

<b>U.S. Nuclear Regulatory Commission</b>	
<b>Site-Specific SRO Written Examination</b>	
<b>Applicant Information</b>	
Name:	
Date:	Facility/Unit: Comanche Peak
Region: IV	Reactor Type: Westinghouse
Start Time:	Finish Time:
<b>Instructions</b>	
<p>Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination you must achieve a final grade of at least 80.00 percent overall, with a 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require a final grade of 80.00 percent to pass. You have 8 hours to complete the combined examination, and 3 hours if you are only taking the SRO portion.</p>	
<b>Applicant Certification</b>	
All work done on this examination is my own. I have neither given nor received aid.	
_____	
Applicant's Signature	
<b>Results</b>	
RO/SRO-Only/Total Examination Values	_____ / _____ / _____ Points
Applicant's Score	_____ / _____ / _____ Points
Applicant's Grade	_____ / _____ / _____ Percent

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1.	A	B	C	D	26.	A	B	C	D
2.	A	B	C	D	27.	A	B	C	D
3.	A	B	C	D	28.	A	B	C	D
4.	A	B	C	D	29.	A	B	C	D
5.	A	B	C	D	30.	A	B	C	D
6.	A	B	C	D	31.	A	B	C	D
7.	A	B	C	D	32.	A	B	C	D
8.	A	B	C	D	33.	A	B	C	D
9.	A	B	C	D	34.	A	B	C	D
10.	A	B	C	D	35.	A	B	C	D
11.	A	B	C	D	36.	A	B	C	D
12.	A	B	C	D	37.	A	B	C	D
13.	A	B	C	D	38.	A	B	C	D
14.	A	B	C	D	39.	A	B	C	D
15.	A	B	C	D	40.	A	B	C	D
16.	A	B	C	D	41.	A	B	C	D
17.	A	B	C	D	42.	A	B	C	D
18.	A	B	C	D	43.	A	B	C	D
19.	A	B	C	D	44.	A	B	C	D
20.	A	B	C	D	45.	A	B	C	D
21.	A	B	C	D	46.	A	B	C	D
22.	A	B	C	D	47.	A	B	C	D
23.	A	B	C	D	48.	A	B	C	D
24.	A	B	C	D	49.	A	B	C	D
25.	A	B	C	D	50.	A	B	C	D

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51.	A	B	C	D	76.	A	B	C	D
52.	A	B	C	D	77.	A	B	C	D
53.	A	B	C	D	78.	A	B	C	D
54.	A	B	C	D	79.	A	B	C	D
55.	A	B	C	D	80.	A	B	C	D
56.	A	B	C	D	81.	A	B	C	D
57.	A	B	C	D	82.	A	B	C	D
58.	A	B	C	D	83.	A	B	C	D
59.	A	B	C	D	84.	A	B	C	D
60.	A	B	C	D	85.	A	B	C	D
61.	A	B	C	D	86.	A	B	C	D
62.	A	B	C	D	87.	A	B	C	D
63.	A	B	C	D	88.	A	B	C	D
64.	A	B	C	D	89.	A	B	C	D
65.	A	B	C	D	90.	A	B	C	D
66.	A	B	C	D	91.	A	B	C	D
67.	A	B	C	D	92.	A	B	C	D
68.	A	B	C	D	93.	A	B	C	D
69.	A	B	C	D	94.	A	B	C	D
70.	A	B	C	D	95.	A	B	C	D
71.	A	B	C	D	96.	A	B	C	D
72.	A	B	C	D	97.	A	B	C	D
73.	A	B	C	D	98.	A	B	C	D
74.	A	B	C	D	99.	A	B	C	D
75.	A	B	C	D	100.	A	B	C	D

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**Question 001**

Given the following information:

- Unit 1 is at full power, with a normal Component Cooling Water (CCW) system alignment.
- Subsequently, 1-HV-4701, RCP CLR CCW RET ISOL VLV is observed with the following indication; GREEN handswitch light LIT and RED handswitch light DARK.

Which ONE (1) of the following describes the effect on CCW flow indications as a result of this condition?

Loss of ALL Reactor Coolant Pump...

- A. Upper Bearing Lube Oil Cooler CCW Return flows  
Lower Bearing Lube Oil Cooler CCW Return flows  
Motor Air Cooler CCW Return flows
- B. Lower Bearing Lube Oil Cooler CCW Return flows  
Motor Air Cooler CCW Return flows  
Thermal Barrier Cooler CCW Return flows
- C. Upper Bearing Lube Oil Cooler CCW Return flows  
Motor Air Cooler CCW Return flows  
Thermal Barrier Cooler CCW Return flows
- D. Upper Bearing Lube Oil Cooler CCW Return flows  
Lower Bearing Lube Oil Cooler CCW Return flows  
Thermal Barrier Cooler CCW Return flows

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**Question 002**

Given the following information:

- Unit 1 is solid.
- RCS temperature is 135°F.
- PK-131, LTDN HX OUT PRESS CTRL is in AUTO.
- RCS pressure is 100 psig.
- Pressurizer heaters are energized.
- The crew is drawing a steam bubble in the Pressurizer.

Which ONE (1) of the following describes how RCS pressure will be controlled as the Pressurizer heats up to saturation?

- A. PCV-131, LTDN HX OUT PRESS CTRL valve will open further.
- B. Additional 1-8149 A (B, C), LTDN ORIFICE ISOL VLVS are opened.
- C. HC-128, RHR LTDN FLO CTRL, is adjusted to match Charging to Letdown flow.
- D. FK-121, CCP FLO CTRL, is adjusted to match Charging to Letdown flow.

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**Question 003**

Given the following information:

- Unit 1 is solid, in MODE 4.
- RHR Train A is in the Shutdown Cooling Mode.
- The crew is preparing to alternate RHR trains in accordance with SOP-102A, Residual Heat Removal System.

Which ONE (1) of the following identifies:

- a.) The concern regarding the RHR or RCS?
  - b.) What action should be taken prior to starting RHR Pump 1-02?
- 
- A. Excessive RHR system flow may occur.  
Place 1-PK-131, LTDN HX OUT PRESS CNTRL in MANUAL.
  - B. An RCS pressure transient may occur.  
Adjust 1-HC-128, RHR LTDN FLO CTRL to reduce RHR flowrate.
  - C. An RCS pressure transient may occur.  
Place 1-PK-131, LTDN HX OUT PRESS CNTRL in MANUAL.
  - D. Excessive RHR system flow may occur.  
Adjust 1-HC-128, RHR LTDN FLO CTRL to reduce RHR flowrate.

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**Question 004**

Which ONE (1) of the following describes the basis for maintaining Refueling Cavity level  $\geq$  23 feet above the reactor vessel flange in accordance with RFO-102, Refueling Operation?

- A. Prevent the water above the core from boiling in the event of a loss of RHR cooling.
- B. Minimize area radiation levels in the event of a loss of all AC electrical power.
- C. Prevent boric acid from concentrating in the core in the event of a loss of RHR cooling.
- D. Minimize airborne radioactivity levels in the event of a loss of all AC electrical power.

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**Question 005**

Given the following information:

- Unit 1 is at full power.
- Check valve leakage causes level and pressure alarms on ALB-4C for Accumulator 1.
- Accumulator 1 level is 65%.
- Accumulator 1 pressure is 680 psig.

Which ONE (1) of the following is:

- a.) The probable cause for both alarms?
  - b.) The appropriate actions that should be taken by the crew?
- 
- A. Pressure is the probable cause for both alarms. Lower pressure first and then adjust level.
  - B. Level is the probable cause for both alarms. Lower level first and then adjust pressure.
  - C. Level is the probable cause for both alarms. Lower pressure first and then adjust level.
  - D. Pressure is the probable cause for both alarms. Lower level first and then adjust pressure.



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**Question 006**

Unit 1 is at full power.

PRZR PORV 1-PCV-456 is leaking by.

The following Pressurizer Relief Tank conditions exist:

- Level is 74% and rising at 0.5% every 2 minutes.
- Pressure is 4 psig and rising at 0.2 psig every 2 minutes.
- Temperature is 125°F and rising at 1°F every 2 minutes.

Which ONE (1) of the following actions should be taken because of the current Pressurizer Relief Tank conditions?

Pressurizer Relief Tank ...

- A. temperature should be lowered by recirculating through the RCDT heat exchanger.
- B. temperature should be lowered by throttling 1-LCV-1003 closed to raise PRT level.
- C. pressure should be lowered by venting the PRT to the Waste Gas header.
- D. pressure should be lowered by throttling 1-LCV-1003 open to lower PRT level.

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**Question 007**

Unit 1 is at full power when DC power is lost to the solenoid valve for 1-8160, Letdown Containment Isolation Valve.

Which ONE (1) of the following describes the effect on Pressurizer, VCT and PRT level?

- A. Pressurizer level will decrease; VCT level will decrease; PRT level will remain the same.
- B. Pressurizer level will remain on program; VCT level will decrease; PRT level will increase.
- C. Pressurizer level will remain on program; VCT level will decrease; PRT level will remain the same.
- D. Pressurizer level will decrease; VCT level will remain the same; PRT level will increase.

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**Question 008**

Given the following information:

- Unit 1 is at full power.
- All controls are in AUTO.
- No equipment is out of service.
- Unit 1 CCW Surge Tank is being filled using Reactor Makeup Water Pump 1-01.

When VCT level decreases to 46%, which ONE (1) of the following could occur?

- A. Inadvertent RCS dilution.
- B. Inadvertent RCS boration.
- C. VCT level continues to lower.
- D. CCW surge tank level starts to lower.

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**Question 009**

Given the following conditions:

- Unit 1 is in MODE 4.
- RCS temperature is 250°F.
- RCS Wide Range Pressure Transmitter 1-PT-405 is out of service and the associated train of LTOP is removed from service.
- RCS Wide Range Pressure Transmitter 1-PT-403 fails LOW.

Automatic RCS Low Temperature Overpressure Protection is provided by...

- A. PRZR PORV 1-PCV-455A.
- B. PRZR PORV 1-PCV-456.
- C. NEITHER PRZR PORV 1-PCV-455A NOR 1-PCV-456.
- D. BOTH PRZR PORV 1-PCV-455A AND 1-PCV-456.

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**Question 010**

Which ONE (1) of the following includes the values and parameters used by the operator to ensure the temperature difference between the Pressurizer and the spray fluid is within the specified limit when initiating Normal Pressurizer spray?

The  $\Delta T$  limit is \_\_\_\_\_ between RCS \_\_\_\_\_ leg and PRZR vapor space temperature.

- A. 320°F; cold
- B. 625°F; hot
- C. 625°F; cold
- D. 320°F; hot

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**Question 011**

A plant heatup is in progress. RCS pressure is being raised and indicates as follows:

- PT-455 – 1970 psig
- PT-456 – 1950 psig
- PT-457 – 1950 psig
- PT-458 – 1970 psig

Which ONE (1) of the following should be the light status of 1-TSLB-9, PRZR PRESS SI PERM and PCIP-2.6, PRZR PRESS SI BLK PERM P-11?

- A. 2 of 4 bistable lights lit and PCIP light will be lit.
- B. 2 of 4 bistable lights lit and PCIP light will be out.
- C. 1 of 3 bistable lights lit and PCIP light will be lit.
- D. 1 of 3 bistable lights lit and PCIP light will be out.

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**Question 012**

Given the following:

- Unit 1 has experienced a loss of offsite power.
- DG 1-01 is running and loaded.

Which ONE (1) of the following will cause DG 1-01 to stop?

A loss of bus...

- A. 1PC1
- B. 1PC3
- C. 1EC1
- D. 1EC3

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**Question 013**

Given the following conditions:

- A Main Steam Line Break outside Containment occurs.
- The Reactor Operator trips the Reactor, actuates Safety Injection and Containment Spray.

Which ONE (1) of the following describes the required operator actions, and why?

- A. Trip all RCPs per EOP-0.0, Reactor Trip or Safety Injection, due to a loss of CCW cooling to the RCPs
- B. Reset the Containment Spray and Phase B signals and stop Containment Spray Pumps per Attachment 9 of EOP-0.0, Reactor Trip or Safety Injection, due to water spray causing damage to RCPs.
- C. Trip all RCPs per EOP-0.0, Reactor Trip or Safety Injection, due to water spray causing damage to RCPs.
- D. Reset the Containment Spray and Phase B signals and realign CCW to RCPs per Attachment 9 of EOP-0.0, Reactor Trip or Safety Injection, due to a loss of CCW cooling to the RCPs.



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**Question 014**

Control for a Containment Air Cooling and Recirculation fan has been transferred to the Remote Shutdown Panel.

Which ONE (1) of the following describes how the fan will respond to a Safety Injection or Blackout Sequencer signal?

- A. The fan will trip on a Safety Injection. The fan will not start on a Blackout Sequencer signal.
- B. The fan will not trip on a Safety Injection. The fan will start on a Blackout Sequencer signal.
- C. The fan will trip on a Safety Injection. The fan will start on a Blackout Sequencer Signal.
- D. The fan will not trip on a Safety Injection. The fan will not start on a Blackout Sequencer signal.

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**Question 015**

Given the following conditions:

- Unit 1 is in MODE 1 with a normal Containment Cooling alignment.
- 1-TI-5400A, Containment Average Temperature indication is 103°F and rising.

In accordance with procedure, which ONE (1) of the following describes the action that will reduce Containment average temperature?

Start any non-operating...

- A. Neutron Detector Well Cooling Fan
- B. Control Rod Drive Mechanism Cooling Fan
- C. Reactor Coolant Pipe Penetration Cooling Fan
- D. Containment Hydrogen Purge Exhaust Fan

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**Question 016**

Which ONE (1) of the following Containment Spray System valve(s) must be repositioned by an operator to realign the system from the Injection Mode to the Recirculation Mode?

(Assume Containment Spray Pumps have remained running during this evolution.)

- A. Containment Spray Pump Recirc Valves (HV-4772-1 / 2-2 / 3-1 / 3-2)
- B. Chemical Addition Tank Discharge Valves (HV-4752 / HV-4753)
- C. Containment Spray Heat Exchanger Outlet Valves (HV-4776 / HV-4777)
- D. RWST to Containment Spray Pump Suction Valves (HV-4758 / HV-4759)

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**Question 017**

Unit 1 is transferring to Cold Leg Recirculation.

Which ONE (1) of the following is the reason why the Containment Spray pumps are run in the Injection Mode until RWST level is less than 24%?

- A. To further lower Containment temperature by continuing to use colder RWST water.
- B. To inject as much RWST as possible to ensure sufficient Containment Sump inventory.
- C. To continue to remove iodine from the Containment atmosphere for as long as possible.
- D. Ensure sufficient Boric Acid and NaOH mixing to maintain the pH of the Containment Sump within the analyzed range.

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**Question 018**

Given the following conditions:

- A power increase is in progress on Unit 2.
- Reactor Power is 57%.
- A failure of the 2A Moisture Separator Reheater (MSR) Level Control System results in the following digital alarms:
  - 2RB01L901 XV05, MSR A SHELL LEVEL HIGH
  - 2RB01L801 XV06, MSR A SHELL LEVEL HIGH

Which ONE (1) of the following describes the actions that occur due to this failure?

Steam to the MSR is isolated...

- A. and the MSR Shell Drain Tank Normal Level Control Valve receives a CLOSE signal.
- B. and the MSR Shell Drain Tank Alternate Level Control Valve receives a CLOSE signal.
- C. and only the Main Turbine trips.
- D. and the Main Turbine and Reactor both trip.

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**Question 019**

Unit 2 is at 56% power with all control systems in AUTOMATIC.

Which ONE (1) of the following describes the plant response to a trip of one of the running Main Feedwater Pumps (MFWP)?

As level in the Steam Generators begin to lower...

- A. the Main Feedwater Regulating Valves open and the feedwater header pressure lowers causing the speed of the operating MFWP to rise.
- B. the Main Feedwater Regulating Valves open, the speed of operating MFWP rises, and the Main Feedwater Preheater Bypass Valves open to maintain SG level.
- C. the speed of the operating MFWP rises but will not maintain SG level. All AFW Pumps start when the SGs reach the Low-Low level setpoint.
- D. the feedwater header pressure lowers, causing the speed of the operating MFWP to rise until it trips on overspeed. All AFW Pumps start when the SGs reach the Low-Low level setpoint.

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**Question 020**

Given the following conditions:

- Unit 1 is in MODE 3 with the Motor Driven Auxiliary Feedwater Pumps (MDAFWs) maintaining Steam Generator levels.
- A small feedline break occurs just upstream of the manual inlet isolation valve for PV-2454A, MDAFWP 2 SG 3 FLO CTRL Valve.
- MDAFW Pump 1-02 is stopped and break flow has been isolated.

Which ONE (1) of the following describes the Steam Generators that may be fed from MDAFW Pump 1-01, without reinitiating break flow?

- A. Steam Generator 1 only.
- B. Steam Generator 2 and 4 only.
- C. Steam Generator 1 and 2 only.
- D. Steam Generator 1, 2 and 4 only.

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**Question 021**

Which ONE (1) of the following lists all the automatic start signals to the Turbine Driven Auxiliary Feedwater Pump?

Blackout Sequence (BOS) O/L and...

- A. 2 of 4 Low-Low Steam Generator levels in 2 of 4 Steam Generators  
Safety Injection
- B. Trip of both Main Feedwater Pumps  
AMSAC signal
- C. 2 of 4 Low-Low Steam Generator levels in 2 of 4 Steam Generators  
AMSAC signal
- D. Trip of both Main Feedwater Pumps  
Safety Injection



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**Question 022**

Which ONE (1) of the following describes a change in the AC Electrical Distribution lineup that requires notification of plant personnel via the Plant Gaitronics System?

- A. Align 480/277 VAC (West Bus) Distribution Panel ACP-2 in the 345 KV Relay House.
- B. Energize 1MT1 and 1MT2 Main Transformers in a Backfeed configuration.
- C. Start Inverter IV1EC1/3 unloaded for maintenance.
- D. Place an additional cooler group in service on Main Transformer 1MT1.

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**Question 023**

Which ONE (1) of the following is the cause of a 1-ALB-10B-1.9, 125 VDC SWITCH PNL 1ED3 TRBL alarm **with** an associated 1-SSII-1 TRAIN A, 125 VDC alarm?

- A. Bus Overvoltage.
- B. Bus Undervoltage.
- C. Battery charger in equalize.
- D. 1ED3 Ground condition.

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**Question 024**

Which ONE (1) of the following describes the effect of allowing BOTH of the Diesel Starting Air Receivers to drop to 145 psig?

- A. A Local Emergency Start signal will be accepted by the engine start circuit.
- B. A Safety Injection signal will be accepted by the engine start circuit.
- C. A Blackout signal will be accepted by the engine start circuit.
- D. A Manual Normal Start initiation will be accepted by the engine start circuit.

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**Question 025**

Given the following:

- A Gaseous Decay Tank release is in progress.
- An OPERATE FAILURE – CHANNEL OPERATE FAILURE Digital Radiation Monitor System alarm is received for the Plant Vent Stack WRGM Channel RE-5570A during the release.

Which ONE (1) of the following describes the alarm indication and action required?

- A. Blue alarm; Verify X-HCV-0014, GWPS DISCH PLT EXH PLNM ISOL VLV automatically closes.
- B. Blue alarm; Auto function of X-HCV-0014, GWPS DISCH PLT EXH PLNM ISOL VLV is disabled and the valve must be manually closed.
- C. Red alarm; Verify X-HCV-0014, GWPS DISCH PLT EXH PLNM ISOL VLV automatically closes.
- D. Red alarm; Auto function of X-HCV-0014, GWPS DISCH PLT EXH PLNM ISOL VLV is disabled and the valve must be manually closed.

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**Question 026**

Given the following conditions:

- Station Service Water Pump (SSWP) 1-01 has tripped.
- The crew is performing actions of ABN-501, Station Service Water System Malfunction.
- The Shift Manager determines that Component Cooling Water Pump 1-01 is to remain in service.
- SSWP 1-01 handswitch is in PULL-OUT.

Which ONE (1) of the following describes the condition of SSWP 1-01 once repairs are completed?

SSWP 1-01...

- A. will not start until CCW Pump 1-02 is stopped.
- B. will start ONLY when the handswitch is placed in START position.
- C. will start as the handswitch spring returns to the AUTO position.
- D. will not start until CCW Pump 1-01 is stopped.

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**Question 027**

Given the following:

- The Turbine Driven Auxiliary Feedwater Pump is operating.
- Unit 1 has lost Instrument Air pressure.

Which ONE (1) of the following states how the loss of Instrument Air pressure affects the TDAFW Pump?

- A. Steam supply valves fail closed.
- B. The TDAFW Pump trips.
- C. Speed lowers to minimum.
- D. Speed rises to maximum.

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**Question 028**

Which ONE (1) of the following is the reason why a Containment Closure Checklist is required each shift per IPO-010A/B, Reactor Coolant System Reduced Inventory Operations?

Containment Closure must be...

- A. established prior to disconnecting Core Exit Thermocouples.
- B. established prior to initiating fuel movement.
- C. capable of being achieved if RHR cooling is lost.
- D. capable of being achieved prior to removing the Reactor Vessel Head.

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**Question 029**

Given the following:

- A Reactor Startup is in progress on Unit 1.
- Intermediate Range Channels N-35 and N-36 indications are just beginning to come off the bottom scale.

If the NI channels are operating properly, which ONE (1) of the following describes the approximate indication on Source Range Channels N-31 and N-32?

- A.  $5 \times 10^2$  CPS
- B.  $5 \times 10^3$  CPS
- C.  $5 \times 10^4$  CPS
- D.  $5 \times 10^5$  CPS



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**Question 030**

Which ONE (1) of the following describes the power supplies to the Containment Pre-Access Filtration System fans?

- A. Non-safeguards 480 VAC MCCs; MCCs are unaffected by either a Blackout or a Safety Injection.
- B. Non-safeguards 480 VAC MCCs; MCCs are load shed by a Blackout, but are unaffected by a Safety Injection.
- C. Safeguards 480 VAC MCCs; MCCs are unaffected by a Blackout, but are load shed by a Safety Injection.
- D. Safeguards 480 VAC MCCs; MCCs are load shed by either a Blackout or a Safety Injection.

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**Question 031**

Given the following conditions:

- Spent Fuel Pool (SFP) Cooling Water Pump X-02 and Heat Exchanger X-02 are aligned to and cooling the X-01 SFP.
- Level is lowering in the X-01 SFP due to a pipe rupture down stream of SFP Cooling Water Pump X-02.

Which ONE (1) of the following describes the design feature(s) that maintains adequate water level in the X-01 SFP?

- A. SFP Cooling Water Pump X-02 will trip on a low level in X-01 Spent Fuel Pool.
- B. SFP Cooling Water Pump X-02 suction piping anti-siphon feature will cause a loss of suction to X-02 Cooling Water Pump.
- C. SFP Cooling Water Pump X-02 discharge piping anti-siphon holes limit flow out of X-01 Spent Fuel Pool.
- D. SFP Cooling Water Pump X-02 will lose suction and the X-01 SFP discharge piping anti-siphon hole will be uncovered.

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**Question 032**

Given the following conditions:

- Unit 1 is at 21% power with all systems in normal alignments.
- The Main Generator is synchronized to the grid.
- Main Steam Isolation Valve 1-01 closed on a spurious signal.

Assuming the reactor does NOT trip, which ONE (1) of the following correctly describes the INITIAL response of RCS Delta T and SG pressure in the affected loop?

Loop Delta T...

- A. rises and SG steam pressure rises.
- B. rises and SG steam pressure lowers.
- C. lowers and SG steam pressure rises.
- D. lowers and SG steam pressure lowers.

U.S.N.R.C. site-Specific Written Examination  
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**Question 033**

Given the following:

- Unit 2 is at 8% power during a mid-cycle reactor startup.
- Steam Dumps are aligned in the Pressure Control Mode of operation.

If the steam dump controller setpoint is reduced by 20 psig, which ONE (1) of the following describes the effect on the unit?

- A. Steam Dump Valves open; RCS temperature rises; Reactor power lowers.
- B. Steam Dump Valves close; RCS temperature rises; Reactor power lowers.
- C. Steam Dump Valves open; RCS temperature lowers; Reactor power rises.
- D. Steam Dump Valves close; RCS temperature lowers; Reactor power rises.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
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**Question 034**

Given the following:

- A reactor trip has occurred on Unit 1.
- All HP Turbine Stop Valves indicate open after attempting a manual turbine trip.

Which ONE (1) of the following is the NEXT action required?

- A. Dispatch an operator to locally trip the Turbine.
- B. Manually runback the Turbine using Load Control.
- C. Close MSIV and Bypass Valves.
- D. Place all EHC Pumps in Pull-Out.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
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**Question 035**

The unit is at 100% power with all systems in a normal alignment when:

- The following alarm is received:
  - ALB-9A, 1.12, CNDSR ANY VAC PMP TRIP
- The white light indication on the control switch for Condenser Vacuum Pump 1 is LIT.
- Condenser vacuum indicates 26.5 inches Hg and lowering slowly.

Which ONE (1) of the following describes the status of the condenser air removal system, and the action required?

- A. C-9, CONDENSER AVAILABLE STEAM DUMP ARMED is LIT.  
The standby condenser vacuum pump has automatically started.  
Place the handswitch for condenser vacuum pump 1 in OFF and dispatch an operator to determine the cause of the trip.
- B. C-9, CONDENSER AVAILABLE STEAM DUMP ARMED is LIT.  
The standby condenser vacuum pump has NOT started.  
Manually start the standby condenser vacuum pump.
- C. C-9, CONDENSER AVAILABLE STEAM DUMP ARMED is DARK.  
The standby condenser vacuum pump has automatically started.  
Place the handswitch for condenser vacuum pump 1 in OFF and dispatch an operator to determine the cause of the trip.
- D. C-9, CONDENSER AVAILABLE STEAM DUMP ARMED is DARK.  
The standby condenser vacuum pump has NOT started.  
Manually start the standby condenser vacuum pump.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 036**

Waste Gas Compressor X-01 is in operation and a loss of Component Cooling Water has occurred to the compressor seal water heat exchanger.

Which ONE (1) of the following describes the indications available for this event?

Local temperature indication...

- A. AND Remote temperature indication AND Control Room alarm
- B. AND Control Room alarm ONLY
- C. AND Local Panel alarm ONLY
- D. AND Control Room alarm AND Local Panel alarm

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 037**

Given the following:

- Radiography is in progress in the Auxiliary Building.
- The local Area Radiation Monitor (ARM) is reading 10 mRem/hr due to background radiation, prior to the source being EXPOSED.
- When the source is EXPOSED 50 feet from the monitor, the reading is 20 mRem/hr.

If the source distance is reduced to 25 feet from the local Area Radiation Monitor, which ONE (1) of the following describes the indication that will be seen on the local Area Radiation Monitor when the source is EXPOSED?

- A. 30 mRem/hr
- B. 40 mRem/hr
- C. 50 mRem/hr
- D. 80 mRem/hr



U.S.N.R.C. site-Specific Written Examination  
CPSES  
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**Question 038**

Given the following conditions:

- Unit 1 is at 45% power.
- A Main Transformer sudden pressure relay actuates due to a fire.

Which ONE (1) of the following describes the plant response?

- A. The Reactor and Main Turbine will trip. A Main Generator lockout must occur before the Fire Protection Deluge Valves will open.
- B. The Main Turbine will trip. The Fire Protection Deluge Valves immediately open when the thermal detectors sense a fire within the Main Transformer.
- C. The Reactor and Main Turbine will trip. The Fire Protection Deluge Valves immediately open when the thermal detectors sense a fire within the Main Transformer.
- D. The Main Turbine will trip. A Main Generator lockout must occur before the Fire Protection Deluge Valves will open.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 039**

Given the following conditions:

- A manual Reactor Trip is initiated from CB-07 and CB-10.
- Reactor Trip Breaker "A" indicates green.
- Reactor Trip Breaker "B" indicates red.
- Reactor power indicates 3% and decreasing.
- All DRPI indication is lost.

Which ONE (1) of the following describes the condition of the reactor and the appropriate action?

- A. The Reactor is tripped. Continue in EOP-0.0A, Reactor Trip or Safety Injection.
- B. The Reactor is tripped. Actuate Safety Injection to meet Shutdown Margin criteria.
- C. The Reactor is **not** tripped. Transition to FRS-0.1A, Response to Nuclear Power Generation/ATWT.
- D. The Reactor is **not** tripped. Reattempt to manually trip the reactor and manually initiate Turbine trip.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 040**

Given the following:

- Reactor trip and safety injection have occurred.
- The crew is performing actions of EOP-0.0A, Reactor Trip or Safety Injection.
- RCS pressure is 1150 psig.
- PRZR level indicates 100%.
- Containment pressure is 8 psig.
- RCS temperature is 565°F and rising slowly.

Which ONE (1) of the following actions is required to control RCS temperature?

- A. Adjust the steam dump controller setpoint in automatic to maintain current RCS temperature.
- B. Manually operate the steam dumps in the Steam Pressure mode to increase heat removal.
- C. Adjust the SG atmospheric setpoints in automatic to maintain current RCS temperature.
- D. Manually operate the SG atmospheric relief valves to increase heat removal.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 041**

Given the following:

- LOCA has occurred.
- RCS pressure is 1650 psig and lowering slowly.

Which ONE (1) of the following describes the status of operating ECCS equipment?

- A. CCP SI Flow is stable.  
SI Pump Discharge Flow is rising.  
SI Accumulator level is stable.  
RHR Injection Flow is rising.
- B. CCP SI Flow is stable.  
SI Pump Discharge Flow is zero.  
SI Accumulator level is lowering.  
RHR Injection Flow is zero.
- C. CCP SI Flow is rising.  
SI Pump Discharge Flow is zero.  
SI Accumulator level is stable.  
RHR Injection Flow is zero.
- D. CCP SI Flow is rising.  
SI Pump Discharge Flow is rising.  
SI Accumulator level is lowering.  
RHR Injection Flow is rising.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 042**

Given the following Unit 2 conditions:

- SI actuated due to a LOCA.
- BOTH CCPs are TRIPPED.
- RCS pressure is 25 psig.
- RCS Subcooling is 0°F
- Containment pressure is 23 psig.
- All other equipment is running per design.
- The crew is performing actions of EOP-0.0B, Reactor Trip or Safety Injection.

Which ONE (1) of the following describes the required action and reason for the action with respect to the RCPs?

- A. Stop all RCPs to prevent mechanical damage to the pump and motor.
- B. Stop all RCPs to minimize fluid mass loss out of the break.
- C. Leave all RCPs running to provide forced cooling flow of the RCS.
- D. Leave all RCPs running to prevent phase separation of RCS liquid.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 043**

Unit 1 is at 85% power.

The following alarm was received at 0400:

- 1-ALB-5B-1.5, RCP 1 VIBR HI

The following trend of RCP 1 vibration is available:

<u>Time</u>	<u>Shaft</u>	<u>Frame</u>
0400	15.0 mils	2.70 mils
0415	15.2 mils	2.72 mils
0430	15.5 mils	2.73 mils
0445	20.1 mils	4.22 mils
0500	23.7 mils	4.88 mils

Which ONE (1) of the following states the earliest time that RCP trip criteria were exceeded?

- A. 0415
- B. 0430
- C. 0445
- D. 0500

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 044**

Given the following:

- Unit 1 is at 48% power.
- 1-8106, Charging Pump to RCS Isolation Valve, fails closed due to a control switch circuit malfunction and **cannot** be reopened.
- Letdown has been isolated.

Which ONE (1) of the following describes the response of Pressurizer level to this event?

Pressurizer level will....

- A. Stabilize when letdown is isolated.
- B. Lower at a rate consistent with seal leakoff flow.
- C. Rise at a rate consistent with seal injection flow.
- D. Rise at a rate consistent with seal injection minus seal leakoff flow.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 045**

Given the following conditions:

- Unit 1 is in MODE 5.
- The Unit was shut down 10 days ago.
- Reduced Inventory Operations are in progress with Reactor vessel level at 53" above the core plate.
- RCS temperature is 120°F.
- A loss of all RHR cooling occurs.

Which ONE (1) of the following describes (1) the most limiting time available for Containment Closure, and (2) time until RCS reaches saturation temperature?

(Reference material provided.)

- A. 60 minutes; 12 minutes
- B. 75 minutes; 12 minutes
- C. 60 minutes; 15 minutes
- D. 75 minutes; 15 minutes



U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 046**

Given the following:

- The crew is performing ABN-502, CCW System Malfunction.
- High temperature alarms are received on all 4 RCPs.
- All 4 RCP Thermal Barrier Return temperatures indicate 185°F and rising at 5°F per minute.
- Lower Seal Bearing temperature indicates 200°F and rising at 5°F per minute.

Which ONE (1) of the following describes the status of RCP thermal barrier cooling, and the action required for this condition?

- A. 1-HS-4709, Thermal Barrier Cooler CCW Return Isolation Valve, is closed. RCP temperatures have exceeded the operating limits and must be immediately tripped.
- B. 1-HS-4709, Thermal Barrier Cooler CCW Return Isolation Valve, is closed. RCPs must be tripped within 5 minutes due to high temperature.
- C. 1-HS-4709, Thermal Barrier Cooler CCW Return Isolation Valve, is open. RCP temperatures have exceeded the operating limits and must be immediately tripped.
- D. 1-HS-4709, Thermal Barrier Cooler CCW Return Isolation Valve, is open. RCPs must be tripped within 5 minutes due to high temperature.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 047**

Given the following:

- During operation at 100% power, the Controlling Pressurizer Pressure Channel (PT-455A) fails high.
- All controls are in AUTO.
- RCS pressure is 2235 psig.

Assuming no operator action, which ONE (1) of the below would be the PROGRESSION of events in the Primary System (including Pressurizer Pressure Control System response), following the instrument failure?

1. LOOP 1 Spray valve (PCV-455B) OPENS
2. BOTH Spray valves OPEN (PCV-455B and 455C)
3. PORV PCV-455A OPENS
4. BOTH PORVs OPEN (PCV-455A and 456)
5. PORV CLOSES (PCV-455A)
6. BOTH PORVs CLOSE (PCV-455A and 456)
7. ALL PRZR heaters energize
8. Reactor TRIP on HI PRZR Pressure
9. Reactor TRIP on LO PRZR Pressure

A. 1,3,5,7,8

B. 1,4,6,9

C. 2,4,6,7,8

D. 2,3,5,9

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 048**

Given the following conditions:

- Reactor Trip Breaker testing is in progress on Train "A".
- Reactor Trip Breaker "A" is open.
- Reactor Trip Breaker "B" is closed.
- Reactor Trip Bypass Breaker "A" is closed.
- A transient occurs generating an automatic reactor trip signal.
- The reactor did not automatically trip.

Which ONE (1) of the following describes the failure that has contributed to the automatic reactor trip failure?

- A. Reactor Trip Breaker "B" Undervoltage Trip coil failed to energize.
- B. Reactor Trip Breaker "B" Shunt Trip coil failed to deenergize.
- C. Reactor Trip Bypass Breaker "A" Shunt Trip coil failed to energize.
- D. Reactor Trip Bypass Breaker "A" Undervoltage Trip coil failed to deenergize.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 049**

Which ONE (1) of the following describes the reasons for depressurizing the Steam Generators to 250 psig in accordance with ECA-0.0, Loss of All AC Power?

- A. Initiate SI Accumulator injection and minimize RCP seal leakage.
- B. Establish Natural Circulation conditions and initiate SI Accumulator injection.
- C. Establish Natural Circulation conditions and minimize secondary heat sink requirements if AFW inventory is limited.
- D. Minimize secondary heat sink requirements if AFW inventory is limited, and minimize RCP seal leakage.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 050**

Given the following conditions:

- A loss of Off-Site Power has occurred.
- Bus 1EA1 is de-energized.
- The crew is performing EOS-0.1A, Reactor Trip Response.
- RCS temperature is 561°F and stable.
- RCS pressure is 1920 psig and trending down slowly.
- PRZR level cannot be maintained > 13%.

Which ONE (1) of the following actions is required in accordance with EOS-0.1A, Reactor Trip Response?

- A. Increase Condenser Steam Dump to maintain Tavg at 557°F.
- B. Attempt to restore 1EA1 in accordance with ABN-602, Response to a 6900V/480V System Malfunction.
- C. Manually actuate Safety Injection and return to EOP-0.0A, Reactor Trip or Safety Injection.
- D. Isolate Letdown and verify natural circulation in accordance with EOS-0.1A, Reactor Trip Response, Attachment 3.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 051**

Given the following:

- Unit 1 is at 100% power.
- All systems are in their normal alignments.
- The following alarm is received:
  - 1-ALB-10B-1.16, 118V CHAN 1 INV TRBL
- The crew determines that the associated Protection Bus is de-energized.

Which ONE (1) of the following describes the effect on the CVCS Makeup system?

- A. AUTO Reactor Coolant Makeup Control to the VCT is disabled ONLY.
- B. AUTO and MANUAL Reactor Coolant Makeup Control to the VCT is disabled.
- C. 1-LCV-112D and 112E, RWST TO CHRG PMP SUCT VLVs open.  
1-LCV-112B and 112C, VCT TO CHRG PMP SUCT VLVs close.
- D. 1-LCV-112D and 112E, RWST TO CHRG PMP SUCT VLVs open.  
1-LCV-112B and 112C, VCT TO CHRG PMP SUCT VLVs open.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 052**

Given the following conditions:

- Unit 1 is at 100% power with all systems in their normal alignment.
- ALB-10B, 1.13, 125 VDC SWITCH PNL 1ED1 TRBL, is alarming.
- V-1ED1, 125 VDC SWITCH PNL 1ED1 VOLT, is indicating 135 volts.
- When the GROUND TEST switch at Panel 1ED1 is placed in "TEST", both the NEGATIVE-GND and POSITIVE-GND white lights are lit.
- The POSITIVE-GND white light is brighter and the NEGATIVE-GND white light is dimmer.

Which ONE (1) of the following is the cause of the trouble alarm on 125 VDC Panel 1ED1, and the component supplying power to Panel 1ED1?

- A. A POSITIVE ground exists and the BATTERY is supplying the bus.
- B. A POSITIVE ground exists and the BATTERY CHARGER is supplying the bus.
- C. A NEGATIVE ground exists and the BATTERY is supplying the bus.
- D. A NEGATIVE ground exists and the BATTERY CHARGER is supplying the bus.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 053**

Given the following:

- Unit 1 is in MODE 5.
- Train A Component Cooling Water Pump (CCWP) and Station Service Water Pump (SSWP) are in service.
- Train B CCWP and SSWP are secured.
- The following alarms are received in the Control Room:
  - ALB 1-1.7, SSW TRN A/B HDR PRESS LO
  - ALB 1-1.8, SSWP 1/2 OVRLOAD/TRIP
- The BOP determines that SSWP 1-01 has tripped.
- NO other automatic action has occurred.

Which ONE (1) of the following describes the required action(s) and the reason why the action(s) is (are) necessary?

- A. Start a Train B SSWP ONLY because it should have started when the breaker for SSWP 1-01 tripped.
- B. Start a Train B SSWP and CCWP because they should have started when SSWP 1-01 breaker tripped.
- C. Start a Train B SSWP ONLY because it should have started on low SSW header pressure.
- D. Start a Train B SSWP and CCWP because they should have started on low SSW header pressure.



U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 054**

Assuming NO operator actions, which ONE (1) of the following describes the effect of a loss of instrument air on Volume Control Tank (VCT) level?

VCT level...

- A. decreases due to maximum Charging, and Letdown Isolation Valves failing closed.
- B. decreases due to maximum Charging, and Letdown diverting to the Hold Up Tank.
- C. increases due to minimum Charging, and the Letdown Pressure Control Valve failing open.
- D. increases due to minimum Charging, and the Letdown Orifice Isolation Valves failing open.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 055**

Given the following Unit 1 conditions:

- A Reactor Trip and Safety Injection have occurred.
- The crew has performed the actions of EOP-0.0A, Reactor Trip or Safety Injection.
- All SG NR levels are off-scale low.
- All SG WR levels are at approximately 60%.
- The crew has entered FRH-0.1A, Response to Loss of Secondary Heat Sink.
- RCS Pressure is 1175 psig and stable.
- Intact SG pressures are 975 psig and trending down slowly.

Which ONE (1) of the following describes the plant conditions and action required?

Steam Generators are...

- A. Required for RCS heat removal. Continue in FRH-0.1A; trip RCPs and initiate Bleed and Feed.
- B. Required for RCS heat removal. Continue in FRH-0.1A; leave RCPs running and attempt to restore AFW pumps.
- C. NOT required for RCS heat removal. Transition to EOP-1.0A, Loss of Reactor or Secondary Coolant, and ensure correct diagnosis of the event prior to continuing.
- D. NOT required for RCS heat removal. Transition to E-2.0A, Faulted SG Isolation, to initiate Main Steam Line Isolation due to the SG pressure reduction.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 056**

Given the following Unit 1 conditions:

- ECA-2.1A, Uncontrolled Depressurization of All Steam Generators, is being performed.
- The crew has reduced AFW flow to all Steam Generators (SG) to 100 gpm per SG as they continue attempts to isolate the SGs.

Which ONE (1) of the following describes the expected plant response to the AFW flow reduction and what actions are to be taken as SG pressures decrease?

- A. RCS hot leg temperatures will eventually begin to increase due to reduction in SG inventory and the crew will then raise AFW flow while continuing in ECA-2.1A, Uncontrolled Depressurization of All Steam Generators.
- B. RCS hot leg temperatures will eventually begin to increase due to reduction of SG inventory and the crew will then transition to FRH-0.1A, Response to Loss of Secondary Heat Sink.
- C. The SGs will eventually become completely depressurized due to inadequate secondary heat sink and the crew will then transition to EOP-2.0A, Faulted Steam Generator Isolation.
- D. The SGs will eventually become completely depressurized due to inadequate secondary heat sink and the crew will then transition to FRH-0.1A, Response to Loss of Secondary Heat Sink.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 057**

Unit 2 is in Mode 1.

- Rod Control is in Manual.
- An unexplained rise in reactor coolant temperature is occurring.
- The Unit Supervisor has entered the appropriate Abnormal Condition Procedure (ABN) and determined that an RCS boration is required.

Which ONE (1) of the following describes the preferred method of RCS boration?

- A. Emergency Borate Valve 2-8104
- B. Manual Boration Valve 2CS-8439
- C. Charging Pump Suction to RWST, 2-LCV-112D or 112E
- D. Normal Boration Valves 2-FCV-110A and 110B

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 058**

Given the following:

- Unit 1 is operating under steady-state conditions at 100% power with all control systems in their normal/automatic lineup.
- PRZR level transmitter 1-LT-459 fails low.
- PRZR level transmitter 1-LT-461 is immediately selected for control.

Which ONE (1) of the following describes the plant conditions 3 to 5 minutes after 1-LT-461 is selected for control, assuming no other operator action?

- A. Charging flow increasing and Group C heaters energized
- B. Charging flow increasing and Group C heaters de-energized
- C. Charging flow decreasing and Group C heaters de-energized
- D. Charging flow decreasing and Group C heaters energized

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 059**

Given the following conditions:

- Reactor startup is in progress.
- IR power indicates  $5 \times 10^{-11}$  amps on both channels.
- Source Range High Flux trip has NOT been blocked.

For the two switch positions shown below, which ONE (1) of the following describes the Reactor Protection System response to a blown instrument power fuse on Source Range Channel N-31?

	<u>SR Level Trip Switch: NORMAL</u>	<u>SR Level Trip Switch: BYPASS</u>
A.	No Reactor Trip	No Reactor Trip
B.	Reactor Trip	No Reactor Trip
C.	No Reactor Trip	Reactor Trip
D.	Reactor Trip	Reactor Trip

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 060**

Given the following:

- Main Condenser vacuum has been degrading on Unit 1.
- The crew has entered ABN-304, Main Condenser and Circulating Water System Malfunction.
- Condenser vacuum indicates 23.5 inches Hg and degrading by 0.25 inches Hg per minute.
- The crew is reducing load at approximately 2% per minute.
- Power is currently at 40%.

Assuming the current trends continue, which ONE (1) of the following describes the action that must be taken in accordance with ABN-304?

- A. Trip the turbine immediately.
- B. Trip the reactor immediately.
- C. Trip the turbine within 10 minutes.
- D. Trip the reactor within 10 minutes.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 061**

Given the following conditions:

- Unit 1 is at no-load Tave when the Control Room (CR) is evacuated.
- ABN-803A, Response to a Fire in the Control Room or Cable Spreading Room is in progress.
- PRZR level is being maintained between 25% and 50% at the Hot Shutdown Panel (HSP).

Which ONE (1) of the following describes the reason for observing that adequate PRZR level exists?

With the PRZR HTR CTRL XFER switch in the...

- A. CR position, the interlock between PRZR heaters OFF and low PRZR level is bypassed.
- B. CR position, the interlock between all PRZR heaters ON and high PRZR pressure is bypassed.
- C. HSP position, the interlock between all PRZR heaters ON and high PRZR pressure is bypassed.
- D. HSP position, the interlock between PRZR heaters OFF and low PRZR level is bypassed.



U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 062**

Unit 1 has entered FRC-0.2A, Response to Degraded Core Cooling. All intact steam generators are depressurized at the maximum rate to 150 psig and at least two RCS hot leg temperatures are less than 380°F using the steam dumps.

Which ONE of the following describes the effect on the RCS if the cooldown is not stopped at these values?

- A. Excessive RCS cooldown causing a PTS concern.
- B. The ability to maintain RCP support conditions will be lost.
- C. Natural Circulation may be lost due to inability of AFW to maintain SG NR level greater than 10%.
- D. Injection of accumulator nitrogen into the RCS.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 063**

Which ONE (1) of the following actions would mitigate a Pressurized Thermal Shock condition in accordance with FRP-0.1A, Response to Pressurized Thermal Shock?

- A. From the MCB, close the block valve for a stuck open PRZR PORV.
- B. From the MCB, close a stuck open normal PRZR spray valve.
- C. Direct an operator to locally isolate a stuck open FWIV.
- D. Direct an operator to locally isolate a stuck open SG ARV.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 064**

FRZ-0.1, Response to High Containment Pressure, directs that if ECA-1.1, Loss of Emergency Coolant Recirculation, is in effect, then operate Containment Spray Pumps in accordance with ECA-1.1.

Which ONE (1) of the following describes the basis for operating Containment Spray Pumps per ECA-1.1 while performing FRZ-0.1?

- A. To conserve water level in the Refueling Water Storage Tank.
- B. To raise level in the Containment Recirculation Sump to allow for RHR Pump operation.
- C. To prevent automatic Containment Spray Pump realignment to the Containment Recirculation Sump.
- D. To ensure SI pumps have sufficient NPSH while aligned to the Containment Recirculation Sump.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 065**

Given the following:

- An event has occurred on Unit 2 requiring entry to EOP-0.0B, Reactor Trip or Safety Injection.
- The crew is preparing to transition out of EOP-0.0B.
- The following CSF Status Tree indications are available:
  - Subcriticality                      Green
  - Core Cooling                        Green
  - Heat Sink                             Green
  - Integrity                              Green
  - Containment                         Yellow
  - Inventory                             Yellow

Based upon the indications, which ONE (1) of the following describes the event that has occurred?

- A. Loss Of Coolant Accident
- B. Main Steam Break
- C. Feedwater Rupture
- D. Steam Generator Tube Rupture

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 066**

Given the following conditions:

- A Work Control PEO is scheduled to begin Replacement License Training in one (1) month and has returned to shift.
- With Unit 2 at EOL, BTRS demineralizers will be placed in service during the shift to dilute the RCS.
- The PEO requests to perform the dilution for training.

Would this PEO be allowed to perform the evolution and why?

- A. Yes, if authorized by the Shift Manager and has attended the pre-job brief.
- B. No, the PEO has not completed the required Task Performance Evaluation (TPE).
- C. Yes, if approval is granted by the Shift Operations Manager.
- D. No, the PEO is not currently enrolled in a license class.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 067**

Which ONE (1) of the following describes the MAXIMUM RCS pressure allowed by Technical Specifications?

- A. 2720 psig
- B. 2735 psig
- C. 2750 psig
- D. 2765 psig

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 068**

Which ONE (1) of the following identifies the program feed header/steam header differential pressure the operator should attempt to control for Unit 2?

- A. 80-170 psig from 0% - 100% power.
- B. 80-170 psig from 20% - 100% power.
- C. 80-182 psig from 0% - 100% power.
- D. 80-182 psig from 20% - 100% power.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 069**

Which ONE (1) of the following is the Technical Specification basis for the Overpower N16 (OPN16) Reactor Trip?

- A. Excessive KW/FT caused by reactivity excursions.
- B. Excessive KW/FT caused by a dropped rod.
- C. Protects against DNB for power and pressure considerations.
- D. Protects against DNB for pressure and axial power distribution considerations.



U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 070**

Which ONE (1) of the following identifiers is used to alert the operator of an Emergency Response Guideline (ERG) step that, when performed, could create a radiation hazard?

The procedure step is annotated with a (an)...

- A. [R]
- B. [CV]
- C. (HRA)
- D. (\*)

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 071**

A 20 year old CPSES employee has 1750 mRem of TEDE exposure for 2007.

Which ONE (1) of the following describes the MAXIMUM additional amount of TEDE exposure they may receive without additional CPSES authorization (i.e., Plant Manager approval), and what is the MAXIMUM additional amount of TEDE exposure he may receive prior to exceeding 10CFR20 (NRC) exposure limits?

- A. 2250 mRem; 3250 mRem
- B. 2250 mRem; 8250 mRem
- C. 1250 mRem; 3250 mRem
- D. 1250 mRem; 8250 mRem

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 072**

If a Seal Water Heat Exchanger Tube leak exists, which ONE (1) of the following describes the indication available and which of the following procedures would be used?

- A. CCW Surge Tank level rising; ABN-103, Excessive Reactor Coolant Leakage
- B. CCW Surge Tank level lowering; ABN-502, CCW System Malfunction
- C. VCT level rising; ABN-103, Excessive Reactor Coolant Leakage
- D. VCT level lowering; ABN-105, CVCS Malfunctions

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 073**

The crew is responding to a RED condition on Heat Sink per FRH-0.1, Response to Loss Of Secondary Heat Sink, when the STA reports the following:

- Subcriticality                      ORANGE
- Core Cooling                        YELLOW
- Heat Sink                              YELLOW
- Integrity                                GREEN
- Containment                          RED
- Inventory                              YELLOW

Which ONE (1) of the following actions is required?

- A. Complete FRH-0.1, then transition to FRS-0.2, Response to Loss of Core Shutdown.
- B. Complete FRH-0.1, then transition to FRZ-0.1, Response to High Containment Pressure.
- C. Immediately transition to FRS-0.2, Response to Loss of Core Shutdown.
- D. Immediately transition to FRZ-0.1, Response to High Containment Pressure.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 074**

Which ONE (1) of the following annunciator color codes would **normally be associated** with a need for immediate operator attention to verify automatic actions have occurred or to initiate corrective actions to protect equipment?

- A. White
- B. Yellow
- C. Orange
- D. Blue

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 075**

Which ONE (1) of the following plant notification methods is used during a medical emergency involving a contaminated and injured mechanic?

- A. Sound the Site Radiation alarm for ~10 seconds.  
Press the ALL PAGE button on the Gaitronics and make the announcement.  
Sound the Site Radiation alarm again for ~10 seconds.  
Repeat the announcement.
- B. Sound the Site Yelp alarm for ~10 seconds.  
Press the ALL PAGE button on the Gaitronics and make the announcement.  
Sound the Site Yelp alarm again for ~10 seconds.  
Repeat the announcement.
- C. Sound the Site Radiation alarm for ~10 seconds.  
Press the ALL PAGE button on the Gaitronics and make the announcement.  
Repeat the announcement.
- D. Sound the Site Yelp alarm for ~10 seconds.  
Press the ALL PAGE button on the Gaitronics and make the announcement.  
Sound the Site Yelp alarm for ~10 seconds.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 076**

Given the following:

- A LOCA has occurred. All actions required by ERGs have been performed by the crew.
- Due to equipment failures, the following conditions exist:
  - RCS pressure is 900 psig and lowering.
  - RCS temperature is 1205°F and rising.
  - RVLIS indication is off-scale low (All RVLIS lights are DARK).

Which ONE (1) of the following is the correct procedure to be entered, and describes proper operation of RCPs while performing the procedure?

- A. FRC-0.1A, Inadequate Core Cooling; RCPs will be running and allowed to run in an attempt to provide core cooling.
- B. FRC-0.1A, Inadequate Core Cooling; RCPs have been stopped but may be started if secondary depressurization is ineffective in establishing core cooling.
- C. FRC-0.2A, Degraded Core Cooling; RCPs will be running and allowed to run in an attempt to provide core cooling.
- D. FRC-0.2A, Degraded Core Cooling; RCPs have been stopped but may be started if secondary depressurization is ineffective in establishing core cooling.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 077**

Given the following conditions:

- Unit 1 is at 100% power with all systems in normal alignments.
- 1-LI-459A, 1-LI-460A and 1-LI-461 Pressurizer level indications are trending UP.
- 1-LI-112A and 1-LI-185 VCT level indications are trending DOWN.
- RCS temperature and pressure are stable.

Which ONE (1) of the following describes the event in progress and action required?

- A. Charging line leak outside containment. Isolate the leak in accordance with ABN-103, Excessive Reactor Coolant Leakage.
- B. Letdown line leak outside containment. Isolate the leak in accordance with ABN-103, Excessive Reactor Coolant Leakage.
- C. Pressurizer level controlling channel has failed high. Select an alternate channel in accordance with ABN-706, Pressurizer Level Instrument Malfunction.
- D. Charging flow control valve failure. Establish Manual control of Charging flow in accordance with ABN-105, Chemical and Volume Control System Malfunction.



U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 078**

Given the following:

- Unit 2 is at 80% power.
- Four (4) hours ago, PRZR PORV 2-PCV-455A actuator failed.
- The PORV partially lifted and could not be repositioned.
- The associated block valve was closed to terminate the event.
- All Technical Specification ACTIONS were addressed.
- Engineering reports that common cause analysis of the PRZR PORVs indicates that 2-PCV-456 has the same actuator design flaw.
- The Shift Manager determines that 2-PCV-456 will be placed in the same operational status as 2-PCV-455A.

Which ONE (1) of the following describes the required Technical Specification ACTION associated with this event?

- A. Close and maintain power to 2-PCV-456 block valve within 1 hour. Be in HOT STANDBY within 6 hours.
- B. Close and remove power from 2-PCV-456 block valve within 1 hour. Be in HOT STANDBY within 6 hours.
- C. Close and maintain power to 2-PCV-456 block valve within 1 hour. Restore 1 PORV to OPERABLE status within 4 hours or be in HOT STANDBY within the following 6 hours.
- D. Close and remove power from 2-PCV-456 block valve within 1 hour. Restore 1 PORV to OPERABLE status within 4 hours or be in HOT STANDBY within the following 6 hours.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 079**

Unit 1 was operating at 98% power when a loss of off-site power occurred.

Twenty minutes later, the following plant conditions exist:

- RCS pressure is 2235 psig and slowly increasing.
- RCS Loop  $T_{HOT}$  is 602°F in all 4 loops and stable.
- RCS Loop  $T_{COLD}$  is 565°F in all 4 loops and stable.
- Core exit TCs indicate approximately 610°F and rising slowly.
- Steam Generator pressures are approximately 1100 psig and stable.
- 1EA1 and 1EA2 Bus voltage is zero (0).

Which ONE (1) of the following describes the current plant conditions and action that will be directed?

(Steam Tables are provided.)

- A. Natural Circulation does not exist. Heat removal may be established by opening the condenser steam dumps in accordance with EOS-0.1A, Reactor Trip Response.
- B. Heat removal is being maintained by condenser steam dumps. Verify that Natural Circulation exists in accordance with ECA-0.0A, Loss of All AC Power.
- C. Natural Circulation does not exist. Heat removal may be established by opening the atmospheric relief valves in accordance with ECA-0.0A, Loss of All AC Power.
- D. Heat removal is being maintained by atmospheric relief valves. Verify that Natural Circulation exists in accordance with EOS-0.1A, Reactor Trip Response.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 080**

Given the following conditions:

- The Unit is in MODE 6.
- Core Alterations are in progress.
- The Gamma Metrics Monitoring System is tagged out for maintenance.
- 1-ALB-10B, 1.16, 118V CHAN I INV TRBL alarm is locked in.
- 1-LI-930, RWST level indicates zero (0) %.
- 1-NI-31, Source Range instrument is indicating zero (0) cpm.
- 1-PI-0405, RCS pressure indicates zero (0) psig.

In accordance with Technical Specifications, which ONE (1) of the following describes the ACTION required?

- A. Immediately suspend Core Alterations and operations that would cause introduction of coolant into the RCS with boron concentration less than that required for refueling operations specified in the COLR.
- B. Core Alterations and operations that would cause introduction of coolant into the RCS with boron concentration less than that required for refueling operations specified in the COLR may continue if the Source Range Audio Count Rate is selected to an OPERABLE channel.
- C. Core Alterations may continue. Operations that would cause introduction of coolant into the RCS with boron concentration less than that required for refueling operations specified in the COLR are prohibited.
- D. Immediately suspend Core Alterations. Ensure at least 1 Source Range NI is OPERABLE prior to performing operations that would cause introduction of coolant into the RCS with boron concentration less than that required for refueling operations specified in the COLR.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 081**

Given the following conditions:

- Reactor trip has occurred due to loss of condenser vacuum.
- The crew has just transitioned to FRH-0.1A, Response to Loss of Secondary Heat Sink on a RED condition for the Heat Sink CSF Status Tree.
  - RCS pressure is 2300 psig and rising slowly.
  - SG pressures are 900 psig in all SGs and slowly trending down.
  - SG 1-01, 1-02, and 1-04 wide range levels are 25% and slowly trending down.
  - SG 1-03 wide range level is 28% and slowly trending down.

Which ONE (1) of the following actions is required?

- A. Initiate secondary depressurization to establish Condensate flow in accordance with FRH-0.1A.
- B. Trip all RCPs and initiate Bleed and Feed in accordance with FRH-0.1A.
- C. Re-establish Main Feedwater flow through the main or bypass feedwater regulating valves in accordance with FRH-0.1A.
- D. Initiate Safety Injection and return to EOP-0.0A in order to mitigate the SG pressure loss in EOP-2.0A, Faulted SG Isolation.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 082**

Given the following:

- Unit 1 is operating at 100% power.
- PRZR Pressure Control is selected to Channel 1 (1-PI-455A).
- PRZR Level control is selected to Channel 1 (1-LI-459A).
- The common instrument line for PRZR Pressure Channel 1 and PRZR Level Channel 1 develops a leak.

Which ONE (1) of the following describes the effect on the Unit and the procedure selection required?

- A. PRZR Heaters will energize; Charging flow must be manually controlled in accordance with ABN-706, Pressurizer Level Instrumentation Malfunction.
- B. Pressurizer Spray Valves will open; Letdown will isolate. Letdown will be restored in accordance with ABN-105, CVCS Malfunctions.
- C. PRZR Heaters will energize; Letdown will isolate. Letdown will be restored in accordance with ABN-105, CVCS Malfunctions.
- D. Pressurizer Spray Valves will open; Charging flow must be manually controlled in accordance with ABN-706, Pressurizer Level Instrumentation Malfunction.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 083**

Unit 1 Reactor power is 75%.

RCS leak rate data is as follows:

- Total RCS leakage rate is 9.1 gpm.
- Leakage to PRT is 7.0 gpm.
- Leakage to the Reactor Coolant Drain Tank is 1.3 gpm.
- Total primary to secondary leakage is 0.36 gpm.
  - SG 1 – 0.09 gpm
  - SG 2 – 0.19 gpm
  - SG 3 – 0.07 gpm
  - SG 4 – 0.01 gpm

Which ONE (1) of the following describes the RCS leakage limit that is being exceeded, and the required Technical Specification ACTION?

- A. Unidentified Leakage; Reduce leakage to within limits in next 4 hours.
- B. Unidentified Leakage; Be in MODE 3 in the next 6 hours.
- C. Primary to Secondary Leakage; Reduce leakage to within limits in next 4 hours.
- D. Primary to Secondary Leakage; Be in MODE 3 in the next 6 hours.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 084**

Given the following:

- Unit 1 is at 65% power following a load rejection.
- 1-RE-0406, Gross Failed Fuel Monitor, indication has been rising for the past 2 hours, and is now in alarm.

Which ONE (1) of the following describes the procedure entry and action required?

- A. Enter ABN-102, High Reactor Coolant Activity, and isolate Letdown.
- B. Enter ABN-102, High Reactor Coolant Activity, and raise Letdown flow to 120-140 gpm.
- C. Respond to rising indication on 1-RE-0406 per ALM-3200, Alarm Procedure DRMS, and bypass mixed bed demineralizer per SOP-103A, Chemical and Volume Control System.
- D. Respond to rising indication on 1-RE-0406 per ALM-3200, Alarm Procedure DRMS, and alternate mixed bed demineralizers per SOP-103A, Chemical and Volume Control System.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 085**

Given the following conditions:

- A LOCA has occurred on Unit 1.
- The crew has completed EOP-0.0A, Reactor Trip or Safety Injection, to the point of transition to another procedure.
- The following conditions exist in Containment:
  - Containment Pressure 16 psig and rising slowly.
  - Containment Sump Level 816 feet and rising slowly.

Which ONE (1) of the following describes the condition that exists, the procedure transition that will be made per ERG Rules of Usage, and the strategy for recovery?

- A. ORANGE condition on Containment Pressure ONLY. Enter FRZ-0.1A, Response to Containment High Pressure and ensure Containment Isolation and Heat Removal functions are satisfied.
- B. ORANGE condition on Containment Sump Level ONLY. Enter FRZ-0.2A, Response to Containment Flooding and attempt to locate and isolate the source of the leak; notify plant staff to obtain recommended action for disposition of the waste.
- C. ORANGE condition on Containment Pressure **and** Containment Sump Level. Enter FRZ-0.1A, Response to Containment High Pressure and ensure Containment Isolation and Heat Removal functions are satisfied.
- D. ORANGE condition on Containment Pressure **and** Containment Sump Level. Enter FRZ-0.2A, Response to Containment Flooding and attempt to locate and isolate the source of the leak; notify plant staff to obtain recommended action for disposition of the waste.



U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 086**

Unit 1 is at 50% power with the following alarms and indications:

- 1-ALB-5A, 1.2, ANY RCP SEAL 1 LKOFF FLO HI is in alarm.
- 1-ALB-5A, 3.2, ANY RCP SEAL 2 LKOFF FLO HI is in alarm.
- 1-FR-0157, RCP 1-01 SEAL LEAKOFF / SEAL WATER INJECTION FLOW RECORDER, RCP 1 SEAL LKOFF FLO (WR) is indicating off-scale high.
- 1-FR-0156, RCP 1-02 SEAL LEAKOFF / SEAL WATER INJECTION FLOW RECORDER, RCP 2 SEAL LKOFF FLO (WR) is reading 2.11 gpm.
- 1-FR-0155, RCP 1-03 SEAL LEAKOFF / SEAL WATER INJECTION FLOW RECORDER, RCP 3 SEAL LKOFF FLO (WR) is reading 2.04 gpm.
- 1-FR-0154, RCP 1-04 SEAL LEAKOFF / SEAL WATER INJECTION FLOW RECORDER, RCP 4 SEAL LKOFF FLO (WR) is reading 2.08 gpm.
- RCP 1-01 LOW SEAL WTR BEARING TEMP (T0417A) is indicating 202°F, YELLOW and rising.
- RCP 1-02 LOW SEAL WTR BEARING TEMP (T0437A) is indicating 169°F, GREEN and stable.
- RCP 1-03 LOW SEAL WTR BEARING TEMP (T0457A) is indicating 171°F, GREEN and stable.
- RCP 1-04 LOW SEAL WTR BEARING TEMP (T0477A) is indicating 168°F, GREEN and stable.

Which ONE (1) of the following describes the impact on the Unit and the procedure use required?

- A. Seal #1 is degrading. Enter ABN-101, Reactor Coolant Pump Trip/Malfunction, and initiate an orderly shutdown to MODE 3 within 8 hours per IPO-003A, Power Operations.
- B. Seal #1 has failed. Enter ABN-101, Reactor Coolant Pump Trip/Malfunction. Trip the Reactor, trip RCP 1-01, go to EOP-0.0A, Reactor Trip or Safety Injection, and isolate seal leakoff within 3-5 minutes.
- C. Seal #2 is degrading. Enter ABN-101, Reactor Coolant Pump Trip/Malfunction, and initiate an orderly shutdown to MODE 3 within 8 hours per IPO-003A, Power Operations.
- D. Seal #2 has failed. Enter ABN-101, Reactor Coolant Pump Trip/Malfunction. Trip the reactor, trip RCP 1-01, go to EOP-0.0A, Reactor Trip or Safety Injection, and isolate seal leakoff within 3-5 minutes.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 087**

Given the following conditions:

- A Steam Line Break has occurred.
- The faulted SG is completely depressurized.
- Following completion of Faulted Steam Generator Isolation the crew transitioned to EOS-1.1A, Safety Injection Termination.
- While attempting to control PRZR level with normal charging;
  - RCS subcooling indicates 80 °F and slowly lowering.
  - PRZR level indicates 59% and slowly lowering.

Which ONE (1) of the following describes the action required?

- A. Reinitiate Safety Injection and transition to EOP-1.0A, Loss of Reactor or Secondary Coolant.
- B. Reinitiate Safety Injection and transition to EOP-0.0A, Reactor Trip or Safety Injection.
- C. Realign the CCP Injection flowpath and transition to EOS-1.2A, Post LOCA Cooldown and Depressurization.
- D. Realign the CCP Injection flowpath and remain in EOS-1.1A, SI Termination.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 088**

Given the following conditions:

- A Reactor Trip and Safety Injection actuation have occurred on Unit 1.
- The crew is performing actions contained in EOP-0.0A, Reactor Trip or Safety Injection.
- RCS pressure is 1850 psig and stable.
- SG pressures are 1000 psig and stable.
- SG levels are being controlled by AFW.
- Containment pressure is 0.8 psig and stable.
- PRT pressure is 24 psig and stable.
- PRT temperature is 200°F and stable.
- PRT level is 71%.

Which ONE (1) of the following describes the action and procedure use required for these conditions?

- A. Determine cause of PRT conditions and continue in EOP-0.0A until transition to EOS-1.1A, SI Termination.
- B. Transition to EOP-1.0A, Loss of Reactor or Secondary Coolant, due to RCS pressure abnormally low with PRT conditions abnormal.
- C. Transition to ECA-1.2A, LOCA Outside Containment, due to RCS pressure abnormally low with Containment parameters normal.
- D. Transition to EOS-1.2A, Post LOCA Cooldown and Depressurization, to restore Charging and Letdown and secure ECCS pumps.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 089**

Given the following:

- The Reactor has tripped. Safety Injection has actuated.
- The crew is preparing to exit EOP-0.0A, Reactor Trip or Safety Injection.
- 1-PI-514A, MSL1 PRESS CHAN I is indicating 580 psig and lowering.
- 1-PI-524A, MSL2 PRESS CHAN I is indicating 585 psig and lowering.
- 1-PI-534A, MSL3 PRESS CHAN I is indicating 581 psig and lowering.
- 1-PI-544A, MSL4 PRESS CHAN I is indicating 579 psig and lowering.
- 1-PK-2325, SG 1 ATMOS RLF VLV CTRL has the amber MAN and green OUTPUT lights lit with zero (0) % output indicated.
- 1-PK-2326, SG 2 ATMOS RLF VLV CTRL has the amber MAN and green OUTPUT lights lit with zero (0) % output indicated.
- 1-PK-2327, SG 3 ATMOS RLF VLV CTRL has the amber MAN and green OUTPUT lights lit with zero (0) % output indicated.
- 1-PK-2328, SG 4 ATMOS RLF VLV CTRL has the amber MAN and green OUTPUT lights lit with zero (0) % output indicated.
- 1-ZL-2325, SG 1 ATMOS RLF VLV indicates RED light lit, GREEN light dark.
- 1-ZL-2326, SG 2 ATMOS RLF VLV indicates RED light lit, GREEN light dark.
- 1-ZL-2327, SG 3 ATMOS RLF VLV indicates RED light lit, GREEN light dark.
- 1-ZL-2328, SG 4 ATMOS RLF VLV indicates RED light lit, GREEN light dark.

Assuming all automatic actions occurred, which ONE (1) of the following describes the action that will stop the SG depressurization for this condition and the procedure that directs the action?

- A. Close the MSIVs and MSIV Bypass Valves per EOP-2.0A, Faulted SG Isolation.
- B. Dispatch a PEO to locally close SG Atmospheric block valves per EOP-2.0A, Faulted SG Isolation.
- C. Close the MSIVs and MSIV Bypass Valves per ECA-2.1A, Uncontrolled Depressurization of All Steam Generators.
- D. Dispatch a PEO to locally close SG Atmospheric block valves per ECA-2.1A, Uncontrolled Depressurization of All Steam Generators.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 090**

Given the following on Unit 1:

- During refueling operations, a spent fuel assembly is dropped in Containment several feet from the core opening.
- Containment ventilation was automatically isolated and Containment was evacuated.

Containment isolation was due to high radiation level (red alarm) on \_\_\_\_\_ and the \_\_\_\_\_ must be placed in operation to lower activity levels without releasing airborne contaminants to the environment.

- A. CAG-197, CNTMT AIR PIG GAS (1-RE-5503);  
Containment Pre-Access Ventilation System
- B. RFC-110, LRAM W REFUEL CAV 860 (1-RE-6251);  
Containment Pre-Access Ventilation System
- C. CAG-197, CNTMT AIR PIG GAS (1-RE-5503);  
Containment Purge System
- D. RFC-110, LRAM W REFUEL CAV 860 (1-RE-6251);  
Containment Purge System

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 091**

Given the following conditions:

- A LOCA has occurred on Unit 2.
- The crew is performing actions of EOP-1.0B, Loss of Reactor or Secondary Coolant, after transition from FRC-0.2B, Response to Degraded Core Cooling.
- Containment Hydrogen concentration is 2.8% and rising slowly.
- The crew is considering use of the Electric Hydrogen Recombiners.

Which ONE (1) of the following describes the requirement for operation of the Hydrogen Recombiners for this condition?

- A. Recombiners are required to maintain Containment hydrogen concentration below design basis. Place at least ONE (1) recombiner in service in accordance with OP-206A, Electric Hydrogen Recombiner System.
- B. Recombiners are required to maintain Containment hydrogen concentration below design basis. Notify plant Engineering to determine if it is safe to place a recombiner in service at the current containment hydrogen concentration. Continue in EOP-1.0B
- C. Recombiners are NOT required to maintain Containment hydrogen concentration below design basis. Use of a recombiner is prohibited at the current containment hydrogen concentration level. Continue in EOP-1.0B.
- D. Recombiners are NOT required to maintain Containment hydrogen concentration below design basis. Notify plant Engineering to determine if it is safe to place a recombiner in service at the current containment hydrogen concentration, while continuing in EOP-1.0B.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 092**

Given the following conditions:

- A Plant Startup is in progress.
- Reactor power is 20%.
- The Main Generator is connected to the grid.
- The following alarms are received:
  - ALB-9A, 8.11, ANY CWP OVRLOAD/TRIP
  - ALB-9A, 1.11, CWS LOC PNL TRBL
- The Balance of Plant Operator determines that amber lights are lit on all four (4) Circulating Water Pump control switches.
- The Unit Supervisor enters ABN-304, Main Condenser and Circulating Water System Malfunction.

Which ONE (1) of the following is required for this condition?

- A. Trip the turbine and enter ABN-403, Turbine Trip Response; Discontinue use of ABN-304.
- B. Trip the reactor and enter EOP-0.0A, Reactor Trip or Safety Injection; Ensure others continue in ABN-304 as time allows.
- C. Trip the turbine and enter ABN-403, Turbine Trip Response; Continue in ABN-304 as time allows.
- D. Trip the reactor and enter EOP-0.0A, Reactor Trip or Safety Injection; Discontinue use of ABN-304.

U.S.N.R.C. site-Specific Written Examination  
CPSES  
Senior Reactor Operator

**Question 093**

Given the following conditions:

- Unit 2 is stable at 80% power.
- A failure in the Steam Dump control circuitry causes the Bank One Steam Dumps to open.
- The operator immediately takes the Train A and B Steam Dump Interlock Select Switch to OFF-RESET to close the valves.
- One of the Steam Dump Valves fails to close.

Which ONE (1) of the following describes the approximate power level that the plant will reach, and what action(s) will mitigate the event?

Power will rise to...

- A. ~86% and stabilize; Main Turbine load should be reduced to lower power per IPO-003B, Power Operations.
- B. ~98% and stabilize; an emergency boration should be commenced to reduce power per ABN-107, Emergency Boration.
- C. ~86% and stabilize; an emergency boration should be commenced to reduce power per ABN-107, Emergency Boration.
- D. ~98% and stabilize; Main Turbine load should be reduced to lower power per IPO-003B, Power Operations.



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**Question 094**

Which ONE (1) of the following describes Heat Flux Hot Channel Factor (FQ(Z)), and which ONE (1) of the following is the most limiting accident for determining maximum FQ(Z) values?

- A. Peak fuel pellet power; Large Break LOCA
- B. Average fuel rod power; Large Break LOCA
- C. Peak fuel pellet power; Loss of Forced Circulation
- D. Average fuel rod power; Loss of Forced Circulation

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**Question 095**

A Reactor startup is in progress. While withdrawing control rods, prior to reaching criticality:

- The DRPI ROD DEV alarm is received when Control Bank C reaches 115 steps.
- The Reactor Operator observes that Control Bank B Rod F2 indicates 210 steps while Control Bank B Group 1 Step Counter indicates 228 steps.
- No other alarms are received and all other parameters indicate normal.

Based on this information the Unit Supervisor should...

- A. consider the rod MISALIGNED and verify SDM to be within the limits of the COLR within one (1) hour.
- B. consider the rod ALIGNED and continue rod withdrawal to reach Critical conditions then realign the rod.
- C. consider DRPI INOPERABLE and compare DRPI and Step Counter positions at least once per 12 hours.
- D. consider DRPI INOPERABLE and immediately open all Reactor Trip Breakers.

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**Question 096**

Which ONE (1) of the following describes the operation of the Source Range High Flux at Shutdown alarm during a core reload following a full offload, in accordance with RFO-102, Refueling Operations?

- A. Normally set at 300 CPS. May NOT be blocked while performing Core Alterations.
- B. Normally set at 300 CPS. May be blocked during Core Alterations ONLY if SR counts are continuously monitored and ICRR is performed.
- C. Normally set at 100 CPS above the measured countrate. May NOT be blocked while performing Core Alterations.
- D. Normally set at 100 CPS above the measured countrate. May be blocked during Core Alterations ONLY if SR counts are continuously monitored and ICRR is performed.

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**Question 097**

In accordance with STA-602, Temporary Modifications, who is responsible for performing walkdowns of active Temporary Modifications, and how often is the walkdown performed?

- A. Work Control Operations Supervisor; monthly
- B. System Engineer; monthly
- C. Temporary Modification Coordinator; quarterly
- D. Shift Manager; quarterly

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**Question 098**

Given the following conditions:

- Both Units are operating at 100% power with a discharge of Plant Effluent Tank, PET X-01 in progress to Outfall 004 (formerly Outfall 101) via Unit 1 Circulating Water (CW).
- All power is lost to the Unit 1 non-safeguards buses.
- A PEO finds that 1-HV-WM181, Outfall 004 CWS DISCH VLV, is open.

Which ONE (1) of the following is the status of the discharge?

- A. Discharge is secured due to X-RV-5253, LWPS Discharge Isolation Valve closing from loss of Unit 1 CW pumps. Release permit must be closed and reinitiated when Unit 1 CW is restored.
- B. Discharge is secured due to X-RV-5253, LWPS Discharge Isolation Valve closing from loss of Unit 1 CW pumps. Release permit may remain open and release reinitiated when Unit 1 CW is restored.
- C. Discharge continues due to X-RV-5253, LWPS Discharge Isolation Valve remaining open due to Unit 2 CW pumps meeting required coincidence. Terminate the release and close out the Release permit.
- D. Discharge continues due to X-RV-5253, LWPS Discharge Isolation Valve remaining open due to Unit 2 CW pumps meeting required coincidence. Release permit may remain open and release reinitiated when Unit 1 CW is restored.

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**Question 099**

Given the following plant conditions:

- Unit 1 is operating at 100% power.
- EDG 1-02 is out of service and is expected to return to service in two (2) hours.
- Subsequently, the following events occur:
  - A loss of offsite power.
  - The reactor is tripped and the crew enters EOP-0.0A, Reactor Trip or Safety Injection
  - SI is NOT actuated.
  - The crew made a transition to FRH-0.1A, Loss of Secondary Heat Sink, based on a CSFST RED Path.
- DG 1-01 output breaker subsequently trips on a differential lockout on Bus 1EA1.

Which ONE (1) of the following describes the actions that will be taken and its bases?

- A. Immediately transition to ECA-0.0A, Loss Of All AC Power. All other procedures in the ERG network assume **both** 6.9 KV ESF busses are available.
- B. Immediately transition to ECA-0.0A, Loss Of All AC Power. All other procedures in the ERG network assume a **minimum** of ONE (1) 6.9 KV ESF bus is available.
- C. Remain in FRH-0.1A until feed is restored and the RED condition is cleared, and then transition to ECA-0.0A, Loss of All AC Power. RED path Function Recovery procedures must be performed until the condition is cleared.
- D. Remain in FRH-0.1A until directed to return to procedure in effect, and then transition to ECA-0.0A, Loss of All AC Power. RED path Function Recovery procedures must be finished to completion.

U.S.N.R.C. site-Specific Written Examination  
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**Question 100**

Given the following:

- A Steam Generator Tube Rupture (SGTR) has occurred on Unit 2.
- Actions have been taken in EOP-3.0B, Steam Generator Tube Rupture, to the point where a recovery procedure will be selected.

Which ONE (1) of the following procedures is the preferred method for a post-SGTR cooldown, and describes the primary concern over use of the procedure?

- A. EOS-3.1B, Post SGTR Cooldown Using Backfill; concern is length of time to cooldown due to capacity of waste processing facilities.
- B. EOS-3.1B, Post SGTR Cooldown Using Backfill; concern is secondary side water potentially diluting primary side boron concentration.
- C. EOS-3.3B, Post SGTR Cooldown Using Steam Dump; concern is radiological consequences if condenser steam dump is not available.
- D. EOS-3.3B, Post SGTR Cooldown Using Steam Dump; concern is availability of Auxiliary Feedwater if condenser steam dump is not available.