1. Given the following:

   - A reactor trip occurs on Unit 1.
   - ES-0.1, "Reactor Trip Response," has been implemented.
   - Shutdown Bank 'B' rod G3 remains at 228 steps.
   - Control Bank 'D' rod M8 sticks at 16 steps while inserting.
   - Tavg dropped to 549°F before stabilizing.

   Which ONE of the following completes the statement below?

   Conditions indicate Immediate Boration is _____ to satisfy Shutdown Margin.

   A. **NOT** required

   B. required due to the RCS temperature ONLY

   C. required due to the stuck control rods ONLY

   D. required due to the RCS temperature and the stuck control rods

2. Given the following:

   - Unit 1 is operating at 100% power with Pressurizer Heater Group C energized.

   - Pressurizer PORV 68-340A leakage exceeds spray flow.

   Which ONE of the following completes the statement below?

   Assuming **NO** operator action, 1-TI-68-318, PZR SURGE LINE TEMP, indication will __(1)__ and the Tech Spec Operational Leakage limit would be exceeded when the leakage reached __(2)__.

	(1)	(2)
A.	Rise	>1.0 gpm
B.	Rise	>10 gpm
C.	Lower	>1.0 gpm
D.	Lower	>10 gpm

3. Given the following:

   - Unit 1 is operating at 18% power.
   - RCP #2 motor winding temperatures have increased to 304°F.

   Which ONE of the following identifies the action required and the reason for the sequence?

   A. Trip the reactor and then stop RCP #2 because the unit will not be operated on 3 loop operation in Modes 1 or 2 due to conservative industry operating principles.

   B. Trip the reactor and then stop RCP #2 because Tech Spec LCO 3.4.4 does not allow 3 loop operation with the Unit in Mode 1.

   C. Stop RCP #2 and then trip the reactor because the challenge is to the pump and there is no challenge to DNB during 3-loop operation at the current reactor power level.

   D. Stop RCP #2 and then trip the reactor because the challenge is to the pump and stopping the pump does not challenge the reactor trip system at the current reactor power level.

4. Given the following:

   - Unit 1 is operating at 100% power.
   - The C-S CCS Pump trips while supplying the B Train CCS.
   - Operators have not taken any action.

   Which ONE of the following completes the statements below?

   To restore flow, the 2B-B CCS pump __(1)__.

   If the 1B-B CCS pump is used to supply B Train CCS, its suction valve must be re-aligned to__(2)__.

A. (1) must be manually started
   (2) protect train separation within the CCS surge tank

B. (1) must be manually started
   (2) ensure a suction path to the 1B-B CCS pump

C. (1) will automatically start
   (2) protect train separation within the CCS surge tank

D. (1) will automatically start
   (2) ensure a suction path to the 1B-B CCS pump

5. Given the following:

   - Unit 1 is operating at 100% power.
   - 1-XS-68-340D, PZR PRESS CONTROL CHANNEL SELECT, is selected to PT-68-340 & 334.
   - 1-XS-68-340B, PZR PRESS RECORDER CHANNEL SELECT, is selected to PT-68-334.
   - 1-PI-68-334, PRESSURIZER PRESSURE, fails to the bottom of the scale due to transmitter failure.
   - The other three pressurizer pressure instruments indicate:

     1-PI-68-340A - 2235 psig
     1-PI-68-323 - 2220 psig
     1-PI-68-322 - 2230 psig

   - Operators are performing AOI-18, "Malfunction of Pressurizer pressure Control System," and have placed 1-XS-68-340D, PZR PRESS CONTROL CHANNEL SELECT, to PT-68-340 B322.

   Which ONE of the following identifies how 1-XS-68-340B, PZR PRESS RECORDER CHANNEL SELECT, will be positioned and the reason why?

   A. PT-68-323 because it is the channel with the lowest reading.

   B. PT-68-322 because it is the channel replacing the control function of 1-PT-68-334.

   C. PT-68-323 or PT-68-322 because neither is the channel selected for control.

   D. Any position other than PT-68-334 because each is an operable channel.

6. Given the following:

   - Unit 1 is at 45% power when the reactor fails to trip from a valid trip signal and cannot be tripped from the MCR handswitches.
   - FR-S.1, "Nuclear Power Generation/ATWS," is entered and the immediate actions are in progress.
   - RCS Tavg is 548°F and dropping.

   Which ONE of the following completes the statement below?

   Both MFPTs will be tripped by a Feedwater Isolation Signal _____ is/are opened.

   A. after the first reactor trip breaker

   B. after the first MG set output breaker

   C. only after both reactor trip breakers

   D. only after both MG set output breakers

7. The following conditions exist on Unit 1:

   - A S/G tube rupture is in progress.
   - The crew is backfilling at 125 gpm per ES-3.1, "Post-SGTR Cooldown Using Backfill."
   - A 75 gpm and the 45 gpm orifices are in service.
   - The TSC has requested the crew to reduce the backfill rate from 125 gpm to 75 gpm.

   Which ONE of the following actions would the crew take to reduce the backfill rate?

   A. Lower RCS pressure

   B. Raise RCS pressure

   C. Lower ruptured SG pressure

   D. Raise ruptured SG pressure

8. Given the following:

   - Unit 1 is operating at 75% power steady-state conditions.
   - A steam line leak occurs on a steam header outside the north valve room.

   Which ONE of the following completes the statement below?

   _____(1)_____ is the time in core life that results in the largest addition of positive reactivity and a manual reactor trip is required in accordance with AOI-38, "Main Steam or Feedwater Leak," if _____(2)_____.

	(1)	(2)
A.	BOL	final reactor power rises to 79%
B.	BOL	Tavg/Tref cannot be maintained within 4°F
C.	EOL	final reactor power rises to 79%
D.	EOL	Tavg/Tref cannot be maintained within 4°F

9. Given the following:

   - Unit 1 is operating at 100% power when an ATWS occurs.

   Which ONE of the following completes the statement below?

   To ensure long term reactor protection, the AFW pumps are assumed to be started within a maximum of ___(1)___ and the limiting ATWS accident which determines this maximum AFW start time is ____(2)____.

	(1)	(2)
A.	30 seconds	turbine trip
B.	30 seconds	loss of main feedwater
C.	60 seconds	turbine trip
D.	60 seconds	loss of main feedwater

10. Given the following:

- Unit 1 is in Mode 3 following a loss of offsite power 20 minutes ago.
- Both of the Unit 1 diesel generators failed to start.
- A fire on the lower level of the Control Building results in the loss of both 250v DC Station Batteries.

Which ONE of the following completes the statement below?

The MCR will be able to monitor Core Exit Thermocouples on _____(1)_____ and to prevent entry into a REQUIRED ACTION in Tech Spec LCO 3.3.3, Post Accident Monitoring, a minimum of _____(2)_____ operable thermocouples per train are required.

A. (1) Plasma displays on the control board or Integrated Computer System (ICS)
(2) 2 quadrants with at least 4

B. (1) Plasma displays on the control board or Integrated Computer System (ICS)
(2) 4 quadrants with at least 2

C. (1) Plasma Displays ONLY
(2) 2 quadrants with at least 4

D. (1) Plasma Displays ONLY
(2) 4 quadrants with at least 2

11. Which ONE of the following identifies the pump that will be sequenced on first following a blackout signal on a 6900v Shutdown board and a reason?

	First Pump	Reason
A.	CCP	Largest blackout load on the board.
B.	CCP	To restore Reactor Coolant Pump seal cooling.
C.	ERCW pump	Largest blackout load on the board.
D.	ERCW pump	To restore Diesel Generator engine cooling.

12. Given the following:

- Unit 1 is operating at 100% power.
- A loss of 125V DC Vital Battery Board III occurs.
- Operators are performing AOI-21.03, "Loss of 125V DC Vital Battery Board III," Appendix A, "Transfer of 125v DC Buses."

Which ONE of the following completes the statements below?

The operator is directed to 'DEPRESS and HOLD' the 6.9kV SD Bd 2A-A BO-RESET switch in logic Panel 2A-A when control power is being restored to Shutdown Board 2A-A to _____(1)_____.

The switch to transfer the 6.9kV SD Bd 2A-A 125V DC NORMAL BUS power supply is located _____(2)_____.

A. (1) prevent inadvertent equipment tripping
(2) inside the 125V DC Vital Battery Board III room

B. (1) prevent inadvertent equipment tripping
(2) inside a compartment on 6.9kV Shutdown Board 2A-A

C. (1) prevent unwanted starts of equipment
(2) inside the 125V DC Vital Battery Board III room

D. (1) prevent unwanted starts of equipment
(2) inside a compartment on 6.9kV Shutdown Board 2A-A

13. Given the following:

- Unit 1 is operating at 100% power.
- All available Train A ERCW pumps are in service.
- ERCW pump B-A trips.

Which ONE of the following completes the statements below?

If needed to maintain CCS temperature on the Unit 1 Miscellaneous Equipment Header, the CCS heat exchanger ___(1)___ outlet flow control bypass valve will be adjusted. As the valve is adjusted, the ERCW flow rate on CCS Heat Exchanger B will ___(2)___.

	(1)	(2)
A.	C	drop
B.	A	drop
C.	C	remain constant
D.	A	remain constant

14. Given the following:

- Unit 1 is currently in Mode 3, with the reactor trip breakers open.
- A control air leak develops inside containment.
- 1-FCV-62-86, Alt Charging to Loop 4, is in service and 1-FCV-62-85, Norm Charging to Loop 1, begins drifting open.
- AOI-10, "Loss of Control Air," is entered.
- The operating crew stops RCPs #1, #3, and #4 in accordance with AOI-10 guidance.

Which ONE of the following completes the statement below?

The leak is on the ___(1)___ header and stopping the RCPs will ___(2)___.

	(1)	(2)
A.	Auxiliary Air Train B	reduce the increase in the pressurizer level
B.	Auxiliary Air Train B	stop uncontrolled pressurizer spray flow
C.	Non-essential Control Air	reduce the increase in the pressurizer level
D.	Non-essential Control Air	stop uncontrolled pressurizer spray flow

15. Given the following:

- Unit 1 is operating at 100% power with the following conditions:

  Megawatts 1210 MWe
  Megavars +20 Mvars
  Gen Voltage 23.6 Kv

- A disturbance occurs on the Transmission Grid resulting in the following:

  Megawatts 1210 MWe
  Megavars -180 Mvars
  Gen Voltage 23.6 Kv

- Annunciator 1-C, STATOR TEMP HI, alarms.

- The Stator Coil Outlet temperature is determined to be 177°F and rising at 2°F/minute.

Which ONE of the following completes the statements below?

Under the conditions, the timer to trip the turbine ___(1)___ been initiated.

The stator temperature can be reduced by ___(2)___ generator excitation current.

	(1)	(2)
A.	has	lowering
B.	has	raising
C.	has **NOT**	lowering
D.	has **NOT**	raising

16. Given the following:

- Unit 1 was operating at 100% power when a small break LOCA occurred.
- The crew has implemented ECA-1.2, "LOCA Outside Containment," due to alarm "AUX BLDG HIGH ENERGY LINE BREAK" being LIT.
- When the crew closes RHR Train A cold leg injection valve, 1-FCV-63-93, the RCS pressure begins to rise.
- RCS pressure is now 1520 psig and slowly rising.

Which ONE of the following completes the statement below?

The __(1)__ are currently contributing the most ECCS flow to the core and ECA-1.2 will require __(2)__ to be stopped.

	(1)	(2)
A.	Safety Injection Pumps	only RHR pump 1A-A
B.	Safety Injection Pumps	both RHR pumps
C.	Centrifugal Charging Pumps	only RHR pump 1A-A
D.	Centrifugal Charging Pumps	both RHR pumps

17. Given the following:

- The crew has entered FR-H.1, "Loss of Secondary Heat Sink," due to a loss of inventory in the S/Gs and failure of the AFW pumps to start.

	SG Wide Range Levels (%)				*AFW*	*Cnmt*
Time	*SG#1*	*SG#2*	*SG#3*	*SG#4*	*Flow*	*Press*
0800	41	39	38	37	0 gpm	1.70 psid
0810	37	32	34	33	0 gpm	2.40 psid
0820	30	28	27	26	0 gpm	2.70 psid
0830	27	25	22	24	0 gpm	2.50 psid

Which ONE of the following is the earliest time, if any, that the initiation of Bleed and Feed is required?

A. Bleed and Feed **NOT** required.

B. 0810

C. 0820

D. 0830

18. Given the following:

0900 - A reactor trip occurs.

0910 - A small break LOCA occurs.

0930 - The crew transitions to ECA-1.1, "Loss of RHR Sump Recirculation," due to the failure of both RHR pumps.

0940 - Crew reduces ECCS flow to 1 SIP and 1 CCP per ECA-1.1.

0950 - Crew determines SI flow cannot be terminated due to lack of subcooling.

1000 - The crew is performing ECA-1.1 Step 19 RNO to establish the minimum required ECCS flow to remove decay heat.

Which ONE of the following identifies the minimum flow rate that meets the intent of ECA-1.1, Step 19 RNO, and the flow adjustment methodology for meeting this flow rate?

REFERENCE PROVIDED

A. Establish 460 gpm ECCS flow.
Starting and stopping ECCS pumps.

B. Establish 460 gpm ECCS flow.
Throttling ECCS valves.

C. Establish 370 gpm ECCS flow.
Starting and stopping ECCS pumps.

D. Establish 370 gpm ECCS flow.
Throttling ECCS valves.

19. Given the following:

- Unit 1 is operating at 60% power when the Control Rods begin an uncontrolled withdrawal at 72 steps/minute.
- The OAC places 1-RBSS, ROD BANK SELECT to MAN stopping the rod movement.
- The operating crew determines a failure of the RCS temperature input to the Rod Control System resulted in the uncontrolled rod movement.
- The temperature input to the system has been repaired.
- Current conditions are:
  - Tavg is 1.4°F above Tref.
  - ROD SPEED indicates 48 Steps/min.
  - PASSIVE SUMMER ROD DEMAND indicates slightly over +1.0.
  - Control Bank D rods are at 176 steps withdrawn.

If 1-RBSS, ROD BANK SELECT is returned to AUTO, which ONE of the following identifies how the control rods will respond?

Control Rod position will...

A. remain at 176 steps withdrawn.

B. decrease because of the Tavg-Tref error.

C. increase because the Rod Speed has not decayed to '0'.

D. decrease because of the PASSIVE SUMMER ROD DEMAND.

20. Given the following:

- During receipt of new fuel, a non-irradiated fuel assembly is dropped on the refueling floor.

- A plant announcement is made per AOI-29, "Dropped or Damaged Fuel or Refueling Cavity Seal Failure," to evacuate the affected area.

In accordance with AOI-29, which ONE of the following completes the statements below?

The affected area is required to be evacuated to protect against the potential exposure to ___(1)___ radiation.

Non-fuel handling related work on the Refuel Floor can <u>first</u> be resumed when ___(2)___.

	(1)	(2)
A.	Alpha ONLY	Radiation Protection grants approval to inspect the fuel assembly.
B.	Alpha ONLY	the damaged fuel assembly has been inspected and stored.
C.	Alpha/Beta/Gamma	Radiation Protection grants approval to inspect the fuel assembly.
D.	Alpha/Beta/Gamma	the damaged fuel assembly has been inspected and stored.

21. Given the following:

- Unit 1 was operating at 100% when a steam generator tube leak occurred.
- The unit has been placed in Mode 3.
- The leaking steam generator pressure is 950 psig.
- The operating crew is currently determining the target incore temperature for RCS cooldown, per the following table in AOI-33, "Steam Generator Tube Leak."

LEAKING SG PRESSURE (PSIG)	TARGET INCORE TEMP (°F)
1100	491°F
1000	479°F
900	466°F
800	451°F
700	434°F
690	433°F

Which ONE of the following identifies the steam pressure setpoint on the steam dump system that would maintain the target incore temperature?

A. 480 psig

B. 495 psig

C. 545 psig

D. 560 psig

22. Given the following:

- Main Turbine load is 660 MWe.
- Condenser vacuum is decreasing at 0.1 in-HgA/min due to air in-leakage.
- The crew has entered AOI-11, "Loss of Condenser Vacuum."
- Currently Condenser pressures are:

Zone 'A'	Zone 'B'	Zone 'C'
3.75 in-HgA	4.93 in-HgA	6.06 in-HgA

Which ONE of the following completes the statements below?

The turbine automatic 'low vacuum trip' __(1)__ failed.

Zone __(2)__ is currently at a condenser pressure that requires a plant trip.

REFERENCE PROVIDED

	(1)	(2)
A.	has	'B'
B.	has **NOT**	'B'
C.	has	'C'
D.	has **NOT**	'C'

23. Given the following:

- Unit 1 was operating at 100% power when a Main Control Room evacuation was performed in accordance with AOI-30.2, "Fire Safe Shutdown," Series procedure C.69, "Fire Safe Shutdown Control Building."

Which ONE of the following completes the statements below with respect to Aux Control Room indications?

Tcold is determined using _____(1)_____ installed instrumentation.

Thot is determined using _____(2)_____ installed instrumentation.

	(1)	(2)
A.	RCS temperature	Incore Thermocouple
B.	RCS temperature	RCS temperature
C.	SG pressure	Incore Thermocouple
D.	SG pressure	RCS temperature

24. Given the following:

- Following a LOCA the operating crew is performing FR-C.1, "Inadequate Core Cooling."
- Containment pressure peaked at 5.2 psid.
- Depressurizing the S/Gs to atmospheric pressure is ineffective in reducing incore T/C temperatures.
- All RCP support systems are available for RCPs 2 and 4.
- RCPs 1 and 3 have no ERCW supply for the motor coolers.
- S/G Narrow Range levels are:

#1	#2	#3	#4
40%	41%	32%	52%

- Core exit thermocouples have exceeded 1200°F.
- RCPs are to be started <u>one at a time</u> in an attempt to reduce core exit thermocouples below 1200°F.

Which ONE of the following identifies the RCPs that would be started in an attempt to reduce core exit thermocouple temperatures?

A. RCP 4 ONLY

B. ALL four of the RCPs

C. RCPs 2 and 4 ONLY

D. RCPs 1, 2, and 4 ONLY

25. Given the following:

- A small break LOCA occurred on Unit 1.
- ES-1.2, "Post LOCA Cooldown and Depressurization," is in progress.
- RCS pressure is 1420 psig and one charging pump has been stopped.
- The crew is ready to stop the first SI pump.

Which ONE of the following completes the statements below?

When the SI pump is stopped, RCS subcooling will drop __(1)__.

The minimum RCS subcooling value required to allow the second SI pump to be stopped is __(2)__ than the value required for stopping the first pump.

A. (1) and stabilize at a lower value due to an increase in RCS temperature with lower ECCS injection flow
(2) less

B. (1) and stabilize at a lower value due to an increase in RCS temperature with lower ECCS injection flow
(2) greater

C. (1) due to reduced ECCS injection flow and stabilize at a lower value when break flow equals ECCS injection flow.
(2) less

D. (1) due to reduced ECCS injection flow and stabilize at a lower value when break flow equals ECCS injection flow.
(2) greater

26. Following a Small Break LOCA, the crew is performing the actions contained in FR-P.1, "Pressurized Thermal Shock."

    Which ONE of the following describes the reason for RCP restart in FR-P.1, "Pressurized Thermal Shock," if the SI termination criteria cannot be satisfied?

    An RCP running...

    A. raises the RCS temperature entering the vessel downcomer.

    B. prevents vessel head voiding as the RCS pressure is dropped.

    C. restores pressurizer spray flow for reducing RCS pressure.

    D. reduces the minimum required subcooling to terminate SI.

27. Given the following:

- A large break LOCA has occurred on Unit 1.
- The crew is performing E-1, "Loss of Reactor or Secondary Coolant," with the ECCS aligned for cold leg recirculation.
- The operating crew determines the criteria for entering FR-Z.2, "Containment Flooding," is met.

Which ONE of the following completes the statements below?

The implementation of FR-Z.2 is __(1)__.

The procedure directs the sampling of the sump to __(2)__.

A. (1) required
(2) ensure shutdown margin is being maintained, since non-borated water has entered the containment sump

B. (1) at the discretion of the crew.
(2) ensure shutdown margin is being maintained, since non-borated water has entered the containment sump

C. (1) required
(2) to allow the TSC to determine if excess sump water can be transferred to tanks outside of containment

D. (1) at the discretion of the crew
(2) to allow the TSC to determine if excess sump water can be transferred to tanks outside of containment

28. Given the following:

- Unit 1 is in Mode 5 preparing for an RCS heatup.
- RCP #2 is in service.
- RCP #4 has experienced the following start and run times as part of a maintenance PMT:
  - 1615 - started but stopped before it reached rated speed.
  - 1655 - started and then stopped after a 10 minute run.
  - 1740 - started and then stopped after a 10 minute run.
- The time is now 1800 and RCP #4 is ready to be placed in service.

Which ONE of the following identifies the earliest time the pump can be started and the breaker handswitch that will be used to start the RCP motor?

	Time	Handswitch
A.	1820	1-HS-68-73AA, RCP 4 NORMAL BKR & LIFT PMP
B.	1820	1-HS-68-73BA, RCP 4 ALTERNATE BKR & XFER SELECTOR
C.	1850	1-HS-68-73AA, RCP 4 NORMAL BKR & LIFT PMP
D.	1850	1-HS-68-73BA, RCP 4 ALTERNATE BKR & XFER SELECTOR

29. Given the following:

- Unit 1 is operating at 100% power.
- Annunciator 95-C, RCP 1 STANDPIPE LEVEL HI/LO, alarms.

Which ONE of the following completes the statement below?

The operating crew will first attempt to clear the alarm by ___(1)___ the standpipe and if this action clears the alarm, the condition indicates a possible problem with the __(2)__ seal on the RCP.

	(1)	(2)
A.	filling	#3
B.	filling	#2
C.	draining	#3
D.	draining	#2

30. Given the following:

- Unit 1 is operating at 100% power after restart following a refueling outage.
- Rod Control in MANUAL.
- VCT level is currently at 32%.
- An AUO places an un-borated mixed bed demineralizer in service.

Which ONE of the following completes the statements below?

Assuming NO operator action is taken, the VCT level will ___(1)___.

In accordance with AOI-3, "Malfunction of Reactor Makeup Control," the first corrective action the RO will take that will stop the event in progress is to ___(2)___.

A. (1) remain constant
(2) place 1-HS-62-79A, LTDN HI TEMP DIVERT, to 'V.C. TK'

B. (1) remain constant
(2) initiate normal boration

C. (1) rise over time
(2) place 1-HS-62-79A, LTDN HI TEMP DIVERT, to 'V.C. TK'

D. (1) rise over time
(2) initiate normal boration

31. Given the following:

- Unit 1 is operating at 100% power.
- Annunciator 110-D, LTDN TO DEMINS TEMP HI, alarms.
- The OAC determines the indication on 1-TI-62-78, letdown temperature, has slowly increased from 120°F to 132°F and is stable.

Which ONE of the following completes the statements below?

The letdown temperature rise results in reactor power __(1)__ .

The action required by the OAC is to __(2)__ in accordance with the ARI.

Note: 1-HIC-62-78A - Letdown Heat Exch Outlet Temp Control

A. (1) increasing
(2) ensure CVCS demineralizers bypassed and adjust 1-HIC-62-78A

B. (1) decreasing
(2) ensure CVCS demineralizers bypassed and adjust 1-HIC-62-78A

C. (1) increasing
(2) adjust 1-HIC-62-78A ONLY

D. (1) decreasing
(2) adjust 1-HIC-62-78A ONLY

32. Given the following:

- Unit 1 is in Mode 5, midloop operation.
- RHR Train A in service at a flow rate of 2100 gpm.
- The RCS temperature is stable at 126°F.
- The operator throttles open 1-FCV-74-32, RHR HXS BYPASS.

Which ONE of the following completes the statement below?

As 1-FCV-74-32, RHR HXS BYPASS is throttled open, the RCS temperature will ___(1)___ and the RHR flow rate indicated on 1-M-6 will __(2)__.

	(1)	(2)
A.	decrease	increase
B.	decrease	decrease
C.	increase	increase
D.	increase	decrease

33. Given the following:

- Unit 1 was operating at 100% power when a reactor trip and SI with loss of offsite power occurred 20 minutes ago.
- Pressurizer pressure dropped to 1750 psig, then recovered five minutes later to 2235 psig.

Current conditions:

- Offsite power has been restored.
- Pressurizer level is currently at 68% and stable.
- RCS cold leg temperatures are 561°F and stable.
- RCS hot leg temperature is 590°F and slowly decreasing.
- RVLIS indicates 96%.
- All SGs are at 1125 psig and controlled by the SG PORVs.
- ES 1.1, "SI Termination," is being performed and is at the step for determining RCP status.

Which ONE of the following identifies the impact of the above conditions on RCP restart?

A. RCP restart is **NOT** allowed; The resulting injection of cold water could result in reactor restart.

B. RCP restart is **NOT** allowed; The resulting heat transfer from the steam generators could result in a pressure surge in the RCS.

C. RCP restart is allowed only after an engineering analysis of the boration from ECCS injection during natural circulation operation.

D. RCP restart is allowed; Natural circulation flow has been established and has removed the cold ECCS water from the cold legs.

34. The pressurizer (PZR) cold cal level is at 40% with a nitrogen blanket present.

Which ONE of the following choices completes the statement below?

When establishing a steam bubble, in accordance with GO-1, "Unit Startup From Cold Shutdown To Hot Standby," the pressurizer administrative maximum heat-up rate limit is ___(1)___ and the PORVs are closed and placed in P-AUTO when ___(2)___.

	(1)	(2)
A.	75°F in one hour	Letdown flow exceeds charging flow
B.	75°F in one hour	PZR Liquid Temperature reaches 235°F
C.	100°F in one hour	Letdown flow exceeds charging flow
D.	100°F in one hour	PZR Liquid Temperature reaches 235°F

35. Given the following:

- Unit 1 is at 100% power with Thermal Barrier Booster Pump (TBBP) 1B running.

- TBBP handswitches on 0-M-27 are aligned with:

  1-HS-70-131A, THRM BAR BSTR PMP 1A (TBBP) is 'PULL A-P AUTO'.

  1-HS-70-130A, THRM BAR BSTR PMP 1B (TBBP) is 'IN A AUTO'.

- Loss of Offsite Power occurs.

Which ONE of the following completes the statement below?

During the blackout relay sequencing to restore equipment, only the __(1)__ TBBP will start after a __(2)__ second time delay.

	(1)	(2)
A.	1A	20
B.	1B	20
C.	1A	35
D.	1B	35

36. Given the following:

- Unit 1 is operating at 100% power.
- Abnormal RCS leakage has been detected.
- One of the pressurizer PORVs is suspected to have seat leakage.

Which ONE of the following completes the statements below?

Without any additional operator action, the operator could use the MCR indication for ___(1)___ to identify which PORV was leaking.

If the PORV is declared inoperable, the crew is required close the PORV Block valve within __(2)__.

	(1)	(2)
A.	TAILPIPE TEMPS on 1-M-4	1 hour
B.	TAILPIPE TEMPS on 1-M-4	30 minutes
C.	PZR VALVES ACOUSTIC MONITOR on 0-M-25	1 hour
D.	PZR VALVES ACOUSTIC MONITOR on 0-M-25	30 minutes

37. Unit 1 is operating at 100% power when the following sequence of events occurs:

- Pressurizer Power Operated Relief Valve (PORV) 1-PCV-68-334 opens and fails to reseat when closed.
- Pressurizer PORV Block valve, 1-FCV-68-332, for PORV 334 cannot be closed.
- Pressurizer Relief Tank (PRT) pressure begins to slowly rise.
- The PRT pressure continues to rise until the PRT ruptures.

Which ONE of the following completes the statements below?

1-PCV-68-301, PRT VENT TO WDS VENT HDR, will automatically close when the PRT pressure reaches __(1)__ psig.

When the PRT ruptures, the PORV tailpipe temperature will ____(2)____.

	(1)	(2)
A.	6.5 psig	begin to drop
B.	6.5 psig	rise at a faster rate
C.	8.0 psig	begin to drop
D.	8.0 psig	rise at a faster rate

38. Which ONE of the following identifies the plant electrical boards that supply power to the listed components on Unit 1?

	SSPS Train B Reactor Trip Breaker 48v UV coil	Reactor Trip Bypass Breaker A (BYA) Control Power Circuit
A.	120v AC Vital Instrument Power Boards II and IV	125V DC Vital Battery Board I
B.	120v AC Vital Instrument Power Boards II and IV	125V DC Vital Battery Board II
C.	120v AC Vital Instrument Power Board II ONLY	125V DC Vital Battery Board I
D.	120v AC Vital Instrument Power Board II ONLY	125V DC Vital Battery Board II

39. Given the following:

- Unit 1 has been shutdown for a refueling outage.
- GO-6, "Unit Shutdown from Hot Standby to Cold Shutdown," is in progress.
- The lowest RCS Tcold temperature and pressure trend is:

Time	Temp	Pressure
0500	349°F	395 psig
0530	337°F	380 psig
0600	324°F	345 psig
0630	302°F	340 psig
0700	280°F	340 psig
0730	257°F	340 psig
0800	235°F	340 psig
0830	214°F	340 psig
0900	199°F	330 psig
0930	185°F	330 psig

Which ONE of the following is the earliest of the identified times that one of the Centrifugal Charging Pumps is required to be tagged with its breaker racked down and the reason for the requirement?

	Time	Reason
A.	0600	to be in compliance with TR 3.1.3 - Charging Pump, Shutdown.
B.	0600	to be in compliance with LCO 3.4.12 - Cold Overpressure Mitigation System.
C.	0900	to be in compliance with TR 3.1.3 - Charging Pump, Shutdown.
D.	0900	to be in compliance with LCO 3.4.12 - Cold Overpressure Mitigation System.

40. Given the following:

    - Unit 1 was operating at 100% power when a design basis LOCA occurred.

    Which ONE of the following identifies system(s) directly providing Containment Cooling during the first minute following the Phase B containment isolation?

    A. Containment Spray only

    B. Air Return Fans and Ice Condenser

    C. Containment Ventilation System and Ice Condenser

    D. Air Return Fans and Containment Spray

41. Given the following:

- Unit 1 is operating at 100% power when a LOCA occurs.
- A Safety Injection has been actuated.
- Containment pressure is 1.1 psig and slowly rising.

Which ONE of the following identifies the expected position of 1-FCV-61-110, GLYCOL COOLED FLOOR RETURN HEADER ISOL?

A. CLOSED due to a containment isolation signal.

B. CLOSED due to an Auxiliary Building isolation signal.

C. OPEN unless the containment pressure rises to Hi-Hi setpoint.

D. OPEN unless Glycol Storage Tank level reaches Lo-Lo setpoint.

42. Which ONE of the following is required to automatically start the Containment Spray Pump 1A-A room cooler?

A. Containment Spray Pump 1A-A running ONLY.

B. Room temperature increases to 95°F ONLY.

C. Either Containment Spray Pump 1A-A running OR room temperature increases to 95°F.

D. Room temperature increases to 95°F ONLY if the Containment Spray pump running.

43. Given the following:

- Containment spray pumps are running after automatically starting during a LOCA.

- Containment pressure has dropped and the procedure directs the pumps be stopped.

Which ONE of the following identifies the minimum signals required to be reset to allow the Containment Spray pumps to remain off when their control switches are returned to 'A AUTO' after the pumps are stopped?

A. Containment Spray, only

B. Phase B and Containment Spray, only

C. Safety Injection and Containment Spray, only

D. Safety Injection, Phase B and Containment Spray

44. Given the following:

- At EOL, a reactor startup is in progress following a 6-day outage.
- The Reactor Engineer has provided an ECP which predicts the reactor going critical at 120 steps on Control Bank D.

Which ONE of the following completes the statements below?

___(1)___ will result in the critical rod height being HIGHER than the value predicted by the ECP.

___(2)___ is the maximum allowed tolerence between the ECP and the actual critical position before the insertion of all control banks is required.

A. (1) An inadvertent drop in steam pressure of 50 psig
(2) 1000 pcm

B. (1) A closure of all MSIVs
(2) 1000 pcm

C. (1) An inadvertent drop in steam pressure of 50 psig
(2) 750 pcm

D. (1) A closure of all MSIVs
(2) 750 pcm

45. Given the following:

- Unit 1 is operating at 550 MWe.
- Operators have placed the second main feed pump in service.
- Annunciator 49-E, MN/STBY FWP SUCTION NPSH LO, alarms.
- The operating crew determines Main Feed Pump Suction pressure to be 120 psig.

Which ONE of the following identifies the action required by the Annunciator Response Instruction?

A. If suction pressure cannot be restored to greater than 250 psig, a turbine trip is required.

B. Suction pressure is low and needs to be raised but currently is above the minimum required.

C. Unless suction pressure is restored to greater than 250 psig, a trip of one MFP is required.

D. Unless suction pressure is restored to greater than annunciator 49-E setpoint, a trip of both MFPs is required.

46. Given the following:

- Unit 1 was at 100% power with the TD AFW pump unavailable.
- S/G #2 experiences a steam line break inside containment.
- S/G #2 conditions are as follows:
  - Level is currently 12% WR.
  - Pressure is 80 psig and decreasing.
- No operator action has been taken on the AFW system.

Which ONE of the following completes the statement below?

__(1)__ will have been automatically closed to prevent ____(2)____.

Note: 1-LCV-3-156 is MD AFW PUMP 1A-A SG 2 LEVEL CONTROL
1-LCV-3-156A is SG 2 AUX FEEDWATER 1-LCV-3-156 BYPASS

A. (1) 1-LCV-3-156 ONLY
   (2) Cavitation damage to the valve

B. (1) 1-LCV-3-156 ONLY
   (2) AFW pump runout

C. (1) Both 1-LCV-3-156 and 1-LCV-3-156A
   (2) Cavitation damage to the valves

D. (1) Both 1-LCV-3-156 and 1-LCV-3-156A
   (2) AFW pump runout

47. Given the following:

- Unit 1 is operating at 4% power.
- Main Feed Pump 'B' is in service.
- Main Feed Pump 'A' is **NOT** reset.
- All Steam Generator levels are at 38% NR.

Which ONE of the following identifies the status of the AFW Pumps immediately after Main Feedwater Pump 'B' trips?

A. Only the TDAFW pump has automatically started.

B. Only the MDAFW pumps have automatically started.

C. Both the MDAFW pumps and TDAFW Pump have automatically started.

D. Neither the MDAFW pumps nor TDAFW Pump have automatically started.

48. Given the following:

- Unit 1 is operating at 60% power.
- 480V Shutdown Board 1A2-A de-energizes due to an internal fault.
- The crew enters AOI-43.01, "Loss of Unit 1 Train A Shutdown Boards."

Which ONE of the following completes the statement below?

The loss of the board results in __(1)__ and the condition can be mitigated by ____(2)____ in accordance with AOI-43.01.

A. (1) increasing Main Turbine Oil temperature
(2) placing 1-TIC-24-69, MTOT TEMP TEMP CONTROL, in MAN and opening the TCV

B. (1) the loss of most radiation monitor rate meters in the MCR
(2) transferring Instrument Power Rack A to ALTERNATE

C. (1) a turbine trip due to Stator Cooling Water temperature increasing
(2) transferring Instrument Power Rack A to ALTERNATE

D. (1) increasing Generator Hydrogen temperature
(2) placing 1-TIC-24-48, GENERATOR H2 TEMP CONTROL, in MAN and opening the TCV

49. Given the following:

- Unit 1 is operating at 100% power.
- A battery discharge test is in progress on 125v DC Battery IV and the 125v DC Battery Board V is connected to the 125v DC Battery Board IV.
- 0-SI-0-3, "Weekly Log," is being performed.

Using 0-SI-0-3, Appendix A, which ONE of the following identifies the status of the 125v DC Battery Board IV and the 120v AC Vital Inverter 2-IV?

REFERENCE PROVIDED

	125v DC Battery Board IV	Vital Inverter 2-IV
A.	Operable	Inoperable
B.	Operable	Operable
C.	Inoperable	Inoperable
D.	Inoperable	Operable

50. Given the following

- Unit 1 was operating at 100% power when a safety injection occurred.
- Eighteen (18) seconds after Safety Injection, a loss of 125v Vital DC Power Channel II occurs.

Which ONE of the following identifies the current status of RHR pump 1B-B?

A. RHR pump 1B-B is **NOT** running but can be started from the MCR handswitch.

B. RHR pump 1B-B is **NOT** running and can **NOT** be started from the MCR handswitch.

C. RHR pump 1B-B is running and can be stopped from the MCR handswitch.

D. RHR pump 1B-B is running but can **NOT** be stopped from the MCR handswitch.

51. Given the following:

- Unit 1 is operating at 100% power with DG 1A-A connected to the shutdown board during performance of the monthly surveillance instruction.
- CCP 1A-A is in service.
- 1 phase of the 50 overcurrent relay acutates on Shutdown Board 1A-A Emergency Feeder Breaker 1912.
- 1 second later Offsite power is lost.

Which ONE of the following identifies how the RHR pump 1A-A and CCP 1A-A are affected?

A. The CCP will continue to run and the RHR pump will not be started.

B. The CCP will be tripped and neither pump will sequenced on by blackout relays.

C. Both the CCP and the RHR pump will be sequenced on by blackout relays.

D. Only the CCP will be sequenced on by blackout relays.

52. Given the following:

- Annunciator 186A, MCR INTAKE 0-RM-90-125/126 RAD HI, alarms.
- Both 0-RM-90-125, "MCR INTAKE" and 0-RM-90-126, "MCR INTAKE" have the RED light LIT on 0-M-12.

Which ONE of the following completes the statement below?

The MCR is maintained at a positive pressure by the _____(1)_____ and if 0-RM-90-206A, MCR EMERG INTAKE, subsequently detects high radiation, the outside air supply will ____(2)_____ to the alternate source.

A. (1) Main Control Room Air Handling Units
(2) automatically realign

B. (1) Main Control Room Air Handling Units
(2) require manual action to realign

C. (1) Control Building Emergency Air Pressurization Fans
(2) automatically be realigned

D. (1) Control Building Emergency Air Pressurization Fans
(2) require manual action to realign

53. Given the following:

- Unit 1 is operating at 100% power.
- ERCW pump handswitch status:
  - A-A is in P-T-L
  - B-A is in A-AUTO and pump stopped.
  - C-A is in A-AUTO and pump running.
  - D-A is in A-AUTO and pump stopped.
  - Emergency Power Selector Switches are positioned to B-A and C-A, respectively.
- A loss of offsite power occurs.

Which ONE of the following completes the statements below?

Prior to the loss of the offsite power, Tech Spec LCO 3.7.8 Essential Raw Cooling Water (ERCW) System ___(1)___ met.

After the blackout sequence relays complete restoration of loads on the Shutdown Boards, 0-PI-67-18A, A ERCW SUP HDR PRESS, will indicate ___(2)___ before the loss of offsite power.

	(1)	(2)
A.	was	same as
B.	was	higher than
C.	was **NOT**	same as
D.	was **NOT**	higher than

54. Given the following:

- Unit 1 is in Mode 3 following a reactor trip when a loss of off-site power occurs.
- All Diesel Generators start and restore the shutdown boards.

Which ONE of the following completes the statements below?

As control air pressure drops, Control and Station Air Compressor 'A' ___(1)___ as needed automatically.

The compressor is supplied from ___(2)___.

A. (1) will start and load
(2) 480V SD Bd 1A2-A

B. (1) will start and load
(2) 480V SD Bd 2A2-A

C. (1) must be manually started but will load
(2) 480V SD Bd 1A2-A

D. (1) must be manually started but will load
(2) 480V SD Bd 2A2-A

55. Which ONE of the following identifies ventilation systems that exhaust out a Shield Building Exhaust Vent?

A. EGTS Cleanup Fans and Annulus Vacuum Control Fans

B. EGTS Cleanup Fans and Containment Purge Exhaust Fans

C. Fuel Handling Exhaust Fans and Annulus Vacuum Control Fans

D. Fuel Handling Exhaust Fans and Containment Purge Exhaust Fans

56. Given the following:

- 480v Emergency Common Transformer is out of service.

Which ONE of the following describes the effect on the Control Rod Drive MG Sets if 6900v Unit Board 1C is de-energized by relay operation?

A. Both MG sets lose power to the motor.

B. Neither MG set loses power to the motor.

C. Only "A" MG set loses power to the motor.

D. Only "B" MG set loses power to the motor.

57. Given the following:

- Unit 1 is operating at 80% steady state power with all controls in automatic.

Which ONE of the choices below completes the following sentence?

Assuming no operator action, RCS temperature will INCREASE if the ___(1)___ fails ___(2)___.

	(1)	(2)
A.	N43 Power Range lower detector	HIGH
B.	N43 Power Range upper detector	LOW
C.	Rod control auctioneered high nuclear power signal	HIGH
D.	Rod control auctioneered high nuclear power signal	LOW

58. Given the following:

- Unit 1 is operating at 100% power with all controls in automatic.
- 1-XS-68-339E, PZR LEVEL CONTROL CHANNEL SELECT, is selected to the LI-68-339/B320 position.
- A small leak develops on the upper tap fitting for Pressurizer level transmitter 1-LT-68-339.

Which ONE of the following completes the statement below?

1-LI-68-339 indication will start ___(1)___ and the actual pressurizer level will ___(2)___.

	(1)	(2)
A.	rising	remain constant
B.	rising	be dropping
C.	dropping	remain constant
D.	dropping	be dropping

59. Given the following:

- Unit 1 was operating at 100% power when a small break LOCA resulted in a reactor trip and safety injection.
- The crew is now performing E-1, "Loss of Reactor or Secondary Coolant," and is determining if the Hydrogen Recombiners are to be placed in service.
- Containment Hydrogen analyzers 1-H2I-43-200 and 1-H2I-43-210 indicate 0.5%.

Assuming conditions do not change, which ONE of the following identifies the hydrogen mitigation systems that will be in service when E-1 is completed?

A. ONLY the hydrogen igniters

B. ONLY the hydrogen recombiners

C. BOTH the hydrogen igniters and the hydrogen recombiners

D. NEITHER the hydrogen igniters nor the hydrogen recombiners

60. Given the following:

- Unit 1 is at 100% RTP.
- Fuel Assembly shuffles are being made in the Spent Fuel Pit.
- 0-RM-90-102, Spent Fuel Pit Radiation Monitor, has been declared INOPERABLE and removed from service due to an instrument malfunction.
- Auxiliary Building Supply fans 1A and 2B are running.

Which ONE of the following completes the statements below?

Technical Specifications would __(1)__ continued movement of fuel assemblies in the Spent Fuel Pit.

If 0-RM-90-103, Spent Fuel Pit Radiation Monitor, subsequently detected Hi Radiation, __(2)__ Auxiliary Building General Supply fan(s) would trip.

	(1)	(2)
A.	**NOT** allow	ONLY 2B
B.	**NOT** allow	1A and 2B
C.	allow	ONLY 2B
D.	allow	1A and 2B

61. Given the following:

- Unit 1 was operating at 100% power when a reactor trip occurred.
- A steam dump 'Tavg Hi' bistable malfunction resulted in 6 Steam Dump valves remaining full open as Tavg dropped following the reactor trip.

Which ONE of the following completes the statements below?

Tavg dropping to 550°F will result in _____(1)_____.

If the operators had placed the handswitches listed below to OFF prior to Tavg reaching 550°F, the steam dump valves would have closed ___(2)___ was/were placed to OFF.

Note:
1-HS-1-103A, STEAM DUMP FSV "A"
1-HS-1-103B, STEAM DUMP FSV "B"

A. (1) all 6 of the steam dump valves closing
(2) after <u>either</u> switch

B. (1) all 6 of the steam dump valves closing
(2) <u>only</u> after both switches

C. (1) only the 3 cooldown valves remaining open
(2) after <u>either</u> switch

D. (1) only the 3 cooldown valves remaining open
(2) <u>only</u> after both switches

62. Given the following:

- Unit 1 is operating at 100% power.
- Waste Gas Decay Tank J relief valve develops a flange leak and the tank contains high activity gas.

Which ONE of the following identifies how the radiation monitors listed below will respond to the gas release?

Note:
0-RE-90-118, Waste Gas Rad Monitor
0-RE-90-101, Auxiliary Building Ventilation Monitor
1-RE-90-400, Unit 1 Shield Building Vent Monitor

A. Both 0-RE-90-118 and 1-RE-90-400 will detect the release.

B. Only 0-RE-90-101 will detect the release.

C. Only 1-RE-90-400 will detect the release.

D. Both 0-RE-90-118 and 0-RE-90-101 will detect the release.

63. Given the following:

- Unit 1 is operating at 100% power.
- While performing a board walkdown, the incoming OAC determines annunciator 174-E, 1-RR-90-1 AREA MONITORS INSTR MALF, is LIT.

Which ONE of the following completes the statements below?

In accordance with ARI for window 174-E, the operator would determine which Area Radiation Monitor was the cause of the annunciator being LIT by the __(1)__ on the associated rate meter.

A condition that would cause the alarm is the __(2)__ .

A. (1) GREEN light being DARK
(2) rate meter function switch in ALARM ADJ

B. (1) GREEN light being DARK
(2) sample flow less than setpoint

C. (1) RED, AMBER and GREEN lights all being LIT
(2) rate meter function switch in ALARM ADJ

D. (1) RED, AMBER and GREEN lights all being LIT
(2) sample flow less than setpoint

64. Given the following:

- Unit 1 has reduced power due to a condenser tube leak that has been identified in the East Side tubes.
- The unit is currently at 34% power.
- CCWP 1D has been removed from service.
- CCWPs 1A, 1B, and 1C are each running 235 amps.
- East side amertap system has been shutdown.
- Condenser Vacuum Pumps 1A and 1B are in service.

Which ONE of the following identifies an additional operating condition that MUST be established when removing the East Side Waterboxes from service in accordance with SOI-27.01, "Condenser Circulating Water System?"

A. Turbine load MUST be reduced.

B. An additional CCWP is required to be stopped.

C. Stop one of the Condenser Vacuum Pumps.

D. Discharge valves on running CCWPs must be throttled.

65. Which ONE of the following identifies why 0-SW-026-0320, RAW SERVICE WATER ISOLATION VALVE 0-FCV-26-320, located in the Makeup Water Treatment Plant Control Room, would be placed to OFF?

A. Prevent exceeding maximum flow rating of the water treatment system following the start of any fire pump.

B. Prevent overpressurizing the water treatment system following the start of any fire pump.

C. Prevent the automatic closure of 0-FCV-26-320 due to a diesel fire pump start.

D. Prevent automatic closure of 0-FCV-26-320 when an electric fire pump start signal is generated.

66. Given the following:

- Unit 1 is being returned to service following a refueling outage.

Which ONE of the following is **NOT** identified in the GO procedures as requiring a Public Address (PA) announcement be made?

A. Entering Mode 4

B. Reactor Startup Initation

C. Reactor Critical

D. Opening MSIVs

67. Using the attached ICS AFD TARGET DISPLAY screen printout, which ONE of the following choices completes the following statements?

The AFD HIGH LIMIT is __(1)__.

If __(2)__ outside of the limit, TS LCO 3.2.3, "Axial Flux Difference," action statement will be entered.

REFERENCE PROVIDED

	(1)	(2)
A.	-5	any NIS channel is
B.	-5	at least 2 NIS channels are
C.	+7	any NIS channel is
D.	+7	at least 2 NIS channels are

68. Given the following:

- The Unit is in Mode 6, with refueling operations in progress.
- The 30th. fuel assembly is being loaded into the core.

Which ONE of the follwing conditions, in accordance with FHI-7, "Fuel Handling and Movement," will require fuel handling activities be stopped immediately?

A. An unanticipated rise in count rate by a factor of two occurs on <u>any</u> responding nuclear channel during any single loading step.

B. Communications is lost between Containment and the Control Room.

C. Water in the Spent Fuel Pit in not clear enough to view the Fuel top Nozzles <u>without</u> supplemental lighting.

D. Boron concentration drops by 18 ppm as determined by two successive samples of Reactor Coolant.

69. Given the following:

- Unit 1 is operating at 100% power.
- Maintenance is to be performed on AFW Pump 1B-B.
- 'Protected Equipment' portable sign stands have been placed locally at AFW Pump 1A-A.
- An engineer request permission from the CRO to enter the area protected.

Which ONE of the following completes the statements below in accordance with ODM-4.0, "Protected Equipment?"

____(1)____ is the organization responsible for the placement of the 'Protected Equipment' portable sign stands.

The CRO would direct the engineer to contact the ___(2)___ to get approval to enter the area being protected.

	(1)	(2)
A.	Operations	Shift Manager
B.	Operations	Work Control SRO
C.	Maintenance	Shift Manager
D.	Maintenance	Work Control SRO

70. During shutdown for a Refueling Outage, which ONE of the following identifies the highest level of risk that can be voluntarily entered and who must approve entering the risk in accordance with NPG-SPP-07.2.11, "Shutdown Risk Management."

A. ORANGE — Plant Manager

B. ORANGE — Outage Manager

C. RED — Plant Manager

D. RED — Outage Manager

71. Given the following:

- The crew implemented AOI-33, "Steam Generator Tube Leak," due to a tube leak in SG #1 and has placed the unit in Mode 3.

- ES-0.1, "Reactor Trip Response," has been completed and the crew has resumed performance of AOI-33.

As a result of actions directed in AOI-33, which ONE of the following will require an entry into a Technical Specification Action statement?

A. Closing the SG #1 Main Steam Isolation Valve.

B. Adjusting the SG #1 PORV controller setpoint to 90%.

C. Isolating the TD AFW pump steam supply valve from SG #1.

D. Blocking Low Steamline pressure and Low PZR pressure SI actuation.

72. Given the following:

- Unit 1 is operating at 100% power.
- Annunciator 183-C, AB VENT 0-RM-101 RAD HI, alarms.
- Operators have been unsuccessful in identifying the source of the release.

Which ONE of the following completes the statement below?

If the alarm source is **NOT** known, the ARI directs the operators to _____ within 2 hours of the alarm receipt.

A. stop and lock out the Fuel Handling Area Exhaust fans

B. close LWR CNTMT PURGE EXH PRESS RLF, 1-FCV-30-40 & 1-FCV-30-37

C. manually initiate an Auxiliary Building Isolation signal

D. notify RADCON to restrict nonessential entry into the Auxiliary Building

73. Given the following:

- A LOCA has occurred and a SAE has been declared.
- The TSC and OSC have been activated.
- To prevent damage to equipment needed for protection of the public, it is recommended that an individual make an entry into the 1A-A Safety Injection Pump Room 1A.
- Projected dose rate in the pump room is 1.0×10^5 mR/hr.
- Duration of the exposure is expected to be 6 minutes.

Which ONE of the following individuals must authorize this exposure?

A. Radcon Manager ONLY

B. Site Emergency Director

C. Plant Manager

D. Radcon Manager OR Site Vice President

74. Given the following:

- Unit 1 is operating at 50% power, with all systems aligned normally with Train A CCP and CCS pumps in service.
- A loss of 1A-A 6.9KV Shutdown Board due a differential relay operation occurs.
- The OAC observes RCP Seal Water Injection flow to all RCPs to be "0."
- The Control Building AUO reports extensive damage to the 1A-A 6.9 KV Shutdown Board bus bars.
- The crew implements AOI-43.01, "Loss of Unit 1 Train A Shutdown Boards."

Under these conditions, RCP seal cooling is __(1)__ and in accordance with AOI-43.01, the crew will _____(2)_____.

	(1)	(2)
A.	available	Isolate letdown prior to starting CCP 1B-B.
B.	unavailable	Isolate letdown prior to starting CCP 1B-B.
C.	available	Start CCP 1B-B prior to isolating letdown.
D.	unavailable	Start CCP 1B-B prior to isolating letdown.

75. Given the following:

- The plant is operating at 100% power.
- Annunciator 114-A, SSPS-A GENERAL WARNING is LIT.

Which ONE of the following completes the statement below?

_____(1)_____ will cause the alarm and the probable source of the alarm can be determined locally by _____(2)_____.

	(1)	(2)
A.	Racking in Reactor Trip Bypass Breaker A	Semi-Automatic Tester Board edge LED lights
B.	A blown Ground Return Fuse	Semi-Automatic Tester Board edge LED lights
C.	Racking in Reactor Trip Bypass Breaker A	Status Lights on the outside of the SSPS Panels
D.	A blown Ground Return Fuse	Status Lights on the outside of the SSPS Panels

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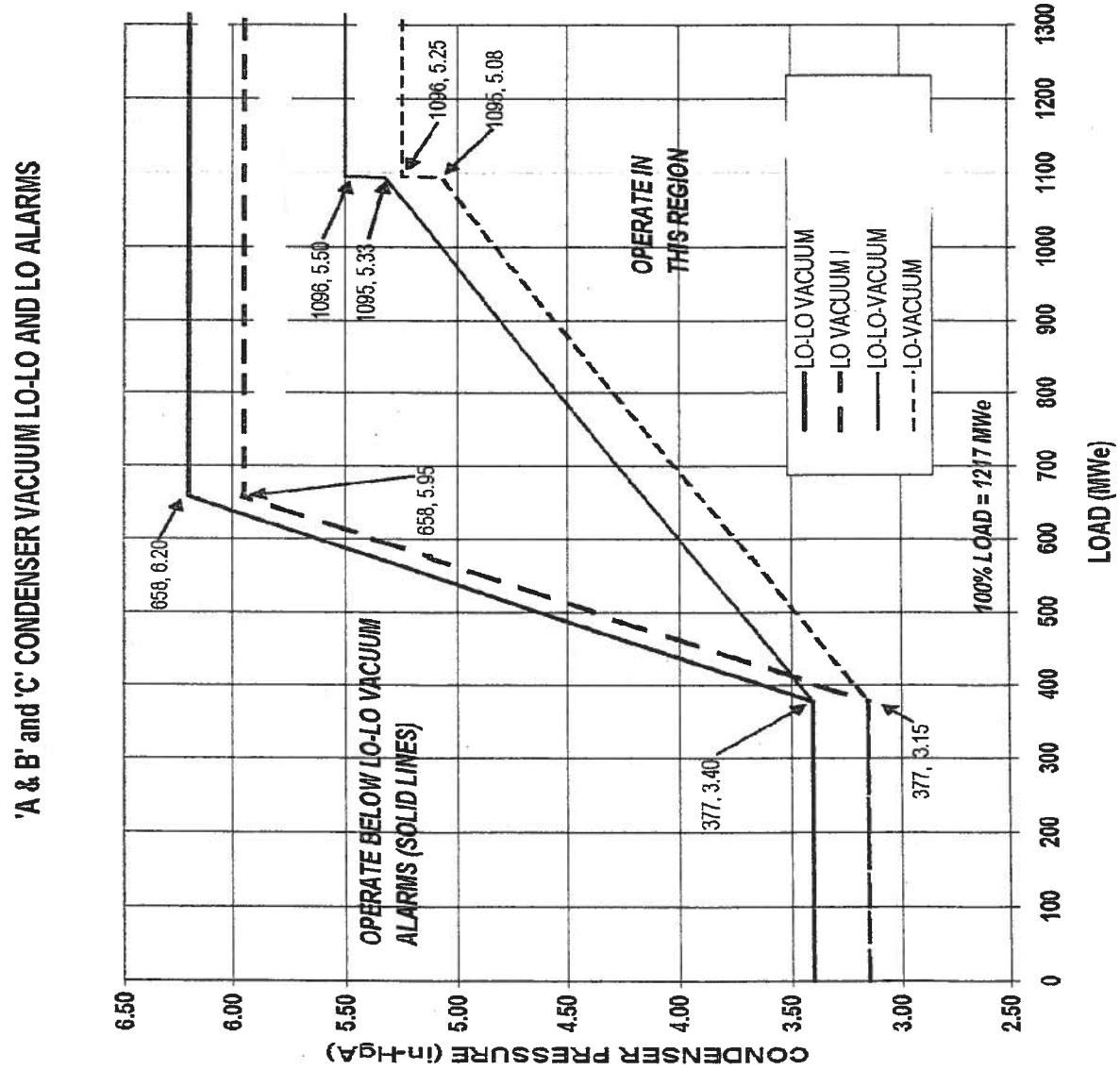
12/29/2011

REFERENCE PACKAGE

1. Steam Tables
2. AOI-11, Appendix A, Condenser Vacuum ICS Graph, (1 page)
3. 0-SI-0-3, Weekly Log, Appendix A, (2 pages)
4. ICS 'AFD TARGET DISPLAY', (1 page)
5. ECA-1-1, Loss of RHR Sump Recirculation, (2 pages)

Appendix A
(Page 1 of 1)

Condenser Vacuum ICS Graph



NOTE: This Appendix is an ICS Controlled Graph and should **NOT** be modified without Corporate Computer Engineering acknowledgement.

Appendix A
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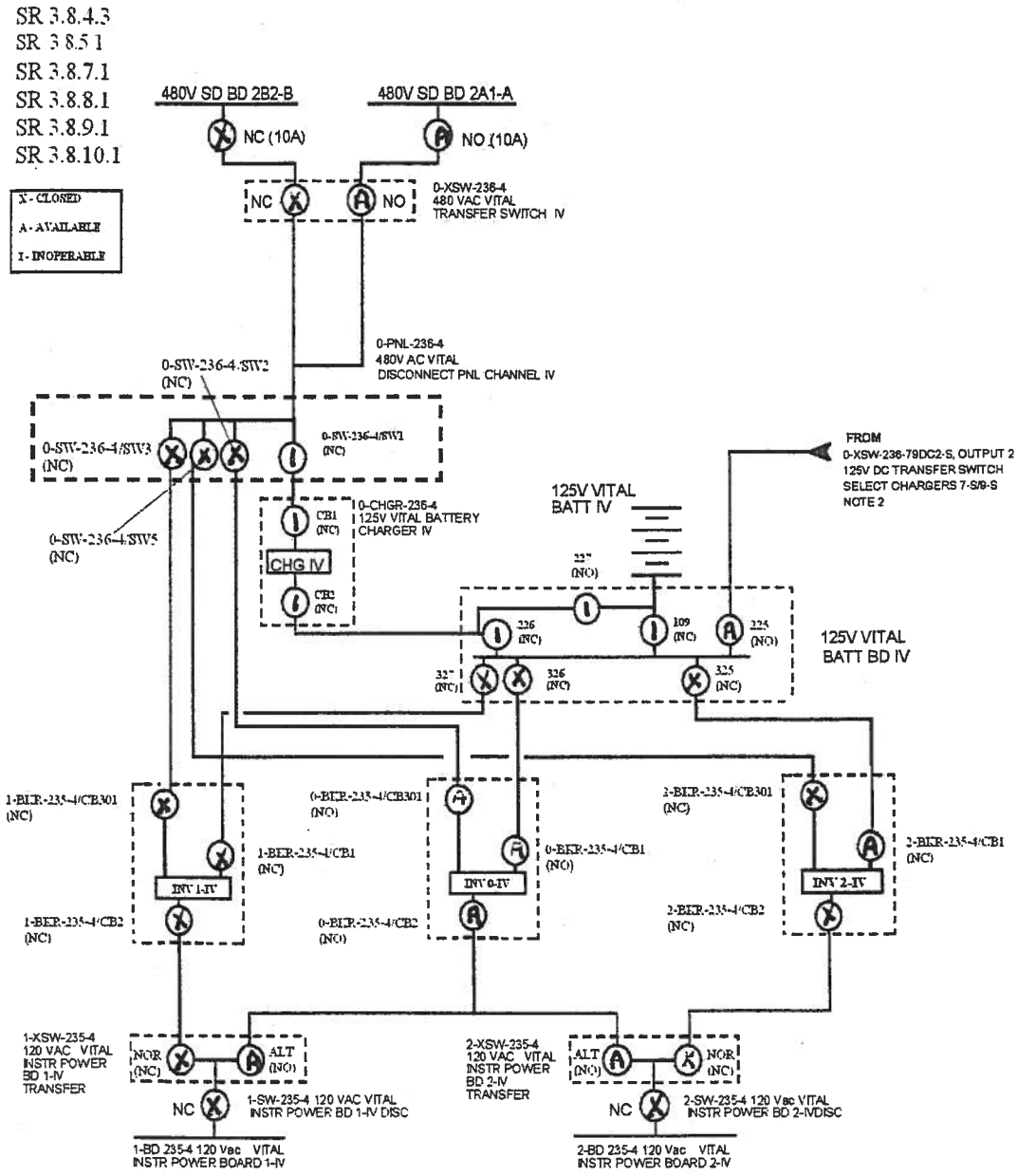
SR 3.8.4.3
SR 3.8.5.1
SR 3.8.7.1
SR 3.8.8.1
SR 3.8.9.1
SR 3.8.10.1



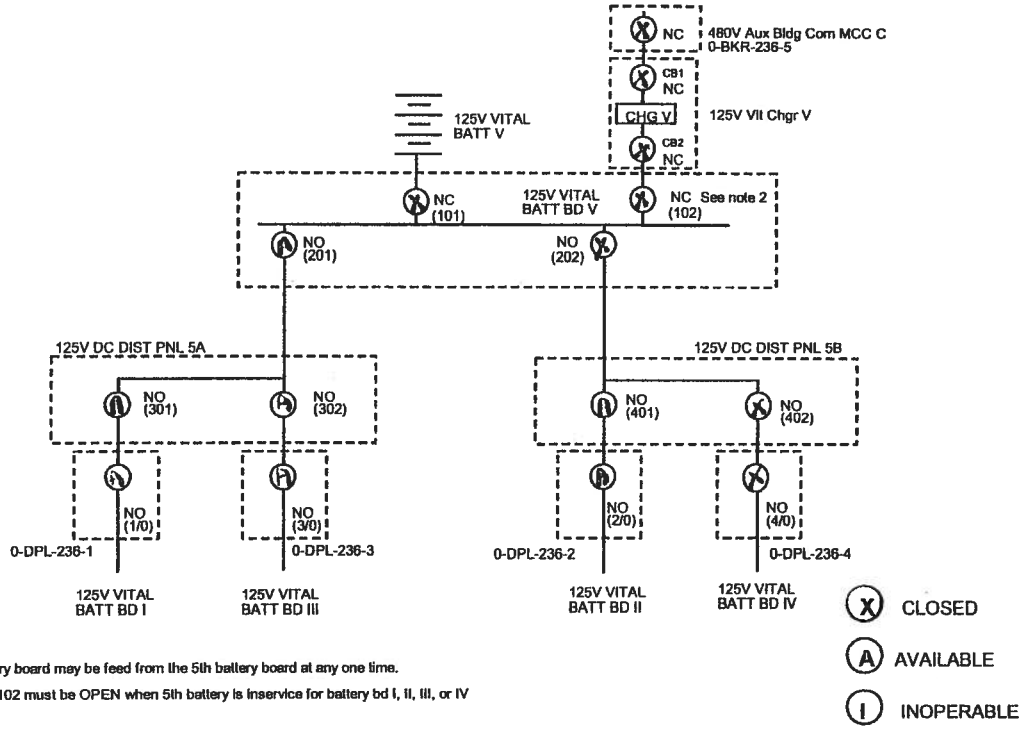
NOTE (1) In Modes 5&6 only one train of ac /dc PWR is required. If this train is not required this page may be N/A.
(2) When 7-S or 9-S charger is connected to Batt Bd then verify assoc. train Transfer Switches are closed and Alt bkrs are open.

INITIALS OF DATA COLLECTOR: _____ DATE _____

REMARKS: _____

Appendix A
(Page 10 of 24)

SR 3.8.9.1
SR 3.8.10.1



NOTE 1: Only one battery board may be feed from the 5th battery board at any one time.

NOTE 2: 0-BKR-236-5/102 must be OPEN when 5th battery is inservice for battery bd I, II, III, or IV

INITIALS OF DATA COLLECTOR: _____ DATE _____

REMARKS: _____

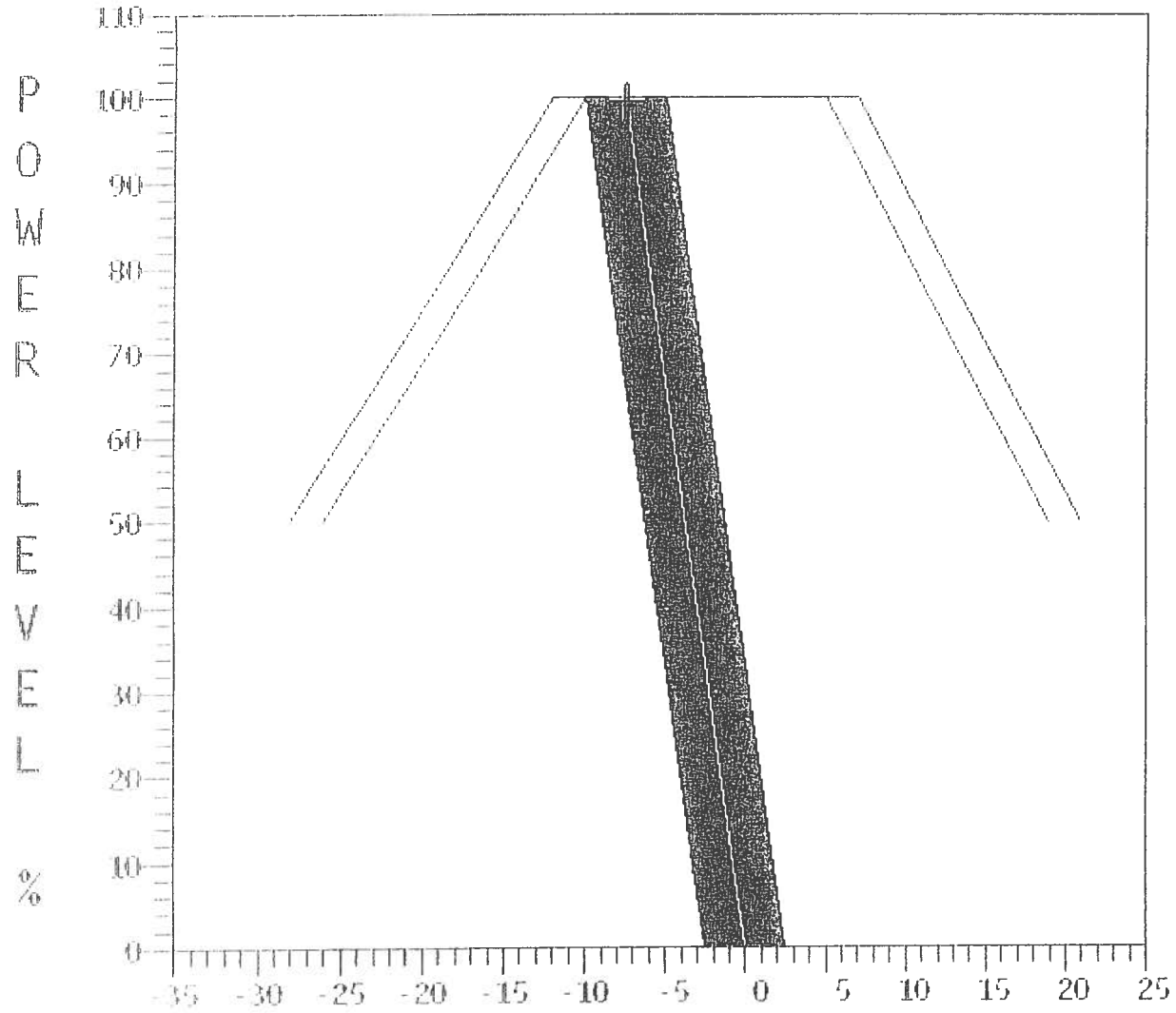
AFD TARGET DISPLAY

Main Alarms Graphics Trends Points Zoom/Layers Print Help

06-JUL-2011 07:46:16

SELECT FUNC. KEY OR TURN-ON CODE DOGHOUSE>

SCHP I



POWER LEVEL	99.4 %
CTRL BANK D (STEPS)	220.0
AFD NIS CHANNEL 41	-7.6 %
AFD NIS CHANNEL 42	-7.4 %
AFD NIS CHANNEL 43	-7.7 %
AFD NIS CHANNEL 44	-7.4 %
NIS ACTUAL AFD	-7.5 %
NIS TARGET AFD	-7.5 %
AFD LOW LIMIT	%
AFD HIGH LIMIT	%
CONTROL BAND LOW LIM	%
CONTROL BAND HIGH LIM	%
TIME OUT OF BAND ACCUM (MIN)	0.0

BEACON

TT059 WK=ANONYMOUS SEC LVL= 15 PRIM/BACK CPU I MODE 1

Step	Action/Expected Response	Response Not Obtained

19. **CHECK** SI termination criteria:

a. RVLIS greater than 60% with NO RCP running,

OR

RVLIS greater than 63% with ANY RCP running.

a. **IF** RVLIS is less than or equal to setpoint, **THEN**

** **GO TO** Step 25.

b. RCS subcooling greater than required from table:

b. **ESTABLISH** minimum ECCS flow for decay heat removal:

1) **REFER TO** Figure 1, Minimum SI Flow For Decay Heat Versus Time After Trip.

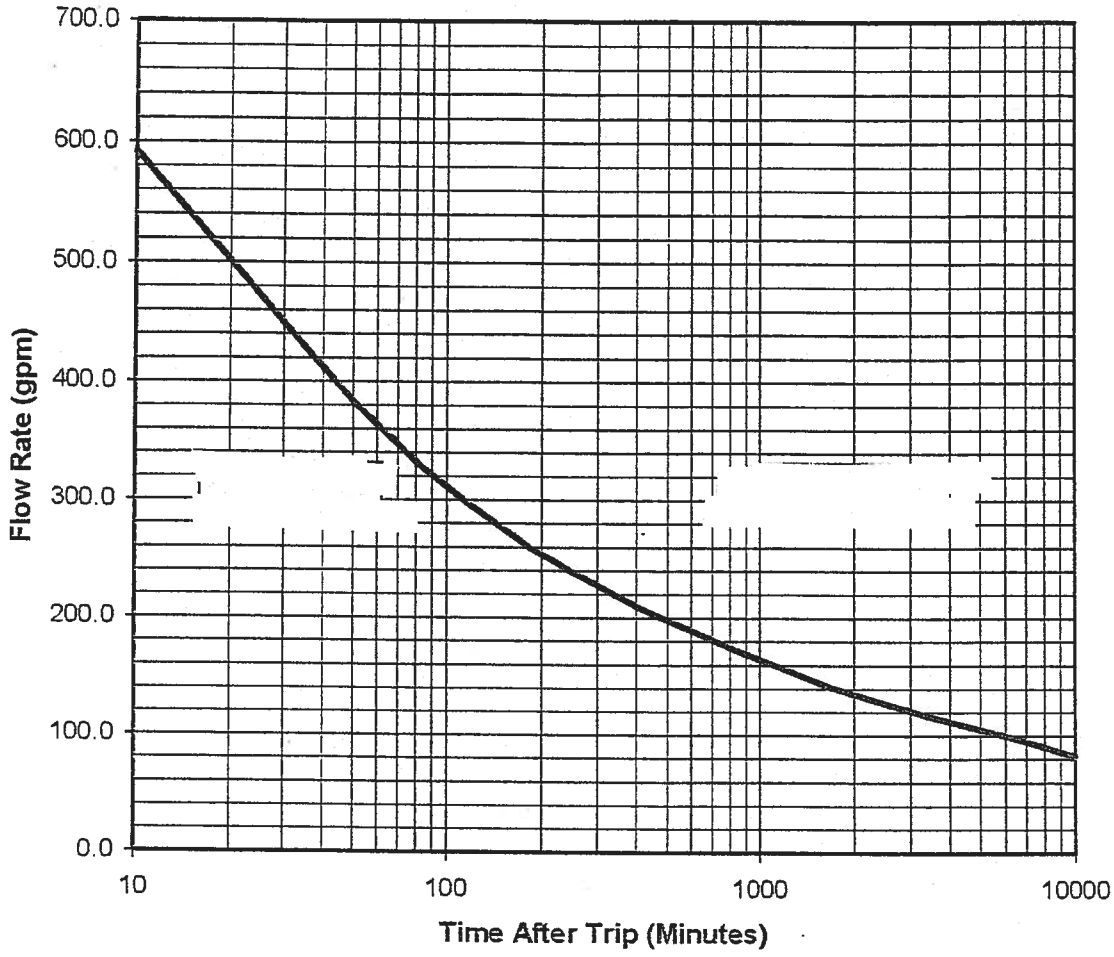
2) ** **GO TO** Step 25.

RCS PRESS BETWEEN	REQUIRED SUBCOOLING
285 AND 585 psig	115°F [135°F ADV]
585 AND 1085 psig	102°F [123°F ADV]
1085 AND 1885 psig	97°F [117°F ADV]
Greater than 1885 psig	94°F [114°F ADV]

20. **RESET** Phase A and Phase B.

Figure 1
(Page 1 of 1)

Minimum SI Flow for Decay Heat vs. Time After Trip



NCS Test Sheet 100/W

Form No. 95677

Reorder Phone Number 1-800-367-6627

1

KEY ID (A B C D)

SCORING & PRINTING OPTIONS: ○ RESCORE ○ MULTIPLE ANSWER SCORING ○ CORRECT ANSWER ○ MARK X ○ TOTAL ONLY

MARK ONLY ONE

FEED IN THIS DIRECTION

	T	F
1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
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97	A	B	C	D	E
98	A	B	C	D	E
99	A	B	C	D	E
100	A	B	C	D	E

ANSWER KEY INFO.

OF KEYS ITEM COUNT

0	0	0	2
1	1	1	3
	2	2	4
	3	3	
	4	4	
	5	5	
	6	6	
	7	7	
	8	8	
	9	9	

PERFORMANCE ASSESSMENT

% OF TOTAL SCORE (00 = 100%) | POINTS EARNED

EQUAL PT VALUE

0	0	0	0
1	1	1	1
2	2	2	2
3	3		3
4	4		4
5	5		5
6	6		6
7	7		7
8	8		8
9	9		9

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FEED IN THIS DIRECTION

NUMBER CORRECT	
PERCENT CORRECT	
ROSTER NUMBER	
SCORE	
RESCORE	

NCS With Education in Mind™

COMBINED POINTS EARNED	
COMBINED PERCENT CORRECT	
LETTER GRADE	
SCORE	
RESCORE	

100 ITEM

NAME

SUBJECT

PERIOD

RO KEY
12/29/11

Mark Reflex® by NCS ... ble paper

MARKING INSTRUCTIONS

Use a No. 2 Pencil

(A) (●) (C) (D) (E)

Fill oval completely

(A) (B) (C) (D) (E)

Erase cleanly

STUDENT ID NUMBER

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