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Catawba

## **FINAL SRO 2008 RETAKE WRITTEN EXAM**

#### **CONTENTS:**

- □ Final SRO Written Exam (100 'as given' questions with changes made during administration annotated)
- Reference Handouts Provided To Applicants
- □ Answer Key

### Location of Electronic Files:

Not applicable.

### 2008 SRO NRC Retake Examination

#### Question: (1 point)

1

Unit 1 is operating at 75% power and increasing power following a refueling outage. The following occurs at 1015:

- 1AD-1, E/8 "TURB GEN HI VIBRATION" actuates
- Turbine bearing vibration readings on the OAC indicate:
  - Bearing #9 at 11 mils and stable
  - Bearing #10 at 13 mils and stable

What response is required for these conditions per OP/1/B/6100/010B (Alarm Response for Panel 1AD-1)?

- A. Immediately trip the turbine only
- B. Immediately trip the reactor and verify the turbine trips automatically
- C. Monitor bearing vibrations and if vibration is unchanged at 1017, trip the turbine only
- D. Monitor bearing vibrations and if vibration is unchanged at 1017, trip the reactor and verify the turbine automatically trips

### 2008 SRO NRC Retake Examination

#### Question:

(1 point)

Unit 1 is operating at 100% power. Given the following conditions and sequence of events:

#### Initial Conditions

2

- 1NV-294 (NV Pmps A&B Disch Flow Ctrl) is in manual
- PRT pressure is 6 psig and increasing
- PRT level is 67% and increasing
- The PRT has a small external leak (0.05 gpm)
- Pressurizer pressure is 2235 psig

#### Final Conditions 10 minutes later

- The crew notes pressurizer pressure is 2197 psig and slowly decreasing
- PRT pressure is 15 psig and increasing
- PRT level is 68% and increasing

Based on the conditions stated above, and assuming no operator action:

- 1. How (if at all) is charging flow affected?
- 2. How (if at all) is the external leakage rate from the PRT affected?
- A. Charging flow is stable PRT external leakage rate will increase
- B. Charging flow is stable PRT external leakage rate is stable
- C. Charging flow is increasing PRT external leakage rate is stable
- D. Charging flow is increasing PRT external leakage rate will increase

### 2008 SRO NRC Retake Examination

#### Question:

3

(1 point)

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

- The crew is in EP/1/A/5000/E-1 (Loss of Reactor or Secondary Coolant)
- NC pressure is 1200 psig and stable
- Containment pressure peaked at 2.8 psig and is slowly decreasing
- NC subcooling is 2°F and stable
- Pressurizer level is 18% and slowly increasing
- Total CA flow is 400 gpm and stable
- All S/G NR levels are approximately 21% and slowly increasing

Can safety injection be terminated at this time and why or why not?

- A. Yes, safety injection termination criteria are met
- B. No, CA flow is too low
- C. No, NC subcooling is insufficient
- D. No, pressurizer level is too low

### 2008 SRO NRC Retake Examination

#### Question:

4

(1 point)

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

- The crew is performing EP/1/A/5000/E-1 (Loss of Reactor or Secondary Coolant)
- 1A train and 1B train ECCS are RESET
- 1A D/G load sequencer is RESET
- The crew can <u>not</u> reset 1B D/G load sequencer
- An NLO completes the local action(s) required due to the inability to reset 1B D/G load sequencer from the control room
- A complete loss of offsite power occurs
- FWST level is 57% and decreasing

Assuming no further operator action, which ECCS pumps are running 1 minute after the loss of offsite power?

- A. 1A NV only
- B. 1A NV and 1B NV only
- C. 1A NV, 1A NI and 1A ND only
- D. 1A NV, 1B NV, 1B NI and 1B ND

### 2008 SRO NRC Retake Examination

#### Question:

5

(1 point)

Unit 1 is operating in Mode 3. Given the following temperatures on the 1A NCP at 0200 hrs:

- Motor bearing temperature is 187.2°F
- Lower pump bearing temperature is 211.2°F
- #1 seal outlet temperature is 223.2°F
- Motor stator winding temperature is 301.2°F
- All temperatures are increasing at 1°F per minute

What is the <u>earliest</u> time that the 1A NCP must be secured per OP/1/A/6150/002A (Reactor Coolant Pump Operation)?

- A. 0208
- B. 0210
- C. 0212
- D. 0214

### 2008 SRO NRC Retake Examination

#### Question:

6

(1 point)

Unit 1 is in Mode 5 preparing to enter Mode 6 after being shutdown 10 days ago. Given the following conditions and sequence of events:

- NC wide range level is 18% and stable
- 1A ND loop is in service
- ND Pump A Discharge Temperature is 120°F and stable
- ND Hx A Outlet Temperature is 100°F and stable
- The 1A ND pump trips
- The 1B ND pump can <u>not</u> be started

Based on current conditions, what is the minimum time before core boiling occurs?

#### Reference provided

- A. 31-32 minutes
- B. 36-37 minutes
- C. 47-48 minutes
- D. 55-56 minutes

### 2008 SRO NRC Retake Examination

#### Question:

7

(1 point)

Unit 2 is operating at 100% power. Given the following conditions and sequence of events:

- "PZR PRESS CTRL SELECT" switch is in the 1-2 position
- Pressurizer pressure channel 1 is failed low
- The crew entered AP/2/A/5500/011 (Pressurizer Pressure Anomalies), Case II (Pressurizer Pressure Increasing) and performed the following actions:
  - The "PZR PRESS MASTER" is placed in manual
  - The "PZR PRESS MASTER" output is adjusted to 70% demand

Why are the above actions taken <u>prior</u> to selecting an alternate operable channel on the "PZR PRESS CTRL SELECT" switch?

- A. To ensure the Pressurizer Pressure Master is increased from 0% back to an approximately normal value
- B. To ensure the spray valves are open to reduce pressure
- C. To prevent 1NC-32B (PZR PORV) and 1NC-36B (PZR PORV) from lifting
- D. To prevent 1NC-34A (PZR PORV) from lifting

## 2008 SRO NRC Retake Examination

### Question:

8

(1 point)

1

Unit 1 is operating at 100% power. The basis for manually inserting control rods during an ATWS event is to reduce reactor power to:

- A. prevent exceeding rated thermal power limits defined in Technical Specifications
- B. prevent rapid heatup of the NC system and potential overfill of the pressurizer
- C. ensure the only heat being added to the NC system is from core decay heat and NC pump heat
- D. ensure there is sufficient steam dump capacity to prevent opening the steam line code safeties

### 2008 SRO NRC Retake Examination

#### Question:

(1 point)

Given the following:

9

- 1A CF pump is out of service for maintenance
- 1B CF pump trips on low lube oil pressure
- The crew enters AP/1/A/5500/006 (Loss of S/G Feedwater), Case I (Loss of CF Supply To S/Gs).

What is the <u>minimum</u> power level which <u>requires</u> a manual reactor trip and what is the basis for manually tripping the reactor above that power level?

- A. 5%; to ensure CA can maintain adequate S/G levels
- B. 10%; to ensure CA can maintain adequate S/G levels
- C. 5%; to ensure an inadvertent mode change does <u>not</u> occur
- D. 10%; to ensure an inadvertent mode change does not occur

### 2008 SRO NRC Retake Examination

#### Question: 10

(1 point)

Regarding the actions of EP/1/A/5000/ECA 0.0 (Loss of All AC Power):

- 1. What is the basis for rapidly depressurizing intact S/Gs to 165 psig?
- 2. What is the basis for stopping the depressurization at 165 psig?
- A. 1. To enhance natural circulation until forced cooling can be restored2. To prevent injecting N2 from the CLAs
- B. 1. To enhance natural circulation until forced cooling can be restored2. To prevent voiding in the reactor vessel upper head
- C. 1. To reduce NC temperature and pressure to minimize NC system inventory loss
  - 2. To prevent injecting N2 from the CLAs
- D. 1. To reduce NC temperature and pressure to minimize NC system inventory loss
  - 2. To prevent voiding in the reactor vessel upper head

### 2008 SRO NRC Retake Examination

## Question: 11 (1 point)

Unit 1 is operating at 75% power and Unit 2 is operating at 100% power when the following switchyard PCBs open:

- PCB 17
- PCB 18
- PCB 19

Which one of the following statements correctly describes the effect on Units 1 and 2?

- A. Unit 1 remains at 75% power and Unit 2 runs back to 48% power at 18% /min
- B. Unit 1 runs back to 48% power at 18% /min and Unit 2 remains at 100% power
- C. Unit 1 remains at 75% power and Unit 2 runs back to 23% power at 25% /min
- D. Unit 1 runs back to 23% power at 25% /min and Unit 2 remains at 100% power

## 2008 SRO NRC Retake Examination

#### Question: 12

(1 point)

Unit 1 is operating at 30% power when 1ERPA de-energizes.

Based on the above conditions, which one of the following lists contains operations which would <u>all</u> require manual action? (Evaluate each condition separately)

- 1. 1A D/G start on a 1ETA blackout
- 2. 1A D/G FD Day Tank makeup on low level
- 3. Swap RN to the pond on a Train A Emergency Lo Pit Level
- 4. Rod withdrawal on a -1.5°F combined error signal
- 5. Makeup to VCT
- A. 1 and 2
- B. 3 and 4
- C. 1, 3, and 5
- D. 2, 4, and 5

#### Question: 13

(1 point)

Unit 1 NC system temperature is at 335°F and decreasing for a refueling outage. Given the following:

- Vital charger 1ECC fails
- 1EMXA is unavailable to power spare charger 1ECS
- 1. What other MCC can provide an alternate supply to 1ECS?
- 2. Does OP/1/A/6350/008 (125VDC/120VAC Vital Instrument and Control Power System) allow alignment of the alternate supply to 1ECS based on current Unit 1 conditions?

TO SUPPLY POWER TO IEDC

- A. 1. 1EMXC
  - 2. Yes
- B. 1. 1EMXC2. No
- C. 1. 1EMXJ 2. Yes
- D. 1. 1EMXJ 2. No

### 2008 SRO NRC Retake Examination

#### Question: 14

(1 point)

Units 1 and 2 are operating at 100% power with RN pump 2A running. Given the following conditions and indications:

- An Emergency Lo Pit Level actuation occurs
- The crew is performing AP/0/A/5500/020 (Loss of Nuclear Service Water), Case 2 (Loss of RN Pit Level)
- During a board walkdown, the following are noted:
  - o 1RN-53B (Station RN Disch Hdr X-Over) is open
  - o 1RN-54A (Station RN Disch Hdr X-Over) is closed
- 1. Where is RN discharge flow from the D/Gs directed based on current conditions?
- 2. Which of the above RN valves must be realigned per AP/0/A/5500/020?
- A. 1. Standby Nuclear Service Water Pond2. 1RN-53B
- B. 1. RL discharge piping to Lake Wylie2. 1RN-53B
- C. 1. Standby Nuclear Service Water Pond2. 1RN-54A
- D. 1. RL discharge piping to Lake Wylie2. 1RN-54A

### 2008 SRO NRC Retake Examination

#### Question: 15

(1 point)

Unit 1 is in Mode 3. Given the following initial valves and positions/functions:

VALVE	POSITION/FUNCTION
1NV-1A (NC Letdn to Regen Hx Isol)	Open
1CA-149 (S/G 1A CF Byp To CA Nozzle)	Open
1NV-153A (Letdn Hx Otlt 3-Way VIv)	"DEMIN"
1RN-291 (1A KC HX Outlet Throttle)	"MINIFLOW"

The Instrument Air (VI) system completely depressurizes.

When the VI system is re-pressurized, which one of the following valves will return to its <u>initial</u> position/function with no operator action?

- A. 1NV-1A
- B. 1CA-149
- C. 1NV-153A
- D. 1RN-291

### 2008 SRO NRC Retake Examination

#### Question: 16

(1 point)

Which one of the following indications is used in EP/1/A/5000/ECA-1.2 (LOCA Outside Containment) to verify that a leak outside containment has been successfully isolated?

- A. ND Pump discharge pressure increasing
- B. Pressurizer level increasing
- C. ND/NS room sump levels decreasing
- D. Reactor coolant pressure increasing

### 2008 SRO NRC Retake Examination

#### Question: 17

(1 point)

Unit 1 is operating at 100%. Given the following conditions and sequence of events:

#### Initial Conditions

- The crew tripped the reactor due to a loss of all feedwater
- EP/1/A/5000/E-0 (Reactor Trip or Safety Injection) was completed
- The crew was depressurizing the S/Gs to feed from the condensate booster pumps per EP/1/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink)

#### Current Conditions

- Bleed and feed criteria have been met and the crew is establishing bleed and feed per EP/1/A/5000/FR-H.1
- 1. Which cold leg accumulators provide backup motive force to open the PZR PORVs?
- 2. What is the function of the NC PORVs when establishing bleed and feed in EP/1/A/5000/FR-H.1?
- A. 1. A and B

2. To provide for adequate NC system heat removal until secondary heat sink can be restored

# B. 1. A and B2. To depressurize the NC system to protect the S/G tubes from creep failure

#### C. 1. C and D

2. To provide for adequate NC system heat removal until secondary heat sink can be restored

## D. 1. C and D2. To depressurize the NC system to protect the S/G tubes from creep failure

### 2008 SRO NRC Retake Examination

#### Question: 18

(1 point)

Unit 1 was operating at 100% power. Given the following sequence of events:

- 0300 Reactor trip occurred due to a general warning
- 0320 Safety injection actuated due to a large break LOCA
- 0322 1B NI pump trips due to a faulty breaker
- 0350 Loss of emergency coolant recirculation occurred and the crew entered EP/1/A/5000/ECA-1.1 (Loss of Emergency Coolant Recirculation)
- 0351 NV and NI pump status are determined as follows:
  - 1A NV pump flow is 180 gpm and stable
  - 1B NV pump flow is 170 gpm and stable
  - 1A NI pump flow is 340 gpm and stable
  - 1B NI pump is tagged out
- 0420 The crew is performing step 19b RNO of EP/1/A/5000/ECA-1.1 to establish the appropriate safety injection flow per Enclosure 5

When the actions required per Step 19b RNO are complete, which ECCS pump(s) are in service?

#### Reference provided

- A. 1A NI pump
- B. 1A NV pump and 1B NV pump
- C. 1A NV pump and 1A NI pump
- D. 1B NV pump and 1A NI pump

#### Question: 19

(1 point)

Unit 1 is operating at 100% power. Given the following:

- While performing the RCCA movement test, control rod H-8 slips into the core to 200 steps withdrawn
- All other Bank D control rods are at 216 steps withdrawn as indicated on DRPI and step demand counters
- The crew is performing AP/1/A/5500/014 (Control Rod Misalignment) and currently referring to OP/1/A/6150/008 (Rod Control)
- 1. What is the <u>maximum</u> time allowed to restore rod H-8 to within limits per Technical Specification 3.1.4 (Rod Group Alignment Limits)?
- 2. Which control rod lift coil(s) will be disconnected per OP/1/A/6150/008 (Rod Control), when <u>initially</u> attempting to recover control rod H-8?
- A. 1. 30 minutes 2. Rod H-8
- B. 1. 30 minutes2. All rods in the affected bank <u>except</u> H-8
- C. 1. 1 hour 2. Rod H-8
- D. 1. 1 hour
  - 2. All rods in the affected bank except H-8

#### Question: 20

(1 point)

Unit 1 is increasing power when the following OAC indications are noted:

OAC reading	Point Color
N-35 - 3.12E-5 amps	GREEN
N-36 - 2.75E-6 amps	GREEN
N-41 - 11.3%	BLUE
N-42 - 11.2%	GREEN
N-43 - 0.0%	MAGENTA
N-44 - 10.8%	GREEN

- 1. Which intermediate range instrument is reading correctly?
- 2. What does the BLUE color of the OAC point for N-41 indicate?
- A. 1. N-352. The OAC point quality is "suspect"
- B. 1. N-352. The OAC point quality is "bad"
- C. 1. N-362. The OAC point quality is "suspect"
- D. 1. N-36 2. The OAC point quality is "bad"

#### Question: 21

#### (1 point)

Unit 1 was operating at 50% power. Given the following:

- A steam generator tube leak occurred on 1A S/G
- The crew depressurized the NC system per AP/1/A/5500/010 (Reactor Coolant Leak), Case I (Steam Generator Tube Leak)
- Both ICC monitors are unavailable
- Current NC pressure is 665 psig
- Core exit thermocouple temperatures are 488°F
- T-Colds are 487.7°F
- 1. Based on current conditions, what subcooling value would the ICC monitors be reading if they were available?
- 2. Based on current conditions, what is steam header pressure?

#### Reference provided

- A. 1. -8 ° F 2. 608 psig
- B. 1. -8 °F 2. 593 psig
- C. 1. +12° F 2. 608 psig
- D. 1. +12° F 2. 593 psig

### 2008 SRO NRC Retake Examination

#### Question: 22

(1 point)

The Spent Fuel Pool Ventilation (VF) system is operating in unfiltered mode when a recycle paper bin near the Spent Fuel Pool truck bay doors catches fire and smoke is drawn into the VF system supply ductwork.

- 1. What affect will this condition have on the operation of the VF system?
- 2. How is this fire classified?
- A. 1. The VF Supply fan trips only2. Class A
- B. 1. The VF Supply fan trips only2. Class B
- C. 1. The VF Supply fan trips and the VF Filtered Exhaust fans will swap to filter mode
  - 2. Class A
- D. 1. The VF Supply fan trips and the VF Filtered Exhaust fans will swap to filter mode
  - 2. Class B

#### Question: 23

(1 point)

Unit 1 is operating at 100% power. Given the following:

- A small break LOCA occurs
- The crew is performing EP/1/A/5000/ES-1.2 (Post LOCA Cooldown and Depressurization)
- All NC pumps are secured
- 1. What is the NC cooldown rate specified in this procedure?
- 2. Which method is the <u>first</u> choice for the NC system depressurization for the given conditions?
- A. 1. As close as possible without exceeding 100°F in an hour
  2. NV auxiliary spray
- B. 1. At the maximum rate2. NV auxiliary spray
- C. 1. As close as possible without exceeding 100°F in an hour
  2. NC PORV
- D. 1. At the maximum rate 2. NC PORV

#### Question: 24

#### (1 point)

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

- A large steam line break occurred 20 minutes ago
- All MSIVs fail to close by any means
- NC cold leg temperatures are 248°F and slowly decreasing
- NC pressure is 520 psig and slowly increasing
- The crew has completed EP/1/A/5000/E-0 (Reactor Trip or Safety Injection)
- 1. Based on current conditions, which procedure will the crew transition to when EP/1/A/5000/E-0 is exited?
- 2. At what point during this steam line break accident is the reactor vessel most susceptible to failure and why?
- A. 1. EP/1/A/5000/FR-P.1 (Response to Imminent Pressurized Thermal Shock)
  - 2. During the initial cooldown because total stress on the inner wall of the vessel is higher at this time
- B. 1. EP/1/A/5000/E-2 (Faulted Steam Generator Isolation)
  - 2. During the initial cooldown because total stress on the inner wall of the vessel is higher at this time
- C. 1. EP/1/A/5000/FR-P.1 (Response to Imminent Pressurized Thermal Shock)
  2. During the subsequent heatup after the S/Gs depressurize because total stress on the outer wall of the vessel is higher at this time
- D. 1. EP/1/A/5000/E-2 (Faulted Steam Generator Isolation)
  - 2. During the subsequent heatup after the S/Gs depressurize because total stress on the outer wall of the vessel is higher at this time

### 2008 SRO NRC Retake Examination

#### Question: 25

(1 point)

Given the following:

- 1A S/G pressure is 1212 psig and increasing
- 1A S/G level is approximately 18% N/R level and stable
- The crew is performing EP/1/A/5000/FR-H.4 (Response to Loss of Normal Steam Release Capabilities)
- Operators have been dispatched to manually operate the 1A S/G PORV
- 1. How will 1A S/G indicated level initially respond when the PORV is opened?
- 2. What is the reason for this response?
- A. 1. Indicated level will initially decrease
  - 2. Increased voiding in the S/G downcomer region
- B. 1. Indicated level will initially increase2. Increased voiding in the S/G downcomer region
- C. 1. Indicated level will initially decrease2. Increased voiding in the S/G tube bundle area
- D. 1. Indicated level will initially increase2. Increased voiding in the S/G tube bundle area

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### Question: 26

(1 point)

Unit 1 is operating at 100% power. Given the following:

- A main steam line ruptures in containment
- NC Tcold temperatures are 278°F and slowly decreasing
- Containment pressure is 3.2 psig and increasing
- No NS pump flow is indicated
- All S/G NR levels are offscale low
- CA flow is 640 gpm
- The crew is preparing to exit EP/1/A/5000/E-0 (Reactor Trip or Safety Injection)

Which one of the following procedures is the crew required to enter next?

- A. EP/1/A/5000/E-2 (Faulted Steam Generator Isolation)
- B. EP/1/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink)
- C. EP/1/A/5000/FR-P.2 (Response to Anticipated Pressurized Thermal Shock Condition)
- D. EP/1/A/5000/FR-Z.1 (Response to High Containment Pressure)

#### Question: 27

#### (1 point)

Unit 1 is operating at 100% power. Given the following:

- At 1100 a large break LOCA occurs
- At 1215, when the crew is in EP/1/A/5000/E-1 (Loss of Reactor or Secondary Coolant), waiting for the time to swap to hot leg recirc, containment sump level is 13 feet and slowly increasing
- 1. If containment sump level is increasing at a constant rate of 0.25 feet per minute, at what time is entry into EP/1/A/5000/FR-Z.2 (Response to Containment Flooding) required?
- 2. What signal closes valves inside containment that are <u>not</u> qualified for submergence?
- A. 1. 1225
  - 2. St
- B. 1. 1245 2. St
- C. 1. 1225 2. Sp
- D. 1. 1245 2. Sp

#### Question: 28

(1 point)

Regarding the reactor coolant pump motor stator:

- 1. What system provides cooling water?
- 2. What signal will isolate that cooling water source?
- A. 1. KC 2. Phase A
- B. 1. KC 2. Phase B
- C. 1. YV 2. Phase A
- D. 1. YV 2. Phase B

#### Question: 29

#### (1 point)

Unit 2 is operating at 100% when the following conditions are noted:

- 2AD-7, C/4 "NCP Seal Water Lo Flow" actuates
- 2AD-7, E/1 "Charging Line Hi/Lo Flow" actuates
- 2AD-7, E/2 "Regen Hx Letdn Hi Temp" actuates
- 2NV-294 (NV Pmps A&B Disch Flow Ctrl) fully closes

Which single failure caused all the symptoms noted above?

- A. Charging flow feedback signal has failed low
- B. Pzr level program has failed to its no load value
- C. The pressurizer level master output has failed high
- D. Charging flow feedback signal has failed high

#### Question: 30

(1 point)

Unit 1 is operating at 100% power.

For current conditions, what is the normal position of 1ND-33 (ND Sys Rtn To FWST) and how is this position administratively controlled?

- A. Closed; white tagged in position
- B. Closed; locked in position
- C. Open; white tagged in position
- D. Open; locked in position

#### Question: 31

(1 point)

Unit 1 is operating at 100% power when a large break LOCA occurs.

- The crew has just transitioned to EP/1/A/5000/ES-1.3 (Transfer to Cold Leg Recirculation) and no manual actions have been taken
- 1. Based on the above conditions, which ECCS pump(s) are currently taking suction from the containment sump?
- 2. If ND is <u>required</u> to be aligned for <u>hot leg recirculation</u>, to which NC hot legs will ND inject?
- A. 1. ND pumps only2. B and C NC hot legs only
- B. 1. ND pumps only 2. All 4 hot legs
- C. 1. NV pumps, NI pumps, ND pumps2. B and C NC hot legs only
- D. 1. NV pumps, NI pumps, ND pumps2. All 4 hot legs

### 2008 SRO NRC Retake Examination

#### Question: 32

(1 point)

Unit 1 was operating at 100% power when it experienced a steam line break accident resulting in a safety injection and the crew has entered EP/1/A/5000/E-0 (Reactor Trip or Safety Injection).

Which one of the following completes the statement below?

Per Enclosure 1 of EP/1/A/5000/E-0, when NC pressure decreases to less than \_\_\_\_\_\_ the crew will close 1NV-202B and 1NV-203A (NV Pumps A&B Recirc Isol) and when NC pressure increases to greater than \_\_\_\_\_\_ the crew will re-open these valves.

	<u>Closed</u>	Re-opened
A.	1500 psig	2000 psig
В.	1500 psig	1955 psig
C.	1620 psig	2000 psig
D.	1620 psig	1955 psig

#### Question: 33

(1 point)

Unit 1 was operating at 100% power when a LOCA occurred at Time 0. Given the NC System pressure trend shown below:



Which of the following describes when each of the ECCS pumps listed <u>begins</u> to inject flow into the NC system?

<u>NI Pumps</u>	ND Pumps
etween 0 and 1 minute	Between 8 and 9 minutes
etween 1 and 2 minutes	Between 8 and 9 minutes
etween 0 and 1 minute	Between 9 and 10 minutes
etween 1 and 2 minutes	Between 9 and 10 minutes
	<u>NI Pumps</u> etween 0 and 1 minute etween 1 and 2 minutes etween 0 and 1 minute etween 1 and 2 minutes

#### Question: 34

(1 point)

Unit 1 completed NC fill and vent activities following a forced outage. Given the following:

- A nitrogen blanket was placed on the pressurizer during the outage
- NC level is 85% and stable
- The crew is in the process of drawing a bubble in the pressurizer
- 1. Per Selected Licensee Commitment 16.5-4 (Pressurizer), what is the limit on pressurizer heat up rate?
- 2. Per OP/1/A/6100/001 (Controlling Procedure for Unit Startup), when a pressurizer PORV is opened, what indication verifies nitrogen venting is complete?
- A. 1. 100°F in any one hour period
  - 2. PRT temperature equalizes with Pzr steam space temperature
- B. 1. 100°F in any one hour period
  2. PRT level increases <u>without</u> a corresponding PRT pressure increase
- C. 1. 80°F in any one hour period2. PRT temperature equalizes with Pzr steam space temperature
- D. 1. 80°F in any one hour period
  2. PRT level increases <u>without</u> a corresponding PRT pressure increase

#### Question: 35

(1 point)

Unit 1 is in Mode 3. Given the following:

- 1AD-6, E/1 (NCP A Thermal Barrier KC Outlet Hi/Lo Flow) actuates
- The flow trend below:



- 1. At what time on the above graph should 1KC-394A (NC Pump 1A Therm Bar Otlt) have automatically closed?
- 2. If the NCP 1A thermal barrier can <u>not</u> be isolated from the KC System by any means, how is over pressurization of the KC surge tanks prevented?
  - A. 1. 100 seconds
    - 2. The KC surge tanks vent line is large enough to prevent over pressurization
  - B. 1. 130 seconds
    - 2. The KC surge tanks vent line is large enough to prevent over pressurization
  - C. 1. 100 seconds
    - 2. The KC surge tanks relief valve to the KC drain sump is large enough to prevent over pressurization
  - D. 1. 130 seconds
    - 2. The KC surge tanks relief valve to the KC drain sump is large enough to prevent over pressurization
#### Question: 36

#### (1 point)

Unit 2 is operating at 100%. Given the following:

- Pressurizer pressure select switch is in the 3-2 position
- Channel 3 pressurizer pressure fails low

Assuming no operator action, how will pressurizer pressure respond as a result of this control system failure?

- A. Pressure will increase to the reactor trip setpoint
- B. Pressure will be controlled at approximately 2235 psig by modulation of the spray valves
- C. Pressure will vary between 2315 psig and 2335 psig as 2NC-34A (NC PORV) cycles
- D. Pressure will vary between 2315 psig and 2335 psig as 2NC-32B and 2NC-36B (NC PORVs) cycle

#### Question: 37

(1 point)

Unit 1 is increasing power following a refueling outage. Given the following:

- At 45% reactor power, the P-8 permissive failed "as-is"
- Reactor power is currently at 50%

Based on the <u>current</u> conditions:

- 1. What is the condition of the P-8 "Hi Pwr Lo Flo Rx Trip Block" status light on 1SI-18?
- 2. If one NC pump were to trip, would an automatic reactor trip occur?
- A. 1. Lit 2. Yes
- B. 1. Lit 2. No
- C. 1. Dark 2. Yes
- D. 1. Dark 2. No

#### Question: 38

(1 point)

Unit 1 is in Mode 3 and reducing NC pressure and temperature for a refueling outage. Given the following:

- Pressurizer pressure channel 2 fails "as-is" at 1985 psig
- Other pressurizer pressure channels indicate as follows:
  - o Channel 1 is 1972 psig and slowly decreasing
  - o Channel 3 is 1965 psig and slowly decreasing
  - Channel 4 is 1951 psig and slowly decreasing
- No operator actions have been taken

Of the <u>remaining</u> channels that input into the P-11 circuit, how many of these must be below the P-11 setpoint before "ECCS TRN A/B PZR PRESS" can be blocked?

- A. 1 of the other 2
- B. 2 of the other 2
- C. 1 of the other 3
- D. 2 of the other 3

#### Question: 39

(1 point)

Unit 1 was operating at 100% power with lower containment temperature stable at 107°F. Given the following events:

- 1A,1B, and 1C Lower Containment Ventilation Units (LCVU's) are in service
- LCVU 1B fan trips on over-current

Based on the conditions above, what is the <u>first</u> action OP/1/A/6450/001 (Containment Ventilation (VV) Systems) specifies to provide additional cooling to lower containment?

- A. Start 1D LCVU in LOW speed
- B. Place 1A and 1C LCVUs in "MAX" cooling only
- C. Place 1A and 1C LCVUs in "MAX" cooling and HIGH speed
- D. Start 1D LCVU in HIGH speed and place 1A and 1C LCVUs in HIGH speed

#### Question: 40

(1 point)

Unit 1 is operating at 100% power. Given the following:

Initial Conditions

• Lower Containment Vent Unit (LCVU) status and outlet temperatures per the OAC are:

LCVU	Status	Outlet Temper	ature readings
1A	Running	1 - 108.1°F	2 - 107.5°F
1B	Running	1 - 109.9°F	2 - 108.9°F
1C	Running	1 - 112.4°F	2 - 111.2°F
1D	Secured	1 - 105.6°F	2 - 104.4°F

**Current Conditions** 

- The crew notes that 1B LCVU has just tripped
- OAC temperature readings as stated above have not begun to change yet

Based on <u>current</u> plant conditions, and per PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items):

- 1. What temperature would be recorded for "Primary Containment Lower Compartment Average Air Temp"?
- 2. What are the Technical Specification temperature range limits for lower containment temperature?
- A. 1. 108.5°F 2. 60°F – 120°F
- B. 1. 109.8°F 2. 60°F – 120°F
- C. 1. 108.5°F 2. 100°F – 120°F
- D. 1. 109.8°F 2. 100°F – 120°F

### 2008 SRO NRC Retake Examination

#### Question: 41

(1 point)

Which one of the following lists of conditions would <u>all</u> result in 1NF-228A (NF Supply Containment Isolation Valve) closing? (Evaluate each condition separately)

- 1. Manual Phase A
- 2. Manual Phase B
- 3. Loss of instrument air
- 4. Glycol Expansion Tank Lo Lo Level
- 5. Trip of all running Ice Condenser Glycol Pumps
- A. 1 and 5
- B. 2 and 5
- C. 1, 3 and 4
- D. 2, 3 and 4

### 2008 SRO NRC Retake Examination

#### Question: 42

(1 point)

One hour ago, Unit 1 was operating at 100% power when a LOCA occurred requiring a reactor trip and safety injection. Given the following:

- The automatic and manual swap to cold leg recirculation failed and both ND pumps have been secured
- The crew implemented EP/1/A/5000/ECA-1.1 (Loss of Emergency Coolant Recirculation)
- Current conditions are:
  - o Containment pressure is 11.2 psig and slowly increasing
  - FWST level is 4.9% and decreasing

For the <u>current</u> conditions, how many of each type of pump listed is <u>required</u> to be running?

 NV
 NS

 A.
 1
 1

 B.
 1
 0

 C.
 0
 1

 D.
 0
 0

#### Question: 43

#### (1 point)

Unit 1 was operating at 100% power when a 6 gpm tube leak occurred in 1A S/G. Given the following:

- The crew is operating the turbine controls in manual to quickly reduce load per AP/1/A/5500/009 (Rapid Downpower)
- Current power level is 30% and decreasing
- 1. Assuming a stable tube leakage rate, how does 1EMF-71 (S/G A Leakage) count rate for current conditions compare to the 100% power readings?
- 2. Per NSD 513 (Primary to Secondary Leak Monitoring Program), which method(s) is/are used to monitor S/G leak rate based on the current power level?
- A. 1. Lower counts now than when power was at 100%
  - 2. 1EMF-33 (Condenser Air Ejector Exhaust) only
- B. 1. The same counts now as when power was at 100%2. 1EMF-33 (Condenser Air Ejector Exhaust) only
- C. 1. Lower counts now than when power was at 100%2. 1EMF-33 (Condenser Air Ejector Exhaust) and 1EMF-71
- D. 1. The same counts now as when power was at 100%2. 1EMF-33 (Condenser Air Ejector Exhaust) and 1EMF-71

### 2008 SRO NRC Retake Examination

## Question: 44 (1 point)

Unit 1 is in Mode 3 preparing for reactor startup. Given the following 1SV-19 (S/G 1A PORV) nitrogen bottle pressures:

- Bottle #1 1970 psig
- Bottle #2 2165 psig

What action (if any) is <u>required</u> for 1SV-19 per Selected Licensee Commitment 16.10-1 (Steam Vent to Atmosphere)?

- A. No action is required
- B. Immediately take action to restore the nitrogen supply to operable status only
- C. Immediately enter the applicable conditions of Technical Specification 3.7.4 (S/G PORVs) only
- D. Immediately take action to restore the nitrogen supply to operable status and immediately enter the applicable conditions of Technical Specification 3.7.4 (S/G PORVs)

### 2008 SRO NRC Retake Examination

#### Question: 45

(1 point)

Unit 1 is operating at 100% power. Given the following conditions:

Initial Conditions

- 1CF-37 (S/G 1B CF Ctrl) is in manual and throttled
- 1CF-39 (S/G 1B CF Byp Ctrl) is in manual and full open
- S/G 1B Level is 66% and stable

**Current Conditions** 

• 1CF-37 has just been placed in automatic

Based on <u>current</u> conditions:

- 1. How will 1CF-37 respond?
- 2. What is the status of 1B S/G level control?
- A. 1. Throttle further open2. Automatic
- B. 1. Throttle further open2. Manual
- C. 1. Throttle further closed 2. Automatic
- D. 1. Throttle further closed2. Manual

### 2008 SRO NRC Retake Examination

#### Question: 46

(1 point)

Initial conditions:

- Unit 1 was operating at 100% power
- A loss of offsite power occurred
- The reactor tripped

30 minutes later the following sequence of events occurred:

- All CA pumps are running
- Train "A" CA is RESET
- Train "B" CA is not RESET
- The CA common suction piping from condensate grade sources ruptures
- 1AD-5, E/1 "CA Pumps Train A Loss of Norm Suct" actuates
- 1AD-5, E/2 "CA Pumps Train B Loss of Norm Suct" actuates

One minute later, what is the status of the CA system assuming no operator action?

- A. 1A CA pump is tripped
   CAPT #1 is tripped
   1B CA pump suction is shifted to the RN system
- B. 1A CA pump suction is shifted to the RN system
   CAPT #1 suction is shifted to the RN system
   1B CA pump is tripped
- C. 1A CA pump suction is shifted to the RN system CAPT #1 is tripped 1B CA pump is tripped
- D. 1A CA pump is tripped
   CAPT #1 suction is shifted to the RN system
   1B CA pump suction is shifted to the RN system

2008 SRO NRC Retake Examination

#### Question: 47

#### (1 point)

Given the following:

- The incoming breaker to 1ETB spuriously opened
- 1B D/G automatically started and loaded
- While monitoring D/G operating parameters, the crew noted that D/G 1B "VOLTS" was 4000 V
- Voltage was adjusted to normal

How did 1B D/G output "AMPS" and "P/F" indications respond to this adjustment?

	<u>AMPS</u>	<u>P/F</u>
А.	increase	more lagging
В.	increase	stay the same
C.	decrease	more lagging
D.	decrease	stay the same

#### Question: 48

(1 point)

Unit 1 is operating at 100% power. Given the following:

- A complete loss of offsite power occurs
- All D/G load sequencing is complete

Which one of the following Fire Protection (RF/RY) system pumps does <u>not</u> have an available power supply?

- A. RY pump A
- B. RF Jockey Pump A
- C. RY Pump C
- D. RF Jockey Pump C

#### Question: 49

#### (1 point)

Which one of the following sets of equipment receives power from the 250VDC Auxiliary Power System?

- A. CF Pump Control Power and Turbine Emergency Bearing Oil Pump
- B. Deadlight Panels and Turbine Emergency Bearing Oil Pump
- C. CF Pump Control Power and 6.9 KV Switchgear Control Power
- D. Deadlight Panels and 6.9 KV Switchgear Control Power

### 2008 SRO NRC Retake Examination

#### Question: 50

(1 point)

Unit 1 is operating at 100% power. Given the following conditions and sequence of events:

#### Initial Conditions

- A blackout occurs on 1ETA
- All 1A D/G sequencing is complete
- 1AD-11, A/8 "125VDC Diesel Gen A Control Pwr Sys Trbl" actuates
- 1AD-11, B/7 "D/G 1A Panel Trouble" actuates
- 1A D/G Panel alarm E/5 "Loss of DC Control Power" actuates

#### **Final Conditions**

- Normal power is restored to 1ETA
- 1A D/G is secured
- The annunciators listed above are still lit

#### Based on the final conditions:

- 1. Which of the following methods could have been used to secure the 1A D/G locally?
- 2. Will 1A D/G start on a subsequent 1ETA blackout?
  - A. 1. The RUN/STOP knob only 2. Yes
  - B. 1. The RUN/STOP knob only2. No
  - C. 1. The RUN/STOP knob or the STOP pushbutton 2. Yes
  - D. 1. The RUN/STOP knob or the STOP pushbutton 2. No

#### Question: 51

(1 point)

Unit 1 is in Mode 3 preparing for a reactor startup. Given the following:

- 1ETA experiences a blackout
- The 1A D/G starts and is sequencing on loads per the accelerated sequence
- Half way through the accelerated sequence, the fuel racks stick in an open position causing D/G speed to rapidly increase
- 1. What is the setpoint for the D/G overspeed trip?
- 2. For the conditions stated above will the D/G trip on overspeed if the setpoint is exceeded?
- A. 1. 495 rpm
  - 2. No
- B. 1. 495 rpm 2. Yes
- C. 1. 517.5 rpm 2. No
- D. 1. 517.5 rpm 2. Yes

### 2008 SRO NRC Retake Examination

#### Question: 52

(1 point)

Unit 1 was operating at 50% power when a power spike causes a 1EMF-33 (CSAE EXHAUST) Trip 2 alarm.

What manual actions (if any) does OP/1/B/6100/010X (Annunciator Response to Radiation Monitoring Panel 1RAD-1) direct the operator to take to place systems affected by this EMF alarm in their post alarm condition?

- A. Swap "Unit 1 CSAE EXH" discharge from "UNIT VENT" to "AUTO"
- B. Close 1BB-48 (BB Pumps Disch to TB Sump)
- C. Close S/G Sample valves
- D. None

#### Question: 53

(1 point)

Both units are operating at 100% power. Given the following:

- Only 1A RN pump in service
- An 86N relay actuates on 1ETB

Based on the above conditions, which RN pumps are operating one minute later?

- A. 1A only
- B. 1A and 1B only
- C. 1A and 2B only
- D. 1A, 1B, and 2B only

### 2008 SRO NRC Retake Examination

#### Question: 54

(1 point)

Unit 1 automatically trips from 100% power and the crew entered EP/1/A/5000/E-0 (Reactor Trip or Safety Injection). Given the following conditions and sequence of events:

- Both trains of CA SYS VLV RESET are "RESET"
- CA flow is throttled to maintain proper S/G levels
- A complete loss of VI pressure occurs

How is manual control of the CA flow control valves and CA flow affected by the loss of VI pressure?

- A. Control of the CA flow control valves is immediately lost and CA flow will immediately decrease
- B. Control of the CA flow control valves is immediately lost and CA flow will immediately increase
- C. Control of the CA flow control valves is maintained for at least 1 hour, and then CA flow will decrease
- D. Control of the CA flow control valves is maintained for at least 1 hour, and then CA flow will increase

### 2008 SRO NRC Retake Examination

#### Question: 55

(1 point)

Unit 1 was operating at 100% power. At 1000, a secondary steam leak occurred in the Unit 1 containment. The crew has started a controlled shutdown using AP/1/A/5500/009 (Rapid Downpower). Containment pressure and temperature trends indicate:

<u>Time</u>	<u>Temperature</u>	<u>Pressure</u>
1000	113°F	0.15 psig
1005	117°F	0.28 psig
1010	119°F	0.42 psig
1015	122°F	0.48 psig
1020	126°F	0.65 psig
1025	129°F	0.91 psig

No manual operator actions have been taken related to LCVU operation.

During which time period did the Lower Containment Ventilation Units (LCVUs) cooling water bypass valves (full flow valves) automatically open?

- A. Between 1005 and 1010
- B. Between 1010 and 1015
- C. Between 1015 and 1020
- D. Between 1020 and 1025

### 2008 SRO NRC Retake Examination

#### Question: 56

(1 point)

Unit 1 was in Mode 3 at 557°F and 2235 psig with shutdown banks withdrawn in preparation for startup. Given the following conditions and sequence of events:

- 1TXS is red tagged
- A fault results in a loss of all loads on the short side of 1TC

Which MG set(s) has/have a power supply available and what procedure is entered to address the above conditions?

- A. Only 1B MG set; EP/1/A/5000/E-0 (Reactor Trip or Safety Injection)
- B. Only 1B MG set; AP/1/A/5500/004 (Loss of Reactor Coolant Pump)
- C. 1A and 1B MG sets; EP/1/A/5000/E-0 (Reactor Trip or Safety Injection)
- D. 1A and 1B MG sets; AP/1/A/5500/004 (Loss of Reactor Coolant Pump)

### 2008 SRO NRC Retake Examination

### Question: 57

(1 point)

Unit 1 is in a mid loop condition conducting a vacuum refill of the NC system at the end of a refueling outage.

Which one of the following reactor vessel level instruments will provide the greatest accuracy for this condition?

- A. NC level loop indication
- B. Sight glass loop indication
- C. Ultrasonic level indication
- D. RVLIS lower range indication

#### Question: 58

(1 point)

Unit 2 is operating at 100% power. Given the following indications:

- PZR level control is in the 1-2 position
- PZR level channel 1 fails low
- 1. What affect does this failure have on NV charging flow?
- 2. What is one of the actions AP/2/A/5500/012 (Loss of Charging or Letdown) will direct in response to this failure?
- A. 1. Charging flow increases to maximum2. Swap PZR level control to the 3-2 position
- B. 1. Charging flow increases to maximum2. Ensure 2NV-1A and 2NV-2A (NC Letdn To Regen Hx Isols) are closed
- C. 1. Charging flow decreases to 47 gpm2. Swap PZR level control to the 3-2 position
- D. 1. Charging flow decreases to 47 gpm
  2. Ensure 2NV-1A and 2NV-2A (NC Letdn To Regen Hx Isols) are closed

#### Question: 59

(1 point)

Unit 1 is operating at 100% power. Assuming intermediate range N-35 channel compensation voltage is lost and a reactor trip occurs:

- 1. How will N-35 indication compare to N-36 when actual reactor power has decreased into the source range?
- 2. What is the <u>minimum</u> number of intermediate range instruments required to be below the P6 setpoint to automatically re-energize the source range instruments N-31 and N-32?
- A. 1. N-35 will read higher than N-36 2. One
- B. 1. N-35 will read higher than N-362. Two
- C. 1. N-35 will read lower than N-36 2. One
- D. 1. N-35 will read lower than N-36 2. Two

#### Question: 60

(1 point)

Unit 1 is operating at 100% power. Given the following:

- Containment Pressure Channel I failed high
- The failed channel is bypassed

Which of the following lists the logic for a Containment Spray actuation based on the conditions above?

A. 1/3
B. 2/3
C. 1/2
D. 2/2

### 2008 SRO NRC Retake Examination

### Question: 61

(1 point)

Regarding hydrogen production during a design basis large break LOCA:

- 1. Which one of the following is a <u>larger</u> contributor to post LOCA hydrogen buildup in containment?
- 2. Per OP/1/A/6450/010 (Containment Hydrogen Control Systems), what <u>minimum</u> containment hydrogen concentration <u>requires</u> Technical Support Center (TSC) approval prior to placing the Hydrogen Recombiners in service?
- A. 1. Zirc-Water reaction in core region
  - 2.4%
- B. 1. Zirc-Water reaction in core region2. 6%
- C. 1. Dissolved hydrogen in the NC System2. 4%
- D. 1. Dissolved hydrogen in the NC System2. 6%

## Question: 62 2008 SRO NRC Retake Examination

(1 point)

Given the following:

- A transfer of control to the Standby Shutdown Facility (SSF) has been completed
- Natural circulation is being verified per OP/0/B/6100/013 (Standby Shutdown Facility Operations)
- NC system pressure is 1700 psig
- In-core thermocouple readings are:
  - o **582°**F
  - o 610°F
  - o 588°F
  - o 600°F
  - o 585°F
- 1. Per OP/0/B/6100/013, what NC system pressure indication is used for the purpose of determining the status of natural circulation?
- 2. For the given conditions, does natural circulation currently exist?

#### Reference provided

- A. 1. Pressurizer pressure2. Yes
- B. 1. Pressurizer pressure2. No
- C. 1. NC Loop B WR pressure 2. Yes
- D. 1. NC Loop B WR pressure 2. No

#### Question: 63

(1 point)

Unit 1 was operating at 100% power.

Initial Conditions

- Both CF pumps tripped
- No CA pumps could be started
- WR level in all S/Gs is 0%
- The crew established bleed and feed per EP/1/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink)

Current Conditions

- CA is available
- Core exit thermocouple temperatures are decreasing

Based on the <u>current</u> conditions, how does EP/1/A/5000/FR-H.1 <u>initially</u> direct CA flow to be established?

- A. Feed 1 S/G at greater than 450 gpm
- B. Feed 4 S/Gs at a total flow of greater than 450 gpm
- C. Feed 1 S/G at less than or equal to 100 gpm
- D. Feed 4 S/Gs at less than or equal to 100 gpm each

#### Question: 64

(1 point)

Unit 1 is at 14% power synchronizing the turbine to the grid.

- 1. What is the normal position of the "STEAM DUMP SELECT" switch for current conditions?
- 2. How will steam dump <u>demand</u> respond to a turbine trip under current conditions?
- A. 1. "PRESS" 2. decrease
- B. 1. "PRESS" 2. increase
- C. 1. "T-AVG" 2. decrease
- D. 1. "T-AVG" 2. increase

### 2008 SRO NRC Retake Examination

#### Question: 65

(1 point)

Unit 1 was operating at 80% power when the turbine tripped due to an inadvertent generator over frequency signal.

Which of the following lists automatic actions that will <u>all</u> occur as a result of this turbine trip?

- 1. Steam dumps actuate in Plant Trip mode
- 2. Zone 1A and Zone 1B Lockouts occur
- 3. C-Heater Drain Pumps trip
- 4. Feedwater heater extraction steam check valves close
- A. 1, 2 and 3
- B. 1, 3 and 4
- C. 2, 3 and 4
- D. 1, 2 and 4

### 2008 SRO NRC Retake Examination

#### Question: 66

(1 point)

Per NSD 512 (Maintenance of RO/SRO Licenses), which of the following lists two requirements to maintain an Active RO License?

- A. 1. Serve in the RO or BOP position for 5 complete 12 hour shifts per quarter
  2. Complete a plant tour in the areas listed in NSD 512 once per quarter
- B. 1. Serve in the RO or BOP position for 5 complete 12 hour shifts per quarter2. Maintain respirator qualifications current
- C. 1. Serve in the RO or BOP position for 40 hours per quarter including shift turnovers
  - 2. Complete a plant tour in the areas listed in NSD 512 once per quarter.
- D. 1. Serve in the RO or BOP position for 40 hours per quarter including shift turnovers
  - 2. Maintain respirator qualifications current

#### Question: 67

(1 point)

Per OMP 2-31 (Control Room Instrumentation Status):

- 1. Where is a list of active Increased Surveillances <u>required</u> to be maintained?
- 2. Who (by title) determines the monitoring frequency of an Increased Surveillance?
- A. 1. OPS Shift Routine Logbook2. OSM
- B. 1. OPS Shift Routine Logbook2. Unit Supervisor
- C. 1. AUTOLOG 2. OSM
- D. 1. AUTOLOG
  - 2. Unit Supervisor

#### Question: 68

(1 point)

The crane operator has determined that a fuel handling interlock must be bypassed that is <u>not</u> addressed by a procedure.

Assume approval has been obtained to bypass the interlock.

In accordance with OP/1/A/6550/007 (Reactor Building Manipulator Crane Operation) which of the following, by title, must be <u>notified</u> when any "Interlock Bypass" is placed into and removed from bypass when handling new fuel assemblies?

- A. WCC SRO
- B. Control Room Supervisor
- C. Reactor Systems Engineer
- D. Fuel Handling Equipment Engineer

#### Question: 69

#### (1 point)

Which one of the following completes the statement:

At \_\_\_\_\_ power and increasing, the flow restricting orifice on the \_\_\_\_\_ S/Gs will begin forcing flow through the CA nozzle.

- A. 15%; Unit 1
- B. 40%; Unit 1
- C. 15%; Unit 2
- D. 40%; Unit 2

#### Question: 70

(1 point)

Unit 1 NC system conditions are 248°F and 600 psig.

- 1. For the stated plant conditions, is the FWST required to be operable per Technical Specification 3.5.4 (Refueling Water Storage Tank)?
- 2. When the FWST is required to be operable, and the FWST is below the borated water volume required by SR 3.5.4.2, what is the required action?
- A. 1. No
  - 2. Immediately take action to restore the FWST to operable status
- B. 1. No2. Restore the FWST to operable status within 1 hour
- C. 1. Yes2. Immediately take action to restore the FWST to operable status
- D. 1. Yes
  - 2. Restore the FWST to operable status within 1 hour

### 2008 SRO NRC Retake Examination

#### Question: 71

(1 point)

The NV system is being aligned for startup. The procedure being used calls for independent verification of a single valve located in a room with a general dose rate of 130mR/hr.

Given the following conditions:

- Estimated time to independently verify the valve's position is 10 minutes
- There are no known hot spots in the area
- There is no airborne activity in this room
- The room has no surface contamination areas
- Assume any necessary approvals are obtained

Per NSD 700 (Verification Techniques), can independent verification of the valve above be waived and why or why <u>not</u>?

- A. Yes, because the general area dose rate is greater than 100mR/hr
- B. No, because the general area dose rate is less than 1 R/hr
- C. Yes, because the radiation exposure for a single verification would exceed the allowable limit
- D. No, because radiation exposure for a single verification is within the allowable limit
### 2008 SRO NRC Retake Examination

### Question: 72

(1 point)

Unit 1 is operating at 75% power. An engineer needs to enter the Reactor Building pipechase area to perform some scoping work for a future modification.

Per Site Directive 3.1.2 (Access to Reactor Building and Areas Having High Pressure Steam Relief Devices):

- 1. For <u>current</u> plant conditions, whose permission is required to allow entry into this area?
- 2. What operational modes <u>require</u> use of the "buddy system" for entry into the Reactor Building?
- A. 1. Radiation Protection and the WCC SRO2. Modes 1 and 2 only
- B. 1. Radiation Protection and the WCC SRO2. Modes 1, 2, 3 and 4
- C. 1. Radiation Protection only2. Modes 1 and 2 only
- D. 1. Radiation Protection only2. Modes 1, 2, 3 and 4

### 2008 SRO NRC Retake Examination

#### Question: 73

(1 point)

An RWP that you are preparing to work under states that the highest dose rate in a particular area (at 30 cm) is 325 mR/hr. When you arrive at the work site, a flashing yellow light is noted in the entry path to the area.

- 1. How would an area with the dose rate specified in the RWP be designated?
- 2. What is the significance of the flashing yellow light?
- A. 1. Radiation Area2. Radiography is in progress
- B. 1. High Radiation Area2. Radiography is in progress
- C. 1. Radiation Area2. The area has been designated as a "Locked" High Radiation Area
- D. 1. High Radiation Area2. The area has been designated as a "Locked" High Radiation Area

### 2008 SRO NRC Retake Examination

### Question: 74

(1 point)

Unit 1 was operating at 100% power when a complete loss of offsite power occurred. A LOCA occurred as a result of the transient. Given the following conditions:

- 1A D/G did not start and manual start attempts have failed
- Containment pressure is 3.4 psig
- NC subcooling is -8°F
- Core exit thermocouples are 642°F
- RVLIS level is 37%
- S/G NR levels are all 13%
- CA has not been reset
- CA flow is 470 gpm
- I/R SUR is 0 DPM
- S/R SUR is 0.3 DPM

Which one of the following is the highest priority Critical Safety Function for the given plant conditions?

- A. SUBCRITICALITY
- B. CORE COOLING
- C. CONTAINMENT
- D. HEAT SINK

#### Question: 75

(1 point)

During an emergency event, which one of the following identifies:

- 1. The on-site emergency facility that assumes responsibility for communications with offsite agencies including the NRC once it is activated?
- 2. What <u>minimum</u> level of emergency classification <u>always requires</u> an evacuation of all non-essential personnel?
- A. 1. Technical Support Center (TSC)2. Site Area Emergency
- B. 1. Technical Support Center (TSC)2. General Emergency
- C. 1. Operations Support Center (OSC)2. Site Area Emergency
- D. 1. Operations Support Center (OSC)2. General Emergency

#### Question: 76

(1 point)

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

- A pressurizer safety valve opened and did <u>not</u> fully reclose
- Current Conditions per the OAC are shown to the right:
- 1. Based on the current conditions what is the temperature downstream of the partially open pressurizer safety valve?
- 2. Which NC overpressure transient establishes the <u>required</u> relief capacity of the pressurizer safety valves per the Technical Specification Bases?

Reference provided

- A. 1. 550°F 2. NCP locked rotor
- B. 1. 550°F2. Main turbine trip
- C. 1. 320°F 2. NCP locked rotor
- D. 1. 320°F 2. Main turbine trip



### 2008 SRO NRC Retake Examination

### Question: 77

(1 point)

Unit 1 was heating up after a refueling outage. Given the following conditions and sequence of events:

- NC temperature is 225°F and stable
- 1A NV pump was in service
- An oil leak resulted in damage to the pump rotating element and work is currently in progress to replace the damaged rotating element
- 1. Which one of the following Selected Licensee Commitments (SLCs) applies based on <u>current</u> conditions?
- 2. What post maintenance requirement(s) must be completed prior to restoring 1A NV pump to OPERABLE status per the SLCs?
- A. 1. SLC 16.9-9 (Boration Systems Charging Pump-Shutdown)
  2. Post maintenance work order functional only
  - 2. Post maintenance work order functional only
- B. 1. SLC 16.9-9 (Boration Systems Charging Pump-Shutdown)2. Post maintenance work order functional and in-service testing
- C. 1. SLC 16.9-10 (Boration Systems Charging Pump-Operating)2. Post maintenance work order functional only
- D. 1. SLC 16.9-10 (Boration Systems Charging Pump-Operating)
  2. Post maintenance work order functional and in-service testing

#### Question: 78

(1 point)

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

- Manual reactor trip and safety injection occurred due to a tube rupture on 1A S/G
- A complete loss of offsite power occurs
- All S/G pressures have been maintained stable by automatic operation of the S/G PORVs
- The crew is in EP/1/A/5000/E-3 (Steam Generator Tube Rupture) cooling down the NC system to the required core exit temperature based on 1A S/G pressure
- Current NC loop Tcolds are as follows and decreasing:
  - A Loop 245°F
  - B Loop 530°F
  - C Loop 526°F
  - D Loop 528°F
- 1. What is the basis for the required core exit temperature selection?
- 2. What is the correct procedure flowpath for this situation?
- A. 1. To ensure intact S/G pressures will remain above the main steam isolation setpoint during the NC system cooldown and depressurization
  - 2. Transition to EP/1/A/5000/FR-P.1 (Response to Imminent Pressurized Thermal Shock Condition)
- B. 1. To ensure intact S/G pressures will remain above the main steam isolation setpoint during the NC system cooldown and depressurization
  - 2. Continue in EP/1/A/5000/E-3 (Steam Generator Tube Rupture)
- C. 1. To establish and maintain subcooling for the NC system cooldown and depressurization
  - 2. Transition to EP/1/A/5000/FR-P.1 (Response to Imminent Pressurized Thermal Shock Condition)
- D. 1. To establish and maintain subcooling for the NC system cooldown and depressurization
  - 2. Continue in EP/1/A/5000/E-3 (Steam Generator Tube Rupture)

### 2008 SRO NRC Retake Examination

### Question: 79

(1 point)

Unit 1 was operating at 100% power and Unit 2 was in No Mode. Given the following events and conditions:

- Terrorist attack resulted in a total loss of switchyard
- 1A D/G failed to start
- The OSM orders an evacuation of the control room due to the ongoing security threat per AP/1/A/5500/017 (Loss of Control Room)
- 1. Which Unit 1 CA pump(s) is/are currently available <u>and can be controlled</u> from the location to which the crew is evacuated?
- 2. How is secondary side pressure control maintained automatically from the location to which the crew is evacuated?
- A. 1. CAPT #1 only
  - 2. By the steam line code safety valves
- B. 1. CAPT #1 only2. By the S/G PORVs
- C. 1. CAPT #1 and 1B motor driven CA Pump2. By the steam line code safety valves
- D. 1. CAPT #1 and 1B motor driven CA Pump 2. By the S/G PORVs

### 2008 SRO NRC Retake Examination

#### Question: 80

(1 point)

Unit 1 was operating at 100% power and Unit 2 was in No Mode. Given the following:

- 1100 The TCC reported that RTCA (Real Time Contingency Analysis) indicates CNS switchyard voltage would <u>not</u> be adequate if Unit 1 should trip
- 1102 The crew entered AP/1/A/5500/037 (Generator Voltage and Electric Grid Disturbances), Case I (Abnormal Generator or Grid Voltage)
- 1300 The crew notified SPOC to install jumpers per AM/1/A/5100/008 (4Kv Essential Power (EPC) System Degraded Voltage Logic)
- 1. Which one of the following describes the operability of the VC/YC system per Technical Specifications at 1100?
- 2. What is the basis for installing these jumpers under the current conditions?
- A. 1. VC/YC is operable
  - 2. To bypass the 8 second time delay for load shed/sequencer actuation on a blackout signal
- B. 1. VC/YC is operable2. To prevent the D/G sequencer from double sequencing if a LOCA occurs
- C. 1. VC/YC is <u>not</u> operable
  - 2. To bypass the 8 second time delay for load shed/sequencer actuation on a blackout signal
- D. 1. VC/YC is not operable
  - 2. To prevent the D/G sequencer from double sequencing if a LOCA occurs

### 2008 SRO NRC Retake Examination

### Question: 81

(1 point)

Unit 1 was operating at 50% power. Given the following:

Initial Conditions

- 1A CA pump red tagged for PMs
- UST level is 104%
- During a board walkdown, 1CA-6 (CA Pmps Suct From CA CST) was noted to be closed

#### **Current Conditions**

- The reactor was manually tripped due to a main steam equalization header break
- All power is lost to 1ETB
- 1SM-5 (S/G 1B SM Isol) failed to close
- 1SM-3 (S/G 1C SM Isol) failed to close
- 1A S/G conditions NR level is 10%; pressure is 650 psig and stable
- 1B S/G conditions NR level is 0% ; pressure is 5 psig and stable
- 1C S/G conditions NR level is 0%; pressure is 7 psig and stable
- 1D S/G conditions NR level is 8% ; pressure is 675 psig and stable
- 1. Based on the <u>Initial Conditions</u>, which CA pump(s) was/were <u>required</u> to be declared inoperable per Technical Specifications?
- 2. Based on the <u>Current Conditions</u>, what procedure will the crew transition to upon exit of EP/1/A/5000/E-0 (Reactor Trip or Safety Injection)?
- A. 1. 1A CA Pump only
  2. EP/1/A/5000/E-2 (Faulted Steam Generator Isolation)
- B. 1. All three CA pumps
  2. EP/1/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink)
- C. 1. 1A CA Pump only
  2. EP/1/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink)
- D. 1. All three CA pumps
  2. EP/1/A/5000/E-2 (Faulted Steam Generator Isolation)

### 2008 SRO NRC Retake Examination

#### Question: 82

(1 point)

Unit 1 is operating at 98% power. A surveillance test per PT/1/A/4600/001 (RCCA Movement Test) is in progress. As Control Bank D was being moved, one control rod in Control Bank D slipped to 120 steps withdrawn and stopped. This is an incore thermocouple map one minute later.

	R	Р	Ν	м	L	к	J	н	G	F	Е	D	с	в	А
1						576		572		576					
2			546		599		611		603		605				
3				605				624				BAD		569	
4			597		602				609				617		
5		602				625				616				614	
6	563		611				611				626		623		568
7		602		606				617				620			
8	561				612		634		572				626		
9		619				611				613				614	
10	548		610				606				613				574
11				627				BAD				610		614	
12			612		599				608				622		
13				620		619				576		626		562	
14			540		628		613		608		614				-
15		•				BAD		622		580				•	

- 1. Which single rod has slipped into the core to 120 steps withdrawn?
- 2. In addition to reducing power to less than 75% and verifying SDM, what other surveillances (if any) are <u>required</u> per Technical Specification 3.1.4 (Rod Group Alignment Limits) to allow continued power operation in Mode 1?
- A. Rod D-12; no additional surveillances are required
- B. Rod M-4; no additional surveillances are required
- C. Rod D-12;  $F^{N}_{\Delta H}(X,Y)$  and  $F_{\Omega}(X,Y,Z)$
- D. Rod M-4;  $F^{N}_{\Delta H}(X,Y)$  and  $F_{Q}(X,Y,Z)$

### 2008 SRO NRC Retake Examination

### Question: 83

(1 point)

Unit 1 was in Mode 6 performing core alterations. Given the following conditions and sequence of events:

- N-31 was removed from service 3 days ago
- N-32 indicates 1.1 x10<sup>2</sup> cps
- 1AD-2, E/2 (TRAIN A SHUTDOWN MARGIN ALARM) actuates
- BDMS Train A indicates "E1"
- BDMS Train B indicates 1.4 x10<sup>2</sup> cps
- 1. What procedure is entered to address the stated conditions?
- 2. Are core alterations required to be stopped based on the above conditions?
- A. 1. AP/1/A/5500/013 (Boron Dilution) 2. No
- B. 1. AP/1/A/5500/013 (Boron Dilution)2. Yes
- C. 1. AP/1/A/5500/016 (Malfunction of Nuclear Instrumentation System)2. No
- D. 1. AP/1/A/5500/016 (Malfunction of Nuclear Instrumentation System)2. Yes

#### Question: 84

#### (1 point)

Unit 1 was at 3% power performing a startup. Given the following:

#### Initial conditions

- Intermediate Range channel N-35 failed low
- The crew removed N-35 from service per the applicable abnormal procedure

#### Current conditions

- IAE returned the channel to service and reported that the SUR circuitry for N-35 had to be disabled as part of the channel repair
- Engineering has evaluated the repair and determined that all other functions will operate as designed with the SUR circuitry disabled
- 1. When the crew removed N-35 from service per the abnormal procedure, which fuses (if any) were removed?
- 2. For the conditions above, is N-35 operable?
- A. 1. The control power fuses2. No
- B. 1. The control power fuses2. Yes
- C. 1. No fuses were removed 2. No
- D. 1. No fuses were removed 2. Yes

### 2008 SRO NRC Retake Examination

### Question: 85

(1 point)

Unit 1 was in Mode 3 and Unit 2 was operating at 100% power when a fire occurred on site. Given the following:

- A large amount of smoke entered the Auxiliary Building Ventilation (VA) system ductwork
- 1A main transformer was de-energized due to the fire

Based on the above conditions:

- 1. How will the VA system respond?
- 2. What is the status of the "A" train VA system per Technical Specifications?
- A. 1. VA Supply fans (ABSU) will trip and then the Unfiltered Exhaust Fans will trip
  2. Only 1A train is <u>not</u> operable
- B. 1. VA Supply fans (ABSU) will trip and then the Unfiltered Exhaust Fans will trip
  2. Both 1A and 2A trains are <u>not</u> operable
- C. 1. VA Supply fans (ABSU) will trip and then the ABSU inlet dampers will close
  2. Only 1A train is <u>not</u> operable
- D. 1. VA Supply fans (ABSU) will trip and then the ABSU inlet dampers will close2. Both 1A and 2A trains are <u>not</u> operable

#### Question: 86

(1 point)

Unit 1 is at 3% power and increasing. Given the following has just occurred:

- 1AD-7 C/1 NCP #1 "SEAL LEAKOFF HI FLOW" actuates
- 1B NCP seal leakoff is 6.5 gpm and stable
- 1B NCP Seal Outlet temperature is 165°F and stable
- 1B NCP Lower Bearing temperature is 140°F and stable
- The crew enters AP/1/A/5500/008 (Malfunction of Reactor Coolant Pump)

Per AP/1/A/5500/008, what is the maximum time 1B NCP can remain in service and what procedure will the crew be directed to enter <u>when</u> the pump is tripped?

- A. 5 minutes; EP/1/A/5000/E-0 (Reactor Trip or Safety Injection)
- B. 5 minutes; AP/1/A/5500/004 (Loss of Reactor Coolant Pump)
- C. 8 hours; OP/1/A/6100/002 (Controlling Procedure For Unit Shutdown)
- D. 8 hours; AP/1/A/5500/004 (Loss of Reactor Coolant Pump)

### 2008 SRO NRC Retake Examination

#### Question: 87

(1 point)

Unit 1 is at 450°F and 1860 psig heating up with shutdown banks withdrawn following a refueling outage. Given the following conditions and sequence of events:

**Initial Conditions** 

• YD has been manually aligned to provide cooling to 1A NV pump per AP/1/A/5500/021 (Loss of Component Cooling)

#### Current Conditions

- KC has not been restored
- The crew trips the reactor and all reactor coolant pumps
- A 100 gpm NC system leak occurs on an NC loop crossover pipe
- 1. If a safety injection becomes necessary, what guidance does AP/1/A/5500/021 provide for maintaining Unit 1 NC pump seal injection?
- 2. What procedure will AP/1/A/5500/021 direct the crew to implement next?
- A. 1. Maintain YD aligned to 1A NV pump and continuously monitor motor parameters
  - 2. AP/1/A/5500/005 (Reactor Trip or Inadvertent S/I Below P-11)
- B. 1. Maintain YD aligned to 1A NV pump and continuously monitor motor parameters
  - 2. AP/1/A/5500/027 (Shutdown LOCA)
- C. 1. Realign KC to the 1A NV pump and start the Standby Makeup Pump 2. AP/1/A/5500/005 (Reactor Trip or Inadvertent S/I Below P-11)
- D. 1. Realign KC to the 1A NV pump and start the Standby Makeup Pump 2. AP/1/A/5500/027 (Shutdown LOCA)

#### Question: 88

(1 point)

Given the following conditions on Unit 1:

Initial Conditions

- Reactor power was 100% and stable
- Turbine impulse pressure was 693 psig and stable

#### Final Conditions

- Security has reported significant steam escaping from the interior doghouse
- The crew is performing actions in AP/1/A/5500/028 (Secondary Steam Leak)
- Reactor power is 99.9% and stable
- Turbine impulse pressure is 657 psig and stable
- 1. What single steam relief valve passing full flow produced the conditions noted?
- 2. What actions will be directed by AP/1/A/5500/028 based on the final conditions?
- A. 1. A steam line safety
  - 2. Trip the reactor and go to EP/1/A/5000/E-0 (Reactor Trip or Safety Injection
- B. 1. A steam line safety2. Initiate a unit shutdown per AP/1/A/5500/009 (Rapid Downpower)
- C. 1. A S/G PORV
  - 2. Trip the reactor and go to EP/1/A/5000/E-0 (Reactor Trip or Safety Injection
- D. 1. A S/G PORV
  - 2. Initiate a unit shutdown per AP/1/A/5500/009 (Rapid Downpower)

### 2008 SRO NRC Retake Examination

#### Question: 89

(1 point)

Unit 1 is operating at 100% power. Given the following timeline:

- 12/15/09 1500 During the review of completed procedures it was noted that 12/07/09 at 0300 was the last time the 7 day surveillance was performed on the 1A D/G battery cells.
- 12/15/09 1800 IAE completed the 1A D/G battery cell surveillance and noted one bad battery cell.

Based on the above conditions and in accordance with Technical Specification 3.8.4 (DC Sources - Operating):

- **BASED ON CONDITIONS AT 1500:** 1. What is the <u>latest</u> time that this surveillance <del>can be</del> completed before the LCO for Technical Specification 3.8.4 will not be met? WOULD NOT HAVE BEEN MET?
  - 2. When is the cascade to Technical Specification 3.8.1 (AC Sources Operating) required to be made based on the bad battery cell?
  - Α. 1. 12/15/09 at 2100 2. Immediately
  - Β. 1. 12/15/09 at 2100 2. Within 1 hour
  - C. 1. 12/22/09 at 1500 2. Immediately
  - D. 1. 12/22/09 at 1500
    - 2. Within 1 hour

### 2008 SRO NRC Retake Examination

#### Question: 90

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(1 point)

Unit 1 and 2 are operating at 100% power with 2A RN pump in service. Given the following conditions and sequence of events:

- 1A D/G is tagged for PMs
  - The following annunciators actuate:
    - o 1AD-12, A/2 "RN Essential Hdr A Pressure Lo"
  - o 2AD-12, A/2 "RN Essential Hdr A Pressure Lo"
  - o 1AD-12, A/5 "RN Essential Hdr B Pressure Lo"
  - o 2AD-12, A/5 "RN Essential Hdr B Pressure Lo"
- The 2A RN pump trips
- The 1A RN pump is started and the alarms listed above clear
- 1. Is the 2A D/G operable per Technical Specifications for the conditions stated above?
- 2. What actions are required per OP/0/A/6400/006C (Nuclear Service Water System)?
- A. 1. No
  - 2. Ensure the RN essential header supply crossover valves are open
- B. 1. No2. Rackout and tag the "A" VC Compressor breaker
- C. 1. Yes2. Ensure the RN essential header supply crossover valves are open
- D. 1. Yes
  - 2. Rackout and tag the "A" VC Compressor breaker

2008 SRO NRC Retake Examination

#### Question: 91

(1 point)

Given the following:

- Unit 1 is performing a power decrease required by Technical Specifications
- At 45% power, 1SMPS5219 (Turbine Impulse Pressure / ATWS/ AMSAC Related) stopped decreasing
- The power supply to 1SMPS5218 (Turbine Impulse Pressure / ATWS/ AMSAC Related) has failed
- IAE has been notified to repair failed channels
- Current reactor power is 28.5%
- 1. What guidance does OP/1/A/6100/003 (Controlling Procedure for Unit Operation) provide for the AMSAC system for this situation?
- 2. Per the Selected Licensee Commitment (SLC), the basis for AMSAC, is to provide independent means of initiating a turbine trip signal and a \_\_\_\_\_\_ under ATWS conditions.
- A. 1. Continue the power decrease2. reactor trip signal
- B. 1. Continue the power decrease2. CA autostart signal
- C. 1. Stop the power decrease 2. reactor trip signal
- D. 1. Stop the power decrease2. CA autostart signal

### Question: 92 2000

#### (1 point)

Unit 1 entered Mode 6 three days ago. Given the following conditions and sequence of events:

- The head crew is currently lifting the reactor vessel upper internals
- The B train Containment Purge Exhaust System (VP) duct heaters lose power
- The B train VP system fan status/ system flow is unchanged
- 1. For the conditions above, is the VP system <u>required</u> to be operable per Technical Specification 3.9.3 (Containment Penetrations)?
- 2. Is proper functioning of the VP duct heaters <u>required</u> for operability of the VP system per the bases of Technical Specification 3.9.3?
- A. 1. Yes
  - 2. Yes
- B. 1. No 2. Yes
- C. 1. Yes 2. No
- D. 1. No 2. No

#### Question: 93

(1 point)

Unit 1 is in Mode 6 with core unload in progress. Given the following:

- An RP technician in the Spent Fuel Pool (SFP) building calls the control room and reports that level in the SFP is decreasing
- The fuel assembly most recently removed from the core is currently in the reactor building manipulator crane
- 1. Based on current conditions, what procedure will direct movement of the fuel assembly being handled to a safe location?
- 2. Where is the fuel assembly in the reactor building manipulator crane <u>required</u> to be placed?
- A. 1. AP/1/A/5500/026 (Loss of Refueling Canal Level)2. Into the upender and lowered to the fully down position
- B. 1. AP/1/A/5500/026 (Loss of Refueling Canal Level)2. Fully down in the core or the deep end of the canal
- C. 1. AP/1/A/5500/041 (Loss of Spent Fuel Cooling or Level)2. Into the upender and lowered to the fully down position
- D. 1. AP/1/A/5500/041 (Loss of Spent Fuel Cooling or Level)2. Fully down in the core or the deep end of the canal

#### Question: 94

(1 point)

Unit 1 entered a forced outage 3 days ago to replace an NC pump motor.

- 2 work crews are involved in replacing the NC pump motor, an NC pump crew and an IAE crew. The tagout boundary is being shared by both crews
- The NC pump crew has the new motor in place and has outstanding Work Order Task Assignments (WOTAs) for wiring completion
- The IAE crew has asked the Unit 1 SRO for clearance of their WOTA to allow electrical testing of the new motor which requires connecting an outside power source

Per NSD 500 (Red Tags/Configuration Control Tags), in addition to ensuring the work can be performed safely, what other condition is <u>required</u> to be met by the Unit 1 SRO <u>prior to granting clearance</u> to the IAE crew WOTA?

- A. The Unit 1 SRO must obtain OSM concurrence
- B. The Unit 1 SRO must ensure the two crews have established constant communication
- C. The Unit 1 SRO must ensure all affected crews have been informed of the intent to apply an outside power source
- D. The Unit 1 SRO must ensure a Safety Group representative has walked down the area where the outside power source will be applied

### Question: 95 2008 SRO NRC Retake Examination

(1 point)

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

- 1ND-64 (1B ND Train Cold Leg Injection Return Safety Relief) lifted and did not reseat
- The crew used the closest valves in the piping available to isolate the leak
- Due to parts availability it will be 4-5 days before repairs can be completed
- The crew began a Technical Specification shutdown
- 1. Which trains of ND, if any, are operable?
- 2. When shutting down, what is the <u>next</u> operational mode in which Technical Specification 3.5.2 (ECCS Operating) will no longer apply?

#### Reference provided

- A. 1. No trains of ND are operable2. Mode 4
- B. 1. No trains of ND are operable2. Mode 5
- C. 1. 1A Train of ND only 2. Mode 4
- D. 1. 1A Train of ND only 2. Mode 5

### 2008 SRO NRC Retake Examination

### Question:

96

(1 point)

Unit 1 is in Mode 3. Given the following:

- An operator is bleeding off nitrogen pressure from the 1A NW surge tank
- At the completion of venting, the crew notes NW surge tank pressure is 21 psig

Per Technical Specification 3.6.17 (Containment Valve Injection Water System):

- 1. What are the modes of applicability for this Technical Specification?
- 2. What is the current status of 1A Train of NW?
- A. 1. Modes 1, 2 and 3 only2. Operable
- B. 1. Modes 1, 2 and 3 only 2. <u>Not</u> operable
- C. 1. Modes 1, 2, 3 and 4 2. Operable
- D. 1. Modes 1, 2, 3 and 4 2. <u>Not</u> operable

#### Question: 97

#### (1 point)

Given the following:

- A LOCA has occurred in Unit 1
- The TSC has been <u>fully staffed</u> and <u>activated</u>
- An individual is needed for lifesaving activities during which 27 Rem of TEDE exposure is expected to be received
- 1. Is the individual required to be a volunteer?
- 2. Who is required to approve the exposure for this lifesaving activity?
- A. 1. Yes 2. The TSC Emergency Coordinator
- B. 1. Yes2. The Operations Shift Manager
- C. 1. No 2. The TSC Emergency Coordinator
- D. 1. No 2. The Operations Shift Manager

### 2008 SRO NRC Retake Examination

#### Question: 98

(1 point)

An individual with a current year Total Effective Dose Equivalent (TEDE) of 1500 mR is preparing to perform a job in the RCA. The RWP states that the dose rate in the area is 200 mR/hr.

Per NSD 507 (Radiation Protection):

- 1. What is the <u>maximum</u> time he can work in this area until he accumulates enough dose to require an extension prior to the next entry into the RCA?
- 2. What is the <u>minimum</u> level RP position that could provide the approval of a dose extension if needed?
- A. 1. 0.5 hours 2. An RP Supervisor
- B. 1. 0.5 hours2. The RP Manager
- C. 1. 1.5 hours 2. An RP Supervisor
- D. 1. 1.5 hours2. The RP Manager

### 2008 SRO NRC Retake Examination

#### Question: 99

(1 point)

Unit 1 was at 25% and increasing following a refueling outage. Given the following conditions and sequence of events:

- Unit 1 experiences a large break LOCA
- Containment sump level is 5.2 ft and increasing
- During the swap to cold leg recirculation, 1NI-136B (ND Supply To NI Pump 1B) could <u>not</u> be opened
- The crew verified S/I flow per EP/1/A/5000/ES-1.3 (Transfer to Cold Leg Recirculation)
- The crew is preparing to transition out of EP/1/A/5000/ES-1.3 when all running ECCS pumps begin showing signs of cavitation
- 1. What action, if any, was required per EP/1/A/5000/ES-1.3 when 1NI-136B would not open?
- 2. What procedure will EP/1/A/5000/ES-1.3 direct the crew to enter to address cavitation of the ECCS pumps?
- A. 1. 1B NI pump was secured
  2. EP/1/A/5000/ECA-1.1 (Loss of Emergency Coolant Recirculation)
- B. 1. 1B NI pump was secured2. EP/1/A/5000/ECA-1.3 (Containment Sump Blockage)
- C. 1. No action required
  2. EP/1/A/5000/ECA-1.1 (Loss of Emergency Coolant Recirculation)
- D. 1. No action required2. EP/1/A/5000/ECA-1.3 (Containment Sump Blockage)

#### Question: 100

(1 point)

Given the following two events:

- Earthquake
  - Seismic instrumentation indicates .04 g vertical acceleration and .05 g horizontal acceleration
  - 1AD-4, B/8 "OBE Exceeded" is not actuated
- High Auxiliary Building radiation
  - o 1RAD-1, B/3 "EMF41 Aux Bldg Vent Hi Rad" is actuated
  - $\circ$  EMF41 is reading 1.2 x 10<sup>6</sup> counts per minute and slowly increasing

Which one of the above events requires activation of the site assembly alarm per RP/0/A/5000/010 (Conducting a Site Assembly or Preparing the Site for an Evacuation) and from what location(s) is this alarm activated?

- A. Earthquake Event; Control Room only
- B. Earthquake Event; Control Room and Secondary Alarm Station (SAS)
- C. High Auxiliary Building radiation; Control Room only
- D. High Auxiliary Building radiation; Control Room and Secondary Alarm Station (SAS)

### Reference List for: 2008 SRO NRC Retake Exam

CN-1561-1.1 CN-1562-1.3 Databook Figure 14B Databook Figure 15B Databook Figure 57 EP/1/A/5000/ECA-1.1 Enclosure 5 Steam Tables

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Unit 1 Data Book

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Source: DPC-1552.08-00-0014, Rev. 8 Figure 16-2

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Rev. 0, 11/19/2003

Figure 14B - Loss of Decay Heat Removal, 18% NC Level, High Decay Heat

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Unit 1 Data Book

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Source: DPC-1552.08-00-0014, Rev. 8 Figure 16-8



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Unit 1 Data Book

#### Source: OAC Reactor Coolant Saturation Calculations



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Rev. 2, 4/5/ ?

CNS EP/1/A/5000/ECA-1.1

#### LOSS OF EMERGENCY COOLANT RECIRCULATION

Enclosure 5 - Page 1 of 1 Minimum S/I Flowrate Versus Time After Trip PAGE NO. 74 of 83 Rev 31 DCS


# CLEAN COPY OF STEAM TABLES

Question Number	Answer	
1	В	
2	D	
3	А	
4	А	
5	А	
6	А	
7	D	
8	С	
9	А	
10	С	
11	В	
12	D	
13	D	
14	А	
15	D	
16	D	
17	А	
18	А	
19	D	
20	А	
21	В	
22	А	
23	С	
24	А	
25	D	

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Question Number	Answer	
26	D	
27	А	
28	D	
29	D	
30	В	
31	А	
32	А	
33	D	
34	В	
35	В	
36	А	
37	В	
38	В	
39	А	
40	D	
41	С	
42	D	
43	А	
44	В	
45	С	
46	D	
47	D	
48	А	
49	В	
50	В	

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Question Number	Answer	
51	D	
52	А	
53	А	
54	D	
55	С	
56	В	
57	С	
58	А	
59	В	
60	В	
61	В	
62	D	
63	С	
64	В	
65	В	
66	В	
67	В	
68	В	
69	D	
70	D	
71	С	
72	В	
73	D	
74	В	
75	В	

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Question Number	Answer	
76	С	
77	D	
78	D	
79	А	
80	D	
81	С	
82	D	
83	А	
84	D	
85	D	
86	D	
87	С	
88	А	
89	А	
90	А	
91	В	
92	D	
93	В	
94	С	
95	А	
96	D	
97	А	
98	D	
99	D	
100	С	

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