

1. 2005 ILT RO 1

Consider the following plant conditions:

- Both Units are at End of Life.
- Unit 1 is at **10%** reactor power.
- Unit 2 is at **100%** reactor power.
- All Reactor Trip Breakers on both units open simultaneously.

Which Unit(s) will be <2% power after 15 seconds? How long before Unit **2** Source Range detectors energize?

- |    | <2% in 15 seconds: | Unit <b>2</b> SR energize in: |
|----|--------------------|-------------------------------|
| A. | Units 1 and 2      | 6 - 8 minutes                 |
| B. | Units 1 and 2      | 13 -17 minutes                |
| C. | Only Unit 1        | 21 - 24 minutes               |
| D. | Neither Unit       | 21 - 24 minutes               |

Answer: B

KA#

000007.EK1.04

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, decay time is too fast in this distractor. If -2/3 DPM were used or if too few decades from Power to Source Range were used, this would be a viable answer.

B: Correct, when the reactors trip, they will both rapidly drop to 1% ( $10^{-5}$  IR Amps) power. Power will then lower at -1/3 dpm until P-6 is reached at  $\sim 1.5 \times 10^{-10}$  IR amps. This is almost 5 decades. Therefore 5 decade drop at -1/3 dpm yields 15 minutes.

C: Incorrect, it would be plausible to suspect that only Unit 1 would drop to <2% within 15 seconds, 21 minutes would be plausible if 7 decades (100% to P-6 is about 7 decades).

D: Incorrect, if the magnitude of the prompt drop is not recognized, this would be selected.

## 2. 2005 ILT RO 2

Consider the following Unit 2 conditions:

- Crew has entered the EOP network for a Pressurizer Steam Space break.
- The following procedural flowpath has been followed:
  - EOP-0, Reactor Trip or Safety Injection
  - EOP-1, Loss of Reactor or Secondary Coolant
  - EOP-1.2, Small Break LOCA Cooldown and Depressurization
  - 30 minutes has elapsed since the reactor trip.

Performing the Cooldown and Depressurization of the plant per EOP-1.2 will ...

A. have no effect on flowrate out of the steam space break and PZR level will be stable.

B. have no effect on flowrate out of the steam space break and PZR level will be lowering.

C. reduce flowrate out of the steam space break and PZR level will be lowering.

D. reduce flowrate out of the steam space break and PZR level will be off-scale high.

Answer: D

KA#

000008.AK1.02

Cog Level

High

RO/SRO

RO

INPO ILT Bank, Byron, dated 12/10/2003

Explanation:

A: Incorrect, Depressurizing will lower the break flow. It could be assumed that the leak will stabilize over the course of 90 minutes and will not be affected by depressurization.

B: Incorrect: If flow effect is not recognized and pressurizer level is incorrectly thought to be lowering due to the cooldown, this could be selected.

C: Incorrect, If it is assumed that lowering break flow will cause Pressurizer level

to lower, this could be selected.

D: Correct, The purpose of depressurizing is to reduce the break flow. With a vapor space leak, the pressurizer will rapidly fill to off-scale if not already off-scale.

### 3. 2005 ILT RO 3

Consider the following Unit 1 conditions:

- Unit 1 is at 100% reactor power.
- An RCS leak has developed and the crew is responding using AOP-1A, Reactor Coolant Leak.
- Maximum charging has been established.
- Letdown has been manually isolated.
- VCT level is 17% and lowering.
- Pressurizer level is 29% and lowering.

Which of the following describes the proper response to these conditions?

- A. Commence manual makeup to recover VCT level.
- B. Manually restore Letdown flow to recover VCT level.
- C. Manually shift charging pump suction to the RWST and trip Unit 1 reactor.
- D. Manually trip Unit 1 reactor, manually initiate Safety Injection and Containment Isolation.

Answer: D

KA#

000009.2.1.32

Cog Level

High

RO/SRO

RO

New Question

Explanation:

A: Incorrect, this would be appropriate action to take if Pressurizer level was within 10% of program and returning to program.

B: Incorrect, this would recover VCT level, but would make the loss of RCS inventory worse.

C: Incorrect, manually tripping the reactor would be the correct response if charging suction automatically shifted to RWST during the performance of AOP-1A.

D: Correct, since Pressurizer level is >10% below program ( $45.8\% - 29\% = 16.8\%$ ), AOP-1A will direct the reactor trip, SI and CI.

#### 4. 2005 ILT RO 4

Consider the following Unit 1 conditions:

- A LOCA occurred one hour ago.
- During the performance of EOP-1.3, Transfer to Containment Sump Recirculation – Low Head Injection, 1SI-851 A and 1SI-851B, RHR Suctions from Containment Sump 'B', could NOT be opened.
- ECA-1.1, Loss of Containment Sump Recirculation, Step 22 "Check If SI Should Be Terminated" is now in progress.
- RCPs are off.
- Reactor Vessel level is 45 feet and stable.
- Subcooling is 50°F and stable.
- RWST level is 28% and lowering.
- The crew is now attempting to establish charging flow.

What is the significance of establishing charging flow under these conditions?

- A. Provide core cooling while preserving remaining RWST inventory.
- B. Refill the loops to ensure secondary heat transfer is available.
- C. Recover subcooling to allow SI termination.
- D. Protect RCP seals by providing seal injection flow.

Answer: A

KA#

000011.EA2.05

Cog Level

Low

RO/SRO

RO

New Question

Explanation:

A: Correct, Step 22 of ECA-1.1 established charging flow to provide minimum core cooling flow to allow ECCS pumps to be stopped for preserving RWST inventory.

B: Incorrect, ECA-1.1 background discusses reflux cooling and the importance of maintaining secondary inventory for this.

C: Incorrect, establishment of adequate subcooling is plausible at a step entitled "Check if SI Should be terminated" since subcooling is checked prior to SI termination throughout the EOP set.

D: Incorrect, at step 22, the RCP seal condition is not considered, core cooling concerns are key. Plausible since establishing charging flow to protect the RCPs is performed elsewhere in the EOPs.

## 5. 2005 ILT RO 5

Consider the following Unit 1 conditions:

- Unit 1 is at 100% reactor power.
- 1C04 1C 1-5, "P-1A&B RCP Vibration" Alarm is LIT.
- Vibration on 'A' RCP is confirmed with a shaft vibration of 21 mils and rising at 0.1 mils per hour.
- Crew is implementing AOP-1B, Reactor Coolant Pump Malfunction.

Which of the following statements describes the correct course of action?

A. Shut down the unit using AOP-17A, Rapid Power Reduction, then trip 'A' RCP.

B. Continue implementing AOP-1B, Reactor Coolant Pump Malfunction, while continuing to monitor vibration of 'A' RCP. If shaft vibration exceeds 25 mils, trip Unit 1 reactor and 'A' RCP.

C. Trip Unit 1 reactor, carry out EOP immediate actions, then trip 'A' RCP.

D. Immediately trip 'A' RCP to prevent further damage, then perform EOP immediate actions.

Answer: C

KA#

000015.AK3.03

Cog Level

Low

RO/SRO

RO

INPO ILT Bank, VC Summer, dated 9/17/2002.

Explanation:

A: Incorrect, this would be the correct action per step 16 of AOP-1B if the RCP is found to be inoperable for reasons which are not covered by RCP trip criteria.

B: Incorrect, this would be correct if vibration was <20 mils, which is the trip criteria

C: Correct, with vibrations at  $\geq 20$  mils, transition is made to step 18, which directs reactor trip and subsequent tripping of affected pump.

D: Incorrect, this protects the RCP first, then the reactor. The operator's inclination might be to protect the equipment that is malfunctioning knowing that the reactor will automatically trip via loss of RCS flow.

6. 2005 ILT RO 6

Why are the CV-300A&B, RCP Seal Injection Throttle valves, closed during a loss of all AC Power?

A. To prevent damage to the RCP seals from thermal shock when charging flow is restored.

B. To prevent filling the Seal Return heat exchanger with steam when charging flow is restored.

C. To prevent rupturing the Thermal Barrier heat exchanger from thermal and pressure shock.

D. To prevent steam created in the seal package from steam binding the charging pumps via backleakage through the seal supply lines.

Answer: A

KA#

000022.AK1.01

Cog Level

Low

RO/SRO

RO

From INPO exam bank, Prairie Island NRC exam dated 8/16/2002

Explanation:

A: Correct, CV-300 And B are closed to protect the seals.

B: Incorrect, this is a plausible consequence of restoring charging after seal injection and CCW is lost, however, this is not the stated concern.

C: Incorrect, this is the reason we isolate the Thermal Barrier CCW flow.

D: Incorrect, this is another plausible consequence of steam formation in the seals; this is unlikely to occur and is not the stated concern.

## 7. 2005 ILT RO 7

Consider the following Unit 1 conditions:

- Unit 1 is shutdown for refueling.
- Initial RCS temp was 80°F.
- 'A' RHR pump was running but became air bound, crew responded IAW SEP-1, Degraded RHR System Capability.
- 'A' RHR pump was successfully restarted after about 30 minutes.
- Final RCS temp is 110°F.

The crew now wishes to return the plant to the pre-event temperature using 'A' RHR pump.

Which of the following correctly identifies the RHR pump flow directed by SEP-1 and **MAXIMUM** allowed RCS cooldown rate while returning the plant to its initial conditions?

- A. 450-650 GPM flow; 50°F/hr cooldown rate
- B. 900-1100 GPM flow; 100°F/hr cooldown rate
- C. 1400-1600 GPM flow; 200°F/hr cooldown rate
- D. 2800-3000 GPM flow; Maximum cooldown rate does not apply while in SEP-1.

Answer: B

KA#

000025.AA2.05

Cog Level

Low

RO/SRO

RO

## New Question

### Explanation:

A: Incorrect, 520 GPM is the minimum allowed flow for one RHR pump.

B: Correct, 900-1100 is the given flow, normal cooldown rate of 100F/hr applies.

C: Incorrect, 1550 GPM is max allowed flow for one pump in OP-7A, 200F/hr is Pressurizer cooldown limit.

D: Incorrect, 3100 GPM is max flow with two pumps in service. In some casualty situations, it is desirable to cooldown at the maximum achievable rate. This would not apply here.

## 8. 2005 ILT RO 8

The following series of events have taken place on Unit 1:

- Unit 1 is in MODE 1.
- PC-431K, Pressurizer Master Pressure Controller, output failed high.
- 1RC-431 A and 1RC-431B, PZR Spray valves, opened.
- Pressurizer pressure lowered to 2100 PSIG.
- Unit 1 CO took manual control of 1HC-431K and lowered the output, causing the Spray valves to close.
- Unit 1 CO manually energized all Pressurizer heaters to raise Pressurizer pressure.
- Pressurizer pressure rose to 2325 PSIG.
- Unit 1 CO placed Pressurizer heater control switches to off.
- Pressurizer pressure slowly returned to 2235 PSIG.

Which of the following is accurate regarding this transient?

1. Technical Specification Action Condition should have been entered for **Low** Pressurizer Pressure.
2. **High** RCS Pressure Safety Limit has been exceeded.
3. Automatic **Low** Pressurizer Pressure Reactor trip failed to actuate.
4. Automatic **High** Pressurizer Pressure Reactor trip failed to actuate.

A. Only 1

B. Only 4

C. 1 and 3

D. 2 and 4

Answer: A

KA#

000027.2.1.33

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

A: Correct, Only Low PZR Pressure TS limit (2205 PSIG) has been violated.

B: Incorrect, High Pressure trip is 2385 PSIG.

C: Incorrect, Low Pressure trip is 1925 PSIG and although it is rate compensated, pressure only lowered to 2100 PSIG.

D: Incorrect, High Pressure Safety Limit is 2735 PSIG.

9. 2005 ILT RO 9

Unit 1 has experienced an Anticipated Transient without Scram (ATWS) and has transitioned to CSP-S.1, Response To Nuclear Power Generation/ATWS.

Which of the following correctly describes the expected control switch **MANIPULATIONS** for 1CV-112B, RWST to Charging Pump suction MOV, and 1CV-112C, VCT to Charging Pump suction MOV prior to opening 1CV-350, Emergency Borate valve?

- |    | 1CV-112B control switch<br>(RWST to Charging Pumps) | 1CV-112C control switch<br>(VCT to Charging Pumps) |
|----|-----------------------------------------------------|----------------------------------------------------|
| A. | Open                                                | Open                                               |
| B. | Open                                                | Close                                              |
| C. | Close                                               | Open                                               |
| D. | Close                                               | Close                                              |

Answer: B

KA#  
000029.EA1.02

Cog Level  
Low

RO/SRO  
RO

## New Question

### Explanation:

A: Incorrect, this alignment would protect the charging pumps to the maximum extent possible; however, this could cause water to sluice from the VCT to the RWST.

B: Correct, to protect charging pump suction from loss of VCT level while charging at maximum rate, suction is swapped to the RWST.

C: Incorrect, this would eliminate the sluicing concern but could cause pump damage when VCT and BAST levels are lost. Charging will swap to RWST on low VCT level anyway, but manually aligning the suction ensures protection of charging.

D: Incorrect, this is plausible, since the examinee could reasonably assume that having 1CV-350 open will provide sufficient suction head to the charging pumps from the BAST.

## 10. 2005 ILT RO 10

Consider the following Unit 2 conditions:

- Unit 2 'A' Steam Generator has a Tube Rupture.
- The following RMS alarms and valve positions are noted:
  - RMS ALARMS:
    - 2RE-222, Unit 2 SGBD Tank Area Monitor in ALERT
    - 2RE-219, Unit 2 SGBD Sample Line Monitor in HIGH ALARM
  - VALVE POSITIONS:
    - 2MS-5958, Unit 2 'A' SG BD Isolation valve - CLOSED
    - 2MS-5959, Unit 2 'B' SG BD Isolation valve - CLOSED
    - 2MS-2040, Unit 2 SGBD Tank Outlet Isolation valve - CLOSED
    - 2MS-2083, Unit 2 'A' SGBD Sample Isolation valve - OPEN
    - 2MS-2084, Unit 2 'B' SGBD Sample Isolation valve - OPEN

Are the listed valves in the required position for the given alarm conditions? Why or why not? (Assume no operator action.)

A. Yes, the Sample Isolation valves will go closed if 2RE-222 goes into HIGH Alarm.

B. Yes, the Sample Isolation valves do NOT automatically close on RMS alarms and will need to be manually closed, if desired.

C. No, with 2RE-219 in HIGH Alarm, all listed valves should be closed.

D. No, since the SG Tube Rupture is on the 'A' SG, only 2MS-5958 and 2083 should be closed. The remaining valves should all be open.

Answer: C

KA#

000038.EK3.04

Cog Level

Low

RO/SRO

RO

New Question

Explanation:

A: Incorrect, this would be correct if 2RE-222 was in high alarm and 2RE-219 was in alert.

B: Incorrect, this distractor tests the knowledge of which radiation monitor controls which valves.

C: Correct, in this case, all listed valves will shut on 2RE-219 High Alarm.

D: Incorrect, this is plausible if candidate fails to recognize that high radiation on one SG will isolate BD from both.

11. 2005 ILT RO 11

Consider the following Unit 1 conditions:

- Unit 1 was at 100% reactor power.
- Twenty minutes ago, an RCP flywheel catastrophically failed, damaging both Main Steam lines inside containment.
- AFW flow of 100 GPM per SG was established in EOP-0, Reactor Trip or Safety Injection.
- ECA-2.1, Uncontrolled Depressurization of Both Steam Generators, feed control step is in progress.
- SG 'A' level is 200" WR and lowering slowly.
- SG 'B' level is 100" WR and lowering.
- RCS temperature is now 400°F and slowly lowering.

Which of the following actions will the crew take regarding AFW flow to the Steam Generators IAW ECA-2.1 and what is the reason for this action?

A. Maintain AFW flow at 100 GPM to each SG, since 200 GPM flow is required to maintain adequate heat sink.

B. Secure AFW flow to 'B' SG and raise AFW flow to 'A' SG to 200 GPM to isolate feed to the more severely faulted SG and maintain adequate heat sink.

C. Secure AFW flow to 'B' SG and maintain AFW flow to 'A' SG at 100 GPM since 100 GPM flow is directed to minimize RCS cooldown and 'B' SG level is lowering faster.

D. Reduce AFW flow to 50 GPM to each SG to minimize cooldown while maintaining both SGs in a "wet" condition.

Answer: D

KA#  
WE12.EK3.04

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, ECA-2.1 directs lowering feed flow if cooldown of 100F/Hr has been exceeded. Although RED path for heat sink will be indicated when flow is lowered, the operator will be in control of temperature and CSP-H.1 will not need to be entered.

B: Incorrect, it is desired to maintain a minimum amount of flow to each SG when both are depressurizing in an uncontrolled manner.

C: Incorrect, the direction is to minimize feed flow but maintain flow to both.

D: Correct, 50 GPM per SG is directed. Examinee will need to calculate a cooldown rate (570F - 400F = 170F in the last 20 minutes). If cooldown rate has not exceeded 100F/hr, if cooldown was not excessive, 'A' would be correct.

12. 2005 ILT RO 12

Consider the following Unit 1 conditions:

- Unit 1 is at 85% reactor power.
- 1CS-2190, P-28A Main Feed Pump Discharge MOV, begins to close due to an electrical malfunction.

Which of the following automatic **OR** manual actions will be required to recover Steam Generator levels?

A. Turbine Runback will automatically lower steam flow.

- B. 1CS-2273, LP FWH Bypass valve, will automatically open to raise feed flow.
- C. Crew must manually lower Turbine load to lower steam flow.
- D. Crew must manually open Main Feed Regulating valves to raise feed flow.

Answer: C

KA#  
000054.AK3.02

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, loss of feedwater flow will not immediately cause an automatic turbine runback. If the low feed condition is allowed to continue, reactor will trip on low SG levels prior to a runback.

B: Incorrect, CS-2273 will open to raise condensate flow if flow TO the feed pumps is inadequate.

C: Correct, turbine load will need to be manually reduced to recover SG levels.

D: Incorrect, opening MFRVs will not address the loss of flow from one feed pump. MFRVs will automatically open in response to loss of flow but flow from one MFP will be inadequate for 85% power once discharge valve goes fully closed.

13. 2005 ILT RO 13

Consider the following plant conditions:

- Loss of all AC power has occurred.
- 1P-29 and 2P-29, Turbine Driven AFW pumps are providing flow to the SGs.

What is the fail position for 1AF-4002 and 2AF-4002, TDAFW Pump Recirc valves, and how long are the backup accumulators for these valves expected to last before manual control of the gagging devices is needed?

- A. Valves fail closed, 2 hours
- B. Valves fail open, 90 minutes

C. Valves fail open, 1 hour

D. Valves fail closed, 30 minutes

Answer: A

KA#

000055.EA2.01

Cog Level

Low

RO/SRO

RO

New Question

Explanation:

A: Correct, Valves fail closed, Accumulator is rated for 2 hours.

B: Incorrect, Valves fail closed, open is plausible to protect the pump. Motor Driven AFW Accumulators are rated for 90 minutes.

C: Incorrect, ditto on fail open position, 1 hour is a plausible time for taking manual actions.

D: Incorrect, Backup Nitrogen to the PZR spray valves lasts 30 minutes.

14. 2005 ILT RO 14

Unit 2 was operating at 100% reactor power when a loss of offsite power caused the RCPs to trip. The crew is performing EOP-0.1, Reactor Trip Response.

Identify the proper indications that natural circulation has been **ESTABLISHED**. (Assume subcooling is 50°F and Stable.)

1 – Core Exit Thermocouples – Lowering

2 – Core Exit Thermocouples – Rising

3 – RCS Hot Leg temperature – Lowering

4 – RCS Hot Leg temperature – Rising

5 – SG pressure – Lowering

6 – SG pressure – Rising

7 – RCS **HOT** Leg temperature – near saturation for SG pressure

8 – RCS **COLD** Leg temperature – near saturation for SG pressure

- A. 1, 3, 5, 8
- B. 1, 3, 6, 7
- C. 2, 4, 5, 7
- D. 2, 4, 6, 8

Answer: A

KA#  
000056.2.1.7

Cog Level  
Low

RO/SRO  
RO

INPO ILT Bank, Byron, dated 6/29/2000

Explanation:

A: Correct, CETs, Hot leg temps and SG pressures lowering and Cold Leg temp near saturation are indication of natural circ IAW EOP-0.1

B: Incorrect, SG Pressure should not be rising and SG should be near saturation pressure of Cold Leg Temp, not Hot Leg.

C: Incorrect, CETs and Hot Legs should be lowering.

D: Incorrect, Ditto.

15. 2005 ILT RO 15

Breaker 1 on D-26 panel, power to DY0A, Red Swing Inverter, opens. Which of the following would be the expected position or indication on DY0A following this loss of power?

DC Input Breaker	Frequency Meter	AC Output Breaker
A. Open	60 Hz	Closed
B. Closed	60 Hz	Closed
C. Closed	0 Hz	Open
D. Open	0 Hz	Open

Answer: B

KA#  
000058.AA1.02

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, there is no input breaker trip on the DC breaker on Red and Blue Train inverters.

B: Correct, Input and Output breakers will remain closed, frequency is coming from Non-Safeguards 120VAC backup power.

C: Incorrect, AC output breaker will not open on a loss of DC power and frequency will be at 60 Hz.

D: Incorrect, it could be assumed that the inverter breakers will trip on undervoltage to protect the inverter.

16. 2005 ILT RO 16

Consider the following Unit 1 conditions:

- Unit 1 is at 100% reactor power.
- "Instrument Air Header Pressure Low" is in alarm.

If a ruptured Instrument Air header is causing a continuous lowering of Instrument Air header pressure, which of the following will require a Reactor Trip IAW AOP-5B, Loss of Instrument Air?

- A. Loss of Letdown Orifice Isolation valve control
- B. Loss of Steam Generator Water level control
- C. Loss of Charging pump speed control
- D. Loss of Pressurizer Spray valve control

Answer: B

KA#  
000065.AA1.05

Cog Level

Low

RO/SRO  
RO

INPO ILT Bank, Prairie Island dated 5/15/2000

Explanation:

A: Incorrect, Letdown Orifice valves would fail shut, but a loss of letdown will not require a trip IAW AOP-5B.

B: Correct, AOP-5B directs the crew to trip if SG water levels cannot be maintained.

C: Incorrect, Loss of speed control of the charging pumps may require manual actions to control Pressurizer level, but does not require a trip.

D: Incorrect, Spray valves will fail shut, thus this failure will not lead to an immediate inability to control the plant.

17. 2005 ILT RO 17

Which of the following systems is considered to be the most likely location for a LOCA outside containment and is therefore the first system verified to be intact during the performance of ECA-1.2, LOCA Outside Containment?

A. Safety Injection

B. RHR

C. CVCS Letdown

D. CCW

Answer: B

KA#  
WE04.EK2.01

Cog Level  
Low

RO/SRO  
RO

INPO ILT Bank, Prairie Island, 5/15/2000

Explanation:

A: Incorrect, SI piping has a high pressure rating and would not be expected to

rupture outside containment.

B: Correct, ECA-1.2 BG specifically names RHR as the most likely culprit for a LOCA outside containment for which entry into ECA-1.2 would be required.

C: Incorrect, Letdown should isolate inside containment on CI.

D: Incorrect, CCW piping has automatic isolation for a thermal barrier leak and the thermal barrier piping is rated for full RCS pressure.

#### 18. 2005 ILT RO 18

Consider the following Unit 1 conditions:

- Unit 1 was at 100% reactor power when a Reactor Trip and Safety Injection occurred.
- Subsequent failures have resulted in a total loss of Auxiliary Feedwater flow.
- The crew has transitioned to CSP-H.1, Response to Loss of Secondary Heat Sink.
- While attempting to restore 1P-29, Turbine Driven AFW Pump, using CSP-H.1, the following conditions are noted:
  - 1MS-2019, 1P-29 Steam Supply valve - green light off, red light lit.
  - 1MS-2020, 1P-29 Steam Supply valve - green light off, red light lit.
  - 1MS-2082, 1P-29 AFP Low Suction/Ovrspd Trip valve - green light off, red light lit.
  - 1MS-2082 Trip Valve Position/Reset Operator - amber light lit, red light off.
  - 1P-29 AFP suction pressure is 10 PSIG and stable.
  - "Unit 1 Auxiliary Feedwater System Disabled" Alarm is LIT.

Which of the following is the reason 1P-29 is **NOT** running?

- A. 1P-29 tripped on low suction pressure, local operator action is required to start 1P-29.
- B. 1P-29 did NOT receive a start signal, Trip Valve 1MS-2082 must be opened manually.
- C. 1P-29 tripped on overspeed, local operator action is required to start 1P-29.
- D. 1P-29 attempted to start but failed to start because Trip Valve 1MS-2082 was manually closed from the Control Room.

Answer: C

KA#

WE05.2.4.31

COMMENT MADE DURING THE WRITTEN EXAM:

Change 7<sup>th</sup> and 8<sup>th</sup> bullet to read:

1MS-2082, 1P-29 AFP Low Suction/Overspeed Trip valve - green light off, red light lit.

1MS-2082 1P-29 AFP Low Suction/Overspeed Trip valve Trip Position Indicator - amber light lit, red light off.

Cog Level  
High

RO/SRO  
RO

INPO ILT Bank, Point Beach, dated 9/29/2003.

Explanation:

A: Incorrect, Low Suction Pressure trip is 6.9 PSIG and local operator action is not required to reset a LSP trip.

B: Incorrect, since MS-2019 and MS-2020 are open, the pump has received a start signal.

C: Correct, with the given indications, 1P-29 has tripped on overspeed, since there is no LSP trip indicated.

D: Incorrect, since MS-2082 VALVE indicator is red, the valve has not been manually shut from the CR.

19. 2005 ILT RO 19

Consider the following Unit 1 conditions:

- Unit 1 is at 95% reactor power.
- CBD Control rod C-7 is at 178 steps.
- Remaining Control Bank 'D' rods are at 198 steps.
- Control Room crew has entered AOP-6B, Stuck or Misaligned Control Rod, and actions to realign the rod have been completed.
- Following the realignment of the rod, the P/A converter is **NOT** set to actual bank position as required in the procedure.
- Subsequently, a plant transient occurs and rods begin to drive in until the "Rod Insertion Limit Bank D **LOW**" (1C04 1A 1-11) Alarm actuates.

Relative to **ACTUAL** Rod Insertion Limits, at what rod height will the alarm actuate? Would this be conservative or non-conservative? Why?

A. Alarm will actuate 30 steps **ABOVE** Rod Insertion Limit. This would be conservative since the alarm would provide early warning of an inadvertent dilution.

B. Alarm will actuate 10 steps **ABOVE** Rod Insertion Limit. This would be conservative since the alarm would provide early warning that rod position could cause Axial Flux to exceed allowable limits.

C. Alarm will actuate 10 steps **BELOW** Rod Insertion Limit. This would be non-conservative since the alarm warning, for a possible loss of Shutdown Margin, would be received late.

D. Alarm will actuate 30 steps **BELOW** Rod Insertion Limit. This would be non-conservative since the alarm warning for rod position, which could cause DNB Ratio to exceed allowable limits, would be received late.

Answer: C

KA#  
000005.AK3.02

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, If it is assumed that the 20 step disagreement should be added to the 10 step alarm, 30 steps above the limit is plausible. An inadvertent dilution could cause rods to step in too far and thus cause this alarm.

B: Incorrect, If the 20 step disagreement was added to the 10 step alarm setpoint, but it was assumed that the alarm normally actuated 10 steps BELOW the Rod Insertion Limit, this would be plausible. Rod position impact on Axial Flux is plausible, since having the rods inserted too far will cause AFD issues.

C: Correct, all CBD rods except C-7 would be disconnected from the bank and C-7 withdrawn 20 steps. If the P/A converter is not reset, anything fed from the P/A converter, such as the RIL computer, will see the Bank at 218 steps (198 to begin with plus an additional 20 steps to align C-7). Thus the total error is 20 steps in a non-conservative direction. The LOW alarm is set to alarm at 10 steps above the Rod Insertion LIMIT. Thus, if the alarm is 20 steps non-conservative, the alarm will actuate 10 steps BELOW the actual limit. Loss of SDM is reason for alarm.

D: Incorrect, If the misalignment is calculated properly, but the alarm is assumed to be 10 steps BELOW rod insertion limit, vice 10 steps above, this would be plausible. DNB Ratio would be affected by having rods too deep in the core.

20. 2005 ILT RO 20

The following conditions have developed on Unit 1 over the past 10 minutes:

- Unit 1 is at 100% reactor power.
- 1P-2A Charging pump is in automatic, 1P-2C Charging pump is in manual.
- Pressurizer level is slowly lowering.
- 1P-2A Charging pump has ramped to minimum speed and "Charging Pump Speed Control High/Low" Alarm is LIT.
- All Pressurizer heaters are energized.
- Pressurizer pressure is 2250 PSIG and trending to setpoint.
- Pressurizer Spray valves are both open slightly.

What actions are needed and why?

A. Take manual control of 1P-2A, Charging pump, since 1HC-428A, 1P-2A Charging Pump Speed Controller, has failed low.

B. Take 1PC-431K, Pressurizer Pressure Master Controller, to manual and manually adjust to de-energize heaters and control pressure since 1PC-431K output has failed low.

C. Start additional charging pump to restore Pressurizer level in response to an RCS leak.

D. Take manual control of charging to restore Pressurizer level since controlling channel for Pressurizer level has failed high.

Answer: D

KA#

000028.AK3.05

Cog Level

High

RO/SRO

RO

New Question

Explanation:

A: Incorrect, if speed control failed, the level changes would be explained, but not the pressure response.

B: Incorrect, if the Pressure controller failed low, this would explain all heaters on, however, it would not explain how the sprays also came open and does not affect

charging speed.

C: Incorrect, in the SBLOCA scenario, Pressurizer level may lower, but charging speed would not lower at the same time

D: Correct, Controlling Channel of Pressurizer Level has failed high. This will cause auto charging pump to ramp to minimum, which explains the PZR level lowering. This also causes all PZR heaters to energize, which will cause the spray valves to crack open slightly as pressure rises.

## 21. 2005 ILT RO 21

Consider the following Unit 1 conditions:

- Unit 1 is at 100% reactor power.
- AOP-3, Steam Generator Tube Leak, was then entered due to increased radiation levels on 1RE-215, Condenser Air Ejector Gas Monitor Unit 1.
- The appropriate response actions for RCS inventory control with a SG tube leak have been taken.

Which of the following conditions will require a manual Reactor Trip and Safety Injection for this SG tube leak?

A. SG tube leakage rate of change is determined to be 100 GPD/hour for the last 15 minutes based on 1RE-215, Condenser Air Ejector Gas Monitor.

B. PZR level continues to slowly lower with charging flow maximized and letdown isolated.

C. 1RE-219, Unit 1 SG Sample Line Radiation Monitor, goes into HIGH alarm.

D. RCS subcooling reading of 50°F.

Answer: B

KA#

000037.AA1.11

Cog Level

Low

RO/SRO

RO

INPO ILT Bank, Prairie Island, dated 8/16/2002.

Explanation:

- A: Incorrect, this would accelerate the required shutdown, but not require a trip.  
B: Correct, if PZR level cannot be maintained with max charging and no letdown, a Trip and SI is indicated.  
C: Incorrect, plausible occurrence, not a trip criterion.  
D: Incorrect, subcooling must be maintained above 30°F.

## 22. 2005 ILT RO 22

Consider the following Unit 1 conditions:  
(AOP-5A, Figure 1 provided)

- Unit 1 was at 100% reactor power.
- Unit 1 condenser vacuum began to degrade.
- Crew responded using AOP-5A, Loss of Condenser Vacuum.
- Crew lowered power as directed.
- Source of Condenser air in-leakage was found and patched but is still leaking.
- Conditions are now as follows:
  - Power ramp is now at 75% of full electrical output.
  - Condenser pressure is 6" Hg absolute and degrading slowly.
  - Annunciator 1C03 1F 1-4, "Condenser Vacuum Low" is LIT.
  - Annunciator 1C03 1E 3-1, "Condenser Vacuum Lo" Turbine Trip First Out Alarm is NOT LIT.
  - OS1 directs CO1 to trip the Unit 1 reactor.

Why was the Reactor Trip directed? Have the annunciators listed functioned properly?

A. Trip was directed due to being outside of allowable turbine operating range. Annunciator 1C03 1F 1-4, "Condenser Vacuum Low" should NOT have alarmed until 22" Hg Condenser vacuum.

B. Trip was directed since turbine failed to automatically trip. "Condenser Vacuum Lo" first out annunciator (1C03 1E 3-1) should have alarmed at 25" Hg Condenser vacuum.

C. Trip was directed due to being outside of allowable turbine operating range. Annunciators have functioned as designed.

D. Trip was directed since turbine failed to automatically trip. Annunciators have functioned as designed.

Answer: C

KA#  
000051.2.4.50

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, Condenser Vacuum Low annunciated at 27" as expected.

B: Incorrect, turbine will not automatically trip until 20-22" Vacuum.

C: Correct, to correctly answer, the examinee will need to reference the Figure provided and calculate the current MWe for the unit (75% of 530 MWe). This will yield a MWe of about 398 MWe. When this number is applied to figure 1, we find that 24" Hg Vacuum is in the unacceptable region, prompting the OS to direct a reactor trip. The setpoint for the Condenser Vacuum Low alarm (1F 1-4) is 27" and it has alarmed as expected. The turbine trip first out will alarm at 25" Hg Vacuum, but only after auto stop oil pressure indicated that the turbine has tripped. Therefore, this alarm should not be in until the turbine has tripped. The turbine will trip on low vacuum of 20-22" Hg Vacuum.

D: Incorrect, same explanation as B, but annunciators have functioned properly.

23. 2005 ILT RO 23

Consider the following plant conditions:

- Both units are at 100% reactor power.
- PAB Ventilation is aligned as follows:
  - W-35, PAB Supply fan, is running.
  - W-30A, PAB Filter fan, is running, W-30B is secured.
  - W-21A, PAB Stack fan, is running, W-21B is secured.
  - PAB Ventilation filters are in the normal alignment.
- Subsequently, a Waste Gas decay tank begins to leak.
- RE-214, Aux Building Vent Exhaust monitor, goes into **HIGH ALARM**.

Which of the following correctly describes the **FINAL** PAB Ventilation system alignment assuming no operator actions?

	W-21/W-30 PAB Exhaust Fans	W-35, PAB Supply Fan	F-23 PAB Charcoal Filter	F-29 PAB HEPA Filter
A.	As-is	Running	Aligned	Secured
B.	As-is	Running	Secured	Aligned

C.	All Running	Off	Aligned	Secured
D.	All Running	Running	Aligned	Aligned

Answer: A

KA#  
000060.2.1.28

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

A: Correct, Supply and Exhaust fan alignments will not change. F-23, PAB Charcoal filter, will automatically align and F-29, PAB HEPA filter, will automatically secure.

B: Incorrect, this is the normal alignment. Examinee must know normal alignment for the filters and how this alignment changes on High Rad.

C: Incorrect, it would be plausible to automatically start all exhaust fans and secure the supply fan to provide the maximum negative pressure in the PAB.

D: Incorrect, it would be plausible to start all exhaust fans and align all filters.

24. 2005 ILT RO 24

Radiography is being performed on 2MS-2019, 'B' Train Steam Supply to the Unit 2 Turbine Driven AFW pump.

The RP supervisor responsible for the evolution contacts the Control Room to inform the operators of RMS alarms which would be expected to be received during the performance of the radiography.

Which of the following Radiation Monitors would be included in the report by the RP supervisor?

- A. 2RE-217, Unit 2 CC Water Liquid Monitor
- B. 2RE-232, Steam Line 2B Monitor
- C. RE-218B, Background Monitor for Waste Disposal Liquid Monitor

D. RE-223B, Background Monitor for Waste Distillate Tank Overboard Monitor

Answer: D

KA#

000061.AK2.01

Cog Level

Low

RO/SRO

RO

New Question

Explanation:

A: Incorrect, 2RE-217 is on the 8' of the PAB, however the CCW heat exchangers are right by 2MS-2019.

B: Incorrect, if it is assumed that the steam supply to the TDAFW pump is near the MSIV for the steam line, this would be plausible.

C: Incorrect, if candidate reverses the locations of RE-218 and RE-223, which are both overboard discharge monitors, this would be plausible.

D: Correct, RE-223 and its background monitor are very near 2MS-2019.

25. 2005 ILT RO 25

Consider the following plant conditions:

- A plant worker reports a small amount of blue smoke and acrid smell originating from the Cable Spreading Room (CSR).
- The Turbine Hall AO is dispatched to verify this report and finds that the room has filled with smoke and all personnel have been evacuated from the CSR.
- Various Unit 1 Instrumentation begins operating erratically.
- The Control Room crew enters AOP-10A, Safe Shutdown - Local Control.

Which of the following is the correct course of action with regard to the reactor trip system?

- A. Only Unit 1 should be manually tripped from the Control Room.
- B. Only Unit 1 should be locally tripped from its Rod Drive Room.
- C. Both Units should be manually tripped from the Control Room.

D. Both Units should be locally tripped from their respective Rod Drive Rooms.

Answer: C

KA#

000068.AK2.02

Cog Level

Low

RO/SRO

RO

From PBNP RO Exam dated 2/2/2002.

Explanation:

A: Incorrect, procedure directs that both units be tripped. However, it is plausible to only trip the malfunctioning unit.

B, Incorrect, similar to above, it would also be plausible to go to the RD room and locally trip the affected unit, since the CR could be uninhabitable.

C: Correct, AOP-10A directs both units to be tripped.

D: Incorrect, both units should be tripped from CR if possible.

26. 2005 ILT RO 26

Consider the following Unit 1 conditions:

- A large break LOCA has occurred inside containment.
- Containment radiation levels were stable at  $1.5 \times 10^5$  R/hr for a number of hours.
- Containment radiation levels have recently fallen to  $5 \times 10^4$  R/hr and have stabilized.
- Containment pressure is 8 PSIG and stable.
  - The crew now wishes to relax adverse containment setpoints.

Which of the following statements applies to this situation?

A. Once radiation levels are  $<10^5$  R/hr, adverse containment may be exited.

B. Once adverse containment has been entered due to radiation levels, the Shift Technical Advisor will need to calculate a total containment dose and may recommend relaxing adverse containment setpoints based on this calculation.

C. Once adverse containment has been entered due to radiation levels, the Technical Support Center will need to calculate a total containment dose and

may recommend relaxing adverse containment setpoints based on this calculation.

D. Once adverse containment has been entered due to radiation levels, I & C personnel must evaluate each affected instrument for operability prior to relaxing adverse containment setpoints.

Answer: C

KA#  
WE16.EA2.02

Cog Level  
Low

RO/SRO  
RO

New Question

Explanation:

A: Incorrect,  $10^5$  R/hr is when adverse containment is entered, but integrated dose must be calculated prior to relaxing adverse containment.

B: Incorrect, the STA has the means to calculate integrated dose but he will be involved in oversight of the plant. TSC is the designated facility for performing the calc.

C: Correct, once the radiation levels drop below  $10^5$  R/hr, the TSC must do a calculation to verify integrated dose is less than  $10^6$  R.

D: Incorrect, since instruments have been exposed to high radiation, an I&C evaluation is a plausible and conservative requirement for instrument operability.

27. 2005 ILT RO 27

Consider the following Unit 1 conditions:

- A Small Break LOCA has occurred.
- Due to a failure of 4160V Fast Bus Transfer, 1A-01 and 1A-02, Unit 1 Non-vital 4160 V buses, are de-energized.
- All Unit 1 Charging pumps are running in manual.
- Letdown is isolated.
- Crew is ready to depressurize the RCS to refill the Pressurizer using EOP-1.2, Small Break LOCA Cooldown and Depressurization.

How will this depressurization be achieved?

A. Open 1RC-431A or 1RC-431B, Pressurizer Normal Spray valves, to spray

down the Pressurizer.

B. Open **ONE** RC-430 **OR** 431C, Pressurizer PORV, to vent the Pressurizer.

C. Open **BOTH** RC-430 **AND** 431C Pressurizer PORVs, to vent the Pressurizer.

D. Open 1CV-296, Pressurizer Auxiliary Spray valve, to spray down the Pressurizer.

Answer: B

KA#

WE03.EA1.01

Cog Level

High

RO/SRO

RO

New Question

Explanation:

A: Incorrect, this would be correct if RCPs were available.

B: Correct, One PORV is used to depressurize, since RCPs are not running due to a loss of 4160 Non-Vital buses.

C: Incorrect, this is plausible, in that both PORVs would be the most expeditious way to lower pressure, but not the most controlled. Procedure specifically states to use one.

D: Incorrect, this would be used if the other 2 options were not available. It is not preferred due to thermal stress on the spray nozzle.

28. 2005 ILT RO 28

Two **IDENTICAL** units with identical power histories have tripped from the same power level.

- Unit 1 RCPs are running.
- Unit 2 RCPs have tripped.

The units are being maintained at the same RCS temperature using AFW and SG atmospheric steam dumps.

Which unit will have the **HIGHER** AFW flow? Which unit will have the **HIGHER** RCS loop delta-T?

	HIGHER AFW FLOW	HIGHER DELTA T
A.	Unit 1	Unit 1
B.	Unit 1	Unit 2
C.	Unit 2	Unit 1
D.	Unit 2	Unit 2

Answer: B

KA#  
003.K3.03

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, Unit 1 will have higher AFW flow. It could be assumed that since RCPs are running and Unit 1 will have a higher heat input that delta-T might also be higher.

B: Correct, Unit 1 will have higher AFW flow, due to the additional heat input from the RCPs. Unit 2 will have higher delta-T, since Unit 2 will have established a Thermal Driving Head for Natural Circulation.

C: Incorrect, it could be assumed that since the unit have a higher delta-T, that more AFW will be required. Combined with the error from A.

D: Incorrect, AFW will be higher to unit 1, for reason noted above.

29. 2005 ILT RO 29

When an RCP is started with cold RCS conditions, what is the approximate value expected for stable, running current (after starting surge has dissipated)? Will the current rise or lower as the RCS is heated up?

- A. 475-525 Amps. Value is expected to rise as RCS heats up.
- B. 600-650 Amps. Value is expected to rise as RCS heats up.
- C. 725-775 Amps. Value is expected to lower as RCS heats up.

D. 850-900 Amps. Value is expected to lower as RCS heats up.

Answer: C

KA#  
003.A3.02

Cog Level  
Low

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, current is too low and as temperature rises, density will lower, lowering RCP current. Main Feed pump running current is about 500 Amps.

B: Incorrect, approximate hot running current, same error with temp and density above.

C: Correct, Nominal current listed in OP-4B for expected condition is 760 Amps. This value will lower as RCS density lowers due to heatup.

D: Incorrect, current is somewhat higher than expected .

30. 2005 ILT RO 30

Consider the following Unit 1 conditions:

- Unit 1 is in MODE 5.
- The RCS is solid on RHR.
- RCS pressure is 300 PSIG.
- 1HC-135, Letdown Line Pressure Controller, is in MANUAL to control RCS pressure.
- Charging pumps are in MANUAL.
- Letdown is aligned to RHR.
- All RCS and RHR conditions are stable.

The PAB operator then performs a blowdown of the Service Water side of 1HX-12A and HX-12B, Component Cooling Water Heat Exchangers.

If no other operator actions are taken, RCS pressure will...

A. lower because the Non-Regenerative heat exchanger Letdown outlet temperature will rise.

B. rise because Service Water blowdown flow will bypass the CCW heat

exchanger tubes.

C. rise because more RHR flow will bypass the RHR heat exchangers.

D. lower because RHR temperature will lower.

Answer: D

KA#

004.K5.30

Cog Level

High

RO/SRO

RO

INPO ILT Bank, from Point Beach, dated 2/2/2002.

Explanation:

A: Incorrect, NRHX temp will not rise, since there is more cooling flow to CCW, NRHX outlet temp would be expected to lower,

B: Incorrect, SW is being blown down from the bottom of the HX bells, which will cause SW flow to rise, thus lowering temperature.

C: Incorrect, the temperature of RHR is manually adjusted. The 624/625 valves are manually set to pass a certain amount of flow through the HX and 626 changes position to maintain RHR FLOW, vice temperature.

D: Correct, SW flow rises, which lowers CCW temperature leaving the CCW HX, this colder CCW temp then cools RHR more as it passes through the RHR HX, causing temperature and pressure to lower in the RCS.

31. 2005 ILT RO 31

Consider the following Unit 1 conditions:

- Unit is at 100% reactor power.
- 1HC-130, NRHX Letdown Outlet Temperature Controller, output fails LOW.

What is the impact on the NRHX flow and RCS boron concentration? (Assume no operator action.)

A. CVCS flow will lower; RCS boron concentration will lower.

B. CVCS flow will lower; RCS boron concentration will rise.

C. CCW flow will rise; RCS boron concentration will lower.

D. CCW flow will rise; RCS boron concentration will rise.

Answer: C

KA#

004.K6.24

Cog Level

High

RO/SRO

RO

New Question

Explanation:

A: Incorrect, examinee may assume that TCV is on the letdown side of the NRHX, vice the CCW side. If this mistake is made and examinee realizes that colder letdown temperatures will cause the demineralizers to retain boron, then this would be selected.

B: Incorrect, examinee mistakenly places TCV on letdown and does not understand demineralizer effect.

C: Correct, when the controller fails, CCW flow will rise. This will increase the demineralizer's affinity for boron (cold to hold) and RCS boron will lower, causing an inadvertent dilution.

D: Incorrect, if examinee fails to understand temperature effect on boron, this would be selected.

32. 2005 ILT RO 32

Consider the following Unit 2 conditions:

- A Large Break LOCA has occurred.
- Containment pressure is 30 PSIG and lowering slowly.
- RWST level is 8% and stable.
- Required actions have been taken per Attachment B of CSP-Z.1, Response to High Containment Pressure, to place 'A' Train of Containment Spray on sump recirc using 'A' train of RHR as the suction source.
- 'A' RHR pump subsequently trips.

Which of the following describes what will happen to the 'A' Containment Spray Train?

A. 'A' Containment Spray pump will trip when RHR discharge pressure is <210 PSIG.

B. 'A' Containment Spray pump will continue to run, manual action will be needed to secure 'A' Containment Spray pump.

C. With 2SI-871A, Containment Spray pump RHR Suction, open, the 'A' Containment Spray pump breaker will open on interlock when the 'A' RHR pump breaker opens.

D. 2SI-870A, RWST to 'A' Containment Spray pump, will automatically open to supply RWST water to Containment Spray pump.

Answer: B

KA#  
005.K3.06

Cog Level  
Low

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, RHR discharge pressure must be <210 PSIG to open the SI-871, RHR to CS valves, but does not trip the pump.

B: Correct, CS pump will not trip automatically in this case; the pump will need to be manually stopped.

C: Incorrect, This interlock would be prudent, but it does not exist.

D: Incorrect, This interlock would protect the CS pump suction, but could allow sump recirc back into the RWST. There is no such interlock.

33. 2005 ILT RO 33

Consider the following plant conditions:

- A Service Water pump supplied by 1B-03, 480 VAC Safeguards Bus has developed a significant ground.
- Service Water pump supply breaker (1B52-12C) trips.
- 1X-13, 1B-03 Transformer Feeder breaker (1A52-58) trips.
- 1A-03 feeder to 1A-05 (1A52-57) trips.
- G01 EDG starts and loads as expected.
- Assume no other failures and no operator action.

Which of the following Train 'A' ECCS pump(s) is/are currently **AVAILABLE?**

- A. ONLY 1P-15A SI pump is available.
- B. ONLY 1P-10A RHR pump is available.
- C. **BOTH** 1P-10A **AND** 1P-15A pumps are available.
- D. **NEITHER** 1P-10A **NOR** 1P-15A pump is available.

Answer: A

KA#

006.K2.01

Cog Level

High

RO/SRO

RO

INPO ILT exam database, Prairie Island, dated 8/16/2002.

Explanation:

A: Correct, When X-13 feeder and 1A05 normal supply breakers open, 1B03 and 1A05, 480 and 4160 VAC safeguards buses lose power. G01 EDG will start and load onto the bus automatically, due to 1A05 Undervoltage. This will reenergize 1A05, but since 1B03 transformer breaker is open, 1B03 will not have power. Thus, 1-P15A will be the only ECCS pump available for U1 'A' Train.

B: Incorrect, would be plausible if examinee got power supplies for RHR and SI pumps reversed.

C: Incorrect, Both would be available if RHR was powered from 1A05 or if 1B03 had power. Ensures examinee understands power supplies and distribution alignment with certain components failed.

D: Incorrect, Safety Injection pumps are the odd load for Safety Related pumps, as they are 4160 VAC and the rest are 480VAC. If examinee incorrectly determines the power supply to all pumps as 480VAC, then neither would be available.

34. 2005 ILT RO 34

Consider the following Unit 2 conditions:

- Unit 2 was at 100% reactor power.
- 'A' Main Steam Line developed a Steam Line break.

- 'A' Main Steam Line pressure lowered to 500 PSIG.

Which of the following would be the expected valve alignment for the following valves:

- 2SI-878 A and C, Vessel Safety Injection MOVs
- 2SI-878 B and D, Loop B Safety Injection MOVs
- 2SI-852 A and B, Train A and B Core Deluge valves

A.	2SI-878A and C Closed	2SI-878B and D Open	2SI-852A and B Closed
B.	Open	Open	Closed
C.	Open	Closed	Open
D.	Closed	Open	Open

Answer: D

KA#  
006.A3.06

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, it is not explicitly stated that an SI has occurred; this would be the condition of the valves if no SI occurred.

B: Incorrect, Core Deluge Valves get an SI signal to open, vessel SI valves do not.

C: Incorrect, Loop SI valves get an SI signal to open, vessel SI valves do not.

D: Correct, Vessel SI valves will remain shut until they are needed for boron precipitation removal.

35. 2005 ILT RO 35

Consider the following Unit 1 conditions:

- Unit was operating at 100% reactor power when a Reactor Trip and Safety Injection occurred due to low Pressurizer pressure.

- Five minutes after the SI actuation, the following conditions were observed:
  - Unit 1 Containment Radiation Monitors are showing an increase in radiation levels.
  - Containment humidity and Containment pressure have just begun rising.
  - Unit 1 Containment Sump 'A' level is rising.
  - 1C01 1C 1-1, "1T-2 PRT Press Hi, Temp Hi, Level Hi or Lo" Alarm is LIT.

Assuming **NO** operator actions were taken, which of the following would result in these conditions?

- A. RCP #1 Seal failure
- B. Pressurizer PORV stuck open
- C. Steam Generator Blowdown piping failure
- D. Incore Thimble Tube failure at Reactor Vessel Penetration

Answer: B

KA#  
007.K3.01

Cog Level  
High

RO/SRO  
RO

INPO ILT Bank question from Kewaunee, dated 12/11/2000

Explanation:

A: Incorrect, even with complete loss of #1 seal, the expected flow to the PRT from the seal return relief valve would be relatively small. This failure would not account for spiking of containment pressure and humidity. Additionally, the flow would not be sufficient to cause a sudden, automatic SI.

B: Correct, Indications listed would be consistent with overpressurization of the PRT and subsequent failure of the rupture disk.

C: Incorrect, SGBD failure would not account for PRT alarm or radiation monitors

D: Incorrect, Thimble tube rupture at the vessel interface would not account for PRT alarm and the delay in containment indications.

36. 2005 ILT RO 36

The following PRT parameters are noted (Unit 1 is at 100% reactor power):

- Level is 74%.
- Pressure is 4 PSIG.
- Temperature is 145°F.
- "PRT Press HI, Temp HI, Level HI or LO" Alarm is LIT.

Which action should be taken because of these conditions?

- A. PRT level should be raised.
- B. PRT level should be lowered.
- C. PRT pressure should be lowered.
- D. PRT temperature should be lowered.

Answer: D

KA#

007.A1.03

Cog Level

Low

RO/SRO

RO

INPO ILT Exam Bank, Kewaunee question, dated 12/11/2000.

Explanation:

A: Incorrect, minimum level is 71.5%.

B: Incorrect, maximum level is 76%.

C: Incorrect, maximum pressure is 5 PSIG.

D: Correct, maximum temperature is 125F

37. 2005 ILT RO 37

Consider the following plant conditions:

- Unit 2 was at 95% reactor power with Excess Letdown in service.
- Unit 2 experienced an automatic Safety Injection.
- All systems functioned as designed.

Which of the following CCW cooled components will still have CCW flow

following the Unit 2 SI?

- A. Blowdown Evaporator
- B. Unit 2 RCP Thermal Barrier heat exchangers
- C. Unit 1 Letdown Gas Stripper
- D. Unit 2 Excess Letdown heat exchanger

Answer: B

KA#

008.K1.02

Cog Level

Low

RO/SRO

RO

New Question

Explanation:

A: Incorrect, examinee must recognize the link between U2 CI and RW CCW isolation.

B: Correct, upon Unit 2 CI, Radwaste CCW is isolated by LW-63 and 64, which shut due to seismic concerns. This isolates flow to both units LDGS and BDE. Excess Letdown HX CCW flow is isolated by the automatic CI signal from U2. RCP thermal barriers are not isolated on CI.

C: Incorrect, examinee may not recognize that the U1 LDGS receives CCW from U2 via RW CCW.

D: Incorrect, Excess letdown HX CCW will isolate on CI.

38. 2005 ILT RO 38

Consider the following Unit 1 conditions:

- A load rejection due to an EH malfunction has occurred from 100% power.
- Reactor power is now 80%.
- Pressurizer level is 52%.
- Pressurizer pressure is 2275 PSIG.
- RCS  $T_{avg}$  is 573°F.

What Pressurizer Pressure Control system indications are expected on the Main

Control Boards?

- A. PZR Backup heaters are all on ONLY.
- B. PZR Spray valves have modulated open ONLY.
- C. PZR Spray valves AND PZR PORVs are open.
- D. PZR Backup heaters are on AND PZR Spray valves have modulated open.

Answer: D

KA#

010.A4.01

Cog Level

High

RO/SRO

RO

INPO ILT Bank, Byron, dated 12/10/2003. Modified conditions in the stem and changed distractors to make different distractor correct.

Explanation:

A: Incorrect, Backup heaters are on because of the insurge, but the spray valves will also be open to lower pressure.

B: Incorrect, Spray valves should be full open, but the backup heaters are on due to the insurge of > 5% above program (45.8%, based on Tavg of  $\geq 570\text{F}$ )

C: Incorrect, Spray valves will be open, but PORV setpoint is 2335 PSIG.

D: Correct, Spray valves are open because of the pressure; PORVs are shut because pressure is less than 2335 PSIG.

39. 2005 ILT RO 39

During the performance of RESP-1.9, Alternate Calculation of Reactor Thermal Power, at 100% power, a Reactor Engineer uses a feedwater temperature 30°F HIGHER than actual.

Would the calculated value of power be **HIGHER** or **LOWER** than actual power and would an adjustment of the NIS Power Range channels, based on this value, be **CONSERVATIVE** or **NON-CONSERVATIVE** with respect to Reactor Trip setpoints?

- A. Higher/Non-conservative

B. Higher/Conservative

C. Lower/Non-conservative

D. Lower/Conservative

Answer: C

KA#

012.A1.01

Cog Level

High

RO/SRO

RO

INPO ILT bank, Point Beach, dated 2/2/2002. Note that the question meets the definition of Significantly Modified, since the stem was changed to make one of the distractors the new correct answer.

Explanation:

A: Incorrect, Adjustment would be non-conservative if made, but calculated value would be lower. See correct answer explanation.

B: Incorrect, If assumptions are incorrect in change in enthalpy, then this would be correct answer.

C: Correct, If Feed Temp used was higher than actual temperature, calculated change in enthalpy would be smaller and therefore the calculated reactor power would be lower than actual. If NIs were adjusted downward, this would be a non-conservative action. If reactor output is calculated at 60% and actual power is 75%, NI gains would be dialed down to match the 60% value, thus indicated power would be 15% low (non-conservative).

D: Incorrect, Value would be lower, but this would be non-conservative with respect to RPS setpoints.

40. 2005 ILT RO 40

Concerning the Engineered Safety Features Actuation System (ESFAS), there are

\_\_\_\_\_ channels of Steam Line Pressure instrumentation per Steam Generator which input to \_\_\_\_\_ safety trains of ESFAS.

	Number of Channels	Number of Trains
A.	4	4
B.	4	2

C.	3	3
D.	3	2

Answer: D

KA#  
013.K5.01

Cog Level  
Low

RO/SRO  
RO

Modified from INPO bank, Braidwood, dated 7/17/2002

Explanation:

A: Incorrect, If the examinee fails to recognize that there are only 3 channels used per function, distractor A could be selected. There are 4 channels of ESFAS, but only 3 are used for the Steam Line Press function on each SG.

B: Incorrect, there are a total of 4 channels, only 3 of which are used to actuate any discrete ESF function.

C: Incorrect, if the examinee recognizes that there are 3 channels per SG, but does not recognize there are only 2 trains, the examinee would likely select this answer.

D: Correct, There are 3 channels of Steam Line Pressure, which input to 'A' and 'B' ESF trains.

41. 2005 ILT RO 41

Consider the following Unit 1 conditions:

- Unit 1 was operating at 100% reactor power.
- 1P-14A, 'A' Train Containment Spray (CS) pump is out of service for maintenance.
- All other plant equipment is OPERABLE.
- A Design Basis LOCA occurs inside Containment, destroying the ductwork for '**B' AND 'C'** Containment Accident fans, rendering them INOPERABLE.

With these conditions, would Containment be expected to **EXCEED** design basis limits? Why or why not?

A. Containment limits should NOT be exceeded. ONE CS pump and TWO

Accident fans are sufficient to protect containment.

B. Containment limits should NOT be exceeded. ONE CS pump ALONE is sufficient to protect containment.

C. Containment limits MAY BE exceeded. TWO CS pumps and FOUR Accident fans are needed to protect Containment.

D. Containment limits MAY BE exceeded. With one CS pump INOPERABLE, THREE Accident fans are needed to protect Containment.

Answer: A

KA#

022.K4.05

Cog Level

Low

RO/SRO

RO

New Question

Explanation:

A: Correct, According to the Bases for TS 3.6.6 and LP0064, one spray pump and two accident fans are the minimum required to show protection during a DBLOCA.

B: Incorrect, Limits will not be exceeded, but accident analysis indicates that 2 Accident fans are required to show protection for containment.

C: Incorrect, Accident limits should not be exceeded. If examinee fails to recognize that one train of equipment is assumed to be lost in the accident analysis, the examinee may chose this answer.

D: Incorrect, Accident limits should not be exceeded. If examinee recognizes that with one CS pump inoperable that some number of accident fans is required, but does not recognize the required number, this answer could be chosen.

42. 2005 ILT RO 42

Consider the following Unit 1 conditions:

- A Large Break LOCA has occurred inside Containment.
- Containment pressure is 32 PSIG and lowering slowly.
- Both Containment Spray trains are running and delivering flow to Containment.
- Unit 1 CO is performing the Immediate Action steps of EOP-0, Reactor

Trip or Safety Injection.

- Unit 1 BOP notices that 1SI-836A and 1SI-836B, Spray Additive Eductor Suction valves, did **NOT** open.

What are the potential consequences of this failure and what is an appropriate course of action for the Unit 1 BOP?

- A. Increased hydrogen generation within Containment; manually open valves during the performance of EOP-0 Attachment A, Automatic Action Verification.
- B. Increased corrosion of components within Containment; allow completion of EOP-0 Immediate Action steps, then inform OS of failure and open 1SI-836A and 1SI-836B.
- C. Decreased retention of radioactive iodine in the Containment sump; ensure Unit 1 CO manually initiates Containment Spray during the performance of Step 4 of EOP-0 Immediate Actions.
- D. Higher than expected radiation levels within Containment; inform OS of failure and immediately open 1SI-836A and 1SI-836B.

Answer: B

KA#

026.A2.05

Cog Level

Low

RO/SRO

RO

New Question

Explanation:

A: Incorrect, Not adding NaOH will not raise Hydrogen generation.

B: Correct, failure of components to automatically actuate is addressed in OM 3.7, it is expected that manual action will be taken to manually align ECCS components which failed to automatically operate following the completion of the Immediate Action steps. The failure of NaOH to inject will result in accelerated corrosion of containment components and will impact the retention of iodine.

C: Incorrect, Not adding NaOH will lower the retention of iodine, but spray actuation is not verified during EOP-0 immediate actions.

D: Incorrect, Rad levels may rise due to no iodine retention, but the actions to open the valves must wait until Immediate Actions are complete.

43. 2005 ILT RO 43

Consider the following Unit 1 conditions:

- Unit was at 15% reactor power.
- Main Steam Line Break on 'B' SG has occurred inside containment.
- An automatic Reactor Trip and Safety Injection occurred.
- The following parameters are now noted:
  - Containment pressure - 7 PSIG and rising.
  - $T_{cold}$  is 450°F and lowering.
  - 'B' Steam flow is  $1.8 \times 10^6$  lbm/hr.
  - 'A' Steam flow is  $1.0 \times 10^6$  lbm/hr.
  - 'B' MSIV is closed.
  - 'A' MSIV is open.

Which of the following is correct regarding the 'A' MSIV?

- A. 'A' MSIV should have closed due to High Containment Pressure.
- B. 'A' MSIV should have closed due to Low  $T_{avg}$  and High Steam Flow coincident with the SI signal.
- C. 'A' MSIV is in the proper alignment but will close if 'A' High-High Steam Flow bistable actuates coincident with the SI signal.
- D. 'A' MSIV is in the proper alignment but will close if containment reaches High Containment Pressure setpoint.

Answer: B

KA#

039.A3.02

Cog Level

High

RO/SRO

RO

New Question

Explanation:

A: Incorrect, Main Steam Line Isolation occurs at 15 PSIG in containment.

B: Correct, the following items will shut the MSIVs:

High CTMT Pressure of 15 PSIG **OR**

Presence of SI and

1. High Steam Flow with  $T_{avg} < 543$  **OR**

2. High High Steam Flow at about  $3.8 \times 10^6$  lbm/hr

In this case, there is still about high steam flow from the 'A' SG. MSIV should have shut due to Hi Steam Flow and Lo  $T_{avg}$ .

C: Incorrect, MSIV is not in proper alignment, plausible if high steam flow, Low  $T_{avg}$  interlock is forgotten.

D: Incorrect, MSIV is not in proper alignment. Plausible if examinee recognizes that 15 PSIG in Containment is Main Steam Line Isolation Setpoint, but fails to recognize other signal present.

#### 44. 2005 ILT RO 44

Consider the following plant conditions:

- Unit 1 is in MODE 3.
- Unit 1 SG Levels were at program level.
- Unit 2 SG Levels are at program level.
- AFW Pump and Valve Switches in Normal/Auto.
- 1A-01 and 1A-02, 4160 Non-Safeguards Bus voltages normal.
- 1P-28A, Main Feed pump is in pullout.
- 1P-28B, Main Feed pump is running.
- 1P-28B subsequently trips and locks out.
- Control Operator places 1P-28B control switch to pullout.

The following conditions are now noted:

- Unit 1 'A' SG level is 23% and lowering.
- Unit 1 'B' SG level is 39% and lowering.

Which of the following correctly describes which AFW pumps would be running?

- A. No AFW pumps would be running.
- B. ONLY 1P-29, Unit 1 TDAFW pump, would be running.
- C. 1P-38A and 1P-38B, MDAFW pumps, would be running.
- D. BOTH 1P-29 and P-38A would be running.

Answer: A

KA#

059.K1.02

Cog Level

High

RO/SRO  
RO

New Question

Explanation:

A: Correct, in the given condition, no AFW would be running. Since the MFPs are in Pullout, the MDAFW pumps are prevented from actuating. Level in both SGs would have to be Lo-Lo to cause the TDAFW pump to start.

B: Incorrect, would be correct if **both** SGs were Lo-Lo (<25%).

C: Incorrect, Would be correct if either MFP was in neutral.

D: Incorrect, Combination of Distractors B & C.

45. 2005 ILT RO 45

Consider the following Unit 1 conditions:

- Unit 1 is starting up following refueling.
- OP-13A, Secondary Plant Startup, is ongoing.
- Preparations are being made to start 1P-28A, Main Feed Water pump.
- 1P-28B, Main Feed Water pump, is NOT running.
- The following conditions exist for 1P-28A:
  - 1CS-2190, 1P-28A Discharge, is CLOSED.
  - 1CS-51, 1P-28A Suction, is OPEN.
  - 1CS-2180, 1P-28A Mini Recirc Flow Control, is CLOSED.
  - 1P-99 A and B, SGFP Seal Water pumps, are running.
  - Seal Water DP is 50 PSID.
  - MFP Suction pressure is 175 PSIG.
  - 1P-73B, 'A' Main Feed Pump Oil pump, is running.
  - 1P-28A oil pressure is 16 PSIG.

Will 1P-28A start with the above listed conditions?

- A. Yes, Pump permissives are satisfied.
- B. No, Feed Pump oil pressure is too low.
- C. No, Feed Pump suction pressure is too low.
- D. No, 1CS-2180, Mini Recirc Flow Control valve must be OPEN.

Answer: C

KA#

059.2.2.01

Cog Level  
Low

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, Pump will not start since suction pressure is low.

B: Incorrect, Minimum oil pressure is 10 PSIG.

C: Correct, Suction pressure must be >184 PSIG to start the pump.

D: Incorrect, Valve will open when pump starts. Plausible since you would not want to deadhead the Feed Pump on startup.

46. 2005 ILT RO 46

Which of the following is the power supply to P-38B, Motor-Driven AFW pump?

A. 1B-03

B. 1B-04

C. 2B-03

D. 2B-04

Answer: D

KA#  
061.K2.02

Cog Level  
Low

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, 1B03 powers P-38A

B: Incorrect, 1B04 is the correct train for P-38B, but wrong unit.

C: Incorrect, 2B03 is the correct unit for P-38B, but wrong train.

D: Correct, 2B04 is power supply for P-38B.  
All the choices listed are vital 480V buses.

47. 2005 ILT RO 47

Consider the following Unit 1 conditions:

- Unit 1 has tripped due to a Small Break LOCA.
- EOP-1.2, Small Break LOCA Cooldown and Depressurization, is being performed.
- RCS Temperature is being maintained using AFW and Atmospheric Steam Dumps.
- The following conditions are now noted:
  - C01A 3-9, "T24 A or B CST Level Lo-Lo" Alarm has just actuated.

On lowering CST level, at what level would the entry conditions for AOP-23, Aligning Alternate AFW Suction Supply, **FIRST** be met?

- A. 13.5 feet
- B. 10 feet
- C. 8 feet
- D. 6.5 feet

Answer: C

KA#  
061.2.4.04

Cog Level  
Low

RO/SRO  
RO

New Question

Explanation:

- A: Incorrect, level for AOP-23 entry is 8 feet, 13.5 is minimum TS limit for 2 units.
- B: Incorrect, 8 feet is FOP criteria.
- C: Correct, 8 feet.
- D: Incorrect, 6.5 feet is minimum TS limit for 1 unit.

48. 2005 ILT RO 48

While performing Monthly Emergency Diesel Generator Test on G01 EDG, the following conditions are noted while paralleling G01 to 1A-05:

- Sync Selector Switch for 1A52-60, G01 to 1A-05 breaker, is ON.
- Running Voltmeter reads 123 volts.
- Incoming Voltmeter reads 118 volts.
- Synchroscope is rotating 10 RPM in the SLOW direction.

What must the operator do to match voltage and make the Synchroscope turn 2 to 5 RPM in the **FAST** direction?

A. Go to **Raise** on the G01 Diesel Generator Voltage Regulator to match voltages. Go to **Raise** on the G01 Diesel Generator Governor control switch to make Synchroscope turn properly.

B. Go to **Lower** on the G01 Diesel Generator Voltage Regulator to match voltages. Go to **Raise** on the G01 Diesel Generator Governor control switch to make Synchroscope turn properly.

C. Go to **Raise** on the G01 Diesel Generator Voltage Regulator to match voltages. Go to **Lower** on the G01 Diesel Generator Governor control switch to make Synchroscope turn properly.

D. Go to **Lower** on the G01 Diesel Generator Voltage Regulator to match voltages. Go to **Lower** on the G01 Diesel Generator Governor control switch to make Synchroscope turn properly.

Answer: A

KA#

062.A4.03

Cog Level

High

RO/SRO

RO

New Question

Explanation:

A: Correct, Running Voltage is the voltage of the bus, in this case. Incoming Voltage is the EDG voltage. EDG voltage needs to be raised to match bus, thus Raise voltage on G01 make Incoming match Running. If the synch scope is going fast in the slow direction, the EDG is not turning fast enough, the governor

adjust will need to be raised to make the scope turn slow in the fast direction.  
B: Incorrect, voltage on incoming (EDG) must be raised.  
C: Incorrect, speed of EDG must be raised by raising governor adjust  
D: Incorrect, voltage and speed of EDG must be raised.

49. 2005 ILT RO 49

Consider the following plant conditions:

- Multiple DC grounds have occurred, causing one of the two fuses supplying D-11, 125 VDC distribution panel, to fail open.

Which of the following correctly describes the expected plant response and what actions should be taken in response to this failure?

A. Only Unit 2 will trip. Crew will enter EOP-0, Reactor Trip or Safety Injection, for Unit 2 and perform AOP-0.0, Vital DC System Malfunction in parallel. When maintenance determines the cause of the blown fuse, direct maintenance to replace ONLY the blown fuse one time.

B. Both Units 1 and 2 trip. Crew will enter EOP-0 for both units and perform AOP-0.0 when EOP-0.1, Reactor Trip Response, is completed. When maintenance determines the cause of the blown fuse, direct maintenance to replace BOTH fuses one time.

C. Only Unit 1 will trip. Crew will enter EOP-0 for Unit 1 and perform AOP-0.0 in parallel. When maintenance determines the cause of the blown fuse, direct maintenance to replace BOTH fuses one time.

D. Both Units will remain at power. Supply fuses are in parallel and blowing one fuse will NOT cause D-11 to lose power. Respond to the failure of one fuse using ARB guidance. When maintenance determines the cause of the blown fuse, direct maintenance to replace ONLY the blown fuse one time.

Answer: C

KA#  
063.A2.01

Cog Level  
Low

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, Unit 2 will not trip on a loss of D-11. BOTH fuses must be replaced if one blows IAW AOP-0.0.

B: Incorrect, Only Unit 1 will trip. IF all of Bus D-01 is lost then both units will trip. AOP-0.0 Actions would be carried out in parallel.

C: Correct, Unit 1 will trip, AOP-0.0 will be performed in parallel, both fuses will be replaced.

D: Incorrect, Unit 1 will trip, blowing 1 supply fuse to D-11 will cause a loss of D-11, both fuses will be replaced.

50. 2005 ILT RO 50

Consider the following plant conditions:

- Both units are at 100% reactor power with the electric plant in its normal alignment.
- 2X-04 Transformer locks out.
- Normal supply breaker to 2A-05 fails closed.

What effect will this have on the Emergency Diesels?

- A. All EDGs will start, but **ONLY** G02 will supply its respective bus.
- B. All EDGs will start, but **ONLY** G04 will supply its respective bus.
- C. All EDGs will start and **BOTH** G02 and G04 will supply their respective buses.
- D. **ONLY** G02 and G04 will start and **BOTH** will supply their respective buses.

Answer: B

KA#

064.K1.01

Cog Level

High

RO/SRO

RO

Modified from INPO Bank, Point Beach, dated 2/2/2002.

Explanation:

A: Incorrect, All diesels will start, but since the normal supply breaker for 2A-05 is closed, G02 will not load onto this bus.

B: Correct, All will start, since each is capable of powering the Unit 2 buses, only G04 will load onto 2A-06.

C: Incorrect, G02 will not load onto the bus.

D: Incorrect, All diesels will start.

#### 51. 2005 ILT RO 51

Consider the following plant conditions:

- Both Units are at 100% reactor power.
- Service Water Overboard is aligned to Unit 1.
- 'A' Waste Distillate Tank is going to be discharged.
- Discharge permit has been initiated by Chemistry and an extra CO has been assigned to do monitor checks IAW OI-140, Standard Radioactive Batch Release.
- 1RE-229, Unit 1 SW Overboard is designated as the release point monitor.
- RE-223, Waste Distillate Tank Overboard Monitor is the "At Tank" Monitor.
- When the CO arrives at the RMS System Server, he notes that 1RE-229 and RE-223 both indicate "Fail External".

Are these indications expected?

A. Yes, Both radiation monitors should indicate Fail External until tank discharge commences.

B. No, neither radiation monitor should indicate Fail External.

C. No, 1RE-229 should indicate Fail External until the tank discharge commences but RE-223 should NOT indicate Fail External.

D. No, RE-223 should be indicating Fail External until the tank discharge commences but 1RE-229 should NOT indicate Fail External.

Answer: D

KA#

073.A4.02

Cog Level

High

RO/SRO

RO

## New Question

### Explanation:

A: Incorrect, 1RE-229 should not indicate Fail Ex with flow going through it, tests examinees knowledge of RMS expected conditions and normal SW alignment.

B: Incorrect, RE-223 should be in Fail Ex until discharge starts, since Fail Ex indicates no flow.

C: Incorrect, just the opposite of correct answer.

D: Correct, RE-223 should be in Fail Ex with no flow, 1RE-229 should indicate normal.

## 52. 2005 ILT RO 52

Consider the following plant conditions:

- Both Units were at 100% reactor power.
- P-32 A, B and E Service Water pumps are running.
- Unit 2 Safety Injection occurs.
- All systems function as designed.

What is the expected response of the Service Water System to the Safety Injection?

A. SW-2869/2870, Service Water Cross-Connect valves close to isolate the West Service Water header.

B. 2SW-2907/2908, 2HX-15A-D Containment Recirc Heat Exchanger Emergency flow control valves open to raise flow to Containment Accident Coolers.

C. 2SW-2880, Unit 2 Turbine Hall Service Water Supply valve closes to isolate Service Water to Unit 2 Turbine Hall.

D. SW-2930A/2930B, SFP Heat Exchanger Outlet valves close **AND** SW-2927A/2927B, SFP Heat Exchanger Inlet valves remain open.

Answer: B

KA#

076.A4.04

Cog Level

Low

RO/SRO

RO

INPO ILT Bank, PBNP, dated 2/2/2002.

Explanation:

A: Incorrect, losing flow in the West header would still allow flow to the vital loads and would be a logical choice to isolate if increased SW flow was needed to SI loads.

B: Correct, 2SW-2907 and 2908 open to supply Containment accident units.

C: Incorrect, in the past, Turbine Hall SW flow would be isolated if fewer than 5 SW pumps started on SI signal. This is no longer the case.

D: Incorrect, all SFP HX valves get a shut signal.

53. 2005 ILT RO 53

Consider the following plant conditions:

- Both units are at 100% reactor power.

- C01 A 1-5, "Service Water Strainer DP High" Alarm is LIT.

- C01 A 2-5, "North or South SW Header Strainers" Alarm is LIT.

- SW Header Pressure is 60 PSIG.

- AO is dispatched to investigate alarm:

  - AO reports that the South SW Main Zurn strainer had stopped backwashing and the DP on the strainer was 4 PSID.

  - AO reports that he has opened SW-3, South SW Main Zurn Bypass valve, and that DP has returned to normal.

What direction should be given to the AO and what is the reason for this action?

A. Direct AO to immediately close Strainer Bypass valve. An open Strainer Bypass valve makes SW and AFW inoperable.

B. Direct AO to immediately close Strainer Bypass valve. An open Strainer Bypass valve upsets SW flow balance and may cause insufficient flow to North SW header.

C. Maintain bypass open to ensure South Service Water header has sufficient flow for required heat loads. Contact System Engineer to evaluate system flow conditions.

D. Maintain bypass open to ensure SW is available to safety related components normally supplied from the South SW header. SW supply to these components should be swapped to the alternate header as soon as possible.

Answer: A

KA#

076.2.1.32

Cog Level  
Low

RO/SRO  
RO

New Question

Explanation:

A: Correct, examinee must recognize the error of the AO in opening the bypass valve and that doing so makes SW and AFW inoperable.

B: Incorrect, but plausible, since the bypass represents a difference in flowpath than normal and could change system flows.

C: Incorrect, but plausible to maintain flow to South header loads.

D: Incorrect, but plausible, examinee should recognize that vital loads have alternate supplies. These would be used if a header needed to be isolated.

54. 2005 ILT RO 54

Consider the following plant conditions:

- K2A, Instrument Air compressor, is selected to Constant.
- K2B, Instrument Air compressor, is selected to Auto.
- K3A and K3B Service Air compressors are in a normal alignment.

If K2A trips and Instrument Air header pressure drops continuously, in what order will the following automatic actions occur.

1. Instrument Air Dryer Bypass opens.
2. Instrument Air Low Pressure Alarm annunciates.
3. Standby Instrument Air compressor starts.
4. Standby Service Air compressor starts.

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

Answer: C

KA#

078.K4.01

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

Setpoints for actions are as follows:

90 PSIG - Standby IA compressor starts  
89 PSIG - IA Low Pressure Alarm  
85 PSIG - Standby SA compressor starts  
80 PSIG - IA Dryer Bypass opens.

A: Incorrect, it would be plausible for all available air compressors to start prior to receiving the alarm, since the IA backup compressor starts prior to the alarm.

B: Incorrect, it would be plausible for the alarm to actuate first, followed by the dryer bypass alarm actuation to bypass any potential blockages.

C: Correct, see table above.

D: Incorrect, it would be plausible for the IA system functions to happen prior to relying on another system for backup. The SA/IA crossconnect also come open at approximately the same pressure as SA standby start, but values are not listed in the Setpoint document, so they are not presented here.

55. 2005 ILT RO 55

Which of the following represents a potential loss of Containment operability during power operations and should therefore be reported to the OS for evaluation? (Assume no other components are out of alignment.)

A. Opening upper containment airlock outer door without Control Room permission.

B. Opening 2RC-595, PRT Nitrogen Isolation valve, with dedicated operator stationed.

C. Discovering two loose bolts on the Containment Equipment Hatch during a containment inspection.

D. Leaving upper containment airlock inner door vent valve open during a radiation survey inside containment.

Answer: C

KA#  
103.K3.02

Cog Level  
High

RO/SRO  
RO

INPO Bank, Farley, 5/30/2004

Explanation:

A: Incorrect, but plausible, since this would be a violation of administrative controls, but incorrect, since containment operability is still maintained with inner door.

B: Incorrect, having PRT Nitrogen valve open with a dedicated operator does not make containment inoperable.

C: Correct, Loose bolts on the equipment hatch could represent a potential loss of Containment operability. Loose bolts could potentially cause the leak rate test to be unsat, thus threatening containment integrity.

D: Incorrect, similar to A, but on the inner door and the implication of the valve being left in this condition for an extended period of time. Since the Outer door is providing a barrier, the valve could be left open during the inspection without losing containment operability.

56. 2005 ILT RO 56

Consider the following Unit 1 conditions:

- One **Control Bank A** control rod has become misaligned.
- Crew is implementing AOP-6B, Stuck or Misaligned Control Rod, and is to the point of recovering the misaligned rod.
- As the CO begins to withdraw the control rod, the "Rod Control Urgent Failure" Alarm is received.

What actions should be taken as a result of this alarm?

- A. Continue withdrawing the control rod, Urgent Failure alarm is expected.
- B. Immediately trip Unit 1 reactor and proceed to EOP-0, Reactor Trip or Safety Injection.
- C. Stop withdrawing the control rod, place lift coil disconnect switch in Disconnect, contact I & C to troubleshoot Rod Control system.

D. Stop withdrawing control rod, immediately commence shutdown per Technical Specification requirements.

Answer: A

KA#  
001.2.4.50

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

A: Correct, urgent failure alarm is expected for CBA rod, since this bank has two groups.

B: Incorrect, correct action if two rods were to drop.

C: Incorrect, alarm is expected; lift coils are disconnected to recover a dropped rod.

D: Incorrect, correct action if  $T_{avg}$  or AFD cannot be maintained.

57. 2005 ILT RO 57

During natural circulation cooldown, if RVLIS is **NOT** available, which of the following instruments would provide **direct** indication of the existence of a bubble in the reactor vessel head?

- A. Pressurizer level
- B. RCS Cold Leg temperature (Wide Range)
- C. Core Exit Thermocouple temperature
- D. RCS pressure (Wide Range)

Answer: A

KA#  
002.K6.03

Cog Level  
High

RO/SRO  
RO

INPO ILT Exam Bank, Point Beach, Dated 8/2/1999

Explanation:

A: Correct, if RVLIS is unavailable, the most direct indication of head void growth is rising pressurizer level.

B: Incorrect, RCS Cold Leg Temps do not indicate void growth.

C: Incorrect, CETs could be used to do a calculation of the Temperature/Pressure relationship in the head region, but do not indicate voids directly.

D: Incorrect, in conjunction with CETs, RCS pressure could be used to calculate head conditions, but does not indicate voids directly.

58. 2005 ILT RO 58

Consider the following Unit 1 conditions:

- A plant startup is in progress with reactor power at 8 percent.
- Intermediate Range drawer N-36 Level Trip switch is in the BYPASS position.

What is the plant response to removal of N-36 **CONTROL** power fuses and the reason for the plant response?

- A. A trip will occur because the Level Trip Bypass function will be removed.
- B. A trip will occur because the Level Trip Bypass function is active only above P-10.
- C. A trip will NOT occur because the Level Trip switch is in the BYPASS position and power is less than P-10.
- D. A trip will NOT occur because the Level Trip switch is in the BYPASS position and the bypass function is NOT affected by removal of Control Power fuses.

Answer: A

KA#  
015.K4.06

Cog Level  
High

RO/SRO

RO

INPO ILT Bank, Kewaunee, dated 2/2/2004

Explanation:

A: Correct, removing the Control Power fuses eliminates the bypass function, thus causing a Rx trip below P-10.

B: Incorrect, trip will occur, but not for the reason listed.

C: Incorrect, would be true ABOVE P-10, not below.

D: Incorrect, bypass function is not affected by removal of INSTRUMENT power fuses.

59. 2005 ILT RO 59

Consider the following Unit 1 conditions:

- PT-482, Steam Generator Pressure Loop A (Blue) channel has failed for an unknown reason and has been removed from service IAW 0-SOP-IC-001 Blue, Removing Safeguards or Protection Sensor from Service.
- While I&C was collecting comparison data from PT-468, Steam Generator Pressure Loop A (Red) channel, an inadvertent short caused PT-468 output to fail low.

Which of the following describes the expected crew response to this failure?

A. Place HC-466, SG 'A' MFRV Controller, HC-480, SG 'A' MFRV Bypass controller and HC-468, SG 'A' Atmospheric Controller, in manual per AOP-24, Response to Instrument Malfunctions. Remove PT-468 from service IAW 0-SOP-IC-001 Red.

B. Enter EOP-0, Reactor Trip or Safety Injection, and subsequently transition to EOP-0.1, Reactor Trip Response.

C. Enter EOP-0, Reactor Trip or Safety Injection, and subsequently transition to EOP-1.1, SI Termination.

D. Reduce load per AOP-17A, Rapid Power Reduction, to prevent overpower from excessive steam and feed flow.

Answer: C

KA#

016.A2.03

Cog Level

High

RO/SRO

RO

New Question

Explanation:

A: Incorrect, this would be the correct action if the other channel (P-482) was in service.

B: Incorrect, EOP-0.1 would not be entered, since SI would occur on this failure.

C: Correct, Inadvertent SI and reactor trip would occur under these conditions, thus the appropriate recovery procedure would be EOP-1.1, SI Termination, since SI has actuated but is not required.

D: Incorrect, If a single channel of SG pressure failed high, the ADV on the affected SG would open, which might require entry into AOP-17A to prevent overpower.

60. 2005 ILT RO 60

Consider the following Unit 1 conditions:

- A Unit 1 reactor trip occurred due to the loss of offsite power.
- RCS Cold Leg temperature is 528 °F and slowly lowering.
- RCS pressure is 1335 PSIG and slowly rising.
- Steam generator pressure is 860 PSIG and lowering.
- Pressurizer level is 17% and slowly rising.
- Core Exit Thermocouple temperatures are 540°F.

Which of the following describes the condition in the upper head region?

- A. The head region is subcooled.
- B. The head region is superheated.
- C. The head region is at saturation with voids.
- D. The head region is at saturation with no voids.

Answer: A

KA#

017.A1.01

Cog Level

High

RO/SRO  
RO

Modified from INPO ILT Bank, Cook, dated 5/21/2001. Changed initial conditions to make one of the other choices correct.

Explanation:

A: Correct, head is subcooled, which is determined from steam tables.

B: Incorrect, head is subcooled.

C: Incorrect, head is subcooled from the steam table, pressurizer level is rising as a result of SI flow.

D: Incorrect, head is subcooled.

61. 2005 ILT RO 61

While attempting to purge the Main Generator gas space of cooling gas for maintenance, the Auxiliary Operator inadvertently aligns Instrument Air to the Main Generator.

Which of the following is a potential consequence of this action?

- A. Explosion within the Main Generator
- B. Accelerated Generator winding corrosion
- C. Thermal overload trip of the Hydrogen Purity blower
- D. Overheating of the Generator Dryer package

Answer: A

KA#  
045.K5.01

Cog Level  
Low

RO/SRO  
RO

New Question

Explanation:

A: Correct, decrease in cooling gas (Hydrogen) purity due to air added would increase risk of explosive air/hydrogen mixture in the generator.

B: Incorrect, Instrument Air is a clean, dry source of air which would not promote corrosion.

C: Incorrect, Hydrogen Purity blower trip is plausible since this blower normally recirculates hydrogen and not air, however, the blower is designed to operate in any density environment.

D: Incorrect, If IA had an excess of moisture, which it does not, the dryer may overheat, but the immediate concern with adding air to the generator is the explosive mixture.

## 62. 2005 ILT RO 62

Consider the following Unit 1 conditions:

- Unit 1 is at 100% reactor power.
- Rod control is in automatic.
- A single set of Main Air Ejectors is in service.
- 1MS-2074, Air Ejector Steam Supply control valve fails closed.

Which of the following conditions will result if **NO** operator action is taken?

- A. Rising megawatt output and rising gland seal header pressure
- B. Rising megawatt output and rising condenser hotwell level
- C. Lowering megawatt output and lowering hotwell temperature
- D. Lowering megawatt output and rising hotwell temperature

Answer: D

KA#

055.K3.01

Cog Level

High

RO/SRO

RO

New Question

Explanation:

A. Incorrect, MW drop

B. Incorrect, MW drop

C. Incorrect, hotwell temperature rises

D. Correct, Degraded vacuum causes megawatt output to decrease due to

reduced  $\Delta H$  and the condenser is a saturated system, so higher  $P_{sat}$  means higher  $T_{sat}$  and therefore higher hotwell temperature.

63. 2005 ILT RO 63

When a Waste Gas Decay Tank is being discharged to atmosphere, what condition will automatically terminate the gas release?

- A. RE-214, Aux Building Vent Exhaust Monitor high alarm
- B. Both Auxiliary Building Stack fans (W-21A and W-21B) trip
- C. Pressure of 8 PSIG in Waste Gas Decay tank being discharged
- D. Both Waste Gas compressors trip

Answer: A

KA#

071.K1.04

Cog Level

Low

RO/SRO

RO

INPO Bank, Kewaunee, 9/6/2002

Explanation:

A: Correct, RE-214 in alarm will shut WG-14 and terminate the release.

B: Incorrect, having both stack fans trip will not shut WG-14, thus, the release is still flowing into the discharge header.

C: Incorrect, crew will secure the release manually at about 8 PSIG in the tank.

D: Incorrect, when the tank is being released, the compressors are isolated from the tank.

64. 2005 ILT RO 64

Consider the following plant conditions:

- Both Units were at 100% reactor power with normal electric plant lineup.
- P-32A, P-32B and P-32D Service Water pumps were running.
- Subsequently, 2X04, 480V Vital Bus Transformer, lockout occurred.
- Unit 2 Safety Injection occurred simultaneously with the 2X04 Lockout.
- G04 Emergency Diesel Generator output breaker failed to close.

Which of the following indicates a **COMPLETE** list of which Service Water pumps will be running two minutes later? (Assume no operator action)

A. A, B and F

B. A, B, C and F

C. A, B, E and F

D. A, B, C, D and E

Answer: B

COMMENT MADE DURING WRITTEN EXAM: Modify 3<sup>rd</sup> bullet to read:  
Subsequently, 2X04, Unit 2 LV Station Auxiliary Transformer, lockout occurred.

KA#

075.K2.03

Cog Level

High

RO/SRO

RO

New Question

Explanation:

Power Supplies to the SW pumps are as follows:

A - 1B03

B - 1B03

C - 1B04

D - 2B04

E - 2B04

F - 2B03

A: Incorrect, if an 'A' train Diesel were to start and load onto the bus, A, B and F SW pumps would start. If this scenario only had the electrical malfunction without the SI, this would be the correct answer.

B: Correct, in this condition, All pumps should have started; D and E will not have power and will not be running.

C: Incorrect, If examinee wrongly assigned P-32C and D to Unit 2, vice D and E to Unit 2, another common error, this would be the selected answer.

D: Incorrect, if examinee wrongly assigns 2B04 as the power supply to P-32F, which is a common error, this would be selected.

65. 2005 ILT RO 65

A maintenance mechanic calls the Control Room and reports that a fire is burning on the 8' level of Unit 1 Turbine Hall.

Which of the following describes the actions which must be taken to sound the plant fire alarm?

- A. Turn Fire Alarm switch on C01 Rear.
- B. Depress Fire Alarm pushbutton on C-900, Main Fire Detection Annunciator Panel.
- C. Actuate Fire Alarm icon on the 1C20 Fireworks PC Station.
- D. Contact Unit 1 Turbine Hall and request the Fire Alarm switch on D-400, Main Fire Protection Fire Alarm Control Panel, be activated in the Cable Spreading Room.

Answer: A

KA#  
086.A4.03

Cog Level  
Low

RO/SRO  
RO

New Question

Explanation:

A: Correct, Switch is on C01 Rear.

B: Incorrect, C-900 panel is on C01 rear, but switch is next to this panel.

C: Incorrect, 1C20 has the Fireworks panel and would be a logical way to actuate alarm.

D: Incorrect, D-400 is the master fire panel in the CSR, but has no master alarm function.

66. 2005 ILT RO 66

Consider the following Unit 1 conditions:

- Unit 1 is at 100% reactor power.

- The RCS leak rate surveillance indicates the following:
  - Total Leakage is 5.8 GPM.
  - Leakage to PRT is 2.3 GPM.
  - Leakage to RCDT is 1.4 GPM.
  - 'A' SG Leakage is .24 GPM.
  - 'B' SG Leakage is .08 GPM.

Which of the following allowed leak rates has been exceeded?

- A. Identified Leakage
- B. Unidentified Leakage
- C. 'A' Steam Generator Leakage
- D. Total Steam Generator Leakage

Answer: B

KA#  
2.1.10

Cog Level  
High

RO/SRO  
RO

INPO ILT Bank, Braidwood, dated 6/17/1999.

Explanation:

A: Incorrect, Identified leakage spec is 10 GPM, this has not been exceeded.

B: Correct, Unidentified leakage will need to be calculated thus: Total Leakage – PRT – RCDT – SG Leakage. (5.3-2.3-1.4-.24-.08) This works out to 1.28 GPM unidentified, which exceeds the 1 GPM allowed.

C: Incorrect, 'A' SG leakage works out to 346 GPD, which is less than the 500 GPD allowed.

D: Incorrect, there is no spec identified for total SG leakage at PBNP.

Examinee will need to know the allowed values for each type of leakage and compare these values to those calculated or given. The other SG leakage number is 150 GPD from AOP-3, 'A' SG exceeds this value. In the given case, a plant shutdown would be initiated based on 'A' SG leakage, but this is not the focus of the question. Values for SG leakage have not been exceeded.

67. 2005 ILT RO 67

While at 100% reactor power, 1PT-429, Unit 1 Pressurizer Pressure channel, has failed LOW.

Channel is being removed from service using 0-SOP-IC-001 RED, Removal of Safeguards or Protection Sensors from Service.

Which of the following correctly identifies the expected "Proving Lamp" status after bistable switches are taken to "Trip"?

A. Over Temp Trip - ON  
High Pressure Trip - OFF  
Low Pressure Trip - ON  
Unblock SI - OFF

B. Over Temp Trip - OFF  
High Pressure Trip - ON  
Low Pressure Trip - OFF  
Unblock SI - ON

C. Over Temp Trip - OFF  
High Pressure Trip - OFF  
Low Pressure Trip - ON  
Unblock SI - ON

D. Over Temp Trip - ON  
High Pressure Trip - ON  
Low Pressure Trip - OFF  
Unblock SI - OFF

Answer: B

KA#  
2.1.31

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, see discussion of proving lights below.

B: Correct, see discussion of proving lights below.

- C: Incorrect, see discussion of proving lights below.  
D: Incorrect, see discussion of proving lights below.

Discussion:

A "proving lamp" will light when a bistable that is NOT tripped in the current condition is taken to trip. Thus, the following explanation applies to a pressurizer pressure channel that fails low.

1. OTDT exists to prevent DNB, thus a low pressure condition input to OTDT indicates the core is closer to DNB. Therefore, the bistable for pressure to OTDT will be actuated when the pressure channel fails low, thus the proving lamp WILL NOT light.
2. High Pressure trip bistable will NOT actuate when the channel fails low, thus the proving lamp WILL light.
3. Low Pressure trip bistable will actuate when the channel fails low, thus the proving lamp WILL NOT light.
4. Unblock SI automatically unblocks SI when pressurizer pressure is > (greater than) 1775, thus the Unblock SI bistable will not be actuated when pressure is low. Therefore, the Unblock SI bistable proving lamp WILL light.

68. 2005 ILT RO 68

Consider the following Unit 1 conditions:

- RCS Temperature is at 400°F, heating up to 450-470°F.
- RCS Pressure is at 750 PSIG, pressurizing to 900-950 PSIG.

Below is a list of major action steps in OP-1A, Cold Shutdown to Hot Standby, while heating up and pressurizing to Normal Operating Temperature and Pressure:

1. \_\_\_\_\_.
2. Begin Pressurization to 1600 PSIG.
3. Begin Heatup to 500°F.
4. At >480°F, Begin Pressurization to Normal Op. Pressure (NOP).
5. \_\_\_\_\_.
6. At NOP, Place Pressurizer Pressure Controls in Auto.
7. \_\_\_\_\_.
8. Heat Up to Normal Op. Temp.

- A. Verify SI unblocks
- B. Place SI Accumulators in service
- C. Lower Pressurizer level to 20%, Place Pressurizer level controls in Auto

Which letter sequence correctly describes the order of task performance?

- A. B, C, A
- B. B, A, C
- C. C, A, B
- D. C, B, A

Answer: B

KA#

2.1.23

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

A: Incorrect, Accumulators are placed in service first, but level controls are not placed in auto prior to verifying SI unblocks

B: Correct, Accumulators are placed in service first, then SI unblock is verified, finally level controls are placed in auto.

C: Incorrect, Level is maintained high until near the end of the startup process.

D: Incorrect, Same as C, plus, SI accumulators are placed in service well before SI unblock.

Each of the answers could, in theory, be performed at any of the omitted spaces. Examinee must know setpoints, precautions and limitations to correctly insert all items in the correct place.

69. 2005 ILT RO 69

Which of the following is a responsibility of the Control Room CO during refueling operations?

- A. Check source range counts while a fuel assembly is being placed in the core.
- B. Verify proper operation of the High Flux at Shutdown Alarm every 72 hours.
- C. Authorize changes to fuel movement sequence.
- D. Maintain a ICRR plot during core offload operations.

Answer: A

KA#  
2.2.30

Cog Level  
Low

RO/SRO  
RO

INPO ILT Bank, Prairie Island, dated 8/16/2002

Explanation:

A: Correct, RO checks source counts while assemblies are placed.

B: Incorrect, done daily vice 72 hours. Boron Concentration Surveillance frequency is 72 hours.

C: Incorrect, Rx Engineering and core load supervisor responsibility.

D: Incorrect, ICRR plot is done during startup. Since this activity monitors changes in total core reactivity, it is a plausible activity during fuel movement.

70. 2005 ILT RO 70

Consider the following plant conditions:

- Refueling Operations are ongoing IAW RP-1C, Refueling.
- You are the Manipulator Crane operator inside Containment.
- A fuel assembly has been removed from the core and is in the "UP" position within the Manipulator Mast.
- Control Room informs you that the "Spent Fuel Pool Temp High, Level High or Lo" Alarm has actuated.
- A leak has been identified on the **CAVITY DRAIN** line.
- You note a slowly lowering level in the Refueling Pool.

Which of the following is the proper location to place the fuel assembly?

- A. RCCA Change Fixture
- B. Back in the Reactor Vessel
- C. Containment Upender in the horizontal position
- D. Within the Manipulator Mast.

Answer: B

KA#  
2.2.28

Cog Level  
High

RO/SRO  
RO

INPO ILT Bank, Indian Point 3, dated 3/10/2003

Explanation:

A: Incorrect, RCCA change fixture would not be allowed, since the location of the leak is below the seal ledge.

B: Correct, P&L lists Reactor or SFP racks as the location for the F/A with the given leak location.

C: Incorrect, the upender is not allowed. Some facilities have the upender in the horizontal position as an allowed location for a leak above the seal ledge.

D: Incorrect, leaving the F/A in the mast is not allowed in any case.

71. 2005 ILT RO 71

Consider the following Unit 1 conditions:

- 'B' SG is ruptured.
- Crew is performing EOP-3, Steam Generator Tube Rupture.

Which of the following describes how 1HC-478, 'B' Atmospheric Steam Dump Controller, will be aligned to minimize steam dumped from the 'B' Steam Generator?

- A. Controller in AUTO, Set at 1050 PSIG.
- B. Controller in AUTO, Set at 1085 PSIG.
- C. Controller in MANUAL, Manually closed.
- D. Controller in MANUAL, CO maintaining 'B' SG pressure <1085 PSIG.

Answer: A

KA#  
2.3.11

Cog Level

Low

RO/SRO

RO

New Question

Explanation:

A: Correct, EOP-3 has operator verify the controller is in AUTO and set at 1050.

B: Incorrect, plausible to minimize steam dump while maintaining overpressure protection available.

C: Incorrect, this would ensure ADV did not open, which would seem to be prudent, however, the safeties could lift and potentially not reset.

D: Incorrect, combination of B and C above.

72. 2005 ILT RO 72

Unit 1 was shutdown for refueling when a fuel handling accident occurred in the PAB. A spent fuel bundle was smashed into the side of the canal and a section of its cladding was damaged.

- Your current annual dose is 1500 mrem TEDE.
- Dose rate in the area of the SFP bridge controls is 1500 mrem/hr.
- RP has specified full PCs and a SCBA for entry.

Which one of the following represents the maximum stay time in the area of the SFP bridge controls prior to exceeding **10CFR20** whole body dose limits (federal limit)?

(Assume that management approval for exceeding NMC administrative dose limits has been received.)

- A. 20 minutes
- B. 100 minutes
- C. 140 minutes
- D. 540 minutes

Answer: C

KA#

2.3.01

Cog Level

High

RO/SRO  
RO

INPO ILT Bank, Vogtle, dated 12/21/1999. Modified question with PBNP/NMC specific requirements.

Explanation:

A: Incorrect,  $1500 \text{ mrem} + 1500 \text{ mrem/hr} * 60 \text{ min/hr} * 20 \text{ minutes} = 2000 \text{ mrem}$ . This is the NMC administrative limit without extension.

B: Incorrect,  $1500 \text{ mrem} + 1500 \text{ mrem/hr} * 60 \text{ min/hr} * 100 \text{ minutes} = 4000 \text{ mrem}$ . This is the highest administrative dose limit at PBNP, exceeding this dose requires Site VP approval.

C: Correct,  $1500 \text{ mrem} + 1500 \text{ mrem/hr} * 60 \text{ min/hr} * 140 \text{ minutes} = 5000 \text{ mrem}$ . This is the 10CFR20 whole body dose limit.

D: Incorrect,  $1500 \text{ mrem} + 1500 \text{ mrem/hr} * 60 \text{ min/hr} * 540 \text{ minutes} = 15000 \text{ mrem}$ . This is the 10CFR20 lens of the eye dose limit.

73. 2005 ILT RO 73

Consider the following Unit 2 conditions:

- Unit 2 is at 100% reactor power.
- Containment Forced Vent is in progress IAW OP-9C, Containment Venting and Purging.
- 2P-707B, Containment Forced Vent pump is running.

IF 2RE-212, Unit 2 Containment Noble Gas Monitor fails to the **HIGH ALARM** condition, which of the following automatic actions will occur and what actions will the Unit 2 operators take?

NOTE: CVI – Containment Ventilation Isolation  
CI – Containment Isolation

A. No automatic actions will occur. Operators will compare 2RE-212 readings to other Containment radiation monitors and decide whether forced vent may continue.

B. CVI will automatically occur. Operators will need to manually secure 2P-707B, Containment Forced Vent pump, to prevent it from running without a discharge path.

C. CVI will automatically occur. Operators will verify that 2P-707B, Containment Forced Vent pump, is off and that 2RM-3200H, Containment Forced Vent pump discharge valve, is closed.

D. CI and CVI will automatically occur. Operators will verify 2P-707B, Containment Forced Vent pump, is off, 2RM-3200H, Containment Forced Vent pump discharge valve is closed and that all Containment Isolation Valves repositioned as required.

Answer: C

KA#  
2.3.09

Cog Level  
High

RO/SRO  
RO

New Question

Explanation:

- A: Incorrect, CVI will automatically occur when RE-212 reaches the HIGH alarm, additionally, the pump will automatically stop on CVI.  
B: Incorrect, CVI will occur, pump will automatically stop and RM-3200H will shut.  
C: Correct, CVI will occur, pump will stop and 3200H will shut.  
D: Incorrect, CI does not have an input from RE212.

74. 2005 ILT RO 74

Following a large break LOCA, the Unit 2 operators are attempting to determine the status of the unit using Post Accident Monitoring instrumentation.

Which of the following indications is **NOT** qualified as a post-accident monitor (PAM)?

- A. Intermediate Range power
- B. Pressurizer level
- C. Wide Range Steam Generator Water level
- D. Core Exit Thermocouple temperature

Answer: A

KA#  
2.4.03

Cog Level  
Low

RO/SRO  
RO

Modified from INPO Bank, Salem, Dated 1/23/1998.

Explanation:

A: Correct, Intermediate Range Power is not qualified as a Post-Accident Monitor.

B: Incorrect, Pressurizer level is a Post-Accident Monitor.

C: Incorrect, WR Steam Generator Level is a Post-Accident Monitor.

D: Incorrect, CETs are Post-Accident Monitors.

75. 2005 ILT RO 75

Consider the following Unit 1 conditions:

- A LOCA has occurred, systems have responded normally.
- P-38 A and P-38B, Motor Driven AFW pumps, are running, supplying water to the SGs.
- SG levels are 40% and rising slowly.
- Crew has returned to EOP-1, Loss of Reactor or Secondary Coolant, from EOP-1.3, Transfer to Containment Sump Recirculation – Low Head Injection, following sump recirc preparation steps.
- During the performance of EOP-1.3 alignment, the crew noted that Containment radiation levels were beginning to rise.
- RWST level was at 40% and lowering when the crew returned to EOP-1.

If all the alarms listed below were received **CONCURRENTLY**, which of the alarms would be given the highest priority?

- A. Unit 1 Containment High Range Radiation High (1C20 D 1-9)
- B. 1T-13 RWST Level Low (C01 B 2-9)
- C. Aux Feed Pump Suction Pressure Low (C01 A 4-9)
- D. G-03 Emergency Diesel (C02 E 2-2)

Answer: B

KA#  
2.4.45

Cog Level  
High

RO/SRO  
RO

Modified from INPO ILT Bank, Kewaunee, Dated 12/11/2000.

Explanation:

A: Incorrect, Containment High Range alarms at 100R/hr in Containment. This alarm would not be expected, but would not be more important than initiating sump recirc.

B: Correct, when 34% is reached, EOP-1.3 steps to go on sump recirc are completed and CSPs are resumed when directed by EOP-1.3.

C: Incorrect, losing AFW suction would potentially be a concern and should be addressed following initiation of sump recirc.

D: Incorrect, since all systems have functioned normally, G03 would not be loaded. The CR should investigate the potential loss of an emergency power supply, but not to interfere with sump recirc.

1. 2005 ILT SRO 1

Consider the following Unit 1 conditions:

- A plant casualty occurred and the crew is preparing to implement Bleed and Feed steps of CSP-H.1, Response to Loss of Secondary Heat Sink.
- A Pressurizer Safety valve has opened and will not reseal.
- After several minutes in this condition, the following plant parameters are noted:
  - RCPs are OFF.
  - Core Exit Thermocouples read 710°F and rising.
  - Subcooling reads minus 50°F and degrading.
  - Reactor Vessel Narrow Range level is 23 Feet and lowering.

Based on these plant conditions, what is the appropriate procedure flowpath?

A. Continue in CSP-H.1 until completed, if conditions listed persist, transition to CSP-C.2, Response to Degraded Core Cooling, upon completion of CSP-H.1.

B. Continue in CSP-H.1 until completed, if conditions listed persist, transition to CSP-C.1, Response to Inadequate Core Cooling, upon completion of CSP-H.1.

C. Transition immediately to CSP-C.2, Response to Degraded Core Cooling.

D. Transition immediately to CSP-C.1, Response to Inadequate Core Cooling.

Answer: D

KA#

000008.AA2.30

Cog Level

High

RO/SRO

SRO

New Question

Explanation:

A: Incorrect, examinee must realize that Red path conditions exist for Core Cooling. This answer would be correct if Core Cooling Orange path conditions were indicated.

B: Incorrect, examinee must recognize that the Core Cooling Red path has priority over Heat Sink Red path.

C: Incorrect, examinee must recognize that a Red path for Heat Sink takes

priority over the Orange path for Core Cooling, even if Core Cooling was at an Orange path.

D: Correct, crew should transition to CSP-C.1, since Core Cooling Red path has priority over the current Heat Sink Red path.

2. 2005 ILT SRO 2

Consider the following Unit 1 conditions:

- Unit 1 was at 100% reactor power with all control systems in automatic.
- A 1" RCS pipe has been sheared off inside Containment.

**ALARMS**

1. RWST Low Level Alert
2. Feedwater Pump Trip
3. SI Accumulator Low Pressure
4. Charging Pump Speed Control

**PROCEDURAL FLOWPATH**

- A. AOP-1A, AOP-17A, OP-3C
- B. EOP-0, EOP-1, EOP-1.2

(Procedure Titles: AOP-1A, Reactor Coolant Leak; AOP-17A, Rapid Power Reduction; OP-3C, Hot Standby to Cold Shutdown; EOP-0, Reactor Trip or Safety Injection; EOP-1, Loss of Reactor or Secondary Coolant; EOP-1.2, Small Break LOCA Cooldown and Depressurization)

Given the above lists of alarms and procedure flowpaths, select which alarms would be **EXPECTED** with these conditions and the **EXPECTED** procedural flowpath.

	<b>EXPECTED ALARMS</b>	<b>PROCEDURAL FLOWPATH</b>
A.	Only 4	A
B.	Only 1 and 4	A
C.	Only 1, 2 and 4	B
D.	1, 2, 3 and 4	B

Answer: C

KA#

000009.2.4.46

Cog Level  
High

RO/SRO  
SRO

## New Question

### Explanation:

A: Incorrect, if examinee fails to recognize that a 1" pipe break represents a Small Break LOCA well beyond the capacity of the Charging system, this may be selected.

B: Incorrect, if examinee recognizes that VCT level will be lost when letdown is isolated and charging swaps to RWST, the RWST level alert would be an expected alarm. However, if the VCT emptied and charging swapped to the RWST, a trip would be required.

C: Correct, all the listed alarms would be expected, except for Accumulator Low Pressure, which is received at ~800 PSIG RCS pressure. Once RCS pressure drops below SI pump SOH, then the SI pumps will have sufficient capacity to maintain RCS pressure above Accumulator dump pressure. EOP-1.2 isolates the accumulators when RCS pressure is <1000 psig, so dumping of accumulators would not be expected with this break.

D: Incorrect, SI Accumulator Low is not expected per above discussion.

### 3. 2005 ILT SRO 3

Consider the following Unit 1 conditions:

- At 0600, the following conditions are noted:
  - Unit 1 is shutdown, preparing for refueling.
  - Initial RCS temperature was 175°F.
  - Initial RCS pressure was 100 PSIG.
  - Normal Cooldown Alignments.
  - Subsequently, RHR is lost and the RCS heats up at 4°F/minute.

Which of the following correctly identifies the initial MODE and MODE at 0640?

	Initial MODE	MODE at 0640
A.	MODE 6	MODE 5
B.	MODE 5	MODE 4
C.	MODE 6	MODE 3
D.	MODE 5	MODE 3

Answer: B

KA#

000025.2.1.22

Cog Level  
High

RO/SRO  
SRO

New Question

Explanation:

A: Incorrect, MODE 6 is closely associated with refueling operations, since the stem states that preps for refueling are underway, the examinee may wrongly assume that MODE 6 has been entered. If this error is made and the examinee recognizes that a mode change has occurred, then MODE 5 would be a logical step up from MODE 6.

B: Correct, in this case, the plant starts out in MODE 5 and ends in MODE 4. Examinee must calculate final temperature,  $175F + 40 \text{ minutes} * 4F/\text{minutes} = 335F$  and recognize that MODE 5 to 4 occurs at 200F and that MODE 4 to 3 would occur at 350F.

C: Incorrect, combination of errors for A and D.

D: Incorrect, if examinee recognizes that MODE 5 is the starting MODE, yet incorrectly assigns an incorrect value for the MODE change from 4 to 3, then this choice would be selected.

#### 4. 2005 ILT SRO 4

Consider the following Unit 1 conditions:

- A Unit 1 Reactor Trip and Safety Injection has occurred.
- EOP-0, Reactor Trip or Safety Injection, immediate actions have just been completed, EOP-0 Foldout page items are currently being addressed.
- 'A' SG level is 67% and rising in an uncontrolled manner.
- 'A' SG pressure is 1025 PSIG and rising in an uncontrolled manner.
- Pressurizer level is 7% and lowering.
- Containment pressure is 1 PSIG.

Which of the following actions should the OS direct at this time?

A. Direct CO to isolate feed flow to the 'A' SG since its level is rising in an uncontrolled manner.

B. Direct RP Tech to immediately conduct radiation survey of 'A' SG. If 'A' SG has verified abnormal radiation, immediately transition to EOP-3.

C. Direct CO to isolate flow from the 'A' SG by closing 'A' MSIV and securing blowdown from 'A' SG.

D. Immediately transition to EOP-3, Steam Generator Tube Rupture, since 'A' SG level is rising in an uncontrolled manner.

Answer: A

KA#

000038 2.4.01

Cog Level

High

RO/SRO

SRO

New Question

Explanation:

SRO will need to evaluate reports from the board operators and decide which actions from the Fold Out Page need to be implemented and how these actions are to be performed.

A: Correct, Foldout Page checks for abnormal radiation levels or uncontrollably rising level and directs the securing of feed to the affected SG.

B: Incorrect, plausible as radiation levels are checked later in the EOP set, additionally, the transition to EOP-3 is not made from the FOP.

C: Incorrect, isolating flow FROM the SG is plausible, as this would minimize the radiation released from the SG; however, these steps are addressed later in the EOP set.

D: Incorrect, transition step is within the body of EOP-0, after other diagnostics have been done.

5. 2005 ILT SRO 5

Consider the following Unit 1 conditions:

- Unit 1 was at 100% reactor power.
- Both Main Feed Water pumps have tripped.
- Reactor Trip breakers did NOT open.
- Efforts to de-energize 1B-01 have failed.
- Reactor power is 17% and lowering.
- No AFW pumps are running.
- The CO is performing Immediate Actions at Step 1 of EOP-0, Reactor Trip or Safety Injection.

What procedure should be entered OR action directed NEXT and why?

- A. Transition to CSP-S.1, Response to Nuclear Power Generation/ATWS, to insert negative reactivity from control rods and verify turbine trip.
- B. Manually start AFW pump(s) to establish >400 GPM AFW flow to protect the core from a Loss of Feedwater ATWS.
- C. Continue with Step 2 of EOP-0 to verify turbine trip and conserve remaining SG inventory.
- D. Dispatch operator to locally open Reactor Trip and Bypass breakers in the Rod Drive MG set room to reduce core power.

Answer: A

KA#  
000054.AA2.01

Cog Level  
High

RO/SRO  
SRO

New Question

Explanation:

A: Correct, per EOP-0, Step 1 RNO b.3.

B: Incorrect, plausible as this is Loss of Flow ATWS, but actions cannot be taken during Immediate Actions.

C: Incorrect, cannot continue unless <5% reactor power.

D: Incorrect, plausible as this is RNO b.5 and could get the reactor tripped, however, transition to CSP-S.1 is made prior to reaching this step.

## 6. 2005 ILT SRO 6

Consider the following plant conditions:

- Unit 1 was at 100% reactor power.
- Unit 1 then experienced a Safety Injection due to a Small Break LOCA.
- All components actuated normally.
- Subsequently, a fault results in a loss of electrical panel D-11.

Which of the following describes the impact the loss of control power has on the AC electrical system? What procedure should the OS implement to mitigate the electrical fault?

A. The G01 EDG output breaker, 1P-10A RHR pump and 1P-15A SI pump breakers open, none of these breakers can be operated remotely. AOP-18, Electrical System Malfunction, should be implemented.

B. The G01 EDG output breaker remains open but can be closed remotely, if necessary. 1P-10A RHR pump and 1P-15A SI pump breakers remain closed and may be opened remotely. AOP-18, Electrical System Malfunction, should be implemented.

C. The G01 EDG output breaker remains closed. 1P-10A RHR pump and 1P-15A SI pump breakers open, none of these breakers can be operated remotely. AOP-0.0, Vital DC System Malfunction, should be implemented.

D. The G01 EDG output breaker remains open without capability to close remotely. 1P-10A RHR pump and 1P-15A SI pump breakers remain closed and cannot be operated remotely. AOP-0.0, Vital DC System Malfunction, should be implemented.

Answer: D

KA#  
000058.AA2.03

Cog Level  
High

RO/SRO  
SRO

Modified from INPO Bank, Seabrook, 5/30/2003. INPO Bank 24649

Explanation:

A: Incorrect, breakers do not open simply from losing control power. AOP-18 is a plausible procedure to enter for Electrical System Malfunctions.

B: Incorrect, breakers cannot be operated remotely without control power.

C: Incorrect, pump breakers will not open, AOP-0.0 would be correct procedure.

D: Correct, EDG breaker remains open, pump breakers remain closed. AOP-0.0 should be entered to recover control power.

7. 2005 ILT SRO 7

Normal Readings

	1	2	3	4	5	6	7	8	9	10	11	12	13
A													
B					577		599						
C			574			596		595			565		
D		561			587			600				567	
E						595				596			
F							597						
G	553	594					594					591	
H									593	585	597		558
I				595						593			
J			579			593		588	595				
K			562									573	
L						596							
M						555							

### Current Readings

	1	2	3	4	5	6	7	8	9	10	11	12	13
A													
B					579		603						
C			575			600		597			563		
D		562			591			604				564	
E						599				592			
F							597						
G	555	602					595					573	
H									588	573	582		551
I				599						586			
J			584			590		583	592				
K			563									570	
L							598						
M						554							

Unit 1 is operating at 75% power. CO reports suspected dropped rod. Considering the provided Core Exit TC map, which rod has dropped?

- A. F-12
- B. H-12
- C. J-10
- D. H-8

Answer: B

KA#

000005.AA2.04

Cog Level

High

RO/SRO

SRO

New Question

Explanation:

A: Incorrect, although some of the TCs near F-12 have lowered, others, such as F-8 and G-7 have remained the same or risen.

B: Correct, TCs near H-12 have lowered most, with temperature change rising slowly across the core.

C: Incorrect, L-7 has risen 2 degrees, which would indicate that J-10 is not the dropped rod location.

D: Incorrect, F-8 has not changed at all, which would not be the case if H-8 had dropped.

8. 2005 ILT SRO 8

Consider the following plant conditions:

- A toxic gas release has rendered the Control Room uninhabitable.
- AOP-10, Control Room Inaccessibility, is in progress.
- Letdown has been isolated and cannot be re-established.
- The Unit 1 charging pump operator reports that Pressurizer level is 48% and rising.
- The Control Room remains uninhabitable.

Which of the following represents the direction that the DOS should provide to the

Unit 1 Charging pump operator regarding Pressurizer level?

A. Operate the Charging pumps as necessary. Use OI-15, Charging Pump Local Control Station Operation, to control Charging parameters.

B. Initiate Excess Letdown flow from Unit 1 local control panels.

C. Isolate instrument air to the running Charging pumps to lower their speed to minimum.

D. Locally operate the Charging pump power supply transfer switches as necessary to start and stop Charging pumps.

Answer: A

KA#

000068.AA2.07

Cog Level

Low

RO/SRO

SRO

New Question

Explanation:

A: Correct, Charging pump operator reports to the DOS, who is assigned overall command and control responsibilities in AOP-10. Since letdown has been lost and cannot be recovered, the charging pump operator must be directed to manually control charging pump speed and maintain Pressurizer level IAW OI-15.

B: Incorrect, establishing Excess Letdown would lower level, but this is not directed within AOP-10.

C: Incorrect, isolating air will ramp charging pumps to minimum, but will result in a loss of control of the pumps.

D: Incorrect, charging may be controlled in manual and there is no fire, which negates the need for alternate power supplies to the charging pumps.

9. 2005 ILT SRO 9

Which of the following is the Technical Specification Action Condition entry requirement for Technical Specification 3.4.16, RCS Specific Activity and what is the basis for the limit?

A.  $\geq 1.0$   $\mu\text{Ci/gm}$  Dose Equivalent Iodine, limits off-site radiation dose to a small fraction of 10CFR100 limits during a LOCA OUTSIDE CONTAINMENT.

B.  $\geq 1.0$   $\mu\text{Ci/gm}$  Dose Equivalent Iodine, limits off-site radiation dose to a small fraction of 10CFR100 limits during a SG TUBE RUPTURE.

C.  $\geq 0.8$   $\mu\text{Ci/gm}$  Dose Equivalent Iodine, limits off-site radiation dose to a small fraction of 10CFR100 limits during a LOCA OUTSIDE CONTAINMENT.

D.  $\geq 0.8$   $\mu\text{Ci/gm}$  Dose Equivalent Iodine, limits off-site radiation dose to a small fraction of 10CFR100 limits during a SG TUBE RUPTURE.

Answer: D

KA#

000076.2.1.33

Cog Level

Low

RO/SRO

SRO

INPO ILT Bank, Prairie Island, dated 8/16/2002, significantly modified. Original question was for secondary activity levels.

Explanation:

A: Incorrect, the 1.0 microcuries/gm listed applies to the secondary (TS 3.7.13), SGTR is the listed accident.

B: Incorrect, wrong limit.

C: Incorrect, correct limit, wrong accident, LOCA outside containment is a plausible occurrence.

D: Correct, 0.8 is the limit, SGTR is the listed accident.

10. 2005 ILT SRO 10

Consider the following Unit 1 conditions:

- A Steam Line Break has occurred in Unit 1 Containment. The crew is responding per the EOP set.
- You have assigned performance of EOP-0, Attachment A, Automatic Action Verification, to the Unit 1 BOP while you and CO1 continue in the EOP set.
- Transition to EOP-2, Faulted Steam Generator Isolation, is made while the Unit 1 BOP is still performing Attachment A.
- Shortly after announcing the transition to EOP-2, the STA informs you that the entry conditions for CSP-P.1, Response to Imminent Pressurized Thermal Shock Conditions, are met.

Which of the following correctly describes your responsibilities for addressing these conditions?

A. Transition immediately to CSP-P.1 and perform actions as directed. The Red Path Condition has priority over EOP actions.

B. Return to EOP-0 at the EOP-2 transition step. Transition out of EOP-0, Reactor Trip or Safety Injection, should NOT be made until Attachment A is

complete.

C. Acknowledge report from the STA but do NOT take any CSP-P.1 actions until the completion of EOP-0, Attachment A.

D. Complete EOP-2 Actions. CSP-P.1 entry will be addressed upon the transition to EOP-1, Loss of Reactor or Secondary Coolant.

Answer: C

KA#

WE08.2.1.02

Cog Level

High

RO/SRO

SRO

New Question

Explanation:

A: Incorrect, while Red path will have priority over the EOP when Attachment A is complete, this has not yet happened.

B: Incorrect, EOP actions may be taken while Attachment A is being completed.

C: Correct, CSP steps are not to be taken until Attachment A is done.

D: Incorrect, As soon as attachment A is complete, it is appropriate to take CSP actions as indicated by status trees.

11. 2005 ILT SRO 11

Consider the following plant conditions:

- Unit 1 is at 95% reactor power, with a Containment inspection in progress.
- Unit 2 has experienced a Reactor Trip and Safety Injection due to a failed open Main Steam Safety Valve on 'B' Steam Generator.
- The Unit 1 BOP performing Attachment A of EOP-0, Reactor Trip or Safety Injection, reports the following conditions:
  - Due to electrical malfunctions, four required SW pumps did NOT start.
  - 2SW-2907 and 2908, SW to Unit 2 containment cooler emergency outlet valves are OPEN.
  - 1SW-2907 and 2908, SW to Unit 1 containment cooler emergency outlet valves are OPEN.
  - Service Water to Containment flow indicators for both units indicate

750 GPM.

- C01 C 2-9, "Unit 2 Containment Recirc Coolers Water Flow Low" Alarm is LIT.
- C01 B 2-3, "Unit 1 Containment Recirc Coolers Water Flow Low" Alarm is LIT.

Are these Alarms consistent with plant conditions? What action, if any, should the SRO take regarding Containment Cooling? (Assume actions to restore power are already underway.)

A. The Alarms are consistent with plant conditions. Enter AOP-9A, Service Water Malfunction, and close UNIT 1 SW-2907/2908 valves to maximize flow to Unit 2 Containment.

B. The Alarms are consistent with plant conditions. Enter AOP-9A and close BOTH UNITS' SW-2907/2908 valves, since SW flow would not be required to either Unit's Containment for this accident.

C. The Alarms are NOT consistent with plant conditions, Unit 1 Flow Low alarm should NOT be alarming. Ensure BOP closes UNIT 1 SW-2907/2908 valves during the performance of EOP-0, Reactor Trip or Safety Injection, Attachment A, to maximize flow to Unit 2 Containment.

D. The Alarms are NOT consistent with plant conditions, Unit 1 Flow Low alarm should NOT be alarming. Ensure BOP closes BOTH UNITS' SW-2907/2908 valves during the performance of EOP-0, Attachment A, since flow would not be required to either Unit's Containment for this accident.

Answer: C

KA#  
022.2.04.46

Cog Level  
High

RO/SRO  
SRO

New Question

Explanation:

A: Incorrect, alarms are not consistent. Unit 1 alarm should not be in since U1 has no SI signal present. 1SW-2907/2908 should be shut, but this will be done in EOP-0, Attachment A.

B: Incorrect, alarms are not consistent. Additionally, it would not be appropriate to isolate SW flow to U2 Containment during an accident, even if the accident is outside Containment.

C: Correct, alarms are not consistent. Unit 1 SW-2907/2908 valves should be isolated in Attachment A.

D: Incorrect, inappropriate to isolate SW to the accident unit.

The alarm for Low Flow is not actuated unless there is an SI signal present. Either of the possibilities for the alarm configuration is plausible. The decisions about what to do about the valve positions are all plausible. The Unit 2 valves should have opened on the SI. The Unit 1 valves should be closed, in order to maximize flow to Unit 2 containment. Closing both sets is plausible, since the cooling for containment will not be needed in this accident and the rest of the system would benefit from having the additional flow. This would, however, violate the EOP direction.

## 12. 2005 ILT SRO 12

During the performance of EOP-1.3, Transfer To Containment Sump Recirculation - Low Head Injection, the SI test line is isolated.

Which of the following correctly describes the actions which will be directed IAW EOP-1.3 to protect the Containment Spray pumps and what is the reason for these actions?

A. Direct the CO to secure the CS system prior to isolating the SI test line. SI test line is isolated to prevent backflow of sump recirc water into the CS system.

B. Direct the CO to verify CS pump discharge valves open prior to isolating the SI test line. SI test line is isolated to prevent radioactive water from being injected into the RWST during sump recirc.

C. Direct the CO to align the CS system to RHR Pump discharge prior to isolating the SI Test Line. SI test line is isolated to ensure maximum sump recirc flow.

D. Direct the CO to maintain SI Pump discharge valves open to prevent overpressurization of the CS system while SI test line is isolated. SI test line is isolated to prevent lifting of relief valves in the CS system while on sump recirc.

Answer: B

KA#  
026.A2.09

Cog Level

Low

RO/SRO  
SRO

New Question

Explanation:

A: Incorrect, while securing spray would protect the pumps, this is not directed.

B: Correct, test line is isolated to prevent contamination of the RWST and CS discharge valves are verifying discharge valves open.

C: Incorrect, incorrect reason for isolating test line, although plausible from a maximum core cooling standpoint, and incorrect method for protecting CS pumps.

D: Incorrect, incorrect reason for isolating test line.

13. 2005 ILT SRO 13

Consider the following Unit 1 conditions:

- Unit is at 48% Chemistry Hold following a refueling startup.
- 'A' MFP, 'A' Condensate pump and 'A' HDT pump are in service.
- CAP initiated by I&C states that a review of completed outage work orders indicates the following:
  - 'A' MFRV SI Vent Solenoid Circuit collected data was unsatisfactory.
  - 'A' HDT pump CPCI Trip Circuit collected data was unsatisfactory.
  - 'B' Condensate Pump CPCI Trip Circuit collected data was unsatisfactory.

Using the provided reference, which of the following is a **COMPLETE** list of actions to be entered with respect to LCO 3.7.3?

A. TSAC 3.7.3.A for MFRV Solenoid  
TSAC 3.7.3.B for 'A' HDT pump

B. TSAC 3.7.3.A for MFRV Solenoid  
TSAC 3.7.3.B for 'A' HDT pump  
TSAC 3.7.3.C

C. TSAC 3.7.3.A for MFRV Solenoid  
TSAC 3.7.3.B for 'A' HDT pump  
TSAC 3.7.3.B for 'B' Condensate pump  
TSAC 3.7.3.C

D. TSAC 3.7.3.A for MFRV Solenoid  
TSAC 3.7.3.B for 'A' HDT pump

TSAC 3.7.3.B for 'B' Condensate pump  
TSAC 3.7.3.C  
LCO 3.0.3

Answer: C

KA#  
059.2.2.22

Cog Level  
High

RO/SRO  
SRO

New Question

Explanation:

A: Incorrect, this selection is incomplete. 3.7.3.B must be entered for each of the pumps and 3.7.3.C is applicable since a valve and a pump are INOPERABLE.

B: Incorrect, if examinee fails to recognize that 3.7.3.B applies to the Condensate pump even though it is not running, this would be selected.

C: Correct, 3.7.3.B must be entered for each pump. C applies as noted above.

D: If this were the ECCS system, with an 'A' and a 'B' train pump inoperable, 3.0.3 would apply. In this case, any number of pumps and valves may be inoperable without the need to enter 3.0.3.

14. 2005 ILT SRO 14

Consider the following plant conditions:

- Testing of 1P-29, Unit 1 TDAFW pump, was completed on the previous shift, using IT-8A, Cold Start of TDAFW Pump and Valve Test (Quarterly) Unit 1.
- During your shift, the Unit 1 Turbine Hall AO is performing PC-8 Pt. 2, Monthly AFW Pump Discharge Piping Temperature Checks, and identifies that the piping temperature between 1AF-108, 1P-29 Discharge check valve, and 1P-29 is at 200°F.
- Pump bearing temperatures are 150°F and steam is issuing from the pump seals.

Which of the following identifies the most likely cause of the high temperature condition and what actions, if any, need to be taken?

A. Elevated temperatures are due to a loss of forward flow from 1P-29 that caused steam binding of the TDAFW pump during IT-8A. Utilize OI-62B, Turbine

Driven Auxiliary Feedwater system, to correct the problem.

B. Elevated temperatures are due to a malfunction of turbine seals and subsequent steam leakage into the pump casing. Utilize AOP-2A, Secondary Coolant Leak, to correct condition.

C. Elevated temperatures are due to AFW check valve leakage. Utilize AOP-2C, Auxiliary Feed Pump Steam Binding or Overheating.

D. Elevated temperatures are expected for up to 24 hours following a forward flow test of TDAFW pump . PC-8 Pt. 2 should be re-performed after AFW lines have cooled.

Answer: C

KA#  
061.A2.06

Cog Level  
High

RO/SRO  
SRO

New Question

Explanation:

A: Incorrect, steam binding would have been noted during the test, also, OI-62B does not address abnormal conditions with the pump.

B: Incorrect, steam leaking from the seals would not enter the pump casing.

C: Correct, most likely cause is backleakage of the feed check valves into the pump, AOP-2C specifically addresses this situation.

D: Incorrect, many pieces of equipment display "abnormal" temperatures and other conditions for a period of time after being operated, but the temperatures listed are well in excess of what would be expected.

15. 2005 ILT SRO 15

Consider the following plant conditions:

- Z-31, Instrument Air Dryer, Left Tower desiccant retention element has failed.
- Failure has resulted in partial and slowly worsening blockage of the Z-31 After Filter.
- Assume normal Instrument Air (IA) System alignment.

Using the provided reference, which of the following correctly states the expected response of the Instrument Air System and the direction provided to the operators?

A. North and South IA header pressures as indicated on C01 remains unchanged. Direct response to the failure IAW Unit 2 TH Logs Special Instructions which will direct isolation of the inlet to the Z-31 Air Dryer and blowdown of the clogged filter.

B. North IA header pressure as indicated on C01 will lower, South IA header pressure will remain unchanged. Direct response to the failure IAW ARP C01 D 1-2, Instrument Air Header Pressure Low alarm, and direct the AO to open IA-3094-S, IA Dryer Bypass valve, to bypass Z-31 Air Dryer.

C. North and South IA pressure will lower due to the high filter DP. PCV-3079, Service Air/Instrument Air Cross-connect valve will open to restore IA header pressure. Direct operators to respond IAW AOP-5B, Loss of Instrument Air.

D. North and South IA header pressures as indicated on C01 will rise. The running IA compressor will trip on high pressure. Direct the operators to respond to the failure IAW ARP C01 D 2-2, Inst Air Running Compressor Trip, to start the standby IA compressor.

Answer: B

KA#  
078.A2.01

Cog Level  
High

RO/SRO  
SRO

New Question  
Provide BECH 6118 M-209 Sh. 3 & 4

Explanation:

A: Incorrect, since the IA system is only cross-connected upstream of the dryers, the north header pressure will lower.

B: Correct, the blockage will only affect the north IA header pressure and the ARB directs the dryer bypass to be opened.

C: Incorrect, since the south IA header pressure will not be affected. The SA/IA cross-connect is upstream of the IA dryers.

D: Incorrect, since pressure sensing lines are downstream of the blockage. The running air compressor discharge flowpath will be to the south header so it will

not trip on high pressure.

16. 2005 ILT SRO 16

Technical Specification 3.7.10, Fuel Storage Pool Water Level, requires that  $\geq 23$  feet of water be maintained above the fuel in the storage racks during the movement of irradiated fuel.

What is the basis for this requirement?

- A. To ensure sufficient water volume for fuel cooling.
- B. To ensure sufficient water depth for iodine scrubbing.
- C. To ensure sufficient volume of borated water to prevent criticality.
- D. To ensure sufficient time is available to provide makeup to the pool in case of a system leak.

Answer: B

KA#

033.2.2.25

Cog Level

Low

RO/SRO

SRO

INPO ILT, Salem, dated 5/5/2003.

Explanation:

A: Incorrect, cooling volume is important, but does not affect health and safety of the public.

B: Correct, Basis is for iodine scrubbing during movement of irradiated fuel.

C: Incorrect, sufficient boron concentration is important, but specific boron volume is not contained within the basis.

D: Incorrect, plausible since it would be desirable to provide makeup water to the pool prior to losing radiation shielding.

17. 2005 ILT SRO 17

The Explosive Gas Monitoring Program (TRM 4.11) ensures that an explosive gas mixture is NOT present in the On-Service Waste Gas Decay Tank.

Which of the following correctly states the acceptance criteria for explosive gas mixture and corrective actions/compensatory measures?

A.  $\leq 4\%$  Oxygen. If greater than 4%, addition of waste gas may continue to the tank for up to 14 days, provided grab samples are taken and analyzed daily during normal power operation.

B.  $\leq 10\%$  Oxygen. If greater than 10%, addition of waste gas will be immediately suspended and the tank must be immediately discharged to minimize the potential for explosion.

C.  $\leq 4\%$  Oxygen. If greater than 4%, addition of waste gas will be immediately suspended and the oxygen concentration reduced to  $< 4\%$  as soon as possible.

D.  $\leq 10\%$  Oxygen. If greater than 10%, addition of waste gas may continue for up to 24 hours provided grab samples are taken and analyzed every 4 hours during normal power operation.

Answer: C

KA#  
071.2.2.22

Cog Level  
Low

RO/SRO  
SRO

New Question

Explanation:

A: Incorrect, additions to the tank must stop immediately.

B: Incorrect, 4% is the max allowed, 10 PSIG is the maximum pressure for preparing a GDT for maintenance, selected as a distractor since this is a number associated with GDTs and one that is low enough to be plausible.

C: Correct, 4% is max allowed, if  $>4\%$ , tank must be isolated and concentration reduced.

D: Incorrect, wrong concentration, grab samples are plausible, since this is done if radiation monitors are not available.

18. 2005 ILT SRO 18

Given the following plant conditions:

- Both units are operating at 100% reactor power.

- Unit 1 has just tripped due to a lockout on 1X-03, High Voltage Station transformer, combined with a failure of the Fast Bus Transfer on the 13.8 kV system.

Which one of the following statements best describes the status of the circulating water system and procedure(s) that will mitigate circumstances related to the affected unit, if any?

(Note: EOP-0 is "Reactor Trip or Safety Injection" and AOP-5A is "Loss of Condenser Vacuum".)

- A. Unit 1 Circulating Water pumps trip and their associated discharge valves close; EOP-0 and AOP-5A are entered for Unit 1 only.
- B. Unit 2 Circulating Water pumps trip, Unit 2 CW discharge valves remain open; EOP-0 is entered for Units 1 and 2, and AOP-5A for Unit 2.
- C. There is no effect on any running Circulating Water pump or discharge valve since these are still powered via Low Voltage Station Transformer 1X04; EOP-0 is entered on Unit 1 only.
- D. Unit 1 Circulating Water pumps trip and their associated discharge valves remain open; EOP-0 and AOP-5A are entered for Unit 1 only.

Answer: A

KA#  
075.A2.02

Cog Level  
High

RO/SRO  
SRO

INPO ILT Bank, PBNP, Dated 2/2/2002. Repeat from 2002 PBNP NRC Exam, outline randomly generated.

Explanation:

- A: Correct, U1 CW pumps would trip and discharge valves would shut, since the discharge valves are Unit 2 powered.
- B: Incorrect, U2 CW pumps will not trip and unit 2 will not trip.
- C: Incorrect, U1 CW pumps will trip and are not powered from 1X04.
- D: Incorrect, U1 discharge valves will shut, as noted in A.

19. 2005 ILT SRO 19

Consider the following plant conditions:

- Unit 1 is in day 10 of a refueling outage.
- Unlatching of rods is in progress.
- Reactor Coolant System temperature (RHR inlet) is 87°F.
- The running RHR pump trips.
- The other RHR pump is tagged out for minor maintenance, but can be restored if needed.

Using the provided reference, which of the following indicates the minimum time (number of hours) at which RCS boiling will occur?

- A. 15.0 hours
- B. 16.5 hours
- C. 18.0 hours
- D. 21.5 hours

Answer: B

KA#

2.1.25

Cog Level

High

RO/SRO

SRO

PBNP LOR Requal Exam, 2002 Written Exam  
SEP-1, Attachment C to be provided.

Explanation:

A: Incorrect, using the 80°F curve on the cavity filled graph yields 15.0 hours

B: Correct, using the 90°F curve on the cavity filled graph yields 16.5 hours

C: Incorrect, using the 100°F curve on the cavity filled graph yields 18.0 hours

D: Incorrect, using the 90°F curve on the cavity filled graph and multiplying by 1.3 yields 21.5 hours. Multiplication by 1.3 is not allowed since core has not been reloaded.

20. 2005 ILT SRO 20

Both Units are at 100% reactor power. The crew is working regular 12-hour

shifts. The time is 0015.

AO Staffing is as follows:

- Unit 1 Turbine Hall (TH) – Fully Qualified AO.
- Unit 2 Turbine Hall (TH) – Fully Qualified AO.
- PAB – Fully Qualified AO.
- Water Treatment (WT) – AO Qualified WT and Fire Brigade only.
- AO Trainee – Fire Brigade qualified only, standing WT Under Instruction.

The Unit 1 TH Operator must leave immediately for a family emergency.

Which of the following correctly describes the actions that must be taken?

- A. The Unit 2 TH operator will assume the Unit 1 TH responsibilities, AO Trainee will assume fire brigade duties. Staffing may be maintained in this configuration up to 8 hours.
- B. Immediately begin callout to replace the Unit 1 TH operator, the operator must be replaced within 2 hours.
- C. Third or Fourth License may be utilized to cover the Unit 1 TH watchstation for the remainder of the shift, with AO Trainee assuming Fire Brigade Duties.
- D. Notify duty and call personnel while attempting to replace Unit 1 TH watch. STA must remain in the Unit 1 TH watchstation until suitable replacement has reported.

Answer: B

KA#

2.1.05

Cog Level

Low

RO/SRO

SRO

New Question

Explanation:

- A: Incorrect, U2 TH operator is not allowed to assume U1 TH duties.
- B: Correct, all AO watchstations listed in the OM must be filled within 2 hours.
- C: Incorrect, Licensed operators are not proficient on the TH watchstations.
- D: Incorrect, If a CR required watchstander is incapacitated, the STA must

remain in the CR until replacement.

21. 2005 ILT SRO 21

Assume the core loading pattern will be changed during the next refueling outage such that more new fuel assemblies are placed toward the **CENTER** of the core and more “twice-burned” assemblies are loaded toward the **PERIPHERY**.

What effect would this loading pattern have on the unit?

A. The expected full power loop delta-T value should be significantly LOWER for this fuel cycle when compared to the value from the previous cycle.

B. The expected full power loop delta-T value should be significantly HIGHER for this fuel cycle when compared to the value from the previous cycle.

C. IF Power Range NI channel gains are NOT changed during the refueling outage, the Power Range NI readings would be significantly BELOW actual power level when first calorimetric is performed after the outage.

D. IF Power Range NI channel gains are NOT changed during the refueling outage, the Power Range NI readings would be significantly ABOVE actual power level when first calorimetric is performed after the outage.

Answer: C

KA#

2.2.32

Cog Level

High

RO/SRO

SRO

INPO ILT BANK, Prairie Island, dated 9/1/2003

Explanation:

A: Incorrect, Loop Delta T should not be affected by this change, since the same thermal power is being extracted from the core as a whole.

B: Incorrect, Ditto.

C: Correct, since more reactive fuel is toward the center of the core, most of the power will be produced there, causing a much lower flux at the edge of the core. Thus, NI readings will be lower.

D: Incorrect, NI readings will be lower vice higher.

22. 2005 ILT SRO 22

When a test or experiment is proposed which may affect the PBNP License or Technical Specifications, the activity is scrutinized using a multi-phase process.

Which part of the process **DETERMINES** whether PBNP must obtain NRC approval **PRIOR** to carrying out the test or experiment?

- A. 10CFR50.59 Pre-Screening
- B. 10CFR50.59 Screening
- C. 10CFR50.59 Evaluation
- D. 10CFR50.59 Amendment

Answer: C

KA#

2.2.07

Cog Level

Low

RO/SRO

SRO

New Question

Explanation:

A: Incorrect, the pre-screening determines if 50.59 is applicable.

B: Incorrect, the screening determines if an evaluation must be done.

C: Correct, the evaluation process is where the determination is made regarding whether prior approval is required.

D: Incorrect, a license amendment may be required based on the outcome of this process, but the amendment is not part of the 10CFR50.59 evaluation .

23. 2005 ILT SRO 23

Consider the following plant conditions:

- Waste Distillate Tank 'A' is being discharged overboard via Unit 2 service water.
- 2RE-229, Unit 2 SW Overboard monitor, momentarily goes into an **ALERT** status, then clears.
- RE-223, Waste Distillate Tank Overboard monitor, is normal and is well

below setpoint.

Which of the following describes how the system will respond and what actions are now required?

A. Waste Distillate Overboard valve, BE-FCV-LW-15, will automatically close. The alert condition on 2RE-229 will need to be evaluated and a new Liquid Waste Discharge Permit MUST be completed prior to continuing the discharge.

B. Waste Distillate Overboard valve, BE-FCV-LW-15, will automatically close. Discharge may continue using existing Liquid Waste Discharge Permit following the performance of RAM 3.1.1, Restarting a Liquid Batch Release.

C. Discharge will need to be manually secured while the discharge path is switched to Unit 1 SW Overboard, then discharge may be recommenced. Document change of SW alignment on the existing Liquid Waste Discharge Permit.

D. Discharge will need to be manually secured. Discharge may continue using existing Liquid Waste Discharge Permit, following the performance of RAM 3.1.1, Restarting a Liquid Batch Release.

Answer: D

KA#  
2.3.03

Cog Level  
High

RO/SRO  
SRO

New Question

Explanation:

A: Incorrect, this would be true if RE-223 alarmed, then the condition of 223 would need to be evaluated and a new permit generated prior to continuing.

B: Incorrect, LW-15 does not automatically shut. If RE-223 alarms, a new permit would need to be issued, RAM 3.1.1 only covers the RE-229s.

C: Incorrect, PBNP prohibits changing the discharge permit from one unit to the other. If the alignment needed to be changed, a new permit would need to be generated.

D: Correct, at the alert level, the discharge will need to be manually secured IAW AOP-4A, 2RE-229 will not shut BE-FCV-LW-15 automatically. The discharge will then need to be reevaluated IAW RAM 3.1.1.

24. 2005 ILT SRO 24

Consider the following Unit 2 conditions:

- Unit 2 is at 100% reactor power.
- $T_{hot}$  channel TE-401 A, Loop 'A' Hot Leg Temperature, has failed high.
- Rods are stepping in.
- CO places rods in manual but rods are continuing to move in at 8 steps/min.

Which of the following procedural actions should be directed?

A. Direct CO to initiate dilution IAW OP-5B, Blender Operation, to maintain  $T_{avg}$ . If  $T_{avg}$  cannot be maintained within allowed range, then shut down the reactor IAW AOP-17A, Rapid Power Reduction.

B. Direct CO to trip the reactor IAW AOP-6C, Uncontrolled Rod Motion. Enter EOP-0, Reactor Trip or Safety Injection.

C. Direct the BOP operator to lower turbine load IAW AOP-17A, Rapid Power Reduction, to maintain  $T_{avg}$ . If  $T_{avg}$  cannot be maintained within allowed range, then trip the reactor and enter EOP-0, Reactor Trip or Safety Injection.

D. Enter AOP-24, Response to Instrument Malfunction, and direct performance of appropriate section of 0-SOP-IC-001 RED, Removal of Safeguards or Protection Sensor from Service, to remove the failed  $T_{hot}$  channel from service.

Answer: B

KA#

2.4.11

Cog Level

Low

RO/SRO

SRO

INPO ILT Bank, Prairie Island, Dated 5/15/2000.

Explanation:

A: Incorrect,  $T_{avg}$  must be maintained IAW step 2 of AOP-6C, since the rods are moving in, diluting would be a way to attempt to control  $T_{avg}$ . This would be a non-conservative action.

B: Correct, Step 1 of AOP-6C has rods taken to manual. If they do not stop, a reactor trip should be directed.

C: Incorrect, reducing turbine load might maintain  $T_{avg}$  at  $T_{ref}$ , and is one of the possible actions listed in AOP-6C, but this would only be done to recover the plant if the rods stopped in manual.

D: Incorrect, That failure may be the cause of the  $T_{avg}/T_{ref}$  mismatch, but the reactor should be tripped.

Question #25 has been redacted due to the question being considered as sensitive information per SECY 04-0191, Attachment 1, Emergency Planning – “.. information related to the response by a licensee ... to a terrorist attack.”