ES-401	Site-Specific RO Written Examination Cover Sheet	Form ES-401-7

U.S. Nuclear Regulatory Commission
Site-Specific RO Written Examination

Applicant Information	
Name:	
Date:	Facility/Unit: FARLEY 1 & 2
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:

   - Unit 1 Reactor startup is in progress per UOP-1.2, Startup of Unit from Hot Standby to Minimum Load.
   - Reactor Power is 13%.
   - The CONTROL ROD MOTION switch has just been **released** following a rod withdrawal.
   - Control rods continue to step out.

   Subsequently:

   - The crew enters AOP-19.0, Rod Control Malfunction.
   - The ROD CONTROL BANK SELECTOR SWITCH (RCBSS) is placed in AUTO.
   - Control rods **continue** to step out.
   - TAVG -TREF deviation is +2°F and rising.

   Which one of the following completes the statements below?

   Operators are required to _(1)_.

   Without additional operator action, C-1, IR Hi Flux Rod Stop, _(2)_ stop outward rod motion if the applicable setpoint is reached.

A. (1) monitor rod motion and ensure rod motion stops when Tavg and Tref are matched within 1°F

   (2) does NOT

B. (1) manually Trip the Reactor

   (2) does NOT

C. (1) monitor rod motion and ensure rod motion stops when Tavg and Tref are matched within 1°F

   (2) DOES

D. (1) manually Trip the Reactor

   (2) DOES

2. Given the following:

   - Unit 1 is at 100% power.

   Which one of the following completes the statements below per TS 3.4.10, Pressurizer Safety Valves?

   The purpose of the three Pressurizer Code Safety Valves is to ensure RCS pressure does not exceed _(1)_.

   When _(2)_ Pressurizer Safety Valve(s) is (are) INOPERABLE, the Tech Spec completion time to restore operability is 15 minutes.

   Do not apply Risk Informed Completion Time Program allowances

	(1)	(2)
A.	2735 psig	ONE
B.	2735 psig	TWO
C.	2400 psig	ONE
D.	2400 psig	TWO

3. Given the following:

   - Unit 1 Reactor startup is in progress per UOP-1.2, Startup of Unit from Hot Standby to Minimum Load.
   - Reactor power is 4% and stable.

   Subsequently:

   - Control Bank D rod H2 falls to the bottom of the core.
   - Rod H2 position has been confirmed.

   Which one of the following completes the statements below?

   Per AOP-19.0, Malfunction of Rod Control System, the operating crew _(1)_ required to shutdown the Reactor.

   From steady state to steady state, Shutdown Margin is _(2)_ after Rod H2 falls to the bottom of the core.

	(1)	(2)
A.	IS	NOT affected
B.	IS	reduced
C.	is NOT	NOT affected
D.	is NOT	reduced

4. Given the following:

   - Unit 1 is in MODE 3.
   - The Shutdown Banks are withdrawn.

   Which one of the following completes the statements below in accordance with LCO 3.4.5, RCS Loops - MODE 3?

   __(1)__ RCS loop(s) is(are) required to be OPERABLE and in operation.

   If **no** RCS loops are in operation, the Reactor Trip Breakers __(2)__ required to be opened.

A. (1) TWO

   (2) are NOT

B. (1) TWO

   (2) ARE

C. (1) ONE

   (2) are NOT

D. (1) ONE

   (2) ARE

5. Given the following:

   - A manual Reactor Trip and Safety Injection was initiated on Unit 1.

At 10:00:

- The following indications were available during diagnostics of EEP-0.0, Reactor Trip or Safety Injection:
  – AFW flow is controlled at an equal value for all SGs to control RCS temperature.
  – Containment pressure is 1.2 psig.
  – All MSIVs are open.

	1A	1B	1C
SG NR level	49%	33%	35%
SG level trend	rising rapidly	slowly rising	slowly rising

At 10:45:

- The crew has progressed through the actions of EEP-3.0, Steam Generator Tube Rupture and the following conditions exist:
  – Containment pressure is 1.2 psig.
  – Normal charging has been aligned.
  – Pressurizer level is 67% and rising.

	1A	1B	1C
SG NR level	39%	41%	40%
SG level trend	slowly rising	slowly lowering	stable

Which one of the following describes the required actions to minimize RCS to secondary leakage per EEP-3.0?

Reference Provided

A. Reduce charging flow ONLY

B. Reduce RCS pressure ONLY

C. Turn on PRZR heaters ONLY

D. Reduce RCS pressure and Reduce charging flow

6. Which one of the following is one of the power supplies to Unit 1 LT-459A, PRZR LVL?

   A. 1A 120VAC Vital panel

   B. 1B 120VAC Vital panel

   C. 1C 120VAC Vital panel

   D. 1D 120VAC Vital panel

7. Which one of the following completes the statement below?

MOV-8701B, 1C RCS LOOP TO 1A RHR PUMP, is powered from ____.

A. 600V MCC 1U

B. 600V MCC 1V

C. 600V MCC 1F

D. 600V MCC 1G

8. Which one of the following completes the statements below?

An "S" signal _(1)_ required to cause MOV-8811A and MOV-8812A, CTMT SUMP TO 1A RHR PUMP, to automatically open when RWST level lowers to 50,000 gal.

This automatic actuation _(2)_ be reset at the MCB.

A. (1) is NOT

(2) CAN

B. (1) is NOT

(2) can NOT

C. (1) IS

(2) CAN

D. (1) IS

(2) can NOT

9. Given the following:

   - Unit 1 has experienced a Large Break LOCA.
   - ESP-1.3, Transfer to Cold Leg Recirculation, has been completed.

   Subsequently:

   - The Shift Supervisor directs the OATC to perform ESP-1.4, Transfer to Simultaneous Cold and Hot Leg Recirculation and the following occurs:
     - Power is lost to the 1G 4160V Bus and will not be restored for 18 hours.

   Which one of the following completes the statement below?

   At the completion of ESP-1.4, the running LHSI pump will be aligned for __(1)__ leg recirculation and the running HHSI pump will be aligned for __(2)__ leg recirculation.

	(1)	(2)
A.	HOT	COLD
B.	COLD	COLD
C.	HOT	HOT
D.	COLD	HOT

10. Per SOP-1.2, Reactor Coolant Pressure Relief System, which one of the following completes the statements below?

During normal operation, the PRT temperature should not exceed a maximum temperature of _(1)_.

The **alternate** method to cooldown the PRT is using _(2)_.

A. (1) 120°F

(2) spray from RMWST and draining to the RCDT

B. (1) 170°F

(2) spray from RMWST and draining to the RCDT

C. (1) 120°F

(2) recirculation through the RCDT heat exchanger

D. (1) 170°F

(2) recirculation through the RCDT heat exchanger

11. Given the following:

- Unit 1 is at 100% power.
- The Unit 1 'B' train Rx Trip Bypass breaker is **closed**.
- The Unit 1 'B' train Rx Trip Breaker is open.

Subsequently:

- A loss of the 'A' Train Auxiliary Building 125V DC Bus occurs.
- The crew takes the MCB Reactor Trip handswitch to TRIP.

Which one of the following completes the statements below?

The 'A' train Rx trip breaker _(1)_ be Open.

The 'B' train Bypass breaker _(2)_ be Open.

	(1)	(2)
A.	will NOT	will NOT
B.	WILL	will NOT
C.	WILL	WILL
D.	will NOT	WILL

12. Given the following:

- A Pressurizer steam space break has occurred on Unit 1.
- Containment pressure has risen to 2 psig and is stable.
- ESP-1.2, Post LOCA Cooldown and Depressurization, is in progress.
- The operating crew is at the step to "Check if normal charging should be established."
  - The 1A Charging pump is running.
  - Subcooling requirements are met.
  - Pressurizer level is 30% and rising.

Which one of the following completes the statements below?

Normal Charging __(1)__ be established with current plant conditions.

Once normal Charging is established, the crew will re-initiate HHSI if subcooling cannot be maintained above __(2)__.

A. (1) can NOT

   (2) 45°F

B. (1) can NOT

   (2) 16°F

C. (1) CAN

   (2) 45°F

D. (1) CAN

   (2) 16°F

13. Given the following:

- Unit 1 is 100% power.

At 1000:

- The On service CCW pump trips on overload.

At 1005:

- A complete loss of offsite power occurs.

Which one of the following completes the statements below?

At 1000, the standby CCW pump _(1)_ automatically start.

At 1006, the standby CCW pump _(2)_ running.

	(1)	(2)
A.	will NOT	is NOT
B.	WILL	is NOT
C.	will NOT	IS
D.	WILL	IS

14. Given the following:

- Unit 1 has experienced a small break LOCA.
- ESP-1.2, Post LOCA Cooldown and Depressurization is in progress.
- The following conditions are observed:
  - Containment pressure is 1.5 psig.
  - Both RHR pumps are running and aligned to the RWST.
  - RCS pressure is 270 psig and stable.

Which one of the following completes the statements below?

Per ESP-1.2, The operating crew _(1)_ required to stop both RHR pumps.

If stopped, the RHR pumps _(2)_ automatically restart if RCS pressure subsequently begins to lower.

	(1)	(2)
A.	IS	will NOT
B.	IS	WILL
C.	is NOT	will NOT
D.	is NOT	WILL

15. Given the following:

- Unit 1 is in MODE 3.
- STP-45.16, PORV Testing Below P11 / Auto SI Blocked is in progress.
- RCS pressure is 1875 psig.

Subsequently:

- PCV445A, PRZR PORV, handswitch is placed in the OPEN position.

Which one of the following completes the statements below?

With PCV-445A handswitch in the OPEN position, PCV-445A _(1)_ automatically close with no further operator action.

The PRT rupture discs will rupture if the pressure in the PRT exceeds a **minimum** of _(2)_.

	(1)	(2)
A.	WILL	100 psig
B.	will NOT	100 psig
C.	WILL	150 psig
D.	will NOT	150 psig

16. What action(s) is(are) required during implementation of ECP-1.1, Loss of Emergency Coolant Recirculation, if the RWST level lowers to 4.5 feet?

A. Attempt to start a RCP.

B. Stop Containment Spray Pumps ONLY.

C. Stop all safeguards pumps taking suction from RWST.

D. Use the PORVs or SPRAYs to rapidly depressurize the RCS and inject the accumulators.

17. Which one of the following completes the statement below?

600V LCC 1N is the power supply for the ____ Pressurizer Heater Group(s).

A. 1A

B. 1B

C. 1C and 1D

D. 1E

18. Given the following:

- Unit 1 is operating at 100% power.
- All control rods are at 227 steps.
- DRPI is aligned to MCC 1D breaker HDN6L, NORMAL power supply.

Subsequently:

- A complete loss of all Offsite power occurs.

Which one of the following completes the statements below 5 minutes after the complete loss of all Offsite power?

Rod bottom lights are __(1)__.

Rod Group step counters indicate __(2)__.

	(1)	(2)
A.	illuminated	227 steps
B.	illuminated	0 steps
C.	extinguished	227 steps
D.	extinguished	0 steps

19. Given the following:

- Unit 1 is at 100% power.

Which one of the following completes the statements below?

As RCS pressure lowers, the _(1)_ trip setpoint lowers.

The Reactor trip selected above is designed to ensure the _(2)_ is not exceeded.

A. 1) OPΔT

2) DNBR limit

B. 1) OPΔT

2) allowable heat generation rate (kW/ft) of the fuel

C. 1) OTΔT

2) DNBR limit

D. 1) OTΔT

2) allowable heat generation rate (kW/ft) of the fuel

20. Which one of the following completes the statements below?

The **minimum** number of Containment Pressure channels that must sense the HI-3 pressure setpoint to generate an automatic Containment Spray Actuation is __(1)__.

The Containment Hi-3 bistables are a(n) __(2)__ to actuate design to initiate a Containment Spray Actuation.

	(1)	(2)
A.	TWO	DEENERGIZE
B.	TWO	ENERGIZE
C.	THREE	DEENERGIZE
D.	THREE	ENERGIZE

21. Which one of the following completes the statements below?

A loss of DRPI input to the plant computer __(1)__ cause FF5, COMP ALARM ROD SEQ/DEV OR PR FLUX TILT, to alarm.

If the plant computer becomes INOPERABLE and cannot be restored for four hours, the operating crew __(2)__ required to perform STP-37.0, Power Distribution Surveillance (Plant Computer Inoperable).

	(1)	(2)
A.	WILL	is NOT
B.	WILL	IS
C.	will NOT	is NOT
D.	will NOT	IS

22. Given the following:

- Unit 1 is operating at 6% power.

Subsequently the 1B RCP trips.

- AOP-4.0, Loss of Reactor Coolant Flow, is in progress.

Which one of the following completes the statements below?

1B Loop Tavg will _(1)_.

A Reactor Trip is required when any loop's Tavg lowers below a **maximum** of _(2)_.

	(1)	(2)
A.	RISE	545°F
B.	RISE	541°F
C.	LOWER	545°F
D.	LOWER	541°F

23. Given the following:

- Unit 1 is operating at 100% power.
- A short circuit occurs in PT-445, PRZR PRESS, instrument output.
- Actual Pressurizer Pressure remains stable.

Which one of the following completes the statement below?

The use of ___ will ensure that PT-445 will not input into the Reactor Protection System.

A. an isolation device

B. a median signal selector

C. an independent control channel

D. a de-energize to actuate bistable

24. Given the following:

- ECP-0.0, Loss of all AC Power, is in progress on Unit 1.
- The TSC has determined that core damage has occurred.
- Several CETCs indicate a short circuit.

Which one of the following completes the statements below?

The CETCs experiencing a short circuit will indicate __(1)__ temperature.

Per ECP-0.0, if the CETCs are inoperable, the operating crew will use __(2)__ to determine if the Severe Accident Guidelines (SAG) are required to be entered.

A. (1) minimum

(2) T_{hot}

B. (1) minimum

(2) T_{cold}

C. (1) maximum

(2) T_{hot}

D. (1) maximum

(2) T_{cold}

25. Given the following:

- Unit 1 was operating at 100% power with the following conditions:
  - 1A is selected on the CTMT CLR FANS A TRN SEL SWITCH.
  - All Containment Cooler fans are running in FAST speed.

At 1000

- A Large Break LOCA occurred with the following conditions:
  - Containment pressure reached 33 psig.
  - A Dual Unit complete loss of Offsite power occurred.
  - EEP-0, Reactor Trip or Safety Injection, is in progress.

At 1010

- The 1A Containment Cooler fan tripped.

Which one of the following completes the statements below at 1010?

Per EEP-0, the operating crew will verify at least one Containment Cooler fan per train is running in _(1)_ speed.

The 1B Containment Cooler _(2)_ automatically start when the 1A Containment Cooler fan trips.

	(1)	(2)
A.	SLOW	will NOT
B.	SLOW	WILL
C.	FAST	will NOT
D.	FAST	WILL

26. Given the following:

- Unit 1 is operating at 100% power.

Subsequently:

- A Feedwater break occurs in Containment and the following is observed:
  - Containment Temperature is 175°F.
  - Containment Pressure is 22 psig.

Which one of the following completes the statement below?

Each Containment cooler will have _(1)_ Service water flow and the fan discharge will be through the _(2)_.

	(1)	(2)
A.	800 gpm	dropout plate
B.	800 gpm	ductwork
C.	2000 gpm	dropout plate
D.	2000 gpm	ductwork

27. Given the following:

At 1000:

- Unit 1 is operating at 100% power.
- Charging flow is 70 gpm.
- Letdown flow is 76 gpm.
- Seal Injection Flow is 8 gpm per RCP.
- RCP # 1 seal leakoff flow is 3 gpm per RCP.

At 1030:

- LCV-459, LTDN LINE ISO, fails closed and cannot be reopened.

At 1045:

- Unit 1 is operating at 100% power.
- AOP-16.0, CVCS Malfunction is in progress.
- Charging flow is 50 gpm.
- Excess Letdown is in service and is at design flow rate.
- Seal Injection Flow is 7gpm per RCP.
- RCP # 1 seal leakoff flow is 3 gpm per RCP.

Which one of the following completes the statements below?

At 1000, the Pressurizer level was _(1)_.

At 1045, per AOP-16.0, the operating crew is required to _(2)_ Charging flow to maintain it on programmed level.

	(1)	(2)
A.	RISING	LOWER
B.	RISING	RAISE
C.	LOWERING	LOWER
D.	LOWERING	RAISE

28. Given the following:

- Unit 1 is in Mode 5
- 1B RHR train is in service in the cooldown mode.
- 1A RHR train is in standby for cooldown.
- 1C CCW pump is tagged out to have the motor rebuilt.
- 1B and 1A CCW pumps are both in operation.

Subsequently:

- The 1A CCW pump trips.

Which one of the following completes the statements below?

AOP-9.0, Loss of Component Cooling Water, __(1)__ applicable in the current Mode.

Per AOP-12.0, Residual Heat Removal System Malfunction, the operating crew __(2)__ required to place the 1A RHR train in the cooldown mode.

	(1)	(2)
A.	IS	is NOT
B.	IS	IS
C.	is NOT	is NOT
D.	is NOT	IS

29. Given the following:

- Unit 1 is operating at 100%.
- AOP-9.0, Loss of Component Cooling Water, is in progress.
- RCP motor bearing temperatures reach 200°F.

Which one of the following completes the statement below per AOP-9.0?

The ON SERVICE train __(1)__ affected

A Reactor trip __(2)__ required.

	(1)	(2)
A.	IS	IS
B.	IS	is NOT
C.	is NOT	IS
D.	is NOT	is NOT

30. Which one of the following completes the statements below?

The 1A Containment Spray (CS) Pump is powered from the ____ 4160V AC bus.

A. 1A

B. 1H

C. 1K

D. 1F

31. Which one of the following completes the statements below during the performance of FRP-S.1, Response to Nuclear Power Generation/ATWT?

The reason(s) for tripping the Main Turbine during an ATWT is to __(1)__.

The **first** verification that the Main Turbine has tripped will be to check Turbine __(2)__ position on TSLB-2.

A. (1) raise RCS pressure to prevent void formation

(2) Throttle Valve

B. (1) raise RCS pressure to prevent void formation

(2) Governor Valve

C. (1) prevent an uncontrolled cooldown of the RCS

(2) Throttle Valve

D. (1) prevent an uncontrolled cooldown of the RCS

(2) Governor Valve

32. Given the following:

- Unit 1 is in Mode 3.
- The appropriate section of SOP-12.2, Containment Purge and Pre-access Filtration System has been completed.

Which one of the following completes the statements below?

The _(1)_ supply and exhaust fans are running and discharging **directly** to the _(2)_.

A. (1) Main Purge

(2) main exhaust plenum

B. (1) Main Purge

(2) plant vent stack

C. (1) Mini purge

(2) main exhaust plenum

D. (1) Mini purge

(2) plant vent stack.

33. Given the following:

- Unit 1 is operating at 100% power.

Which one of the following completes the statements below concerning the Spent Fuel Pool Cooling System for Unit 1?

The RWST is aligned to the __(1)__ for Silica removal.

The RWST silica removal path will automatically isolate if RWST level lowers to a minimum of __(2)__ gallons.

	(1)	(2)
A.	SFP Demineralizer	50,000
B.	SFP Demineralizer	471,000
C.	Boric Acid Recovery System (BARS)	50,000
D.	Boric Acid Recovery System (BARS)	471,000

34. Given the following:

- Unit 2 is at 85% reactor power and stable, holding for chemistry with the following conditions:
  – Rod control is in MANUAL.
  – Main FRV original positions are 68% open.

Subsequently:

- A 50 MW step rise in load occurs.

Which one of the following predicts the **final status** of the Main Feed Regulating Valves (FRVs) position and SG water level?

The Main FRVs will return to a position of __(1)__ .

Each SG NR water level will return to __(2)__.

	(1)	(2)
A.	more than 68% open	the original level
B.	68% open	the original level
C.	more than 68% open	a level higher than the original level
D.	68% open	a level higher than the original level

35. Given the following conditions on Unit 1:

At 1000:

- Mode 6 with core off-load in progress.
- Refueling Cavity level is 153 ft 6 in.

At 1015:

- The Refueling Cavity level is lowering rapidly.

At 1030:

- The Refueling Cavity level is stable.
- Refueling Cavity level is 24 ft. above the Reactor Vessel Flange.

Which one of the following completes the statements below?

At 1015, AOP-30.0, Refueling Accident, (1) required to be entered.

LCO 3.9.6, Refueling Cavity Water Level, (2) required to be entered.

	(1)	(2)
A.	IS	is NOT
B.	is NOT	is NOT
C.	IS	IS
D.	is NOT	IS

36. Given the following:

- Unit 1 is in Mode 3
- AOP-2.0, Steam Generator Tube Leak, is in progress due to a leak In the 1A SG.
- The Control Room crew is preparing for an RCS cooldown.
- 1A MSIV and bypass valves are closed.
- 1A SG pressure is 1035 psig.
- 1B AND 1C SG pressures are 1005 psig.
- Desired subcooling is 32°F.

Which one of the following completes the statements below?

The **highest** temperature that the RCS cooldown will be stopped at is (1).

Per AOP-2.0, the operating crew will use (2) to determine if cooldown is complete.

Reference Provided

	(1)	(2)
A.	519°F	Core exit T/C monitor
B.	515°F	Core exit T/C monitor
C.	519°F	RCS Hot Leg Temperature
D.	515°F	RCS Hot Leg Temperature

37. Given the following:

- Unit 2 is performing the initial heatup of the RCS following a Refueling outage, with the following conditions:
  - RCS temperature is 480°F.
  - All MSIV's are closed.
  - The Unit Operator is preparing to open the MSIV's per SOP-17.0, Main and Reheat Steam.
  - ALL MSIV Bypass valves are open.

Which one of the following completes the statement below?

When warming up the Main Steam header, Main Steam header pressure should be monitored closely to prevent a ____.

A. Low Pressurizer Pressure Reactor Trip

B. Low Steam Line pressure Safety Injection

C. Steam Line Differential pressure Safety Injection

D. High Steam Flow LO-LO Tavg Main Steam Line Isolation

38. Given the following:

- Unit 1 is in Mode 3.
- RCS Tavg is being maintained at 520°F.
- RCS pressure is being maintained at 2235 psig.
- The Steam Dumps are in service in the STM PRESS mode with the following conditions:
  - The Steam Dump interlock Train A and B switches are in ON after both switches were taken to BYP INTLK and released.
  - PK-464, STM HDR PRESS, is in AUTO.

Which one of the following describes the effect of PT-464, STM HDR PRESS, pressure transmitter failing **high**?

A. The RCS will experience a heat up transient which will continue until operator action is taken.

B. The RCS will experience a cooling transient which will continue until operator action is taken.

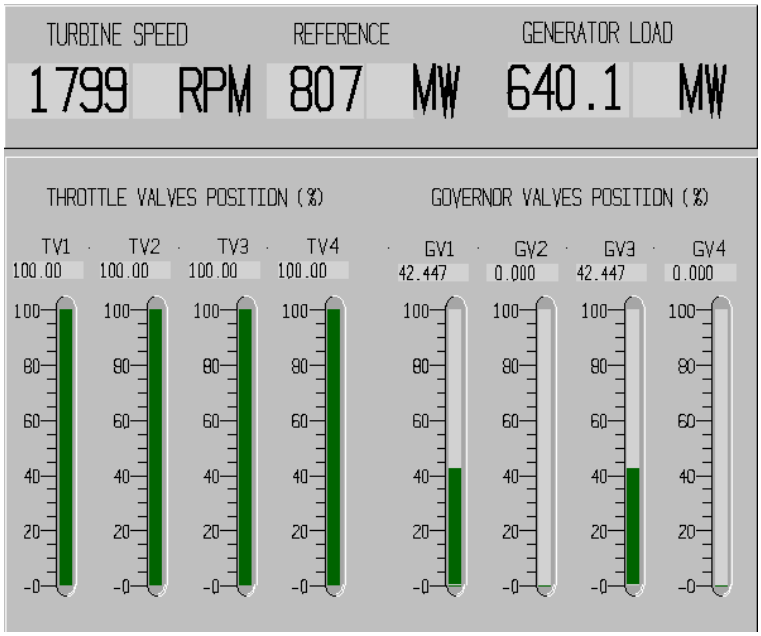
C. The RCS will experience a cooling transient which will be stopped by the automatic closure of the MSIVs on low Steam Generator pressure.

D. The RCS will experience a cooling transient which will be stopped by the automatic closure of the MSIVs due to a high steam flow condition coincident with LO LO Tavg.

39. Given the following:

- Unit 1 is at 68% power and stable.
- #4 Governor valve is closed and EH fluid is isolated to it.
- #2 and #3 Governor valves are open and at 39%

Subsequently, the following indications are observed on the Turbine Control System-Operation Panel.



Which one of the following completes the statements below?

Opposed governor valve closure __(1)__ occurred.

Per AOP-17.0, Turbine Load Reduction, the operating crew is required to __(2)__.

A. (1) has NOT

(2) trip the Reactor

B. (1) has NOT

(2) perform a rapid ramp to ≤ 480 MW

C. (1) HAS

(2) trip the Reactor

D. (1) HAS

(2) perform a rapid ramp to ≤ 480 MW

40. Given the following:

- Unit 2 is operating at 75% power.
- Rod Control is in MANUAL.

Subsequently:

- Lowering Main Condenser vacuum is observed and the following occurs:
  - AOP-8.0, Partial Loss of Condenser Vacuum, is in progress.
  - KK1, TURB COND VAC LO, is in alarm.
  - Condenser vacuum is 3 psia and slowly degrading.
  - Condenser Circ Water Outlet temperature is 90°F and stable.
  - The unit is ramping down per AOP-17.1, Emergent Power Reduction.
  - TAVG-TREF deviation is -4°F.

Which one of the following completes the statements below?

Per AOP-17.1, rods __(2)__ allowed to be withdrawn to raise TAVG.

Per AOP-8.0, the operating crew will reduce Main Turbine load as necessary __(1)__.

A. (1) are NOT

(2) to maintain condenser pressure at or below the KK1 setpoint

B. (1) ARE

(2) to maintain condenser pressure at or below the KK1 setpoint

C. (1) are NOT

(2) to stabilize and hold condenser pressure at its current value

D. (1) ARE

(2) to stabilize and hold condenser pressure at its current value

41. Given the following:

- Unit 1 is at 100% power.

Subsequently:

- A large feed header rupture occurs at the outlet of MOV-3232A, MFW to 1A SG STOP VLV.

Which one of the following completes the statements below?

Prior to the Reactor trip, RCS Tavg will __(1)__.

The Reactor will automatically trip on __(2)__.

Assume no operator action

A. (1) RISE

(2) Low Low SG Water Level

B. (1) RISE

(2) Low Steam Line pressure

C. (1) LOWER

(2) Low Low SG Water Level

D. (1) LOWER

(2) Low Steam Line pressure

42. Given the following:

- Unit 1 is operating at 100%.

Subsequently:

- A complete loss of Offsite Power occurs.
- ESP-0.2, Natural Circulation Cooldown to Prevent Reactor Vessel Head Steam Voiding, is in progress.

Which one of the following completes the statements below?

After the RCPs coast down, when natural circulation flow begins, loop ΔT will __(1)__ .

Per ESP-0.2, the number of available __(2)__ affects the required RCS subcooling that must be maintained during the natural circulation cooldown.

	(1)	(2)
A.	RISE	Containment Coolers
B.	RISE	CRDM Cooling fans
C.	LOWER	Containment Coolers
D.	LOWER	CRDM Cooling fans

43. Given the following:

- Unit 1 is operating at 100% power with the following conditions:
  - A Steam leak occurs inside Containment.
  - A manual Reactor trip was initiated.
  - Tavg is 545°F.

Subsequently:

- A Safety Injection is manually actuated.

Which one of the following completes the statements below?

The **initial** Feedwater Isolation was caused by (1) .

After the Safety Injection, depressing the FW ISO RESET A and B TRN buttons (2) allow the FRVs to be reopened.

A. (1) the Safety Injection

(2) WILL

B. (1) the Safety Injection

(2) will NOT

C. (1) the P-4 signal with Lo Tavg

(2) WILL

D. (1) the P-4 signal with Lo Tavg

(2) will NOT

44. Given the following:

At 1000:

- Unit 1 was operating at 100%
  STP-22.12, Motor Driven Auxiliary Feedwater Check Valves Flow Verification, is in progress with the following conditions:
  – 1A MDAFW pump is running.
  – FI-3229, AFW Total Flow, reads 295 gpm.
  – All MDAFW Pump FCV Handswitches are in MOD.
  – MDAFWP Flow control valves are throttled as follows:
    - HIC-3227AA, MDAFWP TO 1A SG FLOW CONT - 81%
    - HIC-3227BA, MDAFWP TO 1B SG FLOW CONT - 0%
    - HIC-3227CA, MDAFWP TO 1C SG FLOW CONT - 0%

At 1002:

- The 1A MDAFW pump trips.

At 1005:

- Both SGFPs trip.

Which one of the following completes the statements below?

At 1002, the 1B MDAFW pump _(1)_ automatically start.

At 1005, FCV-3227A, MDAFWPUMP TO STM GEN 1A, will _(2)_ Open.

A. (1) WILL

   (2) go to 100%

B. (1) WILL

   (2) stay at 81%

C. (1) will NOT

   (2) go to 100%

D. (1) will NOT

   (2) stay at 81%

45. Given the following

- Unit 2 is at 38% power.
- The 'A' Train is On Service.
- STP-80.1, Diesel Generator 2B Operability Test, is in progress.
- 2B DG is running at full load on Unit 2.

Subsequently:

- A loss of the B Train SW header occurs due to a rupture on the supply header resulting in the following conditions:

- AOP-10.0, Loss of Train A or B Service Water, is implemented.
- PI-3001A, SW TO CCW HX HDR PRESS, is 68 psig.
- PI-3001B, SW TO CCW HX HDR PRESS, is 0 psig.

Which one of the following completes the statements below per AOP-10.0?

The operating crew _(1)_ required to secure 2B DG.

The operating crew _(2)_ required to start the 'A' train Charging pump.

	(1)	(2)
A.	IS	IS
B.	IS	is NOT
C.	is NOT	IS
D.	is NOT	is NOT

46. Given the following:

- DF13, 1H 4160 V bus tie to 1F 4160 V bus, tripped.
- Service Water temperature is 70°F.

Which one of the following completes the statements below?

__(1)__ automatically started as a direct result of this fault.

The 2000 hour load limit for the Diesel Generator selected above is __(2)__.

	(1)	(2)
A.	1-2A DG	4353 KW
B.	1C DG	4353 KW
C.	1-2A DG	3100KW
D.	1C DG	3100 KW

47. Given the following:

- Unit 2 is operating at 25% power.
- 2A, 2B and 2C 4160V buses are being powered from the Startup Transformers.

Subsequently:

- 2A Startup Transformer becomes de-energized.

Which one of the following completes the statements below?

The _(1)_ is(are) **tripped**.

An automatic Reactor trip _(2)_ occur.

	(1)	(2)
A.	2A RCP	WILL
B.	2A RCP	will NOT
C.	2B and 2C RCPs	WILL
D.	2B and 2C RCPs	will NOT

48. Given the following:

- Unit 1 is in MODE 3.
- PC-3371A/B/C, 1A/B/C MS ATMOS REL VLV, are at 10% demand.
- Breaker LA05, 1A 125V BATTERY (NORMAL), is tagged open for maintenance.

Subsequently:

- A ground occurs on the 1A 125V DC bus and the following occurs:
  – Breaker LA09, 1A BATTERY CHARGER (NORMAL), trips open.

Which one of the following completes the statements below?

The Main Steam Atmospheric Relief Valves __(1)__ fail closed.

The Main Steam Atmospheric Relief Valves __(2)__ be operated from the Lower Equipment Room.

	(1)	(2)
A.	WILL	can NOT
B.	WILL	CAN
C.	will NOT	can NOT
D.	will NOT	CAN

49. Given the following:

- Unit 1 has tripped due to a complete loss of Offsite power.

Which one of the following signals will trip the 1B Emergency Diesel Generator?

A. High Lube Oil temperature

B. High Crankcase pressure

C. Generator Phase Differential

D. High Jacket Water temperature

50. Given the following:

- Unit 1 was operating at 100% power and the following occurs:
  - The Fuel Oil Storage Tank (FOST) for 1-2A DG is **empty.**
  - The Fuel Oil Day Tank for 1-2A DG is **full.**

Which one of the following completes the statement below?

With **no** operator action, the 1-2A DG will run at full load for ____.

A. 2 hours

B. 3 hours

C. 4 hours

D. 24 hours

51. Given the following:

- Unit 1 is operating at 100%.

Subsequently:

- A complete loss of Instrument Air has occurred.

Which one of the following completes the statements below?

SG NR levels will __(1)__.

Per AOP-6.0, Loss of Instrument Air, the operating crew will align emergency air to the __(2)__ using SOP-62.0, Emergency Air System.

A. (1) LOWER

(2) MDAFW pump Flow Control Valves

B. (1) RISE

(2) MDAFW pump Flow Control Valves

C. (1) LOWER

(2) TDAFW pump Flow Control Valves

D. (1) RISE

(2) TDAFW pump Flow Control Valves

52. Given the following:

- Unit 1 has entered AOP-28.0, Control Room Accessibility.
- The operating crew has manned the Hot Shutdown Panels (HSDP).

Which one of the following completes the statements below?

Per AOP-28.0, the operating crew will initially adjust HIK-122, CHG FLOW to __(1)__.

If letdown automatically isolates, LCV-459 and LCV-460, LTDN LINE ISO, __(2)__ be reopened from the HSDP.

	(1)	(2)
A.	50%	can NOT
B.	50%	CAN
C.	100%	can NOT
D.	100%	CAN

53. Given the following:

- Unit 1 is operating at 100% when the following occurs:
  – R-19, SGBD SAMPLE, fails HIGH.

Which one of the following completes the statements below?

If open, __(1)__ valves will automatically close.

Per SOP-45.0, Radiation Monitoring System, the action required to obtain a sample of the SGs is to __(2)__.

A. (1) HV-3328, HV-3329 AND HV-3330, STEAM GEN 1A/1B/1C SAMPLE ISO,

(2) remove the INSTRUMENT power fuses for R-19

B. (1) HV-3328, HV-3329 AND HV-3330, STEAM GEN 1A/1B/1C SAMPLE ISO,

(2) place the R-19 Operations Selector Switch in the RESET position

C. (1) HV-3179A, 3180A, AND 3181A, STEAM GEN 1A/1B/1C LOWER BLOWDOWN,

(2) remove the INSTRUMENT power fuses for R-19

D. (1) HV-3179A, 3180A, AND 3181A, STEAM GEN 1A/1B/1C LOWER BLOWDOWN,

(2) place the R-19 Operations Selector Switch in the RESET position

54. Given the following:

<u>At 1000</u>:

- Unit 1 is operating at 75% power.
- FG5, GFFD SYS TRBL, is in alarm.
- The GFFD indicates 1.2×10^5 cpm above background.
- AOP-32.0, High Reactor Coolant Activity, is in progress.

Which one of the following completes the statements below at 1000?

A power reduction <u>(1)</u> required.

The instrumentation available per TS 3.3.3, Post Accident Monitoring (PAM) Instrumentation is(are) <u>(2)</u>.

A. (1) is NOT

(2) R-27A and R-27B, Containment (High Range)

B. (1) is NOT

(2) R-2, CTMT 155 FT

C. (1) IS

(2) R-27A and R-27B, Containment (High Range)

D. (1) IS

(2) R-2, CTMT 155 FT

55. Given the following:

- Unit 1 is operating at 100% power.
- 'A' Train is On service.

At 1000:

- PI-3001A, SW TO CCW HX HDR PRESS, indicates 40 psig.

At 1005:

- The Outside SO reports an abnormal noise from the 1B SW pump.
- The UO secures the 1B SW pump.

Which one of the following completes the statements below?

At 1000, AD4, SW PRESS A TRN LO, (1) in alarm.

In order to minimize SW loads on the affected train, AOP-10, Loss of Service Water, will direct isolating SW to (2) .

A. (1) IS

(2) Steam Generator Blowdown

B. (1) IS

(2) RCP Motor Air Coolers

C. (1) is NOT

(2) Steam Generator Blowdown

D. (1) is NOT

(2) RCP Motor Air Coolers

56. Given the following:

- Unit 1 is at 100% power.
- Generator reactive load is currently at "0" MVARs.
- ACC has notified the plant that system voltage problems require UNIT 1 to establish maximum allowable incoming reactive load (MVARS in).

Which one of the following completes the statements below?

The operator will __(1)__ voltage to a establish the maximum allowable incoming reactive load.

Per UOP-3.1, Power Operation, the switch that will be used to establish the maximum allowable incoming reactive load is the __(2)__ Voltage Adjust Switch.

	(1)	(2)
A.	RAISE	Manual
B.	RAISE	Auto
C.	LOWER	Manual
D.	LOWER	Auto

57. Given the following:

- MOV-514, 515, 516 AND 517, SW to TURB BLDG ISOs have inadvertently closed.

Which one of the following completes the statements below?

The Service Air Compressors __(1)__ have cooling water supplied.

A back up source of cooling to the Condensate pumps __(2)__ be aligned.

	(1)	(2)
A.	DO	CAN
B.	DO	can NOT
C.	do NOT	CAN
D.	do NOT	can NOT

58. Which one of the following completes the statements below?

~~TCV-3083, LTDN HX CCW TEMP CONTROLLER~~, fails _(1)_ on a loss of air.

This will result in adding _(2)_ reactivity.

	(1)	(2)
A.	OPEN	POSITIVE
B.	OPEN	NEGATIVE
C.	CLOSED	POSITIVE
D.	CLOSED	NEGATIVE

TV3083, LTDN HX COMPONENT COOLING WATER DISCH TCV

59. Given the following:

- Unit 2 is at 100% power.
- Containment average air temperature is 125°F.

Which one of the following completes the statements below?

A REQUIRED ACTION statement of LCO - 3.6.5 Containment Air Temperature, _(1)_ required to be entered.

Per SOP-12.1, Containment Air Cooling System, MOV-3024A (B, C, D), EMER SW FROM 2A(2B, 2C, 2D) CTMT CLR VALVES, _(2)_ be opened to lower Containment temperature.

	(1)	(2)
A.	IS	can NOT
B.	IS	CAN
C.	is NOT	can NOT
D.	is NOT	CAN

60. Which one of the following completes the statements below Per NMP-OS-007-003, Plant Operating Orders?

(1) are Temporary instructions issued to plant operating personnel that address subjects NOT covered by existing plant operating procedures.

Night Orders and Standing Orders (2) deviate from plant design or regulatory documents.

	(1)	(2)
A.	Standing Orders	CAN
B.	Standing Orders	can NOT
C.	Night Orders	CAN
D.	Night Orders	can NOT

61. Given the following:

- Operations is preparing to rack out a circuit breaker
- The remote breaker racking tool is **not** available.
- SOP-36.6, Circuit Breaker Racking Procedure, Attachment 1, Electrical Safety Checklist for OPS Activities, is being performed.

Which one of the following completes the statements below?

A second qualified individual __(1)__ required to be at this activity.

Hearing protection __(2)__ required for this activity.

	(1)	(2)
A.	is NOT	is NOT
B.	is NOT	IS
C.	IS	is NOT
D.	IS	IS

62. Unless otherwise directed by procedure, which one of the following completes the statements below per NMP-OS-007-001, Conduct of Operations Standards and Expectations?

Prior to **manual** operation, the power supply breaker to an MOV _(1)_ required to be opened.

To throttle a manual valve, the valve is to be fully _(2)_ then placed in the appropriate position.

	(1)	(2)
A.	is NOT	CLOSED
B.	is NOT	OPENED
C.	IS	CLOSED
D.	IS	OPENED

63. Unit 1 is operating at 100% power when the following occurs:

- STP-4.1, 1A Charging Pump Quarterly Inservice Test, is in progress.
- 1A Charging pump failed to start when the handswitch was taken to START.

Which one of the following are the required actions per NMP-OS-007-001, General Instructions to Operations Personnel?

A. Write a condition report documenting the event and contact Maintenance.

B. Obtain Shift Manager's permission, take the handswitch to START a second time, and then write a condition report to document the event.

C. Rackout and perform a visual inspection of the circuit breaker and then write a condition report to document the event.

D. Take the handswitch to START a second time and then write a condition report to to document the event.

64. Which one of the following completes the statements below per the BASES of SL 2.1.1, Reactor Core Safety Limit (SL)?

Overheating of the fuel cladding is prevented by restricting fuel operation to within the _(1)_ boiling region.

The proper functioning of the Reactor Protection System (RPS) and _(2)_ prevents violation of the reactor core SLs.

	(1)	(2)
A.	nucleate	Main Steam Safety Valves
B.	nucleate	Auxiliary Feedwater
C.	film	Main Steam Safety Valves
D.	film	Auxiliary Feedwater

65. Which one of the following completes the statements below regarding access to the Dry Cask Storage Radiation Controlled Area (RCA)?

For routine access, the normal method for entry into the Dry Cask Storage RCA is _(1)_ per FNP-0-AP-42.0, Radiological Protection Access Control.

Upon exiting the Dry Cask Storage RCA, the operator _(2)_ required to be scanned via the main RCA exit whole body monitor per NMP-HP-302, Restricted Area Classification, Postings, and Access Control.

A. 1) using an RCA access terminal

2) IS

B. 1) using an RCA access terminal

2) is NOT

C. 1) manual log in via RP

2) IS

D. 1) manual log in via RP

2) is NOT

66. You are assigned a task:

- Your current TEDE is 1500 mrem.
- Dose rate in the area you are required to work is 750 mr/hr.

Which one of the following is the **maximum** amount of time you can stay in the area without exceeding the FNP TEDE limit?

A. 40 minutes

B. 200 minutes

C. 240 minutes

D. 280 minutes

67. Given the following:

- The operating crew is performing the actions of AOP-29.0, Plant Fire.
- The Fire Protection Water System is in use.

Which one of the following completes the statements below?

The operating crew is required to verify the _(1)_ water system is aligned to the Fire Protection Water Storage Tanks.

If unable to maintain level in the Fire Protection Storage Tanks,
then _(2)_ Service Water is required to be aligned to the Fire Protection System.

	(1)	(2)
A.	SANITARY	Unit 2
B.	WELL	Unit 2
C.	SANITARY	Unit 1
D.	WELL	Unit 1

68. Given the following:

- ECP-0.0, Loss of All AC Power, is in progress on Unit 1.
- The Shift Supervisor dispatches operators to minimize DC loads per Attachment 5, Non Essential DC Loads.

Which one of the following completes the statement below?

One of the loads that will be de-energized by the operators is the __(1)__.

Minimizing DC loads per Attachment 5 will extend the availability of the __(2)__.

	(1)	(2)
A.	Waste Gas Panel	MCB Indications
B.	Waste Gas Panel	TDAFWP
C.	SPDS Computer System	MCB Indications
D.	SPDS Computer System	TDAFWP

69. Given the following:

- An ALERT has been declared on Unit 1.
- The OATC has been directed to perform NMP-EP-142-F09, ALERT Public Address (PA) Announcement Script.

Which one of the following completes the statements below in accordance with NMP-EP-142-F09?

Emergency Response Personnel _(1)_ required to report to their Emergency Response Facility.

The PA announcement for the ALERT is required to be repeated at a **minimum** of every _(2)_ minutes.

	(1)	(2)
A.	ARE	15 minutes
B.	are NOT	15 minutes
C.	ARE	60 minutes
D.	are NOT	60 minutes

70. Given the following:

- ECP-1.2, LOCA Outside Containment, has been completed and the following is observed:
  – RCS pressure is slowly lowering.

Subsequently:

- A transition is made to ECP-1.1, Loss of Emergency Coolant Recirculation.

Which one of the following describes the reason that a transition was made to ECP-1.1?

A. To take additional actions to isolate the break.

B. To take appropriate actions to recover the plant after the break is isolated.

C. To take compensatory actions for lack of inventory in the Containment Sump.

D. To maximize SI flow to ensure core cooling and stabilize RCS pressure to maintain subcooling.

71. Given the following:

At 1000

- A spurious Reactor trip has occurred on Unit 1.
- FRP-H.1, Response to Loss of Secondary Heat Sink, is in progress.
- The operating crew is attempting to establish Condensate flow to the SGs.
- The UO is depressurizing the SGs.

At 1015

- All SGs are at the required pressure per FRP-H.1.
- SG WR levels are as follows:
  - 1A SG: 29% and slowly lowering.
  - 1B SG: 29% and slowly lowering.
  - 1C SG: 29% and slowly lowering.

Which one of the following completes the statements below per FRP-H.1?

At 1000, the UO will prevent excessive opening of the Steam Dumps during the SG depressurization to _(1)_.

At 1015, RCS Bleed and Feed criteria _(2)_ met.

A. (1) prevent an automatic Main Steam Line isolation

   (2) is NOT

B. (1) prevent an automatic Main Steam Line isolation

   (2) IS

C. (1) prevent exceeding a 100°F in any 60 min cooldown rate

   (2) is NOT

D. (1) prevent exceeding a 100°F in any 60 min cooldown rate

   (2) IS

72. Given the following:

- FRP-C.2, Response to Degraded Core Cooling, is in progress.
- ECCS flow cannot be established.
- The crew is depressurizing ALL Steam Generators to 160 psig.
- The STA reports a RED condition on the Integrity CSF Status Tree.

Which one of the following completes the statements below?

The RED condition on the Integrity CSF Status Tree is due to __(1)__.

FRP-P.1, Response to Imminent Pressurized Thermal Shock Conditions, is required to be entered __(2)__.

A. (1) cooling down at the maximum attainable rate

(2) immediately

B. (1) Accumulators injecting

(2) immediately

C. (1) cooling down at the maximum attainable rate

(2) upon completion of FRP-C.2

D. (1) Accumulators injecting

(2) upon completion of FRP-C.2

73. Given the following:

- Unit 1 is performing FRP-P.1, Response to Imminent Pressurized Thermal Shock Condition.
- The crew has determined that a soak is required.

Which one of the following completes the statements below?

The operating crew is required to maintain RCS _(1)_ stable for the duration of the soak.

The soak allows thermal gradients to be reduced, thus reducing corresponding _(2)_ stresses on the Reactor vessel inner wall which are most limiting.

A. (1) temperature **only**

(2) compressive

B. (1) temperature **and** pressure

(2) compressive

C. (1) temperature **only**

(2) tensile

D. (1) temperature **and** pressure

(2) tensile

74. Given the following:

- Unit 1 is in ESP-1.3, Transfer to Cold Leg Recirculation, and CS pumps are aligned to the containment sump.

Subsequently:

- ECP-1.3, Loss of Emergency Coolant Recirculation Caused by Sump Blockage, has been entered.
- Both Charging pumps have been secured.
- Both RHR pumps continue to have oscillating amps, discharge pressure and flow.

Which one of the following completes the statements below?

Per ECP-1.3, the operating crew is required to __(1)__.

While in ECP-1.3, FRPs __(2)__ required to be implemented.

A. (1) immediately secure both RHR pumps

(2) are NOT

B. (1) immediately secure both RHR pumps

(2) ARE

C. (1) reduce RHR flow by throttling FCV-605A(B), 1A(B) RHR HX BYP FLOW, for the 1A(B) RHR pump

(2) are NOT

D. (1) reduce RHR flow by throttling FCV-605A(B), 1A(B) RHR HX BYP FLOW, for the 1A(B) RHR pump

(2) ARE

75. Given the following:

- ECP-2.1, Uncontrolled Depressurization of All Steam Generators, is in progress.
- Containment pressure is 8 psig and rising.
- AFW flow to each SG has been throttled to 20 gpm due to excessive plant cooldown.

Per ECP-2.1, which one of the following conditions would require **raising** AFW flow to more than 20 gpm?

A. RCS pressure is rising.

B. RCS subcooling is degrading.

C. A RED path occurs on Heat Sink.

D. RCS Hot leg temperatures are rising.

Step	Action/Expected Response	Response NOT Obtained

****

CAUTION: To prevent release of radioactivity to the environment, RCS and ruptured SG(s) pressures must be maintained less than the ruptured SG(s) atmospheric relief valve setpoint (1035 psig).

****

___31 **[CA] Control RCS parameters to minimize RCS to secondary leakage.**

31.1 Perform appropriate action(s) from table.

		RUPTURED SG(s) NR LEVEL		
		Rising	Falling	Offscale high
PRZR LEVEL	Less than 25% {50%}	• Raise charging flow. • Reduce RCS pressure.	• Raise charging flow.	• Raise charging flow. • Maintain RCS and ruptured SG(s) pressures equal.
	Between 25%{50%} and 60%{60%}	• Reduce RCS pressure.	• Turn on PRZR heaters.	• Maintain RCS and ruptured SG(s) pressures equal.
	Between 60%{60%} and 73%{66%}	• Reduce RCS pressure. • Reduce charging flow.	• Turn on PRZR heaters.	• Maintain RCS and ruptured SG(s) pressures equal.
	Greater than 73%{66%}	• Reduce charging flow	• Turn on PRZR heaters.	• Maintain RCS and ruptured SG(s) pressures equal.

Step 31 continued on next page.

Farley 2021-301 Written Answer Key

1. B	26. C	51. A
2. A	27. A	52. A
3. A	28. B	53. B
4. B	29. A	54. C
5. D	30. D	55. A
6. A	31. C	56. D
7. B	32. C	57. A
8. C	33. D	58. A
9. D	34. A	59. B
10. A	35. A	60. B
11. C	36. A	61. D
12. D	37. C	62. C
13. D	38. B	63. A
14. C	39. D	64. A
15. B	40. A	65. A
16. C	41. A	66. A
17. D	42. B	67. B
18. C	43. D	68. A
19. C	44. C	69. C
20. B	45. A	70. C
21. B	46. D	71. A
22. D	47. C	72. D
23. C	48. B	73. D
24. A	49. C	74. C
25. A	50. C	75. D