

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

1

ID: Q50789

Points: 1.00

Unit 1 was operating at 100% power when the operators discovered CEA alignment problems. Given the following events and conditions:

0200 Regulating group 5 is at 133 inches withdrawn – all CEAs are in alignment

0205 CEA group 5 was inserted from 133 inches to 123 inches

0210 CEA group 5 was withdrawn from 123 inches to 133 inches

CEA #1 in Reg Group 5 stuck at 123 inches

CEA #2 in Reg Group 5 stuck at 123 inches

0245 CEA #1 was realigned to 133 inches

If all CEAs remain trippable, which of the following statements correctly describes the latest time that CEA #2 is required to return to alignment in accordance with Tech Specs?

- A. CEA #2 must be withdrawn above 125.5 inches prior to 0300
- B. CEA #2 must be withdrawn above 125.5 inches prior to 0310
- C. CEA #2 must be withdrawn above 125.5 inches prior to 0345
- D. Operation may continue with CEA #2 aligned at 123 inches for an indefinite period of time if power is reduced below 70%

Answer: B

2

ID: Q50734

Points: 1.00

Unit 1 was operating at 100% power with maintenance in progress on the AFAS system. Given the following events and conditions:

? AFAS channel "ZE" has been bypassed

? While maintenance was in progress, a loss of 120 Vital AC bus #11 occurred

Which one of the following statements correctly describes the response of the AFAS?

- A. Sensor logic is reduced to 1 out of 2 to generate an AFAS
- B. Sensor logic is reduced to 2 out of 2 to generate an AFAS
- C. AFAS "B" actuation only occurs
- D. AFAS "A" and "B" actuations occur

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

3

ID: Q50748

Points: 1.00

Unit 2 is in Mode 6 with refueling in progress and containment purge in service. Given the following events and conditions:

- ? The purge exhaust fan spuriously trips
- ? The purge supply fan continues to run (fails to automatically trip)
- ? Containment pressure reads 0.35 psig
- ? The gaseous waste release permit is still valid

What is the most likely effect on (1) system parameters and (2) what action(s) is (are) required to resume the purging of containment?

- A.
  1. Spent fuel pool level increases
  2. Secure the normal containment purge lineup and initiate a containment purge
- B.
  1. Refuel pool level increases
  2. Secure the normal containment purge lineup and initiate a containment purge
- C.
  1. Spent fuel pool level increases
  2. Restart the containment purge exhaust fan
- D.
  1. Refuel pool level increases
  2. Restart the containment purge exhaust fan

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

4

ID: Q50755

Points: 1.00

Unit 1 was operating at 100% power when the 12 CEDM MG set is noted to be arcing and sparking. Given the following events and conditions:

? TCBs 1-9 are closed

? 12 MG set output voltage = 240 volts

? 12 MG set output amps = 50 amps / phase

If the operator opens the 12 CEDM MG set output breaker, which one of the following statements correctly describes the (1) concerns associated with MG set shutdown and (2) the alarm that will annunciate when the 12 MG Set breaker is opened?

- A.
  - 1. CEAs may drop due to voltage transients
  - 2. 1C05 D-46 (MG SET NO OUTPUT)
- B.
  - 1. CEAs may drop due to voltage transients
  - 2. 1C05 D-48 (CEDS NO CONTR VOLT)
- C.
  - 1. The 4 TCBs associated with the 12 MG set will open
  - 2. 1C05 D-46 (MG SET NO OUTPUT)
- D.
  - 1. The 4 TCBs associated with the 12 MG set will open
  - 2. 1C05 D-48 (CEDS NO CONTR VOLT)

Answer: A

# EXAMINATION ANSWER KEY

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5

ID: Q50756

Points: 1.00

Unit 1 was at 100% power when an alarm was received on the loose parts monitor. Given the following events and conditions:

- ? The loose parts monitor channel 1 is in service and alarmed
- ? CEAs were being moved at the time of the alarm
- ? The following message was showing on the channel:
  - o "ALARM NOT RESETTING"
  - o The alarm will not reset
- ? There are no indications of audible impacts when the channel was monitored
- ? The alarming channel was printed out

Which one of the following statements correctly describes (1) the most likely detector location for the alarm and (2) the required action(s) to be taken per OI-37 (*Loose Parts Monitoring System*)?

- A.
  1. The reactor pressure vessel head and closure stud
  2. Obtain CRS permission and bypass the alarm
- B.
  1. The reactor pressure vessel head and closure stud
  2. Declare the channel 1 to be inoperable and startup channel 2
- C.
  1. Reactor cold leg nozzle
  2. Obtain CRS permission and bypass the alarm
- D.
  1. Reactor cold leg nozzle
  2. Declare the channel 1 to be inoperable and startup channel 2

Answer: A

# EXAMINATION ANSWER KEY

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6

ID: Q50757

Points: 1.00

Match the CEDS signal/function in column A with the CEA position in column B. (Note: positions in column B may be used once, more than once, or not at all)

<u>COLUMN A</u> <u>CEDS Function/Signal</u>	<u>COLUMN B</u> <u>CEA POSITION</u>
___ A. Upper Electrical Limit	1. 0 inches
___ B. Lower Electrical Limit	2. 8 inches
___ C. Regulating group operating band	3. 3 inches
___ D. Rod Bottom	4. 3 to 135 inches
___ E. Exercise Limit	5. 8 to 129 inches
	6. 129 inches
	7. 135 inches

A. 6, 2, 5, 3, 7

B. 6, 3, 4, 1, 7

C. 7, 3, 4, 1, 6

D. 7, 2, 5, 3, 6

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

7

ID: Q50758

Points: 1.00

Unit 1 was operating at 60% power when a loss of offsite power occurred. Given the following events and conditions:

- ? The reactor and turbine tripped
- ? HIC-4056 (*Atmospheric Dump Vlv Contr*) is in automatic
- ? PIC-4056 (*Turbine Bypass Vlv Contr*) is in automatic
- ? A failure in the reactor regulating system has prevented the Tave modulating signal from being available for valve control
- ? Condenser vacuum = 19.5 inches
- ? Steam pressure increases to 900 psig

Which one of the following statements correctly describes the operation of the turbine bypass valves (TBVs) and atmospheric dump valves (ADVs)?

- A. TBVs quick open  
ADVs quick open
- B. TBVs remain closed  
ADVs modulate open in response to steam pressure
- C. TBVs modulate open in response to steam pressure  
ADVs remain closed
- D. TBVs remain closed  
ADVs remain closed

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

8

ID: Q50759

Points: 1.00

Unit 1 was in OP-04 (*Plant Shutdown from Power Operation to Hot Standby*). Given the following events and conditions:

- ? The operators had reached step 6.2 (*Planned Reactor Shutdown from Greater Than 20% Power*)
- ? Main generator load = 175 MWe
- ? Turbine testing will NOT be performed
- ? The CRS directed the CRO to proceed to step 6.2.D.1

*"6.2.D.1 REMOVE Turbine Generator Load as follows:...*

*b. SHUTDOWN the Main Turbine PER OI-43A, Section titled SHUTDOWN OF THE TURBINE GENERATOR"*

Which one of the following statements correctly describes the proper sequence for (1) reducing turbine load to 0 MWe, and (2) removing the turbine generator from service if turbine speed exceeds 1800 rpm when the 11 GEN BUS BKR 552-22 is opened?

- A. (1) Reduce load from 175 MWe to 0 MWe by adjusting the load selector on the turbine control panel immediately open bus breaker 552-22.  
(2) Verify *Loss of Load CH Trip BYP* annunciator is CLEAR, trip the reactor, implement EOP-0 (*Post-Trip Immediate Actions*)
- B. (1) Reduce load from 175 MWe to 0 MWe by adjusting the load selector on the turbine control panel and immediately open bus breaker 552-22.  
(2) Verify *Loss of Load CH Trip BYP* annunciator is CLEAR, trip the turbine, implement AOP-7E (*Main Turbine Malfunction*)
- C. (1) Reduce the setpoint on 1-PIC-4056 to transfer load to the TBVs, reduce turbine load to 40 MWe, open the tie breaker 552-23, then reduce load on the generator to 0 or slightly negative and immediately open bus breaker 552-22.  
(2) Verify *Loss of Load CH Trip BYP* annunciator is CLEAR, trip the turbine, implement AOP-7E (*Main Turbine Malfunction*)
- D. (1) Reduce the setpoint on 1-PIC-4056 to transfer load to the TBVs, reduce turbine load to 40 MWe, open the tie breaker 552-23, then reduce load on the generator to 0 or slightly negative and immediately open bus breaker 552-22.  
(2) Verify *Loss of Load CH Trip BYP* annunciator is CLEAR, trip the reactor, implement EOP-0 (*Post-Trip Immediate Actions*)

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

9

ID: Q50760

Points: 1.00

Unit 1 was operating at 30% power when a steam generator tube leak occurred. Given the following events and conditions:

- ? A 50 gpd tube leak occurred in the 11 S/G
- ? RCS activity levels are normal

Which one of the following statements correctly describes the most sensitive and accurate indication for (1) leak detection, and (2) leak rate identification in gpd?

- A. (1) 1-RIC-5421A (*N16 RAD MONITOR*)  
(2) 1-RIC-5421A (*N16 RAD MONITOR*)
- B. (1) 1-RE-1752A/B/C/D (*11/12/13/14 CAR Suction RAD MONs*)  
(2) 1-RY-1752 Leak Rate Calculator displayed on the plant computer
- C. (1) 1-RIC-5421A (*N16 RAD MONITOR*)  
(2) 1-RY-1752 Leak Rate Calculator displayed on the plant computer
- D. (1) 1-RE-1752A/B/C/D (*11/12/13/14 CAR Suction RAD MONs*)  
(2) 1-RIC-5421A (*N16 RAD MONITOR*)

Answer: B



# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

10

ID: Q50762

Points: 1.00

Unit 1 was in mode 6 conducting refueling operations. Given the following events and conditions:

- ? A containment purge is in progress
- ? Power is lost to RE-5316A (Containment Area Radiation Monitor)

Which one of the following statements correctly describes (1) the automatic system response (if any), and (2) the immediate action (if any) required by Tech Specs?

- A. (1) The containment purge is automatically terminated.  
(2) Refueling may proceed.
- B. (1) The containment purge shall be manually terminated  
(2) Suspend all core alterations and movement of irradiated fuel assemblies until after the containment purge is isolated.
- C. (1) The containment purge is automatically terminated.  
(2) Immediately suspend all core alterations and movement of irradiated fuel assemblies.
- D. (1) The containment purge may be continued.  
(2) Refueling may proceed.

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

11

ID: Q50781

Points: 1.00

Unit 1 was at 40% power. Given the following events and conditions:

- ? RCS activity was at normal values
- ? There is a 20 gpm tube leak in the 11 S/G

Which one of the following statements correctly describes the response of the (1) 1-RIC-5421A (11 MAIN STM N-16 RAD MON) and (2) 1-RIC-5421 (11 MAIN STM EFFL RAD MON)?

- A. 1-RIC-5421A will show no significant increase  
1-RIC-5421 will show no significant increase
- B. 1-RIC-5421A will increase significantly  
1-RIC-5421 will show no significant increase
- C. 1-RIC-5421A will show no significant increase  
1-RIC-5421 will increase significantly
- D. 1-RIC-5421A will increase significantly  
1-RIC-5421 will increase significantly

Answer: C

12

ID: Q50783

Points: 1.00

A waste gas discharge was in progress. Given the following events and conditions:

- ? 0-RE-2191 (Gaseous Waste Disch RMS) high radiation alarm occurred

Which one of the following statements correctly describes (1) the automatic action that occurred and (2) the immediate followup action required?

- A. (1) Shuts waste gas discharge CVs 0-WGS-2191 / 2192  
(2) Verify shut waste gas discharge header flow control valve  
0-WGS-2191-PCV
- B. (1) Shuts waste gas discharge CVs 0-WGS-2191 / 2192  
(2) Purge the waste gas discharge header
- C. (1) Shuts waste gas discharge header flow control valve 0-WGS-2191-PCV  
(2) Purge the waste gas discharge header
- D. (1) Shuts waste gas discharge header flow control valve 0-WGS-2191-PCV  
(2) Manually shut waste gas discharge CVs 0-WGS-2191 / 2192

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

13

ID: Q50765

Points: 1.00

Unit 1 was operating at 100% power when a reactor trip occurred. Given the following events and conditions:

- ? The operators are performing their post trip actions in EOP-0 (*Post Trip Immediate Actions*)
- ? The 11 MSIV drifted shut
- ? RCPs 11A and 12B are running
- ? Pressurizer level is 85 inches
- ? Pressurizer pressure is 1860 psia

If the 12B RCP trips for no apparent reason, which one of the following statements correctly describes the required actions (if any) in EOP-0?

- A. No action is required
- B. Start the 12A RCP
- C. Trip the 11A RCP
- D. Shut the 12 MSIV

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

14

ID: Q50766

Points: 1.00

Using Provided Reference(s):

Unit 1 was operating at 100% power. Given the following events and conditions over a 2 minute time period:

- ? Pressurizer level lowered by 1 inch
- ? RCS Tave raised by 0.5 degree F
- ? Charging flow = 44 GPM
- ? Letdown = 0 gpm
- ? CBO flow = 6 gpm

Which one of the following statements correctly describes (1) the RCS leak rate and (2) the expected plant response to restore pressurizer level (if possible)?

- A. (1) < 15 gpm  
(2) Letdown flow will be reduced to raise pressurizer level
- B. (1) 15-30 gpm  
(2) Letdown flow will be reduced to restore pressurizer level
- C. (1) 30-80 gpm  
(2) The first backup charging pump will start
- D. (1) > 80 gpm  
(2) Both the first and second backup charging pumps will start

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

15

ID: Q50767

Points: 1.00

Unit 2 was operating at 100% power when a small break LOCA occurred. Given the following events and conditions:

- ? Pressurizer level = 205 inches and very slowly decreasing
- ? 2-HS-224 (*Backup Charging Pump Select*) on 2C07 is selected to charging pumps 22 and 23
- ? Prior to the LOCA, the running charging pump was drawing 80 amps

Which one of the following statements correctly describes the expected effect on charging pump 22 amperage when compared before and after the LOCA?

- A. Amps will increase from 80 to ~105 amps
- B. Amps will increase from 0 to ~80 amps
- C. Amps will remain constant at ~80 amps
- D. Amps will decrease from 80 to ~60 amps

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

16

ID: Q50768

Points: 1.00

Unit 1 was operating at 100% power when a large-break LOCA occurred. Given the following events and conditions:

- ? The 11 4KV bus was deenergized due to equipment failures
- ? The operators implemented step T.1 of EOP-5 and were restoring power to the 11 4KV bus from the 0C EDG
- ? The operators had reached step T.1.b.(5) which reads:

**(5) Dispatch an operator to operate disconnect 189-1106 as follows:**

**(a) Obtain the 189-1106 keys from the CR key locker.**

**(b) Close 0C DG 11 4KV BUS DISC, 189-1106.**

Which one of the following statements correctly describes (1) the location and (2) the proper method of closing DISC 189-1106?

- A. (1) The 27' switchgear room  
(2) Insert the Kirk keys and unlock the 0C 4KV bus disconnect, then move the disconnect handle upwards until the disconnects close with a loud bang. Do not release the handle prior to full travel
- B. (1) The 27' switchgear room  
(2) Insert the Kirk keys and unlock the 0C 4KV bus disconnect then move the disconnect handle upwards and release the handle before it reaches the midway point. The disconnects will close with a loud bang.
- C. (1) 45' switchgear room  
(2) Move the disconnect handle upwards until the disconnects close with a loud bang. Do not release the handle prior to full travel. Then insert the Kirk keys and relock the 0C 4KV bus disconnect.
- D. (1) 45' switchgear room  
(2) Move the disconnect handle upwards and release the handle before it reaches the midway point. The disconnects will then close with a loud bang. Then insert the Kirk keys and relock the 0C 4KV bus disconnect.

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

17

ID: Q50769

Points: 1.00

Unit 1 was operating at 100% when a spurious reactor trip occurred. Given the following events and conditions:

- ? The operators implemented EOP-0 (*Post Trip Immediate Actions*)
- ? The operators secured 2 RCPs
- ? RCPs 11A and 12B were running
- ? RCP 11A tripped on overcurrent

Assuming all MSIVs remained open, which one of the following statements correctly describes the effect on the RCS temperatures in loop 11 following the RCP trip after temperatures reach equilibrium values in approximately 1 minute?

- A.  $T_{ave}$  will increase,  $T_{hot}$  will decrease, and  $T_{cold}$  will increase due to decreased RCS flow in loop 11 and continuing steam demand from the 11 S/G.
- B.  $T_{ave}$ ,  $T_{hot}$  and  $T_{cold}$  will all trend to the loop 12  $T_{hot}$  value as flow reverses in the 11 loop.
- C.  $T_{ave}$  and  $T_{hot}$  will remain constant and  $T_{cold}$  will decrease due to decreased RCS flow in loop 11 and continuing steam demand from the 11 S/G.
- D.  $T_{ave}$ ,  $T_{hot}$  and  $T_{cold}$  will decrease and trend to the loop 12  $T_{cold}$  value as flow reverses in the 11 loop.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

18

ID: Q50770

Points: 1.00

Unit 1 was operating at 100% power when a problem developed in the CVCS system. Given the following events and conditions:

- ? Pressurizer level = 205 inches
- ? Letdown = 29 gpm
- ? VCT level = 105 inches
- ? Alarm 1C07 F-45 (*CHG HDR Flow Lo / Press Lo*) annunciated
- ? The 11 charging pump was observed to be running with the amperage cycling erratically between 0 and 5 amps
- ? The 12 charging pump is the 1<sup>st</sup> backup charging pump
- ? The 13 charging pump is the 2<sup>nd</sup> backup charging pump

Which one of the following statements correctly describes (1) the causes of the observed symptoms and (2) the required operator actions?

- A. (1) The 11 charging pump discharge relief valve has failed open.  
(2) Enter AOP-2A (*Excessive Reactor Coolant Leakage*) - start the 12 charging pump and attempt to maintain pressurizer level.
- B. (1) The 11 charging pump discharge relief valve has failed open.  
(2) Isolate letdown, secure the 11 charging pump to reseal the discharge relief valve and restart the 11 charging pump.
- C. (1) The 11 charging pump is gas bound.  
(2) Locally vent the 11 charging pump to restore NPSH. Secure the 11 and 12 charging pumps and ensure the 13 charging pump does not start until all pumps have been vented.
- D. (1) The 11 charging pump is gas bound.  
(2) Verify the 12 charging pump started and locally vent the 11 charging pump.

Answer: D



# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

19

ID: Q20876

Points: 1.00

Unit 1 is on SDC when RCS pressure inadvertently drifts up to 325 psia. Which of the following will protect the SDC system from overpressurizing?

- A. LTOP will actuate to reduce RCS pressure by opening PORVs.
- B. LPSI pumps will trip and their discharge check valves will shut to protect SDC system.
- C. SDC return isolation valves, SI-651 and SI-652, shut.
- D. SDC suction line relief lifts to protect the return header.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

20

ID: Q50772

Points: 1.00

Unit 1 was operating in mode 4. Given the following events and conditions in sequence:

- ? SDC cooling train A was in service
- ? SDC purification was in service
- ? Initial RCS pressure = 150 psia
- ? RE-3819 (component cooling radiation detector) alarmed on 1C22
- ? The leaking CCW component was subsequently isolated
- ? The auxiliary building instrument air header depressurized

Assuming the loss of instrument air is not repaired, which one of the following statements correctly describes (1) the location of the leak into the CCW system and (2) the level response in the CCW head tank?

- A. (1) The SDC heat exchanger  
(2) CC head tank level increases until it overflows into the auxiliary building gravity drain system
- B. (1) The SDC heat exchanger  
(2) CC head tank level increases until the leak is isolated, then it remains steady
- C. (1) The letdown heat exchanger  
(2) CC head tank level increases until it overflows into the auxiliary building gravity drain system
- D. (1) The letdown heat exchanger  
(2) CC head tank level decreases until the leak is isolated, then it remains steady

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

21

ID: Q50773

Points: 1.00

Unit 2 was operating at 100% power. Given the following events and conditions:

- ? Pressurizer pressure PIC-100X = 0 psia
- ? Pressurizer level LIC-110X = 360 inches

What is the cause of these indications?

- A. PT-100X failed low
- B. Loss of 2Y01 instrument bus
- C. A leak in the variable leg for LT-110X
- D. A leak in the reference leg for LT-110X

Answer: D

22

ID: Q50774

Points: 1.00

Which one of the following statements correctly describes the effect (if any) that time in core life has on the pressure transient associated with the design basis ATWS event?

- A. RCS pressure increase will be more rapid at BOL than at EOL because the moderator temperature coefficient is more negative at EOL.
- B. RCS pressure increase will be more rapid at EOL than at BOL because the moderator temperature coefficient is more negative at EOL.
- C. RCS pressure increase will be more rapid at BOL than at EOL because the moderator temperature coefficient is less negative at EOL.
- D. RCS pressure increase will be more rapid at EOL than at BOL because the moderator temperature coefficient is less negative at EOL.

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

23

ID: Q50775

Points: 1.00

Unit 2 has experienced a steam generator tube rupture (SGTR) from 100% power. Given the following events and conditions:

- ? The operators have entered EOP-06 (*Steam Generator Tube Rupture*)
- ? RCS subcooling margin is 0°F
- ? RCPs are not running
- ? Natural circulation cannot be verified

Which one of the statements correctly completes the description of the reflux boiling cooling flow path during this event?

Steam enters the \_\_\_\_ (1) \_\_\_\_ of the S/G U-tubes where the steam condenses and re-enters the core area via the S/G \_\_\_\_ (2) \_\_\_\_.

- A. (1) Hot leg (2) Cold leg
- B. (1) Hot leg (2) Hot leg
- C. (1) Cold leg (2) Hot leg
- D. (1) Cold leg (2) Cold leg

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

24

ID: Q50776

Points: 1.00

Unit 1 was operating at 100% when the 12 steam generator feedwater pump (SGFP) spuriously tripped. Given the following events and conditions:

- ? A reactor trip occurred
- ? All systems operated as designed

Which one of the following statements correctly describes the expected response of the (1) feedwater regulating valves (FRVs), (2) bypass feedwater valves (BFVs) and (3) the SGFP speed controller to this transient?

- A. (1) FRVs ramp shut  
(2) BFVs are positioned to 56% open  
(3) SGFPs are set back to 3400 rpm and positive bias is removed
- B. (1) FRVs ramp shut  
(2) BFVs are positioned to 56% open  
(3) SGFPs are tripped and AFW flow is initiated
- C. (1) FRVs are positioned to 5% open  
(2) BFVs are positioned to 56% open  
(3) SGFPs are set back to 3400 rpm and positive bias is removed
- D. (1) FRVs are positioned to 5% open  
(2) BFVs ramp shut  
(3) SGFPs are set back to 3400 rpm and negative bias is removed

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

25

ID: Q50777

Points: 1.00

Using provided reference(s):

Unit 1 was operating at 100% and Unit 2 was in Mode 4 conducting a heat up following a refueling outage when a loss of offsite power (LOOP) occurred on both units. Given the following events and conditions:

Unit 2 Parameters:

$T_{\text{cold}} = 275^{\circ}\text{F}$

SDC is not in service

21 AFW pump is aligned for auto-start

Which one of the following statements correctly describes (1) the required operation of the AFW pumps on Unit 2 and (2) the reason for this requirement?

- A. (1) 21 AFW pump feeds the S/Gs. The 23 AFW pump is placed in pull-to-lock.  
(2) To ensure that the 23 AFW pump does not auto start in order to prevent overloading the vital bus.
- B. (1) 22 AFW pump feeds the S/Gs. The 23 AFW pump is placed in pull-to-lock.  
(2) To ensure that the 23 AFW pump does not auto start in order to prevent unnecessary DG fuel consumption.
- C. (1) The 23 AFW pump feeds the S/Gs, 21 and 22 AFW pumps are not operating.  
(2) Steam pressure is too low to run the 21 and 22 AFW pumps.
- D. (1) The 23 AFW pump feeds the S/Gs. The 21 and 22 AFW pumps are not operating.  
(2) To prevent cavitating the 11 AFW pump by minimizing total feedwater flow to the S/Gs.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

26

ID: Q50778

Points: 1.00

Unit 2 was operating at 100% power when a loss of offsite power (LOOP) occurred. Given the following events and conditions:

- ? The SRW system was electrically and mechanically aligned normally per OI-15 (*Service Water System*) with the 21 and 22 SRW pumps running
- ? When the LOOP occurs, the 2A and 2B EDGs start and energize their respective 4 KV vital buses
- ? The 21 SRW pump tripped on overcurrent when restarted

Assuming no operator action, which one of the following statements correctly describes the status of the SRW system one minute after the LOOP?

- A. Only the 22 SRW pump is running – SRW pump 23 should be manually aligned and started to provide SRW flow to the 21 SRW header to meet SRW flow requirements.
- B. Only the 22 SRW pump is running – SRW must be cross-connected to supply loads on the 21 SRW header to meet SRW flow requirements.
- C. The 22 and 23 SRW pumps are running – the 21 and 22 headers are being supplied with adequate SRW flow.
- D. The 22 and 23 SRW pumps are running on the 22 header – the 21 header must be aligned to the 23 SRW pump to meet SRW flow requirements.

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

27

ID: Q50779

Points: 1.00

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

- ? The operators enter AOP-7D (*Loss of Instrument Air*)
- ? Instrument air pressure is decreasing at a rapid and continuous rate

Which statement correctly describes (1) when to trip the reactor, and (2) the reason for this action?

- A. (1) 40 psig and decreasing  
(2) The TBVs require 40 psig to quick open
- B. (1) 40 psig and decreasing  
(2) The FRVs fail as-is at 40 psig
- C. (1) 50 psig and decreasing  
(2) The TBVs require at least 50 psig to quick open
- D. (1) 50 psig and decreasing  
(2) The FRVs fail as-is at 50 psig

Answer: C



# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

28

ID: Q50782

Points: 1.00

Unit 1 was conducting a plant startup when a reduction in condenser vacuum occurred. Given the following events and conditions:

- ? The turbine has just been paralleled to the grid when condenser vacuum began to degrade
- ? The operators enter AOP-7G (*Loss of Condenser Vacuum*)
- ? Condenser vacuum suddenly drops to 19.5" Hg
- ? Annunciator "LOSS OF LOAD CH TRIP BYP" is in alarm

Which one of the following statements completely describes the expected system response and/or required operator actions?

- A. The reactor and turbine will be manually tripped; heat removal will be on the TBVs; SGFPs will continue to operate.
- B. The turbine will trip automatically; the operators will trip the reactor; heat removal will be on the TBVs; SGFPs will trip.
- C. The turbine will trip automatically; the operators will trip the reactor; heat removal will be on the TBVs; SGFPs will continue to operate.
- D. The turbine will trip automatically; the operators will trip the reactor; heat removal will be on the ADVs; SGFPs will trip.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

29

ID: Q50787

Points: 1.00

Using Provided Reference(s):

Unit 2 was operating at 100% power when an RCS leak occurred. Given the following events and conditions:

- ? Unidentified RCS leakage = 0.5 gpm
- ? Identified RCS leakage = 4.5 gpm
- ? S/G leakage = 2 gpd
- ? RO reports an increase RCS leakage from an unknown source
- ? The operators implement AOP-2A (*Excessive RCS Leakage*)

Which one of the following conditions would require Unit 2 to be shutdown per Tech Specs?

- A. 5 gpm leakage from an RCP integral heat exchanger
- B. 5 gpm leakage from the packing gland on PORV-402
- C. 5 gpm leakage by the seat of SI-652-MOV
- D. 40 gpd steam generator tube leakage

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

30

ID: Q50786

Points: 1.00

Using Provided Reference(s) :

Unit 1 was operating at 100% at 0400 on 8/25/2006 when chemistry reported that RCS samples indicated a high level of activity due to Iodine spiking. Given the following events and conditions:

? Chemistry reports the following trend in RCS activity levels have reached 100  $\mu\text{Ci/gm}$  of  $\text{I}^{131}$

Which one of the following statements correctly describes the required actions in accordance with (1) AOP-6A (*Abnormal Reactor Coolant Chemistry*), and (2) the least restrictive actions that comply with Tech Specs?

- A. (1) Maximize letdown and purification flow to reduce RCS contamination levels.  
(2) Reduce power below 75% no later than 0600. Operation may continue at this level as long as RCS activity is reduced below 1  $\mu\text{Ci/gm}$  no later than 0600 on 8/29.
- B. (1) Bypass purification ion exchangers to prevent contaminating the ion exchange resin unnecessarily and reduce dose.  
(2) Reduce power below 75% no later than 0600. Operation may continue at this level as long as RCS activity is reduced below 1  $\mu\text{Ci/gm}$  no later than 0600 on 8/29.
- C. (1) Bypass purification ion exchangers to prevent contaminating the ion exchange resin unnecessarily and reduce dose.  
(2) Be in mode 3 no later than 1000 on 8/25.
- D. (1) Maximize letdown and purification flow to reduce RCS contamination levels.  
(2) Be in mode 3 no later than 1000 on 8/25.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

31

ID: Q50785

Points: 1.00

Unit 1 was recovering from a loss of offsite power and a loss of all feedwater in EOP-8 (*Functional Recovery Procedure*). Given the following events and conditions:

? The operators were directed to respond in Appendix (4) *Core and RCS Heat Removal* in HR-1 (*S/G Heat Sink with no SIS Operation*) to reduce RCS subcooling margin.

Which one of the following statements correctly describes (1) the method for lowering RCS subcooled margin, and (2) the controllers/positioners for implementing the preferred method?

- A. (1) Initiate auxiliary spray  
(2) Cycle 1-CVC-517-CV (*AUX Spray Line Stop*) as necessary to control auxiliary spray flow
- B. (1) Initiate auxiliary spray  
(2) Open 1-CVC-517-CV and cycle 1-CVC-518-CV (*12B LOOP CHG*) and 1-CVC-519-CV (*11A LOOP CHG*) as necessary to control auxiliary spray flow
- C. (1) Raise pressurizer pressure by energizing heaters  
(2) Energize proportional heaters using the handswitch
- D. (1) Raise pressurizer pressure by energizing heaters  
(2) Energize proportional and backup heaters using the handswitches

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

32

ID: Q50784

Points: 1.00

Units 1 and 2 control room was evacuated due to a fire. Given the following events and conditions:

? The operators implemented AOP-9A-1 (*Control Room Evacuation and Safe Shutdown due to a Severe Control Room Fire*) and arrived at step BQ.2 (*Borate the RCS*) of the procedure.

? After commencing the boration, the operators note:

- PZR level = 249 inches (increasing)
- PZR pressure = 2200 psia (increasing)
- 11 charging pump is running
- $T_{\text{hot}} = 535^{\circ}\text{F}$  (increasing)
- Letdown was stopped
- RCPs were tripped
- SGFPs were tripped

Which one of the following statements correctly describes the actions in AOP-9A-1 that are designed specifically for the purpose of controlling pressurizer level?

- A. Manually cycle the PORV to reduce level to 160 inches.
- B. Establish letdown and auxiliary spray to control level at 250 inches.
- C. Stop the 11 charging pump and allow RCP bleedoff and ambient losses to reduce level at 160 inches.
- D. Increase steam flow through the ADVs to maintain RCS cooldown rate at  $100^{\circ}\text{F/hr}$  to control level at 250 inches.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

33

ID: Q50788

Points: 1.00

Unit 1 was operating at 100% power. Given the following events and conditions:

- ? Shift turnover was in progress
- ? The oncoming control room operator (CRO) was delayed in arriving at the site due to an automobile accident
- ? His assigned trainee, an applicant for a reactor operator's license, is present for turnover
- ? The off-going CRO has reached his overtime limits

Which one of the following statements correctly describes how the shift turnover may be conducted in compliance with CNG-1.01-1000 (*Conduct of Operations*) assuming the Shift Manager does not waive any requirements in CNG-1.01-1000?

- A. The off-going Unit 1 CRO may turn over to the on-coming Unit 1 CRS who can then turnover to the on-coming Unit 1CRO when he arrives. The Trainee can perform the duties of the CRO under the instruction of the RO.
- B. The Shift Technical Advisor can assume the position as Unit 1 CRO position for up to 2 hours in order to accommodate the unexpected absence.
- C. The off-going Unit 1 CRO is required to remain in his position until the on-coming Unit 1 CRO arrives and receives a face-to-face turnover. The Shift Manager must submit an overtime waiver in accordance with SE-1-101 (*Work Hour Limits*).
- D. The on-coming Unit 2 CRO can function as the Unit 1 CRO for up to 2 hours until the on-coming Unit 1 CRO arrives for turnover.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

34

ID: Q50791

Points: 1.00

Unit 1 is conducting a refueling outage. Given the following events and conditions:

- ? The initial removal of the core is in progress
- ? A CEA is being withdrawn from the core:

WRlog NI channel    CPS at start of withdrawal

A	10
B	8
C	12
D	7

Given the following indications of increasing count rate on WRlog NI channel "A", which indication would be the first to require the RO to recommend CEA re-insertion to the Fuel Handling Supervisor in accordance with FH-305 (*Core Alterations*)?

- A. 12-14 CPS
- B. 16-18 CPS
- C. 20-22 CPS
- D. 24-26 CPS

Answer: C

35

ID: Q50792

Points: 1.00

Unit 2 was in mode 6 conducting a refueling outage. Given the following events and conditions:

- ? A fuel assembly has been grappled and moved to the upender under the supervision of the Fuel Handling Supervisor (FHS)
- ? All 4 wide range logarithmic (WRlog) NI channels are in service

Which one of the following events requires ceasing all core alterations in accordance with Technical Procedure FH-305 (*Core Alteration*)?

- A. One channel WRlog NIs fails high
- B. Spent fuel pool ventilation exhaust filter is bypassed
- C. Voice communications are lost between the refueling machine and the control room
- D. Containment purge has been secured by the Operating Instructions

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

36

ID: Q50797

Points: 1.00

Unit 2 was operating at 100% power. Given the following events and conditions:

? A CEA drops into the center of the core

? The operators withdraw the regulating group to restore power to 100%

Which one of the following statements correctly describes (1) the effect on the planar radial peaking factor (FxyT), and (2) the preferred method used to monitor FxyT in the core?

- A. (1) FxyT will increase  
(2) The wide range logarithmic nuclear instruments measures FxyT and provides input to the CECOR program.
- B. (1) FxyT will increase  
(2) The in-core detector system measures FxyT and provides input to the CECOR program.
- C. (1) FxyT will decrease  
(2) FxyT is manually calculated from the in-core detector system inputs.
- D. (1) FxyT will decrease  
(2) FxyT is manually calculated from the wide range logarithmic nuclear instruments.

Answer: B



# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

37

ID: Q50796

Points: 1.00

Unit 1 is responding to a LOCA and has declared a site area emergency. Given the following timeline of events and conditions:

0200 The LOCA occurred

0205 The Shift Manager declared a Site Area Emergency

Which one of the following statements correctly describes the latest required times for emergency notification in accordance with ERPIP-105 (*Control Room Communicator*)?

- A. 0215 – notify state and local authorities  
0300 – notify NRC Headquarter Operations Officer
- B. 0220 – notify state and local authorities  
0305 – notify NRC Headquarters Operations Officer
- C. 0215 - notify state and local authorities  
0300 – notify NRC Resident Inspector
- D. 0220 – notify state and local authorities  
0305 – notify NRC Resident Inspector

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

38

ID: Q50795

Points: 1.00

Unit 1 was operating at 100% power when a loss of offsite power and steam generator tube rupture (SGTR) on the 11 S/G occurred. Given the following events and conditions:

- ? The operators implemented EOP-06 (SGTR)
- ? The ADVs were being operated locally (manually) for cooldown
- ? Boration has not yet been started due to various system failures
- ?  $T_{hot} = 516^{\circ}\text{F}$  (slowly decreasing)
- ? The operators reached step IV. J. 2 which reads:

*"WHEN  $T_{hot}$  is less than  $515^{\circ}\text{F}$ ,  
THEN isolate the most affected steam generator*

*(1) Shut the 11 ADV using..."*

Which one of the following statements correctly describes (1) the method for isolating the 11 ADV, and (2) the reason for cooldown below  $515^{\circ}\text{F}$   $T_{hot}$  prior to S/G isolation?

- A. (1) Shut the 11 ADV by removing the manual override and aligning the hand transfer valves to position 2 in the 45 ft switchgear room  
(2) Cooldown below  $515^{\circ}\text{F}$  reduces shutdown margin below required values
- B. (1) Shut the 11 ADV by removing the manual override and aligning the hand transfer valves to position 2 in the 45 ft switchgear room  
(2) Ensures the 11 S/G safety valve will not lift and stick open, thereby releasing contamination to the environment
- C. (1) Shut the 11 ADV using the 1-HC-4056A (*Atmospheric Steam Dump Contr*) in the control room  
(2) Ensures the 11 S/G safety valve will not lift and stick open thereby releasing contamination to the environment
- D. (1) Shut the 11 ADV using the 1-HIC-4056A (*Atmospheric Steam Dump Contr*) in the control room  
(2) Cooldown below  $515^{\circ}\text{F}$  may cause reactor vessel void formations

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

39

ID: Q50794

Points: 1.00

An operator was touring the containment to inspect the maintenance work order for cleaning boric acid deposits from the reactor vessel head. Given the following events and conditions upon exiting the work area:

- ? The operator received an exposure of 2500 mrem to the left hand due to a small radioactive particle that lodged in the glove
- ? The operator's electronic dosimeter read 250 mrem
- ? The operator's TLD read 200 mrem
- ? The operator was working in a 100 DAC area in a full face respirator for 1 hour

Which one of the following statements correctly describes (1) the operator's legal dose from this work (Total Effective Dose Equivalent (TEDE), Shallow Dose Equivalent (SDE), Committed Effective Dose Equivalent (CEDE)) and (2) the annual administrative maximum dose level extension required to allow the operator to continue working in the RCA?

- A. (1) TEDE = 200 mrem, SDE = 0 mrem, CEDE = 0 mrem  
(2) The SDE is still within alert flag limits with no SDE dose extension required
- B. (1) TEDE = 250 mrem, SDE = 2500 mrem, CEDE = 100 mrem  
(2) The SDE must be extended up to 3 rem to allow adequate dose margin
- C. (1) TEDE = 200 mrem, SDE = 2500 mrem, CEDE = 0 mrem  
(2) The SDE is still within alert flag limits with no SDE dose extension required
- D. (1) TEDE = 250 mrem, SDE = 2700 mrem, CEDE = 200 mrem  
(2) The SDE may be extended up to 50 rem to allow adequate dose margin

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

40

ID: Q50793

Points: 1.00

You are now a control room operator but in the past, you were an expert on steam generator U-tube plugging practices. Your radiation exposure history for this quarter is given as follows:

- ? The date is 8/25/06
- ? You received 100 mrem whole body from a medical procedure two weeks ago.
- ? You visited the Ginna Nuclear Plant and received 950 mrem TEDE from 1/5 to 1/9/06
- ? You also visited the St Lucie Nuclear Plant and received 500 mrem TEDE from 12/5 to 12/15/05
- ? You have received 500 mrem TEDE for this year at CCNPP
- ? Neither the Plant General Manager nor the Vice President has been requested to authorize a dose extension.

Assuming all possible dose extensions have been authorized up the level of the worker's general supervisor, which one of the following statements correctly describes the maximum amount of whole body radiation you can receive at CCNPP before you exceed your Annual Administrative Maximum Level (TEDE) for Constellation Energy?

- A. 0 mrem
- B. 450 mrem
- C. 550 mrem
- D. 1500 mrem

Answer: C

41

ID: Q42269

Points: 1.00

The setpoint for the normal liquid effluent monitor is based on assumptions in the Offsite Dose Calculation Manual (ODCM).

Which of the following would require the Plant Computer activity setpoint to be lowered?

- A. The actual release rate decreases from 120 GPM to 90 GPM.
- B. The number of operating Circulating Water pumps decreases from six (6) to five (5).
- C. A decrease in the background radiation level at the monitor.
- D. The Chesapeake Bay level decreases by twelve (12) inches.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

42

ID: Q50790

Points: 1.00

Using Provided Reference(s):

Unit 1 and Unit 2 were operating at 100% power. Given the following events and conditions:

- ? Maintenance requested to take the 1A diesel generator out of service for surveillance.
- ? OI-49 (*Operability Verification*) was performed on Unit 1 ZB train equipment.
- ? All other EDGs and offsite power sources were verified to be operable.

Which one of the following statements correctly and completely describes the impact of this maintenance on the 11 HPSI?

- A. The 11 HPSI pump is considered operable while the 1A EDG is out of service regardless of the status of the remaining HPSI pumps.
- B. The 11 HPSI pump is considered operable while the 1A EDG is out of service unless the 13 HPSI pump is declared to be inoperable.
- C. The 11 HPSI pump is considered operable while the 1A EDG is out of service unless both the 12 and 13 HPSI pumps are declared to be inoperable.
- D. The 11 HPSI pump is considered NOT operable while the 1A EDG is out of service regardless of the status of the remaining HPSI pumps.

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

43

ID: Q50721

Points: 1.00

Unit 1 was in Mode 3 (NOP/NOT), making preparations for cooldown. Given the following events and conditions:

- ? VCT level = 100 inches
- ? Pressurizer level = 160 inches
- ? Pressurizer pressure = 2250 psia
- ? VCT makeup is in automatic mode
- ? A 20 gpm leak suddenly developed on a pressurizer code safety valve
  - o Assume that a 20 gpm leak corresponds to a steady state energy loss rate of 1600 KW out of the RCS

Assuming no operator action, which one of the following statements correctly describes the systems response?

- A. VCT level decreases to ~90" and then increases and cycles between ~90" and ~104"  
Pressurizer level decreases to ~150" and then increases and cycles between ~150 and ~160"  
Pressurizer pressure decreases to ~2220 psia and then increases and stabilizes at ~2250 psia
- B. VCT level decreases to ~90" and then increases and cycles between ~90" and ~104"  
Pressurizer level decreases to ~150" and then increases and stabilizes at ~160"  
Pressurizer pressure continues to lower until SIAS actuates
- C. VCT level decreases to ~90" and then increases to ~108"  
Pressurizer level decreases to ~145" and then increases and cycles between ~150 and ~160"  
Pressurizer pressure continues to lower until SIAS actuates
- D. VCT level decreases to ~3" and remains constant  
Pressurizer level decreases to ~150" and then increases and stabilizes at ~160"  
Pressurizer pressure decreases to ~2220 psia then increases and cycles between ~2220 and ~2225 psia

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

44

ID: Q50722

Points: 1.00

Unit 1 was operating at 100% power when a design bases earthquake caused a loss of offsite power and a LOCA inside containment. Given the following events and conditions in sequence:

- ? All emergency diesel generators started and initially energized their respective safety buses
- ? Bus 17 subsequently deenergized due to a bus fault that has not been cleared
- ? The 0C diesel would not start
- ? 10 hours after the LOCA, the CRS directs the RO to shift to hot leg injection:
  - o RCS pressure = 19 psia
  - o RWT level = 0 inches (the RWT was ruptured by the earthquake)
  - o SIAS has been reset

Which one of the following statements correctly describes the correct step for operating the LPSI pump?

- A. LPSI pump 11 can be restarted by manually selecting START on the pump hand-switch.
- B. LPSI pump 12 can be restarted by manually selecting START on the pump hand-switch.
- C. LPSI pump 11 can be restarted by selecting OVERRIDE on the key-operated hand-switch and manually selecting START on the pump hand-switch.
- D. LPSI pump 12 can be restarted by selecting OVERRIDE on the key-operated hand-switch manually and selecting START on the pump hand-switch.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

45

ID: Q50723

Points: 1.00

Unit 1 was operating at 100% power when a loss of offsite power (LOOP) occurred at 0200. Given the following events and conditions:

- ? Containment spray pump 12 was tagged out of service for maintenance
- ? SRW pump 13 was electrically aligned to bus 14 and the 12 SRW header
- ? 0200 LOOP occurred. The following failures occurred at this time:
  - o EDG 1B failed to start
  - o SRW pump 11 tripped and would not restart
- ? 0205 – Standby SRW pump 13 is electrically realigned to bus 11, mechanically realigned to supply the 11 SRW header, and started
- ? 0215 - The 0C diesel was started and bus 14 was reenergized. All available safety related systems powered from bus 14 were started
- ? 0220 - Containment spray pump 12 was returned to service

What is the earliest time that safety systems have been aligned and made operable to successfully mitigate a large-break LOCA into containment?

- A. 0200
- B. 0205
- C. 0215
- D. 0220

Answer: B



# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

46

ID: Q50746

Points: 1.00

Unit 1 and Unit 2 were operating at 100% when a large break LOCA occurred on Unit 1. Given the following events and conditions:

- ? The 11 containment spray pump failed to start
- ? The 12 CCW pump was out of service
- ? 1-SI-657 (*SDC HX Temp Control*) failed shut
- ? The 12 CC HX salt water (SW) outlet is blocked

Which one of the following statements is correct regarding the capability of the service water (SRW) and component cooling water CCW systems to adequately cool long-term emergency heat loads?

- A. The current system alignment is adequate
- B. The 12 SW emergency discharge header must be lined up
- C. The 11 CS pump must be restored to service
- D. The 12 CCW pump must be restored to service

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

47

ID: Q50724

Points: 1.00

Unit 1 was shutdown in Mode 5 preparing to draw a bubble in the pressurizer in accordance with OP-7. Given the following events and conditions:

- ? The RCS is in a solid water condition with pressure = 45 psia
- ? Quench tank level = 29 inches
- ? Quench tank Oxygen concentration = 4.5%

Which one of the following statements correctly describes the required actions to (1) establish initial conditions in the quench tank, and (2) draw a bubble in the pressurizer per OP-7?

- A. (1) Purge the quench tank with Nitrogen  
(2) Drain the pressurizer to quench tank until pressurizer level is in the indicating range, then energize pressurizer heaters and wait until pressurizer pressure increases.
- B. (1) Raise quench tank level above 30 inches.  
(2) Drain the pressurizer to quench tank until pressurizer level is in the indicating range, then energize pressurizer heaters and wait until pressurizer pressure increases.
- C. (1) Raise quench tank level above 30 inches  
(2) Energize pressurizer heaters and drain the pressurizer to the RWT until pressurizer level is lowering with steady or rising pressure.
- D. (1) Purge the quench tank with Nitrogen  
(2) Energize pressurizer heaters and drain the pressurizer to the RWT until pressurizer level is lowering with steady or rising pressure.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

48

ID: Q50725

Points: 1.00

Unit 2 was operating at 100% power when a loss of component cooling water occurred. Given the following events and conditions:

- ? AOP-7C (*Loss of Component Cooling Water*) was implemented
- ? The 23 CC pump was aligned to the bus 24B (ZB)
- ? The RO was directed to implement Attachment 1 (*Transferring 23 CC Pump 480 volt Disconnects*) to AOP-7C
- ? The RO reached step 3 in Attachment 1 that reads as follows:
  1. **Place 23 CC PP handswitch in PULL TO LOCK.**
  2. **Verify that 23 CC Pump currently aligned load supply breaker is open.**

### **NOTE**

"23 CC PP BKR L/U IMPR" alarm will be received on 2C13.

3. **Turn the handswitch, on the disconnect that is shut, to the TRIP position.**
4. **Turn the handswitch to the PULL OUT position and pull out the handle, placing the disconnect in PULL TO LOCK.**

Which one of the following statements correctly describes the location of the disconnects for the 23 CC pump and the interlock requirements for this attachment?

- A. The disconnects are located in the switchgear room, 27-foot elevation. The disconnects are interlocked with a key switch.
- B. The disconnects are located in the switchgear room, 45-foot elevation. The disconnects are interlocked with a key switch.
- C. The disconnects are located in the switchgear room, 27-foot elevation. The disconnects are interlocked through the handswitch on the 23 CC pump being in PTL.
- D. The disconnects are located in the switchgear room, 45-foot elevation. The disconnects are interlocked through the handswitch on the 23 CC pump being in PTL.

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

49

ID: Q50733

Points: 1.00

Unit 2 was operating at 30% power during power ascension to 100%. Given the following events and conditions:

? A turbine trip occurred

Which one of the following statements correctly describes the system response and the reason for this response?

- A. Reactor power will decrease but the reactor will not trip because the loss-of-load input signal is disabled.
- B. The reactor will trip due to a low-pressure signal from the turbine auto stop oil header.
- C. The reactor will trip due to a low-pressure signal from the turbine emergency trip system header.
- D. The reactor will trip due to voltage input signal from the turbine master trip bus.

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

50

ID: Q50736

Points: 1.00

Unit 1 was operating at 100% power when a LOCA occurred. Given the following events and conditions:

- 0200 LOCA occurred inside containment
- 0203 Containment pressure peaked 20 psig
- 0240 Containment pressure dropped below 4 psig
- 0245 RWT level reached 0.75 feet but RAS failed to actuate
- ? Containment pressure was 3.5 psig and slowly decreasing
- ? Containment sump level was 40 inches and increasing
- 0246 The operators perform all required actions in EOP-5 (*Loss of Coolant Accident*) up to step S (*Verify RAS Actuation*).
- ? CSAS has NOT been manually reset

Which one of the following statements correctly describes the (1) containment spray pump configuration at the time of the RAS failure, and (2) the required operator actions to respond to the RAS failure in EOP-5?

- A. (1) CS pumps are running in injection mode.  
(2) Operators should NOT realign containment spray.
- B. (1) CS pumps are running in injection mode.  
(2) Align SI pump suctions for containment sump recirculation.
- C. (1) CS pumps are stopped.  
(2) Align SI pump suctions for containment sump recirculation.
- D. (1) CS pumps are stopped.  
(2) Operators should NOT realign containment spray.

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

51

ID: Q50737

Points: 1.00

Unit 1 was operating at 100% power when a LOCA occurred inside containment. Given the following events and conditions:

? Prior to the LOCA:

- o The 11 CCW HX was not in service
- o The 12 CCW HX was in service

? Containment pressure peaked at 10 psig and dropped to 3 psig

? The SRO directs you to verify the containment spray cooling alignment after RAS actuated

Which one of the following statements correctly describes (1) the expected component cooling (CC) flow in each SDC Hx and (2) the change in ECCS flow  $\Delta T$  across the SDC HXs after RAS actuation?

- A. (1) CC flow is expected to be at maximum in both SDC Hx's.  
(2) SDC HX ECCS  $\Delta T$  has increased
- B. (1) CC flow is expected to be isolated to the 11 SDC Hx but at maximum in the 12 SDC Hx.  
(2) 12 SDC HX ECCS  $\Delta T$  has decreased
- C. (1) CC flow is expected to be isolated to the 11 SDC Hx but at maximum in the 12 SDC Hx.  
(2) 12 SDC HX ECCS  $\Delta T$  has increased
- D. (1) CC flow is expected to be at maximum in both SDC Hx's.  
(2) SDC HX ECCS  $\Delta T$  has decreased

Answer: A

52

ID: Q50738

Points: 1.00

Which one of the following statements does **NOT** describe a function of the condensate system?

- A. Provide a source of water to main turbine exhaust hood sprays
- B. Provide seal water to the heater drain pumps
- C. Provide a backup source of supply for makeup to the component cooling water system
- D. Provide cooling water to the condensate booster pump seal water cooler

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

53

ID: Q50740

Points: 1.00

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

- ? A reactor trip occurred
- ? SGIS occurred
- ? 1-PI-1013A thru D indicate 890 psia (#11 S/G pressure)
- ? 1-PI-1023A thru D indicate 750 psia (#12 S/G pressure)
- ? 1-LI-1114C & 1-LR-1114D indicate -180 inches (#11 S/G level)
- ? 1-LI-1124C & 1-LR-1124D indicate -210 inches (#12 S/G level)

What is the present status of the S/G water level control system?

- A. Both SGs are being fed from AFW due to an AFAS and the operator actions required from EOP-0.
- B. AFAS actuated, feeding to the #11 S/G and restoring level; AFAS block to #12 S/G isolating flow.
- C. AFAS actuated, feeding to the #12 S/G and restoring level; AFAS block to #11 S/G isolating flow.
- D. Both SGs have an AFAS block signal isolating flow although an AFAS signal has occurred.

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

54

ID: Q50741

Points: 1.00

Unit 2 was operating at 100% power when a degraded voltage condition occurred on the grid. Given the following events and conditions:

- ? Service transformer U-4000-22 faulted and was electrically isolated
- ? The 2B DG failed to start
- ? An AFAS signal was generated
- ? The 0C DG was started and connected to 4.16 KV bus 07

Which one of the following statements correctly describes how power should be restored to the 23 AFW pump?

- A. Power should be rerouted to the 24 bus from the 0C DG by closing breakers 152-0701 (*07 4KV BUS TIE*) and 152-2406 (*24 4KV BUS FDR*) only.
- B. Power should be rerouted to the 24 bus from the 0C DG by closing disconnects 189-2406 (*DISC*) and breakers 152-0701, 152-2406.
- C. Power should be rerouted to the 24 bus from service bus 11 via transformer U-4000-11 by closing breaker 152-2401 (*24 4KV NORM FDR*).
- D. Power should be rerouted to the 24 bus from the 23 bus by closing breaker 152-2301 (*23 4KV ALT FDR*).

Answer: B



# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

55

ID: Q50742

Points: 1.00

Unit 2 was operating at 100% power when a loss of offsite power occurred. Given the following events and conditions:

- ? The 21 AFW pump auto-started and ran at 4600 rpm
- ? The Emergency 250 VDC Bus 23 was deenergized due to a bus fault

Which one of the following statements correctly describes the status of the AFW lube oil supply and cooling flow?

- A. Lube oil flow is inadequate because the saddle pump is not operating. Lube oil is cooled by service water.
- B. Lube oil flow is inadequate. Although the saddle pump is operating, the rotating rings on the pump shaft will not provide a sufficient supply of oil above 4600 rpm. Lube oil is cooled by the AFW pump discharge.
- C. Lube oil flow is adequate. The rotating oil rings on the pump shaft will provide a sufficient oil supply. Lube oil is cooled by service water.
- D. Lube oil flow is adequate. The saddle pump is operating. Lube oil is cooled by the AFW pump discharge.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

56

ID: Q50743

Points: 1.00

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

0200 The reactor tripped and SIAS actuated

0205 The 1A DG was loaded on bus 11 at 4500 KW

0205 The 1B DG was loaded on bus 14 at 3550 KW

Which one of the following statements correctly describes the significance of these diesel generator loads?

- A. 1A DG is running within the continuous load limits  
1B DG is running in excess of the continuous load limits and should be shutdown to prevent damage to the engine
- B. 1A DG is running within the continuous load limits  
1B DG is running in excess of the continuous load limits but within the 30-minute load limit and should be monitored closely
- C. 1A DG is running in excess of the continuous load limits and should be shutdown to prevent damage to the engine  
1B DG is running within the continuous load limits
- D. 1A DG is running in excess of the continuous load limits but within the 30-minute load limit and should be monitored closely  
1B DG is running within the continuous load limits

Answer: B

57

ID: Q50744

Points: 1.00

Units 1 and 2 were operating at 100% power when extensive diesel fuel oil contamination was discovered in fuel oil storage tanks (FOST) 11 and 21. Given the following events and conditions:

? FOSTs 11 and 21 contained contaminated fuel oil

? FOST 1A contained clean fuel oil

Which one of the following statements correctly describes the EDGs that can receive clean fuel oil from FOST 1A through the installed fuel oil system?

- A. All EDGs can be fueled from FOST 1A
- B. Only the 1A and 0C EDGs can be fueled from FOST 1A
- C. Only the 1A EDG can be fueled from FOST 1A
- D. Only the 0C EDG can be fueled from FOST 1A

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

58

ID: Q50745

Points: 1.00

Units 1 and 2 are operating at 100% power with a liquid waste discharge in progress.

Which one of the following statements correctly describes the discharge path, automatic protective feature and the discharge limits?

Fill in the blanks:

The liquid waste system discharges into the \_\_\_\_\_ (1) \_\_\_\_\_, and is automatically terminated by closing 0-CV-2201 and 0-CV-2202 in order to maintain discharge limits below \_\_\_\_\_ (2) \_\_\_\_\_.

- A.
  1. Circulating water discharge conduits
  2. The fixed setpoint of 0-RI-2201 (*Liquid Waste Disch*)
- B.
  1. Salt-water emergency discharge header
  2. The Plant Computer High alarm setpoint
- C.
  1. Salt-water emergency discharge header
  2. The fixed setpoint of 0-RI-2201
- D.
  1. Circulating water discharge conduits
  2. The Plant Computer High alarm setpoint

Answer:        A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

59

ID: Q50747

Points: 1.00

Unit 1 and Unit 2 were operating at 100% power when a reduction in instrument air header pressure occurred. Given the following events and conditions:

- ? Unit 1 instrument air header pressure decreased to 90 psig.
- ? Unit 1 plant air header pressure decreased to 92 psig.
- ? The operators entered AOP-7D (*Loss of Instrument Air*) and took all required actions

Which of the following actions should have occurred?

1. The standby instrument air compressor started
  2. Containment instrument air isolation (IA-2085-CV) closed
  3. Plant air header automatic isolation valve (PA-2059-CV) closed
  4. Plant air to instrument air cross connect valve (PA-2061-CV) opened
- 
- A. Action 1 only
  - B. Actions 1 and 2 only
  - C. Actions 1 and 4 only
  - D. Actions 1, 2, 3 and 4

Answer: A

60

ID: Q44747

Points: 1.00

Given the following initial conditions :

- Unit 2 is in Mode 2
- Plant Startup is in progress

It is discovered that one of the manual TRIP pushbuttons at 1C15 is broken. Repairs will take approximately 36 hours. What of the following actions are the most correct for the stated conditions?

- A. Obtain GS-Shift Operations permission, open affected RTCB's within 1 hour and continue with plant startup
- B. Place the plant in Mode 3 within 6 hours and open ALL RTCB's within the 6 hours.
- C. Commence Rx shutdown and open ALL RTCB's within 48 hours
- D. Trip Unit 2 and implement EOP-0.

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

61

ID: Q44891

Points: 1.00

Unit 2 was operating at 100% power when a loss of Component Cooling Water occurred. AOP-7C, Loss of Component Cooling Water, was implemented. Which one of the following statements correctly describes (1) the temperature limit for RCP controlled Bleedoff requiring a reactor trip, and (2) the reason for the limit?

- A. (1) 180°F controlled bleedoff temperature  
(2) To prevent waterhammer upon restoration of CCW
- B. (1) 195°F controlled bleedoff temperature  
(2) To prevent damage to the thrust bearing
- C. (1) 200°F controlled bleedoff temperature  
(2) To prevent damage to the RCP seals
- D. (1) 250°F controlled bleedoff temperature  
(2) To prevent having to rebuild the RCP seals

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

62

ID: Q50764

Points: 1.00

Units 1 and 2 were operating at 100% power when a rupture occurred on the instrument air header. Given the following events and conditions:

- ? Plant air pressure dropped to 80 psig.
- ? The air leak was isolated by manual operator action
- ? Instrument air pressure increased to normal operating pressure

Which one of the following statements correctly describes (1) the response of 1-CV-2059 (*PA HDR ISOL VLV*) to the instrument air header rupture, and (2) the actions required to restore the plant air system when instrument air system has been repressurized?

- A. (1) Plant air will cross connect to supply instrument air by automatically opening 1-CV-2059.  
(2) The plant air system must be isolated from instrument air by manually closing 1-CV-2059.
- B. (1) Plant air will cross connect to supply instrument air by automatically opening 1-CV-2059.  
(2) The plant air system will automatically isolate from instrument air by closing 1-CV-2059 when instrument air system pressure increases above 85 psig.
- C. (1) 1-CV-2059 will shut to isolate plant air.  
(2) The plant air system loads must be restored by manually opening 1-CV-2059.
- D. (1) 1-CV-2059 will shut to isolate plant air.  
(2) The plant air system loads will automatically be restored when 1-CV-2059 automatically opens when instrument air pressure increases above 85 psig.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

63

ID: Q50735

Points: 1.00

Unit 1 was operating at 100% power when a large-break LOCA occurred inside containment. Given the following events and conditions:

- ? RCS pressure = 50 psia
- ? RWT level = 10 feet
- ? Containment pressure = 20 psig

If containment air cooler 14 was in standby prior to the accident, which one of the following statements correctly describes the containment air cooler cooling water valve configuration?

- A. The inlet valve is fully open  
The 8" outlet valve is fully open
- B. The inlet valve is throttled to a mid position  
The 8" outlet valve is fully open
- C. The inlet valve is fully open  
The 8" outlet valve is throttled to a mid position
- D. The inlet valve is throttled to a mid position  
The 8" outlet valve is throttled to a mid position

Answer: B

64

ID: Q50761

Points: 1.00

Unit 1 was operating at 100%. The operators were discharging reactor coolant to the reactor coolant liquid waste system. Given the following events and conditions:

- ? RCS chemistry is within normal limits

Assuming the liquid waste system is functioning as designed, which one of the following statements correctly describes the environmental hazards that pass through the waste treatment system without any significant reduction?

- A. Iron Oxide or crud particles
- B. Dissolved gasses such as Nitrogen or Hydrogen
- C. Tritium
- D. Soluble ions such as Boron and Cesium

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

65

ID: Q50739

Points: 1.00

Unit 2 was operating at 100% power. Given the following events and conditions:

- ? The feedwater system is aligned for normal operations
- ? The condensate system is aligned for normal operations

Which one of the following statements correctly describes the (1) the recommended number of running condensate pumps per OI-11A and (2) the reason for this alignment?

- A. (1) 2 (instead of 3) condensate pumps should be running  
(2) To ensure adequate suction pressure for the SGFPs
- B. (1) 2 (instead of 3) condensate pumps should be running  
(2) To prevent running the heater drain pumps at shutoff head
- C. (1) 3 (instead of 2) condensate pumps should be running  
(2) To prevent running the heater drain pumps at shutoff head
- D. (1) 3 (instead of 2) condensate pumps should be running  
(2) To ensure adequate suction pressure for the SGFPs

Answer: B

66

ID: Q28489

Points: 1.00

An automatic reactor trip and safety injection have occurred on Unit 1. The following conditions are noted:

- RCS subcooling is 0°F
- CET temperatures are slowly rising
- RCS pressure is 1100 psia
- Pressurizer level is 170 inches and rising rapidly

Which one of the following actions should be taken?

- A. Throttle HPSI flow as necessary to maintain pressurizer level between 101 and 180 inches.
- B. Pressurize the RCS or raise the cooldown rate of the RCS to maintain subcooling between 30 to 140°F
- C. Initiate once through core cooling
- D. Depressurize the RCS to lower safety injection flow

Answer: B



# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

67

ID: Q42232

Points: 1.00

A Xenon-free, End-of-Life (EOL) reactor start-up is in progress. The following parameters are observed:

- Tcold is 530°F
- TBV's are in Automatic with an output of approximately 2.6%
- All Pressurizer back-up heaters are energized with the controlling pressure controller set at 2205 psig
- VCT boron is equal to RCS boron
- Critical data has been recorded at  $1 \times 10^{-4}$ % power

The reactor operator withdraws CEAs to achieve a SUR of + 0.5 DPM in order to raise power to the Point of Added Heat (POAH) and stops withdrawing CEAs. Approximately three minutes later, the 1C05 alarm window, POWER LEVEL HI CHANNEL PRETRIP, illuminates.

Which of the following statements best describes the response of the Unit 1 operator?

- A. Commence fast boration of the RCS to raise boron concentration to 2300 ppm.
- B. Select Manual Sequential on the CEDS panel and insert rods to the  $1 \times 10^{-4}$ % critical position to null out the positive start-up rate.
- C. Manually trip Unit 1 due to a Continuous Rod Withdrawal Accident occurring.
- D. Start 13 AFW pump to maintain SG levels which will change with the power escalation above the POAH.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

68

ID: Q20550

Points: 1.00

Unit 2 is at 100% power with the following conditions:

- Acoustic monitors ERV-402 and RV-200 indicate .01
- Quench tank pressure and temperature are rising slowly
- Pressurizer level is 216" and steady
- One charging pump is running
- Letdown flow is 32 GPM
- AOP-2A has been implemented
- PORV block valves 402-MOV and 404-MOV are shut

What is the proper direction given to the RO and CRO?

- A. Place the unit in cold shutdown per OP-3, OP-4 and OP-5.
- B. Shut letdown isolation valves, 2-CVC-515 and 2-CVC-516.
- C. With M-NO concurrence, raise RCS pressure to cycle and reseal the leaking RV.
- D. Immediately trip the reactor and implement EOP-0.

Answer: A

69

ID: Q49287

Points: 1.00

Unit 1 was operating at 100% power when a 300 gpm pipe break occurs in the letdown line inside of containment at the containment penetration.

Which of the following best describes why, five seconds after the break occurs, letdown flow will be less than 20 gpm?

- A. The excess flow check valve will restrict the flow.
- B. The letdown stop valves (CVC-515/516) will automatically shut on the ensuing SIAS.
- C. The letdown flow control valves will throttle shut on negative deviation sensed by the letdown controller due to decreasing pressurizer level.
- D. The lowering RCS pressure will cause the d/p driving letdown flow to lower, thus reducing flow out of the letdown line.

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

70

ID: Q20793

Points: 1.00

Unit 1 is in Mode 3 returning from a maintenance outage. ESFAS sensor cabinet ZF (1C93) has been shutdown for cleaning and inspection. When sensor channel ZF is deenergized per procedure, what is the resultant trip logic for the remaining channels for SIAS? (Assume all other channels are energized and signals are not bypassed)

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

Answer: B

71

ID: Q26512

Points: 1.00

Which one of the following describes the core heat removal process during a small break LOCA?

- A. The S/Gs using either the ADVs or TBVs.
- B. Charging flow and HPSI injection.
- C. HPSI, LPSI, and SIT injection.
- D. HPSI and LPSI injection only.

Answer: A

72

ID: Q20291

Points: 1.00

Unit 1 is on SDC when a total loss of Instrument Air occurs. The RO notices an apparent loss of RCS inventory. Which one of the following reasons would this be occurring?

- A. RCS temperature is lowering since 1-SI-657-CV has failed open.
- B. SDC flow is being diverted back to the RWT via the emergency sump MOVs.
- C. 1-CVC-500-CV has failed to the VCT position while on SDC purification.
- D. RCS temperature is lowering since 1-SI-306-CV has failed shut.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

73

ID: Q20822

Points: 1.00

Given the following plant conditions:

- Unit 1 is being heated up per OP-1
- RCS temperature is presently 500°F with all RCPs operating
- PZR pressure is 1700 psia and slowly rising, all heaters energized
- PZR pressure control in automatic, setpoint is at 2250 psia
- A main steam line rupture occurs outside containment downstream of the MSIVs
- ESFAS system is operating normally for plant conditions; no maintenance is in progress

Will any ESFAS actuation occur to mitigate this event?

- A. Yes, SIAS will mitigate the event when containment pressure is > 2.0 psig.
- B. Yes, SGIS will mitigate the event when SG pressure is < 685 psia.
- C. No, affected ESFAS signals are blocked.
- D. No, AFAS Block is not placed in service until Trip circuit breakers are closed.

Answer: C

74

ID: Q24647

Points: 1.00

Given the following conditions:

- Unit 1 initially operating at 100% power
- Unit 1 turbine trip with a concurrent loss of vacuum
- All SG safeties available
- Both ADVs unavailable

What is the SG pressure limited to immediately following this event?

- A. 1130 psig
- B. 1115 psig
- C. 1085 psig
- D. 1065 psig

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 RO Audit Exam

75

ID: Q37902

Points: 1.00

What condition will prevent bridge and trolley operation?

- A. Mast detent pin is engaged.
- B. Computer override keyswitch is in use.
- C. Hoist box is being lowered or raised.
- D. Grapple is closed.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

1

ID: Q50789

Points: 1.00

Unit 1 was operating at 100% power when the operators discovered CEA alignment problems. Given the following events and conditions:

0200 Regulating group 5 is at 133 inches withdrawn – all CEAs are in alignment

0205 CEA group 5 was inserted from 133 inches to 123 inches

0210 CEA group 5 was withdrawn from 123 inches to 133 inches

CEA #1 in Reg Group 5 stuck at 123 inches

CEA #2 in Reg Group 5 stuck at 123 inches

0245 CEA #1 was realigned to 133 inches

If all CEAs remain trippable, which of the following statements correctly describes the latest time that CEA #2 is required to return to alignment in accordance with Tech Specs?

- A. CEA #2 must be withdrawn above 125.5 inches prior to 0300
- B. CEA #2 must be withdrawn above 125.5 inches prior to 0310
- C. CEA #2 must be withdrawn above 125.5 inches prior to 0345
- D. Operation may continue with CEA #2 aligned at 123 inches for an indefinite period of time if power is reduced below 70%

Answer: B

2

ID: Q50734

Points: 1.00

Unit 1 was operating at 100% power with maintenance in progress on the AFAS system. Given the following events and conditions:

? AFAS channel "ZE" has been bypassed

? While maintenance was in progress, a loss of 120 Vital AC bus #11 occurred

Which one of the following statements correctly describes the response of the AFAS?

- A. Sensor logic is reduced to 1 out of 2 to generate an AFAS
- B. Sensor logic is reduced to 2 out of 2 to generate an AFAS
- C. AFAS "B" actuation only occurs
- D. AFAS "A" and "B" actuations occur

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

3

ID: Q50748

Points: 1.00

Unit 2 is in Mode 6 with refueling in progress and containment purge in service. Given the following events and conditions:

- ? The purge exhaust fan spuriously trips
- ? The purge supply fan continues to run (fails to automatically trip)
- ? Containment pressure reads 0.35 psig
- ? The gaseous waste release permit is still valid

What is the most likely effect on (1) system parameters and (2) what action(s) is (are) required to resume the purging of containment?

- A.
  - 1. Spent fuel pool level increases
  - 2. Secure the normal containment purge lineup and initiate a containment purge
- B.
  - 1. Refuel pool level increases
  - 2. Secure the normal containment purge lineup and initiate a containment purge
- C.
  - 1. Spent fuel pool level increases
  - 2. Restart the containment purge exhaust fan
- D.
  - 1. Refuel pool level increases
  - 2. Restart the containment purge exhaust fan

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

4

ID: Q50755

Points: 1.00

Unit 1 was operating at 100% power when the 12 CEDM MG set is noted to be arcing and sparking. Given the following events and conditions:

? TCBs 1-9 are closed

? 12 MG set output voltage = 240 volts

? 12 MG set output amps = 50 amps / phase

If the operator opens the 12 CEDM MG set output breaker, which one of the following statements correctly describes the (1) concerns associated with MG set shutdown and (2) the alarm that will annunciate when the 12 MG Set breaker is opened?

- A.
  - 1. CEAs may drop due to voltage transients
  - 2. 1C05 D-46 (MG SET NO OUTPUT)
- B.
  - 1. CEAs may drop due to voltage transients
  - 2. 1C05 D-48 (CEDS NO CONTR VOLT)
- C.
  - 1. The 4 TCBs associated with the 12 MG set will open
  - 2. 1C05 D-46 (MG SET NO OUTPUT)
- D.
  - 1. The 4 TCBs associated with the 12 MG set will open
  - 2. 1C05 D-48 (CEDS NO CONTR VOLT)

Answer: A



# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

5

ID: Q50756

Points: 1.00

Unit 1 was at 100% power when an alarm was received on the loose parts monitor. Given the following events and conditions:

- ? The loose parts monitor channel 1 is in service and alarmed
- ? CEAs were being moved at the time of the alarm
- ? The following message was showing on the channel:
  - o "ALARM NOT RESETTING"
  - o The alarm will not reset
- ? There are no indications of audible impacts when the channel was monitored
- ? The alarming channel was printed out

Which one of the following statements correctly describes (1) the most likely detector location for the alarm and (2) the required action(s) to be taken per OI-37 (*Loose Parts Monitoring System*)?

- A.
  - 1. The reactor pressure vessel head and closure stud
  - 2. Obtain CRS permission and bypass the alarm
- B.
  - 1. The reactor pressure vessel head and closure stud
  - 2. Declare the channel 1 to be inoperable and startup channel 2
- C.
  - 1. Reactor cold leg nozzle
  - 2. Obtain CRS permission and bypass the alarm
- D.
  - 1. Reactor cold leg nozzle
  - 2. Declare the channel 1 to be inoperable and startup channel 2

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

6

ID: Q50757

Points: 1.00

Match the CEDS signal/function in column A with the CEA position in column B. (Note: positions in column B may be used once, more than once, or not at all)

<u>COLUMN A</u> <u>CEDS Function/Signal</u>	<u>COLUMN B</u> <u>CEA POSITION</u>
___ A. Upper Electrical Limit	1. 0 inches
___ B. Lower Electrical Limit	2. 8 inches
___ C. Regulating group operating band	3. 3 inches
___ D. Rod Bottom	4. 3 to 135 inches
___ E. Exercise Limit	5. 8 to 129 inches
	6. 129 inches
	7. 135 inches

A. 6, 2, 5, 3, 7

B. 6, 3, 4, 1, 7

C. 7, 3, 4, 1, 6

D. 7, 2, 5, 3, 6

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

7

ID: Q50758

Points: 1.00

Unit 1 was operating at 60% power when a loss of offsite power occurred. Given the following events and conditions:

- ? The reactor and turbine tripped
- ? HIC-4056 (*Atmospheric Dump Vlv Contr*) is in automatic
- ? PIC-4056 (*Turbine Bypass Vlv Contr*) is in automatic
- ? A failure in the reactor regulating system has prevented the Tave modulating signal from being available for valve control
- ? Condenser vacuum = 19.5 inches
- ? Steam pressure increases to 900 psig

Which one of the following statements correctly describes the operation of the turbine bypass valves (TBVs) and atmospheric dump valves (ADVs)?

- A. TBVs quick open  
ADVs quick open
- B. TBVs remain closed  
ADVs modulate open in response to steam pressure
- C. TBVs modulate open in response to steam pressure  
ADVs remain closed
- D. TBVs remain closed  
ADVs remain closed

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

8

ID: Q50759

Points: 1.00

Unit 1 was in OP-04 (*Plant Shutdown from Power Operation to Hot Standby*). Given the following events and conditions:

- ? The operators had reached step 6.2 (*Planned Reactor Shutdown from Greater Than 20% Power*)
- ? Main generator load = 175 MWe
- ? Turbine testing will NOT be performed
- ? The CRS directed the CRO to proceed to step 6.2.D.1

*"6.2.D.1 REMOVE Turbine Generator Load as follows:...*

*b. SHUTDOWN the Main Turbine PER OI-43A, Section titled SHUTDOWN OF THE TURBINE GENERATOR"*

Which one of the following statements correctly describes the proper sequence for (1) reducing turbine load to 0 MWe, and (2) removing the turbine generator from service if turbine speed exceeds 1800 rpm when the 11 GEN BUS BKR 552-22 is opened?

- A. (1) Reduce load from 175 MWe to 0 MWe by adjusting the load selector on the turbine control panel immediately open bus breaker 552-22.  
(2) Verify *Loss of Load CH Trip BYP* annunciator is CLEAR, trip the reactor, implement EOP-0 (*Post-Trip Immediate Actions*)
- B. (1) Reduce load from 175 MWe to 0 MWe by adjusting the load selector on the turbine control panel and immediately open bus breaker 552-22.  
(2) Verify *Loss of Load CH Trip BYP* annunciator is CLEAR, trip the turbine, implement AOP-7E (*Main Turbine Malfunction*)
- C. (1) Reduce the setpoint on 1-PIC-4056 to transfer load to the TBVs, reduce turbine load to 40 MWe, open the tie breaker 552-23, then reduce load on the generator to 0 or slightly negative and immediately open bus breaker 552-22.  
(2) Verify *Loss of Load CH Trip BYP* annunciator is CLEAR, trip the turbine, implement AOP-7E (*Main Turbine Malfunction*)
- D. (1) Reduce the setpoint on 1-PIC-4056 to transfer load to the TBVs, reduce turbine load to 40 MWe, open the tie breaker 552-23, then reduce load on the generator to 0 or slightly negative and immediately open bus breaker 552-22.  
(2) Verify *Loss of Load CH Trip BYP* annunciator is CLEAR, trip the reactor, implement EOP-0 (*Post-Trip Immediate Actions*)

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

9

ID: Q50760

Points: 1.00

Unit 1 was operating at 30% power when a steam generator tube leak occurred. Given the following events and conditions:

- ? A 50 gpd tube leak occurred in the 11 S/G
- ? RCS activity levels are normal

Which one of the following statements correctly describes the most sensitive and accurate indication for (1) leak detection, and (2) leak rate identification in gpd?

- A. (1) 1-RIC-5421A (*N16 RAD MONITOR*)  
(2) 1-RIC-5421A (*N16 RAD MONITOR*)
- B. (1) 1-RE-1752A/B/C/D (*11/12/13/14 CAR Suction RAD MONs*)  
(2) 1-RY-1752 Leak Rate Calculator displayed on the plant computer
- C. (1) 1-RIC-5421A (*N16 RAD MONITOR*)  
(2) 1-RY-1752 Leak Rate Calculator displayed on the plant computer
- D. (1) 1-RE-1752A/B/C/D (*11/12/13/14 CAR Suction RAD MONs*)  
(2) 1-RIC-5421A (*N16 RAD MONITOR*)

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

10

ID: Q50762

Points: 1.00

Unit 1 was in mode 6 conducting refueling operations. Given the following events and conditions:

- ? A containment purge is in progress
- ? Power is lost to RE-5316A (Containment Area Radiation Monitor)

Which one of the following statements correctly describes (1) the automatic system response (if any), and (2) the immediate action (if any) required by Tech Specs?

- A. (1) The containment purge is automatically terminated.  
(2) Refueling may proceed.
- B. (1) The containment purge shall be manually terminated  
(2) Suspend all core alterations and movement of irradiated fuel assemblies until after the containment purge is isolated.
- C. (1) The containment purge is automatically terminated.  
(2) Immediately suspend all core alterations and movement of irradiated fuel assemblies.
- D. (1) The containment purge may be continued.  
(2) Refueling may proceed.

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

11

ID: Q50781

Points: 1.00

Unit 1 was at 40% power. Given the following events and conditions:

- ? RCS activity was at normal values
- ? There is a 20 gpm tube leak in the 11 S/G

Which one of the following statements correctly describes the response of the (1) 1-RIC-5421A (11 MAIN STM N-16 RAD MON) and (2) 1-RIC-5421 (11 MAIN STM EFFL RAD MON)?

- A. 1-RIC-5421A will show no significant increase  
1-RIC-5421 will show no significant increase
- B. 1-RIC-5421A will increase significantly  
1-RIC-5421 will show no significant increase
- C. 1-RIC-5421A will show no significant increase  
1-RIC-5421 will increase significantly
- D. 1-RIC-5421A will increase significantly  
1-RIC-5421 will increase significantly

Answer: C

12

ID: Q50783

Points: 1.00

A waste gas discharge was in progress. Given the following events and conditions:

- ? 0-RE-2191 (Gaseous Waste Disch RMS) high radiation alarm occurred

Which one of the following statements correctly describes (1) the automatic action that occurred and (2) the immediate followup action required?

- A. (1) Shuts waste gas discharge CVs 0-WGS-2191 / 2192  
(2) Verify shut waste gas discharge header flow control valve  
0-WGS-2191-PCV
- B. (1) Shuts waste gas discharge CVs 0-WGS-2191 / 2192  
(2) Purge the waste gas discharge header
- C. (1) Shuts waste gas discharge header flow control valve 0-WGS-2191-PCV  
(2) Purge the waste gas discharge header
- D. (1) Shuts waste gas discharge header flow control valve 0-WGS-2191-PCV  
(2) Manually shut waste gas discharge CVs 0-WGS-2191 / 2192

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

13

ID: Q50765

Points: 1.00

Unit 1 was operating at 100% power when a reactor trip occurred. Given the following events and conditions:

- ? The operators are performing their post trip actions in EOP-0 (*Post Trip Immediate Actions*)
- ? The 11 MSIV drifted shut
- ? RCPs 11A and 12B are running
- ? Pressurizer level is 85 inches
- ? Pressurizer pressure is 1860 psia

If the 12B RCP trips for no apparent reason, which one of the following statements correctly describes the required actions (if any) in EOP-0?

- A. No action is required
- B. Start the 12A RCP
- C. Trip the 11A RCP
- D. Shut the 12 MSIV

Answer: A



# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

14

ID: Q50766

Points: 1.00

Using Provided Reference(s):

Unit 1 was operating at 100% power. Given the following events and conditions over a 2 minute time period:

- ? Pressurizer level lowered by 1 inch
- ? RCS Tave raised by 0.5 degree F
- ? Charging flow = 44 GPM
- ? Letdown = 0 gpm
- ? CBO flow = 6 gpm

Which one of the following statements correctly describes (1) the RCS leak rate and (2) the expected plant response to restore pressurizer level (if possible)?

- A. (1) < 15 gpm  
(2) Letdown flow will be reduced to raise pressurizer level
- B. (1) 15-30 gpm  
(2) Letdown flow will be reduced to restore pressurizer level
- C. (1) 30-80 gpm  
(2) The first backup charging pump will start
- D. (1) > 80 gpm  
(2) Both the first and second backup charging pumps will start

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

15

ID: Q50767

Points: 1.00

Unit 2 was operating at 100% power when a small break LOCA occurred. Given the following events and conditions:

- ? Pressurizer level = 205 inches and very slowly decreasing
- ? 2-HS-224 (*Backup Charging Pump Select*) on 2C07 is selected to charging pumps 22 and 23
- ? Prior to the LOCA, the running charging pump was drawing 80 amps

Which one of the following statements correctly describes the expected effect on charging pump 22 amperage when compared before and after the LOCA?

- A. Amps will increase from 80 to ~105 amps
- B. Amps will increase from 0 to ~80 amps
- C. Amps will remain constant at ~80 amps
- D. Amps will decrease from 80 to ~60 amps

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

16

ID: Q50768

Points: 1.00

Unit 1 was operating at 100% power when a large-break LOCA occurred. Given the following events and conditions:

- ? The 11 4KV bus was deenergized due to equipment failures
- ? The operators implemented step T.1 of EOP-5 and were restoring power to the 11 4KV bus from the 0C EDG
- ? The operators had reached step T.1.b.(5) which reads:

**(5) Dispatch an operator to operate disconnect 189-1106 as follows:**

**(a) Obtain the 189-1106 keys from the CR key locker.**

**(b) Close 0C DG 11 4KV BUS DISC, 189-1106.**

Which one of the following statements correctly describes (1) the location and (2) the proper method of closing DISC 189-1106?

- A. (1) The 27' switchgear room  
(2) Insert the Kirk keys and unlock the 0C 4KV bus disconnect, then move the disconnect handle upwards until the disconnects close with a loud bang. Do not release the handle prior to full travel
- B. (1) The 27' switchgear room  
(2) Insert the Kirk keys and unlock the 0C 4KV bus disconnect then move the disconnect handle upwards and release the handle before it reaches the midway point. The disconnects will close with a loud bang.
- C. (1) 45' switchgear room  
(2) Move the disconnect handle upwards until the disconnects close with a loud bang. Do not release the handle prior to full travel. Then insert the Kirk keys and relock the 0C 4KV bus disconnect.
- D. (1) 45' switchgear room  
(2) Move the disconnect handle upwards and release the handle before it reaches the midway point. The disconnects will then close with a loud bang. Then insert the Kirk keys and relock the 0C 4KV bus disconnect.

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

17

ID: Q50769

Points: 1.00

Unit 1 was operating at 100% when a spurious reactor trip occurred. Given the following events and conditions:

- ? The operators implemented EOP-0 (*Post Trip Immediate Actions*)
- ? The operators secured 2 RCPs
- ? RCPs 11A and 12B were running
- ? RCP 11A tripped on overcurrent

Assuming all MSIVs remained open, which one of the following statements correctly describes the effect on the RCS temperatures in loop 11 following the RCP trip after temperatures reach equilibrium values in approximately 1 minute?

- A.  $T_{ave}$  will increase,  $T_{hot}$  will decrease, and  $T_{cold}$  will increase due to decreased RCS flow in loop 11 and continuing steam demand from the 11 S/G.
- B.  $T_{ave}$ ,  $T_{hot}$  and  $T_{cold}$  will all trend to the loop 12  $T_{hot}$  value as flow reverses in the 11 loop.
- C.  $T_{ave}$  and  $T_{hot}$  will remain constant and  $T_{cold}$  will decrease due to decreased RCS flow in loop 11 and continuing steam demand from the 11 S/G.
- D.  $T_{ave}$ ,  $T_{hot}$  and  $T_{cold}$  will decrease and trend to the loop 12  $T_{cold}$  value as flow reverses in the 11 loop.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

18

ID: Q50770

Points: 1.00

Unit 1 was operating at 100% power when a problem developed in the CVCS system. Given the following events and conditions:

- ? Pressurizer level = 205 inches
- ? Letdown = 29 gpm
- ? VCT level = 105 inches
- ? Alarm 1C07 F-45 (*CHG HDR Flow Lo / Press Lo*) annunciated
- ? The 11 charging pump was observed to be running with the amperage cycling erratically between 0 and 5 amps
- ? The 12 charging pump is the 1<sup>st</sup> backup charging pump
- ? The 13 charging pump is the 2<sup>nd</sup> backup charging pump

Which one of the following statements correctly describes (1) the causes of the observed symptoms and (2) the required operator actions?

- A. (1) The 11 charging pump discharge relief valve has failed open.  
(2) Enter AOP-2A (*Excessive Reactor Coolant Leakage*) - start the 12 charging pump and attempt to maintain pressurizer level.
- B. (1) The 11 charging pump discharge relief valve has failed open.  
(2) Isolate letdown, secure the 11 charging pump to reseal the discharge relief valve and restart the 11 charging pump.
- C. (1) The 11 charging pump is gas bound.  
(2) Locally vent the 11 charging pump to restore NPSH. Secure the 11 and 12 charging pumps and ensure the 13 charging pump does not start until all pumps have been vented.
- D. (1) The 11 charging pump is gas bound.  
(2) Verify the 12 charging pump started and locally vent the 11 charging pump.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

19

ID: Q20876

Points: 1.00

Unit 1 is on SDC when RCS pressure inadvertently drifts up to 325 psia. Which of the following will protect the SDC system from overpressurizing?

- A. LTOP will actuate to reduce RCS pressure by opening PORVs.
- B. LPSI pumps will trip and their discharge check valves will shut to protect SDC system.
- C. SDC return isolation valves, SI-651 and SI-652, shut.
- D. SDC suction line relief lifts to protect the return header.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

20

ID: Q50772

Points: 1.00

Unit 1 was operating in mode 4. Given the following events and conditions in sequence:

- ? SDC cooling train A was in service
- ? SDC purification was in service
- ? Initial RCS pressure = 150 psia
- ? RE-3819 (component cooling radiation detector) alarmed on 1C22
- ? The leaking CCW component was subsequently isolated
- ? The auxiliary building instrument air header depressurized

Assuming the loss of instrument air is not repaired, which one of the following statements correctly describes (1) the location of the leak into the CCW system and (2) the level response in the CCW head tank?

- A. (1) The SDC heat exchanger  
(2) CC head tank level increases until it overflows into the auxiliary building gravity drain system
- B. (1) The SDC heat exchanger  
(2) CC head tank level increases until the leak is isolated, then it remains steady
- C. (1) The letdown heat exchanger  
(2) CC head tank level increases until it overflows into the auxiliary building gravity drain system
- D. (1) The letdown heat exchanger  
(2) CC head tank level decreases until the leak is isolated, then it remains steady

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

21

ID: Q50773

Points: 1.00

Unit 2 was operating at 100% power. Given the following events and conditions:

- ? Pressurizer pressure PIC-100X = 0 psia
- ? Pressurizer level LIC-110X = 360 inches

What is the cause of these indications?

- A. PT-100X failed low
- B. Loss of 2Y01 instrument bus
- C. A leak in the variable leg for LT-110X
- D. A leak in the reference leg for LT-110X

Answer: D

22

ID: Q50774

Points: 1.00

Which one of the following statements correctly describes the effect (if any) that time in core life has on the pressure transient associated with the design basis ATWS event?

- A. RCS pressure increase will be more rapid at BOL than at EOL because the moderator temperature coefficient is more negative at EOL.
- B. RCS pressure increase will be more rapid at EOL than at BOL because the moderator temperature coefficient is more negative at EOL.
- C. RCS pressure increase will be more rapid at BOL than at EOL because the moderator temperature coefficient is less negative at EOL.
- D. RCS pressure increase will be more rapid at EOL than at BOL because the moderator temperature coefficient is less negative at EOL.

Answer: A



# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

23

ID: Q50775

Points: 1.00

Unit 2 has experienced a steam generator tube rupture (SGTR) from 100% power. Given the following events and conditions:

- ? The operators have entered EOP-06 (*Steam Generator Tube Rupture*)
- ? RCS subcooling margin is 0°F
- ? RCPs are not running
- ? Natural circulation cannot be verified

Which one of the statements correctly completes the description of the reflux boiling cooling flow path during this event?

Steam enters the \_\_\_\_ (1) \_\_\_\_ of the S/G U-tubes where the steam condenses and re-enters the core area via the S/G \_\_\_\_ (2) \_\_\_\_.

- A. (1) Hot leg (2) Cold leg
- B. (1) Hot leg (2) Hot leg
- C. (1) Cold leg (2) Hot leg
- D. (1) Cold leg (2) Cold leg

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

24

ID: Q50776

Points: 1.00

Unit 1 was operating at 100% when the 12 steam generator feedwater pump (SGFP) spuriously tripped. Given the following events and conditions:

- ? A reactor trip occurred
- ? All systems operated as designed

Which one of the following statements correctly describes the expected response of the (1) feedwater regulating valves (FRVs), (2) bypass feedwater valves (BFVs) and (3) the SGFP speed controller to this transient?

- A. (1) FRVs ramp shut  
(2) BFVs are positioned to 56% open  
(3) SGFPs are set back to 3400 rpm and positive bias is removed
- B. (1) FRVs ramp shut  
(2) BFVs are positioned to 56% open  
(3) SGFPs are tripped and AFW flow is initiated
- C. (1) FRVs are positioned to 5% open  
(2) BFVs are positioned to 56% open  
(3) SGFPs are set back to 3400 rpm and positive bias is removed
- D. (1) FRVs are positioned to 5% open  
(2) BFVs ramp shut  
(3) SGFPs are set back to 3400 rpm and negative bias is removed

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

25

ID: Q50777

Points: 1.00

Using provided reference(s):

Unit 1 was operating at 100% and Unit 2 was in Mode 4 conducting a heat up following a refueling outage when a loss of offsite power (LOOP) occurred on both units. Given the following events and conditions:

Unit 2 Parameters:

$T_{\text{cold}} = 275^{\circ}\text{F}$

SDC is not in service

21 AFW pump is aligned for auto-start

Which one of the following statements correctly describes (1) the required operation of the AFW pumps on Unit 2 and (2) the reason for this requirement?

- A. (1) 21 AFW pump feeds the S/Gs. The 23 AFW pump is placed in pull-to-lock.  
(2) To ensure that the 23 AFW pump does not auto start in order to prevent overloading the vital bus.
- B. (1) 22 AFW pump feeds the S/Gs. The 23 AFW pump is placed in pull-to-lock.  
(2) To ensure that the 23 AFW pump does not auto start in order to prevent unnecessary DG fuel consumption.
- C. (1) The 23 AFW pump feeds the S/Gs, 21 and 22 AFW pumps are not operating.  
(2) Steam pressure is too low to run the 21 and 22 AFW pumps.
- D. (1) The 23 AFW pump feeds the S/Gs. The 21 and 22 AFW pumps are not operating.  
(2) To prevent cavitating the 11 AFW pump by minimizing total feedwater flow to the S/Gs.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

26

ID: Q50778

Points: 1.00

Unit 2 was operating at 100% power when a loss of offsite power (LOOP) occurred. Given the following events and conditions:

- ? The SRW system was electrically and mechanically aligned normally per OI-15 (*Service Water System*) with the 21 and 22 SRW pumps running
- ? When the LOOP occurs, the 2A and 2B EDGs start and energize their respective 4 KV vital buses
- ? The 21 SRW pump tripped on overcurrent when restarted

Assuming no operator action, which one of the following statements correctly describes the status of the SRW system one minute after the LOOP?

- A. Only the 22 SRW pump is running – SRW pump 23 should be manually aligned and started to provide SRW flow to the 21 SRW header to meet SRW flow requirements.
- B. Only the 22 SRW pump is running – SRW must be cross-connected to supply loads on the 21 SRW header to meet SRW flow requirements.
- C. The 22 and 23 SRW pumps are running – the 21 and 22 headers are being supplied with adequate SRW flow.
- D. The 22 and 23 SRW pumps are running on the 22 header – the 21 header must be aligned to the 23 SRW pump to meet SRW flow requirements.

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

27

ID: Q50779

Points: 1.00

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

- ? The operators enter AOP-7D (*Loss of Instrument Air*)
- ? Instrument air pressure is decreasing at a rapid and continuous rate

Which statement correctly describes (1) when to trip the reactor, and (2) the reason for this action?

- A. (1) 40 psig and decreasing  
(2) The TBVs require 40 psig to quick open
- B. (1) 40 psig and decreasing  
(2) The FRVs fail as-is at 40 psig
- C. (1) 50 psig and decreasing  
(2) The TBVs require at least 50 psig to quick open
- D. (1) 50 psig and decreasing  
(2) The FRVs fail as-is at 50 psig

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

28

ID: Q50782

Points: 1.00

Unit 1 was conducting a plant startup when a reduction in condenser vacuum occurred. Given the following events and conditions:

- ? The turbine has just been paralleled to the grid when condenser vacuum began to degrade
- ? The operators enter AOP-7G (*Loss of Condenser Vacuum*)
- ? Condenser vacuum suddenly drops to 19.5" Hg
- ? Annunciator "LOSS OF LOAD CH TRIP BYP" is in alarm

Which one of the following statements completely describes the expected system response and/or required operator actions?

- A. The reactor and turbine will be manually tripped; heat removal will be on the TBVs; SGFPs will continue to operate.
- B. The turbine will trip automatically; the operators will trip the reactor; heat removal will be on the TBVs; SGFPs will trip.
- C. The turbine will trip automatically; the operators will trip the reactor; heat removal will be on the TBVs; SGFPs will continue to operate.
- D. The turbine will trip automatically; the operators will trip the reactor; heat removal will be on the ADVs; SGFPs will trip.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

29

ID: Q50787

Points: 1.00

Using Provided Reference(s):

Unit 2 was operating at 100% power when an RCS leak occurred. Given the following events and conditions:

- ? Unidentified RCS leakage = 0.5 gpm
- ? Identified RCS leakage = 4.5 gpm
- ? S/G leakage = 2 gpd
- ? RO reports an increase RCS leakage from an unknown source
- ? The operators implement AOP-2A (*Excessive RCS Leakage*)

Which one of the following conditions would require Unit 2 to be shutdown per Tech Specs?

- A. 5 gpm leakage from an RCP integral heat exchanger
- B. 5 gpm leakage from the packing gland on PORV-402
- C. 5 gpm leakage by the seat of SI-652-MOV
- D. 40 gpd steam generator tube leakage

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

30

ID: Q50786

Points: 1.00

Using Provided Reference(s) :

Unit 1 was operating at 100% at 0400 on 8/25/2006 when chemistry reported that RCS samples indicated a high level of activity due to Iodine spiking. Given the following events and conditions:

? Chemistry reports the following trend in RCS activity levels have reached 100  $\mu\text{Ci/gm}$  of  $\text{I}^{131}$

Which one of the following statements correctly describes the required actions in accordance with (1) AOP-6A (*Abnormal Reactor Coolant Chemistry*), and (2) the least restrictive actions that comply with Tech Specs?

- A. (1) Maximize letdown and purification flow to reduce RCS contamination levels.  
(2) Reduce power below 75% no later than 0600. Operation may continue at this level as long as RCS activity is reduced below 1  $\mu\text{Ci/gm}$  no later than 0600 on 8/29.
- B. (1) Bypass purification ion exchangers to prevent contaminating the ion exchange resin unnecessarily and reduce dose.  
(2) Reduce power below 75% no later than 0600. Operation may continue at this level as long as RCS activity is reduced below 1  $\mu\text{Ci/gm}$  no later than 0600 on 8/29.
- C. (1) Bypass purification ion exchangers to prevent contaminating the ion exchange resin unnecessarily and reduce dose.  
(2) Be in mode 3 no later than 1000 on 8/25.
- D. (1) Maximize letdown and purification flow to reduce RCS contamination levels.  
(2) Be in mode 3 no later than 1000 on 8/25.

Answer: D



# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

31

ID: Q50785

Points: 1.00

Unit 1 was recovering from a loss of offsite power and a loss of all feedwater in EOP-8 (*Functional Recovery Procedure*). Given the following events and conditions:

? The operators were directed to respond in Appendix (4) *Core and RCS Heat Removal* in HR-1 (*S/G Heat Sink with no SIS Operation*) to reduce RCS subcooling margin.

Which one of the following statements correctly describes (1) the method for lowering RCS subcooled margin, and (2) the controllers/positioners for implementing the preferred method?

- A. (1) Initiate auxiliary spray  
(2) Cycle 1-CVC-517-CV (*AUX Spray Line Stop*) as necessary to control auxiliary spray flow
- B. (1) Initiate auxiliary spray  
(2) Open 1-CVC-517-CV and cycle 1-CVC-518-CV (*12B LOOP CHG*) and 1-CVC-519-CV (*11A LOOP CHG*) as necessary to control auxiliary spray flow
- C. (1) Raise pressurizer pressure by energizing heaters  
(2) Energize proportional heaters using the handswitch
- D. (1) Raise pressurizer pressure by energizing heaters  
(2) Energize proportional and backup heaters using the handswitches

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

32

ID: Q50784

Points: 1.00

Units 1 and 2 control room was evacuated due to a fire. Given the following events and conditions:

? The operators implemented AOP-9A-1 (*Control Room Evacuation and Safe Shutdown due to a Severe Control Room Fire*) and arrived at step BQ.2 (*Borate the RCS*) of the procedure.

? After commencing the boration, the operators note:

- PZR level = 249 inches (increasing)
- PZR pressure = 2200 psia (increasing)
- 11 charging pump is running
- $T_{\text{hot}} = 535^{\circ}\text{F}$  (increasing)
- Letdown was stopped
- RCPs were tripped
- SGFPs were tripped

Which one of the following statements correctly describes the actions in AOP-9A-1 that are designed specifically for the purpose of controlling pressurizer level?

- A. Manually cycle the PORV to reduce level to 160 inches.
- B. Establish letdown and auxiliary spray to control level at 250 inches.
- C. Stop the 11 charging pump and allow RCP bleedoff and ambient losses to reduce level at 160 inches.
- D. Increase steam flow through the ADVs to maintain RCS cooldown rate at  $100^{\circ}\text{F/hr}$  to control level at 250 inches.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

33

ID: Q50788

Points: 1.00

Unit 1 was operating at 100% power. Given the following events and conditions:

- ? Shift turnover was in progress
- ? The oncoming control room operator (CRO) was delayed in arriving at the site due to an automobile accident
- ? His assigned trainee, an applicant for a reactor operator's license, is present for turnover
- ? The off-going CRO has reached his overtime limits

Which one of the following statements correctly describes how the shift turnover may be conducted in compliance with CNG-1.01-1000 (*Conduct of Operations*) assuming the Shift Manager does not waive any requirements in CNG-1.01-1000?

- A. The off-going Unit 1 CRO may turn over to the on-coming Unit 1 CRS who can then turnover to the on-coming Unit 1CRO when he arrives. The Trainee can perform the duties of the CRO under the instruction of the RO.
- B. The Shift Technical Advisor can assume the position as Unit 1 CRO position for up to 2 hours in order to accommodate the unexpected absence.
- C. The off-going Unit 1 CRO is required to remain in his position until the on-coming Unit 1 CRO arrives and receives a face-to-face turnover. The Shift Manager must submit an overtime waiver in accordance with SE-1-101 (*Work Hour Limits*).
- D. The on-coming Unit 2 CRO can function as the Unit 1 CRO for up to 2 hours until the on-coming Unit 1 CRO arrives for turnover.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

34

ID: Q50791

Points: 1.00

Unit 1 is conducting a refueling outage. Given the following events and conditions:

- ? The initial removal of the core is in progress
- ? A CEA is being withdrawn from the core:

WRlog NI channel   CPS at start of withdrawal

A	10
B	8
C	12
D	7

Given the following indications of increasing count rate on WRlog NI channel "A", which indication would be the first to require the RO to recommend CEA re-insertion to the Fuel Handling Supervisor in accordance with FH-305 (*Core Alterations*)?

- A. 12-14 CPS
- B. 16-18 CPS
- C. 20-22 CPS
- D. 24-26 CPS

Answer: C

35

ID: Q50792

Points: 1.00

Unit 2 was in mode 6 conducting a refueling outage. Given the following events and conditions:

- ? A fuel assembly has been grappled and moved to the upender under the supervision of the Fuel Handling Supervisor (FHS)
- ? All 4 wide range logarithmic (WRlog) NI channels are in service

Which one of the following events requires ceasing all core alterations in accordance with Technical Procedure FH-305 (*Core Alteration*)?

- A. One channel WRlog NIs fails high
- B. Spent fuel pool ventilation exhaust filter is bypassed
- C. Voice communications are lost between the refueling machine and the control room
- D. Containment purge has been secured by the Operating Instructions

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

36

ID: Q50797

Points: 1.00

Unit 2 was operating at 100% power. Given the following events and conditions:

? A CEA drops into the center of the core

? The operators withdraw the regulating group to restore power to 100%

Which one of the following statements correctly describes (1) the effect on the planar radial peaking factor (FxyT), and (2) the preferred method used to monitor FxyT in the core?

- A. (1) FxyT will increase  
(2) The wide range logarithmic nuclear instruments measures FxyT and provides input to the CECOR program.
- B. (1) FxyT will increase  
(2) The in-core detector system measures FxyT and provides input to the CECOR program.
- C. (1) FxyT will decrease  
(2) FxyT is manually calculated from the in-core detector system inputs.
- D. (1) FxyT will decrease  
(2) FxyT is manually calculated from the wide range logarithmic nuclear instruments.

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

37

ID: Q50796

Points: 1.00

Unit 1 is responding to a LOCA and has declared a site area emergency. Given the following timeline of events and conditions:

0200 The LOCA occurred

0205 The Shift Manager declared a Site Area Emergency

Which one of the following statements correctly describes the latest required times for emergency notification in accordance with ERPIP-105 (*Control Room Communicator*)?

- A. 0215 – notify state and local authorities  
0300 – notify NRC Headquarter Operations Officer
- B. 0220 – notify state and local authorities  
0305 – notify NRC Headquarters Operations Officer
- C. 0215 - notify state and local authorities  
0300 – notify NRC Resident Inspector
- D. 0220 – notify state and local authorities  
0305 – notify NRC Resident Inspector

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

38

ID: Q50795

Points: 1.00

Unit 1 was operating at 100% power when a loss of offsite power and steam generator tube rupture (SGTR) on the 11 S/G occurred. Given the following events and conditions:

- ? The operators implemented EOP-06 (SGTR)
- ? The ADVs were being operated locally (manually) for cooldown
- ? Boration has not yet been started due to various system failures
- ?  $T_{hot} = 516^{\circ}\text{F}$  (slowly decreasing)
- ? The operators reached step IV. J. 2 which reads:

*"WHEN  $T_{hot}$  is less than  $515^{\circ}\text{F}$ ,  
THEN isolate the most affected steam generator*

*(1) Shut the 11 ADV using..."*

Which one of the following statements correctly describes (1) the method for isolating the 11 ADV, and (2) the reason for cooldown below  $515^{\circ}\text{F}$   $T_{hot}$  prior to S/G isolation?

- A. (1) Shut the 11 ADV by removing the manual override and aligning the hand transfer valves to position 2 in the 45 ft switchgear room  
(2) Cooldown below  $515^{\circ}\text{F}$  reduces shutdown margin below required values
- B. (1) Shut the 11 ADV by removing the manual override and aligning the hand transfer valves to position 2 in the 45 ft switchgear room  
(2) Ensures the 11 S/G safety valve will not lift and stick open, thereby releasing contamination to the environment
- C. (1) Shut the 11 ADV using the 1-HC-4056A (*Atmospheric Steam Dump Contr*) in the control room  
(2) Ensures the 11 S/G safety valve will not lift and stick open thereby releasing contamination to the environment
- D. (1) Shut the 11 ADV using the 1-HIC-4056A (*Atmospheric Steam Dump Contr*) in the control room  
(2) Cooldown below  $515^{\circ}\text{F}$  may cause reactor vessel void formations

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

39

ID: Q50794

Points: 1.00

An operator was touring the containment to inspect the maintenance work order for cleaning boric acid deposits from the reactor vessel head. Given the following events and conditions upon exiting the work area:

- ? The operator received an exposure of 2500 mrem to the left hand due to a small radioactive particle that lodged in the glove
- ? The operator's electronic dosimeter read 250 mrem
- ? The operator's TLD read 200 mrem
- ? The operator was working in a 100 DAC area in a full face respirator for 1 hour

Which one of the following statements correctly describes (1) the operator's legal dose from this work (Total Effective Dose Equivalent (TEDE), Shallow Dose Equivalent (SDE), Committed Effective Dose Equivalent (CEDE)) and (2) the annual administrative maximum dose level extension required to allow the operator to continue working in the RCA?

- A. (1) TEDE = 200 mrem, SDE = 0 mrem, CEDE = 0 mrem  
(2) The SDE is still within alert flag limits with no SDE dose extension required
- B. (1) TEDE = 250 mrem, SDE = 2500 mrem, CEDE = 100 mrem  
(2) The SDE must be extended up to 3 rem to allow adequate dose margin
- C. (1) TEDE = 200 mrem, SDE = 2500 mrem, CEDE = 0 mrem  
(2) The SDE is still within alert flag limits with no SDE dose extension required
- D. (1) TEDE = 250 mrem, SDE = 2700 mrem, CEDE = 200 mrem  
(2) The SDE may be extended up to 50 rem to allow adequate dose margin

Answer: C



# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

40

ID: Q50793

Points: 1.00

You are now a control room operator but in the past, you were an expert on steam generator U-tube plugging practices. Your radiation exposure history for this quarter is given as follows:

- ? The date is 8/25/06
- ? You received 100 mrem whole body from a medical procedure two weeks ago.
- ? You visited the Ginna Nuclear Plant and received 950 mrem TEDE from 1/5 to 1/9/06
- ? You also visited the St Lucie Nuclear Plant and received 500 mrem TEDE from 12/5 to 12/15/05
- ? You have received 500 mrem TEDE for this year at CCNPP
- ? Neither the Plant General Manager nor the Vice President has been requested to authorize a dose extension.

Assuming all possible dose extensions have been authorized up the level of the worker's general supervisor, which one of the following statements correctly describes the maximum amount of whole body radiation you can receive at CCNPP before you exceed your Annual Administrative Maximum Level (TEDE) for Constellation Energy?

- A. 0 mrem
- B. 450 mrem
- C. 550 mrem
- D. 1500 mrem

Answer: C

41

ID: Q42269

Points: 1.00

The setpoint for the normal liquid effluent monitor is based on assumptions in the Offsite Dose Calculation Manual (ODCM).

Which of the following would require the Plant Computer activity setpoint to be lowered?

- A. The actual release rate decreases from 120 GPM to 90 GPM.
- B. The number of operating Circulating Water pumps decreases from six (6) to five (5).
- C. A decrease in the background radiation level at the monitor.
- D. The Chesapeake Bay level decreases by twelve (12) inches.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

42

ID: Q50790

Points: 1.00

Using Provided Reference(s):

Unit 1 and Unit 2 were operating at 100% power. Given the following events and conditions:

- ? Maintenance requested to take the 1A diesel generator out of service for surveillance.
- ? OI-49 (*Operability Verification*) was performed on Unit 1 ZB train equipment.
- ? All other EDGs and offsite power sources were verified to be operable.

Which one of the following statements correctly and completely describes the impact of this maintenance on the 11 HPSI?

- A. The 11 HPSI pump is considered operable while the 1A EDG is out of service regardless of the status of the remaining HPSI pumps.
- B. The 11 HPSI pump is considered operable while the 1A EDG is out of service unless the 13 HPSI pump is declared to be inoperable.
- C. The 11 HPSI pump is considered operable while the 1A EDG is out of service unless both the 12 and 13 HPSI pumps are declared to be inoperable.
- D. The 11 HPSI pump is considered NOT operable while the 1A EDG is out of service regardless of the status of the remaining HPSI pumps.

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

43

ID: Q50721

Points: 1.00

Unit 1 was in Mode 3 (NOP/NOT), making preparations for cooldown. Given the following events and conditions:

- ? VCT level = 100 inches
- ? Pressurizer level = 160 inches
- ? Pressurizer pressure = 2250 psia
- ? VCT makeup is in automatic mode
- ? A 20 gpm leak suddenly developed on a pressurizer code safety valve
  - o Assume that a 20 gpm leak corresponds to a steady state energy loss rate of 1600 KW out of the RCS

Assuming no operator action, which one of the following statements correctly describes the systems response?

- A. VCT level decreases to ~90" and then increases and cycles between ~90" and ~104"  
Pressurizer level decreases to ~150" and then increases and cycles between ~150 and ~160"  
Pressurizer pressure decreases to ~2220 psia and then increases and stabilizes at ~2250 psia
- B. VCT level decreases to ~90" and then increases and cycles between ~90" and ~104"  
Pressurizer level decreases to ~150" and then increases and stabilizes at ~160"  
Pressurizer pressure continues to lower until SIAS actuates
- C. VCT level decreases to ~90" and then increases to ~108"  
Pressurizer level decreases to ~145" and then increases and cycles between ~150 and ~160"  
Pressurizer pressure continues to lower until SIAS actuates
- D. VCT level decreases to ~3" and remains constant  
Pressurizer level decreases to ~150" and then increases and stabilizes at ~160"  
Pressurizer pressure decreases to ~2220 psia then increases and cycles between ~2220 and ~2225 psia

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

44

ID: Q50722

Points: 1.00

Unit 1 was operating at 100% power when a design bases earthquake caused a loss of offsite power and a LOCA inside containment. Given the following events and conditions in sequence:

- ? All emergency diesel generators started and initially energized their respective safety buses
- ? Bus 17 subsequently deenergized due to a bus fault that has not been cleared
- ? The OC diesel would not start
- ? 10 hours after the LOCA, the CRS directs the RO to shift to hot leg injection:
  - o RCS pressure = 19 psia
  - o RWT level = 0 inches (the RWT was ruptured by the earthquake)
  - o SIAS has been reset

Which one of the following statements correctly describes the correct step for operating the LPSI pump?

- A. LPSI pump 11 can be restarted by manually selecting START on the pump hand-switch.
- B. LPSI pump 12 can be restarted by manually selecting START on the pump hand-switch.
- C. LPSI pump 11 can be restarted by selecting OVERRIDE on the key-operated hand-switch and manually selecting START on the pump hand-switch.
- D. LPSI pump 12 can be restarted by selecting OVERRIDE on the key-operated hand-switch manually and selecting START on the pump hand-switch.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

45

ID: Q50723

Points: 1.00

Unit 1 was operating at 100% power when a loss of offsite power (LOOP) occurred at 0200. Given the following events and conditions:

- ? Containment spray pump 12 was tagged out of service for maintenance
- ? SRW pump 13 was electrically aligned to bus 14 and the 12 SRW header
- ? 0200 LOOP occurred. The following failures occurred at this time:
  - o EDG 1B failed to start
  - o SRW pump 11 tripped and would not restart
- ? 0205 – Standby SRW pump 13 is electrically realigned to bus 11, mechanically realigned to supply the 11 SRW header, and started
- ? 0215 - The 0C diesel was started and bus 14 was reenergized. All available safety related systems powered from bus 14 were started
- ? 0220 - Containment spray pump 12 was returned to service

What is the earliest time that safety systems have been aligned and made operable to successfully mitigate a large-break LOCA into containment?

- A. 0200
- B. 0205
- C. 0215
- D. 0220

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

46

ID: Q50746

Points: 1.00

Unit 1 and Unit 2 were operating at 100% when a large break LOCA occurred on Unit 1. Given the following events and conditions:

- ? The 11 containment spray pump failed to start
- ? The 12 CCW pump was out of service
- ? 1-SI-657 (*SDC HX Temp Control*) failed shut
- ? The 12 CC HX salt water (SW) outlet is blocked

Which one of the following statements is correct regarding the capability of the service water (SRW) and component cooling water CCW systems to adequately cool long-term emergency heat loads?

- A. The current system alignment is adequate
- B. The 12 SW emergency discharge header must be lined up
- C. The 11 CS pump must be restored to service
- D. The 12 CCW pump must be restored to service

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

47

ID: Q50724

Points: 1.00

Unit 1 was shutdown in Mode 5 preparing to draw a bubble in the pressurizer in accordance with OP-7. Given the following events and conditions:

- ? The RCS is in a solid water condition with pressure = 45 psia
- ? Quench tank level = 29 inches
- ? Quench tank Oxygen concentration = 4.5%

Which one of the following statements correctly describes the required actions to (1) establish initial conditions in the quench tank, and (2) draw a bubble in the pressurizer per OP-7?

- A. (1) Purge the quench tank with Nitrogen  
(2) Drain the pressurizer to quench tank until pressurizer level is in the indicating range, then energize pressurizer heaters and wait until pressurizer pressure increases.
- B. (1) Raise quench tank level above 30 inches.  
(2) Drain the pressurizer to quench tank until pressurizer level is in the indicating range, then energize pressurizer heaters and wait until pressurizer pressure increases.
- C. (1) Raise quench tank level above 30 inches  
(2) Energize pressurizer heaters and drain the pressurizer to the RWT until pressurizer level is lowering with steady or rising pressure.
- D. (1) Purge the quench tank with Nitrogen  
(2) Energize pressurizer heaters and drain the pressurizer to the RWT until pressurizer level is lowering with steady or rising pressure.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

48

ID: Q50725

Points: 1.00

Unit 2 was operating at 100% power when a loss of component cooling water occurred. Given the following events and conditions:

- ? AOP-7C (*Loss of Component Cooling Water*) was implemented
- ? The 23 CC pump was aligned to the bus 24B (ZB)
- ? The RO was directed to implement Attachment 1 (*Transferring 23 CC Pump 480 volt Disconnects*) to AOP-7C
- ? The RO reached step 3 in Attachment 1 that reads as follows:
  1. **Place 23 CC PP handswitch in PULL TO LOCK.**
  2. **Verify that 23 CC Pump currently aligned load supply breaker is open.**

### **NOTE**

"23 CC PP BKR L/U IMPR" alarm will be received on 2C13.

3. **Turn the handswitch, on the disconnect that is shut, to the TRIP position.**
4. **Turn the handswitch to the PULL OUT position and pull out the handle, placing the disconnect in PULL TO LOCK.**

Which one of the following statements correctly describes the location of the disconnects for the 23 CC pump and the interlock requirements for this attachment?

- A. The disconnects are located in the switchgear room, 27-foot elevation. The disconnects are interlocked with a key switch.
- B. The disconnects are located in the switchgear room, 45-foot elevation. The disconnects are interlocked with a key switch.
- C. The disconnects are located in the switchgear room, 27-foot elevation. The disconnects are interlocked through the handswitch on the 23 CC pump being in PTL.
- D. The disconnects are located in the switchgear room, 45-foot elevation. The disconnects are interlocked through the handswitch on the 23 CC pump being in PTL.

Answer: B



# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

49

ID: Q50733

Points: 1.00

Unit 2 was operating at 30% power during power ascension to 100%. Given the following events and conditions:

? A turbine trip occurred

Which one of the following statements correctly describes the system response and the reason for this response?

- A. Reactor power will decrease but the reactor will not trip because the loss-of-load input signal is disabled.
- B. The reactor will trip due to a low-pressure signal from the turbine auto stop oil header.
- C. The reactor will trip due to a low-pressure signal from the turbine emergency trip system header.
- D. The reactor will trip due to voltage input signal from the turbine master trip bus.

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

50

ID: Q50736

Points: 1.00

Unit 1 was operating at 100% power when a LOCA occurred. Given the following events and conditions:

- 0200 LOCA occurred inside containment
- 0203 Containment pressure peaked 20 psig
- 0240 Containment pressure dropped below 4 psig
- 0245 RWT level reached 0.75 feet but RAS failed to actuate
- ? Containment pressure was 3.5 psig and slowly decreasing
- ? Containment sump level was 40 inches and increasing
- 0246 The operators perform all required actions in EOP-5 (*Loss of Coolant Accident*) up to step S (*Verify RAS Actuation*).
- ? CSAS has NOT been manually reset

Which one of the following statements correctly describes the (1) containment spray pump configuration at the time of the RAS failure, and (2) the required operator actions to respond to the RAS failure in EOP-5?

- A. (1) CS pumps are running in injection mode.  
(2) Operators should NOT realign containment spray.
- B. (1) CS pumps are running in injection mode.  
(2) Align SI pump suctions for containment sump recirculation.
- C. (1) CS pumps are stopped.  
(2) Align SI pump suctions for containment sump recirculation.
- D. (1) CS pumps are stopped.  
(2) Operators should NOT realign containment spray.

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

51

ID: Q50737

Points: 1.00

Unit 1 was operating at 100% power when a LOCA occurred inside containment. Given the following events and conditions:

? Prior to the LOCA:

- o The 11 CCW HX was not in service
- o The 12 CCW HX was in service

? Containment pressure peaked at 10 psig and dropped to 3 psig

? The SRO directs you to verify the containment spray cooling alignment after RAS actuated

Which one of the following statements correctly describes (1) the expected component cooling (CC) flow in each SDC Hx and (2) the change in ECCS flow  $\Delta T$  across the SDC HXs after RAS actuation?

- A. (1) CC flow is expected to be at maximum in both SDC Hx's.  
(2) SDC HX ECCS  $\Delta T$  has increased
- B. (1) CC flow is expected to be isolated to the 11 SDC Hx but at maximum in the 12 SDC Hx.  
(2) 12 SDC HX ECCS  $\Delta T$  has decreased
- C. (1) CC flow is expected to be isolated to the 11 SDC Hx but at maximum in the 12 SDC Hx.  
(2) 12 SDC HX ECCS  $\Delta T$  has increased
- D. (1) CC flow is expected to be at maximum in both SDC Hx's.  
(2) SDC HX ECCS  $\Delta T$  has decreased

Answer: A

52

ID: Q50738

Points: 1.00

Which one of the following statements does **NOT** describe a function of the condensate system?

- A. Provide a source of water to main turbine exhaust hood sprays
- B. Provide seal water to the heater drain pumps
- C. Provide a backup source of supply for makeup to the component cooling water system
- D. Provide cooling water to the condensate booster pump seal water cooler

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

53

ID: Q50740

Points: 1.00

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

- ? A reactor trip occurred
- ? SGIS occurred
- ? 1-PI-1013A thru D indicate 890 psia (#11 S/G pressure)
- ? 1-PI-1023A thru D indicate 750 psia (#12 S/G pressure)
- ? 1-LI-1114C & 1-LR-1114D indicate -180 inches (#11 S/G level)
- ? 1-LI-1124C & 1-LR-1124D indicate -210 inches (#12 S/G level)

What is the present status of the S/G water level control system?

- A. Both SGs are being fed from AFW due to an AFAS and the operator actions required from EOP-0.
- B. AFAS actuated, feeding to the #11 S/G and restoring level; AFAS block to #12 S/G isolating flow.
- C. AFAS actuated, feeding to the #12 S/G and restoring level; AFAS block to #11 S/G isolating flow.
- D. Both SGs have an AFAS block signal isolating flow although an AFAS signal has occurred.

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

54

ID: Q50741

Points: 1.00

Unit 2 was operating at 100% power when a degraded voltage condition occurred on the grid. Given the following events and conditions:

- ? Service transformer U-4000-22 faulted and was electrically isolated
- ? The 2B DG failed to start
- ? An AFAS signal was generated
- ? The 0C DG was started and connected to 4.16 KV bus 07

Which one of the following statements correctly describes how power should be restored to the 23 AFW pump?

- A. Power should be rerouted to the 24 bus from the 0C DG by closing breakers 152-0701 (*07 4KV BUS TIE*) and 152-2406 (*24 4KV BUS FDR*) only.
- B. Power should be rerouted to the 24 bus from the 0C DG by closing disconnects 189-2406 (*DISC*) and breakers 152-0701, 152-2406.
- C. Power should be rerouted to the 24 bus from service bus 11 via transformer U-4000-11 by closing breaker 152-2401 (*24 4KV NORM FDR*).
- D. Power should be rerouted to the 24 bus from the 23 bus by closing breaker 152-2301 (*23 4KV ALT FDR*).

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

55

ID: Q50742

Points: 1.00

Unit 2 was operating at 100% power when a loss of offsite power occurred. Given the following events and conditions:

- ? The 21 AFW pump auto-started and ran at 4600 rpm
- ? The Emergency 250 VDC Bus 23 was deenergized due to a bus fault

Which one of the following statements correctly describes the status of the AFW lube oil supply and cooling flow?

- A. Lube oil flow is inadequate because the saddle pump is not operating. Lube oil is cooled by service water.
- B. Lube oil flow is inadequate. Although the saddle pump is operating, the rotating rings on the pump shaft will not provide a sufficient supply of oil above 4600 rpm. Lube oil is cooled by the AFW pump discharge.
- C. Lube oil flow is adequate. The rotating oil rings on the pump shaft will provide a sufficient oil supply. Lube oil is cooled by service water.
- D. Lube oil flow is adequate. The saddle pump is operating. Lube oil is cooled by the AFW pump discharge.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

56

ID: Q50743

Points: 1.00

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

- 0200 The reactor tripped and SIAS actuated
- 0205 The 1A DG was loaded on bus 11 at 4500 KW
- 0205 The 1B DG was loaded on bus 14 at 3550 KW

Which one of the following statements correctly describes the significance of these diesel generator loads?

- A. 1A DG is running within the continuous load limits  
1B DG is running in excess of the continuous load limits and should be shutdown to prevent damage to the engine
- B. 1A DG is running within the continuous load limits  
1B DG is running in excess of the continuous load limits but within the 30-minute load limit and should be monitored closely
- C. 1A DG is running in excess of the continuous load limits and should be shutdown to prevent damage to the engine  
1B DG is running within the continuous load limits
- D. 1A DG is running in excess of the continuous load limits but within the 30-minute load limit and should be monitored closely  
1B DG is running within the continuous load limits

Answer: B

57

ID: Q50744

Points: 1.00

Units 1 and 2 were operating at 100% power when extensive diesel fuel oil contamination was discovered in fuel oil storage tanks (FOST) 11 and 21. Given the following events and conditions:

- ? FOSTs 11 and 21 contained contaminated fuel oil
- ? FOST 1A contained clean fuel oil

Which one of the following statements correctly describes the EDGs that can receive clean fuel oil from FOST 1A through the installed fuel oil system?

- A. All EDGs can be fueled from FOST 1A
- B. Only the 1A and 0C EDGs can be fueled from FOST 1A
- C. Only the 1A EDG can be fueled from FOST 1A
- D. Only the 0C EDG can be fueled from FOST 1A

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

58

ID: Q50745

Points: 1.00

Units 1 and 2 are operating at 100% power with a liquid waste discharge in progress.

Which one of the following statements correctly describes the discharge path, automatic protective feature and the discharge limits?

Fill in the blanks:

The liquid waste system discharges into the \_\_\_\_\_ (1) \_\_\_\_\_, and is automatically terminated by closing 0-CV-2201 and 0-CV-2202 in order to maintain discharge limits below \_\_\_\_\_ (2) \_\_\_\_\_.

- A.
  - 1. Circulating water discharge conduits
  - 2. The fixed setpoint of 0-RI-2201 (*Liquid Waste Disch*)
- B.
  - 1. Salt-water emergency discharge header
  - 2. The Plant Computer High alarm setpoint
- C.
  - 1. Salt-water emergency discharge header
  - 2. The fixed setpoint of 0-RI-2201
- D.
  - 1. Circulating water discharge conduits
  - 2. The Plant Computer High alarm setpoint

Answer:        A



# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

59

ID: Q50747

Points: 1.00

Unit 1 and Unit 2 were operating at 100% power when a reduction in instrument air header pressure occurred. Given the following events and conditions:

- ? Unit 1 instrument air header pressure decreased to 90 psig.
- ? Unit 1 plant air header pressure decreased to 92 psig.
- ? The operators entered AOP-7D (*Loss of Instrument Air*) and took all required actions

Which of the following actions should have occurred?

1. The standby instrument air compressor started
  2. Containment instrument air isolation (IA-2085-CV) closed
  3. Plant air header automatic isolation valve (PA-2059-CV) closed
  4. Plant air to instrument air cross connect valve (PA-2061-CV) opened
- 
- A. Action 1 only
  - B. Actions 1 and 2 only
  - C. Actions 1 and 4 only
  - D. Actions 1, 2, 3 and 4

Answer: A

60

ID: Q44747

Points: 1.00

Given the following initial conditions :

- Unit 2 is in Mode 2
- Plant Startup is in progress

It is discovered that one of the manual TRIP pushbuttons at 1C15 is broken. Repairs will take approximately 36 hours. What of the following actions are the most correct for the stated conditions?

- A. Obtain GS-Shift Operations permission, open affected RTCB's within 1 hour and continue with plant startup
- B. Place the plant in Mode 3 within 6 hours and open ALL RTCB's within the 6 hours.
- C. Commence Rx shutdown and open ALL RTCB's within 48 hours
- D. Trip Unit 2 and implement EOP-0.

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

61

ID: Q44891

Points: 1.00

Unit 2 was operating at 100% power when a loss of Component Cooling Water occurred. AOP-7C, Loss of Component Cooling Water, was implemented. Which one of the following statements correctly describes (1) the temperature limit for RCP controlled Bleedoff requiring a reactor trip, and (2) the reason for the limit?

- A. (1) 180°F controlled bleedoff temperature  
(2) To prevent waterhammer upon restoration of CCW
- B. (1) 195°F controlled bleedoff temperature  
(2) To prevent damage to the thrust bearing
- C. (1) 200°F controlled bleedoff temperature  
(2) To prevent damage to the RCP seals
- D. (1) 250°F controlled bleedoff temperature  
(2) To prevent having to rebuild the RCP seals

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

62

ID: Q50764

Points: 1.00

Units 1 and 2 were operating at 100% power when a rupture occurred on the instrument air header. Given the following events and conditions:

- ? Plant air pressure dropped to 80 psig.
- ? The air leak was isolated by manual operator action
- ? Instrument air pressure increased to normal operating pressure

Which one of the following statements correctly describes (1) the response of 1-CV-2059 (*PA HDR ISOL VLV*) to the instrument air header rupture, and (2) the actions required to restore the plant air system when instrument air system has been repressurized?

- A. (1) Plant air will cross connect to supply instrument air by automatically opening 1-CV-2059.  
(2) The plant air system must be isolated from instrument air by manually closing 1-CV-2059.
- B. (1) Plant air will cross connect to supply instrument air by automatically opening 1-CV-2059.  
(2) The plant air system will automatically isolate from instrument air by closing 1-CV-2059 when instrument air system pressure increases above 85 psig.
- C. (1) 1-CV-2059 will shut to isolate plant air.  
(2) The plant air system loads must be restored by manually opening 1-CV-2059.
- D. (1) 1-CV-2059 will shut to isolate plant air.  
(2) The plant air system loads will automatically be restored when 1-CV-2059 automatically opens when instrument air pressure increases above 85 psig.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

63

ID: Q50735

Points: 1.00

Unit 1 was operating at 100% power when a large-break LOCA occurred inside containment. Given the following events and conditions:

- ? RCS pressure = 50 psia
- ? RWT level = 10 feet
- ? Containment pressure = 20 psig

If containment air cooler 14 was in standby prior to the accident, which one of the following statements correctly describes the containment air cooler cooling water valve configuration?

- A. The inlet valve is fully open  
The 8" outlet valve is fully open
- B. The inlet valve is throttled to a mid position  
The 8" outlet valve is fully open
- C. The inlet valve is fully open  
The 8" outlet valve is throttled to a mid position
- D. The inlet valve is throttled to a mid position  
The 8" outlet valve is throttled to a mid position

Answer: B

64

ID: Q50761

Points: 1.00

Unit 1 was operating at 100%. The operators were discharging reactor coolant to the reactor coolant liquid waste system. Given the following events and conditions:

- ? RCS chemistry is within normal limits

Assuming the liquid waste system is functioning as designed, which one of the following statements correctly describes the environmental hazards that pass through the waste treatment system without any significant reduction?

- A. Iron Oxide or crud particles
- B. Dissolved gasses such as Nitrogen or Hydrogen
- C. Tritium
- D. Soluble ions such as Boron and Cesium

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

65

ID: Q50739

Points: 1.00

Unit 2 was operating at 100% power. Given the following events and conditions:

- ? The feedwater system is aligned for normal operations
- ? The condensate system is aligned for normal operations

Which one of the following statements correctly describes the (1) the recommended number of running condensate pumps per OI-11A and (2) the reason for this alignment?

- A. (1) 2 (instead of 3) condensate pumps should be running  
(2) To ensure adequate suction pressure for the SGFPs
- B. (1) 2 (instead of 3) condensate pumps should be running  
(2) To prevent running the heater drain pumps at shutoff head
- C. (1) 3 (instead of 2) condensate pumps should be running  
(2) To prevent running the heater drain pumps at shutoff head
- D. (1) 3 (instead of 2) condensate pumps should be running  
(2) To ensure adequate suction pressure for the SGFPs

Answer: B

66

ID: Q28489

Points: 1.00

An automatic reactor trip and safety injection have occurred on Unit 1. The following conditions are noted:

- RCS subcooling is 0°F
- CET temperatures are slowly rising
- RCS pressure is 1100 psia
- Pressurizer level is 170 inches and rising rapidly

Which one of the following actions should be taken?

- A. Throttle HPSI flow as necessary to maintain pressurizer level between 101 and 180 inches.
- B. Pressurize the RCS or raise the cooldown rate of the RCS to maintain subcooling between 30 to 140°F
- C. Initiate once through core cooling
- D. Depressurize the RCS to lower safety injection flow

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

67

ID: Q42232

Points: 1.00

A Xenon-free, End-of-Life (EOL) reactor start-up is in progress. The following parameters are observed:

- Tcold is 530°F
- TBV's are in Automatic with an output of approximately 2.6%
- All Pressurizer back-up heaters are energized with the controlling pressure controller set at 2205 psig
- VCT boron is equal to RCS boron
- Critical data has been recorded at  $1 \times 10^{-4}$ % power

The reactor operator withdraws CEAs to achieve a SUR of + 0.5 DPM in order to raise power to the Point of Added Heat (POAH) and stops withdrawing CEAs. Approximately three minutes later, the 1C05 alarm window, POWER LEVEL HI CHANNEL PRETRIP, illuminates.

Which of the following statements best describes the response of the Unit 1 operator?

- A. Commence fast boration of the RCS to raise boron concentration to 2300 ppm.
- B. Select Manual Sequential on the CEDS panel and insert rods to the  $1 \times 10^{-4}$ % critical position to null out the positive start-up rate.
- C. Manually trip Unit 1 due to a Continuous Rod Withdrawal Accident occurring.
- D. Start 13 AFW pump to maintain SG levels which will change with the power escalation above the POAH.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

68

ID: Q20550

Points: 1.00

Unit 2 is at 100% power with the following conditions:

- Acoustic monitors ERV-402 and RV-200 indicate .01
- Quench tank pressure and temperature are rising slowly
- Pressurizer level is 216" and steady
- One charging pump is running
- Letdown flow is 32 GPM
- AOP-2A has been implemented
- PORV block valves 402-MOV and 404-MOV are shut

What is the proper direction given to the RO and CRO?

- A. Place the unit in cold shutdown per OP-3, OP-4 and OP-5.
- B. Shut letdown isolation valves, 2-CVC-515 and 2-CVC-516.
- C. With M-NO concurrence, raise RCS pressure to cycle and reseal the leaking RV.
- D. Immediately trip the reactor and implement EOP-0.

Answer: A

69

ID: Q49287

Points: 1.00

Unit 1 was operating at 100% power when a 300 gpm pipe break occurs in the letdown line inside of containment at the containment penetration.

Which of the following best describes why, five seconds after the break occurs, letdown flow will be less than 20 gpm?

- A. The excess flow check valve will restrict the flow.
- B. The letdown stop valves (CVC-515/516) will automatically shut on the ensuing SIAS.
- C. The letdown flow control valves will throttle shut on negative deviation sensed by the letdown controller due to decreasing pressurizer level.
- D. The lowering RCS pressure will cause the d/p driving letdown flow to lower, thus reducing flow out of the letdown line.

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

70

ID: Q20793

Points: 1.00

Unit 1 is in Mode 3 returning from a maintenance outage. ESFAS sensor cabinet ZF (1C93) has been shutdown for cleaning and inspection. When sensor channel ZF is deenergized per procedure, what is the resultant trip logic for the remaining channels for SIAS? (Assume all other channels are energized and signals are not bypassed)

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

Answer: B

71

ID: Q26512

Points: 1.00

Which one of the following describes the core heat removal process during a small break LOCA?

- A. The S/Gs using either the ADVs or TBVs.
- B. Charging flow and HPSI injection.
- C. HPSI, LPSI, and SIT injection.
- D. HPSI and LPSI injection only.

Answer: A

72

ID: Q20291

Points: 1.00

Unit 1 is on SDC when a total loss of Instrument Air occurs. The RO notices an apparent loss of RCS inventory. Which one of the following reasons would this be occurring?

- A. RCS temperature is lowering since 1-SI-657-CV has failed open.
- B. SDC flow is being diverted back to the RWT via the emergency sump MOVs.
- C. 1-CVC-500-CV has failed to the VCT position while on SDC purification.
- D. RCS temperature is lowering since 1-SI-306-CV has failed shut.

Answer: C



# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

73

ID: Q20822

Points: 1.00

Given the following plant conditions:

- Unit 1 is being heated up per OP-1
- RCS temperature is presently 500°F with all RCPs operating
- PZR pressure is 1700 psia and slowly rising, all heaters energized
- PZR pressure control in automatic, setpoint is at 2250 psia
- A main steam line rupture occurs outside containment downstream of the MSIVs
- ESFAS system is operating normally for plant conditions; no maintenance is in progress

Will any ESFAS actuation occur to mitigate this event?

- A. Yes, SIAS will mitigate the event when containment pressure is > 2.0 psig.
- B. Yes, SGIS will mitigate the event when SG pressure is < 685 psia.
- C. No, affected ESFAS signals are blocked.
- D. No, AFAS Block is not placed in service until Trip circuit breakers are closed.

Answer: C

74

ID: Q24647

Points: 1.00

Given the following conditions:

- Unit 1 initially operating at 100% power
- Unit 1 turbine trip with a concurrent loss of vacuum
- All SG safeties available
- Both ADVs unavailable

What is the SG pressure limited to immediately following this event?

- A. 1130 psig
- B. 1115 psig
- C. 1085 psig
- D. 1065 psig

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

75

ID: Q37902

Points: 1.00

What condition will prevent bridge and trolley operation?

- A. Mast detent pin is engaged.
- B. Computer override keyswitch is in use.
- C. Hoist box is being lowered or raised.
- D. Grapple is closed.

Answer: C

76

ID: Q50710

Points: 1.00

**[SRO ONLY]**

**(Using Provided Reference(s):**

Unit 1 was conducting a reactor startup at  $3 \times 10^{-3}$ % power. Given the following events and conditions:

- ? Channel "B" wide range logarithmic (WRlog) instruments was bypassed
- ? All other channels of WRlog NIs were operable
- ? The reactor was critical
- ? Power was being raised in OP-2 (*Plant Startup from Hot Standby to Minimum Load*)
- ? Group 4 CEAs were at 100 inches
- ? Channel "A" WRlog instruments failed

Which one of the following statements correctly describes the least restrictive actions to complete the startup while still complying with Tech Specs?

- A. Reinsert regulating group CEAs until the reactor is in mode 3. Restore either "A" or "B" NI channel within 48 hrs prior to recommencing the startup.
- B. Do not raise power above 5% until the WRlog channel "A" rate of change of power high bistable trip unit has been placed in trip. Restore either "A" or "B" NI channel within 48 hrs.
- C. The startup may continue – the WRlog channel "A" rate of change of power high bistable trip unit shall be placed in bypass within 1 hour after exceeding 12% RTP.
- D. The startup may continue without regard for any power limitations –the WRlog channel "A" rate of change of power high bistable trip unit shall be placed in trip within 1 hour.

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

77

ID: Q50714

Points: 1.00

## [SRO ONLY]

### Using provided reference(s):

Unit 1 was operating at 100% power. Unit 2 was shutdown in Mode 6 conducting a forced outage in August. The results of Tech Spec Surveillances 3.8.3.1 and 3.8.3.2 indicated the following:

- ? FOST 1A storage = 45,000 gallons
- ? FOST 1A – indicates water content exceeds the limits of the diesel fuel oil testing program
- ? FOST 11 storage = 40,000 gallons
- ? FOST 11 – indicates total particulates exceed the limits of diesel fuel oil testing program
- ? FOST 21 storage = 70,000 gallons
- ? FOST 21 – indicates oil is within limits of the diesel fuel oil testing program

Which one of the following selections correctly describes all of the required actions that would comply with Tech Specs, allow the maximum action times, and prevent having to declare any EDG to be inoperable immediately?

- A. Reduce FOST 1A water content to within limits within 30 days  
Reduce FOST 11 total particulates within specifications within 7 days  
Restore FOST 21 level to > 85,000 gallons within 48 hours
- B. Reduce FOST 1A water content to within limits within 48 hours  
Reduce FOST 11 total particulates within specifications within 7 days  
Restore FOST 21 level to > 72,860 gallons within 1 hour and restore level to > 85,000 gallons within 48 hours
- C. Reduce FOST 1A water content to within limits within 48 hours  
Reduce FOST 11 total particulates within specifications within 30 days  
Restore FOST 21 level to > 72,860 gallons within 1 hour and restore level to > 85,000 gallons within 48 hours
- D. Reduce FOST 1A water content to within limits within 30 days  
Reduce FOST 11 total particulates within specifications within 30 days  
Restore FOST 21 level to > 85,000 gallons within 2 hours

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

78

ID: Q50726

Points: 1.00

[SRO ONLY]

Using provided reference(s):

Unit 1 was operating at 16% power in the process of conducting a reactor shutdown in OP-4 (*Plant Shutdown from Power Operation to Hot Standby*). Given the following events and conditions:

- ? A problem with feedwater caused a low water level in the 11 S/G
- ? The operators elected to manually trip the reactor before reaching the automatic trip setpoint (the next step in OP-4 was to take the turbine offline and shutdown the reactor)
- ? The main turbine failed to automatically trip
- ? A SGIS actuation shut both MSIVs

Which one of the following notifications/reports is the FIRST one required in accordance with 10CFR50.72/73 and what person in the NRC is the official recipient of the report?

- A. A 4 hour ENS report is made to the NRC Headquarters Operations Officer
- B. A 4 hour ENS report is made to the Resident Inspector
- C. An 8 hour ENS report is made to the Resident Inspector
- D. A 60-day LER is made to the NRC Headquarters Operations Officer

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

79

ID: Q50711

Points: 1.00

## [SRO ONLY]

Unit 1 was operating at 100% power when a temporary alteration (Temp Alt) installation work package was provided by Engineering to the SRO for review and installation approval. Given the following events and conditions:

- ? The Temp Alt added a portable air conditioner to the 1A DG room for better cooling from May through September. It would be powered from the 11 4KV bus. Engineering stated that it was being installed for personnel comfort and was not required for DG room cooling.
- ? The Temp Alt did not have a 10CFR50.59 screening or evaluation package completed.
- ? Engineering stated that because the Temp Alt could be manually stopped if an overload condition occurred on the 11 4-KV bus, it did not require a 10CFR50.59 screening. Compensatory actions were sufficient to minimize the risk.

Which one of the following statements correctly describes the SRO's decision?

- A. Allow the Temp Alt to be installed and ensure compensatory actions are accounted for as an operator workaround. Temp Alts do not require 10CFR50.59 screening unless they are made permanent.
- B. Allow the Temp Alt to be installed because it is a non-safety related system and therefore is not subject to 10CFR50.59 screening. Compensatory actions are sufficient to assure reasonable expectation for continued operability.
- C. Reject installation of the Temp Alt and request that Engineering reevaluate the reduction in safety margin for DG loading using the 10CFR50.59 process.
- D. Reject installation of the Temp Alt and request that Engineering obtain installation authorization from the GS-SO for the Temp Alt. This is a type 2 decision in accordance with NO-1-116 (*Operational Decision Making*).

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

80

ID: Q50706

Points: 1.00

## [SRO ONLY]

Unit 1 was operating at 100% power when CEA #1 in reg group 5 was noted to be out of alignment by 10 inches. Given the following events and conditions:

- ? The operators implemented AOP-1B (*CEA Malfunction*)
- ? 2 CEAs were intermittently binding
- ? While AOP-1B rod realignment was in progress, reactor engineering determined that the 2 CEAs were “untrippable” but “moveable” (i.e. you could insert them but they may not trip)

Which one of the following statements correctly describes the required actions in AOP-1B?

- A. Ensure all CEAs are properly aligned within 1 hour and notify reactor engineering of the problem. Control  $T_{\text{cold}}$  on program by adjusting turbine power and await further directions.
- B. Reduce power below 70% within 1 hour and perform SR 3.1.4.1 (Verify CEA Positions). Notify reactor engineering if any 2 CEAs are misaligned by more than 15 inches from their group and await further directions.
- C. Commence a rapid shutdown per OP-3 (*Normal Power Operation*) Appendix B (*Rapid Power Reduction*). Trip the reactor if any 2 CEAs are out of alignment by more than 15 inches from their group.
- D. Trip the reactor and enter EOP-0 (*Post Trip Immediate Actions*). Drive the 2 CEAs into the core if they do not trip.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

81

ID: Q50707

Points: 1.00

[SRO ONLY]

(Using provided references)

Unit 1 was operating at 100% power. Given the following events and conditions:

- ? 0200 8/25/06 All channels of Wide Range Logarithmic (WRlog) NIs failed surveillance STP-063-1 on the remote shutdown panel
- ? 0200 8/30/06 All channels of pressurizer pressure failed surveillance STP-063-1 on the remote shutdown panel
- ? 0200 9/15/06 Channel "A" WRlog channel was restored to operation

Which one of the following statements correctly describes when one channel of pressurizer pressure indication is required to be restored to an operable status to preclude shutting down?

- A. 0200 on 9/24/2006
- B. 0200 on 9/25/2006
- C. 0200 on 9/29/2006
- D. 0200 on 10/15/2006

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

82

ID: Q50708

Points: 1.00

## [SRO ONLY]

Unit 2 was operating at 100% power when a loss of offsite power occurred. Given the following events and conditions:

- ? The RCPs tripped and a loss of all RCS flow occurred
- ? The 2B DG failed to start
- ? The main steam header from the 21 S/G experienced a double-ended guillotine shear inside containment.
- ? The 21 S/G blowdown caused an overcooling event in the RCS
- ? The operators completed EOP-0 (*Immediate Post Trip Actions*) and the SRO reviewed the diagnostic flow chart for transition

Which one of the following statements correctly describes the optimal procedural transition from EOP-0?

- A. Transition into EOP-1 (*Reactor Trip*)
- B. Transition into EOP-2 (*Loss of Offsite Power / Loss of Forced Circulation*)
- C. Transition into EOP-4 (*Excess Steam Demand Event*)
- D. Transition into EOP-8 (*Functional Recovery Procedure*)

Answer: C



# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

83

ID: Q50709

Points: 1.00

## [SRO ONLY]

Unit 1 was operating at 100% power. Given the following events and conditions:

- ? Letdown flow was at minimum
- ? Containment normal sump alarm annunciated
- ? Pressurizer level was at 205 inches and slowly trending lower
- ? VCT makeup was occurring in manual due to a low level condition
- ? Tcold was on program
- ? Condenser off-gas alarm annunciated
- ? RCS average leak rate per the plant computer was 100 gpm

Which one of the following statements correctly describes (1) the proper procedure to address the problem, and (2) the criteria for tripping the reactor?

- A. (1) Enter AOP-2A (*Excessive Reactor Coolant Leakage*)  
(2) If pressurizer level cannot be maintained above 101 inches, PZR pressure reaches the TM/LP pre-trip setpoint, or if Tave is less than 537°F
- B. (1) Enter AOP-2A (*Excessive Reactor Coolant Leakage*)  
(2) If pressurizer level cannot be maintained above 200 inches, PZR pressure reaches the TM/LP pre-trip setpoint, or if Tave is less than 537°F
- C. (1) Enter EOP-0 (*Post Trip Immediate Actions*)  
(2) Trip the reactor when the second charging pump starts if pressurizer level continues to lower
- D. (1) Enter EOP-0 (*Post Trip Immediate Actions*)  
(2) Trip the reactor because a SGTR has occurred

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

84

ID: Q50713

Points: 1.00

## [SRO ONLY]

Units 1 and 2 were operating at 100% power with a waste gas release in progress. Given the following events and conditions:

- ? 0-RI-2191 (*Waste Gas Discharge Radiation Monitor*) alarmed
- ? 0-WGS-2191-CV (*WG DISCH ISOL*) shut
- ? 0-RI-2191 activity level decreased below the alarm setpoint
- ? Meteorological conditions did not change

Which one of the following statements correctly describes the major actions required to restart the release under OI-17B (*Waste Gas System*)?

- A. Terminate the release, reset the alarm, resample the WGDTs, reissue the release permit and restart the release.
- B. Reset the alarm, obtain approval from Radiation Safety Supervision and restart the release using the existing release permit.
- C. Terminate the release, reset the alarm, purge the waste gas header, and release the waste gas decay tank.
- D. Terminate the release, reset the alarm, recalibrate 0-RI-2191, and release the waste gas decay tank.

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

85

ID: Q50715

Points: 1.00

## [SRO ONLY]

### Using provided reference(s):

Unit 1 was operating in mode 6 preparing to restart following a refueling outage. Given the following events and conditions:

- ? The outage commenced on 8/1/06 when the reactor was shutdown at 0200. It is now 2300 on 8/26/06.
- ? Refueling had been completed with 85 new fuel assemblies loaded in the core.
- ? RCS level is 40 feet, in reduced inventory, with the reactor vessel head removed
- ? RCS temperature = 125°F holding steady with SDC in service
- ? All outage work on the S/Gs had been completed and both S/G are ready for heatup to Mode 4.
- ? A truck backed into an electrical pole in the switchyard and triggered a loss of all AC power (station blackout) occurred.
- ? Containment was evacuated.

If no sources of cooling are available for the core, how long before the core will uncover?

- A. < 3 hours
- B. 3 - 6 hours
- C. 6 - 9 hours
- D. > 9 hours

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

86

ID: Q50712

Points: 1.00

## [SRO ONLY]

Unit 1 was operating at 100% power when operators noticed that a gage on the main control board was reading erratically. Given the following events and conditions:

- ? The gage was located in an area where the gage terminals were in close proximity to relay terminals that, if shorted, could cause a reactor trip.
- ? The FIN-Team requested permission to troubleshoot the gage by measuring the output signal at the gage terminals. This required entering the area behind the main control boards and reaching the instrument gage terminals with a multi-meter to measure the signal.
- ? The FIN-Team stated that no tagout was necessary and the troubleshooting would only take 10 minutes. The FIN-CRO was absolutely certain that the technicians could land the multi-meter's leads on the gage terminals without touching the nearby relays.
- ? All near-by circuits operated on low voltage so there was no danger of electrical shock.
- ? The Shift Manager will NOT specifically exempt this work from complying with the requirements of NO-1-117 (*Integrated Risk Management*) for troubleshooting activities.

Which one of the following statements correctly characterizes the SRO's response to this request?

- A. The troubleshooting activity may be authorized at the discretion of the Shift Manager. Troubleshooting does not require a risk assessment per NO-1-117 unless it removes equipment from operation.
- B. The troubleshooting activity may be authorized at the discretion of the Shift Manager. This troubleshooting activity does not require a risk assessment per NO-1-117 if the activity can be peer-checked.
- C. The troubleshooting activity may be authorized at the discretion of the Shift Manager. This troubleshooting activity does not require a risk assessment per NO-1-117 if there is no industrial safety risk.
- D. The troubleshooting activity may NOT be authorized at the discretion of the Shift Manager. All troubleshooting requires a risk assessment of NO-1-117 prior to actually commencing the work unless specifically exempted by the Shift Manager.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

87

ID: Q50690

Points: 1.00

## [SRO ONLY]

Unit 2 experienced a small break LOCA. Given the following events and conditions:

- ? The operators completed EOP-0 (*Post Trip Immediate Actions*) and transition to EOP-5 (*Loss of Coolant Accident*)
- ? Subcooling margin = -5°F
- ? There is indication of a void in the reactor vessel head

Which one of the following statements correctly describes the reactor vessel level monitoring system (RVLMS) indication under these conditions?

- A. RVLMS is accurate for both vessel level and level trending information when RCPs are operating.
- B. RVLMS is accurate only for vessel level information when RCPs are operating.
- C. RVLMS is accurate for both vessel level and level trending information when RCPs are NOT operating.
- D. RVLMS is accurate for both vessel level and level trending information whether or not RCPs are operating.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

88

ID: Q50700

Points: 1.00

## [SRO ONLY]

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

- ? The 1A DG failed to start and energize the 11 4 KV bus
- ? The 1B DG started but failed to energize the 14 4 KV bus – there is indication of a bus fault on the 14 4KV bus
- ? The operators implemented EOP-7 (*Station Blackout*) and have started, but not completed, Step “L” (**IF** RCS Subcooling drops to 30°F, **THEN** cool down the RCS to maintain subcooling)
- ? Subcooling margin had not been restored when:
  - o Alarms *SGIS A/B BLOCK PERMITTED* annunciated
  - o Alarms *PZR PRESS BLOCK A/B PERMITTED* annunciated

Which one of the following statements correctly describes (1) the required actions to block SGIS and SIAS (this action will not be required until later in step “M”), and (2) the preferred order for restoring power to a safety bus?

- A. (1) Do NOT block SGIS or SIAS until step “L” has been completed and step “M” has been reached in EOP-7  
(2) Order: 1<sup>st</sup> – 1A or 1B D/Gs, 2<sup>nd</sup> – 0C D/G, 3<sup>rd</sup> – Offsite Power from SMECO
- B. (1) Do NOT block SGIS or SIAS until Step “L” has been completed and step “M” has been reached in EOP-7  
(2) Order: 1<sup>st</sup> – 1A D/Gs, 2<sup>nd</sup> – 0C D/G, 3<sup>rd</sup> – Offsite Power from SMECO
- C. (1) Block SGIS and SIAS in advance of reaching Step “M”  
(2) Order: 1<sup>st</sup> 1A D/G, 2<sup>nd</sup> Offsite Power from SMECO, 3<sup>rd</sup> 0C D/G
- D. (1) Block SGIS and SIAS in advance of reaching step “M”  
(2) Order: 1<sup>st</sup> 1A D/G, 2<sup>nd</sup> 0C D/G, 3<sup>rd</sup> Offsite Power from SMECO

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

89

ID: Q28822

Points: 1.00

## [SRO ONLY]

A RCS leak has been diagnosed. AOP-2A has been implemented and the following plant conditions exist:

- Letdown flow is 37 GPM
- Waste processing RMS is in alarm
- One Charging pump is running
- PZR level is on program
- Rate of VCT decrease has risen

What action directed by the CRS will minimize personnel exposure when investigating for leaks in the West Penetration Room?

- A. Increase purification flow rate.
- B. Secure Charging and letdown.
- C. Notify Radiation Safety to investigate by video camera.
- D. Declare a radiological event per the ERPIP.

Answer: C

90

ID: Q20799

Points: 1.00

## [SRO ONLY]

During recovery from a LOCA on Unit 2 you, as the Unit 2 CRS, direct the RO to reset SIAS from the control room using the implemented EOP. Containment pressure is 2.0 psig and PZR pressure is 800 psia. What sequence of actions will must the RO take to complete this action?

- A. Block Pzr pressure SIAS and depress either SIAS channel reset pushbutton.
- B. Match required handswitches per the EOP attachment, and depress both SIAS channel reset pushbuttons.
- C. Match required handswitches per the EOP attachment, block PZR pressure SIAS, and depress both SIAS channel reset pushbuttons.
- D. Block Pzr pressure SIAS and then depress both SIAS channel reset pushbuttons.

Answer: C

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

91

ID: Q20830

Points: 1.00

## [SRO ONLY]

You are the Operations Work Coordinator. Given that Unit 1 is at 100% power and the maintenance shop brings a package for scheduled maintenance on #11 SG pressure channel C, 1-PT-1013C, requiring that this transmitter be taken out of service, which safety signals, ESFAS and RPS, will you tell the Unit 1 RO are affected by the transmitter inoperability?

- A. RPS trip on low SG pressure; ESFAS trips on SGIS block, SGIS, and SIAS.
- B. RPS trip on low SG level trip; ESFAS trips on SGIS, CSAS, and AFAS.
- C. RPS trips on low SG pressure, TM/LP, and ASGT; ESFAS trips on SGIS and SGIS block.
- D. RPS trips on low SG pressure trip, TM/LP, and ASGT; ESFAS trip on AFW flow to break for AFAS.

Answer: C

92

ID: Q42320

Points: 1.00

## [SRO ONLY]

### Using Provided Reference(s):

A severe accident is in place on Unit 2, CETs have reached 2000°F. 11 HPSI has just become available as the only source of injection. The Technical Support Center (TSC) would like for 11 HPSI to be started and flow to be raised to full flow gradually over 5 minutes. How should the TSC communicate this direction to the Control Room?

- A. The TSC Director should call the Shift Manager directly with the special directions and ask him to invoke 10CFR50.54(x).
- B. The TSC should provide a detailed procedure to the Control Room.
- C. The PGM should invoke 10CFR50.54(x) and call the Shift Manager, GS-Ops and SEC with the special directions.
- D. The TSC should provide an approved Candidate High Level Actions (CHLA) Evaluation Worksheet with the special instructions to the Control Room.

Answer: D



# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

93

ID: Q50672

Points: 1.00

## [SRO ONLY]

Unit 2 is in Mode 1 when a SGTR occurs on 21 SG. During the trip, 2-CV-4043 (21 MSIV) fails to shut and a large steam leak develops in the 27' Turbine Building on the MS header piping downstream of 22 MSIV. Although 22 MSIV is shut during EOP-0, EOP-8 is eventually implemented due to the continuing ESDE and the SGTR events. During EOP-8, you have been assigned the step in the Functional Recovery Procedure to 'Determine the appropriate emergency response actions per the ERPIP.'

You determine a General Emergency should be declared under H.G.5.1.4 due to-

- Ruptured SG is also faulted outside of containment
- SGTR > available charging pump capacity
- Coolant activity > 600 uCi/cc DEQ I-131

Additionally, the following conditions exist-

- DIR 10 is reading 160<sup>0</sup>
- DIR 60 is reading 175<sup>0</sup>

What are your recommended Protective Actions when completing the Initial Notification Form?

- A. Evacuate PAZ 1 & 2 unless conditions make evacuation dangerous, notify the public in PAZ 1 & 2 to take KI, shelter remainder of the 10 mile EPZ
- B. Evacuate PAZ 1 & 3 unless conditions make evacuation dangerous, notify the public in PAZ 1 & 3 to take KI, shelter remainder of the 10 mile EPZ
- C. Evacuate PAZ 1 unless conditions make evacuation dangerous, notify the public in PAZ 1 to take KI, shelter remainder of the 10 mile EPZ
- D. None, no radioactivity is being released since 22 MSIV was shut

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

94

ID: Q50810

Points: 1.00

## [SRO ONLY]

The RCS is at 180 °F & 63' and is being cooled to support the first reduced inventory window of a refueling outage. Restricted containment closure has been established to support the planned draining of the RCS.

At 1300, two separate explosions in the Aux Building disable SDC. Security confirms that an explosive device damaged the 11 4Kv bus and another the 12 LPSI and 12 CS pumps. AOP-3B has been entered and the RCS temperature is heating up.

At 1320, the unit has entered Mode 4 and is heating up at 10°F every 5 minutes. Pressurization of the RCS is possible and is the success path in AOP-3B.

What is the EAL classification?

- A. Unusual Event
- B. Alert
- C. Site Area Emergency
- D. None

Answer: C

95

ID: Q40447

Points: 1.00

## [SRO ONLY]

During a dryrun ISFSI loading, a missile is launched at an empty DSC. The DSC falls off the trailer just outside the ISFSI entry gate. The Security Shift Supervisor reports that non-company employees have taken control of the ISFSI truck.

What is the EAL classification?

- A. Unusual Event per A.U.8.1.1
- B. Alert per A.A.6.1.2
- C. Site Area Emergency per A.S.6.1.3
- D. General Emergency per A.G.6.1.4

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

96

ID: Q41513

Points: 1.00

## [SRO ONLY]

Unit 1 is in Mode 6 with the reactor vessel head being prepared for being removed from containment. 4 containment closure deviations exist. Shutdown cooling has been lost for approximately 25 minutes and HPs have reported steam beginning to rise from the reactor vessel.

What is the ERPIP classification?

- A. C.A.1.1.2
- B. C.U.1.1.1
- C. C.A.1.2.1
- D. C.U.1.3.1

Answer: A

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

97

ID: Q45228

Points: 1.00

## [SRO ONLY]

Unit 2 was operating at 100% when the operators noted that VCT level was dropping. Given the following events and conditions:

- AOP-2A (Excessive Reactor Coolant Leakage) has been implemented
- Acoustic monitors ERV-402 and RV-200
- Quench tank pressure and temperature are rising slowly
- PORV block valves 402-MOV and 404-MOV were shut
- The 21 charging pump is running
- Pressurizer level = 216 inches - holding steady
- Pressurizer pressure = 2250 - holding steady
- Letdown flow = 32 gpm
- Quench tank temperature and pressure continue to rise slowly

Which one of the following statements correctly describes (1) the direction to be given to the RO and CRO, and (2) the reason for this mitigation strategy?

- A. (1) Isolate letdown by closing 2-CV-515/516 and observe pressurizer level  
(2) To reduce inventory loss and attempt leak isolation
- B. (1) Place the Unit in cold shutdown per OP-3, OP-4 and OP-5  
(2) An orderly shutdown is preferable to avoid stress on plant systems and components at high power
- C. (1) Raise RCS pressure to 2350 psia and observe acoustic monitors  
(2) To reseal the leaking relief valve and stop the leak
- D. (1) Trip the reactor and implement EOP-0  
(2) The leak is greater than the allowable limits for a normal shutdown

Answer: B

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

98

ID: Q20627

Points: 1.00

## [SRO ONLY]

Which of the following is a responsibility of the Shift Manager prior to commencing a core onload from a defueled condition?

- A. Verify Containment Purge is in operation and that all required ESFAS equipment is operable to support core alterations
- B. Review the Temporary Alteration Log for operability impact of equipment required for core alterations
- C. Review Required Reading for changes in procedures which may affect the operation of equipment required for core alterations
- D. Verify no projects or modifications are currently outstanding which could impact entry into Mode 5

Answer: B

99

ID: Q50811

Points: 1.00

## [SRO ONLY]

You are the CRS on Unit 1, coming out of a refueling outage. When must you station the dedicated operator for preparing to draw a pressurizer bubble?

- A. Prior to exceeding 180°F pressurizer water temperature.
- B. Prior to indications that a pressurizer bubble exists.
- C. Prior to the pressurizer reaching solid water conditions.
- D. Prior to exceeding 170 inches pressurizer level.

Answer: D

# EXAMINATION ANSWER KEY

LOI2006 SRO Audit Exam

100

ID: Q50812

Points: 1.00

## [SRO ONLY]

You are the CRS for Unit 2 which is in a refueling outage. You have completed Section 6.2, *RCS Draining Between 100 Inches PZR Level And 41 Ft Elevation*, and are completing the steps in 6.3, *Entering Reduced Inventory Condition*. You direct the CRO to fully shut two LPSI Header MOVs in opposite boration flow paths, and throttle the other two LPSI Header MOVs per Step 6.3.AE.

What is the basis for this step?

- A. To prevent vortexing at the SDC suction during a Loss of Offsite Power.
- B. To ensure a boration flowpath remains operable on a Loss of Offsite Power.
- C. Because SI-306 fails open on a loss of Instrument Air.
- D. Because SI-657 fails shut on a loss of Instrument Air.

Answer: C