** 2.2 **RO Select:** Yes **Difficulty:** 4

Group: 1 **SRO Imp:** 2.4 **SRO Select:** Yes **Taxonomy:** C

Question:

When recovering from a Station Blackout condition with no offsite power available and only one EDG operable, which of the following is true?

a. The EDG output breaker will automatically close once the EDG has started and all other feeder breakers to it's respective bus are open.

b. The EDG output breaker handswitch must be momentarily held in the "close" position to override the ES bus undervoltage relay.

c. The A3-A4 crosstie breakers are closed prior to closing the EDG output breaker.

d. The EDG should be used to backfeed A2 to restore essential loads.

Answer:

a. The EDG output breaker will automatically close once the EDG has started and all other feeder breakers to it's respective bus are open.

Notes:

(a.) is correct. The EDG is automatically started upon either A3/A4 or B5/B6 bus undervoltage and the output breaker will automatically close if the normal feeder breaker to the 4160V ES bus has tripped and one of the A3/A4 tie breakers is open.
(b.) is incorrect. The undervoltage relay will not prevent the EDG output breaker from closing.
(c.) is incorrect. At least one A3/A4 crosstie breaker must be open for the EDG output breaker to close.
(d.) is incorrect. With only one EDG available, only the ES bus loads should be placed on the diesel.

References:

STM1-32, Electrical Distribution, rev. 20, page 47, step 3.3.6

History:

Developed for use in A. Morris 98 RO Re-exam
Selected for use in 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0414 **Rev:** 0 **Rev Date:** 04/23/2002 **Source:** New **Originator:** S.Pullin

TUOI: A1LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 4.2 **Type:** Generic AOP's

System Number: 057 **System Title:** Loss of Vital AC Instrument Bus

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

K/A Number: AK3.01 **CFR Reference:** 41.5, 41.10 /45.6 / 45.13

Tier: 1 **RO Imp:** 4.1 **RO Select:** Yes **Difficulty:** 4

Group: 1 **SRO Imp:** 4.4 **SRO Select:** Yes **Taxonomy:** A

Question:

Given the plant at 100% power and an electrical fault results in the loss of all NNI X Instrument Power.

What of the following is a correct operator response to this condition?

a. Trip the reactor and go to 1202.001, Reactor Trip.

b. Trip both MFW pumps, P-1A and P-1B.

c. Position RC Pump Seals Total INJ Flow valve, CV-1207, in HAND.

d. Operate both MFW pumps in HAND.

Answer:

a. Trip the reactor and go to 1202.001.

Notes:

Only "a" is a correct answer for loss of NNI-X only, all other actions are for either loss of NNI-Y only or loss of both.

References:

1203.047, Loss of NNI Power, change 000-01-0, page 5, step 6

History:

Created for 2002 RO/SRO exam.

QID: 0418 **Rev:** 0 **Rev Date:** 4/24/2002 **Source:** Direct **Originator:** S.Pullin
TUOI: A1LP-RO-AOP **Objective:** 5 **Point Value:** 1

Section: 4.2 **Type:** Generic APE's

System Number: 062 **System Title:** Loss of Nuclear Service Water

Description: Ability to perform specific system and integrated plant procedures during all modes of plant operation.

K/A Number: 2.1.23 **CFR Reference:** 45.2 / 45.6

Tier: 1 **RO Imp:** 3.9 **RO Select:** Yes **Difficulty:** 2
Group: 1 **SRO Imp:** 4.0 **SRO Select:** Yes **Taxonomy:** C

Question:

What should the operator's followup actions be if two SW pump strainers are clogged?

a. Verify proper SW bay level on the standby pump and start it.

b. Start the standby pump when the low SW pressure alarm comes in.

c. Realign the standby SW pump to the emergency pond and start it.

d. Realign the cross-ties to separate the standby pump from the pump with clogged strainers and start the standby pump.

Answer:

c. Realign the standby SW pump to the emergency pond and start it.

Notes:

Answer "c" is the correct answer per the AOP. The standby pump's suction is aligned to the ECP which should be free of the debris causing problems to the running pumps.
Answer "a" is incorrect, the standby pump's suction will still be from the lake which is causing problems for the running pumps.
Answer "b" is incorrect, equipment cooling problems will occur if this action is taken.
Answer "d" is incorrect, with two pumps with clogged strainers, this will not be possible.

References:

1203.030, Loss of Service Water, change 012-00-0, page 6, step 3.5

History:

Direct from regular exam bank QID 1899.
Selected for use in 2002 RO/SRO exam.

QID: 0014 **Rev:** 0 **Rev Date:** 6/30/98 **Source:** Direct **Originator:** GGiles

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.1 **Point Value:** 1

Section: 4.2 **Type:** Generic APEs

System Number: 067 **System Title:** Plant Fire On Site

Description: Knowledge of fire in the plant procedure.

K/A Number: 2.4.27 **CFR Reference:** 41.10 / 43.5 / 45.13

Tier: 1 **RO Imp:** 3.0 **RO Select:** Yes **Difficulty:** 2

Group: 1 **SRO Imp:** 3.5 **SRO Select:** Yes **Taxonomy:** K

Question:

A fire watch reported a fire in the Lower South Electrical Equipment Room and the fire brigade has been dispatched.

How can the control room staff quickly determine potentially affected components?

a. Conduct control board walk-downs and refer to the plant labeling to assist in determination.

b. Refer to procedure 1107.001, Electrical System Operations, breaker alignment attachments.

c. Determine affected components from the Fire Zone drawings maintained in the control room.

d. Refer to the ANO Pre-Fire Plan for the affected fire zone for a listing of affected components.

Answer:

d. Refer to the ANO Pre-Fire Plan for the affected fire zone for a listing of affected components.

Notes:

1203.034, Smoke Fire or Explosion, directs operators to use the ANO Pre-Fire Plan to determine "Affected Components of Interest", therefore (d) is the correct response.

Answers (a), (b) and (c) are incorrect because they describe various options that are available and could be used by operators in conjunction with the Pre-Fire Plan, but do not provide a listing that operators could use to "quickly determine" affected components.

References:

1203.034, Rev. 012-03-0, Smoke, Fire or Explosion, page 6, step 3.17.1

History:

Developed for 1998 RO/SRO Exam.
Selected for use in 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0419 **Rev:** 0 **Rev Date:** 4/24/2002 **Source:** Direct **Originator:** J.Cork

TUOI: A1LP-RO-AOP **Objective:** 4.1 **Point Value:** 1

Section: 4.2 **Type:** Generic APE's

System Number: 069 **System Title:** Loss of Containment Integrity

Description: Ability to operate and / or monitor the following as they apply to the Loss of Containment Integrity: Isolation valves, dampers, and electropneumatic devices.

K/A Number: AA1.01 **CFR Reference:** 41.7 / 45.5 / 45.6

Tier:	1	**RO Imp:**	3.5	**RO Select:**	Yes	**Difficulty:**	2
Group:	1	**SRO Imp:**	3.7	**SRO Select:**	Yes	**Taxonomy:**	K

Question:

With the plant operating at power, what type of occurrence would make it necessary to use AOP 1203.005 (Loss of Rx Bld Integrity)?

a. Failure to perform a LLRT on personnel hatch within 12 hours after opening.

b. An entry into the RB to add oil to a RCP motor.

c. "A" LPI RB sump suction is inoperable, locked closed and de-energized.

d. The interlocks jam on the personnel hatch and both doors are open for < 5 minutes.

Answer:

d. The interlocks jam on the personnel hatch and both doors are open for < 5 minutes.

Notes:

Answer "d" is correct, the time given is immaterial, if both doors are inoperable, then a loss of RB integrity exists.
Answer "a" is incorrect, up to 72 hours are allowed to perform LLRT.
Answer "b" is incorrect, although doors must be opened this will not cause a loss of integrity.
Answer "c" is incorrect, these are the requirements for an inoperable containment isolation valve.

References:

1203.005, Loss of Reactor Building Integrity, change 010-01-0, page 1, step 1.1.2

History:

Direct from regular exambank QID 737.
Selected for use in 2002 RO/SRO exam.

QID: 0420 **Rev:** 0 **Rev Date:** 4/24/2002 **Source:** Direct **Originator:** S.Pullin

TUOI: A1LP-RO-EOP05 **Objective:** 11 **Point Value:** 1

Section: 4.1 **Type:** Generic EPE's

System Number: 074 **System Title:** Inadequate Core Cooling

Description: Knowledge of the operational implications of the following concepts as they apply to the Inadequate Core Cooling: Methods of calculating subcooling margin.

K/A Number: EK1.01 **CFR Reference:** 41.8 / 41.10 / 45.3

Tier:	1	**RO Imp:**	4.3	**RO Select:**	Yes	**Difficulty:**	3
Group:	1	**SRO Imp:**	4.7	**SRO Select:**	Yes	**Taxonomy:**	Ap

Question:

A LOCA has occurred and the following conditions exist:

- Core Exit Thermocouples = 800 degrees F (average) and rising.
- RCS pressure = 1400 psig and steady.
- ICC subcooling margin is INOPERABLE.
- RCPs are NOT running.

Which EOP should be performed to mitigate this event?

a. 1202.001, Reactor Trip

b. 1202.005, Inadequate Core Cooling

c. 1202.010, ESAS

d. 1202.004, Overheating

Answer:

b. 1202.005, Inadequate Core Cooling

Notes:

Answer "b" is correct, Region 3 is applicable for the conditions given.
Answer "a" is incorrect, although 1202.001 will be entered initially, it will not be used to mitigate this event.
Answer "c" is incorrect, although ESAS systems will have actuated, ICC conditions exist.
Answer "d" is incorrect, Overheating entry conditions are met but the ICC procedure is the governing document.

References:

1202.005, Inadequate Core Cooling, change 004-00-0, page 1
120.013, EOP Figures, Fig. 4, Rev. 3

History:

Direct from regular exambank QID 3008.
Selected for use in 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0342 **Rev:** 0 **Rev Date:** 5/6/2002 **Source:** Direct **Originator:** J Haynes

TUOI: ANO-1-LP-RO-AOP **Objective:** 5 **Point Value:** 1

Section: 4.2 **Type:** Generic APE's

System Number: 076 **System Title:** High Reactor Coolant Activity

Description: Ability to determine and interpret the following as they apply to the High Reactor Coolant Activity: Corrective actions required for high fission product activity in the RCS.

K/A Number: AA2.02 **CFR Reference:** 43.5 / 45.13

Tier:	1	**RO Imp:**	2.8	**RO Select:**	No	**Difficulty:**	4
Group:	1	**SRO Imp:**	3.4	**SRO Select:**	Yes	**Taxonomy:**	Ap

Question:

Given:

- Reactor at 60% power.
- Failed fuel ratio, as indicated by the WCO logs, has dropped by 40%.

Identify the value Reactor power should be reduced to.

a. 50% power

b. 40% power

c. 30% power

d. 20% power

Answer:

c. 30% power

Notes:

"c" is the correct response per 1203.019 which states to reduce Rx power by 50% of the current level with the given conditions.
"a", "b", and "d" are merely values of a logical sequence with the correct answer.

References:

1203.019, High Activity in Reactor Coolant, change 010-05-0, page 5, step 3.2

History:

Used in 1999 exam.
Direct from ExamBank, QID# 1816
Selected for use in 2002 SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0020 **Rev:** 0 **Rev Date:** 7/6/98 **Source:** Direct **Originator:** GGiles

TUOI: ANO-1-LP-RO-NNI **Objective:** 6 **Point Value:** 1

Section: 4.3 **Type:** B&W EPEs/APEs

System Number: A02 **System Title:** Loss of NNI-X

Description: Knowledge of the operational implications of the following concepts as they apply to the (Loss of NNI-X): Annunciators and conditions indicating signals, and remedial actions associated with the (Loss of NNI-X).

K/A Number: AK1.3 **CFR Reference:** 41.8 / 41.10 / 45.3

Tier: 1 **RO Imp:** 3.8 **RO Select:** Yes **Difficulty:** 4

Group: 1 **SRO Imp:** 3.8 **SRO Select:** Yes **Taxonomy:** An

Question:

Given the following indications/alarms:

- SASS Mismatch alarm (fast flash)
- SG BTU Limit alarm (slow flash)
- SG "B" FW Temp signal select switch selected to SASS Enable with the white indicating light off and the blue "Y" light on.

What operator action is procedurally required?

a. Place the SG "B" FW Temp signal select switch to the "Y" position.

b. Depress the Auto pushbutton for SG "B" FW Temp on the SASS panel in C47-2.

c. No action necessary, SASS has automatically transferred to "X" NNI.

d. Place both FW loop demands in manual.

Answer:

a. Place the SG "B" FW Temp signal select switch to the "Y" position.

Notes:

Answer "a" is the correct response per procedure 1203.012F and 1105.006.

Answer "b" is incorrect, this action is performed when resetting a failed signal.
Answer "c" is incorrect SASS has transferred to [Y], not [X], the response in "a" is the only procedurally required action.
Answer "d" is not necessary, the SASS system has transferred to a good signal, no ICS upset should occur, and this action should include placing the SG/Rx master in manual as well.

References:

1203.012F, Rev. 026-02-0, Annunciator K07 Corrective Action, page 20, step 2
1105.006, Rev. 009-02-0, Reactor Coolant System NNI, page 13, step 8.1

History:

Developed for 1998 RO/SRO Exam.
Modified QID 3127
Used in 2001 RO/SRO Exam.
Selected for use in 2002 RO/SRO exam.

QID: 0015 **Rev:** 0 **Rev Date:** 6/30/98 **Source:** Direct **Originator:** GGiles

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 4.3 **Type:** B&W EPEs/APEs

System Number: A06 **System Title:** Shutdown Outside Control Room

Description: Ability to operate and / or monitor the following as they apply to the (Shutdown Outside Control Room): Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

K/A Number: AA1.1 **CFR Reference:** 41.7 / 45.5 / 45.6

Tier:	1	**RO Imp:**	4.3	**RO Select:**	Yes	**Difficulty:**	2
Group:	1	**SRO Imp:**	4.2	**SRO Select:**	Yes	**Taxonomy:**	K

Question:

A fire in the control room forced an immediate evacuation.
An alternate shutdown is in progress and the crew is attempting to stabilize the plant at hot shutdown natural circulation conditions.

The TSC directs the CRS to raise reactor coolant system pressure.

How is this action accomplished in accordance with the Alternate Shutdown AOP?

a. Energize all pressurizer heaters from their respective power supply breaker cubicles.

b. Reduce steaming rate at the Atmospheric Dump Valves to raise RCS temperature and pressure.

c. Manually initiate High Pressure Injection to compress the pressurizer steam bubble.

d. Manually throttle open on the pressurizer makeup block valve to raise pressurizer level.

Answer:

c. Manually initiate High Pressure Injection to compress the pressurizer steam bubble.

Notes:

Answer (c) is correct per the Alternate Shutdown AOP. The CRS will manually initiate HPI by manually closing in the breaker for a HPI pump as directed by the TSC.

Answers (a), [b], and (d) would work but are not options covered in the Alternate Shutdown procedure.

References:

1203.002, Rev. 015-03-0, Alternate Shutdown, page 8, step 3.23

History:

Developed for 1998 RO Exam.
Used in 2001 RO/SRO Exam.
Selected for use in 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0421 **Rev:** 0 **Rev Date:** 4/24/2002 **Source:** Direct **Originator:** S.Pullin

TUOI: A1LP-RO-EOP01 **Objective:** 5 **Point Value:** 1

Section: 4.3 **Type:** Babcock and Wilcox EPEs/APEs

System Number: E03 **System Title:** Inadequate Subcooling Margin

Description: Ability to determine and interpret the following as they apply to the Inadequate Subcooling Margin): Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

K/A Number: EA2.1 **CFR Reference:** 43.5 / 45.13

Tier: 1 **RO Imp:** 3.0 **RO Select:** Yes **Difficulty:** 3

Group: 1 **SRO Imp:** 4.0 **SRO Select:** Yes **Taxonomy:** Ap

Question:

Given:

- A Rx trip has occurred.
- The RCS pressure is stable 325 psig.
- The CET average temperature is 425 degrees F.

Which Emergency Operating Procedure contains mitigating actions for this event?

a. Loss of Subcooling Margin (1202.002)

b. Overcooling (1202.003)

c. Overheating (1202.004)

d. Inadequate Core Cooling (1202.004)

Answer:

a. Loss of Subcooling Margin (1202.002)

Notes:

Answer "a" is the right procedure and the rest are incorrect.

References:

1202.013, EOP figures, rev 3, page 1, figure 1

History:

Direct from regular exambank QID 2928.
Selected for use in 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0368 **Rev:** 0 **Rev Date:** 5/6/2002 **Source:** Direct **Originator:** J.Cork

TUOI: ANO-1-LP-RO-EOP02 **Objective:** 8 **Point Value:** 1

Section: 4.3 **Type:** B&W EPEs/APEs

System Number: E03 **System Title:** Inadequate Subcooling Margin

Description: Knowledge of the reasons for the following responses as they apply to the (Inadequate Subcooling Margin): Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics.

K/A Number: EK3.1 **CFR Reference:** 41.5 / 41.10, 45.6, 45.13

Tier: 1 **RO Imp:** 3.2 **RO Select:** No **Difficulty:** 3

Group: 1 **SRO Imp:** 3.8 **SRO Select:** Yes **Taxonomy:** An

Question:

A reactor trip has occurred from 100% power.

One minute later the following conditions exist:

- RCS temperature = 580 degrees F.
- RCS pressure = 1600 psig.

Which of the following operator actions will be performed?

a. Trip one (1) RCP in each loop.

b. Verify EFW flow to each Steam Generator is ~430 gpm.

c. Verify Reflux Boiling setpoint is selected on both EFIC trains.

d. Initiate 1202.001, Reactor Trip, and go to Overheating EOP.

Answer:

c. Verify Reflux Boiling setpoint is selected on both EFIC trains.

Notes:

Answer [c] is correct since subcooling margin is lost and the Reflux Boiling setpoint is required to be selected in this situation.
Answer [a] is incorrect, this would be done for loss of subcooling margin but only if >2 minutes had expired without tripping the RCPs.
Answer [b] is incorrect, this is done for loss of subcooling margin but only if one SG is available.
Answer [d] is incorrect, this would not be done since the entry condition for Overheating have not been met.

References:

1202.012, Repetitive Tasks, change 004-02-0, RT-5, page 9, step C

History:

Direct from regular exambank QID 3030.
Selected for use in 2002 SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0285 **Rev:** 0 **Rev Date:** 9-3-99 **Source:** Direct **Originator:** D. Slusher

TUOI: ANO-1-LP-RO-EOP03 **Objective:** 4 **Point Value:** 1

Section: 4.3 **Type:** B&W EOP/AOP

System Number: E05 **System Title:** Excessive Heat Transfer

Description: Knowledge of the reasons for the following responses as they apply to the (Excessive Heat Transfer): Manipulation of controls required to obtain desired operating results during abnormal, and emergency situations.

K/A Number: EK3.3 **CFR Reference:** 41.5 / 41.10, 45.6, 45.13

Tier: 1 **RO Imp:** 4.2 **RO Select:** Yes **Difficulty:** 2

Group: 1 **SRO Imp:** 3.8 **SRO Select:** Yes **Taxonomy:** K

Question:

Following a turbine and reactor trip, an overcooling transient is occurring due to a stuck open safety.

The affected SG pressure is 825 psig and falling.

What actions are taken to seat the MSSV per the Overcooling procedure?

a. Actuate Main Steam Line Isolation for the SG with the lowest pressure.

b. Quickly reduce the lowest SG pressure to 700 psig or the MSSV open alarm is clear.

c. Trip both Main Feedwater pumps, actuate EFW, and perform RT-5.

d. Shut the Main Feedwater Isolation Valve for the affected Steam Generator.

Answer:

b. Quickly reduce the lowest SG pressure to 700 psig or the MSSV open alarm is clear.

Notes:

"a", "c", and "d" are incorrect because they are actions to isolate the OTSG not actions to seat the MSSV.

References:

1202.003, Overcooling, change 004-00-0, page 3, step 8

History:

Used in 1999 exam.
Direct from ExamBank, QID# 5274 used in class exam
Selected for use in 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0278 **Rev:** 0 **Rev Date:** 9-3-99 **Source:** Direct **Originator:** D. Slusher

TUOI: ANO-1-LP-RO-AOP **Objective:** 5 **Point Value:** 1

Section: 4.3 **Type:** B&W EOP/AOP

System Number: E09 **System Title:** Natural Circulation Cooldown

Description: Knowledge of the operational implications of the following concepts as they apply to the (Natural Circulation Cooldown): Normal, abnormal and emergency operating procedures associated with (Natural Circulation Cooldown).

K/A Number: EK1.2 **CFR Reference:** 41.8 / 41.10, 45.3

Tier: 1 **RO Imp:** 3.7 **RO Select:** No **Difficulty:** 2.5

Group: 1 **SRO Imp:** 4.0 **SRO Select:** Yes **Taxonomy:** C

Question:

A Natural Circulation Cooldown is in progress.
The Shift Manager/Control Room Supervisor are discussing entering 10CFR 50.54x for use of high pressure auxiliary spray.

Which of the following conditions would NOT allow the use of high pressure auxiliary spray?

a. Pressurizer/spray fluid differential temperature is greater than 430 °F.

b. Pressurizer spray valve, CV-1008, is failed open.

c. Pressurizer spray isolation valve, CV-1009, is failed open.

d. Borated Water Storage Tank level is less than 23 feet.

Answer:

c. Pressurizer spray isolation valve, CV-1009, is failed open.

Notes:

"a" is incorrect because 10CFR 50.54x is used for circumstances where Tech Specs must be violated, this is the reason it is entered.
"b" is incorrect because the spray isolation valve is used to isolate the spray line.
"d" is incorrect because high pressure auxiliary spray still must be used to cooldown and depressurize the plant.

References:

1203.013, Natural Circulation Cooldown, change 016-05-0, page 9, step 12

History:

Developed for 1999 exam.
Selected for use in 2002 SRO exam.

QID: 0363 **Rev:** 0 **Rev Date:** 11/6/00 **Source:** Direct **Originator:** S.Pullin

TUOI: ANO-1-LP-RO-AOP **Objective:** 3 **Point Value:** 1

Section: 4.3 **Type:** B&W EPEs/APEs

System Number: E09 **System Title:** Natural Circulation Cooldown

Description: Knowledge of the reasons interrelations between the (Natural Circulation Cooldown) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

K/A Number: EK2.2 **CFR Reference:** 41.7 / 45.7

Tier: 1 **RO Imp:** 4.0 **RO Select:** Yes **Difficulty:** 3

Group: 1 **SRO Imp:** 4.0 **SRO Select:** Yes **Taxonomy:** C

Question:

Given:

- Natural circulation cooldown in progress
- CETs at 550°F
- Reactor vessel head temperatures at 614°F
- Pressurizer level = 150 inches, then makes step change to 180 inches
- RCS pressure at 1700 psig and slowly dropping
- "A" OTSG pressure = 945 psig
- "B" OTSG pressure = 950 psig

The required operator action for the above conditions is to pressurize the RCS slightly and reduce cooldown rate per 1203.013, Natural Circulation Cooldown.

What is the reason for this action?

a. Reduce the thermal stresses on the Reactor Vessel.

b. Restore adequate Subcooling Margin.

c. Collapse a steam void in the Rx Vessel head.

d. Comply with SG tube to shell delta-T limits.

Answer:

c. Collapse a steam void in the Rx Vessel head.

Notes:

Answer (c) is correct since this action is due to a steam void in the upper head as evidenced by the sudden change in Pzr level with no RCS pressure increase.
Answer (a) would be the proper response for PTS concerns.
Answer (b) is not applicable, subcooling margin is adequate with the values given.
Answer (d) only applies when the OTSGs are not being used to cool the RCS.

References:

1203.013, Natural Circulation Cooldown, change 016-05-0, page 8, Note

History:

Developed for 2001 RO/SRO Exam
Selected for use in 2002 RO/SRO exam.

QID: 0422 **Rev:** 0 **Rev Date:** 4/25/2002 **Source:** Modified **Originator:** J.Cork

TUOI: A1LP-RO-CRD **Objective:** 21 **Point Value:** 1

Section: 4.2 **Type:** Generic APEs

System Number: 001 **System Title:** Continuous Rod Withdrawal

Description: Ability to operate and/or monitor the following as they apply to the Continuous Rod Withdrawal: Rod in-out-hold switch.

K/A Number: AA1.02 **CFR Reference:** 41.7 / 45.5 / 45.6

Tier: 1 **RO Imp:** 3.6 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 3.4 **SRO Select:** Yes **Taxonomy:** Ap

Question:

Given:

- Power escalation to 100% power.
- Group 7 control rods begin to continuously withdraw at 30 inches per minute without a command signal present.

Which of the following steps can the CBOR take that are "most" likely to stop the rod withdrawal?

1. Diamond to manual
2. Group/Aux to Aux
3. Seq/Seq Or to Seq.
4. Group Sel to All
5. Single Sel to All
6. Run/Jog to Jog
7. Clamp/Clamp Rel to Clamp
8. Fault Reset to Reset
9. Insert/Withdrawal to Insert

a. Take steps 1, 2, 6, and 9

b. Take steps 1, 3, 4, and 5

c. Take steps 1, 3, 5, and 9

d. Take steps 1, 2, 8, and 9

Answer:

a. Take steps 1, 2, 6, and 9

Notes:

Answer "a" has the MAJI steps (Manual, Aux, Jog, Insert) to give CRD a conflicting signal. The other choices are incorrect combinations.

References:

STM 1-02, Control Rod Drive System, rev 5, page 13, step 2.5.2

History:

Used QID 5341 from regular exambank.
Modified for use in 2002 RO/SRO exam.

QID: 0027 **Rev:** 0 **Rev Date:** 7/8/98 **Source:** Direct **Originator:** GGiles

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 4.2 **Type:** Generic APEs

System Number: 008 **System Title:** Pressurizer (PZR) Vapor Space Accident

Description: Knowledge of the operational implications of the following concepts as they apply to a Pressurizer Vapor Space Accident: Thermodynamics and flow characteristics of open or leaking valves.

K/A Number: AK1.01 **CFR Reference:** 41.8 / 41.10 / 45.3

Tier:	1	**RO Imp:**	3.2	**RO Select:**	Yes	**Difficulty:**	3
Group:	2	**SRO Imp:**	3.7	**SRO Select:**	No	**Taxonomy:**	Ap

Question:

The following plant conditions exist:

- Pressurizer temperature is 645 °F
- Pressurizer level is 225 inches and rising
- RCS Pressure is 2150 psig and stable
- Quench Tank pressure is 10 psig and rising
- The ERV acoustic monitor indicates flow noise

What would be the expected temperature as indicated on the ERV PSV-1000 Outlet Temp on the Safety Parameter Display System (SPDS)?

a. Approximately 193 °F

b. Approximately 212 °F

c. Approximately 239 °F

d. Approximately 645 °F

Answer:

c. Approximately 239 °F

Notes:

Candidates should be provided with steam tables. The temperature elements on the ERV tailpipe would indicate the saturation temperature for the Quench Tank pressure, therefore, answer (c) is correct. The disclaimers are incorrect: (a) is the saturation temperature for 10 psia, (b) is saturation temperature for atmospheric pressure and (d) is the saturation temperature of the pressurizer.

References:

ASME Steam Tables

History:

Developed for 1998 RO Exam.
Selected for 2002 RO exam.

QID: 0372 **Rev:** 0 **Rev Date:** 11/14/00 **Source:** Direct **Originator:** J.Cork

TUOI: ANO-1-LP-RO-EOP02 **Objective:** 15 **Point Value:** 1

Section: 4.1 **Type:** Generic EPEs

System Number: 009 **System Title:** Small Break LOCA

Description: Knowledge of the reasons for the following responses as they apply to the Small Break LOCA: Actions contained in EOP for Small Break LOCA/leak.

K/A Number: EK3.21 **CFR Reference:** 41.5 / 41.10 / 45.6 /45.13

Tier: 1 **RO Imp:** 4.2 **RO Select:** Yes **Difficulty:** 4

Group: 2 **SRO Imp:** 4.5 **SRO Select:** Yes **Taxonomy:** An

Question:

A LOCA is in progress concurrently with a Degraded Power condition.

- RCS pressure: 1000 psig
- RCS temperature: 535 degrees F
- HPI flows on C16: 120 gpm, 125 gpm, 115 gpm, 180 gpm
- P36B is inoperable due to maintenance.
- EDG #1 tripped and will not run.

Select the most appropriate action below for this situation:

a. Close the HPI valve with 180 gpm flow to isolate break.

b. Stop HPI pump P-36C to reduce break flow.

c. Throttle HPI valve with 180 gpm flow until flow is 145 gpm.

d. Close HPI recirc valve, CV-1300 or CV-1301.

Answer:

c. Throttle HPI valve with 180 gpm flow until flow is 145 gpm.

Notes:

Answer [c] is correct since only one HPI pump is in service and although SCM has not been established, HPI flow must be throttled due to possibility of an HPI line break robbing flow.
Answer [a] is incorrect, although high HPI flow thru one nozzle would be indicative of a break in this line, the line should not be isolated.
Answer [b] is incorrect although stopping HPI pump will stop possible LOCA pathway on that train, it is incorrect since only one pump is running.
Answer [d] would be correct if ESAS had not actuated but it has.

References:

1202.012, Rev. 004-01-0, Repetitive Tasks, RT 3, page 5, step H

History:

Modified regular exambank QID #3116 for use in 2001 RO/SRO Exam.
Selected for 2002 RO/SRO exam.

QID: 0337 **Rev:** 0 **Rev Date:** 9-7-99 **Source:** Direct **Originator:** D Slusher

TUOI: ANO-1-LP-RO-EOP10 **Objective:** 6 **Point Value:** 1

Section: 4.1 **Type:** Generic Emergency Plant Evolutions

System Number: 011 **System Title:** Large Break LOCA

Description: Knowledge symptom based EOP mitigation strategies.

K/A Number: 2.4.6 **CFR Reference:** 41.10 / 43.5 / 45.13

Tier: 1 **RO Imp:** 3.1 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 4.0 **SRO Select:** Yes **Taxonomy:** C

Question:

ESAS has actuated.
LPI/HPI flow rates for the past ten minutes have been as follows:

- "A" LPI flow--2900 gpm
- "B" LPI flow--2850 gpm
- "A" HPI pump flow throttled to 100 gpm through CV-1220
- "C" HPI pump flow throttled to 100 gpm through CV-1285

An overcurrent has resulted in an A-3 bus lockout and A-1 to A-3 tie breaker A-309 trip. The operator should:

a. Restore full HPI flow on "C" HPI pump.

b. Close A-308 to power A-3 from #1 EDG.

c. Energize bus B-5 from bus B-6

d. Start P-36B to supply 100 gpm train through CV-1220.

Answer:

a. Restore full HPI flow on "C" HPI pump.

Notes:

"a" is the only correct action with the loss of the A-3 bus and the "A" LPI pump. The criteria for throttling HPI is contingent upon both LPI pumps flow >2800 gpm OR one LPI pump >3200 gpm, therefore full HPI flow must be restored on the only running HPI pump. "b" and "c" are actions to restore proper electrical alignment but they do not address the immediate need of maintaining proper core cooling. "d" is incorrect since flow is only supplied at the 100 gpm rate.

References:

1202.010, ESAS, change 005-01-0, page 7, step 14A

History:

Used in 1999 exam
Direct from ExamBank, QID# 4566 used in class exam
Used in 2001 RO/SRO Exam.
Selected for 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0032 **Rev:** 2 **Rev Date:** 06/04-02 **Source:** Modified **Originator:** JCork

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 4.2 **Type:** Generic APEs

System Number: 022 **System Title:** Loss of Reactor Coolant Makeup

Description: Ability to operate and / or monitor the following as they apply to the Loss of Reactor Coolant Pump Makeup: CVCS letdown and charging.

K/A Number: AA1.01 **CFR Reference:** 41.7 / 45.5 / 45.6

Tier: 1 **RO Imp:** 3.4 **RO Select:** No **Difficulty:** 3

Group: 2 **SRO Imp:** 3.3 **SRO Select:** Yes **Taxonomy:** C

Question:

Given:

- Plant operating at 100% power
- PZR level trending up slowly
- Letdown flow 45 gpm
- Makeup flow 25 gpm
- MUT level trending down
- Total seal injection flow 70 gpm

Which of the following would cause the above indications?

a. Makeup pump has tripped

b. PZR level transmitter failed high

c. Loss of Instrument Air in LNPR

d. Makeup line break upstream of CV-1235

Answer:

c. Loss of Instrument Air in LNPR

Notes:

"C" would cause Seal Inj to fail open, maximizing Seal Inj. flow at 70 gpm, PZR makeup valve would fail as is, and letdown orifice bypass would fail closed while orifice isolation would fail as-is.
"B" would cause makeup flow to go to zero but it would not reduce letdown to 45 gpm nor would it increase seal injection flow.
"A" would cause both makeup and seal injection flow to go to zero but would have no effect on letdown flow.
"D" would cause both makeup and seal injection flow to go to zero but would have no effect on letdown flow.

References:

1203.024, Loss of Instrument Air, Rev. 010-05-0, page 17

History:

Developed for 1998 RO/SRO Exam.
Modified for use in 2002 SRO exam.

QID: 0164 **Rev:** 0 **Rev Date:** 05/03/91 **Source:** Direct **Originator:** Stanley

TUOI: ANO-1-LP-RO-DHR **Objective:** 23 **Point Value:** 1

Section: 4.2 **Type:** Generic APEs

System Number: 025 **System Title:** Loss of Residual Heat Removal System

Description: Knowledge of the operational implications of the following concepts as they apply to a Loss of Residual Heat Removal System: Loss of RHRS during all modes of operation.

K/A Number: AK1.01 **CFR Reference:** 41.8 / 41.10 / 45.3

Tier: 1 **RO Imp:** 3.9 **RO Select:** Yes **Difficulty:** 2

Group: 2 **SRO Imp:** 4.3 **SRO Select:** Yes **Taxonomy:** An

Question:

An outage is in progress with the following conditions:

- The RCS is drained to 371.5 feet as indicated by RCS hot leg level.
- Decay heat removal flow becomes erratic.
- Indicated decay heat removal flow is ~2500 gpm.

Which ONE of the following actions is correct?

a. Reduce decay heat removal flow until flow has stablized.

b. Stop the operating decay heat removal pump.

c. Raise RCS level.

d. Raise decay heat removal flow.

Answer:

a. Reduce decay heat removal flow until flow has stablized.

Notes:

(a) is correct. With erratic flow, actions should be taken to stabilize the flow by throttling flow back.
(b) is incorrect. This is action for a loss of flow not erratic flow.
(c) is incorrect. Although this may be necessary in the long term, the immediate response to the condition is to reduce DH flow.
(d) is incorrect. This will make the condition worse instead of better.

References:

1203.028, Loss of Decay Heat Removal, change 016-02-0, page 17, step 3.2

History:

Taken from Exam Bank QID # 3070
Used in A. Morris 98 RO Re-exam
Selected for 2002 RO/SRO exam.

QID: 0035 **Rev:** 0 **Rev Date:** 7/9/98 **Source:** Direct **Originator:** GGiles

TUOI: ANO-1-LP-RO-EOP01 **Objective:** 13 **Point Value:** 1

Section: 4.1 **Type:** Generic EPEs

System Number: 029 **System Title:** Anticipated Transient Without Scram (ATWS)

Description: Knowledge of the reasons for the following responses as they apply to the ATWS: Actions contained in EOP for ATWS.

K/A Number: EK3.12 **CFR Reference:** 41.5 / 41.10 / 45.6 / 45.13

Tier: 1 **RO Imp:** 4.4 **RO Select:** Yes **Difficulty:** 2

Group: 2 **SRO Imp:** 4.7 **SRO Select:** Yes **Taxonomy:** K

Question:

The plant is at 100% power when "B" MFW pump trips.

- FW pumps discharge cross-tie valve, CV-2827, fails to open due to mechanical binding.
- The CBOR depresses the manual reactor trip pushbutton.
- All rods remain out.

Which one of the following actions should be the number one priority?

a. Manually trip the turbine and verify GVs/TVs closed.

b. Open BWST outlet valve to running Makeup pump.

c. Depress CRD power supply breaker trip PBs on C03.

d. Manually insert rods and send operator to locally trip CRD breakers.

Answer:

c. Depress CRD power supply breaker trip PBs on C03.

Notes:

Candidate should know that "C" is the first action which should be attempted, this is the most expedient action to insert negative reactivity into the core to shutdown the reactor. A reactor trip is required due to loss of MFW to "B" OTSG.
"A" and "D" are also followup actions, "D" should only be done if "C" is unsuccessful. "A" is a followup action to verify turbine has tripped but is a lower priority to reactivity.
"B" is a method of emergency borating to insert negative reactivity but is slow and thus a lower priority to step "C".

References:

1202.001, Rev. 027-01-0, Reactor Trip, page 2, contingency 2.A

History:

Developed for 1998 SRO Exam.
Selected for 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0184 **Rev:** 0 **Rev Date:** 11/21/98 **Source:** Direct **Originator:** R. Fuller

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 4.2 **Type:** Generic AOP

System Number: 032 **System Title:** Loss of Source Range Nuclear Instrumentation

Description: Knowledge of the reasons for the following responses as they apply to the Loss of Source Range Nuclear Instrumentation: Startup termination on source-range loss.

K/A Number: AK3.01 **CFR Reference:** 41.5, 41.10 / 45.6 / 45.13

Tier:	1	**RO Imp:**	3.2	**RO Select:**	Yes	**Difficulty:**	4
Group:	2	**SRO Imp:**	3.6	**SRO Select:**	Yes	**Taxonomy:**	An

Question:

Given:

- During a reactor startup with source range NI-2 and reactor power wide range recorder NR-502 inoperable, source range NI-1 fails to 10 E5.
- Intermediate range NI-3 indicates 5 E-11 amps
- Intermediate range NI-4 is off scale low.

What is required of the CBOR?

a. Continue the startup utilizing NI-3 until NI-4 comes on scale.

b. Perform a plant shutdown in accordance with normal operating procedures due to lack of proper overlap.

c. Trip the reactor due to no on-scale indication of neutron flux available.

d. Hold power constant and perform an NI calibration.

Answer:

c. Trip the reactor due to no on-scale indication of neutron flux available.

Notes:

[c] is correct per guidance in 1203.021, if the recorder NR.502 is inoperable AND no SR channel is >10 E5 cps AND no IR channel is > 1 E-10 amps AND 3/4 PR instruments are <10% power, then no on-scale flux indication exists and the reactor must be tripped.
[a] is incorrect, although NI-4 might come on scale, the startup should not be continued without valid neutron flux indication.
[b] is incorrect, although shutting down is conservative, per procedure the reactor must be tripped immediately.
[d] is incorrect, this action sounds like it could rectify this situation, however, it would be impossible to calibrate the NI's at this point and would be contrary to procedural guidance.

References:

1203.021 (Rev 007-02-0), Loss of Neutron Flux Indication, page 7, step 3.1

History:

Developed for use in A. Morris 98 RO Re-exam
Used in 2001 RO/SRO Exam.
Selected for 2002 RO/SRO exam.

QID: 0425 **Rev:** 0 **Rev Date:** 4/25/2002 **Source:** Direct **Originator:** J.Cork

TUOI: A1LP-RO-NI **Objective:** 3 **Point Value:** 1

Section: 4.2 **Type:** Generic APEs

System Number: 033 **System Title:** Loss of Intermediate Rang

Description: Knowledge of the operational implications of the following concepts as they apply to Loss of Intermediate Range Nuclear Instrumentation: Effects of voltage changes on performance.

K/A Number: AK1.01 **CFR Reference:** 41.8 / 41.10 / 45.3

Tier:	1	**RO Imp:**	2.7	**RO Select:**	Yes	**Difficulty:**	2
Group:	2	**SRO Imp:**	3.0	**SRO Select:**	No	**Taxonomy:**	K

Question:

The intermediate range nuclear instrumentation uses compensated ion chamber detectors.

What would be the effect of the detector being UNDER compensated during a reactor startup? For example, if you are at 5e4 cps in the source range, the intermediate range indication would:

a. be higher than actual power.

b. be lower than actual power.

c. not be affected due to low power level.

d. would stay at minimum value.

Answer:

a. be higher than actual power.

Notes:

References:

STM 1-67, Nuclear Instrumentation, rev 6 change 1, page 17, step 2.42

History:

Direct from regular exambank QID 1750.
Selected for use in RO exam.

QID: 0426 **Rev:** 0 **Rev Date:** 4/25/2002 **Source:** New **Originator:** S.Pullin

TUOI: A1LP-RO-EOP06 **Objective:** 9 **Point Value:** 1

Section: 4.2 **Type:** Generic APEs

System Number: 037 **System Title:** Steam Generator Tube Leak

Description: Ability to determine and interpret the following as they apply to the Steam Generator Tube Leak: When to isolate one or more S/Gs.

K/A Number: AA2.11 **CFR Reference:** 43.5 / 45.13

Tier:	1	**RO Imp:**	3.8	**RO Select:**	Yes	**Difficulty:**	4
Group:	2	**SRO Imp:**	3.8	**SRO Select:**	Yes	**Taxonomy:**	A

Question:

Given:

- Plant was shutdown due to tube leak in "A" OTSG.
- Emergency cooldown rate was used due to escalation of the tube leak to a tube rupture.
- T Hot 485 degrees F.
- RCS pressure 1050 psig.

Which of the following would require isolating the "A" OTSG?

a. BWST level drops to 23.5 ft

b. Offsite dose rates meet the NUE criteria

c. "A" OTSG level rises to 415"

d. "A" OTSG tube-to-shell delta T rises to 50°F (tubes hotter)

Answer:

c. "A" OTSG level rises to 415"

Notes:

References:

1202.006, Tube Rupture, change 007-02-0, page 30, step 52

History:

New for 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0364 **Rev:** 0 **Rev Date:** 11/8/00 **Source:** Direct **Originator:** J.Cork

TUOI: ANO-1-LP-RO-EOP06 **Objective:** 1 **Point Value:** 1

Section: 4.1 **Type:** Generic EPEs

System Number: 038 **System Title:** Steam Generator Tube Rupture

Description: Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.

K/A Number: 2.4.48 **CFR Reference:** 43.5 / 45.12

Tier: 1 **RO Imp:** 3.5 **RO Select:** Yes **Difficulty:** 4

Group: 2 **SRO Imp:** 3.8 **SRO Select:** Yes **Taxonomy:** An

Question:

After a reactor trip, the following indications are observed:

- Makeup Tank level has lost 5 inches in the last 5 minutes
- RB and Aux. Bldg. Sump levels are stable
- "A" EFIC level is 35 rising and "A" MFW Flow is 0.1 mlb/hr
- "B" EFIC level is 31 stable and "B" MFW Flow is 0.3 mlb/hr

Which of the following actions would be required to minimize the threat of a potential radioactive release to the public?

a. Initiate HPI per RT-2

b. Cooldown and isolate the "B" SG

c. Cooldown and isolate the "A" SG

d. Commence a rapid RCS cooldown at 240 °F/hr

Answer:

c. Cooldown and isolate the "A" SG

Notes:

Answer [c] is correct, the SG level parameters indicate a rupture on the "A" SG and a cooldown should be commenced to reduce RCS temperature to <500 F to minimize the possibility of lifting a secondary safety on the "A" SG.
[a] is incorrect, the leak size is 30 gpm, this is within the capacity of normal makeup.
[b] is incorrect, a cooldown and isolation is required but not on this SG.
[d] is incorrect, a rapid cooldown at this rate is not required until overfilling of ruptured SG is imminent.

References:

1202.006, Tube Rupture, change 007-02-0, page 11, step 17

History:

Created for 2001 RO/SRO Exam.
Selected for 2002 RO/SRO exam.

QID: 0424 **Rev:** 0 **Rev Date:** 4/25/2002 **Source:** Direct **Originator:** S.Pullin

TUOI: A1LP-RO-ICS **Objective:** 9 **Point Value:** 1

Section: 3.4 **Type:** Heat Removal from Reactor Core

System Number: 045 **System Title:** Main Turbine Generator (MT/G) System

Description: Knowledge of the physical connections and/or cause-effect relationships between the MT/G System and the following systems: Load control system in "following mode."

K/A Number: K1.12 **CFR Reference:** 41.2 to 41.9 / 45.7 to 45.8

Tier: 1 **RO Imp:** 2.1 **RO Select:** Yes **Difficulty:** 2

Group: 2 **SRO Imp:** 2.1 **SRO Select:** Yes **Taxonomy:** K

Question:

"Turbine Following" operation means:

a. The reactor, or feedwater or both control units are in manual and this forces the turbine to control header pressure.

b. The turbine is establishing the demand signal and reactor and feedwater follow.

c. Turbine header pressure will be very unstable.

d. We are in the best mode for operating the total plant systems.

Answer:

a. The reactor, or feedwater or both control units are in manual and this forces the turbine to control header pressure.

Notes:

References:

STM 1-64, Integrated Control System, rev 6, page 12, step 1.6.3

History:

Direct from regular exambank QID 1616.
Selected for use in RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0365 **Rev:** 0 **Rev Date:** 11/8/00 **Source:** Direct **Originator:** S.Pullin

TUOI: A1LP-RO-EOP07 **Objective:** 3 **Point Value:** 1

Section: **Type:** Generic APEs

System Number: 054 **System Title:** Loss of Main Feedwater

Description: Ability to operate and/or monitor the following as they apply to the Loss of Main Feedwater: HPI, under total feedwater loss conditions.

K/A Number: AA1.04 **CFR Reference:** 41.7 / 45.5 / 45.6

Tier: 1 **RO Imp:** 4.4 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 4.5 **SRO Select:** Yes **Taxonomy:** An

Question:

Unit One is operating normally with the following equipment OOS for maintenance:

- P7A, Steam Driven EFW Pump
- AACDG, Blackout Diesel Generator

A tornado has touched down in the switchyard causing a Degraded Power event.

- EDG #1 trips on low lube oil pressure.
- 4160v bus A3 lockout occurs and cannot be reset.
- RCS pressure has risen to 2450 psig and the ERV is open.

Which of the following actions is required for these conditions?

a. Close CV-1000, ERV Isolation valve.

b. Initiate HPI Cooling per RT-4.

c. Crosstie A3 and A4 buses to restore EFW.

d. Depressurize both SGs and feed with SW.

Answer:

b. Initiate HPI Cooling per RT-4.

Notes:

Answer [b] is correct. Without any source of feedwater to the SGs and RCS pressure at 2450 psig, HPI cooling is required to ensure adequate core cooling.
Answer [a] is incorrect since an open ERV is an essential component of HPI cooling.
Answer [c] is incorrect, A3 bus is locked out and cannot be restored quickly.
Answer [d] is incorrect as this is done only if HPI is not available or adequate to cool the core.

References:

1102.007, Degraded Power, change 005-01-0, page 30, step 55 contingency action A

History:

Created for 2001 RO/SRO Exam.
Selected for 2002 RO/SRO exam.

QID: 0187 **Rev:** 1 **Rev Date:** 4/25/2002 **Source:** Direct **Originator:** S.Pullin

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.5 **Point Value:** 1

Section: 4.2 **Type:** Generic APE

System Number: 058 **System Title:** Loss of DC Power

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

K/A Number: AK1.01 **CFR Reference:** 41.8 / 41.10 / 45.3

Tier: 1 **RO Imp:** 2.8 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 3.1 **SRO Select:** Yes **Taxonomy:** C

Question:

Given the following indications at 100% power:

- Annunciator D02 UNDERVOLTAGE (K01-A8) in alarm.
- Annunciator D02 TROUBLE (K01-D8) in alarm.
- Annunciator D02 CHARGER TROUBLE (K01-E8) in alarm.
- The reactor has tripped.
- The turbine trip solenoid light is on.
- Breaker position lights on the RIGHT side of C10 are off.

What are the actions required of the CBOT?

a. Trip the main generator output breakers.

b. Transfer D11 to emergency supply D02.

c. Trip all RCPs.

d. Transfer D21 to emergency supply D01.

Answer:

d. Transfer D21 to emergency supply D01.

Notes:

[d] is correct per 1203.036 as the conditions are indicative of a loss of D02.
[a] or [b] might be chosen if candidate mistakenly concludes that D01 has been lost.
[c] might be chosen if candidate believes all RCP oil pumps have been lost.

References:

1203.036, Loss of 125VDC, change 005-01-0, page 11, step 3.3

History:

Developed for use in A. Morris 98 RO Re-exam
Selected for use in RO/SRO exam, revised slightly.

QID: 0167 **Rev:** 0 **Rev Date:** 10/24/91 **Source:** Direct **Originator:** M. Cooper

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.2 **Point Value:** 1

Section: 4.2 **Type:** Generic AOP

System Number: 059 **System Title:** Accidental Liquid Radioactive-Waste Release

Description: Ability to operate and/or monitor the following as they apply to the Accidental Liquid Radwaste Release: Radioactive-liquid monitor.

K/A Number: AA1.01 **CFR Reference:** 41.7 / 45.5 / 45.6

Tier: 1 **RO Imp:** 3.5 **RO Select:** Yes **Difficulty:** 2

Group: 2 **SRO Imp:** 3.5 **SRO Select:** Yes **Taxonomy:** K

Question:

What action is required upon receipt of Liquid Radwaste Process Monitor (RI-4642) high alarm?

a. Start another circ water pump to increase dilution flow.

b. Verify no release in progress at Disch Flow to Flume (FI-4642) on C19.

c. Verify with Unit 2 no other release is in progress.

d. Have chemistry sample discharge flume for radionuclides.

Answer:

b. Verify no release in progress at Disch Flow to Flume (FI-4642) on C19.

Notes:

Per 1203.007 immediate action for a liquid radwaste process monitor alarm is to verify that no release in progress at FI-4642.(answer b) All other actions are associated with radwaste discharges but are not the immediate action for the alarm.

References:

1203.007, Liquid Waste Discharge Line High Radiation Alarm, rev 8, page1, step 3.1

History:

Modified from Exam Bank QID # 1725
Used in A. Morris 98 RO Re-exam
Used in 2001 RO/SRO Exam.
Selected for 2002 RO/SRO exam.

QID: 0367 **Rev:** 0 **Rev Date:** 5/6/2002 **Source:** Direct **Originator:** S.Pullin

TUOI: ANO-1-LP-RO-AOP **Objective:** 10 **Point Value:** 1

Section: 4.2 **Type:** Generic APEs

System Number: 061 **System Title:** Area Radiation Monitoring (ARM) System Alarms

Description: Ability to determine and interpret the following as they apply to the Area Radiation Monitoring (ARM) System Alarms: Need for area evacuation; check against existing limits.

K/A Number: AA2.05 **CFR Reference:** 43.5 / 45.13

Tier: 1 **RO Imp:** 3.5 **RO Select:** No **Difficulty:** 2

Group: 2 **SRO Imp:** 4.2 **SRO Select:** Yes **Taxonomy:** C

Question:

You are the SRO in charge of fuel handling for the Dry Fuel Storage Project.

A SFP bridge interlock fails and an assembly is damaged while it is being moved to the cask loading pit.
The SFP area radiation monitor, RE-8009, begins alarming.

Which of the following is your required action for this event?

a. Place the spent fuel assembly back in its original location.

b. Notify Radiation Protection and continue fuel movement.

c. Initiate a local evacuation of the Spent Fuel Pool area.

d. Place the assembly in the cask loading pit.

Answer:

c. Initiate a local evacuation of the Spent Fuel Pool area.

Notes:

Answer [c] is correct per AOP 1203.042.
Answers [a] and [d] are incorrect, an ARM in alarm means the area should be evacuated until damage and radiation levels can be assessed.
Answer [b] is incorrect, this would take too much time.

References:

1203.042, Refueling Abnormal Operations, change 005-01-0, page 3, step 1

History:

Created for 2001 exam.
Selected for use in 2002 SRO exam.

QID: 0062 **Rev:** 0 **Rev Date:** 5/6/2002 **Source:** Direct **Originator:** GGiles

TUOI: ANO-1-LP-RO-ICS **Objective:** 12 **Point Value:** 1

Section: 4.3 **Type:** B&W EOP/AOP

System Number: A01 **System Title:** Plant Runback

Description: Knowledge of the reasons for the following responses as they apply to the (Plant Runback): Normal, abnormal and emergency operating procedures associated with (Plant Runback).

K/A Number: AK3.2 **CFR Reference:** 41.5 / 41.10, 45.6, 45.13

Tier:	1	**RO Imp:**	3.2	**RO Select:**	No	**Difficulty:**	4
Group:	2	**SRO Imp:**	3.6	**SRO Select:**	Yes	**Taxonomy:**	Ap

Question:

Given the following plant conditions:

- 100% power
- Condensate Pump P-2A OOS
- K06-E7 "COND PUMP MTR WDG TEMP HI" is in alarm
- AO reports fire in P-2C motor

The CRS instructs the CBOT to trip P-2C.

Which of the following describes the correct response?

a. Trip P-2C, perform immediate actions per 1203.027, Loss of Steam Generator Feed and dispatch the fire brigade per 1203.034, Smoke, Fire or Explosion.

b. Trip P-2C, monitor ICS runback to 40% power and dispatch the fire brigade per 1203.034, Smoke, Fire or Explosion.

c. Trip P-2C and reduce power per 1203.045, Rapid Plant Shutdown, to maintain adequate main feed pump suction pressure and dispatch the fire brigade per 1203.034, Smoke, Fire or Explosion.

d. Trip P-2C then trip the turbine and reactor and carry out immediate actions per 1202.001, Reactor Trip and dispatch the fire brigade per 1203.034, Smoke, Fire or Explosion.

Answer:

b. Trip P-2C, monitor ICS runback to 40% power and dispatch the fire brigade per 1203.034, Smoke, Fire or Explosion.

Notes:

The plant is designed to survive a loss of 2 condensate pumps. ICS will run the plant back at 50%/min to 40% power (360 MWe). Immediate action for fire is to dispatch the fire brigade, therefore (b) is the correct response. (a) is actions for a loss of a main feedwater pump which should not occur. (c) main feed pump suction pressure will go down but recover as ICS runs plant back. (d) a reactor/turbine trip should not be required.

References:

1105.004 Rev 014-00-0, Integrated Control System, page 10 step 6.20
1203.034, Rev. 012-03-0, Smoke, Fire, or Explosion, p. 4

History:

Used in 2001 SRO Exam.

Selected for use in 2002 SRO exam.

QID: 0423 **Rev:** 0 **Rev Date:** 4/25/2002 **Source:** New **Originator:** S.Pullin

TUOI: A1LP-RO-EOP01 **Objective:** 11 **Point Value:** 1

Section: 4.3 **Type:** Babcock & Wilcox EPEs/APEs

System Number: A04 **System Title:** Turbine Trip

Description: Knowledge of the interrelations between the (Turbine Trip) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

K/A Number: AK2.1 **CFR Reference:** 41.7 / 45.7

Tier:	1	**RO Imp:**	3.5	**RO Select:**	Yes	**Difficulty:**	3
Group:	2	**SRO Imp:**	3.3	**SRO Select:**	Yes	**Taxonomy:**	A

Question:

A power escalation in progress, current power is 50%

The following annunciators alarm and conditions are present:

- MSSV OPEN (K07-C5)
- MAIN STEAM PRESSURE HI/LO (K07-C6)
- PZR LEVEL HI (K09-D3)
- RCS PRESSURE HI/LO (K09-C2)
- GENERATOR L.O. RELAY TRIP (K04-A8)

What operator actions are required?

a. Reduce reactor power to within capacity of main turbine load.

b. Monitor runback to 40% load.

c. Trip the reactor and go to 1202.001.

d. Open Pressurizer Spray (CV-1008) in MAN.

Answer:

c. Trip the reactor and go to 1202.001.

Notes:

Answer "c" is correct since the reactor should have tripped due to indications of a turbine trip with reactor power > 43%.
Answer "a" is incorrect, although this action is in load rejection AOP, the presence of K04-A8 indicates a turbine trip should be present.
Answer "b" is incorrect, runbacks occur for other reasons but not in this instance.
Answer "d" is incorrect, although this action is in load rejection AOP, the presence of K04-A8 indicates a turbine trip should be present.

References:

1203.012C, Annunciator K04 Corrective Action (K04-A8), change 031-01-0, page 47, step 2

History:

New for 2002 RO/SRO exam.

QID: 0415 **Rev:** 0 **Rev Date:** 04/23/2002 **Source:** New **Originator:** J.Cork

TUOI: A1LP-RO-EOP01 **Objective:** 8 **Point Value:** 1

Section: 4.3 **Type:** B&W EOP/AOP

System Number: E02 **System Title:** Vital System Status Verification

Description: Knowledge of the interrelations between the (Vital System Status Verification) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

K/A Number: EK2.2 **CFR Reference:** 41.7 / 45.7

Tier: 1 **RO Imp:** 4.2 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 4.2 **SRO Select:** Yes **Taxonomy:** A

Question:

Given the following conditions:

- Rx tripped from 100%
- All RCPs are ON
- T hot is 565 degrees F and rising
- RCS pressure is 2150 psig and rising
- "A" OTSG Startup level is 14" and dropping
- "B" OTSG Startup level is 12" and dropping

Which of the following operator responses is correct?

a. Go to 1202.004, Overheating.

b. Trip all RCP's.

c. Open Feedwater Pumps DISCH Crosstie, CV-2827.

d. Verify proper EFW actuation and control per RT-5.

Answer:

d. Verify proper EFW actuation and control per RT-5.

Notes:

Answer "d" is correct per contingency actions in Rx Trip EOP when OTSG Startup Levels are less than 13.5".
Answer "a" is incorrect, no indications that all MFW and EFW are lost and T hot is less than 580.
Answer "b" is incorrect, subcooling margin is adequate.
Answer "c" is incorrect, this is done only as a contingency for only one MFW pump operating and <70 psid is being maintained across startup valves.

References:

1202.001, Reactor Trip, change 027-01-0, page 12, step 22 contingency action, or page 20 Floating step

History:

New for 2002 RO/SRO exam.

QID: 0186 **Rev:** 0 **Rev Date:** 11/23/98 **Source:** Direct **Originator:** D. Jacks

TUOI: ANO-1-LP-RO-EOP04 **Objective:** 11 **Point Value:** 1

Section: 4.3 **Type:** B&W EOP/AOP

System Number: E04 **System Title:** Inadequate Heat Transfer

Description: Ability to determine and interpret the following as they apply to the Inadequate Heat Transfer: Facility conditions and selection of appropriate procedures during abnormal and emergency procedures.

K/A Number: EA2.1 **CFR Reference:** 43.5 / 45.13

Tier:	1	**RO Imp:**	3.2	**RO Select:**	Yes	**Difficulty:**	2
Group:	2	**SRO Imp:**	4.4	**SRO Select:**	Yes	**Taxonomy:**	K

Question:

Given:

- Reactor tripped with Thot temperatures 590 degrees and rising.
- 'A' & 'B' SG levels 13".
- All 4 RCPs are operating with RCS pressure 2200 psig.
- Both DGs are in emergency standby.

Which of the following procedures provides appropriate guidance?

a. Loss of Subcooling Margin (1202.002)

b. Overheating (1202.004)

c. Inadequate Core Cooling (1202.005)

d. Degraded Power (1202.007)

Answer:

b. Overheating (1202.004)

Notes:

[b] is correct, with RCPs on and Th temps 590°F the Overheating EOP should be entered.
[a] might be chosen due to high temps, but pressure is also high so SCM is OK.
[c] might be chosen due to high temps, but superheated conditions must exist to enter the ICC EOP.
[d] candidate might mistake DGs in emergency standby for a Degraded Power condition.

References:

1202.004, Overheating, change 004-01-0, page 1

History:

Developed for use in A. Morris 98 RO Re-exam
Selected for 2002 RO/SRO exam.

QID: 0182 **Rev:** 0 **Rev Date:** 5/7/2002 **Source:** Direct **Originator:** J. Selva

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.5 **Point Value:** 1

Section: 4.3 **Type:** B&W EOP/AOP

System Number: E08 **System Title:** LOCA Cooldown

Description: Knowledge of the operational implications of the following concepts as they apply to the LOCA Cooldown: Normal, abnormal, and emergency procedures associated with LOCA Cooldown.

K/A Number: EK1.2 **CFR Reference:** 41.8 / 41.10 / 45.3

Tier:	1	**RO Imp:**	3.5	**RO Select:**	No	**Difficulty:**	3
Group:	2	**SRO Imp:**	3.8	**SRO Select:**	Yes	**Taxonomy:**	An

Question:

A LOCA is in progress.

Which one of the following actions is required to be performed prior to the BWST level reaching 6 feet?

a. Secure running Reactor Coolant Pumps.

b. Align Pressurizer AUX Spray to LPI system.

c. Secure running High Pressure Injection Pumps.

d. Align one LPI train to gravity flow from RCS hot leg to RB sump.

Answer:

b. Align Pressurizer AUX Spray to LPI system.

Notes:

(a) & (c) are incorrect. RCPs and HPI pumps are secured based on meeting LPI flow criteria and not sump suction.
(b) is correct. Pressurizer AUX Spray must be aligned prior to sump recirc to limit personnel exposure once the primary fluids are allowed to enter the Auxiliary Building.
(d) incorrect. This action is required for boron precipitation concerns and is based on time from LOCA and not BWST level.

References:

1203.041, Small Break LOCA Cooldown, change 004-01-0, page 4, step 9.c,

History:

Developed for use in 98 exam.
Selected for use in 2002 SRO exam.

QID: 0427 **Rev:** 0 **Rev Date:** 4/25/2002 **Source:** New **Originator:** S. Pullin

TUOI: A1LP-ROEOP07 **Objective:** 12.3 **Point Value:** 1

Section: 4.2 **Type:** Generic APEs

System Number: 056 **System Title:** Loss of Offsite Power

Description: Ability to operate and/or monitor the following as they apply to the Loss of Offsite Power: Auxiliary/emergency feedwater pump (motor driven).

K/A Number: AA1.10 **CFR Reference:** 41.7 / 45.5 / 45.6

Tier: 1 **RO Imp:** 4.3 **RO Select:** Yes **Difficulty:** 4

Group: 3 **SRO Imp:** 4.3 **SRO Select:** Yes **Taxonomy:** A

Question:

Given:

- Plant has lost all offsite power.
- #2 EDG is supplying normal voltage and frequency to A4.
- #1 EDG has tripped due to low lube oil pressure.
- AAC Generator is OOS for maintenance.
- P-7A EFW pump has tripped.

Which of the following would be the most appropriate action?

a. Go to Overheating, 1202.004

b. Start P-75 Auxiliary FW pump .

c. Initiate HPI cooling per RT-4.

d. Cross-tie A3 and A4 buses and start P-7B.

Answer:

d. Cross-tie A3 and A4 buses and start P-7B.

Notes:

References:

1202.007, Degraded Power, change 005-01-0, page 29, step 54 contingency action C

History:

New for 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0137 **Rev:** 1 **Rev Date:** 04/15/93 **Source:** Direct **Originator:** G. Alden

TUOI: ANO-1-LP-RO-ICS **Objective:** 28 **Point Value:** 1

Section: 3.4 **Type:** RCS Heat Removal

System Number: 059 **System Title:** Main Feedwater

Description: Knowledge of the physical connections and/or cause-effect relationships between the MFW and the following systems: ICS.

K/A Number: K1.07 **CFR Reference:** 41.2 to 41.9 / 45.7 to 45.8

Tier: 1 **RO Imp:** 3.2 **RO Select:** Yes **Difficulty:** 2

Group: 3 **SRO Imp:** 3.2 **SRO Select:** Yes **Taxonomy:** K

Question:

Which one of the following is NOT a function of the Rapid Feedwater Reduction feature of ICS?

a. Low Load and Startup Control Valve demands are reduced to zero.

b. Main Feedwater Pump speed goes to minimum.

c. Both Main Feedwater Block Valves close in slow speed.

d. Both Loop Feedwater demands are reduced to zero.

Answer:

c. Both Main Feedwater Block Valves close in slow speed.

Notes:

[a], [b], & [d] are part of the RFR circuit and while [c] appears to be a logical component of this, the [c] function is independent of RFR.

References:

STM 1-64 Rev 6, Integrated Control System page 40, step 2.6.9

History:

Taken from Exam Bank QID # 3262 (modified answers slightly)
Used in A. Morris 98 RO Re-exam
Used in 2001 RO/SRO Exam.
Selected for 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0428 **Rev:** 0 **Rev Date:** 04/29/2002 **Source:** Direct **Originator:** J.Cork

TUOI: A1LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 4.2 **Type:** Generic APEs

System Number: 065 **System Title:** Loss of Instrument Air

Description: Ability to determine and interpret the following as they apply to the Loss of Instrument Air: When to commence plant shutdown if instrument air pressure is decreasing.

K/A Number: AA2.05 **CFR Reference:** 43.5 / 45.13

Tier: 1 **RO Imp:** 3.4 **RO Select:** Yes **Difficulty:** 2

Group: 3 **SRO Imp:** 4.1 **SRO Select:** No **Taxonomy:** K

Question:

With a Low Instrument Air Condition, when should the Control Room Operators start a plant runback at maximum rate (~10% per min.) using OP 1203.045 ?

a. When IA pressure is equal to or less than 75 psig.

b. When IA pressure is equal to or less than 60 psig.

c. When the SA-IA crossover opens.

d. When IA pressure is equal to or less than 35 psig.

Answer:

b. When IA pressure is equal to or less than 60 psig.

Notes:

References:

1203.024, Loss of Instrument Air, change 010-05-0, page 7, step3

History:

Direct from regular exambank QID 1897.
Selected for use in 2002 RO exam.

QID: 0347 **Rev:** 0 **Rev Date:** 9-7-99 **Source:** Direct **Originator:** G. Alden

TUOI: A1LP-RO-FH **Objective:** 1.4 **Point Value:** 1

Section: 4.3 **Type:** B&W EOP/AOP

System Number: A08 **System Title:** Refueling Canal Level Decrease

Description: Knowledge of the interrelations between the (Refueling Canal Level Decrease) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

K/A Number: AK2.1 **CFR Reference:** 41.7 / 45.7

Tier:	1	**RO Imp:**	4.0	**RO Select:**	No	**Difficulty:**	2
Group:	3	**SRO Imp:**	3.8	**SRO Select:**	Yes	**Taxonomy:**	C

Question:

The main fuel bridge has a spent fuel assembly in route to the RB upender when a seal plate NI cover failure occurs.

Water level in the canal is falling at two inches per minute.

The main fuel bridge operator should:

a. Continue to the upender and place the assembly in the upender.

b. Leave the fuel assembly in the mast and evacuate the area.

c. Place the assembly in the fuel rack in the deep end of the canal.

d. Return the assembly to any available location in the reactor vessel.

Answer:

d. Return the assembly to any available location in the reactor vessel.

Notes:

In this scenario the fuel transfer canal level is decreasing rapidly and thus shielding for the spent fuel assembly will be decreasing rapidly and the fuel assembly must be placed in an area that will remain covered with water after the canal is drained.
Therefore, "d" is the only correct answer. "a" is incorrect as this is a time consuming maneuver and the transfer tube should be isolated anyway to prevent losing level in the SFP. "b" is very incorrect since this will expose the assembly to atmosphere and dose rates will be lethal for quite some time. "c" is incorrect since the deep end will not contain enough water to keep the assembly covered.

References:

1203.042, Refueling Abnormal Operations, change 005-01-0, page 7, step 8

History:

Used in 1999 exam.
Direct from ExamBank, QID# 4282 used in class exam
Used in 2001 RO/SRO Exam.
Selected for use in 2002 SRO exam.

QID: 0429 **Rev:** 0 **Rev Date:** 4/30/2002 **Source:** Direct **Originator:** S.Pullin

TUOI: A1LP-RO-CRD **Objective:** 8 **Point Value:** 1

Section: 3.1 **Type:** Reactivity Control

System Number: 001 **System Title:** Control Rod Drive System

Description: Knowledge of bus power supplies to the following: Circuit breakers.

K/A Number: K2.06 **CFR Reference:** 41.7

Tier: 2 **RO Imp:** 2.4 **RO Select:** Yes **Difficulty:** 2

Group: 1 **SRO Imp:** 2.8 **SRO Select:** Yes **Taxonomy:** C

Question:

If breaker B631 opened while operating at 100% power, the response of the Control Rod Drive system would be:

a. a ratchet trip of all regulating rods since half of the power supply has been removed.

b. a trip of all safety rods since the main power has been removed.

c. a ratchet trip of the safety rods due to a single phase remaining energized.

d. no effect on regulating rods, safety rods are held by a single phase (CC) energized.

Answer:

d. no effect on regulating rods, safety rods are held by a single phase (CC) energized.

Notes:

References:

STM 1-02, Control Rod Drive System, page 9, step 2.4

History:

Direct from regular exambank QID 4208.
Selected for use in 2002 RO/SRO exam.

QID: 0052 **Rev:** 2 **Rev Date:** 4/30/2002 **Source:** Modified **Originator:** J.Cork

TUOI: A1LP-RO-RXBAL **Objective:** 3 **Point Value:** 1

Section: 3.1 **Type:** Reactivity Control

System Number: 001 **System Title:** Control Rod Drive System

Description: Ability to (a) predict the impacts of the following malfunction or operations on the CRDS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Effects of transient xenon on reactivity.

K/A Number: A2.06 **CFR Reference:** 41.5/ 43.5 / 45.3 / 45.13

Tier: 2 **RO Imp:** 3.4 **RO Select:** Yes **Difficulty:** 4

Group: 1 **SRO Imp:** 3.7 **SRO Select:** Yes **Taxonomy:** Ap

Question:

The plant had been operating at 100% power for 200 days.
Following a plant trip, preparations for startup are in progress.
The CBOR is performing "Calculation of Estimated Critical Configuration" (Worksheet 1) per Reactivity Balance Calculation, 1103.015.

At a given boron concentration, which of the following post-trip times would result in the highest rod index due to the effects of Xenon ?

a. 4 to 6 hours

b. 8 to 12 hours

c. 40 to 60 hours

d. 70 to 90 hours

Answer:

b. 8 to 12 hours

Notes:

Answer "b" is correct since xenon has peaked at it's highest concentration pre-trip resulting in the highest rod index.

Answer "d" is incorrect since Xenon is essentially depleted at ~80 hours following a reactor trip from 100% power (thumb rule), thus adding essentially no reactivity for which rod withdrawal must compensate for.
Answer "a" is incorrect since xenon is still building in at this time and is not at its peak value, and "c" is incorrect because at this time the core is moving towards being xenon free.

References:

General Physics Corporation PWR / Reactor Theory, ch.6, p.25

History:

Developed for the 1998 Unit 1 RO/SRO Exam.
Modified for use in 2001 RO Exam.
Modified for use in 2002 RO/SRO exam.

QID: 0264 **Rev:** 0 **Rev Date:** 9-2-99 **Source:** Direct **Originator:** D. Slusher

TUOI: ANO-1-LP-RO-AOP **Objective:** 3 **Point Value:** 1

Section: 3.4 **Type:** Heat Removal From Reactor Core

System Number: 003 **System Title:** Reactor Coolant Pump System

Description: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RCPS controls including: RCS flow.

K/A Number: A1.05 **CFR Reference:** 41.5 / 45.5

Tier:	2	**RO Imp:**	3.4	**RO Select:**	Yes	**Difficulty:**	2
Group:	1	**SRO Imp:**	3.5	**SRO Select:**	Yes	**Taxonomy:**	K

Question:

At 80% power, the "B" RCP tripped on motor fault.
RCP's A, C, and D are still running.

During the ensuing runback, feedwater flow should (major flow change only):

a. remain equal to both OTSG's.

b. decrease to both OTSG's.

c. decrease to the "A" OTSG.

d. decrease to the "B" OTSG.

Answer:

d. decrease to the "B" OTSG.

Notes:

"a" is incorrect because ICS will re-ratio feedwater to maintain Loop cold leg temperatures constant.
"b" is incorrect because feedwater flow to the "A" OTSG will increase and ""B" OTSG will decrease.
"c" is incorrect because feedwater flow to the "A" OTSG will increase and ""B" OTSG will decrease.
"d" is correct because feedwater flow to the "A" OTSG will increase and ""B" OTSG will decrease.

References:

STM 1-64, Intergrated Control System, rev 6, page 41, step 2.6.12

History:

Direct from ExamBank, QID# 1852 used in class exam
Selected for use in RO/SRO exam.

QID: 0002 **Rev:** 1 **Rev Date:** 4/30/2002 **Source:** Modified **Originator:** S.Pullin

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.1 **Point Value:** 1

Section: 3.4 **Type:** Heat Removal from Reactor Core

System Number: 003 **System Title:** Reactor Coolant Pump System (RCPS)

Description: Knowledge of bus power supplies to the following: RCPs.

K/A Number: K2.01 **CFR Reference:** 41.7

Tier:	2	**RO Imp:**	3.1	**RO Select:**	Yes	**Difficulty:**	3
Group:	1	**SRO Imp:**	3.1	**SRO Select:**	Yes	**Taxonomy:**	An

Question:

Given:

- Power escalation to 60% power is in progress.
- Current reactor power is 40%.
- There are 3 RCPs in service.
- "A" RCP is out of service due to an electrical fault in breaker H-11 (Reactor Coolant Pump P-32A).

Which of the following conditions would cause an automatic reactor trip?

a. Annunciator "RCP TRIP" (K08-A6) is clear, RCS flow is lowering and "C" RCP amperage is zero on SPDS.

b. Annunciator "RCP TRIP" (K08-A6) is in alarm, RCS flow is lowering and "H2 L.O. RELAY TRIP" (K02-A5) in alarm.

c. Breaker B-7146 (ICW Booster Pump P-114A) trips open and P-114B fails to auto start causing a loss of RCP Seal Cooling.

d. Breaker H-21 (Reactor Coolant Pump P-32D) trips open due to an over-current condition causing a loss of the "D" RCP.

Answer:

b. Annunciator "RCP TRIP" (K08-A6) is in alarm, RCS flow is lowering and "H2 L.O. RELAY TRIP" (K02-A5) in alarm.

Notes:

(b.) is correct. The indications are for a loss of H2 bus which leaves only one RCP running at power. RPS will trip if no RCPs are running in a loop when greater than 0% power.

(a) is incorrect because indications are of a sheared shaft which requires a manual reactor trip.
(c) is incorrect because a loss of seal cooling alone will not cause a reactor trip.
(d) is incorrect because a loss of "D" RCP would result in one RCP in each loop with reactor power <55% - no automatic reactor trip will result.

References:

1203.012G, Rev. 032-03-0, Annunciator K08 Corrective Action, page 35
1105.001, Rev. 019-03-0, NI & RPS Operating Procedure, step 6.1, page 8

History:

Developed for 1998 RO Exam.
Modified for use in 2002 RO/SRO exam.

QID: 0191 **Rev:** 0 **Rev Date:** 11/21/98 **Source:** Direct **Originator:** J. Haynes

TUOI: A1LP-RO-MU **Objective:** 3.7 **Point Value:** 1

Section: 3.2 **Type:** RCS Inventory Control

System Number: 004 **System Title:** Chemical and Volume Control System

Description: Ability to monitor automatic operation of the CVCS including: Charging/letdown.

K/A Number: A3.11 **CFR Reference:** 41.7 / 45.5

Tier:	2	**RO Imp:**	3.6	**RO Select:**	Yes	**Difficulty:**	2
Group:	1	**SRO Imp:**	3.4	**SRO Select:**	No	**Taxonomy:**	K

Question:

The level setpoint at which the Makeup Tank Vent Valve (CV-1257)
automatically opens is:

a. 86 inches

b. 55 inches

c. 18 inches

d. 10 inches

Answer:

c. 18 inches

Notes:

[c] is the correct value for this automatic setpoint.
[b] is the lower limit in the EOP where operator should consider transferring to the BWST.
[a] is the MUT upper limit, indicative of the tank level being too high.
[d] is the MUT level indicator's lowest increment.

References:

STM 1-04, Primary Makeup and Purification, rev 6, page 21, step 2.14.2

History:

Developed for use in A. Morris 98 RO Re-exam
Selected for 2002 RO exam.

QID: 0189 **Rev:** 0 **Rev Date:** 5/6/2002 **Source:** Modified **Originator:** J. Cork

TUOI: A1LP-RO-MU **Objective:** 10 **Point Value:** 1

Section: 4.2 **Type:** Plant Systems

System Number: 004 **System Title:** Chemical and Volume Control System

Description: Knowledge of the effect that a loss or malfunction of the CVCS will have on the following: PZR LCS.

K/A Number: K3.05 **CFR Reference:** 41.7 / 45/6

Tier:	2	**RO Imp:**	3.8	**RO Select:**	Yes	**Difficulty:**	3
Group:	1	**SRO Imp:**	4.2	**SRO Select:**	Yes	**Taxonomy:**	A

Question:

The plant is operating at 100% power near EOL.

During pre-outage scaffolding construction in Lower North Piping Room (LNPR),
the instrument air line to the following valves has been severed:

- CV-1235, Pressurizer Level Control
- CV-1222, Letdown Orifice Block
- CV-1223, Letdown Orifice Bypass
- CV-1207, RCP Seals Total Injection Flow

With no operator action, which of the following describes the expected system response?

a. Pressurizer level will rise continuously.

b. Pressurizer level will rise to a higher steady state value.

c. Pressurizer level will drop continuously.

d. Pressurizer level will drop to a lower steady state value.

Answer:

a. Pressurizer level will rise continuously.

Notes:

CV-1235 and CV-1222 fail as-is on a loss of instrument air.
CV-1223 fails closed and CV-1207 fails open on a loss of instrument air.
This will result in lower letdown flow and higher seal injection flow resulting in PZR level to continuously rise.
Thus "a" is the correct answer, all other answers are incorrect and could be chosen if candidate fails to recall failure modes.

References:

1203.024, Loss of Instrument Air, change 010-05-0, page 13, Attachment A

History:

Developed for use in A. Morris 98 RO Re-exam
Modified for use in 2002 RO/SRO exam.

QID: 0432 **Rev:** 0 **Rev Date:** 4/30/2002 **Source:** New **Originator:** S.Pullin

TUOI: A1LP-RO-MU **Objective:** 10 **Point Value:** 1

Section: 3.2 **Type:** RCS Inventory Control

System Number: 004 **System Title:** Chemical and Volume Control System

Description: Ability to monitor automatic operation of the CVCS, including: Letdown isolation.

K/A Number: A3.02 **CFR Reference:** 41.7 / 45.5

Tier: 2 **RO Imp:** 3.6 **RO Select:** No **Difficulty:** 3

Group: 1 **SRO Imp:** 3.6 **SRO Select:** Yes **Taxonomy:** C

Question:

Unit One is operating at 100% power.
An ICW problem causes Letdown temperature to rise to 148°F.

What is the effect on the Pressurizer level control system during this transient?

a. PZR level will continue to drop during this event.

b. PZR level will continue to rise during this event.

c. Makeup flow will rise to restore Pressurizer level to setpoint.

d. Makeup flow will drop to restore Pressurizer level to setpoint.

Answer:

b. PZR level will continue to rise during this event.

Notes:

References:

STM 1-04, Primary Make Up and Purification System, rev 6, page 1, step 1.2

History:

Created for 2002 SRO exam.

QID: 0430 **Rev:** 0 **Rev Date:** 4/30/2002 **Source:** Direct **Originator:** S.Pullin

TUOI: A1LP-RO-ESAS **Objective:** 21 **Point Value:** 1

Section: 3.2 **Type:** RCS Inventory Control

System Number: 013 **System Title:** Engineered Safety Features Actuation System

Description: Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following: Safeguards equipment control reset.

K/A Number: K4.10 **CFR Reference:** 41.7

Tier: 2 **RO Imp:** 3.3 **RO Select:** Yes **Difficulty:** 2

Group: 1 **SRO Imp:** 3.7 **SRO Select:** Yes **Taxonomy:** K

Question:

The plant is operating at 100% power.
An ESAS actuation occurs.

What action is required to reset the ESAS channels?

a. Depress the ESAS reset on panel C04.

b. Depress resets on actuation bistables.

c. Reset the digital signals then reset the analog signals.

d. Reset the analog signals then reset the digital signals.

Answer:

d. Reset the analog signals then reset the digital signals.

Notes:

References:

1105.003, Engineered Safeguards Actuation System, change 010-03-0, page 12, step 14

History:

Direct from regular exambank QID 3110.
Selected for use in 2002 RO/SRO exam.

QID: 0464 **Rev:** 0 **Rev Date:** 5/21/2002 **Source:** Direct **Originator:** J.Cork

TUOI: A1LP-RO-NI **Objective:** 10 **Point Value:** 1

Section: 3.7 **Type:** Instrumentation

System Number: 015 **System Title:** Nuclear Instrumentation System

Description: Ability to monitor automatic operation of the NIS, including: Verification of proper functioning/operability.

K/A Number: A3.03 **CFR Reference:** 41.7 / 45.5

Tier: 2 **RO Imp:** 3.9 **RO Select:** Yes **Difficulty:** 2

Group: 1 **SRO Imp:** 3.9 **SRO Select:** Yes **Taxonomy:** C

Question:

Given:

- Reactor startup is in progress.
- Count rate on NI-1 & NI-2 is 1E3 CPS.

During the next rod pull, the HI SUR rod hold alarms.

The most likely cause is due to SUR exceeding:

a. 1 DPM on the source range monitors.

b. 2 DPM on the source range monitors.

c. 2 DPM on the intermediate range monitors.

d. 3 DPM on the power range monitors.

Answer:

b. 2 DPM on the source range monitors.

Notes:

References:

1105.009, CRD System Operating Procedure, Rev.017-01-0, page 3, step 3.6

History:

Direct from regular exambank QID 1789.
Selected for use in 2002 RO/SRO exam.

QID: 0431 **Rev:** 0 **Rev Date:** 4/30/2002 **Source:** Direct **Originator:** J.Cork

TUOI: A1LP-RO-NI **Objective:** 10 **Point Value:** 1

Section: 3.7 **Type:** Instrumentation

System Number: 015 **System Title:** Nuclear Instrumentation

Description: Ability to (a) predict the impacts of the following malfunctions or operations on the NIS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Power supply loss or erratic operation.

K/A Number: A2.01 **CFR Reference:** 41.5 / 43.5 / 45.3 / 45.5

Tier:	2	**RO Imp:**	3.5	**RO Select:**	Yes	**Difficulty:**	4
Group:	1	**SRO Imp:**	3.9	**SRO Select:**	Yes	**Taxonomy:**	C

Question:

If at 100% power, NI channel 7 rapidly failed full upscale (to 125% power), which one of the following would you expect to occur?

a. ICS would withdraw control rods and runback feedwater.

b. RPS channel C would trip.

c. ICS would insert control rods and increase feedwater.

d. SASS would select NI channel 8.

Answer:

b. RPS channel C would trip.

Notes:

References:

STM 1-67, Nuclear Instrumentation, Rev. 6 Ch. 1, page 22, step 2.5.5, page 23, step 2.5.7, & page 36, step 3.2.1

History:

Direct from exambank QID 1793.
Selected for use in RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0299 **Rev:** 0 **Rev Date:** 9-5-99 **Source:** Direct **Originator:** J Haynes

TUOI: ANO-1-LP-RO-NI **Objective:** 10 **Point Value:** 1

Section: 3.7 **Type:** Instrumentation

System Number: 015 **System Title:** Nuclear Instrumentation System

Description: Knowledge of the effect that loss or malfunction of the NIS will have on the following: ICS

K/A Number: K3.04 **CFR Reference:** 41.7 / 45.6

Tier: 2 **RO Imp:** 3.4 **RO Select:** Yes **Difficulty:** 3

Group: 1 **SRO Imp:** 3.4 **SRO Select:** No **Taxonomy:** An

Question:

The plant is at 80% power. The NI SASS mismatch alarm is bypassed due to a mismatch.

What would be the predicted plant response if NI-6 failed to 125%?

a. Control rods move inward, feedwater flows go up.

b. Control rods move inward, feedwater flows do down.

c. Control rods move outward, feedwater flows go up.

d. Control rods move outward, feedwater flow go down.

Answer:

a. Control rods move inward, feedwater flows go up.

Notes:

The mismatch alarm disables the SASS module automatic operation. When NI-6 fails to 125% power, ICS will see NI-6 as the input power. ICS will generate an error to drive rods in. AT the same time a cross-limit is generated to keep feedwater balanced with reactor power. Feedwater will go up. Therefore, "b", "c", and "d" are incorrect.

References:

STM 1-64, Integrated Control System, rev 6, page 33, step 2.6.1, page 43, step 2.7

History:

Used in 1999 exam.
Direct from ExamBank, QID# 3723
Selected for 2002 RO exam.

QID: 0222 **Rev:** 0 **Rev Date:** 11/19/98 **Source:** Direct **Originator:** B. Short

TUOI: ANO-1-LP-RO-RCS **Objective:** 6 **Point Value:** 1

Section: 3.7 **Type:** Instrumentation

System Number: 016 **System Title:** Non-Nuclear Instrumentation System (NNIS)

Description: Knowledge of NNIS design feature(s) and/or interlock(s) which provide for the following: Input to control systems.

K/A Number: K4.03 **CFR Reference:** 41.7

Tier: 2 **RO Imp:** 2.8 **RO Select:** Yes **Difficulty:** 3

Group: 1 **SRO Imp:** 2.9 **SRO Select:** Yes **Taxonomy:** Ap

Question:

Initial Conditions:

- Reactor power 75%
- RCS pressure 2160 psig
- RCS Tave is 580 degrees

What would be the immediate response of the Pressurizer Spray Valve (CV-1008) upon an 'A' MFW pump trip?

a. Initially remain closed and then responds to pressure changes.

b. Initially to 40% open and then responds to pressure changes.

c. Initially to 75% open and then responds to pressure changes.

d. Initially to 100% open and then responds to pressure changes.

Answer:

a. Initially remain closed and then respond to pressure changes.

Notes:

(a.) is the correct answer. If reactor power was >80% or RCS pressure was >2205 psig, (d.) would have been the correct answer. Prior to the most recent modification on this circuitry, when RCS pressure reached 2205 psig with CV-1008 in auto, the spray valve would come open to 40%, however, the valve now is only open or closed with no control positions in between.

References:

1103.005, Pressurizer Operation, change 030-01-0, page 7, step 6.7.2

History:

Developed for use on A. Morris 98 RO Re-exam
Selected for use in 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0194 **Rev:** 1 **Rev Date:** 4/23/2002 **Source:** Modified **Originator:** J. Cork

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 3.7 **Type:** Instrumentation

System Number: 017 **System Title:** In-Core Temperature Monitoring System

Description: Knowledge of the effect that a loss or malfunction of the ITM system will have on the following: Natural circulation indications.

K/A Number: K3.01 **CFR Reference:** 41.7 / 45.6

Tier: 2 **RO Imp:** 3.5 **RO Select:** Yes **Difficulty:** 3

Group: 1 **SRO Imp:** 3.7 **SRO Select:** No **Taxonomy:** C

Question:

During a natural circulation cooldown, what could be used to determine the presence of head voiding in the reactor vessel OTHER than ICCMDS reactor vessel level indication?

a. Pressurizer level rises while depressurizing.

b. Thot tracking CET temperatures.

c. RCS pressure drops rapidly with use of aux spray.

d. Tcold rising with associated SG Tsat dropping.

Answer:

a. Pressurizer level rises while depressurizing.

Notes:

(a.) is incorrect. If cooldown rate was excessive, it would cause head voids which would cause Pressurizer level to rise while depressurizing.
(b.) is incorrect. CET temperatures are not available with a loss of ICCMDS and SPDS.
(c.) is correct. If head voids are formed from an excessive cooldown rate, it will be difficult to reduce RCS pressure.
(d.) is incorrect. This would be an indication that natural circulation cooling does not exist, not that it is excessive.

References:

1203.013, Natural Circulation Cooldown, change 016-05-0, page 8, Note

History:

Developed for use in A. Morris 98 RO Re-exam
Modified for use in 2002 RO exam.

QID: 0416 **Rev:** 0 **Rev Date:** 4/23/2002 **Source:** New **Originator:** S.Pullin

TUOI: A1LP-RO-RBVEN **Objective:** 10 **Point Value:** 1

Section: 3.5 **Type:** Plant Systems

System Number: 022 **System Title:** Containment Cooling

Description: Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.

K/A Number: 2.4.48 **CFR Reference:** 43.5 / 45.12

Tier: 2 **RO Imp:** 3.5 **RO Select:** Yes **Difficulty:** 3

Group: 1 **SRO Imp:** 3.8 **SRO Select:** Yes **Taxonomy:** C

Question:

When performing the surveillance for RB Cooling Units, which of the following indicates proper operation of the Service Water to RB Cooling Coils inlet and outlet valves?

a. Upon opening, the inlet valve is delayed until outlet valve is 25 to 40% open.

b. Upon opening, the outlet valve is delayed until inlet valve is 80 to 90% open.

c. Upon closing, the inlet valve is delayed until outlet valve is 80 to 90% closed.

d. Upon closing, the outlet valve is delayed until inlet valve is 25 to 40% open.

Answer:

c. Upon closing, the inlet valve is delayed until outlet valve is 80 to 90% closed.

Notes:

Answer "c" is correct, the other distracters are combinations of incorrect responses.

References:

STM 1-42, Service and Aux. Cooling Water, rev. 4 change 3, page 28, step 2.3.16.1

History:

New for 2002 RO/SRO exam.

QID: 0433 **Rev:** 0 **Rev Date:** 4/30/2002 **Source:** New **Originator:** J.Cork

TUOI: A1LP-RO-EOP01 **Objective:** 4 **Point Value:** 1

Section: 3.5 **Type:** Containment Integrity

System Number: 022 **System Title:** Containment Cooling System

Description: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CCS controls including: Containment pressure.

K/A Number: A1.02 **CFR Reference:** 41.5 / 45.5

Tier: 2 **RO Imp:** 3.6 **RO Select:** Yes **Difficulty:** 2

Group: 1 **SRO Imp:** 3.8 **SRO Select:** No **Taxonomy:** K

Question:

Given:

- Reactor tripped from 100%
- RB pressure has risen to 19 psia
- CRS directs performance of RT-9, Maximize RB Cooling

Which of the following is a correct action per RT-9?

a. Open RB Cooling Coils Chilled Water Inlet and Outlet valves.

b. Start RB Cooling Fan VSF-1E.

c. Latch all Chiller Bypass Dampers.

d. Open RB Cooling Coils Service Water Inlet and Outlet valves.

Answer:

d. Open RB Cooling Coils Service Water Inlet and Outlet valves.

Notes:

References:

1202.012, Repetitive Tasks, change 004-02-0, RT-9, page 15, step 9

History:

Created for 2002 RO/SRO exam.

QID: 0454 **Rev:** 0 **Rev Date:** 5/6/2002 **Source:** New **Originator:** S.Pullin

TUOI: A1LP-RO-EOP10 **Objective:** 15.2 **Point Value:** 1

Section: 3.5 **Type:** Plant Systems

System Number: 026 **System Title:** Containment Spray

Description: 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.

K/A Number: A2.04 **CFR Reference:** 41.5 / 43.5 / 45.3 / 45.13

Tier: 2 **RO Imp:** 3.9 **RO Select:** No **Difficulty:** 3

Group: 1 **SRO Imp:** 4.2 **SRO Select:** Yes **Taxonomy:** C

Question:

A large break LOCA is in progress.

- RCS pressure is ~ 25 psig.
- RB pressure is 45 psia and trending down.
- Shift to RB Sump Suction has just been completed.

Subsequently, annunciator K11-C7, "RB SPRAY P35B ES FAILURE" alarms.

Which of the following actions should be taken?

a. Close Decay Heat Supply to Makeup Pump Suction CV-1276.

b. Establish maximum flow through "A" RB Spray Pump.

c. Maintain "A" RB Spray flow at 1050 to 1200 gpm.

d. Throttle "B" LPI Pump flow to 2800 gpm.

Answer:

c. Maintain "A" RB Spray flow at 1050 to 1200 gpm.

Notes:

Change.

Answer "c" is the correct response, the indications given are that of "A" RB Spray pump suction vortexing on the RB sump.
Answer "a" is incorrect, Spray flow will still be too high to alleviate vortexing.
Answer "b" is incorrect, although damage could occur if conditions are maintained, throttling will correct problem and it is desirable to maintain RB Spray flow.
Answer "d" is incorrect, throttling LPI flow to the minimum value could lessen vortexing, no procedural guidance of this kind exists. At one time it was discussed to throttle both RB Spray and LPI flow after swap to RB Suction but only Spray flow is throttled.

References:

1202.010, ESAS, change 005-01-0, page 11, step 3

History:

Created for 2002 SRO exam.

QID: 0261 **Rev:** 0 **Rev Date:** 9-2-99 **Source:** Direct **Originator:** D. Slusher

TUOI: ANO-1-LP-RO-COND **Objective:** 15 **Point Value:** 1

Section: 3.4 **Type:** Heat Removal From Reactor Core

System Number: 056 **System Title:** Condensate System

Description: Knowledge of the effect of a loss or malfunction of the following will have on the Condensate System components: Pumps.

K/A Number: K6.10 **CFR Reference:** 41.7 / 45.7

Tier:	2	**RO Imp:**	1.6	**RO Select:**	Yes	**Difficulty:**	3.5
Group:	1	**SRO Imp:**	1.7	**SRO Select:**	No	**Taxonomy:**	C

Question:

Given:

- The plant is at 30 % power.
- Main Feedwater Pump P-1A is in service.
- Main Feedwater Pump P-1B is shutdown.
- Condensate pumps P-2A and P-2C are in service.

Explain the response of "B" condensate pump, if "C" condensate pump trips.

a. Condensate pump low discharge pressure will auto-start condensate pump P-2B.

b. Condensate pump P-2C tripping will auto-start condensate pump P-2B.

c. Condensate pump P-2B will remain off since the plant is operating at a power level less than 40%.

d. Condensate pump P-2B will remain off since Main Feedwater Pump P-1B is not latched.

Answer:

d. Condensate pump P-2B will remain off since Main Feedwater Pump P-1B is not latched.

Notes:

Condensate pumps will only auto start if both Main Feedwater pumps are latched, therefore "a" and "b" are incorrect and "d" is correct..
"c" is incorrect because 40% power is not an interlocking function.

References:

1203.012E, Annunciator K06 Corrective Action, change 034-02-0, page 45, Setpoint logic daigram

History:

Developed for 1999 exam.
Selected for 2002 RO exam.

QID: 0434 **Rev:** 0 **Rev Date:** 4/30/2002 **Source:** Direct **Originator:** J.Cork

TUOI: A1LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 3.4 **Type:** RCS Heat Removal

System Number: 056 **System Title:** Condensate System

Description: Knowledge of the physical connections and/or cause-effect relationships between the Condensate System and the following systems: MFW.

K/A Number: K1.03 **CFR Reference:** 41.2 to 41.9 / 45.7 to 45.8

Tier:	2	**RO Imp:**	2.6	**RO Select:**	Yes	**Difficulty:**	3
Group:	1	**SRO Imp:**	2.6	**SRO Select:**	Yes	**Taxonomy:**	C

Question:

The plant is operating steady state at 100% power when Bus A1 is deenergized.

What will cause one of the main feedwater pumps to trip?

a. Low bearing oil pressure

b. High discharge pressure

c. Low suction pressure

d. High vibrations

Answer:

c. Low suction pressure

Notes:

(due to two condensate pumps being deenergized and P8A Heater Drain Pump also deenergized).

References:

1203.012F, Annunciator K07 Corrective Action, change 026-02-0, page 32, step 3

History:

Direct from regular exambank QID 3715.
Selected for use in 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0063 **Rev:** 0 **Rev Date:** 7/12/98 **Source:** Direct **Originator:** GGiles

TUOI: ANO-1-LP-RO-ICS **Objective:** 11 **Point Value:** 1

Section: 3.4 **Type:** Heat Removal From Reactor Core

System Number: 059 **System Title:** Main Feedwater (MFW) System

Description: Ability to monitor automatic operation of the MFW, including: ICS.

K/A Number: A3.07 **CFR Reference:** 41.7 / 45.5

Tier: 2 **RO Imp:** 3.4 **RO Select:** Yes **Difficulty:** 3

Group: 1 **SRO Imp:** 3.5 **SRO Select:** Yes **Taxonomy:** C

Question:

Given:

- 100% power
- ICS in full automatic

The CBOR places the ICS Delta T-Cold Hand Auto Station meter selection switch in "POS" (position). The meter reads 54%. What does this mean in terms of ICS control of main feed water?

a. The average of feedwater loop A and feedwater loop B demand is 54%.

b. Feedwater loop B demand is greater than feedwater loop A demand.

c. The feedwater loop B demand is being boosted by a 4 °F Delta T-Cold error.

d. Feedwater loop A demand is greater than feedwater loop B demand.

Answer:

d. Feedwater loop A demand is greater than feedwater loop B demand.

Notes:

A reading >50% indicates that loop A demand is > loop B demand, therefore (d) is the correct response. (a) is incorrect because the meter does not indicate average demand, (b) is an opposite response, (c) applies to looking at the MV reading (for which it would still be incorrect).

References:

STM 1-64, Rev. 6, page 35, step 2.6.2

History:

Developed for the 1998 RO/SRO Exam.
Selected for use in 2002 RO/SRO exam.

QID: 0255 **Rev:** 0 **Rev Date:** 9-2-99 **Source:** Direct **Originator:** D. Slusher

TUOI: ANO-1-LP-RO-AOP **Objective:** 3 **Point Value:** 1

Section: 3.4 **Type:** Heat Removal From Reactor Core

System Number: 059 **System Title:** Main Feedwater

Description: Knowledge of MFW design feature(s) and/or interlock(s) which provide for the following: Automatic turbine trip/reactor trip runback.

K/A Number: K4.02 **CFR Reference:** 41.7

Tier:	2	**RO Imp:**	3.3	**RO Select:**	Yes	**Difficulty:**	2.5
Group:	1	**SRO Imp:**	3.5	**SRO Select:**	No	**Taxonomy:**	C

Question:

Given:

- Plant startup is in progress.
- The plant is at 35% power
- "A" Main Feedwater Pump is in service
- "B" Main Feedwater Pump is at minimum speed
- "B" Main Feedwater Pump Anticipatory Reactor Trip is NOT reset

A malfunction of the "A" Main Feedwater Pump control oil system causes "A" Main Feedwater Pump auto stop oil pressure to go rapidly to 0 (zero) psig.

What effect does this failure have on the plant?

a. ATWS Mitigation Actuation and Control will trip the plant and start Emergency Feedwater.

b. Both OTSG levels will go less than 14.5 inches and start Emergency Feedwater.

c. RPS will trip the plant and Emergency Feedwater starts on loss of both Main Feedwater Pumps.

d. High Reactor Coolant System pressure will trip the plant and start Emergency Feedwater.

Answer:

c. RPS will trip the plant and Emergency Feedwater starts on loss of both Main Feedwater Pumps.

Notes:

"a" is incorrect, AMSAC will start EFW but reactor power must be above 45% with feedwater flow less than 15%. "b" is incorrect since EFW will already be in service and preventing a low level condition due to answer "c". "c" is correct RPS will sense a loss of both MFWPs to trip the reactor and initiate EFW. "d" is incorrect since a high pressure does not start EFW.

References:

1106.016, Condensate Feedwater and Steam system Operation, change 039-05-0, page 46, step 15.4

History:

Developed for 1999 exam.
Selected for use in 2002 RO exam.

QID: 0435 **Rev:** 0 **Rev Date:** 4/30/2002 **Source:** New **Originator:** S.Pullin

TUOI: A1LP-RO-EOP04 **Objective:** 8 **Point Value:** 1

Section: 3.4 **Type:** RCS Heat Removal

System Number: 061 **System Title:** Auxiliary/Emergency Feedwater System

Description: Knowledge of the operational implications of the following concepts as they apply to the AFW: Relationship between AFW flow and RCS heat transfer.

K/A Number: K5.01 **CFR Reference:** 41.5 / 45.7

Tier: 2 **RO Imp:** 3.6 **RO Select:** Yes **Difficulty:** 4

Group: 1 **SRO Imp:** 3.9 **SRO Select:** Yes **Taxonomy:** An

Question:

Given:

- Reactor tripped due to loss of all offsite power.
- RCS T cold is 545°F and dropping.
- RCS pressure 1800 psig and dropping.
- OTSG pressures are ~930 psig and dropping.
- "A" OTSG level is 210" and rising.
- "B" OTSG level is 195" and rising.
- "A" EFW flow is 350 gpm.
- "B" EFW flow is 300 gpm.

Which of the following is an appropriate response to the above conditions in accordance with RT-5, Verify Proper EFW Actuation and Control?

a. Maintain 280 gpm to each SG in HAND.

b. Throttle EFW to prevent overcooling.

c. Select Reflux Boiling setpoint.

d. Actuate MSLI on both OTSGs.

Answer:

b. Throttle EFW to prevent overcooling.

Notes:

References:

1202.012, Repetitive Tasks, RT-5, change 004-02-0, page 9, step D

History:

Created for 2002 RO/SRO exam.

QID: 0436 **Rev:** 0 **Rev Date:** 4/30/2002 **Source:** Modified **Originator:** J.Cork

TUOI: A1LP-WCO-CZ **Objective:** 11 **Point Value:** 1

Section: 3.9 **Type:** Radioactivy Release

System Number: 068 **System Title:** Liquid Radwaste System

Description: Ability to explain and apply all system limits and precautions.

K/A Number: 2.1.32 **CFR Reference:** 41.10 / 43.2 / 45.12

Tier: 2 **RO Imp:** 3.4 **RO Select:** Yes **Difficulty:** 2

Group: 1 **SRO Imp:** 3.8 **SRO Select:** No **Taxonomy:** K

Question:

The WCO is preparing to commence a liquid release on TWMT T-16A when he notices that there is no tag hanging on T-16A inlet valve CZ-47A (tank was sampled several hours ago).

What action should be taken?

a. Document discrepancy via CR and continue with the release.

b. Terminate the release and submit new release permit to nuclear chemistry.

c. Install tag on CZ-47A and continue with the release.

d. Inform nuclear chemistry and resample with current release permit.

Answer:

b. Terminate the release and submit new release permit to nuclear chemistry.

Notes:

References:

1104.020, Clean Waste System Operation, change 040-02-0, page 93, step 4.3.1

History:

Modified regular exambank QID 2761 for 2002 RO exam.

QID: 0439 **Rev:** 0 **Rev Date:** 4/30/2002 **Source:** New **Originator:** J.Cork

TUOI: A1LP-WCO-GZO1 **Objective:** 3 **Point Value:** 1

Section: 3.9 **Type:** Radioactivity Control

System Number: 071 **System Title:** Waste Gas Disposal System

Description: Knowledge of the effect of a loss or malfunction of the following will have on the Waste Gas Disposal System components: Surge and decay tanks.

K/A Number: K6.10 **CFR Reference:** 41.7 / 45.7

Tier:	2	**RO Imp:**	2.3	**RO Select:**	Yes	**Difficulty:**	2
Group:	1	**SRO Imp:**	2.5	**SRO Select:**	Yes	**Taxonomy:**	C

Question:

Given:

- Plant cooldown in progress for a refueling outage.
- RCS degasification is in progress.
- Vacuum Degasifier, T-14, startup is in progress.
- Waste Gas System is aligned to compress.

What would be the consequence if the WCO starting up the Vacuum Degasifier, T-14, opened the Vacuum Degasifier Vacuum Pump Suction Isolation Valve too rapidly?

a. The Vacuum Degasifier Vacuum Pump, C-10A/B, would trip on overload.

b. The Waste Gas Compressor, C-9A/B, Discharge Relief would lift.

c. The Waste Gas Discharge Valve, CV-4820, would close on high activity.

d. The Waste Gas Surge Tank, T-17, Rupture Disk would rupture.

Answer:

d. The Waste Gas Surge Tank, T-17, Rupture Disk would rupture.

Notes:

References:

STM 1-53, Clean Liquid Radioactive Waste, rev 5, page 6, step 2.5.1

History:

Created for 2002 RO/SRO exam.

QID: 0437 **Rev:** 0 **Rev Date:** 4/30/2002 **Source:** Direct **Originator:** S.Pullin

TUOI: A1LP-WCO-GZO1 **Objective:** 12 **Point Value:** 1

Section: 3.9 **Type:** Radioactivity Release

System Number: 071 **System Title:** Waste Gas Disposal

Description: Knowledge of the operational implications of the following concepts as they apply to the Waste Gas Disposal System: Relationship of hydrogen/oxygen concentrations to flammability.

K/A Number: K5.04 **CFR Reference:** 41.5 / 45.7

Tier: 2 **RO Imp:** 2.5 **RO Select:** Yes **Difficulty:** 3

Group: 1 **SRO Imp:** 3.1 **SRO Select:** No **Taxonomy:** Ap

Question:

Given:

- Waste Gas System is aligned to compress WGDT T-18A.
- H2/O2 Analyzer C-119A is inoperable.

Waste Gas Surge Tank T-17 H2 concentration has risen to 40% and O2 concentration is 7%.

Where should H2/O2 Analyzer C119 be lined up to?

(1203.010, Att. A is on following page)

a. Waste Gas Surge Tank T-17

b. Inservice WGDT T-18

c. Aux Bldg Vent Header

d. Gas Collection Header

Answer:

b. Inservice WGDT T-18

Notes:

References:

1203.010, Above Normal H2/O2 Concentration, change 007-02-0, page 2, step 3.2.3 Caution

History:

Direct from regular exambank QID 2137. While modified somewhat, does not meet ES definition of modified. Selected for 2002 RO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0379 **Rev:** 0 **Rev Date:** 11/15/00 **Source:** Direct **Originator:** J.Cork

TUOI: A1LP-WCO-ARMS **Objective:** 7 **Point Value:** 1

Section: 3.7 **Type:** Instrumentation

System Number: 072 **System Title:** Area Radiation Monitoring (ARM) System

Description: Ability to manually operate and/or monitor in the control room: Alarm and interlock setpoint checks and adjustments.

K/A Number: A4.01 **CFR Reference:** 41.7 / 45.5 to 45.8

Tier: 2 **RO Imp:** 3.0 **RO Select:** Yes **Difficulty:** 2

Group: 1 **SRO Imp:** 3.3 **SRO Select:** Yes **Taxonomy:** K

Question:

During your performance of 1305.001, Supplement 6, Area Radiation Monitor Monthly Alarm Check, you discover Relay Room Area Monitor, RI-8002, high alarm setpoint is greater than the maximum allowable value.

What are the required actions?

a. Record the value found, declare RI-8002 inoperable, and initiate a Condition Report.

b. Adjust the setpoint to less than or equal to max high alarm setpoint before recording the As-Left Setpoint.

c. Record the value found, then have I&C make the required adjustment under a "blanket" MAI.

d. Record the value found and continue, nothing else need be done since RI-8002 is not a Tech Spec required monitor.

Answer:

b. Adjust the setpoint to less than or equal to max high alarm setpoint before recording the As-Left Setpoint.

Notes:

Answer [b] is correct per the procedure.
Answer [a] would be correct for discrepancies not governed by a procedural response.
Answer [c] is how this was handled in the past.
Answer [d] is how an incompetent operator might proceed.

References:

1305.001, Radiation Monitoring System Check and Test, change 014-07-0, page 41, step 2.3.5

History:

Modified regular exambank QID #2645 for use in 2001 RO Exam.
Selected for use in RO/SRO exam.

QID: 0440 **Rev:** 0 **Rev Date:** 5/1/2002 **Source:** Direct **Originator:** S.Pullin

TUOI: A1LP-RO-RCS **Objective:** 17 **Point Value:** 1

Section: 3.2 **Type:** RCS Inventory Control

System Number: 002 **System Title:** Reactor Coolant System

Description: Knowledge of the purpose and function of major system components and controls.

K/A Number: 2.1.28 **CFR Reference:** 41.7

Tier: 2 **RO Imp:** 3.2 **RO Select:** Yes **Difficulty:** 2

Group: 2 **SRO Imp:** 3.3 **SRO Select:** Yes **Taxonomy:** K

Question:

Which of the following describes the status of the Pressurizer Electromatic Relief Valve (ERV), PSV-1000, when the white indicating light above the operating switch is ILLUMINATED?

a. PSV-1000 is in the open position.

b. The PSV-1000 control solenoid is energized.

c. ERV isolation valve is in the open position.

d. ERV selector switch allows automatic operation.

Answer:

d. ERV selector switch allows automatic operation.

Notes:

References:

STM 1-03, Reactor Coolant System, rev 8 change 2, page 18, step 2.3.5.3

History:

Direct from regular exambank QID 4466.
Selected for use in 2002 RO/SRO exam.

QID: 0197 **Rev:** 0 **Rev Date:** 11/24/98 **Source:** Direct **Originator:** R. Walters

TUOI: ANO-1-LP-RO-TS **Objective:** 4 **Point Value:** 1

Section: 3.3 **Type:** Reactor Pressure Control

System Number: 006 **System Title:** Emergency Core Cooling System

Description: Knowledge of the operational implications of the following concepts as they apply to ECCS: Relationship between accumulator volume and pressure.

K/A Number: K5.02 **CFR Reference:** 41.4 / 45.7

Tier: 2 **RO Imp:** 2.8 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 2.9 **SRO Select:** Yes **Taxonomy:** C

Question:

The plant is operating at 100% power. The Core Flood system is properly aligned with the following CFT parameters:

T-2A level	- 12.9 feet	T-2B level	- 11.9 feet
T-2A pressure	- 605 psig	T-2B pressure	- 610 psig

The Core Flood system parameters are unacceptable because?

a. Levels may preclude having sufficient N2 pressure to fully inject the CFT contents into the vessel.

b. N2 pressure could cause RCS inventory to be lost out of the break in the event of a LOCA.

c. Levels may not be sufficient to reflood the vessel following a LOCA.

d. N2 pressure may not be sufficient to fully inject the CFT content into the vessel during a LOCA.

Answer:

c. Levels may not be sufficient to reflood the vessel following a LOCA.

Notes:

(a.) is incorrect. This would be the case if either level were out of spec high, however, the problem is the level on T-2B is out of spec low.
(b.) & (d.) are incorrect. N2 pressures are within the Tech Spec limits which ensure that the pressure meets the design bases for the system.
(c.) is correct. T-2B level is below the Tech Spec limit of 12.6 feet which is based on having sufficient volume to refill the core for adequate core cooling purposes.

References:

ITS 3.5.1 Bases

History:

Developed for use in A. Morris 98 RO Re-exam
Selected for use in 2002 RO/SRO exam.

QID: 0441 **Rev:** 0 **Rev Date:** 5/1/2002 **Source:** New **Originator:** S.Pullin

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 3.3 **Type:** Reactor Pressure Control

System Number: 010 **System Title:** Pressurizer Pressure Control System

Description: Knowledge of the operational implications of the following concepts as they apply to the PZR PCS: Determination of condition of fluid in PZR, using steam tables.

K/A Number: K5.01 **CFR Reference:** 41.5 / 45.7

Tier: 2 **RO Imp:** 3.5 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 4.0 **SRO Select:** Yes **Taxonomy:** Ap

Question:

Given:

- Plant has experienced a load rejection.
- Power has stabilized.
- Pressurizer temperature is 632°F.

What would you expect RCS pressure to be?

a. 1900 - 1920 psig

b. 1921 - 1940 psig

c. 1941 - 1960 psig

d. 1961 - 1980 psig

Answer:

b. 1921 - 1940 psig

Notes:

References:

Steam Tables

History:

Created for 2002 RO/SRO exam.

QID: 0073 **Rev:** 0 **Rev Date:** 6/29/98 **Source:** Direct **Originator:** JCork

TUOI: ANO-1-LP-RO-RCS **Objective:** 23 **Point Value:** 1

Section: 3.2 **Type:** Reactor Coolant System Inventory Control

System Number: 011 **System Title:** Pressurizer Level Control System (PZR LCS)

Description: Knowledge of PZR LCS design feature(s) and/or interlock(s) which provide for the following: Operation of PZR heater cutout at low PZR level.

K/A Number: K4.01 **CFR Reference:** 41.7

Tier: 2 **RO Imp:** 3.3 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 3.7 **SRO Select:** No **Taxonomy:** C

Question:

Given:

- A reactor trip occurs from 100% power.
- TBV setpoint bias does NOT function.
- RCS pressure is 2020 psig.

You observe all of the PZR heaters turning off.

Why did this occur?

a. 4160v bus transfer from Unit Aux to S/U #1

b. RCS pressure is greater than heater setpoint

c. PZR level decreased due to cooldown

d. PZR swelled, squeezing the steam bubble

Answer:

c. PZR level decreased due to cooldown

Notes:

"C" is correct due to cooldown from +100 psig bias to TBV setpoint not being applied causing RCS to shrink, resulting in PZR outsurge which could drop PZR level below the heater cutout setpoint of 55 inches.
"A" is incorrect, this has no effect on heater power.
"B" is incorrect because pressure will be decreasing due to cooldown.
"D" is incorrect because cooldown will cause a PZR outsurge, not an insurge.

References:

1103.005, Pressurizer Operation, Rev. 030-01-0, page 2 step 3.5

History:

Developed for 1998 RO exam
Selected for 2002 RO exam.

QID: 0169 **Rev:** 0 **Rev Date:** 11/19/98 **Source:** Direct **Originator:** J. Cork

TUOI: ANO-1-LP-RO-NNI **Objective:** 19 **Point Value:** 1

Section: 3.2 **Type:** Plant Systems

System Number: 011 **System Title:** Pressurizer Level Control

Description: Knowledge of PZR LCS design feature(s) and/or interlock(s) which provide for the following: Density compensation of PZR level.

K/A Number: K4.03 **CFR Reference:** 41.7

Tier:	2	**RO Imp:**	2.6	**RO Select:**	No	**Difficulty:**	3
Group:	2	**SRO Imp:**	2.9	**SRO Select:**	Yes	**Taxonomy:**	An

Question:

Given:

- Plant is at 100% power.
- PZR level transmitter LT-1001 selected via HS-1002 on C04.
- PZR temperature element TE-1001A selected via HS-1000 on C04.

The PZR temperature indicator, TI-1000, on C04 drops suddenly to 50°F (bottom of scale).

Without operator action, what will be the effect on the PZR Level Control System?

a. PZR Level Control Valve, CV-1235, will open to establish a higher steady-state PZR level.

b. PZR Level Control Valve, CV-1235, will maintain the same steady-state PZR level.

c. PZR Level Control Valve, CV-1235, will close to establish a lower steady-state PZR level.

d. PZR Level Control Valve, CV-1235, will fail open to continuously raise PZR level.

Answer:

a. PZR Level Control Valve, CV-1235, will open to establish a higher steady-state PZR level.

Notes:

[a] is correct. A loss of temperature compensation will result which will appear as a low PZR level. This is the same reason which makes [b] & [c] incorrect.
(d) is incorrect. The loss of temperature compensation does not produce an indication that is similar to a high off scale indication.

References:

STM 1-69, Non-Nuclear Instrumentation System, rev 5, page 20, step 3.3.12

History:

Developed for 98 exam.
Used in 2001 Exam.
Selected for use in 2002 SRO exam.

QID: 0085 **Rev:** 0 **Rev Date:** 7/14/98 **Source:** Direct **Originator:** JCork

TUOI: ANO-1-LP-RO-RPS **Objective:** 6.4 **Point Value:** 1

Section: 3.7 **Type:** Instrumentation

System Number: 012 **System Title:** Reactor Protection System

Description: Knowledge of the physical connections and/or cause-effect relationships between the RPS and the following systems: 120V vital/instrument power system.

K/A Number: K1.01 **CFR Reference:** 41.2 to 41.9 / 45.7 to 45.8

Tier: 2 **RO Imp:** 3.4 **RO Select:** Yes **Difficulty:** 2

Group: 2 **SRO Imp:** 3.7 **SRO Select:** Yes **Taxonomy:** K

Question:

Which of the following power supplies is the normal source for RPS channel D?

a. Inverter Y22 from B61

b. Inverter Y22 from D01

c. Inverter Y24 from B61

d. Inverter Y24 from D01

Answer:

c. Inverter Y24 from B61

Notes:

D RPS is powered from RS-4. RS-4 is normally supplied by Y-24 (can be supplied by Y-25). B-61 supplies AC power to Y-24 while D-02 supplies DC power to Y-24. Therefore, (c) is the only correct response.

References:

1107.003 change 011-02-0, Inverter and 120V Vital AC page 153 Exihibit L

History:

Used in 1998 SRO exam
Used in NRC developed RO exam no. 45, 2/28/94
Selected for 2002 RO/SRO exam.

QID: 0442 **Rev:** 0 **Rev Date:** 5/1/2002 **Source:** Direct **Originator:** J.Cork

TUOI: A1LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 3.1 **Type:** Reactivity Control

System Number: 014 **System Title:** Rod Position Indication System

Description: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RPIS controls including: Control rod position indication on control room panels.

K/A Number: A1.02 **CFR Reference:** 41.5 / 45.5

Tier: 2 **RO Imp:** 3.2 **RO Select:** Yes **Difficulty:** 4

Group: 2 **SRO Imp:** 3.6 **SRO Select:** Yes **Taxonomy:** A

Question:

Given:

- Power escalation is in progress from 75% to 100%.
- An asymmetric rod alarm comes in.
- Control rod 7-5 API indicates 8% lower than the group average.
- Group 7 is at 75%.

Investigation reveals:

- Quadrant tilt is trending higher than normal.
- Control rod 7-5 computer trend shows no erratic movement.
- Control rod 7-5 zone indicating lamp is not lit.

Which of the following actions should be taken?

a. Level the rod with the rest of the group.

b. Verify ICS runs plant back to 40% power.

c. Continue with power escalation to 100%.

d. Place control rod 7-5's S-2 switch in the bypass position.

Answer:

a. Level the rod with the rest of the group.

Notes:

Answer "a" is correct since the indications of QPT (& other indications) corroborate that rod 7-5 is an acutal misalignment and should be leveled within its group.
Answer "b" is incorrect, this action should only be taken if the rod drops.
Answer "c" is incorrect, power escalation should not continue with the misalignment.
Answer "d" is incorrect, this should only be done if there is a problem the indication.

References:

1203.003, Rev. 019-03-0, Control Rod Drive Malfunction Action, page 9, step 3.10.5.C

History:

Direct from regular exambank QID 3072, modified slightly for license exam bank use.
Selected for use in 2002 RO/SRO exam.

QID: 0077 **Rev:** 0 **Rev Date:** 9/29/98 **Source:** Direct **Originator:** JCork

TUOI: ANO-1-LP-RO-NNI **Objective:** 5 **Point Value:** 1

Section: 3.7 **Type:** Instrumentation

System Number: 016 **System Title:** Non-Nuclear Instrumentation System (NNIS)

Description: Ability to monitor automatic operation of the NNIS, including: Automatic selection of NNIS inputs to control systems.

K/A Number: A3.01 **CFR Reference:** 41.7 / 45.5

Tier: 2 **RO Imp:** 2.9 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 2.9 **SRO Select:** Yes **Taxonomy:** C

Question:

Given:

- Loop A RCS flow 68 e6 lbm/hr
- Loop B RCS flow 63 e6 lbm/hr
- Loop A Tave 578°F
- Loop B Tave 580°F
- Unit Tave 579°F

Which Tave will be selected by the SASS Auto/manual transfer switch and why?

a. Unit Tave due to Loop B flow

b. Loop A Tave due to Loop B flow

c. Loop B Tave due to Loop B flow

d. Unit Tave, flows are within tolerances

Answer:

b. Loop A Tave due to Loop B flow

Notes:

SASS will automatically select the Loop Tave for the Loop with the highest flow should either flow drop below 95%. Normal RCS loop flow is ~70 E6 lbm/hr, therefore Loop B flow is <95% and SASS will select Loop A flow for Tave control, therefore, (b) is the only correct response.

References:

STM 1-69 (Rev 5), Non-Nuclear Instrumentation System page 12 step 3.3.5

History:

Modified QID 2517 for 1998 RO/SRO Exam.
Used in A. Morris 98 RO Re-exam
Selected for 2002 RO/SRO exam.

QID: 0444 **Rev:** 0 **Rev Date:** 5/1/2002 **Source:** Direct **Originator:** S.Pullin

TUOI: A1LP-WCO-RBS **Objective:** 1 **Point Value:** 1

Section: 3.5 **Type:** Containment Integrity

System Number: 026 **System Title:** Containment Spray

Description: Knowledge of CSS design feature(s) and/or interlock(s) which provide for the following: Iodine scavenging via the CSS.

K/A Number: K4.06 **CFR Reference:** 41.7

Tier: 2 **RO Imp:** 2.8 **RO Select:** Yes **Difficulty:** 2

Group: 2 **SRO Imp:** 3.2 **SRO Select:** No **Taxonomy:** K

Question:

In post accident conditions, the RB Spray System (both trains) will provide what percentage of the required RB cooling and iodine removal?

a. 100% Cooling/100% Iodine

b. 200% Cooling/100% Iodine

c. 100% Cooling/200% Iodine

d. 200% Cooling/200% Iodine

Answer:

c. 100% Cooling/200% Iodine

Notes:

References:

STM 1-08, Reactor Building Spray and Containment Building, rev 6, page 1, step 1.3

History:

Direct from regular exambank QID 1012.
Selected for use in 2002 RO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0311 **Rev:** 0 **Rev Date:** 9-5-99 **Source:** Direct **Originator:** J. Haynes

TUOI: ANO-1-LP-WCO-RBVEN **Objective:** 12 **Point Value:** 1

Section: 3.8 **Type:** Plant Service Systems

System Number: 029 **System Title:** Containment Purge System

Description: Knowledge of the physical connections and/or cause-effect relationships between the Containment Purge System and the following systems: Purge system.

K/A Number: K1.04 **CFR Reference:** 41.2 to 41.9 / 45.7 to 45.8

Tier: 2 **RO Imp:** 3.0 **RO Select:** Yes **Difficulty:** 2.5

Group: 2 **SRO Imp:** 3.1 **SRO Select:** No **Taxonomy:** C

Question:

Plant is in cold shutdown.
Reactor Building pressure is 15.7 psia.

What action should be taken to initiate RB purge?

a. The reactor building purge inlets should be opened first.

b. The reactor building purge inlets and outlets should be opened simultaneously.

c. The reactor building purge outlets should be opened first.

d. The reactor building should be vented to the waste gas system.

Answer:

c. The reactor building purge outlets should be opened first.

Notes:

"c" is correct, with RB pressure positive, the RB purge outlet valves are opened first to prevent reverse flow through the RB purge exhaust filters. Reverse flow through these filters can damage them.
"a" is incorrect, this will cause reverse flow through the purge exhaust filters.
"b" is incorrect, this is difficult to do and provides no assurance that reverse flow will not occur.
"d" incorrect, this is used to lower pressure in the RB at power but is not required prior to initiating purge during cold shutdown.

References:

1104.033, Reactor Building Ventilation, change 059-03-0, page 26, step 5.7.2

History:

Used in 1999 exam.
Direct from ExamBank, QID# 3076 used in class exam
Selected for 2002 RO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0200 **Rev:** 0 **Rev Date:** 11/24/98 **Source:** Direct **Originator:** B. Short

TUOI: ANO-1-LP-RO-SFC **Objective:** 8 **Point Value:** 1

Section: 3.8 **Type:** Plant Services Systems

System Number: 033 **System Title:** Spent Fuel Pool Cooling System

Description: Ability to (a) predict the impacts of the following malfunctions or operations on the Spent Fuel Pool Cooling System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Abnormal spent fuel pool water level or loss of water level.

K/A Number: A2.03 **CFR Reference:** 41.5 / 43.5 / 45.3 / 45.13

Tier: 2 **RO Imp:** 3.1 **RO Select:** Yes **Difficulty:** 4

Group: 2 **SRO Imp:** 3.5 **SRO Select:** Yes **Taxonomy:** C

Question:

A break has occurred on the discharge line downstream of the discharge valve of in service Spent Fuel Cooling Pump (P-40A). The pump is stopped and the discharge valve is closed.

Which of the following statements is correct concerning the Spent Fuel Pool inventory?

a. The SFP will drain to ~ 2 feet above the spent fuel assemblies.

b. Emergency makeup from service water will be needed to prevent the SFP level from reaching the spent fuel assemblies.

c. The SFP level will stay relatively constant due to siphon holes in the discharge piping.

d. The SFP level will drop ~3 feet to the bottom of the pipe.

Answer:

c. The SFP level will stay relatively constant due to siphon holes in the discharge piping.

Notes:

(a.) & (b.) are incorrect. With no operator action at all, the lowest the level would go is ~3 feet to the bottom of the suction pipe. This is still ~ 20 feet above the fuel.
(c.) is correct. The discharge pipe has the siphon break holes located at normal pool level.
(d.) is incorrect. The suction pipe bottom is at ~3 feet, however, with the discharge valve closed the pool will stop draining out the break at the normal pool level due to the siphon holes on the discharge pipe.

References:

STM 1-07, Spent Fuel Cooling System, rev 2 ch 1, page 3, step 2.1.1

History:

Developed for use in A. Morris 98 RO Re-exam
Selected for use in RO/SRO exam.

QID: 0455 **Rev:** 0 **Rev Date:** 5/6/2002 **Source:** New **Originator:** J.Cork

TUOI: A1LP-RO-FH **Objective:** 6 **Point Value:** 1

Section: 3.8 **Type:** Plant Service Systems

System Number: 034 **System Title:** Fuel Handling Equipment System

Description: Knowledge of design feature(s) and/or interlock(s) which provide for the following: Overload protection.

K/A Number: K4.03 **CFR Reference:** 41.7

Tier: 2 **RO Imp:** 2.6 **RO Select:** No **Difficulty:** 3

Group: 2 **SRO Imp:** 3.3 **SRO Select:** Yes **Taxonomy:** C

Question:

You are the SRO in Charge of Fuel Handling and a fuel assembly is being removed from the core.

What is the implication of the Fuel Load Cell reading 2650 pounds?

a. The fuel assembly is properly grappled.

b. The fuel assembly may be hung up on a grid strap.

c. The fuel assembly cannot be moved in fast speed.

d. The fuel hoist cannot be lowered.

Answer:

b. A fuel assembly is hung up on a grid strap.

Notes:

References:

1506.001, Fuel and Control Component Handling, change 019-03-0, page 28, steps 1 and 2

History:

Created for 2002 SRO exam.

QID: 0443 **Rev:** 0 **Rev Date:** 5/1/2002 **Source:** New **Originator:** S.Pullin

TUOI: A1LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 3.4 **Type:** RCS Heat Removal

System Number: 035 **System Title:** Steam Generator System

Description: Ability to (a) predict the impacts of the following malfunctions or operations on the S/GS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Unbalanced flows to the S/Gs.

K/A Number: A2.05 **CFR Reference:** 41.5 / 43.5 / 45.3 / 45.5

Tier:	2	**RO Imp:**	3.2	**RO Select:**	Yes	**Difficulty:**	3
Group:	2	**SRO Imp:**	3.4	**SRO Select:**	Yes	**Taxonomy:**	A

Question:

Given power escalation in progress at 70% power.

Subsequently "A" MFW Pump trips with the following indications:

- Feedwater Pumps Disch Crosstie, CV-2827, has dual position indication
- "A" FW flow 0 x e6 lbm/hr
- "B" FW flow 3.6 x e6 lbm/hr
- "A" OTSG level is lowering rapidly

Which of the following actions should be taken?

a. Trip the reactor and go to 1202.001, Reactor Trip.

b. Verify ICS reduces power to within capacity of available FW.

c. Dispatch AO to manually open Feedwater Pumps Disch Crosstie, CV-2827, opens.

d. Verify PZR Spray Valve closes when RCS pressure drops to 2030 psig.

Answer:

a. Trip the reactor and go to 1202.001, Reactor Trip.

Notes:

References:

1203.027, Loss of Steam Generator Feed, Rev. 10, page 1, step 3.1

History:

Created for 2002 RO/SRO exam.

QID: 0445 **Rev:** 0 **Rev Date:** 5/1/2002 **Source:** Direct **Originator:** J.Cork

TUOI: A1LP-RO-STEAM **Objective:** 9 **Point Value:** 1

Section: 3.4 **Type:** RCS Heat Removal

System Number: 039 **System Title:** Main Steam and Reheat Steam System

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

K/A Number: 2.2.2 **CFR Reference:** 45.2

Tier: 2 **RO Imp:** 4.0 **RO Select:** Yes **Difficulty:** 2

Group: 2 **SRO Imp:** 3.5 **SRO Select:** Yes **Taxonomy:** K

Question:

Which button should be depressed on the MSR (Moisture Seperator Reheater)
Control Panel on C11 to close the 2" Main Steam valves to the MSR's ?

a. Reset

b. Manual valve position

c. Hot Start

d. Ramp

Answer:

a. Reset

Notes:

References:

1102.004, Power Operation, change 040-00-0, page 17, step 10.1.2

History:

Direct from regular exambank QID 2273.
Selected for use in 2002 RO/SRO exam.

QID: 0446 **Rev:** 0 **Rev Date:** 5/1/2002 **Source:** New **Originator:** J.Cork

TUOI: A1LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 3.4 **Type:** RCS Heat Removal

System Number: 055 **System Title:** Condenser Air Removal System

Description: Knowledge of the effect of a loss or malfunction of the following will have on the CARS components: Vacuum pumps.

K/A Number: K6.02 **CFR Reference:** 41.7 / 45.7

Tier: 2 **RO Imp:** 1.6 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 1.8 **SRO Select:** No **Taxonomy:** C

Question:

Given:

- The "CONDENSER VACUUM LO" annunciator, K05-B2, is in alarm.
- Turbine load is being lowered in response and currently is 750 MWe.

What will occur by the time Condenser Vacuum drops to 25.8" Hg.?

a. Condenser Vacuum Pumps automatically go to Hogging mode.

b. Main Turbine will automatically trip.

c. TBVs will automatically close, ADV isolation opens, and control shifts to ADVs.

d. Standby Condenser Vacuum Pump automatically starts.

Answer:

d. Standby Condenser Vacuum Pump automatically starts.

Notes:

References:

1106.010, Condenser Vacuum Operations, change 009-02-0, page 4, step 6.1.2

History:

Created for 2002 RO exam.

QID: 0140 **Rev:** 0 **Rev Date:** 05/13/93 **Source:** Direct **Originator:** J. Haynes

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 3.6 **Type:** Electrical

System Number: 062 **System Title:** A. C. Electrical Distribution

Description: Knowledge of bus power supplies to the following: Major system loads.

K/A Number: K2.01 **CFR Reference:** 41.2 to 41.9

Tier: 2 **RO Imp:** 3.3 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 3.4 **SRO Select:** Yes **Taxonomy:** Ap

Question:

Initial conditions:

- 100% power with P-36C supplying normal makeup and seal injection.
- ICW pumps P-33A and P-33C in service.

What RCP support system would be most affected by a loss of bus A4?

a. Seal Injection

b. Motor Cooling

c. Seal Bleedoff

d. Oil Lift Pressure

Answer:

a. Seal Injection

Notes:

(a) is correct. Loss of A4 results in a loss of the running HPI pump.
(b) is incorrect. P-33 will remain in service which provides motor cooling.
(c) & (d) are incorrect. Seal bleedoff is not affected by the loss of A2 nor is RCP lift oil pressure.

References:

1203.026, Loss Reactor Coolant MakeUP, change 009-03-0, page 2, step 3.3

History:

Taken from Exam Bank QID # 3714
Used in A. Morris 98 RO Re-exam
Selected for 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0224 **Rev:** 0 **Rev Date:** 11/20/98 **Source:** Direct **Originator:** B. Short

TUOI: A1LP-RO-ELECD **Objective:** 14i **Point Value:** 1

Section: 3.6 **Type:** Electrical

System Number: 063 **System Title:** D.C. Electrical Distribution

Description: Knowledge of the effect that a loss or malfunction of the dc electrical system will have on the following: ED/G.

K/A Number: K3.01 **CFR Reference:** 41.7 / 45.6

Tier: 2 **RO Imp:** 3.7 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 4.1 **SRO Select:** Yes **Taxonomy:** C

Question:

Given:

- The plant is in Mode 5.
- 24 hour endurance run on #1 DG in progress.
- 'B' Decay Heat Loop in service.
- RCS is intact.
- HPI pumps P-36A & P-36B are makeup flow sources.

Electricians have requested that D-11 be transferred to the emergency power supply to check out the transfer switch.

Should this evolution be allowed?

a. Yes, the swap to the emergency source does not disrupt any power.

b. No, the swap will result in a loss of decay heat.

c. Yes, the swap will result in a momentary loss of DC control power to a makeup source, however, the source is still available.

d. No, the swap will result in tripping the #1 DG.

Answer:

d. No, the swap will result in tripping the #1 DG.

Notes:

(a.) is incorrect. Transferring the power supply to D11 in either direction will result in a momentary power loss as this is a break before make switch.
(b.) is incorrect. The transfer of D11 power supply will not have any affect on the 'B' decay heat pump or the decay heat alignment.
(c.) is incorrect. The discussion is correct, however, there are other plant conditions that need to be considered that would cause the response to be No.
(d.) is correct.

References:

1107.004, Battery and 125VDC Distribution, change 012-03-0, page 8, step 8.1 Caution

History:

Developed for use on A. Morris 98 RO Re-exam
Selected for use in 2002 RO/SRO exam.

QID: 0447 **Rev:** 0 **Rev Date:** 5/1/2002 **Source:** New **Originator:** S.Pullin

TUOI: A1LP-RO-EDG **Objective:** 2 **Point Value:** 1

Section: 3.6 **Type:** Electrical

System Number: 064 **System Title:** Emergency Diesel Generators

Description: Ability to monitor automatic operation of the ED/G system, including: Number of starts available with an air compressor.

K/A Number: A3.04 **CFR Reference:** 41.7 / 45.5

Tier: 2 **RO Imp:** 3.1 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 3.5 **SRO Select:** Yes **Taxonomy:** C

Question:

Given:

- #1 EDG has one Air Start Compressor and it's associated Air Receiver Tanks tagged out.
- The remaining Air Start Compressor on #1 EDG trips while running.
- The Air Receiver Tanks' pressure is 185 psig.

In accordance with Technical Specifications, is the #1 EDG operable and why?

a. No, the EDG must have both banks of receiver tanks to allow for mimimum number of starts.

b. Yes, the EDG is operable since it can start 5 times from each bank of receiver tanks.

c. No, the EDG must have an operable Air Start Compressor to be considered operable.

d. Yes, the EDG is operable since it can start 8 times from each bank of receiver tanks.

Answer:

b. Yes, the EDG is operable since it can start 5 times from each bank of receiver tanks.

Notes:

References:

ITS 3.8.3 and Bases

History:

Created for 2002 RO/SRO exam.

QID: 0448 **Rev:** 0 **Rev Date:** 5/1/2002 **Source:** New **Originator:** J.Cork

TUOI: A1LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 3.7 **Type:** Instrumentation

System Number: 073 **System Title:** Process Radiation Monitoring

Description: Knowledge of the operational implications of the following concepts as they apply to the PRM system: Relationship between radiation intensity and exposure limits.

K/A Number: K5.03 **CFR Reference:** 41.5 / 45.7

Tier: 2 **RO Imp:** 2.9 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 3.4 **SRO Select:** Yes **Taxonomy:** C

Question:

Given:

- Reactor shutdown is in progress due to High RCS Activity
- Reactor power is currently 70%
- Failed Fuel Iodine Monitor, RI-1237S, reading has risen to 2 x e10 cpm
- Controlled Access Area Monitor, RE-8010, is reading 115 mR/hr

Which of the following actions is appropriate to prevent high radiation levels from restricting access to vital areas?

a. Isolate Letdown by closing Letdown Coolers Outlet CV-1221.

b. Place the standby Letdown DI in service.

c. Maximize Letdown using Orifice Bypass CV-1223.

d. Place Makeup Pre-Fillter F-25 in service.

Answer:

a. Isolate Letdown by closing Letdown Coolers Outlet CV-1221.

Notes:

References:

1203.019, High Acivity in Reactor Coolant, Rev. 010-05-0, page 7, step 3.11

History:

Created for 2002 RO/SRO exam.

QID: 0205 **Rev:** 0 **Rev Date:** 11/24/98 **Source:** Direct **Originator:** B. Short

TUOI: ANO-1-LP-RO-MSSS **Objective:** 1.4 **Point Value:** 1

Section: 3.8 **Type:** Plant Services System

System Number: 075 **System Title:** Circulating Water System

Description: Knowledge of the effect that a loss or malfunction of the circulating water system will have on the following: Main condenser.

K/A Number: K3.02 **CFR Reference:** 41.7 / 45.6

Tier:	2	**RO Imp:**	2.1	**RO Select:**	Yes	**Difficulty:**	3
Group:	2	**SRO Imp:**	2.4	**SRO Select:**	No	**Taxonomy:**	C

Question:

During 3 circulating water pump operation, the 'A' circ water pump trips.
The standby circ pump was started and plant conditions have stabilized.
It is noticed that the condenser waterbox discharge temperature is 10 degrees higher and condenser vacuum has dropped.

Which of the following is the cause of this condition?

a. The stopping and starting of a circ pump caused fouling to be removed from the tube sheet promoting better heat transfer capabilities.

b. The discharge valve on the tripped pump did not go completely closed and circulating water is short cycling.

c. The debris on the bar grates of the circulating water bays was stirred up during the circ pump swap causing reduced flow.

d. These are normal conditions following rotation of circulating pumps and temperatures will return to normal within 30 minutes.

Answer:

b. The discharge valve on the tripped pump did not go completely closed and circulating water is short cycling.

Notes:

(a.) is incorrect. Although some fouling can be removed during pump rotations, it should not result in a 10 degree change in waterbox discharge temperature.
(b.) is correct. The discharge valve on an idle pump can allow a significant amount of backflow from the operating pumps if it is not closed completely.
(c.) is incorrect. This condition is normal for a circ pump swap and may contribute to waterbox fouling, however, the service water system would be affected by this condition as well.
(d.) is incorrect. There should not be such a large temperature difference even if only 3 CW pumps are in service.

References:

1104.008, Circulating Water System, change 02-02-0, page11, Caution

History:

Developed for use in A. Morris 98 RO Re-exam
Used in 2001 RO Exam.
Selected for use in 2002 RO exam.

QID: 0102 **Rev:** 1 **Rev Date:** 11/17/00 **Source:** Direct **Originator:** JCork

TUOI: ANO-1-LP-RO-AOP **Objective:** 3 **Point Value:** 1

Section: 3.8 **Type:** Plant Service Systems

System Number: 079 **System Title:** Station Air System (SAS)

Description: Ability to manually operate and/or monitor in the control room: Cross-tie valves with IAS.

K/A Number: A4.01 **CFR Reference:** 41.7 / 45.5 to 45.8

Tier:	2	**RO Imp:**	2.7	**RO Select:**	Yes	**Difficulty:**	2
Group:	2	**SRO Imp:**	2.7	**SRO Select:**	Yes	**Taxonomy:**	C

Question:

Given:

- Instrument Air pressure has fallen to 45 psig,
- Unit Two is in a refueling outage with Breathing Air in use.

Which of the following will be in use to restore or conserve Instrument Air pressure?

a. Instrument Air to Service Air X-over valve, SV-5400

b. Cross-connect with Unit Two Instrument Air

c. Breathing Air to Instrument Air X-connection, HS-5503

d. If ICW available, isolate Seal Injection by closing CV-1206

Answer:

a. Instrument Air to Service Air X-over valve, SV-5400

Notes:

Answer [a] is correct, SV-5400 opens when IA <50 psig.
Answer [b] is incorrect, the Unit Two x-connect is isolated when IA pressure <60 psig.
Answer [c] is incorrect, Breathing Air to Inst Air X-Connect is used early in a loss of I.A. transient and is isolated if BA header pressure drops to <80 psig with personnel using BA.
Answer [d] is incorrect, CV-1206 is placed in Override and isolated only when ICW is not available.

References:

1104.024, Rev. 026-08-0, Instrument Air System, page 8 step 6.5

History:

Developed for 1998 RO exam
Used in A. Morris 98 RO Re-exam
Modified for use in 2001 RO/SRO Exam.
Selected for use in 2002 RO/SRO exam.

QID: 0151 **Rev:** 1 **Rev Date:** 4/23/2002 **Source:** Modified **Originator:** JCork

TUOI: ANO-1-LP-RO-FPS **Objective:** 9 **Point Value:** 1

Section: 3.8 **Type:** Plant Service Systems

System Number: 086 **System Title:** Fire Protection

Description: Knowledge of the effect of a loss or malfunction of the Fire Protection System will have on the following:
Fire, smoke, and heat detectors.

K/A Number: K6.04 **CFR Reference:** CFR: 41.7 / 45.7

Tier: 2 **RO Imp:** 2.6 **RO Select:** Yes **Difficulty:** 3

Group: 2 **SRO Imp:** 2.9 **SRO Select:** Yes **Taxonomy:** C

Question:

Only Fire Zones with "cross-zoned" detection have INHIBIT switches on their C463 modules.

When is one of these switches taken to the "operate" position?

a. To prevent actuation by a single detector string

b. To manually actuate the system on C463

c. To prevent nuisance alarms from the detector string

d. To prevent manual actuation of the system on C463

Answer:

a. To prevent actuation by a single detector string

Notes:

Answer "a" is correct, the inhibit switch is used when one of the two detector strings is malfunctioning and it is desired to prevent an automatic actuation caused by a single failure of the remaining detector string.
Answers "b" and "d" are incorrect since the Inhibit switch does not have anything to do with any manual actuations.
Answer "c" is incorrect, the Inhibit switch works with the actuation circuit only and not with detection alarms.

References:

1104.032, Fire Protection Systems, change 055-05-0, page 35, step 19, Note

History:

Modified for use in 2002 RO/SRO exam.

QID: 0449 **Rev:** 0 **Rev Date:** 5/1/2002 **Source:** Direct **Originator:** S.Pullin

TUOI: A1LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 3.4 **Type:** RCS Heat Removal

System Number: 005 **System Title:** Residual Heat Removal

Description: Knowledge of annunciator response procedures.

K/A Number: 2.4.10 **CFR Reference:** 41.10 / 43.5 / 45.13

Tier: 2 **RO Imp:** 3.0 **RO Select:** Yes **Difficulty:** 4

Group: 3 **SRO Imp:** 3.1 **SRO Select:** Yes **Taxonomy:** A

Question:

Given:

- The plant is in Cold Shutdown at 100 degrees F.
- The "A" Decay Heat (DH) train has just been placed in service and the "B" train is tagged out.
- The RCS level is decreasing and the Auxiliary Building sump HI LEVEL alarm is actuated.

What operator action is required?

a. Start makeup pump(s) to maintain RCS level.

b. Open the BWST outlet valve(s) to maintain NPSH to the DH pump.

c. Stop running DH pump and start other DH pump.

d. Stop the DH pump and isolate the DH system from the RCS.

Answer:

d. Stop the DH pump and isolate the DH system from the RCS.

Notes:

References:

1203.028, Loss of Decay Heat Removal, change 016-02-0, page 2, step 3.1, and 3.2

History:

Direct from regular exambank QID 2865.
Selected for use in 2002 RO/SRO exam.

QID: 0463 **Rev:** 0 **Rev Date:** 5/21/2002 **Source:** New **Originator:** G.Giles

TUOI: A1LP-RO-RCS **Objective:** 6 **Point Value:** 1

Section: 3.5 **Type:** Containment Integrity

System Number: 007 **System Title:** Pressurizer Relief Tank / Quench Tank

Description: Ability to (a) predict the impacts of the following malfunctions or operations on the PRTS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Stuck open PORV or code safety.

K/A Number: A2.01 **CFR Reference:** 41.5 / 43.5 / 45.3 / 45.13

Tier: 2 **RO Imp:** 3.9 **RO Select:** Yes **Difficulty:** 3

Group: 3 **SRO Imp:** 4.2 **SRO Select:** Yes **Taxonomy:** A

Question:

Given:

- RCS pressure is 2000 psig and going down.
- All Pressurizer heaters ON.
- Code Safety Relief Valve Acoustic Monitor VYI-1001A rising.
- Annunciator RELIEF VALVE OPEN, K09-A1, is in alarm.

What actions should be performed by the control room operators?

a. Close the Spray Line Isolation Valve (CV-1009).

b. Close the ERV Isolation Valve (CV-1000).

c. Trip the reactor and go to 1202.001, Reactor Trip.

d. Commence rapid plant shutdown per 1203.045, Rapid Plant Shutdown.

Answer:

c. Trip the reactor and go to 1202.001, Reactor Trip.

Notes:

References:

1203.015, Rev. 010-03-0, Pressurizer Systems Failure, page 4, step 3.1

History:

Created for 2002 RO/SRO exam.

QID: 0456 **Rev:** 0 **Rev Date:** 5/6/2002 **Source:** New **Originator:** J.Cork

TUOI: A1LP-RO-MSSS **Objective:** 4 **Point Value:** 1

Section: 3.8 **Type:** Plant Service Systems

System Number: 008 **System Title:** Component Cooling Water System

Description: Ability to monitor automatic operation of the CCWS, including: Requirements on and for the CCWS for different conditions of the power plant.

K/A Number: A3.04 **CFR Reference:** 41.7 / 45.5

Tier: 2 **RO Imp:** 2.9 **RO Select:** No **Difficulty:** 4

Group: 3 **SRO Imp:** 3.2 **SRO Select:** Yes **Taxonomy:** A

Question:

Given:

- The plant is in Mode 5 with "A" Decay Heat Train in service
- Maintenance is planned on the Non-Nuclear ICW loop.
- The Non-Nuclear ICW Pump P-33A was secured on the previous shift in preparation for tagging out the Non-Nuclear ICW loop.
- Nuclear ICW is in service supplying Spent Fuel Cooling.
- The WCO reports the Dirty Waste Drain Tank T-20 is rising and he doesn't know why.

Which of the following could be the cause of this condition?

a. The ICW Surge Tanks common drains are cross connected.

b. The ICW Discharge Cross-connect valves are leaking by.

c. A Spent Fuel Filter relief valve is leaking by.

d. The "A" Decay Heat Cooler has a leak.

Answer:

b. The ICW Discharge Cross-connect valves are leaking by.

Notes:

Answer "b" is correct, discharge cross-connect valve leakage would result in overflow of the idle ICW surge tank. Therefore the ICW Surge Tanks are procedurally cross-connected to prevent the idle loop surge tank from overflowing. Overflow would be directed to the floor drains at the surge tanks, which drain to the T-20s.
Answer "a" is incorrect since the Surge Tanks are cross connected to prevent idle loop surge tank overflow.
Answer "c" is incorrect because the Spent Fuel Filter reliefs drain to the ABEDT.
Answer "d" is incorrect because the DH vaults drain to the AB Sump via manual isolations which are normally closed.

References:

1104.028, ICW System Operating Procedure, change 022-01-0, page 34, step 2.1.0 Note

History:

Created for 2002 SRO exam.

QID: 0210 **Rev:** 0 **Rev Date:** 11/17/98 **Source:** Direct **Originator:** J Cork

TUOI: A1LP-RO-RBVEN **Objective:** 14 **Point Value:** 1

Section: 3.5 **Type:** Containment Integrity

System Number: 028 **System Title:** Hydrogen Recombiner and Purge Control System

Description: Knowledge of the effect that a loss or malfunction of the HRPS will have on the following: Hydrogen concentration in containment.

K/A Number: K3.01 **CFR Reference:** 41.7 / 45.6

Tier: 2 **RO Imp:** 3.3 **RO Select:** Yes **Difficulty:** 2

Group: 3 **SRO Imp:** 4.0 **SRO Select:** Yes **Taxonomy:** K

Question:

Given:

- A LOCA has been in progress for eight hours.
- Hydrogen Recombiner M-55B is in standby and M-55A is in service.

Which of the following would require placing Hydrogen Recombiner M-55B in service?

a. M-55A average thermocouple temperature reaches 1225°F.

b. H2 concentration lowered but is now stable at 2%

c. M-55A power indication reaches 60 KW and is at steady state.

d. Hydrogen concentration exceeds 3% and is rising.

Answer:

d. Hydrogen concentration exceeds 3% and is rising.

Notes:

[d] is correct per 1104.031. When H2 concentration is increasing toward explosive concentrations with the recombiner at maximum this is indicative of the need to supplement the in-service recombiner with the standby.
[a] merely lists the temperature at which recombination should begin.
[b] lists the indications of recombination.
[c] 60 KW is simply a power setting which means nothing without other indication.

References:

1104.031, Containment Hydrogen Control, change 013-01-0, page 8, step 8.2.6

History:

Developed for use in A. Morris 98 RO Re-exam
Selected for 2002 RO/SRO exam.

QID: 0450 **Rev:** 0 **Rev Date:** 5/1/2002 **Source:** New **Originator:** J.Cork

TUOI: ANO-1-LP-RO-FH **Objective:** 1.4 **Point Value:** 1

Section: 3.8 **Type:** Plant Service Systems

System Number: 034 **System Title:** Fuel Handling

Description: Knowledge of the physical connections and/or cause-effect relationships between the Fuel Handling System and the following systems: NIS.

K/A Number: K1.04 **CFR Reference:** 41.2 to 41.9 / 45.7 to 45.8

Tier:	2	**RO Imp:**	2.6	**RO Select:**	Yes	**Difficulty:**	3
Group:	3	**SRO Imp:**	3.5	**SRO Select:**	No	**Taxonomy:**	C

Question:

Given:

- Refueling is in progress.
- A fuel assembly is being moved toward the upender in the Fuel Transfer Canal.
- Source Range channel NI-502 power supply fails.

Which of the following actions is appropriate for these conditions?

a. All refueling operations may continue as long as one Source Range channel is operable.

b. The fuel assembly must be placed in a storage rack in the deep end of the Fuel Transfer Canal.

c. The fuel assembly may be moved to the Spent Fuel Pool but core alterations are not allowed.

d. The fuel assembly must be placed back in its original position in the core.

Answer:

c. The fuel assembly may be moved to the Spent Fuel Pool but core alterations are not allowed.

Notes:

References:

1506.001, Fuel and Control Component Handling, change 019-03-0, page 4, step 5.7

History:

Created for 2002 RO exam.

QID: 0108 **Rev:** 0 **Rev Date:** 6/29/98 **Source:** Direct **Originator:** JCork

TUOI: ANO-1-LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 3.4 **Type:** Heat Removal From Reactor Core

System Number: 041 **System Title:** Steam Dump System (SDS) and Turbine Bypass Control

Description: Knowledge of the effect of a loss or malfunction of the following will have on the SDS: Controller and positioners, including ICS, S/G, CRDS.

K/A Number: K6.03 **CFR Reference:** 41.7 / 45.7

Tier:	2	**RO Imp:**	2.7	**RO Select:**	Yes	**Difficulty:**	3
Group:	3	**SRO Imp:**	2.9	**SRO Select:**	Yes	**Taxonomy:**	C

Question:

Given:

Plant operating at 100% power.

The instrument air line to Turbine Bypass Valve (CV-6688) valve operator is severed, causing the instrument air accumulator for CV-6888 to depressurize.

What effect will this have on CV-6688 operation?

a. CV-6688 will go OPEN due to system pressure.

b. CV-6688 will respond to NORMAL control signals.

c. CV-6688 will remain CLOSED due to system pressure.

d. CV-6688 will only respond to MANUAL control signals.

Answer:

a. CV-6688 will go OPEN due to system pressure.

Notes:

On a loss of instrument the accumulator for CV-6688 will maintain the valve closed for a period of time. But the given condition of a failure of the instrument air line to the valve operator will result in a loss of accumulator pressure. At the given power level, the valve will be forced open by steam pressure. Therefore the only correct response is (a).

References:

1203.024 , Loss of Instrument Air, change 010-05-0, page 14, Attachment A

History:

Developed for the 1998 RO/SRO Exam.
Used in A. Morris 98 RO Re-exam
Selected for 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0046 **Rev:** 1 **Rev Date:** 11/4/98 **Source:** Direct **Originator:** JCork

TUOI: ANO-1-LP-EOP07 **Objective:** 3 **Point Value:** 1

Section: 3.4 **Type:** RCS Heat Removal

System Number: 076 **System Title:** Service Water

Description: Ability to manually operate and/or monitor in the control room: SWS valves.

K/A Number: A4.02 **CFR Reference:** 41.7 / 45.5 to 45.8

Tier:	2	**RO Imp:**	2.6	**RO Select:**	Yes	**Difficulty:**	4
Group:	3	**SRO Imp:**	2.6	**SRO Select:**	No	**Taxonomy:**	Ap

Question:

Given:

- Degraded Power
- Both EDGs operating
- ESAS has NOT actuated
- P4C failed to start
- P4B out of service

Which of the following actions should be accomplished?

a. Close SW Loop II Isolation Valve (SW-10C).

b. Open SW Loop I & II Crossconnects (SW-5 and SW-6).

c. Close ACW Loop Isolation (CV-3643).

d. Cross-tie SW Loops at Makeup Pump (SW-14 thru SW-17).

Answer:

c. Close ACW Loop isolation (CV-3643).

Notes:

Answer "c" is correct per the Degraded Power EOP, this action is taken to reduce SW system loads.
Answer "a" is incorrect since this will only isolate the loop flow from P4C with the SW loops still cross-tied at the ICW coolers.
Answers "b" and "d" responses are taken for other SW operations but they would not reduce SW loads.

References:

1202.007, Rev. 005-01-0, Degraded Power, page 4, contingency action 3.A

History:

Developed for 1998 RO/SRO Exam.
Revised after 9/98 exam analysis review.
Used in A. Morris 98 RO Re-exam
Selected for use in 2002 RO exam.

QID: 0170 **Rev:** 0 **Rev Date:** 08/10/95 **Source:** Direct **Originator:** J. Haynes

TUOI: ANO-1-LP-RO-EOP07 **Objective:** 12.2 **Point Value:** 1

Section: 3.8 **Type:** Plant Service Systems

System Number: 078 **System Title:** Instrument Air

Description: Knowledge of bus power supplies to the following: Instrument air compressor.

K/A Number: K2.01 **CFR Reference:** 41.7

Tier: 2 **RO Imp:** 2.7 **RO Select:** Yes **Difficulty:** 3

Group: 3 **SRO Imp:** 2.9 **SRO Select:** No **Taxonomy:** C

Question:

During a loss of offsite power with a SG tube leak, the A2 bus is re-energized from the A4 bus. The A4 bus is supplied by #2 EDG.

What is the key reason for this action?

a. To start P-7B EFW pump and secure P-7A.

b. To restart Circ. Water and re-establish condenser vacuum.

c. To allow operation of the Aux Feedwater pump (P-75).

d. To re-establish Instrument Air and ICW cooling.

Answer:

d. To re-establish Instrument Air and ICW cooling.

Notes:

The strategy here, regardless of the tube leak, is to re-establish Instrument Air and ICW and ease complications of this transient by restoring RCP seal cooling and Letdown. Thus, answer [d] is correct.
[a] is a good idea during a tube leak but P-7B is powered from A3, making it unnecessary to energize A2.
[b] is also a good idea but procedural actions eliminate the need to re-establish condenser vacuum.
[c] incorrect, although the Aux Feedwater Pump is powered from A2, it is not the basis for performing this action.

References:

1202.007, Degraded Power, change 005-01-0, pages 53 thru 55, steps 98 thru 100

History:

Taken from Exam Bank QID # 2791
Used in A. Morris 98 RO Re-exam
Used in 2001 RO/SRO Exam.
Selected for 2002 RO exam.

QID: 0104 **Rev:** 0 **Rev Date:** 7/14/98 **Source:** Direct **Originator:** GGiles

TUOI: ANO-1-LP-RO-EOP10 **Objective:** 15.5 **Point Value:** 1

Section: 3.5 **Type:** Containment Integrity

System Number: 103 **System Title:** Containment System

Description: Ability to monitor automatic operation of the containment system, including: Containment isolation.

K/A Number: A3.01 **CFR Reference:** 41.7 / 45.5

Tier:	2	**RO Imp:**	3.9	**RO Select:**	Yes	**Difficulty:**	2
Group:	3	**SRO Imp:**	4.2	**SRO Select:**	Yes	**Taxonomy:**	K

Question:

Following an ESAS actuation the CBOT is directed to perform RT-10 to verify proper actuation. The RT instructs you to verify each component properly actuated on C16, C18, and C26.

How is this accomplished for containment isolation valves?

a. Verify all containment isolation valve "closed" indication lights are illuminated.

b. Compare containment isolation valve positions to positions listed on chart in RT-10.

c. All containment isolation valves have the same color coding for ease of verification.

d. Verify containment isolation valves are in position marked with black tape background.

Answer:

d. Verify containment isolation valves are in position marked with black tape background.

Notes:

(d) is the correct response. A black tape background identifies the proper actuation position of ES components. (a) is incorrect because not all containment penetration valves will be closed, (b) is incorrect because there is no chart of valve positions in RT-10, (d) is incorrect because color coding of panel does not identify proper actuation position.

References:

1015.018 , Plant Labeling, change 006-03-0, page 20. Step 7.5.1
1202.012 Repetitive Tasks, change 004-02-0, page 17 step F

History:

Developed for 1998 RO Exam.
Selected for use in 2002 RO/SRO exam.

QID: 0458 **Rev:** 0 **Rev Date:** 5/6/2002 **Source:** Direct **Originator:** S.Pullin

TUOI: A1LP-SRO-TS **Objective:** 2 **Point Value:** 1

Section: 2 **Type:** Generic Knowledges and Abilities

System Number: 2.1 **System Title:** Conduct of Operations

Description: Ability to determine Mode of Operation.

K/A Number: 2.1.22 **CFR Reference:** 43.5 / 45.13

Tier:	3	**RO Imp:**	2.8	**RO Select:**	No	**Difficulty:**	2
Group:		**SRO Imp:**	3.3	**SRO Select:**	Yes	**Taxonomy:**	C

Question:

Which one of the following conditions is required by Unit 1 Technical Specifications in order to consider the reactor in Mode 4?

a. The reactor must be subcritical by at least 1.5% Delta k/k.

b. RCS T average must be between 200 °F and 280 °F.

c. The neutron chain reaction is self sustaining and K eff = 1.0.

d. RCS temperature is no more than 200 °F.

Answer:

b. RCS T average must be between 200 °F and 280 °F.

Notes:

References:

ITS SECTION 1.1

History:

Direct from regular exambank QID 39.
Selected for use in 2002 SRO exam.

QID: 0407 **Rev:** 0 **Rev Date:** 12/1/00 **Source:** Direct **Originator:** J.Cork

TUOI: ANO-S-LP-SRO-ADMIN **Objective:** 3 **Point Value:** 1

Section: 2 **Type:** Generic Knowledges and Abilities

System Number: 2.1 **System Title:** Conduct of Operations

Description: Knowledge of shift staffing requirements.

K/A Number: 2.1.4 **CFR Reference:** 41.10 / 43.2

Tier: 3 **RO Imp:** 2.3 **RO Select:** No **Difficulty:** 2

Group: **SRO Imp:** 3.4 **SRO Select:** Yes **Taxonomy:** C

Question:

On New Year's Eve night shift, the on-duty CRS has a heart attack and must be transported to St. Mary's at 0210.

What is the latest time at which a replacement CRS must be in the Control Room
BEFORE the requirement of 1015.001, Conduct of Operations, is violated?

a. 0300

b. 0400

c. 0500

d. 0600

Answer:

b. 0400

Notes:

Answer [b] is the correct answer since the maximum time the shift can be below the minimum complement is two hours.
Answers [a], [c], [d] are one hour increments around the correct answer.

References:

1015.001, Rev. 054-02-0, Conduct of Operations, page 33, step 10.3

History:

New created for 2001 SRO Exam.
Selected for use in 2002 SRO exam.

QID: 0389 **Rev:** 1 **Rev Date:** 12/7/00 **Source:** Direct **Originator:** S.Pullin

TUOI: ANO-S-LP-RO-PRCON **Objective:** 8 **Point Value:** 1

Section: 2 **Type:** Generic

System Number: 2.1 **System Title:** Conduct of Operations

Description: Ability to obtain and verify controlled procedure copy.

K/A Number: 2.1.21 **CFR Reference:** 45.10 / 45.13

Tier:	3	**RO Imp:**	3.1	**RO Select:**	Yes	**Difficulty:**	2
Group:		**SRO Imp:**	3.2	**SRO Select:**	No	**Taxonomy:**	K

Question:

A job is in progress that will last for several weeks.
The procedure has been verified at the start of the job.
A pre-job brief has been completed for all participants.

How often should the procedure for this job be verified to be current?

a. Every 7 days.

b. Once every 24 hours.

c. Only prior to the start of the job.

d. Every 14 days.

Answer:

a. Every 7 days.

Notes:

Answer [a] is correct IAW 1000.006, all other choices are familiar frequencies of tasks.

References:

1000.006, Procedure Control, change 05-03-0, page 33, step 12.8,

History:

Modified regular exambank QID# 6054 for use in 2001 RO Exam.
Selected for use in 2002 RO exam.

QID: 0457 **Rev:** 0 **Rev Date:** 5/6/2002 **Source:** Direct **Originator:** J.Cork

TUOI: A1LP-SRO-TS **Objective:** 4 **Point Value:** 1

Section: 2 **Type:** Generic Knowledges and Abilities

System Number: 2.1 **System Title:** Conduct of Operatirons

Description: Ability to apply technical specifications for a system.

K/A Number: 2.1.12 **CFR Reference:** 43.2 / 43.5 / 45.3

Tier:	3	**RO Imp:**	2.9	**RO Select:**	No	**Difficulty:**	2
Group:		**SRO Imp:**	4.0	**SRO Select:**	Yes	**Taxonomy:**	C

Question:

Given the following:

- Fuel assembly initial enrichment is 3.7 w/o U-235
- Fuel assembly burnup is 32 GWD/MTU

Using Technical Specification Figure 3.7.15-1, where can this fuel assembly be stored?

a. The fuel assembly can only be stored in Region 1 of the spent fuel pool.

b. The fuel assembly can be stored in Region 1 or Region 2 of the spent fuel pool with no restrictions.

c. The fuel assembly cannot be stored in either Region of the spent fuel pool.

d. The fuel assembly can be stored in Region 1 of the spent fuel pool or in Region 2 restricted to checkerboard pattern.

Answer:

b. The fuel assembly can be stored in Region 1 or Region 2 of the spent fuel pool with no restrictions.

Notes:

References:

ITS 3.7.15
Candidates must be supplied with Figure 3.7.15-1.

History:

Direct from regular exambank QID 1806.
Selected for use in 2002 SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0462 **Rev:** 0 **Rev Date:** 5/22/2002 **Source:** New **Originator:** S.Pullin

TUOI: A1LP-RO-TS **Objective:** 3 **Point Value:** 1

Section: 2 **Type:** Generic Knowledges and Abilities

System Number: 2.1 **System Title:** Conduct of Operations

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

K/A Number: 2.1.33 **CFR Reference:** 43.2 / 43.3 / 45.3

Tier:	3	**RO Imp:**	3.4	**RO Select:**	Yes	**Difficulty:**	3
Group:		**SRO Imp:**	4.0	**SRO Select:**	Yes	**Taxonomy:**	C

Question:

"A" RPS channel was declared inoperable on the previous shift.
Maintenance is scheduled for the "B" RPS monthly surveillance.

What actions are required by Technical Specifications to allow I&C to perform this surveillance?

a. None, LCO 3.0.5 allows this testing to be performed.

b. Place both "A" and "B" RPS channels in channel bypass.

c. Trip "A" RPS channel and place "B" channel in channel bypass.

d. Tech Specs does not allow this surveillance to be performed under these conditions.

Answer:

c. Trip "A" RPS channel and place "B" channel in channel bypass.

Notes:

References:

Tech Spec 3.3.1.B

History:

Created for 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0459 **Rev:** 0 **Rev Date:** 5/6/2002 **Source:** Direct **Originator:** J.Cork

TUOI: ASLP-RO-PRCON **Objective:** 3 **Point Value:** 1

Section: 2 **Type:** Generic Knowledges and Abilities

System Number: 2.2 **System Title:** Equipment Control

Description: Knowledge of the process for making changes in procedures as described in the safety analysis report.

K/A Number: 2.2.6 **CFR Reference:** 43.3 / 45.13

Tier: 3 **RO Imp:** 2.3 **RO Select:** No **Difficulty:** 2

Group: **SRO Imp:** 3.3 **SRO Select:** Yes **Taxonomy:** C

Question:

A procedure change must go through the standard approval process instead of interim approval if:

a. The procedure change affects both units.

b. The 50.59 review indicates an evaluation is required.

c. The procedure change is for a system addressed in the SAR.

d. The procedure being changed is safety related.

Answer:

b. The 50.59 review indicates an evaluation is required.

Notes:

References:

1000.006, Procedure Control, change 050-03-0, page 25, step 7.10.3

History:

Direct from regular exambank QID 3134.
Selected for use in 2002 SRO exam.

QID: 0451 **Rev:** 0 **Rev Date:** 5/1/2002 **Source:** New **Originator:** S.Pullin

TUOI: A1LP-RO-AOP **Objective:** 4.3 **Point Value:** 1

Section: 2 **Type:** Generic

System Number: 2.4 **System Title:** Emergency Procedures/Plan

Description: Knowledge of local auxiliary operator tasks during emergency operations including system geography and system implications.

K/A Number: 2.4.35 **CFR Reference:** 43.5 / 45.13

Tier: 3 **RO Imp:** 3.3 **RO Select:** Yes **Difficulty:** 2

Group: **SRO Imp:** 3.5 **SRO Select:** No **Taxonomy:** K

Question:

During a Remote Shutdown, which of the following actions are performed by the WCO?

a. Isolate Letdown at MCC B61.

b. Control Turbine Driven EFW Pump P-7A in EFW pump room.

c. Isolate RCP Seal Bleedoff by manually closing CV-1274.

d. Open BWST Outlet Valve CV-1407 at MCC B51.

Answer:

A. Isolate Letdown at MCC B61.

Notes:

References:

1203.029, Remote Shutdown, change 006-01-0, page 10, step 3.1

History:

Created for 2002 RO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0331 **Rev:** 0 **Rev Date:** 9-6-99 **Source:** Direct **Originator:** Anonymous

TUOI: ANO-1-LP-RO-EOP06 **Objective:** 5 **Point Value:** 1

Section: 2 **Type:** Generic Knowledges and Abilities

System Number: 2.4 **System Title:** Emergency Procedures/Plan

Description: Knowledge of EOP implementation hierarchy and coordination with other support procedures.

K/A Number: 2.4.16 **CFR Reference:** 41.10 / 43.5 / 45.13

Tier:	3	**RO Imp:**	3.0	**RO Select:**	No	**Difficulty:**	4
Group:		**SRO Imp:**	4.0	**SRO Select:**	Yes	**Taxonomy:**	A

Question:

Following a controlled plant shutdown per 1202.006, Tube Rupture, the following conditions exist:

- RCS temperature is 460 °F
- RCS pressure is 900 psig
- Both OTSGs have ruptured tubes
- Both OTSGs have been isolated.
- BWST level drops below 23'

Which Emergency Operating Procedure should the CRS transition to?

a. Loss of Subcooling Margin

b. ESAS

c. HPI Cooldown

d. Stay in Tube Rupture

Answer:

c. HPI Cooldown

Notes:

"a" is incorrect, Loss of Subcooling Margin is entered only if a Loss of SCM occurred prior to entry into the Tube Rupture EOP and conditions do not indicate a Loss of SCM. "b" is incorrect, ESAS is not entered from Tube Rupture. The ESAS would have had to occur prior to the Tube Rupture for entry into ESAS. "c" is correct, neither OTSGs is suitable for heat removal since both are ruptured and have been isolated. BWST level <23 feet with these conditions is an entry condition for 1202.011, HPI Cooldown. "d" is incorrect since 1202.006, Tube Rupture, provides guidance to transition to HPI Cooldown for the given conditions.

References:

1202.006, Tube Rupture, change 007-02-0, page 32, step 52, contingency action 6.a

History:

Used in 1999 exam -
Direct from Exam Bank, QID# 551 used in class exam.
Selected for 2002 SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0460 **Rev:** 0 **Rev Date:** 5/7/2002 **Source:** Direct **Originator:** J.Cork

TUOI: ASLP-SRO-ADMIN **Objective:** 3 **Point Value:** 1

Section: 2 **Type:** Generic Knowledges and Abilities

System Number: 2.4 **System Title:** Emergency Procedures/Plan

Description: Knowledge of the process used to track inoperable alarms.

K/A Number: 2.4.33 **CFR Reference:** 41.10 / 43.5 / 45.13

Tier:	3	**RO Imp:**	2.4	**RO Select:**	No	**Difficulty:**	3
Group:		**SRO Imp:**	2.8	**SRO Select:**	Yes	**Taxonomy:**	C

Question:

Annunciator KO7-C7 "A MFP SUCT PRESS LO" is alarming erratically due to suction pressure being at the setpoint for PS-2842 (less than or equal to 280 psig). The following recommendations are made for removing this "nusiance" alarm:

- Raise the alarm setpoint of PS-2842 to less than equal to 300 psig.

- Lower the alarm setpoint of PS-2842 to less than equal to 260 psig.

- Remove KO7-C7 from service by removing annunciator card.

- Raise "A" MFP suction pressure (i.e. such as isolating cause of lower suction pressure).

The preferred order of preference for handling this annunciator problem would be:

a. Lower alarm setpoint, raise alarm setpoint, raise suction press, remove annunciator card.

b. Raise suction pressure, remove annunciator card, lower alarm setpoint, raise alarm setpoint.

c. Raise suction pressure, lower alarm setpoint, raise alarm setpoint, remove annunciator card.

d. Remove annunciator card, raise suction pressure, lower alarm setpoint, raise alarm setpoint.

Answer:

c. Raise suction pressure, lower alarm setpoint, raise alarm setpoint, remove annunciator card.

Notes:

Answer "c" has the choices in the preferential order, the other answers are in incorrect order.

References:

1015.028, Operations Annunciator Control, change 005-04-0, page 4, step 6

History:

Direct from regular exambank QID 2554.
Selected for use in 2002 SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0411 **Rev:** 0 **Rev Date:** 12/1/00 **Source:** Direct **Originator:** E-Plan

TUOI: ANO-S-LP-EP-A0082 **Objective:** 5 **Point Value:** 1

Section: 2 **Type:** Generic Knowledges and Abilities

System Number: 2.4 **System Title:** Emergency Procedures/Plan

Description: Knowledge of which events related to system operations/status should be reported to outside agencies.

K/A Number: 2.4.30 **CFR Reference:** 43.5 / 45.11

Tier:	3	**RO Imp:**	2.2	**RO Select:**	No	**Difficulty:**	2
Group:		**SRO Imp:**	3.6	**SRO Select:**	Yes	**Taxonomy:**	C

Question:

A fire was reported at 0844 in the vicinity of the Old Radwaste Building.
It is now 0920 and the fire is still burning.

What is the Emergency Plan time requirement for notification to the NRC?

a. Notification to the NRC is required within 15 minutes of the declaration of an emergency class.

b. Notification to the NRC is required immediately following notification of the ADH and within 1 hour of the declaration of an emergency class.

c. Notification to the NRC is required immediately following declaration of an emergency class and notify the ADH within 1 hour.

d. Notification to the NRC is required within 4 hours of the declaration of an emergency class.

Answer:

b. Notification to the NRC is required immediately following notification of the ADH and within 1 hour of the declaration of an emergency class.

Notes:

Answer [b] is correct since this is the procedural requirement.
Answer [a], [c], [d] are incorrect, these are not in accordance with 1903.011.

References:

1903.011, Emergency Response/Notifications, change 026-04-0, page 71, Attachment 10

History:

Modified E-Plan exambank QID#61 for use in 2001 SRO Exam.
Selected for use in 2002 SRO exam.

QID: 0244 **Rev:** 0 **Rev Date:** 9-1-99 **Source:** Direct **Originator:** D. Slusher

TUOI: ANO-S-LP-RO-ADMIN **Objective:** 4 **Point Value:** 1

Section: 2 **Type:** Generic

System Number: 2.1 **System Title:** Conduct Of Operations

Description: Knowledge of conduct of operations requirements.

K/A Number: 2.1.1 **CFR Reference:** CFR: 41.10/45.13

Tier: 3 **RO Imp:** 3.7 **RO Select:** Yes **Difficulty:** 1.5

Group: G **SRO Imp:** 3.8 **SRO Select:** Yes **Taxonomy:** K

Question:

Only operations personnel are authorized to manipulate plant equipment. 1015.001, Conduct of Operations, specifies exceptions to this guidance. Which of the following would NOT satisfy those exceptions?

a. Chemistry personnel operating sample valves per chemistry procedures.

b. Entergy employee opening a service air connection isolation.

c. Operation of equipment under the direct supervision of the Auxiliary Operator.

d. System engineer closes a valve while troubleshooting a water hammer concern.

Answer:

d. System engineer closes a valve while troubleshooting a water hammer concern.

Notes:

Step 15.4 of 1015.001 specifies the exceptions and only "d" is a situation that is NOT listed in 15.4.

References:

1015.017, Equipment Status and Control, change 007-03-0, page 30, step 8.9

History:

Used in 1999 exam.
Direct from ExamBank, QID# 4869
Selected for use in 2002 RO/SRO exam.

QID: 0245 **Rev:** 0 **Rev Date:** 9-1-99 **Source:** Direct **Originator:** D. Slusher

TUOI: ANO-S-LP-RO-ADMIN **Objective:** 4 **Point Value:** 1

Section: 2 **Type:** Generic

System Number: 2.1 **System Title:** Conduct Of Operations

Description: Knowledge of how to conduct and verify valve lineups.

K/A Number: 2.1.29 **CFR Reference:** CFR: 41.40/45.1/45/12

Tier:	3	**RO Imp:**	3.4	**RO Select:**	Yes	**Difficulty:**	1.5
Group:	G	**SRO Imp:**	3.3	**SRO Select:**	No	**Taxonomy:**	K

Question:

The feedwater/condensate system startup is in progress.
A main feedwater isolation valve had been closed by operation of the manual handwheel to isolate the system.

Prior to declaring this valve operable what action must be taken?

a. The valve must be fully opened using the local handwheel.

b. Electricians must check the torque switch adjustment.

c. The measured torque value required to remove the valve from its seat is below the limit.

d. The valve must be stroked electrically to confirm proper clutch engagement.

Answer:

d. The valve must be stroked electrically to confirm proper clutch engagement.

Notes:

a. is incorrect because the valve only needs to be cracked from the closed seat using the local handwheel.
b. is incorrect because the torque switch only needs to be adjusted when suspected to be out of adjustment, manual operation of the valve will not affect the torque switch setting.
c. is incorrect because the torque values are only required when seating a MOV and operability is desired.

References:

1015.035, Valve Operations, Rev 011-05-0, page 8, step 6.5

History:

Used in 1999 exam.
Direct from ExamBank, QID# 3090
Selected for use in 2002 RO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0113 **Rev:** 1 **Rev Date:** 4/24/2002 **Source:** Direct **Originator:** JCork

TUOI: A1LPRO-TS **Objective:** 6 **Point Value:** 1

Section: 2.0 **Type:** Generic K/As

System Number: 2.1 **System Title:** Conduct of Operations

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

K/A Number: 2.1.11 **CFR Reference:** 43.2 / 45.13

Tier: 3 **RO Imp:** 3.0 **RO Select:** Yes **Difficulty:** 4

Group: G **SRO Imp:** 3.8 **SRO Select:** Yes **Taxonomy:** An

Question:

Given:

- The unit is operating at 100% power.
- A system engineer enters the control room with a condition report stating the PZR code safety valve (PSV-1002), replaced during the last outage, was set by the vendor using out of calibration equipment.
- The condition report estimates the setpoint for PSV-1002 could be as high as 2790 psig.
- The system engineer recommends declaring PSV-1002 inoperable.

What required Tech. Spec. action would you initiate?

a. Restore PSV-1002 to operable status within 15 minutes or be in Mode 3 within 6 hours.

b. Within one hour initiate a shutdown to be in Mode 2 within 6 hrs and be in Mode 3 within another 6 hrs.

c. Restore the safety to operable status within 6 hrs or place the unit in Mode 3 within the following 12 hrs.

d. Restore safety to operable status within 12 hrs or place the unit in Mode 3 within the following 12 hrs.

Answer:

a. Restore PSV-1002 to operable status within 15 minutes or be in Mode 3 within 6 hours.

Notes:

(a) is the correct response per ITS 3.4.10 (b), (c) and (d) provide erroneous time clocks.

References:

ITS 3..4.10

History:

Developed for 1998 SRO exam
Used in 2001 RO/SRO Exam.
Selected for use in 2002 RO/SRO exam. Updated to agree with ITS.

QID: 0354 **Rev:** 0 **Rev Date:** 9-7-99 **Source:** Direct **Originator:** G. Alden

TUOI: A1LP-RO-FH **Objective:** 1.4 **Point Value:** 1

Section: 2 **Type:** Generic Knowledges and abilities

System Number: 2.2 **System Title:** Equipment Control

Description: Knowledge of the SRO fuel handling responsibilities.

K/A Number: 2.2.29 **CFR Reference:** 43.6 / 45.12

Tier: 3 **RO Imp:** 1.6 **RO Select:** No **Difficulty:** 2

Group: G **SRO Imp:** 3.8 **SRO Select:** Yes **Taxonomy:** C

Question:

After insertion of a fuel assembly into the core, when will the SRO in Charge of Fuel Handling give the Bridge Operator permission to disengage from the fuel assembly?

a. after stable neutron flux readings have been observed

b. after the Reactor Engineer has verified the Low load limit setpoint

c. after the Reactor Engineer has verified trolley and bridge location

d. after radiation levels on the bridge have been observed

Answer:

a. after stable neutron flux readings have been observed

Notes:

"a" is the correct and conservative answer per 1502.004. Escalating neutron flux readings may indicate some major problem with the core load plan or with the fuel assembly. "b" and "c" are incorrect, the SRO in Charge has the final decision. "d" is incorrect, bridge radiation levels would be a poor indication to use in measuring the accuracy of a fuel load.

References:

1502.004, Control of Unit 1 Refueling, change 032-02-0, page 21, step 9.7.11.A

History:

Used in 1999 exam.
Direct from ExamBank, QID# 4290
Selected for use in 2002 SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0117 **Rev:** 0 **Rev Date:** 6/29/98 **Source:** Direct **Originator:** JCork

TUOI: ANO-S-LP-SRO-ADMIN **Objective:** 4 **Point Value:** 1

Section: 2.0 **Type:** Generic K/As

System Number: 2.2 **System Title:** Equipment Control

Description: Knowledge of the process for controlling temporary changes.

K/A Number: 2.2.11 **CFR Reference:** 41.10 / 43.3 / 45.13

Tier: 3 **RO Imp:** 2.5 **RO Select:** No **Difficulty:** 4

Group: G **SRO Imp:** 3.4 **SRO Select:** Yes **Taxonomy:** Ap

Question:

Which of the following would NOT require the use of a Temporary Alteration Package?

a. Installation of a test gauge for a surveillance.

b. Temporary power cables supplying temporary equipment.

c. Installing a jumper to prevent a malfunctioning instrument loop from actuating equipment.

d. Replacement of a blank flange with a vent flange.

Answer:

a. Installation of a test gauge for a surveillance.

Notes:

Answer (a) is correct in accordance with 1000.028, Control of Temporary Alterations. 4.15.2.h shows that activities using test gauges are NOT considered to be temporary alterations. The remaining answers are all covered by 4.15.1 as activities requiring a temporary alteration package.

References:

1000.028 (Rev 023-01-0), Control of Temporary Alterations, page 37, step 16

History:

Developed for the 1998 SRO exam.
Used in 2001 SRO Exam.
Selected for use in 2002 SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0232 **Rev:** 0 **Rev Date:** 11/25/98 **Source:** Direct **Originator:** J. Cork

TUOI: ANO-1-LP-RO-ADMIN **Objective:** 4 **Point Value:** 1

Section: 2.0 **Type:** Generic K/As

System Number: 2.2 **System Title:** Equipment Control

Description: Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.

K/A Number: 2.2.1 **CFR Reference:** 45.1

Tier: 3 **RO Imp:** 3.7 **RO Select:** Yes **Difficulty:** 3

Group: G **SRO Imp:** 3.6 **SRO Select:** No **Taxonomy:** K

Question:

During a Reactor Startup, the licensed Control Room Operators performing/supervising the startup shall not conduct shift relief until the reactor is critical and power is above a specific level OR the reactor is shutdown by a specific margin.
This does not apply during physics testing.

Choose the answer with the correct power and shutdown margin.

	POWER	SDM
a.	>= 1.0%	1.5% delta k/k
b.	>= 5.0%	5.0% delta k/k
c.	>= 1.0%	5.0% delta k/k
d.	>= 5.0%	1.5% delta k/k

Answer:

a. >= 1.0% power
1.5% delta k/k

Notes:

[a] is correct per caution in 1102.008. (b), (c) & (d) are incorrect combinations of the same parameters.

References:

1102.008, Approach to Criticality, change 018-02-0, page 5, step 5.12

History:

Developed for A. Morris 98 RO Re-exam
Selected for use in 2002 RO exam.

QID: 0233 **Rev:** 0 **Rev Date:** 11/25/98 **Source:** Direct **Originator:** B. Short

TUOI: A1LP-RO-TS **Objective:** 1 **Point Value:** 1

Section: 2.0 **Type:** Generic K/As

System Number: 2.2 **System Title:** Equipment Control

Description: Knowledge of surveillance procedures.

K/A Number: 2.2.12 **CFR Reference:** 41.10 / 45.13

Tier:	3	**RO Imp:**	3.0	**RO Select:**	Yes	**Difficulty:**	3
Group:	G	**SRO Imp:**	3.4	**SRO Select:**	No	**Taxonomy:**	C

Question:

An NI calibration was performed yesterday. Due to a problem with a Condenser Vacuum pump, reactor power had to be lowered to 89% and has subsequently been returned to 100%. When is the next NI calibration required to be performed?

a. Within the next 7 days.

b. Within the next 3 days.

c. Within the next 24 hours.

d. Within the next 12 hours.

Answer:

c. Within the next 24 hours.

Notes:

Per ITS 3.3.1 NI calibration shall be performed twice weekly during steady state operations and daily during non-steady state operations. The power change that occurred stipulates a non-steady state condition and therefore a calibration is required within the next 24 hours.(c.)
(a.) (b.) & (d.) are incorrect.

References:

ITS 3.3.1

History:

Developed for A. Morris 98 RO Re-exam
Selected for use in 2002 RO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0247 **Rev:** 0 **Rev Date:** 9-1-99 **Source:** Direct **Originator:** D.Slusher

TUOI: ANO-S-LP-OPS-CLEAR **Objective:** 2 **Point Value:** 1

Section: 2 **Type:** Generic

System Number: 2.2 **System Title:** Equipment Control

Description: Knowledge of tagging and clearance procedures.

K/A Number: 2.2.13 **CFR Reference:** 41.10 / 45.13

Tier: 3 **RO Imp:** 3.6 **RO Select:** Yes **Difficulty:** 1.5

Group: G **SRO Imp:** 3.8 **SRO Select:** Yes **Taxonomy:** K

Question:

A tagout is required on the "A" Makeup pump, P-36A.

Which shift personnel are qualified to perform the tagout boundary reviewer, if the tagout was prepared by a non-licensed operator?

a. Control Board Operator or Auxiliary Operator.

b. Auxiliary Operator or Shift Engineer.

c. Control Room Supervisor or Waste Control Operator.

d. Control Board Operator or Shift Manager.

Answer:

d. Control Board Operator or Shift Manager.

Notes:

The protective tagging procedure requires at least one licensed operator to either prepare the tagout or verify the boundary requirements of the tagout. Therefore answers a, b, and c are incorrect as only a licensed operator can be a reviewer of the boundary requirements.

References:

1000.027, Protective Tagging Control, change 026-04-0, page 11, step 6.3

History:

Used in 1999 exam.
Direct from ExamBank, QID# 2839
Selected for use in 2002 RO/SRO exam.

QID: 0122 **Rev:** 0 **Rev Date:** 7/14/98 **Source:** Direct **Originator:** JCork

TUOI: ANO-S-LP-RO-RADPRO **Objective:** 14 **Point Value:** 1

Section: 2.0 **Type:** Generic K/As

System Number: 2.3 **System Title:** Radiation Control

Description: Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.

K/A Number: 2.3.4 **CFR Reference:** CFR: 43.4 / 45.10

Tier:	3	**RO Imp:**	2.5	**RO Select:**	Yes	**Difficulty:**	3
Group:	G	**SRO Imp:**	3.1	**SRO Select:**	Yes	**Taxonomy:**	Ap

Question:

A WCO is assigned to align "A" Decay Heat Removal during a shutdown.
It is estimated the job will take 40 minutes.
High RCS activity has created a whole body dose rate of 2.5 R/hr in this area.
The WCO has an accumulated exposure of 0.225 Rem for the year.
The WCO makes the statement that he can complete the job without exceeding exposure limits.

Do you agree or disagree with the WCO's statement?

a. Agree, the WCO will NOT receive a dose sufficient to exceed the Administrative Dose Control Level.

b. Disagree, the WCO will exceed the Administrative Dose Control Level after 38 minutes.

c. Agree, the WCO is allowed to exceed the Administrative Dose Control Level by a maximum of 500 mR.

d. Disagree, the WCO will exceed the Administrative Dose Control Level after 12 minutes.

Answer:

a. Agree, the WCO will NOT receive a dose sufficient to exceed the Administrative Dose Control Level.

Notes:

The Administrative Dose Control Level is 2.0 Rem for the calendar year. With a dose rate of 2.5R/hr and stay time of 40 minutes, the dose will be 1.67 Rem. The WCO's total accumulated dose will be 1.895 Rem, therefore "A" is correct.

References:

1012.021, Exposure Limits and Controls, change 004-02-0, page 7, step 6.2.2, A.1

History:

Developed for 1998 RO/SRO exam.
Modified question no. 49 in NRC developed Ro exam 8/24/92
Used in A. Morris 98 RO Re-exam
Selected for use in 2002 RO/SRO exam.

QID: 0121 **Rev:** 0 **Rev Date:** 12/06/00 **Source:** Direct **Originator:** S. Pullin

TUOI: ANO-S-LP-RO-RADP **Objective:** 15 **Point Value:** 1

Section: 2.0 **Type:** Generic K/As

System Number: 2.3 **System Title:** Radiation Control

Description: Knowledge of 10CFR20 and related facility radiation control requirements.

K/A Number: 2.3.1 **CFR Reference:** 41.12 / 43.4 / 45.9, 45.10

Tier: 3 **RO Imp:** 2.6 **RO Select:** Yes **Difficulty:** 3

Group: G **SRO Imp:** 3.0 **SRO Select:** Yes **Taxonomy:** K

Question:

What is the federal occupational exposure limit to the SKIN in accordance with 10CFR20?

a. 5.0 rems/calendar year

b. 15.0 rems/calendar year

c. 25.0 rems/calendar year

d. 50.0 rems/calendar year

Answer:

d. 50.0 rems/calendar year

Notes:

(d) is the correct answer.
(a), (b), and (c) are incorrect values.

References:

1012.021, Exposure Limits and Controls, Rev. 004-02-0, page 5, step 6.1.1, A.4

History:

New question developed for 2001 RO/SRO NRC Exam.
Selected for use in 2002 RO/SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0234 **Rev:** 0 **Rev Date:** 12/3/98 **Source:** Direct **Originator:** J. Cork

TUOI: ANO-1-LP-RO-AOP **Objective:** 5 **Point Value:** 1

Section: 2.0 **Type:** Generic K/As

System Number: 2.3 **System Title:** Radiation Control

Description: Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.

K/A Number: 2.3.10 **CFR Reference:** 43.4 / 45.10

Tier:	3	**RO Imp:**	2.9	**RO Select:**	Yes	**Difficulty:**	3
Group:	G	**SRO Imp:**	3.3	**SRO Select:**	Yes	**Taxonomy:**	C

Question:

During a SGTR, which of the following actions is performed specifically to reduce plant personnel exposure?

a. Maintaining RCS pressure low within limits of Fig. 3.

b. Steaming bad SG to maintain tube-to-shell DT <150°F.

c. Aligning HPI to provide PZR Aux Spray.

d. Removing all but C & D condensate polishers from service.

Answer:

d. Removing all but C & D condensate polishers from service.

Notes:

(a.) is incorrect. This is performed to curtail primary system losses.
(b.) is incorrect. This is done to alleviate tube stresses and to prevent failing more tubes.
(c.) is incorrect. Aligning aux spray during SGTR is done for pressure control without RCPs and to reduce primary system losses.
(d.) is correct. This task is performed to clean up the secondary while using centrally located polishers to maintain doses ALARA to the train bay and polisher panel.

References:

1203.014, Control of Secondary System Contamination, change 012-02-0, page 1, step 3.2, Note

History:

Developed for use on A. Morris 98 RO Re-exam
Selected for use in 2002 RO/SRO exam.

QID: 0129 **Rev:** 0 **Rev Date:** 6/29/98 **Source:** Direct **Originator:** JCork

TUOI: AA61002-006 **Objective:** 6.14 **Point Value:** 1

Section: 2.0 **Type:** Generic K/As

System Number: 2.4 **System Title:** Emergency Procedures/Plan

Description: Knowledge of the emergency action level thresholds and classifications.

K/A Number: 2.4.41 **CFR Reference:** CFR: 43.5 / 45.11

Tier:	3	**RO Imp:**	2.3	**RO Select:**	No	**Difficulty:**	4
Group:	G	**SRO Imp:**	4.1	**SRO Select:**	Yes	**Taxonomy:**	An

Question:

A small break LOCA has occurred with the following indications:

- HPI flow ~250 gpm total
- CNTMT High Range Rad Monitors reading 5000 REM
- Indications of leakage past RB Purge isolations

What Emergency Action Level should be declared?

a. NUE

b. Alert

c. SAE

d. GE

Answer:

d. GE

Notes:

The initial conditions indicate an RCS boundary failure, a failure of containment and fuel cladding failure (5000 R in containment = SAE, which is indicative of >1% failed fuel). Therefore, GE per EAL 1.7, Loss of or challenge to all 3 fission product barriers. Answer (d) is correct.

References:

1903.010 , Emergency Action Level Classification, change 036-05-1, page 25, EAL 1.7

History:

Developed for the 1998 SRO Exam.
Selected for use in 2002 SRO exam.

Arkansas Nuclear One - Unit One
Initial RO/SRO Exam Question Data

QID: 0126 **Rev:** 0 **Rev Date:** 6/29/98 **Source:** Direct **Originator:** JCork

TUOI: ANO-1-LP-RO-EOP06 **Objective:** 11 **Point Value:** 1

Section: 2.0 **Type:** Generic K/As

System Number: 2.4 **System Title:** Emergency Procedures/Plan

Description: Knowledge of EOP entry conditions and immediate action steps.

K/A Number: 2.4.1 **CFR Reference:** 41.10 / 43.5 / 45.13

Tier: 3 **RO Imp:** 4.3 **RO Select:** Yes **Difficulty:** 3

Group: G **SRO Imp:** 4.6 **SRO Select:** No **Taxonomy:** C

Question:

Given:

- N-16 monitor R-2691 in alarm
- Small SG Tube Leak AOP in progress
- Letdown at 45 gpm
- Makeup at 66 gpm and rising

A reactor trip occurs and while performing his actions the CBOR announces SCM is 30°F.

Which of the following EOPs would provide guidance to best mitigate this event?

a. Reactor Trip 1202.001

b. Loss of Subcooling Margin 1202.002

c. Tube Rupture 1202.006

d. ESAS 1202.010

Answer:

c. Tube Rupture 1202.006

Notes:

The initial conditions establish a tube leak that is getting worse (>10 gpm), which satisfies entry requirements into the Tube Rupture EOP. The reactor trip and loss of subcooling margin concerns are addressed in the Tube Rupture procedure. Therefore, (d) is the most correct response.

References:

1202.006 , Tube Rupture, change 007-02-0, pages 1,

History:

Developed for the 1998 SRO Exam.
Selected for use in 2002 RO exam.

Question No. **1** **QID:** **0002** **Point Value:** **1** **Source:** **Modified**
SRO? **Yes**
Answer:
b. Annunciator "RCP TRIP" (K08-A6) is in alarm, RCS flow is lowering and "H2 L.O. RELAY TRIP" (K02-A5) in alarm.

Question No. **2** **QID:** **0014** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**
Answer:
d. Refer to the ANO Pre-Fire Plan for the affected fire zone for a listing of affected components.

Question No. **3** **QID:** **0015** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**
Answer:
c. Manually initiate High Pressure Injection to compress the pressurizer steam bubble.

Question No. **4** **QID:** **0020** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**
Answer:
a. Place the SG "B" FW Temp signal select switch to the "Y" position.

Question No. **5** **QID:** **0027** **Point Value:** **1** **Source:** **Direct**
SRO? **No**
Answer:
c. Approximately 239 °F

Question No. 6 **QID:** 0035 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:
c. Depress CRD power supply breaker trip PBs on C03.

Question No. 7 **QID:** 0046 **Point Value:** 1 **Source:** Direct **SRO?** No

Answer:
c. Close ACW Loop isolation (CV-3643).

Question No. 8 **QID:** 0052 **Point Value:** 1 **Source:** Modified **SRO?** Yes

Answer:
b. 8 to 12 hours

Question No. 9 **QID:** 0063 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:
d. Feedwater loop A demand is greater than feedwater loop B demand.

Question No. 10 **QID:** 0073 **Point Value:** 1 **Source:** Direct **SRO?** No

Answer:
c. PZR level decreased due to cooldown

Question No. **11** **QID:** **0077** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

b. Loop A Tave due to Loop B flow

Question No. **12** **QID:** **0085** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

c. Inverter Y24 from B61

Question No. **13** **QID:** **0095** **Point Value:** **1** **Source:** **Modified**
SRO? **Yes**

Answer:

a. All RCPs must be secured due to loss of motor cooling.

Question No. **14** **QID:** **0102** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

a. Instrument Air to Service Air X-over valve, SV-5400

Question No. **15** **QID:** **0104** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

d. Verify containment isolation valves are in position marked with black tape background.

Question No. 16 **QID:** 0108 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

a. CV-6688 will go OPEN due to system pressure.

Question No. 17 **QID:** 0113 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

a. Restore PSV-1002 to operable status within 15 minutes or be in Mode 3 within 6 hours.

Question No. 18 **QID:** 0121 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

d. 50.0 rems/calendar year

Question No. 19 **QID:** 0122 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

a. Agree, the WCO will NOT receive a dose sufficient to exceed the Administrative Dose Control Level.

Question No. 20 **QID:** 0126 **Point Value:** 1 **Source:** Direct **SRO?** No

Answer:

c. Tube Rupture 1202.006

Question No. 21 **QID:** 0137 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

c. Both Main Feedwater Block Valves close in slow speed.

Question No. 22 **QID:** 0140 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

a. Seal Injection

Question No. 23 **QID:** 0151 **Point Value:** 1 **Source:** Modified **SRO?** Yes

Answer:

a. To prevent actuation by a single detector string

Question No. 24 **QID:** 0161 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

d. Verify SDM within COLR limit within one hour.

Question No. 25 **QID:** 0164 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

a. Reduce decay heat removal flow until flow has stablized.

Question No. **26** **QID:** **0167** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

b. Verify no release in progress at Disch Flow to Flume (FI-4642) on C19.

Question No. **27** **QID:** **0170** **Point Value:** **1** **Source:** **Direct**
SRO? **No**

Answer:

d. To re-establish Instrument Air and ICW cooling.

Question No. **28** **QID:** **0174** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

a. The EDG output breaker will automatically close once the EDG has started and all other feeder breakers to it's respective bus are open.

Question No. **29** **QID:** **0184** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

c. Trip the reactor due to no on-scale indication of neutron flux available.

Question No. **30** **QID:** **0186** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

b. Overheating (1202.004)

Question No. **31** **QID:** **0187** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

d. Transfer D21 to emergency supply D01.

Question No. **32** **QID:** **0189** **Point Value:** **1** **Source:** **Modified**
SRO? **Yes**

Answer:

a. Pressurizer level will rise continuously.

Question No. **33** **QID:** **0191** **Point Value:** **1** **Source:** **Direct**
SRO? **No**

Answer:

c. 18 inches

Question No. **34** **QID:** **0194** **Point Value:** **1** **Source:** **Modified**
SRO? **No**

Answer:

a. Pressurizer level rises while depressurizing.

Question No. **35** **QID:** **0197** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

c. Levels may not be sufficient to reflood the vessel following a LOCA.

Question No. 36 **QID:** 0200 **Point Value:** 1 **Source:** Direct
SRO? Yes

Answer:

c. The SFP level will stay relatively constant due to siphon holes in the discharge piping.

Question No. 37 **QID:** 0205 **Point Value:** 1 **Source:** Direct
SRO? No

Answer:

b. The discharge valve on the tripped pump did not go completely closed and circulating water is short cycling.

Question No. 38 **QID:** 0210 **Point Value:** 1 **Source:** Direct
SRO? Yes

Answer:

d. Hydrogen concentration exceeds 3% and is rising.

Question No. 39 **QID:** 0222 **Point Value:** 1 **Source:** Direct
SRO? Yes

Answer:

a. Initially remain closed and then respond to pressure changes.

Question No. 40 **QID:** 0224 **Point Value:** 1 **Source:** Direct
SRO? Yes

Answer:

d. No, the swap will result in tripping the #1 DG.

Question No. **41** **QID:** **0229** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

c. All TBVs will close, both ADV isolations will open and both ADV control valves control at setpoint

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Question No. **42** **QID:** **0232** **Point Value:** **1** **Source:** **Direct**
SRO? **No**

Answer:

a. >= 1.0% power
1.5% delta k/k

Question No. **43** **QID:** **0233** **Point Value:** **1** **Source:** **Direct**
SRO? **No**

Answer:

c. Within the next 24 hours.

Question No. **44** **QID:** **0234** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

d. Removing all but C & D condensate polishers from service.

Question No. **45** **QID:** **0244** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

d. System engineer closes a valve while troubleshooting a water hammer concern.

Question No. **46** **QID:** **0245** **Point Value:** **1** **Source:** **Direct** **SRO?** **No**

Answer:

d. The valve must be stroked electrically to confirm proper clutch engagement.

Question No. **47** **QID:** **0247** **Point Value:** **1** **Source:** **Direct** **SRO?** **Yes**

Answer:

d. Control Board Operator or Shift Manager.

Question No. **48** **QID:** **0255** **Point Value:** **1** **Source:** **Direct** **SRO?** **No**

Answer:

c. RPS will trip the plant and Emergency Feedwater starts on loss of both Main Feedwater Pumps.

Question No. **49** **QID:** **0261** **Point Value:** **1** **Source:** **Direct** **SRO?** **No**

Answer:

d. Condensate pump P-2B will remain off since Main Feedwater Pump P-1B is not latched.

Question No. **50** **QID:** **0264** **Point Value:** **1** **Source:** **Direct** **SRO?** **Yes**

Answer:

d. decrease to the "B" OTSG.

Question No. 51 **QID:** 0285 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

b. Quickly reduce the lowest SG pressure to 700 psig or the MSSV open alarm is clear.

Question No. 52 **QID:** 0299 **Point Value:** 1 **Source:** Direct **SRO?** No

Answer:

a. Control rods move inward, feedwater flows go up.

Question No. 53 **QID:** 0311 **Point Value:** 1 **Source:** Direct **SRO?** No

Answer:

c. The reactor building purge outlets should be opened first.

Question No. 54 **QID:** 0337 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

a. Restore full HPI flow on "C" HPI pump.

Question No. 55 **QID:** 0344 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

d. RCS temperature is stable, RCS pressure is going down,
and pressurizer level is stable.

Question No. **56** **QID:** **0363** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

c. Collapse a steam void in the Rx Vessel head.

Question No. **57** **QID:** **0364** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

c. Cooldown and isolate the "A" SG

Question No. **58** **QID:** **0365** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

b. Initiate HPI Cooling per RT-4.

Question No. **59** **QID:** **0372** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

c. Throttle HPI valve with 180 gpm flow until flow is 145 gpm.

Question No. **60** **QID:** **0379** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

b. Adjust the setpoint to less than or equal to max high alarm setpoint before recording the As-Left Setpoint.

Question No. **61** **QID:** **0389** **Point Value:** **1** **Source:** **Direct**
SRO? **No**

Answer:

a. Every 7 days.

Question No. **62** **QID:** **0414** **Point Value:** **1** **Source:** **New**
SRO? **Yes**

Answer:

a. Trip the reactor and go to 1202.001.

Question No. **63** **QID:** **0415** **Point Value:** **1** **Source:** **New**
SRO? **Yes**

Answer:

d. Verify proper EFW actuation and control per RT-5.

Question No. **64** **QID:** **0416** **Point Value:** **1** **Source:** **New**
SRO? **Yes**

Answer:

c. Upon closing, the inlet valve is delayed until outlet valve is 80 to 90% closed.

Question No. **65** **QID:** **0417** **Point Value:** **1** **Source:** **New**
SRO? **Yes**

Answer:

c. Open both BWST Outlet valves CV-1407 & 1408.

Question No. 66 **QID:** 0418 **Point Value:** 1 **Source:** Direct
SRO? Yes

Answer:

c. Realign the standby SW pump to the emergency pond and start it.

Question No. 67 **QID:** 0419 **Point Value:** 1 **Source:** Direct
SRO? Yes

Answer:

d. The interlocks jam on the personnel hatch and both doors are open for < 5 minutes.

Question No. 68 **QID:** 0420 **Point Value:** 1 **Source:** Direct
SRO? Yes

Answer:

b. 1202.005, Inadequate Core Cooling

Question No. 69 **QID:** 0421 **Point Value:** 1 **Source:** Direct
SRO? Yes

Answer:

a. Loss of Subcooling Margin (1202.002)

Question No. 70 **QID:** 0422 **Point Value:** 1 **Source:** Modified
SRO? Yes

Answer:

a. Take steps 1, 2, 6, and 9

Question No. 71 **QID:** 0423 **Point Value:** 1 **Source:** New **SRO?** Yes

Answer:

c. Trip the reactor and go to 1202.001.

Question No. 72 **QID:** 0424 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

a. The reactor, or feedwater or both control units are in manual and this forces the turbine to control header pressure.

Question No. 73 **QID:** 0425 **Point Value:** 1 **Source:** Direct **SRO?** No

Answer:

a. be higher than actual power.

Question No. 74 **QID:** 0426 **Point Value:** 1 **Source:** New **SRO?** Yes

Answer:

c. "A" OTSG level rises to 415"

Question No. 75 **QID:** 0427 **Point Value:** 1 **Source:** New **SRO?** Yes

Answer:

d. Cross-tie A3 and A4 buses and start P-7B.

Question No. 76 **QID:** 0428 **Point Value:** 1 **Source:** Direct **SRO?** No

Answer:

b. When IA pressure is equal to or less than 60 psig.

Question No. 77 **QID:** 0429 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

d. no effect on regulating rods, safety rods are held by a single phase (CC) energized.

Question No. 78 **QID:** 0430 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

d. Reset the analog signals then reset the digital signals.

Question No. 79 **QID:** 0431 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

b. RPS channel C would trip.

Question No. 80 **QID:** 0433 **Point Value:** 1 **Source:** New **SRO?** No

Answer:

d. Open RB Cooling Coils Service Water Inlet and Outlet valves.

Question No. **81** **QID:** **0434** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

c. Low suction pressure

Question No. **82** **QID:** **0435** **Point Value:** **1** **Source:** **New**
SRO? **Yes**

Answer:

b. Throttle EFW to prevent overcooling.

Question No. **83** **QID:** **0436** **Point Value:** **1** **Source:** **Modified**
SRO? **No**

Answer:

b. Terminate the release and submit new release permit to nuclear chemistry.

Question No. **84** **QID:** **0437** **Point Value:** **1** **Source:** **Direct**
SRO? **No**

Answer:

b. Inservice WGDT T-18

Question No. **85** **QID:** **0439** **Point Value:** **1** **Source:** **New**
SRO? **Yes**

Answer:

d. The Waste Gas Surge Tank, T-17, Rupture Disk would rupture.

Question No. **86** **QID:** **0440** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

d. ERV selector switch allows automatic operation.

Question No. **87** **QID:** **0441** **Point Value:** **1** **Source:** **New**
SRO? **Yes**

Answer:

b. 1921 - 1940 psig

Question No. **88** **QID:** **0442** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

a. Level the rod with the rest of the group.

Question No. **89** **QID:** **0443** **Point Value:** **1** **Source:** **New**
SRO? **Yes**

Answer:

a. Trip the reactor and go to 1202.001, Reactor Trip.

Question No. **90** **QID:** **0444** **Point Value:** **1** **Source:** **Direct**
SRO? **No**

Answer:

c. 100% Cooling/200% Iodine

Question No. 91 **QID:** 0445 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

a. Reset

Question No. 92 **QID:** 0446 **Point Value:** 1 **Source:** New **SRO?** No

Answer:

d. Standby Condenser Vacuum Pump automatically starts.

Question No. 93 **QID:** 0447 **Point Value:** 1 **Source:** New **SRO?** Yes

Answer:

b. Yes, the EDG is operable since it can start 5 times from each bank of receiver tanks.

Question No. 94 **QID:** 0448 **Point Value:** 1 **Source:** New **SRO?** Yes

Answer:

a. Isolate Letdown by closing Letdown Coolers Outlet CV-1221.

Question No. 95 **QID:** 0449 **Point Value:** 1 **Source:** Direct **SRO?** Yes

Answer:

d. Stop the DH pump and isolate the DH system from the RCS.

Question No. **96** **QID:** **0450** **Point Value:** **1** **Source:** **New**
SRO? **No**

Answer:

c. The fuel assembly may be moved to the Spent Fuel Pool but core alterations are not allowed.

Question No. **97** **QID:** **0451** **Point Value:** **1** **Source:** **New**
SRO? **No**

Answer:

A. Isolate Letdown at MCC B61.

Question No. **98** **QID:** **0462** **Point Value:** **1** **Source:** **New**
SRO? **Yes**

Answer:

c. Trip "A" RPS channel and place "B" channel in channel bypass.

Question No. **99** **QID:** **0463** **Point Value:** **1** **Source:** **New**
SRO? **Yes**

Answer:

c. Trip the reactor and go to 1202.001, Reactor Trip.

Question No. **100** **QID:** **0464** **Point Value:** **1** **Source:** **Direct**
SRO? **Yes**

Answer:

b. 2 DPM on the source range monitors.

Question No. 1 **QID:** 0002 **Point Value:** 1 **Source** Modified

Answer: **RO?** Yes

b. Annunciator "RCP TRIP" (K08-A6) is in alarm, RCS flow is lowering and "H2 L.O. RELAY TRIP" (K02-A5) in alarm.

Question No. 2 **QID:** 0014 **Point Value:** 1 **Source** Direct

Answer: **RO?** Yes

d. Refer to the ANO Pre-Fire Plan for the affected fire zone for a listing of affected components.

Question No. 3 **QID:** 0015 **Point Value:** 1 **Source** Direct

Answer: **RO?** Yes

c. Manually initiate High Pressure Injection to compress the pressurizer steam bubble.

Question No. 4 **QID:** 0020 **Point Value:** 1 **Source** Direct

Answer: **RO?** Yes

a. Place the SG "B" FW Temp signal select switch to the "Y" position.

Question No. 5 **QID:** 0032 **Point Value:** 1 **Source** Modified

Answer: **RO?** No

c. Loss of Instrument Air in LNPR

Question No. 6 **QID:** 0035 **Point Value:** 1 **Source** Direct

Answer: **RO?** Yes

c. Depress CRD power supply breaker trip PBs on C03.

Question No. 7 **QID:** 0052 **Point Value:** 1 **Source** Modified

Answer: **RO?** Yes

b. 8 to 12 hours

Question No. 8 **QID:** 0062 **Point Value:** 1 **Source** Direct

Answer: **RO?** No

b. Trip P-2C, monitor ICS runback to 40% power and dispatch the fire brigade per 1203.034, Smoke, Fire or Explosion.

Question No. 9 **QID:** 0063 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
d. Feedwater loop A demand is greater than feedwater loop B demand.

Question No. 10 **QID:** 0077 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
b. Loop A Tave due to Loop B flow

Question No. 11 **QID:** 0085 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
c. Inverter Y24 from B61

Question No. 12 **QID:** 0095 **Point Value:** 1 **Source** Modified
Answer: **RO?** Yes
a. All RCPs must be secured due to loss of motor cooling.

Question No. 13 **QID:** 0102 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
a. Instrument Air to Service Air X-over valve, SV-5400

Question No. 14 **QID:** 0104 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
d. Verify containment isolation valves are in position marked with black tape background.

Question No. 15 **QID:** 0108 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
a. CV-6688 will go OPEN due to system pressure.

Question No. 16 **QID:** 0113 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
a. Restore PSV-1002 to operable status within 15 minutes or be in Mode 3 within 6 hours.

Question No. 17 **QID:** 0117 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
a. Installation of a test gauge for a surveillance.

Question No. 18 **QID:** 0121 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
d. 50.0 rems/calendar year

Question No. 19 **QID:** 0122 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
a. Agree, the WCO will NOT receive a dose sufficient to exceed the Administrative Dose Control Level.

Question No. 20 **QID:** 0129 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
d. GE

Question No. 21 **QID:** 0137 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
c. Both Main Feedwater Block Valves close in slow speed.

Question No. 22 **QID:** 0140 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
a. Seal Injection

Question No. 23 **QID:** 0151 **Point Value:** 1 **Source** Modified
Answer: **RO?** Yes
a. To prevent actuation by a single detector string

Question No. 24 **QID:** 0161 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
d. Verify SDM within COLR limit within one hour.

Question No. 25 **QID:** 0164 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
a. Reduce decay heat removal flow until flow has stablized.

Question No. 26 **QID:** 0167 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
b. Verify no release in progress at Disch Flow to Flume (FI-4642) on C19.

Question No. 27 **QID:** 0169 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
a. PZR Level Control Valve, CV-1235, will open to establish a higher steady-state PZR level.

Question No. 28 **QID:** 0174 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
a. The EDG output breaker will automatically close once the EDG has started and all other feeder breakers to it's respective bus are open.

Question No. 29 **QID:** 0182 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
b. Align Pressurizer AUX Spray to LPI system.

Question No. 30 **QID:** 0184 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
c. Trip the reactor due to no on-scale indication of neutron flux available.

Question No. 31 **QID:** 0186 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
b. Overheating (1202.004)

Question No. 32 **QID:** 0187 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
d. Transfer D21 to emergency supply D01.

Question No. **33** **QID:** **0189** **Point Value:** **1** **Source** **Modified**

Answer: **RO?** **Yes**

a. Pressurizer level will rise continuously.

Question No. **34** **QID:** **0197** **Point Value:** **1** **Source** **Direct**

Answer: **RO?** **Yes**

c. Levels may not be sufficient to reflood the vessel following a LOCA.

Question No. **35** **QID:** **0200** **Point Value:** **1** **Source** **Direct**

Answer: **RO?** **Yes**

c. The SFP level will stay relatively constant due to siphon holes in the discharge piping.

Question No. **36** **QID:** **0210** **Point Value:** **1** **Source** **Direct**

Answer: **RO?** **Yes**

d. Hydrogen concentration exceeds 3% and is rising.

Question No. **37** **QID:** **0222** **Point Value:** **1** **Source** **Direct**

Answer: **RO?** **Yes**

a. Initially remain closed and then respond to pressure changes.

Question No. **38** **QID:** **0224** **Point Value:** **1** **Source** **Direct**

Answer: **RO?** **Yes**

d. No, the swap will result in tripping the #1 DG.

Question No. **39** **QID:** **0229** **Point Value:** **1** **Source** **Direct**

Answer: **RO?** **Yes**

c. All TBVs will close, both ADV isolations will open and both ADV control valves control at setpoint

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Question No. **40** **QID:** **0234** **Point Value:** **1** **Source** **Direct**

Answer: **RO?** **Yes**

d. Removing all but C & D condensate polishers from service.

Question No. 41 **QID:** 0244 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
d. System engineer closes a valve while troubleshooting a water hammer concern.

Question No. 42 **QID:** 0247 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
d. Control Board Operator or Shift Manager.

Question No. 43 **QID:** 0264 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
d. decrease to the "B" OTSG.

Question No. 44 **QID:** 0278 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
c. Pressurizer spray isolation valve, CV-1009, is failed open.

Question No. 45 **QID:** 0285 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
b. Quickly reduce the lowest SG pressure to 700 psig or the MSSV open alarm is clear.

Question No. 46 **QID:** 0331 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
c. HPI Cooldown

Question No. 47 **QID:** 0337 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
a. Restore full HPI flow on "C" HPI pump.

Question No. 48 **QID:** 0342 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
c. 30% power

Question No. 49 **QID:** 0344 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
d. RCS temperature is stable, RCS pressure is going down, and pressurizer level is stable.

Question No. 50 **QID:** 0347 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
d. Return the assembly to any available location in the reactor vessel.

Question No. 51 **QID:** 0354 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
a. after stable neutron flux readings have been observed

Question No. 52 **QID:** 0363 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
c. Collapse a steam void in the Rx Vessel head.

Question No. 53 **QID:** 0364 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
c. Cooldown and isolate the "A" SG

Question No. 54 **QID:** 0365 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
b. Initiate HPI Cooling per RT-4.

Question No. 55 **QID:** 0367 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
c. Initiate a local evacuation of the Spent Fuel Pool area.

Question No. 56 **QID:** 0368 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
c. Verify Reflux Boiling setpoint is selected on both EFIC trains.

Question No. 57 **QID:** 0372 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
c. Throttle HPI valve with 180 gpm flow until flow is 145 gpm.

Question No. 58 **QID:** 0379 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
b. Adjust the setpoint to less than or equal to max high alarm setpoint before recording the As-Left Setpoint.

Question No. 59 **QID:** 0407 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
b. 0400

Question No. 60 **QID:** 0411 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
b. Notification to the NRC is required immediately following notification of the ADH and within 1 hour of the declaration of an emergency class.

Question No. 61 **QID:** 0414 **Point Value:** 1 **Source** New
Answer: **RO?** Yes
a. Trip the reactor and go to 1202.001.

Question No. 62 **QID:** 0415 **Point Value:** 1 **Source** New
Answer: **RO?** Yes
d. Verify proper EFW actuation and control per RT-5.

Question No. 63 **QID:** 0416 **Point Value:** 1 **Source** New
Answer: **RO?** Yes
c. Upon closing, the inlet valve is delayed until outlet valve is 80 to 90% closed.

Question No. 64 **QID:** 0417 **Point Value:** 1 **Source** New
Answer: **RO?** Yes
c. Open both BWST Outlet valves CV-1407 & 1408.

Question No. 65 **QID:** 0418 **Point Value:** 1 **Source** Direct

Answer: **RO?** Yes

c. Realign the standby SW pump to the emergency pond and start it.

Question No. 66 **QID:** 0419 **Point Value:** 1 **Source** Direct

Answer: **RO?** Yes

d. The interlocks jam on the personnel hatch and both doors are open for < 5 minutes.

Question No. 67 **QID:** 0420 **Point Value:** 1 **Source** Direct

Answer: **RO?** Yes

b. 1202.005, Inadequate Core Cooling

Question No. 68 **QID:** 0421 **Point Value:** 1 **Source** Direct

Answer: **RO?** Yes

a. Loss of Subcooling Margin (1202.002)

Question No. 69 **QID:** 0422 **Point Value:** 1 **Source** Modified

Answer: **RO?** Yes

a. Take steps 1, 2, 6, and 9

Question No. 70 **QID:** 0423 **Point Value:** 1 **Source** New

Answer: **RO?** Yes

c. Trip the reactor and go to 1202.001.

Question No. 71 **QID:** 0424 **Point Value:** 1 **Source** Direct

Answer: **RO?** Yes

a. The reactor, or feedwater or both control units are in manual and this forces the turbine to control header pressure.

Question No. 72 **QID:** 0426 **Point Value:** 1 **Source** New

Answer: **RO?** Yes

c. "A" OTSG level rises to 415"

Question No. 73 **QID:** 0427 **Point Value:** 1 **Source** New
Answer: **RO?** Yes

d. Cross-tie A3 and A4 buses and start P-7B.

Question No. 74 **QID:** 0429 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes

d. no effect on regulating rods, safety rods are held by a single phase (CC) energized.

Question No. 75 **QID:** 0430 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes

d. Reset the analog signals then reset the digital signals.

Question No. 76 **QID:** 0431 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes

b. RPS channel C would trip.

Question No. 77 **QID:** 0432 **Point Value:** 1 **Source** New
Answer: **RO?** No

b. PZR level will continue to rise during this event.

Question No. 78 **QID:** 0434 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes

c. Low suction pressure

Question No. 79 **QID:** 0435 **Point Value:** 1 **Source** New
Answer: **RO?** Yes

b. Throttle EFW to prevent overcooling.

Question No. 80 **QID:** 0439 **Point Value:** 1 **Source** New
Answer: **RO?** Yes

d. The Waste Gas Surge Tank, T-17, Rupture Disk would rupture.

Question No. 81 **QID:** 0440 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
d. ERV selector switch allows automatic operation.

Question No. 82 **QID:** 0441 **Point Value:** 1 **Source** New
Answer: **RO?** Yes
b. 1921 - 1940 psig

Question No. 83 **QID:** 0442 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
a. Level the rod with the rest of the group.

Question No. 84 **QID:** 0443 **Point Value:** 1 **Source** New
Answer: **RO?** Yes
a. Trip the reactor and go to 1202.001, Reactor Trip.

Question No. 85 **QID:** 0445 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
a. Reset

Question No. 86 **QID:** 0447 **Point Value:** 1 **Source** New
Answer: **RO?** Yes
b. Yes, the EDG is operable since it can start 5 times from each bank of receiver tanks.

Question No. 87 **QID:** 0448 **Point Value:** 1 **Source** New
Answer: **RO?** Yes
a. Isolate Letdown by closing Letdown Coolers Outlet CV-1221.

Question No. 88 **QID:** 0449 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
d. Stop the DH pump and isolate the DH system from the RCS.

Question No. 89 **QID:** 0452 **Point Value:** 1 **Source** New
Answer: **RO?** No
a. Trip P-32A RCP and verify proper ICS response.

Question No. 90 **QID:** 0454 **Point Value:** 1 **Source** New
Answer: **RO?** No
c. Maintain "A" RB Spray flow at 1050 to 1200 gpm.

Question No. 91 **QID:** 0455 **Point Value:** 1 **Source** New
Answer: **RO?** No
b. A fuel assembly is hung up on a grid strap.

Question No. 92 **QID:** 0456 **Point Value:** 1 **Source** New
Answer: **RO?** No
b. The ICW Discharge Cross-connect valves are leaking by.

Question No. 93 **QID:** 0457 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
b. The fuel assembly can be stored in Region 1 or Region 2 of the spent fuel pool with no restrictions.

Question No. 94 **QID:** 0458 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
b. RCS T average must be between 200 °F and 280 °F.

Question No. 95 **QID:** 0459 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
b. The 50.59 review indicates an evaluation is required.

Question No. 96 **QID:** 0460 **Point Value:** 1 **Source** Direct
Answer: **RO?** No
c. Raise suction pressure, lower alarm setpoint, raise alarm setpoint, remove annunciator card.

Question No. 97 **QID:** 0461 **Point Value:** 1 **Source** Modified
Answer: **RO?** No
a. Group one, rod three drops to 30% withdrawn.

Question No. 98 **QID:** 0462 **Point Value:** 1 **Source** New
Answer: **RO?** Yes
c. Trip "A" RPS channel and place "B" channel in channel bypass.

Question No. 99 **QID:** 0463 **Point Value:** 1 **Source** New
Answer: **RO?** Yes
c. Trip the reactor and go to 1202.001, Reactor Trip.

Question No. 100 **QID:** 0464 **Point Value:** 1 **Source** Direct
Answer: **RO?** Yes
b. 2 DPM on the source range monitors.