U.S. Nuclear Regulatory Commission Site-Specific RO Written Examination	
Applicant Information	
Name:	
Date:	Facility/Unit V.C. Summer
Region: I ☐ II ☒ III ☐ IV ☐	Reactor Type: W ☒ CE ☐ BW ☐ GE ☐
Start Time:	Finish Time:

Instructions

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 percent. Examination papers will be collected 6 hours after the examination begins

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

_____
Applicant's Signature

Results	
Examination Value	_____ Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

1.

Given the following plant conditions:

Time 0700:

- A reactor trip has occurred.
- Pressurizer pressure is 1800 psig and decreasing.
- RHR pumps “A” and “B” switches are in NORMAL AFTER STOP.

Time 0707:

- EOP-1.0, E-0 REACTOR TRIP OR SAFETY INJECTION is in progress.
- Attachment 3, SI EQUIPMENT VERIFICATION is in progress.
- The “B” Diesel Generator tripped immediately after start.
- RHR pump “A” switch was just taken to NORMAL AFTER START.
- RHR pump “B” indications are as follows:
  - Amp meter reads 0 AMPS.
  - Green light is lit.
  - Red light is off.

Which ONE of the choices below completes the following statements?

The “A” RHR Pump got its **first** start signal at time ___(1)___.

In accordance with Attachment 3, the BOP ___(2)___ required to start the “B” RHR pump in the conditions above.

A. 1) 0700.
   2) is

B. 1) 0700.
   2) is **not**

C. 1) 0707.
   2) is

D. 1) 0707.
   2) is **not**

2.

Initial conditions:

- Reactor is tripped.
- PCV-445A, PWR RELIEF is stuck OPEN.
- MVG-8000A, RELIEF 445 A ISOL is OPEN and can **not** be closed.
- EOP-1.0, E-0 REACTOR TRIP OR SAFETY INJECTION is in progress.
- RCS pressure is 1300 psig and decreasing.
- FI-943, CHG LOOP B CLD/HOT LG FLOW GPM reads 0 gpm.

Current conditions:

- RCS pressure is 1350 psig and stabilizing.
- FI-943, CHG LOOP B CLD/HOT LG FLOW GPM reads 300 gpm and increasing.

Which ONE of the choices below completes the following statements?

In accordance with EOP-1.0, RCP trip criteria was **first** met in the ___(1)___ conditions

RCPs are secured in the conditions above to ___(2)___.

A. 1) initial
   2) minimize the heat input.

B. 1) initial
   2) prevent excessive depletion of RCS inventory.

C. 1) current
   2) minimize the heat input.

D. 1) current
   2) prevent excessive depletion of RCS inventory.

3.

Given the following plant conditions:

- An automatic Reactor trip and Safety Injection have occurred.
- EOP-16.0, FR-P.1 RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK is in progress.

Which ONE of the choices below completes the following statements?

The **first** major action the crew took in EOP-16.0 was to ___(1)___.

After the temperature soak period has been completed in accordance with EOP-16.0, operators are required to limit the subsequent cooldown rate in the RCS Cold Legs to a **maximum** of ___(2)___ in **any one** hour period.

A. 1) depressurize the RCS to minimize pressure stress.
   2) 70°F

B. 1) depressurize the RCS to minimize pressure stress.
   2) 50°F

C. 1) stop the RCS cooldown.
   2) 70°F

D. 1) stop the RCS cooldown.
   2) 50°F

4.

Initial conditions:

- 100% power.
- XCP-613, 3-1 VCT LVL HI/LO is in alarm.
- VCT level is 13% and decreasing.
- SOP-106, REACTOR MAKEUP WATER SYSTEM, section V.A. LOSS OF AUTOMATIC MAKEUP CONTROL is in progress.

Current conditions:

- Manual makeup to the VCT was unsuccessful.
- VCT level is 8% and decreasing.

NOTE the following transmitter names:

LT-112, VCT LEVEL %.

LT-115, VCT LEVEL %.

Which ONE of the choices below completes the following statements?

XCP-613, 3-1 VCT LVL HI/LO alarmed when VCT level reached a setpoint of ___(1)___%.

In the **current conditions**, Charging pump suction will automatically re-align to the RWST when ___(2)___ reaches 5%.

A. 1) 15
   2) **both** LT-112 and LT-115

B. 1) 15
   2) **either** LT-112 or LT-115

C. 1) 20
   2) **both** LT-112 and LT-115

D. 1) 20
   2) **either** LT-112 or LT-115

5.

Initial conditions:

- The vessel head is in place with no head bolts installed.
- An RCS leak has developed.
- AOP-115.5, ARG-1 LOSS OF RHR WITH THE RCS NOT INTACT (MODES 5 AND 6) is in progress.
- The “A” RHR pump has been started.
- Required Hot Leg Level is 17 1/2”.
- Current RHR Loop Flow is 2750 gpm.

Current conditions:

- “A” RHR pump is secured.
- “B” RHR pump could not be started.
- The crew is at the step to transfer RHR/RB Spray Sump water to the RWST.

Which ONE of the choices below completes the following statements in accordance with AOP-115.5?

In the **initial conditions**, RHR pump flow ___(1)___ within the required operating limits.

In the **current conditions**, while transferring sump water to the RWST, the crew is required to maintain RHR Sump levels greater than a **minimum** of ___(2)___ feet.

REFERENCE PROVIDED

A. 1) is
   2) 419.5

B. 1) is
   2) 414

C. 1) is **not**
   2) 419.5

D. 1) is **not**
   2) 414

6.

Given the following plant conditions:

Time 0700:

- 100% power.
- A loss of the active loop, “A” train of CCW, has occurred.
- “A” Charging pump is running.
- AOP-118.1, LOSS OF COMPONENT COOLING WATER is in progress.

Time 0715:

- An AO was dispatched to monitor “A” Charging pump temperatures locally.

Time 0722:

- The AO has started monitoring “A” Charging pump temperatures locally.
- “A” Charging pump temperatures are all in the required band.

Time 0730:

- “A” CCW loop was just restored.
- CCW flow to the Reactor Coolant Pumps are as follows:
  - RCP Thermal Barrier flow is 105 gpm.
  - RCP Bearing Cooler flow is 405 gpm.

Which ONE of the choices below completes the following statements in accordance with AOP-118.1?

The crew ___(1)___ required to trip the “A” Charging pump during this loss of CCW.

At **time 0730**, CCW flow to the RCP ___(2)___ is below the minimum flow required.

A. 1) was
   2) Thermal Barrier

B. 1) was **not**
   2) Thermal Barrier

C. 1) was
   2) Bearing Cooler

D. 1) was **not**
   2) Bearing Cooler

7.

Given the following plant conditions:

- 50% power and stable.
- RCS pressure is stable at 2235 psig.
- Rod Control System is in Manual.
- The OATC stepped rods **in** 5 steps.
- The PZR PRESS MASTER CONTROL is in Automatic and the output is failed AS-IS.

Which ONE of the choices below completes the following statement?

With no operator action, pressurizer pressure will ___(1)___.

Subsequently, the operator takes manual control of the PZR PRESS MASTER CONTROL, in accordance with OP-AA-100, CONDUCT OF OPERATIONS and initially ___(2)___ demand to restore RCS pressure to 2235 psig.

A. 1) increase.
   2) raises

B. 1) increase.
   2) lowers

C. 1) decrease.
   2) raises

D. 1) decrease.
   2) lowers

8.

Initial conditions:

- 100% power initially.
- The Reactor failed to automatically or manually trip.
- EOP-13.0, FR-S.1 RESPONSE TO ABNORMAL NUCLEAR POWER GENERATION is in progress.
- Control Rods failed to insert automatically or manually.
- MVG-8104, EMERG BORATE is open.
- FI-110, EMERG BORATE FLOW GPM reads 25 gpm and stable.

Current conditions:

- EOP-13.0 is still in progress.
- A Safety Injection occurred.
- Both ESF Loading Sequences are complete.

Which ONE of the choices below completes the following statements?

In the **initial conditions**, Boric Acid flow rate ___(1)___ meet the **minimum** required flow rate.

In the **current conditions**, flow ___(1)___ indicated on FI-110.

A. 1) does
   2) is

B. 1) does
   2) is **not**

C. 1) does **not**
   2) is

D. 1) does **not**
   2) is **not**

9.

Given the following plant conditions:

- 100% power initially.
- Blowdown return flow is aligned to the condenser.
- XCP-646 2-1, MN STM LINE RM-G19 HI RAD is in alarm.
- An automatic Reactor Trip and Safety Injection occurred.
- EOP-1.0, E-0 REACTOR TRIP OR SAFETY INJECTION is in progress.
- The following response was seen on RM-G19A:

	Before trip
Reading:	39.7 mREM/hr

Which ONE of the choices below completes the following statements?

RM-G19A will read ___(1)___ than 39.7 mREM/hr 10 minutes after the reactor trip.

Based on the conditions above, in accordance with EOP-1.0, ___(2)___ is another radiation monitor that can be used to diagnose a transition to EOP-4.0, E-3 STEAM GENERATOR TUBE RUPTURE.

A. 1) higher
   2) RM-L3, STEAM GENERATOR BLOWDOWN LIQUID MONITOR

B. 1) lower
   2) RM-L3, STEAM GENERATOR BLOWDOWN LIQUID MONITOR

C. 1) higher
   2) RM-A9, CNDSR EXHAUST GAS ATMOS MONITOR

D. 1) lower
   2) RM-A9, CNDSR EXHAUST GAS ATMOS MONITOR

10.

Initial conditions:

- 45% power initially.
- All three Main Feedwater Pump speeds are increasing.

Current conditions:

- All three Main Feedwater Pumps have tripped.

Which ONE of the choices below completes the following statements?

In the **initial conditions**, the MCB MASTER SPEED CNTRL is placed in MAN and adjusted to between ___(1)___ demand OR as needed in accordance with AOP-210.3, FEEDWATER PUMP MALFUNCTION.

In the **current conditions**, the Turbine Driven EFW pump ___(2)___ **directly** receive a start signal from the Main Feedwater pumps tripping.

A. 1) 35% and 40%
   2) did

B. 1) 35% and 40%
   2) did **not**

C. 1) 50% and 60%
   2) did

D. 1) 50% and 60%
   2) did **not**

11.

Initial condition:

- 100% power initially.
- All offsite power was lost (115 KV and 230 KV).
- "A" and "B" EDG failed to start.

Current condition:

- Power will be restored via XTF5052, ALTERNATE AC SOURCE TRANSFORMER in accordance with SOP-304, 115KV/ 7.2KV OPERATIONS.

Which ONE of the choices below answers both of the following questions?

1) What is the maximum number of 7.2 KV ESF busses that can be restored from this source at one time in accordance with SOP-304?

2) Which 7.2 KV ESF bus can be energized **only** by its ALTERNATE feeder breaker from this source?

A. 1) 1 bus.
   2) 1DA.

B. 1) 1 bus.
   2) 1DB.

C. 1) 2 busses.
   2) 1DA.

D. 1) 2 busses.
   2) 1DB.

12.

Given the following plant conditions:

- A loss of All offsite Power (230KV and 115KV) coincident with a Small Break LOCA has occurred.
- EOP-2.1, ES-1.2 POST-LOCA COOLDOWN AND DEPRESSURIZATION is in progress.
- The crew is currently verifying conditions for Natural Circulation.

Which ONE of the choice below completes the following statements in accordance with EOP-2.1?

If natural circulation **is met**, EOP-2.1 requires depressurizing the RCS using ___(1)___.

If natural circulation **is not met**, EOP-2.1 requires an increase of dumping steam using ___(2)___.

A. 1) normal PZR Spray.
   2) S/G PORV.

B. 1) a PZR PORV.
   2) Condenser Steam Dumps.

C. 1) normal PZR Spray.
   2) Condenser Steam Dumps.

D. 1) a PZR PORV.
   2) S/G PORV.

13.

Given the following plant conditions:

Time 0800:

- APN-5902 lost power.

Time 0802:

- Reactor trip and Safety Injection have occurred.
- EOP-1.0, E-0 REACTOR TRIP OR SAFETY INJECTION is in progress.
- Both Latched SI lights are OFF.

Which ONE of the choices below completes the following statements?

At **time 0802**, the remaining coincidence for the RHR Sump valve swap over is ___(1)___.

When XCP-612 4-3, RWST LVL LO-LO XFER TO SUMP alarm comes in, swap over to the RHR Sump ___(2)___ occur.

A. 1) 2/3.
   2) will

B. 1) 1/3.
   2) will

C. 1) 2/3.
   2) will **not**

D. 1) 1/3.
   2) will **not**

14.

Given the following plant conditions:

- A loss of instrument air occurred.
- The crew entered AOP-220.1, LOSS OF INSTRUMENT AIR.
- The crew has tripped the reactor.
- Operators are locally controlling Steam Generator PORVs.
- All Main Steam Isolation Valves have been closed.

Which ONE of the choices below completes the following statements in accordance with a CAUTION in AOP-220.1?

Operators will maintain differential temperature LESS THAN a **maximum** of ___(1)___ between any two Reactor Coolant loops.

Operators are maintaining steam loads balanced to prevent a Safety Injection from ___(2)___.

A. 1) 50°F
   2) Steamline ΔP.

B. 1) 50°F
   2) Steamline Pressure Low.

C. 1) 25°F
   2) Steamline ΔP.

D. 1) 25°F
   2) Steamline Pressure Low.

15.

Initial conditions:

- A Small Break LOCA outside the RB has occurred.
- EOP-2.5, LOCA OUTSIDE CONTAINMENT is in progress.
- The crew is at the step to isolate Normal Letdown.
  - Letdown failed to isolate from the Main Control Board.

Current conditions:

- All appropriate actions of EOP-2.5 have been completed.
- The LOCA can **not** be isolated.
- RWST level is 80% and decreasing.
- RCS pressure is 1550 psig and decreasing.

Which ONE of the choices completes the following statements?

In the **initial conditions**, EOP-2.5 requires an operator to close LCV-459 and LCV-460, LTDN LINE ISOL ___(1)___.

In the **current conditions**, entry conditions for EOP-2.4, ECA-1.1 LOSS OF EMERGENCY COOLANT RECIRCULATION ___(2)___ met.

A. 1) locally at the valves.
   2) are **not**

B. 1) locally at the valves.
   2) are

C. 1) at the CREP.
   2) are **not**

D. 1) at the CREP.
   2) are

16.

Given the following plant conditions:

- 100% power initially.
- A loss of all Feedwater pumps occurred.
- EOP-15.0, FR-H.1 RESPONSE TO LOSS OF SECONDARY HEAT SINK is in progress.
- Operators have started the “A” Motor Driven EFW pump.
- Bleed and Feed has been established.
- RCS temperatures are decreasing.

Which ONE of the choices below completes the following statements?

In accordance with EOP-15.0, operators are required to establish feed to ___(1)___ unisolated Steam Generator(s) by ___(2)___ the associated EFW Flow Control Valve(s).

A. 1) one
   2) fully opening without delay

B. 1) all
   2) fully opening without delay

C. 1) one
   2) throttling open until WR SG level increases, then increase feed flow using

D. 1) all
   2) throttling open until WR SG level increases, then increase feed flow using

17.

Initial conditions:

- A LOCA has occurred.
- A rupture of the RWST occurred.
- EOP-2.4, ECA-1.1 LOSS OF EMERGENCY COOLANT RECIRCULATION is in progress.
- RCS pressure is 450 psig and stable.
- MVG-8706A(B), RHR LP A(B) TO CHG PP are closed.
- The crew is going to establish one train of Safety Injection flow to conserve RWST inventory.

Current conditions:

- The crew is depressurizing all SGs to inject Safety Injection Accumulators.
- All Steam Generator pressures read 150 psig.

Which ONE of the choices below completes the following statement in accordance with EOP-2.4?

In the **initial conditions**, after the crew has established one train of Safety Injection flow, one RHR pump ___(1)___ be running.

In the **current conditions**, Steam Generator pressures ___(2)___ meet the conditions to secure the Steam Generator depressurization.

A. 1) will **not**
   2) do

B. 1) will **not**
   2) do **not**

C. 1) will
   2) do

D. 1) will
   2) do **not**

18.

Given the following plant conditions:

- All Steam Generators are faulted outside containment.
- EOP-3.1, ECA-2.1, UNCONTROLLED DEPRESSURIZATION OF ALL STEAM GENERATORS is in progress.
- Normal Charging has been established.
- RB pressure is 0.8 psig.
- RCS Subcooling is 50°F.
- Pressurizer level is 14%.

NOTE the following valve names:

MVG-2802A, EF PUMP TURBINE SUPPLY VLV MS HEADER B EF PUMP TURBINE SUPPLY VLV

MVG-2802B, EF PUMP TURBINE SUPPLY VLV MS HEADER C EF PUMP TURBINE SUPPLY VLV

Which ONE of the choices below completes the following statements?

When the Turbine Driven EFW pump started, MVG-2802A and MVG-2802B ___(1)___ automatically change position from their normal alignment.

Safety Injection ___(2)___ required to be reinitiated in the conditions above.

A. 1) did
   2) is

B. 1) did
   2) is **not**

C. 1) did **not**
   2) is

D. 1) did **not**
   2) is **not**

19.

Initial conditions:

- 100% power initially.
- A down power was commenced for turbine valve testing.
- During the down power, rod F-10 of Control Bank D stuck.
- AOP-403.5, STUCK OR MISALIGNED CONTROL ROD is in progress.
- Operators are at the step to align the misaligned Control Rod with the AFFECTED Bank.
- An Operator was sent to place the appropriate Lift Coil Disconnect Switch(es) to the ROD DISCONNECTED position.

Current conditions:

- Operators have just finished re-aligning all Control Bank D rods.

Which ONE of the choices below completes the following statements in accordance with AOP-403.5?

In the **initial conditions**, the Lift Coil Disconnect Switch(es) for ___(1)___ will be placed to the ROD DISCONNECTED position.

In the **current conditions**, Control Bank D Group Step Counters will be reset ___(2)___.

A. 1) **only** the affected rod
   2) locally.

B. 1) **only** the affected rod
   2) on the Main Control Board.

C. 1) all rods in the bank **except** the affected rod
   2) locally.

D. 1) all rods in the bank **except** the affected rod
   2) on the Main Control Board.

20.

Initial conditions:

- A small break LOCA has occurred.
- EOP-2.1, ES-1.2 POST LOCA COOLDOWN AND DEPRESSURIZATION is in progress.
- All RCPs are OFF.
- "A" and "B" Charging pumps are running in injection mode.
- The RO is depressurizing the RCS using a Pressurizer PORV.
- Core Exit TCs are 557°F and stable.
- Pressurizer Level is 0%.
- NR RVLIS is 75% and stable.

Current conditions:

- The RO reports that the open Pressurizer PORV and its associated block valve **cannot** be closed.
- Core Exit TCs are 590°F and increasing.
- RCS pressure is 1365 psig and decreasing.
- Pressurizer Level is 23% and increasing at 1% per second.
- NR RVLIS is 50% and decreasing.

Which ONE of the following describes the reason for the change in Pressurizer level in the **current** conditions above?

A. Charging pump flowrates are **not** increasing but approximately half of the reactor vessel head is voided with an expanding steam volume.

B. Charging pump flowrates are **not** increasing but the reactor vessel head is completely voided with core voiding now occurring.

C. Charging pump flowrates are increasing **and** the reactor vessel head is completely voided with core voiding now occurring.

D. Charging pump flowrates are increasing **and** approximately half of the reactor vessel head is voided with an expanding steam volume.

21.

Given the following plant conditions:

- Plant is shutdown.
- N-31, SOURCE RANGE has failed.
- AOP-401.9, SOURCE RANGE CHANNEL FAILURE is in progress.
- N-33, REMOTE SOURCE RANGE MONITOR, is being placed in service in accordance with SOP-404, EXCORE NUCLEAR INSTRUMENTATION SYSTEM.

Which ONE of the choices below completes the following statements?

In accordance with SOP-404, N-33 fuses will be installed at the ___(1)___.

N-33 fuses are removed during power and startup operations to protect against ___(2)___.

A. 1) CREP.
   2) failure of the high voltage cutoff circuitry.

B. 1) CREP.
   2) inadvertent actuation of the Reactor Building evacuation alarm.

C. 1) Source Range drawer in the Main Control Room.
   2) failure of the high voltage cutoff circuitry.

D. 1) Source Range drawer in the Main Control Room.
   2) inadvertent actuation of the Reactor Building evacuation alarm.

22.

Given the following plant conditions:

- A reactor and plant shutdown is in progress from 100%.

Which ONE of the choices below completes the following statements?

The Intermediate Range High Flux reactor trip will automatically be reinstated when reactor power **first** goes below ___(1)___.

A blown instrument power fuse ___(2)___ result in a loss of the high voltage power supply to the N-36 detector.

A. 1) 10%.
   2) will

B. 1) 25%.
   2) will

C. 1) 10%.
   2) will **not**

D. 1) 25%.
   2) will **not**

23.

Initial conditions:

- 100% power.
- RM-A3, MAIN PLANT VENT EXHAUST AIR MONITOR is out of service.
- A waste gas release is in progress in accordance with SOP-119, WASTE GAS PROCESSING.
- Counts are stable on RM-A10, WASTE GAS DISCHARGE AIR MONITOR.
- XCP-642 1-1, PLANT VENT RM-A13 HI RAD is in alarm.

Current conditions:

- The release is secured.
- RM-A10 is declared inoperable.

NOTE The following valve names:

HCV-014, WASTE GAS DISCHARGE CONTROL VALVE

Which ONE of the choices below completes the following statement in accordance with the appropriate ARP?

The release was terminated when HCV-014 ___(1)___ closed.

RM-A10 being declared inoperable will require actions to be taken from ___(2)___ to restart the release.

A. 1) was manually
   2) ODCM, Section 1.2.1, Radioactive Gaseous Effluent Monitoring Instrumentation.

B. 1) was manually
   2) T.S. 3.3.3 Radiation Monitoring Instrumentation.

C. 1) automatically
   2) ODCM, Section 1.2.1, Radioactive Gaseous Effluent Monitoring Instrumentation.

D. 1) automatically
   2) T.S. 3.3.3 Radiation Monitoring Instrumentation.

24.

Given the following plant conditions:

- Core Off-load is in progress.
- The Refueling SRO reported a dropped fuel assembly.
- XCP-646 4-1, MANIP CRN RM-G17B HI RAD is in alarm.
- XCP-642 4-1, RB BRIDGE AREA RM-G6 HI RAD is in alarm.

NOTE the following Radiation Monitor names:

RM-G6, REFULING BRIDGE AREA

RM-G17B, RB MANIPULATOR CRANE AREA

Which ONE of the choices below completes the following statements?

When ___(1)___ alarmed, the ARP required operators to verify ___(2)___.

A. 1) RM-G17B
   2) XFN-11B, SPLY FAN "B" and XFN-13B, EXH FAN "B" stopped.

B. 1) RM-G17B
   2) XVB-1B, CNTMT SPLY ISOL and XVB-2B, CNTMT EXH ISOL closed.

C. 1) RM-G6
   2) XFN-11B, SPLY FAN "B" and XFN-13B, EXH FAN "B" stopped.

D. 1) RM-G6
   2) XVB-1B, CNTMT SPLY ISOL and XVB-2B, CNTMT EXH ISOL closed.

25.

Given the following plant conditions:

- 100% power.
- There is a fire in the plant.
- The Electric Driven Fire Pump failed to start automatically.

Which ONE of the choices below completes the following statements?

The Electric Driven Fire Service Pump ___(1)___ located in the Circulating Water Pump house.

The Electric Driven Fire Service Pump ___(2)___ be started from the Control Room.

A. 1) is
   2) can **not**

B. 1) is **not**
   2) can **not**

C. 1) is
   2) can

D. 1) is **not**
   2) can

26.

Initial conditions:

- A Small Break LOCA has occurred.
- All RCPs are stopped.
- EOP-14.0, FR-C.1 RESPONSE TO INADEQUATE CORE COOLING is in progress at step 1.

Current conditions:

- The crew is at the step to check if RCPs should be started in accordance with EOP-14.0
- Core Exit TCs are 1205°F and increasing.
- SG Narrow Range levels are all 60%.

Which ONE of the choices below completes the following statements?

EOP-14.0 will **first** attempt to ___(1)___ the RCS.

In the **current conditions**, EOP-14.0 ___(2)___ require starting a RCP.

A. 1) establish Safety Injection flow to
   2) does

B. 1) establish Safety Injection flow to
   2) does **not**

C. 1) depressurize the SGs to depressurize
   2) does

D. 1) depressurize the SGs to depressurize
   2) does **not**

27.

Given the following plant conditions:

- A loss of 230 KV power occurred.
- “B” Diesel Generator tripped immediately after start.
- A Technical Specification action statement requires taking the plant to COLD SHUTDOWN expeditiously.
- EOP-1.4, ES-0.3 NATURAL CIRCULATION COOLDOWN WITH STEAM VOID IN VESSEL is in progress.
- Operators are performing an RCS cooldown.
- Narrow Range RVLIS is 72% and decreasing.

Which ONE of the choices below completes the following statements?

Steam voiding in the reactor vessel head is more likely to occur because ___(1)___ are **not** available.

In accordance with a NOTE in EOP-1.4, maintaining Narrow Range RVLIS close to ___(2)___ will allow subcooled RCS liquid to condense steam from the reactor vessel head.

A. 1) CRDM Shroud Exhaust Fans
   2) 70%

B. 1) CRDM Shroud Exhaust Fans
   2) 93%

C. 1) pressurizer backup heaters
   2) 70%

D. 1) pressurizer backup heaters
   2) 93%

28.

Given the following plant conditions:

Time 0700:

- 25% power.
- “A” RCP shaft vibrations are 6.26 mils.

Time 1400:

- Frame vibrations have increased simultaneously with shaft vibrations.
- “A” RCP shaft vibrations are 16 mils and has been increasing linearly since 0700.

Which ONE of the choices below completes the following statements?

At **time 0700**, XCP-617 1-3 RCP A VIBR HI ___(1)___ in alarm due to shaft vibrations.

At **time 1400**, “A” RCP ___(2)___ required to be secured in accordance with SOP-101, REACTOR COOLANT SYSTEM.

A. 1) is
   2) is

B. 1) is **not**
   2) is

C. 1) is **not**
   2) is **not**

D. 1) is
   2) is **not**

29.

Given the following plant conditions:

- A plant startup is in progress.
- 35% power.
- “A” RCP trips.

Which ONE of the choices below completes the following statement?

After the “A” RCP Tripped, RCS Loop “A” T_{AVG} will ___(1)___ due to ___(2)___.

CONSIDER PLANT CONDITIONS ONE MINUTE AFTER THE RCP HAS TRIPPED.

A. 1) decrease
   2) the EFW flow post reactor trip.

B. 1) decrease
   2) T_{HOT} decreasing to the value of T_{COLD}.

C. 1) stay the same
   2) turbine load remaining unchanged.

D. 1) stay the same
   2) Thot increasing by the same amount Tcold decreased.

30.

Given the following plant conditions:

- 100% power.
- PVT-8149A, LTDN ORIFICE A ISOL, has been tagged out.
- TE-144, HX (CC CNTRL) TEMP °F, has failed low.

Which ONE of the choices below answers the following questions?

1) What is the **maximum** amount of letdown flow that can be established?

2) How will TE-144 failing low affect letdown temperature?

A. 1) 105
   2) Letdown temperature will increase.

B. 1) 120
   2) Letdown temperature will increase.

C. 1) 105
   2) Letdown temperature will decrease.

D. 1) 120
   2) Letdown temperature will decrease.

31.

Initial conditions:

- Reactor trip and safety injection have occurred.
- EOP-3.1, ECA-2.1 UNCONTROLLED DEPRESSURIZATION OF ALL STEAM GENERATORS is in progress.
- RCS pressure is 900 psig and increasing.
- Pressurizer level is 25% and increasing.

Current conditions:

- RCS pressure is 475 psig and decreasing uncontrollably.

Which ONE of the choices below completes the following statements?

In the **initial conditions**, RHR pumps are secured to ___(1)___ in accordance with EOP-3.1.

In the **current conditions**, RHR pumps will be restarted when pressure reaches a **minimum** value of ___(2)___ psig.

A. 1) reduce injection flow
   2) 325

B. 1) reduce injection flow
   2) 425

C. 1) avoid damage to the RHR pumps
   2) 325

D. 1) avoid damage to the RHR pumps
   2) 425

32.

Given the following plant conditions:

- A plant cooldown is in progress.
- XCP-610 2-5, RCS TEMP LO AND RHR SUCT VLV NOT OPEN is in alarm.
- Operators verified that "A" RHR train valves are in the normal alignment.

Which ONE of the choices below completes the following statements?

This alarm would be caused by ___(1)___ being partially closed.

In accordance with LCO 3.4.9.3, OVER PRESSURE PROTECTION SYSTEMS, Cold Overpressure protection must be in service when RCS cold leg is less than or equal to a **maximum** temperature of ___(2)___.

A. 1) MVG-8809B, RWST TO RHR PP B
   2) 200°F

B. 1) MVG-8809B, RWST TO RHR PP B
   2) 300°F

C. 1) MVG-8702B, RCS LP C TO PUMP B
   2) 300°F

D. 1) MVG-8702B, RCS LP C TO PUMP B
   2) 200°F

33.

Given the following plant conditions:

- 100% power.
- Makeup to the "A" SI Accumulator was just completed.
- "A" SI Accumulator parameters are as follows:
  - Boron Concentration: 2507 ppm
  - Pressure: 607 psig

Which ONE of the following describes whether the boron concentration and pressure are within the Technical Specification limits of 3.5.1, ACCUMULATORS?

	Boron Concentration	**Pressure**
A.	Within limit	Within limit
B.	Outside limit	Within limit
C.	Within limit	Outside limit
D.	Outside limit	Outside limit

34.

Given the following plant conditions:

- A large-break LOCA occurred.
- “A” RHR pump has tripped.
- RWST level is 15%.
- XCP-612, 4-3, RWST LVL LO-LO XFER TO SUMP is in alarm.
- The actions of EOP-2.2, ES-1.3 TRANSFER TO COLD LEG RECIRCULATION are complete.

Which ONE of the choices below completes the following statement?

In the conditions above, the “A” Charging pump is ___(1)___ and the Charging Pump miniflow line valve MVG-8109A, CHG PP A is ___(2)___.

A. 1) running
   2) open.

B. 1) running
   2) closed.

C. 1) secured
   2) open.

D. 1) secured
   2) closed.

35.

Initial conditions:

- 100% power.
- The crew just finished venting the PRT to reduce pressure in accordance with SOP-101, REACTOR COOLANT SYSTEM.

Current conditions:

- Reactor trip and Safety Injection has occurred.
- RB Pressure is 20 psig and stable.

Which ONE of the choices below completes the following statements?

In the **initial conditions**, the PRT was vented to the ___(1)___ header to decrease pressure.

In the **current conditions**, the PRT rupture disc ___(2)___ relieve when PRT pressure reaches 70 psig.

CONSIDER NO ADDITIONAL OPERATOR ACTIONS

A. 1) Waste Gas
   2) will

B. 1) RB Purge Exhaust
   2) will

C. 1) Waste Gas
   2) will **not**

D. 1) RB Purge Exhaust
   2) will **not**.

36.

Given the following plant conditions:

Time 0700:

- 75% power.
- "A" CCW train is active.
- "B" CCW pump is **inoperable**.
- There are **no** Technical Specification Action Statements in effect.

Time 0710:

- DPN1HB, BATTERY MAIN DISTRIBUTION PANEL 1HB, is **deenergized** due to a malfunction.

Time 0715:

- A large break LOCA occurred.
- A loss of all offsite power (115 KV and 230 KV) occurred.
- EOP-1.0, E-0 REACTOR TRIP OR SAFETY INJECTION is in progress.

Which ONE of the choices below completes the following statement?

While performing EOP-1.0, ATTACHMENT 3, SI EQUIPMENT VERIFICATION, the BOP will find "C" CCW pump_____.

A. **off** and can **not** be manually started.

B. **off** and a manual start will be required because the "B" Train ESFLS is deenergized.

C. **running** because "A" CCW header pressure decreased below the autostart setpoint.

D. **running** because it was aligned to operate as the "B" train CCW pump.

37.

Given the following plant conditions:

Time 0800:

- 100% power.
- A total loss of CCW has occurred.
- AOP-118.1, LOSS OF COMPONENT COOLING WATER was just entered.

Time 0805:

- RCP temperatures are as follows:
  - Motor Bearing temperature is 185°F.
  - Lower Seal Water Bearing Temperature is 200°F.
  - CBO temperature is 245°F.

Time 0815:

- RCP temperatures are as follows:
  - Motor Bearing temperature is 190°F.
  - Lower Seal Water Bearing Temperature is 205°F.
  - CBO temperature is 253°F.

Which ONE of the choices below completes the following statement?

In accordance with AOP-118.1, operators are **first** required to trip RCPs at time _____.

CONSIDER ALL TEMPERATURES RISE LINEARLY

A. 0805

B. 0810

C. 0815

D. 0820

38.

Initial condition:

- 75% power initially.
- All Pressurizer heaters are energized.
- A safety injection occurs.

Current conditions:

- SI has been reset.
- Both ESF Loading Sequencers have been reset.
- Pressurizer level is 14%.

Which ONE of the choices below completes the following statements?

The **Control Group** Pressurizer heaters ___(1)___ **directly** de-energized by operation of the ESF Loading Sequencer.

In the **current conditions**, the OATC ___(2)___ energize the Pressurizer **Back Up Group 1** heaters.

A. 1) are
   2) can

B. 1) are
   2) can **not**

C. 1) are **not**
   2) can **not**

D. 1) are **not**
   2) can

39.

Given the following plant conditions:

- Reactor startup in progress in accordance with GOP-4A, POWER OPERATION (MODE 1 – ASCENDING).
- 23% power.
- N44, PR, fails high.

Which ONE of the choices below describes the status of the reactor and why?

CONSIDER NO OPERATOR ACTIONS

A. At power, the coincidence was not met which prevented a reactor trip.

B. At power, the failed channel is for control **only**, not for reactor protection.

C. Tripped, the Power Range High Flux (Low Setpoint) initiated a reactor trip.

D. Tripped, the Overtemperature ΔT initiated a reactor trip.

40.

Initial conditions:

- A reactor startup is in progress in accordance with GOP-3, REACTOR STARTUP FROM HOT STANDBY TO STARTUP (MODE 3 TO MODE 2).
- The crew is at the step to increase Reactor Power to 10^{-3}%.

Current Conditions:

- 7% power.
- The SR TRAIN B (Train "B" Source Range High Flux Trip Block) switch is inadvertently placed in RESET.

Which ONE of the choices below completes the following statements?

In the **initial conditions**, the Source Range High flux trip must be blocked prior to reaching a **maximum** power of___(1)___.

In the **current conditions**, a reactor trip ___(2)___ occur.

A. 1) $7.5x10^{-6}$%.
   2) did

B. 1) $7.5x10^{-6}$%.
   2) did **not**

C. 1) 10^{5} CPS.
   2) did

D. 1) 10^{5} CPS.
   2) did **not**

41.

Which ONE of the choices below identifies the power supply to "A" Train Engineered Safety Features Loading Sequencer?

A. APN-5901, 120VOLT VITAL AC DISTR PANEL 1 NSSS

B. APN-5903, 120VOLT VITAL AC DISTR PANEL 3 NSSS

C. APN01DA2, INTERMEDIATE BLDG 240/120 VAC DISTR PNL

D. DPN-1HA1, BATTERY MAIN DISTRIBUTION PANEL 1HA

42.

Given the following plant conditions:

- 100% power.
- RBCU TRAIN A EMERG switch is selected to XFN-64A.
- A Safety Injection occurs.
- The BOP is performing Attachment 3 of EOP-1.0, SI EQUIPMENT VERIFICATION.

NOTE the following procedure titles:

EOP-1.0, E-0 REACTOR TRIP OR SAFETY INJECTION.

Which ONE of the following choices below completes the following statements?

In accordance with EOP-1.0, Attachment 3, Service Water flow is required to be verified greater than a **minimum** value of ___(1)___ **for each train** of RBCUs.

MVG-3109B, RBCU 65A OUTLET ISOL is expected to be in the ___(2)___ position for the conditions above.

A. 1) 2000 gpm
   2) closed

B. 1) 2000 gpm
   2) open

C. 1) 4000 gpm
   2) closed

D. 1) 4000 gpm
   2) open

43.

Initial conditions:

- A Large Break LOCA has occurred.
- RB Pressure is 25 psig and rising.
- EOP-1.0, E-0 REACTOR TRIP OR SAFETY INJECTION immediate actions have just been completed.

Current conditions:

- RWST level is 16%.
- Operators are transitioning to EOP-2.2, ES-1.3 TRANSFER TO COLD LEG RECIRCULATION.

Which ONE of the choices below completes the following statements?

The RB Spray pumps ___(1)___ cooled by Component Cooling water.

In the **current conditions**, RB Spray Suction ___(2)___ receive a signal to automatically re-align to the sumps.

A. 1) are
   2) did

B. 1) are **not**
   2) did **not**

C. 1) are
   2) did **not**

D. 1) are **not**
   2) did

44.

Given the following plant conditions:

- 100% power initially.
- A steam leak has occurred inside containment.
- All Steam Generator pressures are 650 psig decreasing rapidly.

Which ONE of the choices below completes the following statement?

The Steam Line Low Pressure signal ___(1)___ rate sensitive.

The Main Steam Line Isolation valves ___(2)___ received a signal to close.

A. 1) is
   2) have

B. 1) is
   2) have **not**

C. 1) is **not**
   2) have

D. 1) is **not**
   2) have **not**

45.

Given the following plant conditions:

Time 1059:

- 100% power.
- XCP-622 3-6, IB SMP LVL HI is in alarm.
- XCP-623 3-6, IB SMP LVL HI is in alarm.

Time 1100:

- All Main Feedwater pumps are tripped.
- Turbine did **not** trip automatically.

Time 1101:

- Turbine is manually tripped.
- SG NR levels all read 0%.

Time **now** is 1102:

- All SG NR levels have remained at 0%.

Which ONE of the choices below completes the following statements?

At **time 1059**, the High IB Sump level ___(1)___ send a direct signal to start **all** Emergency Feedwater pumps.

AMSAC actuation was initiated when SG NR level **first** reached ___(2)___.

A. 1) did
   2) 10%.

B. 1) did
   2) 26%.

C. 1) did **not**
   2) 10%.

D. 1) did **not**
   2) 26%.

46.

Initial conditions:

- 100% power initially.
- “C” Service Water pump is out of service.
- An Earthquake has occurred.
- Reactor Trip and Safety Injection have occurred.
- “B” Service Water pump tripped and can not be restarted.
- Condensate Storage Tank level is lowering rapidly.
- All EFW Pump suction header pressure transmitters decreased to 9.0 psig.

Current conditions:

- Service Water to Emergency Feedwater swapover has been verified.

Which ONE of the choices below completes the following statements?

In the **initial conditions**, Service Water to Emergency Feedwater swapover ___(1)___ occurred.

In the **current conditions**, the “A” Service Water pump ___(2)___ supplying the suction of the “B” Motor Driven EFW pump.

A. 1) has **not**
   2) is

B. 1) has
   2) is

C. 1) has **not**
   2) is **not**

D. 1) has
   2) is **not**

47.

Given the following plant conditions:

- "A" Diesel Generator is paralleled with ESF bus 1DA.
- A positive 250 KVARS OUT has been established on DG A KILOVARS.
- “A” Diesel output has been 500 KW for the past 5 hours.

Which ONE of the choices below completes the following statements for the conditions above?

___(1)___ the voltage control setpoint will cause DG A KILOVARS to read a higher positive value.

Operators ___(2)___ required to raise diesel output prior to shutting it down in accordance with SOP-306, EMERGENCY DIESEL GENERATOR.

A. 1) Lowering
   2) are

B. 1) Lowering
   2) are **not**

C. 1) Raising
   2) are

D. 1) Raising
   2) are **not**

48.

Given the following plant conditions:

- The unit is in MODE 3.
- Maintenance was just completed on the 'A' Train of the Service Water (SW) system.
- The SW pump breakers 'A' and 'C' have just been racked up on the 'A' train bus with both switches in NORMAL-AFTER-STOP following the maintenance.
- All offsite power was lost (115 KV and 230 KV).
- 'B' EDG failed to start automatically or manually.
- The 'A' EDG is supplying the 1DA bus.
- The crew has entered AOP-304.1B, LOSS OF BUS 1DB WITH THE DIESEL NOT AVAILABLE.
- Neither SW pump on the 'A' Train is running.

Which ONE of the choices below completes the following statements?

Both of the SW pumps ___(1)___ have started when power was restored to bus 1DA.

If **no** service water pumps can be started, AOP-304.1B will direct starting the ___(2)___ Fire pump.

A. 1) should
   2) Diesel Driven

B. 1) should
   2) Alternate Diesel

C. 1) should **not**
   2) Diesel Driven

D. 1) should **not**
   2) Alternate Diesel

49.

Given the following plant conditions:

- 100% power.
- Internal short resulted in a power loss to 125 VDC circuit XPN6095.
- AOP-100.5, LOSS OF MAIN CONTROL BOARD ANNUNCIATORS is in progress.
- The crew is ensuring T_{AVG} is above the minimum temperature for criticality in accordance with GTP-702, Attachment IV.G, T-AVG/T-REF DEVIATION ALARM NOT RESET.

Which ONE of the choices below completes the following statements?

In accordance with AOP-100.5, to clear the MCB annunciator power loss bell, the crew will ___(1)___.

RCS T_{AVG} must be greater than a **minimum** value of ___(2)___ to be above the minimum temperature for criticality.

A. 1) depress the silence push button.
   2) 551°F

B. 1) depress the silence push button.
   2) 557°F

C. 1) remove control power fuse in the MCB.
   2) 551°F

D. 1) remove control power fuse in the MCB.
   2) 557°F

50.

Initial conditions:

- A reactor trip and safety injection have occurred.
- “A” Diesel Generator is running in the emergency mode supplying bus 1DA.

Current conditions:

- XCX-5201 2-2, HIGH COOLANT TEMPERATURE is in alarm for the “A” Diesel Generator.
- An AO reports that Jacket Water Temperature is 200°F.

Which ONE Of the choices below completes the following statements?

In the **current conditions**, the “A” Diesel Generator ___(1)___ trip.

In the **current conditions**, XVG-3105A-SW, DIESEL GENERATOR COOLER A FS SUPPLY VLV ___(2)___ automatically open.

A. 1) did
   2) did

B. 1) did
   2) did **not**

C. 1) did **not**
   2) did **not**

D. 1) did **not**
   2) did

51.

Given the following plant conditions:

Time 0700:

- The electric plant is in a normal lineup.

Time 0701:

- A large steamline break resulted in a Reactor Trip and Safety Injection.
- Concurrently, all offsite power was lost (115KV and 230KV).
- "A' EDG started but its output breaker will **not** close.

Time now is 0710:

Which ONE of the choices below completes the following statements?

The **load shed sequence** for “A” Train was initiated directly from the loss of ___(1)___.

At **time 0710**, the “A” Train equipment **loading sequence** ___(2)___ complete.

A. 1) 115KV
   2) is

B. 1) 230KV
   2) is

C. 1) 115KV
   2) is **not**

D. 1) 230KV
   2) is **not**

52.

Given the following plant conditions:

- 100% power.
- Steam Generator blowdown return is aligned to the condenser.
- XCP-646 4-6, LIQ NB DISCH RM-L7 TRBL is in alarm.
- RM-L7, NB WASTE EFFLUENT LIQUID RADIATION MONITOR has lost power.

Which ONE of the choices below completes the following statements?

PVD-6121, NUC BLOWDOWN DISCHARGE ___(1)___ automatically close on the loss of power to RM-L7.

The CRS will determine the required actions in accordance with ___(2)___.

A. 1) did
   2) Technical Specifications 3.3.3, Radiation Monitoring Instrumentation.

B. 1) did
   2) ODCM, Section 1.1.1, Radioactive Liquid Effluent Monitoring Instrumentation.

C. 1) did **not**
   2) Technical Specifications 3.3.3, Radiation Monitoring Instrumentation.

D. 1) did **not**
   2) ODCM, Section 1.1.1, Radioactive Liquid Effluent Monitoring Instrumentation.

53.

Time 1000:

- 25% power.
- The “B” Train of Component Cooling Water (CCW) is the active loop.
- The “B” CCW pump is running.
- The CCW Booster pumps are aligned as follows:
  - “A” booster pump is in OFF.
  - “B” booster pump is in AUTO.
  - “C” booster pump is running.
- A 51BX lockout on BOP bus 1C occurs.

Time 1008:

- A loss of power to 1DB has occurred.
- “B” Diesel Generator failed to start automatically or manually.

Which ONE of the choices below completes the following statements?

The **“C”** CCW Booster pump lost power at time ___(1)___.

At **time 1009**, the “B” CCW Booster pump is tripped due to ___(2)___.

A. 1) 1000
   2) a loss of power.

B. 1) 1000
   2) low suction pressure.

C. 1) 1008
   2) a loss of power.

D. 1) 1008
   2) low suction pressure.

54.

Initial conditions:

- A Refueling outage is in progress.
- “A” Instrument Air Compressor is running.
- “B” Instrument Air Compressor is in standby.
- Supplemental air compressor is supplying breathing air.

Current conditions:

- Instrument air header pressure is 60 psig and decreasing.

Which ONE of the choices below completes the following statements?

The Standby Instrument Air Compressor starts once receiver tank pressure reaches ___(1)___ psig.

In the **current conditions**, XVB-2633, IA BACKUP SYSTEM SUP HDR ISOLATION VLV ___(2)___ automatically open to supply air to the Instrument Air system from the Supplemental air compressor.

A. 1) 90
   2) did

B. 1) 105
   2) did

C. 1) 90
   2) did **not**

D. 1) 105
   2) did **not**

55.

Given the following plant conditions:

- A Large Break LOCA has occurred.
- Reactor Building pressure indicates 34 psig and rising.
- EOP-1.0, E-0 REACTOR TRIP OR SAFETY INJECTION, is in progress.
- The following Containment Isolation Valve MCB Status Light is DIM:
  - CC TO RC CNTMT ISOL 9568 CLSD
- The following annunciators are in alarm:
  - XCP-612 1-1, RB PRESS HI-1 SI/PHASE A
  - XCP-612 3-2, RB SPR ACT
  - XCP-612 4-2, PHASE B ISOL

Which ONE of the choices below completes the following statements?

Phase ___(1)___ signal failed to reposition MVG-9568, TO RB LOAD.

The crew ___(2)___ manually close MVG-9568 from the MCB in accordance with EOP-1.0.

A. 1) "A"
   2) will **not**

B. 1) "A"
   2) will

C. 1) "B"
   2) will **not**

D. 1) "B"
   2) will

56.

Given the following plant conditions:

- A power reduction to 90% power is being performed in accordance with GOP-4B, POWER OPERATION (MODE 1 – DESCENDING).
- Operators are energizing BU GRP 1 Pressurizer Heaters in accordance with SOP-101, REACTOR COOLANT SYSTEM.

Which ONE of the choices below completes the following statements?

In accordance with NOTE 2.0 of SOP-101, when energizing Pressurizer heaters, be aware of the ___(1)___ reactivity effects due to a ___(2)___ void fraction.

A. 1) positive
   2) decreasing

B. 1) positive
   2) increasing

C. 1) negative
   2) decreasing

D. 1) negative
   2) increasing

57.

Initial conditions:

- 75% power initially.
- AFD indications initially are as follows:
  - N-41 0
  - N-42 0
  - N-43 0
  - N-44 0
- Rod Control is in **manual**.

Current conditions:

- A turbine runback occurred.
- Reactor power is now at 60%.
- Operators determined that AFD has exceeded the allowed operational space in accordance with the COLR, CORE OPERATING LIMITS REPORT.

Which ONE of the choices below completes the following statements?

In the **current conditions**, AFD shifted to a ___(1)___ value.

In accordance with Tech Spec 3.2.1, AFD must be restored within a **maximum** time of ___(2)___.

CONSIDER NO OPERATOR ACTIONS

A. 1) positive
   2) 1 hour.

B. 1) positive
   2) 15 minutes.

C. 1) negative
   2) 1 hour.

D. 1) negative
   2) 15 minutes.

58.

Given the following plant conditions:

- 100% power.
- Several Incore Thermocouples have failed in one quadrant of the core.
  - There is one OPERABLE thermocouple in that quadrant.
- All thermocouples in the other three quadrants are OPERABLE.

Which ONE of the choices below completes the following statements?

The accuracy of the heat balance using the Integrated Plant Computer System, QCORE1, ___(1)___ affected by the failed thermocouples.

The requirements of TS 3.3.3.11, POWER DISTRIBUTION MONITORING SYSTEM ___(2)___ met.

A 1) is
2) are

B. 1) is
2) are **not**

C. 1) is **not**
2) are

D. 1) is **not**
2) are **not**

59.

Given the following plant conditions:

- 100% power.
- XFN0064A-AH, REACTOR BLDG COOLING UNIT 1A EMERG FAN has tripped.
- The CRS has sent an AO to investigate the breaker for XFN0064A-AH.

Which ONE of the choices below completes the following statement?

The AO was sent to _____ switchgear to investigate the breaker for XFN0064A-AH.

A. 1DA

B. 1EA

C. 1DA1

D. 1EA1

60.

Given the following plant conditions:

- MODE 6
- Reactor Building Purge is in progress in accordance with SOP-114, REACTOR BUILDING VENTILATION SYSTEM.
- A malfunction of RM-A2, REACTOR BUILDING SAMPLE LINE, causes a spurious RM-A2 High Radiation Alarm.

NOTE the following valve names:

XVB-1A, RB PURGE SUPPLY ISOLATION VALVE

XVB-1B, RB PURGE SUPPLY ISOLATION VALVE

XVB-2A, RB PURGE EXHAUST ISOLATION VALVE

XVB-2B, RB PURGE EXHAUST ISOLATION VALVE

Which ONE of the choices below answers the following question?

Which valves received a **direct** signal to close from the spurious RM-A2 High Radiation Alarm?

A. **Only** XVB-2A and XVB-2B.

B. **Only** XVB-1A and XVB-2A.

C. **Only** XVB-1B and XVB-2B.

D. **Only** XVB-1A and XVB-1B.

61.

Given the following plant conditions:

- Core unloading is in progress.
- “A” train of Spent Fuel Cooling is in service.
- “A” Spent Fuel Cooling pump has tripped.
- AOP-123.4, LOSS OF SPENT FUEL COOLING is in progress.

Which ONE of the choices below completes the following statements?

AOP-123.4, directs operators to ensure ___(1)___ is supplied to each in-service Spent Fuel heat exchanger.

XCP-608 1-3, SFP TEMP HI will alarm at a setpoint of ___(2)___ if cooling is not restored.

A. 1) Service water
   2) 120°F.

B. 1) Component Cooling water
   2) 120°F.

C. 1) Service water
   2) 170°F.

D. 1) Component Cooling water
   2) 170°F.

62.

Given the following plant conditions:

- A core re-load is in progress.
- The JOG PERMISSIVE switch is OFF.

Based on the given conditions, which ONE of the following would render the manipulator crane bridge and trolley inoperative simultaneously?

A. The trolley bypass is engaged.

B. The hoist is being operated or the gripper tube is down.

C. The Reactor Building Upender is in the vertical position (FRAME UP).

D. The Manipulator load cell indicates 100 pounds more than the fuel assembly.

63.

Initial conditions:

- 75% power.
- PT-475, PRESS PSIG, for SG “A” failed high.

Current conditions:

- AOP-401.3, STEAM FLOW-FEEDWATER FLOW PROTECTION CHANNEL FAILURE in progress.
- Manual control of Feedwater Pump speed was required.
- The crew is at the step to “Restore the AFFECTED SG control systems to normal”.

Which ONE of the choices below completes the following statements?

In the **initial conditions**, the reading on FT-474, STM FLOW MPPH ___(1)___.

In the **current conditions**, in accordance with SOP-210, FEEDWATER SYSTEM, prior to restoring Feedwater Pump speed control to automatic, the Feedwater Pump MASTER SPEED CNTRL is adjusted to establish ___(2)___.

A. 1) increased.
   2) all operating Feedwater Pump speeds to within 150 - 250 rpm of each other.

B. 1) increased.
   2) the required DP between Feedwater Pump Discharge and Main Steam Header.

C. 1) decreased.
   2) all operating Feedwater Pump speeds to within 150 - 250 rpm of each other.

D. 1) decreased.
   2) the required DP between Feedwater Pump Discharge and Main Steam Header.

64.

Given the following plant conditions:

- 100% power.
- A release of Waste Monitor Tank #1 was in progress to the Fairfield Penstocks.
- The release was automatically terminated by the closure of RCV-018, LIQUID RADIOACTIVE WASTE CONTROL VALVE.

Which ONE of the following identifies the potential cause for the termination of the release?

A. High radiation detected on RM-L5, LIQUID RAD MON, LIQUID WASTE EFFLUENT.

B. 45% flow at the Fairfield Pumped Storage Facility.

C. Fairfield Pump Storage Facility in the generating mode.

D. High radiation detected on RM-L9, LIQUID RAD MON, LIQUID WASTE EFFLUENT.

65.

Initial conditions:

- 10% power.
- A leak in the Station Air header has occurred.
- Station air header pressure is 62 psig and decreasing.
- Instrument Air header pressure is 67 psig and decreasing.
- XCP-629 1-1, MSIV A NOT FULL OPN 2801A is in alarm
- AOP-220.1, LOSS OF INSTRUMENT AIR, is in progress.

Current conditions:

- Air header pressures are being restored.

Which ONE of the choices below completes the following statements?

In the **initial conditions**, a reactor trip ___(1)___ required in accordance with AOP-220.1.

In the **current conditions**, IPV-8324, STATION AIR SUPPLY HDR PRESS CONT VALVE will be fully open when Instrument Air header pressure **first** reaches ___(2)___ psig.

A. 1) is
   2) 80

B. 1) is
   2) 100

C. 1) is **not**
   2) 80

D. 1) is **not**
   2) 100

66.

Given the following plant conditions:

- Shift turnover has just taken place.

Which ONE of the choices below completes the following statements?

In accordance with OP-AA-100, CONDUCT OF OPERATIONS, operators are required to walk down the entire control board a **minimum** of once ___(1)___.

In accordance with OAP-100.6, CONTROL ROOM CONDUCT AND CONTROL OF SHIFT ACTIVITIES, operators are required to complete Technical Specification Logs within a **maximum** of ___(2)___ hours of taking the shift.

A. 1) each hour.
   2) 1.5

B. 1) each hour.
   2) 2

C. 1) every 2 hours.
   2) 1.5

D. 1) every 2 hours.
   2) 2

67.

Given the following plant conditions:

- A Reactor Operator is determining the requirements to maintain their qualifications in accordance with OP-AA-103, OPERATOR QUALIFICATIONS.
- They stood the following watches during the first quarter of the year:
  - 12 hours on January 5th as BOP.
  - 12 hours on January 29th as RO.
  - 12 hours on February 3th as CB.
  - 12 hours on February 20th as RO.
  - 12 hours on March 10th as RO.
- Today is April 1st.

Which ONE of the choices below completes the following statements in accordance with OP-AA-103?

The Reactor Operators license is ___(1)___.

As a Reactor Operator with an active license, you ___(2)___ required to stand one watch for an entire shift per quarter to maintain proficiency for each previously qualified Auxiliary Operator watchstation.

A. 1) active.
   2) are

B. 1) active.
   2) are **not**

C. 1) inactive.
   2) are

D. 1) inactive.
   2) are **not**

68.

Given the following plant conditions:

- The Refueling SRO reports a dropped fuel assembly in the core.
- Source Range Instruments N-31 and N-33 are in service.
- XCP-620 4-2, SR HI FLUX AT SHUTDN has alarmed.
- AOP-123.3, POTENTIAL FUEL ASSEMBLY DAMAGE WHILE HANDLING FUEL is in progress.

Which ONE of the choices below completes the following statements?

A high reading on N-33 ___(1)___ cause XCP-620 4-2 to alarm.

In accordance with AOP-123.3, ___(2)___ will manually actuate the Reactor Building Evacuation alarm.

A. 1) did **not**
   2) a Control Room operator

B. 1) did **not**
   2) the Fuel Handling Supervisor

C. 1) did
   2) a Control Room operator

D. 1) did
   2) the Fuel Handling Supervisor

69.

Initial conditions:

- A reactor shutdown is in progress in accordance with GOP-4B POWER OPERATION (MODE 1 - DESCENDING).
- C-5, LOW POWER INTERLOCK is bright.

Current condition:

- GOP-5 REACTOR SHUTDOWN FROM STARTUP TO HOT STANDBY (MODE 2 TO MODE 3) is in progress.

Which ONE of the choices below completes the following statements?

In the **initial conditions**, rod control ___(1)___ required to be placed in manual in accordance with GOP-4B.

In the **current conditions**, Reactor power is required to be less than a **maximum** of ___(2)___ to insert control rods with a manual reactor trip in accordance with GOP-5.

A. 1) is **not**
   2) 5%

B. 1) is
   2) 5%

C. 1) is **not**
   2) 3%

D. 1) is
   2) 3%

70.

Which ONE of the choices below answers the following questions?

1) What is the **maximum** amount of time at which LCO 3.0.3 requires actions to be initiated to place the unit in a MODE in which the specification does not apply?

2) What is the **lowest** MODE at which LCO 3.0.3 can direct placing the unit in?

A. 1) 15 minutes
   2) 5

B. 1) 1 hour
   2) 5

C. 1) 15 minutes
   2) 6

D. 1) 1 hour
   2) 6

71.

Given the following plant conditions:

- An AO is going into a room to close a valve.
- The highest dose rate in the room is 107 mrem/hr at 30 cm.
- He has not received any dose for the year.
- The allowed dose is 5 mrem in accordance with the RWP.

Which ONE of the choices below completes the following statements?

In accordance with RP-AA-202, RADIOLOGICAL POSTING, the room the AO is going into is required to be posted as a ___(1)___.

In accordance with VCS-HPP-0403, RADIOLOGICAL CONTROLS FOR NUCLEAR WORK ACTIVITIES, the AO must leave the Radiation Area when their Self-Reading Dosimeter (SRD) **first** reads ___(2)___.

A. 1) Locked High Radiation Area.
   2) 5 mrem.

B. 1) Locked High Radiation Area.
   2) 4 mrem.

C. 1) High Radiation Area.
   2) 5 mrem.

D. 1) High Radiation Area.
   2) 4 mrem.

72.

Given the following plant conditions:

- An AO is entering the RCA to perform a job in a High Radiation Area.
- The AO is reviewing the appropriate Radiation Work Permit (RWP).

Which ONE of the choices below completes the following statements?

Prior to entering the High Radiation Area, the operator ___(1)___ required to receive a brief from HP.

The RWP ___(2)___ contain recommended Protective Clothing (PCs) based on expected contamination levels for the work to be performed.

A. 1) is
   2) will

B. 1) is
   2) will **not**

C. 1) is **not**
   2) will

D. 1) is **not**
   2) will **not**

73.

Which ONE of the choices below answers the following questions in accordance with OAP-103.4, EOP-FSP-AOP-ARP USER'S GUIDE?

1) What is the **minimum** RB pressure at which adverse containment values are used?

2) Once RB pressure drops below the adverse value setpoint, are adverse containment values required to be used?

A. 1) 3.6 psig.
   2) Yes.

B. 1) 3.6 psig.
   2) No.

C. 1) 6.35 psig.
   2) Yes.

D. 1) 6.35 psig.
   2) No.

74.

Which ONE of the following describes the performance criteria for instructional sub steps proceeded by bullets (•) in an AOP?

A. The steps are immediate operator action steps.

B. The steps may be performed in any order.

C. The steps shall be performed in sequential order.

D. The steps are continuous action steps.

75.

What color is the **highest** priority annunciator window?

A. Red

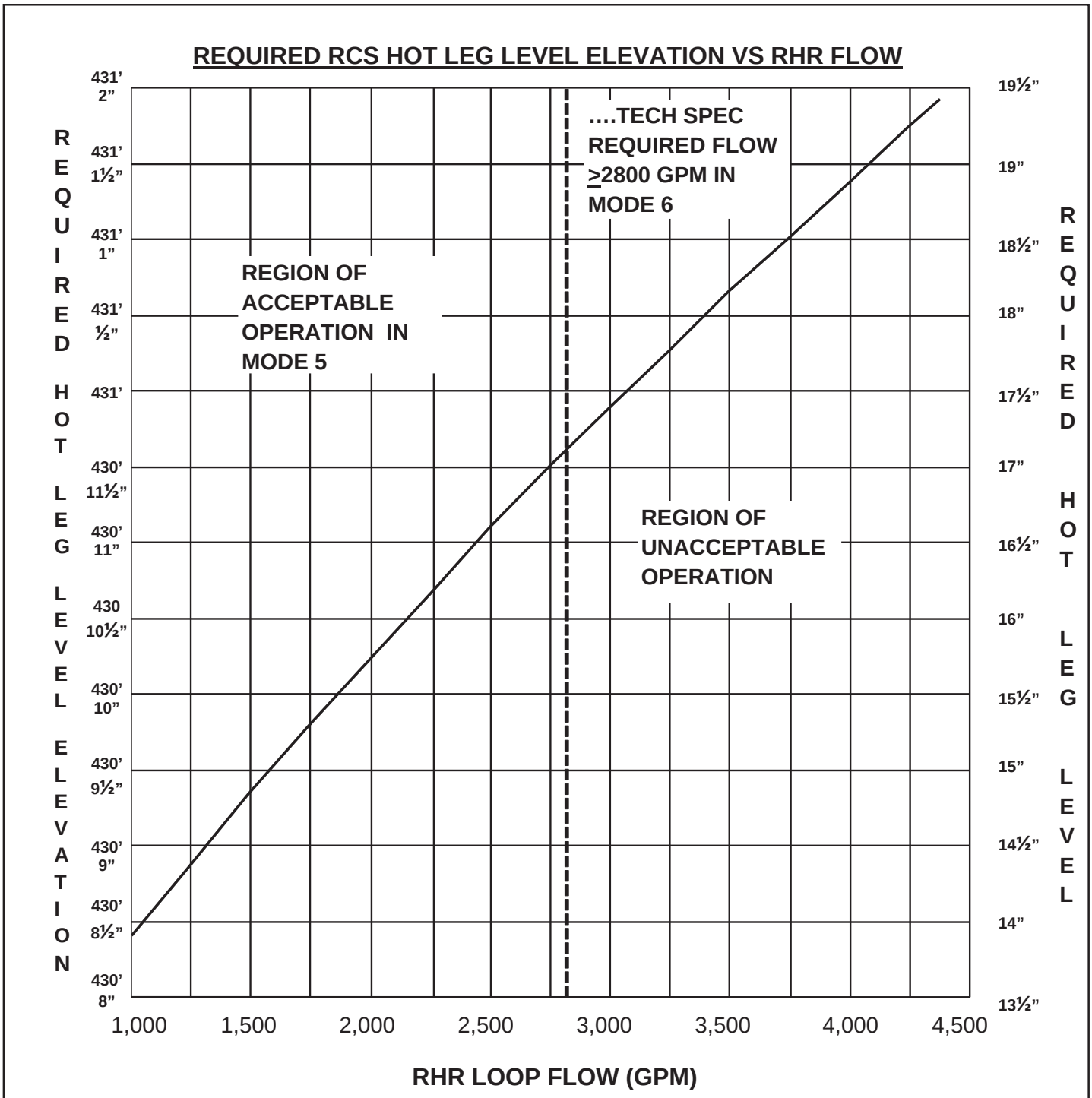
B. Blue

C. Yellow

D. White

TABLE OF CONTENTS
2021 NRC RO EXAM

REQUIRED RCS HOT LEG LEVEL VS RHR FLOW



Key (K) Verify (V) Rescore (R)

Name	Key	Date	
Teacher		Class	
School		Period	
Test Name	2021 NRC Exam		

USE NO. 2 PENCIL ONLY • Example (A) ● (C) (D)

Student ID Number

Test ID

Q	Ans	Q	Ans	Q	Ans
1	A	35	C	69	D
2	D	36	A	70	B
3	D	37	B	71	D
4	A	38	C	72	A
5	D	39	A	73	B
6	A	40	C	74	B
7	D	41	A	75	A
8	D	42	A	76	D
9	D	43	D	77	C
10	B	44	A	78	A
11	B	45	C	79	D
12	D	46	D	80	D
13	C	47	C	81	B
14	C	48	C	82	C
15	D	49	C	83	C
16	C	50	D	84	A
17	A	51	C	85	C
18	C	52	B	86	B
19	D	53	B	87	D
20	C	54	C	88	A
21	A	55	D	89	D
22	A	56	A	90	B
23	A	57	B	91	A
24	B	58	D	92	C
25	C	59	C	93	C
26	A	60	C	94	D
27	A	61	B	95	B
28	B	62	B	96	A
29	B	63	B	97	D
30	B	64	A	98	A
31	C	65	B	99	B
32	C	66	B	100	B
33	B	67	D		
34	D	68	A		

Rescore

Score