U.S. Nuclear Regulatory Commission
2009a HNP NRC
Site-Specific RO Written Examination

Applicant Information

Name:	
Date:	Facility/Unit: Shearon Harris / Unit 1
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 80.00 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	75	Points
Applicant's Score	_____	Points
Applicant's Grade	_____	Percent

2009a ILC
NRC WRITTEN

RO EXAM

1. Given the following plant conditions:
   - A reactor trip has just occurred from full power due to a loss of Offsite Power
   - The crew has entered EPP-004, Reactor Trip Response

   The following plant conditions currently exist:
   - All SG levels are 21% and lowering
   - Total AFW flow to the Steam Generators is 211 KPPH
   - Loop Low Tavg Bistable lights are lit on TSLB 3
   - Loop Low-Low Tavg Bistable lights are lit on TSLB 3
   - Group 1 Condenser Steam Dumps red AND green lights are lit on SLB 1
   - The BOP is directed to control temperature in accordance with EPP-004 Table 1

   Which ONE of the following describes the action required in accordance with Table 1?

   A. Close all Main Steam Isolation Valves

   B. Place Steam Dumps in the Steam Pressure Mode

   C. Decrease AFW flow to the Steam Generators to suspend the RCS Cooldown

   D. Increase AFW flow to the Steam Generators to raise Steam Generator Water Levels

2. Given the following plant conditions:
   - The plant was operating at 100% when a small break LOCA occurred
   - The crew tripped the Reactor and performed a manual SI
   - The crew is performing actions of PATH-1

   The RO reports the following indications:
   - FI-943, SI Flow: 0 gpm
   - 'A' CSIP ammeter: 49 amps
   - 'B' CSIP ammeter: 50 amps
   - RCS pressure: 1390 psig
   - SI Valves are properly aligned per PATH-1 Guide Attachment 1, Emergency Alignment

   Which ONE of the following describes the required operator actions for these conditions?

	Trip ALL RCPs	Verify Alternate Miniflow Valves are:
A.	Immediately	SHUT
B.	Immediately	OPEN
C.	When FI-943 exceeds 200 gpm	SHUT
D.	When FI-943 exceeds 200 gpm	OPEN

3. Given the following plant conditions:
   - A large break LOCA has occurred
   - ALB-004-2-4, Refueling Water Storage Tank 2/4 Low Low Level, annunciator was received several minutes ago
   - RWST level indicates 20%
   - All required automatic actions have occurred as designed

   Which ONE of the following describes the manual action(s) that must be taken by the operator to properly align the 'A' RHR pump for continued core cooling in accordance with EPP-010, Transfer to Cold Leg Recirculation?

   A. SHUT 1SI-322, RWST to RHR pump suction valve

   B. OPEN 1SI-340, Low Head SI to Cold Leg injection valve

   C. SHUT 1RH-25 and 1RH-63, RHR Discharge to CSIP suction valves

   D. OPEN 1SI-300 and 1SI-310, CNMT Sump to RHR pump suction valves

4. Given the following plant conditions:
   - The plant is operating at 100% power
   - The PRZ Level Control Selector Switch is selected to 459/460

   The following conditions are observed:
   - Actual Pressurizer level is trending DOWN
   - VCT level is trending UP
   - Auto Makeup is NOT in progress
   - RCS temperature and pressure are stable

   Which ONE of the following describes the event in progress?

   A. RCS leak outside CNMT downstream of FCV-122, Charging Flow Control Valve

   B. FCV-122, Charging Flow Control Valve, has failed SHUT

   C. LT-460, Pressurizer Level, is failing LOW

   D. LT-460, Pressurizer Level, is failing HIGH

5. Given the following plant conditions:
   - The plant is in Mode 5
   - 'A' RHR pump is in operation for Shutdown Cooling
   - 'B' RHR pump is secured while packing is adjusted on 1RH-40, RHR Pump 'B' Hot Leg Suction Valve
   - 1RH-40 is SHUT for packing adjustment
   - PT-402, RCS Wide Range Pressure, has failed HIGH

   The following occur:
   - 'A' RHR Pump trips on overcurrent
   - The crew has entered AOP-020, Loss of RCS Inventory or RHR While Shutdown

   Which ONE of the following is the action to be taken outside of the MCR to establish remote operating capability for 1RH-40 and what is the effect of this action in accordance with AOP-020?

   A. The Test Switch for PT-402 must be placed in TEST
      Applies 'B' train interlocks to 1RH-40

   B. The Test Switch for PT-402 must be placed in TEST
      Defeats the pressure interlock for 1RH-40

   C. 1RH-40 must be connected to its alternate power supply
      Applies 'B' train interlocks to 1RH-40

   D. 1RH-40 must be connected to its alternate power supply
      Defeats the pressure interlock for 1RH-40

6. Given the following plant conditions:
   - The plant is operating at 100% power
   - At 1530, the crew entered AOP-018, RCP Abnormal Conditions, due to increasing RCP temperatures
   - The following RCP temperatures are observed:

Time	A Mtr Brg Temp	B Mtr Brg Temp	C Mtr Brg Temp
1531	168°F	172°F	171°F
1533	170°F	184°F	171°F
1535	172°F	187°F	172°F
1537	172°F	192°F	172°F
1539	173°F	206°F	172°F
1541	173°F	231°F	173°F

Which ONE of the following is the EARLIEST time that the reactor is required to be tripped AND the additional operator action(s) required after the reactor trip, in accordance with AOP-018?

	Time	Additional Action(s)
A.	1537	Stop ALL RCPs
B.	1537	Stop ONLY the 'B' RCP
C.	1541	Stop ALL RCPs
D.	1541	Stop ONLY the 'B' RCP

7. Given the following plant conditions:
   - The plant is operating at 100% power
   - Pressurizer Pressure is 2050 psig and stable
   - The crew enters AOP-019, Malfunction of RCS Pressure Control
   - PK-444A, Pressurizer Pressure Master Controller, is placed in MANUAL

   Which ONE of the following describes the action required to return pressure to 2235 psig using PK-444A?

   A. Lower the output

   B. Raise the output

   C. Lower the setpoint

   D. Raise the setpoint

8. Given the following plant conditions:
   - The plant is operating at 51% power and ramping up to 100% following an outage
   - The crew enters AOP-018, RCP Abnormal Conditions
   - 'B' RCP vibrations exceed AOP-018, Attachment 1 trip limits
   - A Reactor trip is attempted but the Reactor trip breakers fail to open
   - The crew has entered FRP-S.1, Response to Nuclear Power Generation / ATWS

   Given the current plant status, which ONE of the following action(s) is required to comply with FRP-S.1?

   A. Immediately trip the 'B' RCP

   B. Trip the 'B' RCP immediately after FRP-S.1 immediate actions are completed

   C. Continue operating ALL RCPs until power is <48% and then trip 'B' RCP

   D. Continue operating ALL RCPs until power is <5% and then trip 'B' RCP

9. Given the following plant conditions:
   - 'B' Steam Generator has been identified as Ruptured and Isolated in accordance with PATH-2
   - 'A' and 'C' Steam Generators are intact and were used for cooldown
   - All RCPs are tripped
   - The crew is evaluating SI Termination Criteria in PATH-2
   - B Steam Generator Pressure reads 1050 psig
   - 'A' Loop Wide Range Thot (TI-413) reads 505°F
   - 'B' Loop Wide Range Thot (TI-423) reads 525°F
   - 'C' Loop Wide Range Thot (TI-433) reads 500°F
   - RCS Wide Range Pressure (PI-402) reads 1435 psig
   - RCS Wide Range Pressure (PI-403) reads 1385 psig

   Which ONE of the following is the value for RCS subcooling when calculated in accordance with the User's Guide?

   A. 62°F

   B. 67°F

   C. 82°F

   D. 87°F

10. Given the following plant conditions:
    - The plant is operating at 100% power
    - OWP-ESF-01 is in place for CNMT Pressure Channel III

    Subsequently, Instrument Bus S-II is lost.

    Which ONE of the following describes the status of the Channel II CNMT HI-3 Pressure Bistable light on TSLB-4 and the CNMT Spray Actuation Signal (CSAS)?

	TSLB-4 CNMT HI-3	CSAS
A.	illuminated	actuated
B.	illuminated	NOT actuated
C.	extinguished	actuated
D.	extinguished	NOT actuated

11. Given the following plant conditions:
    - The plant is operating at 100% power

    The following has just occurred:
    - The 125VDC Emergency Bus DP-1A-SA has been de-energized due to a fire
    - All 125VDC Batteries and Battery Chargers are undamaged

    Which ONE of the following describes the status of the CHANNEL I UPS TROUBLE alarm (ALB-015-2-5) and the reason?

    The alarm is:

    A. clear because AC input to the 7.5 kVA UPS is still available.

    B. clear because DC input to the 7.5 kVA UPS is still available.

    C. lit because DC input to the 7.5 kVA UPS has been lost.

    D. lit because AC output from the 7.5 kVA UPS has been lost.

12. Given the following plant conditions:
    - The plant is operating at 100% power
    - 'A' Train equipment is in service
    - NSW flow and pressure are decreasing
    - BOTH ESW Trains received automatic start signals
    - The crew is performing actions of AOP-022, Loss of Service Water

    The following conditions are observed:
    - 1A-SA ESW Pump trips upon starting

    Which ONE of the following describes the required actions in accordance with AOP-022?

    A. Immediately START the 'B' CSIP and then STOP the 'A' CSIP

    B. Immediately STOP the 'A' CSIP and then isolate letdown

    C. START the 'B' CSIP and then STOP the 'A' CSIP, ONLY if 'A' ESW flow is lost for > ONE minute

    D. STOP the 'A' CSIP and then isolate letdown, ONLY if 'A' ESW flow is lost for > ONE minute

13. Given the following plant conditions:
    - The plant is operating at 100% power
    - The Compressed Air System (CAS) Control Panel is in Sequence 1
    - A loss of Auxiliary Bus 1D has occurred
    - 'A' EDG is carrying Bus 1A-SA
    - A leak is in progress on the Instrument Air system that is causing pressure to lower
    - The crew enters AOP-017, Loss of Instrument Air
    - No operator actions have been taken

    As Instrument Air pressure continues to lower, which ONE of the following describes the order that Air Compressors will start and what determines this start order?

	Compressor Start Order	Reason
A.	B then C	CAS Sequence 1 controlling
B.	B then C	Local Pressure switches controlling
C.	C then B	CAS Sequence 1 controlling
D.	C then B	Local Pressure switches controlling

14. Given the following plant conditions:
    - The plant is operating at 50% power
    - 'A' Train equipment is in service except for Charging
    - 'B' CSIP is in service for routine testing, 'A' CSIP is in standby
    - The crew has entered AOP-028, Grid Instability, due to switchyard voltage oscillations

    (Breaker 105 SA, Emergency Bus A-SA to Aux Bus D Tie)
    (Breaker 125 SB, Emergency Bus B-SB to Aux Bus E Tie)

    Which ONE of the following lists the action(s) required to be taken FIRST to transfer the 6.9kV emergency buses in accordance with AOP-028?

    A. Start the A-SA EDG, parallel with Offsite Power to power the 1A-SA Safety Bus, then open breaker 105

    B. Start the B-SB EDG, parallel with Offsite Power to power the 1B-SB Safety Bus, then open breaker 125

    C. Open breaker 105 to initiate automatic starting and loading of the A-SA EDG

    D. Open breaker 125 to initiate automatic starting and loading of the B-SB EDG

15. Given the following plant conditions:
    - Reactor Trip and Safety Injection have occurred from 100% power
    - PZR level is off scale low
    - Containment Radiation Monitors are at normal values
    - Auxiliary Building Radiation Monitors are in alarm
    - The crew is implementing EPP-013, LOCA Outside Containment
    - The leak has been isolated by shutting 1SI-340, Low Head SI Train 'A' to Cold Leg Valve

    Which ONE of the following describes the parameter used to determine that the break was isolated and which RHR pump(s) must now be secured in accordance with EPP-013?

	Parameter Used	RHR Pump Operation
A.	RCS Pressure Increasing	Stop ONLY 'A' RHR Pump
B.	RCS Pressure Increasing	Stop 'A' and 'B' RHR Pumps
C.	RCS Subcooling Increasing	Stop ONLY 'A' RHR Pump
D.	RCS Subcooling Increasing	Stop 'A' and 'B' RHR Pumps

16. Given the following plant conditions:
    - A Reactor Trip and Safety Injection have occurred
    - AFW flow cannot be established
    - All SG NR levels are off-scale low
    - The crew enters FRP-H.1, Response to Loss of Secondary Heat Sink, from PATH-1
    - RCS Pressure is 100 psig and stable
    - RCS Temperature is 335°F and trending down slowly
    - Intact SG pressures are 475 psig and trending down slowly
    - The RHR pumps are injecting into the RCS in the ECCS Mode

    Which ONE of the following describes the required implementation of plant emergency operating procedures and the basis?

    A. Remain in FRP-H.1 because all SG NR levels are off-scale low

    B. Remain in FRP-H.1 because no AFW flow is available

    C. Return to PATH-1 because RCS Pressure is less than Intact SG Pressure

    D. Return to PATH-1 because RCS Temperature is less than 350°F

17. Given the following plant conditions:
    - A LOCA has occurred
    - Multiple failures have resulted in a transition to EPP-012, Loss of Emergency Coolant Recirculation
    - 'A' and 'B' RHR pumps are operating but incapable of cold leg recirc

    Which ONE of the following describes how plant operation is affected when the SI Suction Auto Switchover is reset in accordance with EPP-012?

    A. Allows securing one CSIP and realigning CSIP flow to the Charging Line

    B. Allows securing one RHR Pump AND one CSIP to establish one Train of SI flow

    C. Prevents RHR Pump Miniflow Isolation Valves cycling open/shut automatically

    D. Prevents CSIP Alternate Miniflow Isolation Valves cycling open/shut automatically

18. Given the following plant conditions:
    - The crew is performing EPP-015, Uncontrolled Depressurization of All Steam Generators
    - Containment pressure is 4.1 psig and rising
    - 'A' SG level is 10% and lowering
    - 'B' SG level is 52% and stable
    - 'C' SG level is 30% and stable
    - RCS Hot Leg temperatures are lowering
    - RCS Cooldown Rate is 90°F/hr

    Which ONE of the following describes the MINIMUM required AFW flow rate for these conditions?

    A. 12.5 KPPH to each SG

    B. 12.5 KPPH to 'A' and 'C' SGs, no minimum required to 'B' SG

    C. 12.5 KPPH to 'A' SG, no minimum required to 'B' and 'C' SGs

    D. 210 KPPH total AFW to all SGs, no minimum required to each SG

19. Given the following plant conditions:
    - The plant is operating at 75% power
    - NI Gain Adjustment is in progress
    - N-41 has been completed and the BOP is performing adjustment on N-42

    The following conditions are observed:
    - Tavg is increasing
    - Tref remains constant
    - Pressurizer pressure and level are increasing
    - Control Rods are stepping

    Assuming NO operator action has occurred, which ONE of the following describes the event in progress and the required operator action?

	Event	Required Operator Action
A.	Inadvertant dilution	Manually trip the Reactor and Transition to PATH-1
B.	Inadvertant dilution	Remain at power and Emergency Borate the RCS
C.	Continuous rod withdrawal	Manually trip the Reactor and Transition to PATH-1
D.	Continuous rod withdrawal	Remain at power and Emergency Borate the RCS

20. Given the following plant conditions:
    - Control bank 'D' group 2 rod F-10 dropped partially into the core due to a blown movable gripper fuse
    - The condition has been repaired and the fuse replaced
    - Actions per AOP-001, Malfunction of Rod Control and Indication System, are in progress to recover the misaligned rod
    - The lift coil disconnect switches for all control bank 'D' rods except for F-10 are open
    - ALB-013-7-1, Rod Control Urgent Alarm, is received when the operator starts to withdraw rod F-10

    Which ONE of the following describes the Rod Control Power Cabinet that is producing the Rod Control Urgent Alarm and the cause of this alarm?

	Power Cabinet	Cause
A.	1BD	Phase Failure
B.	1BD	Regulation Failure
C.	2BD	Phase Failure
D.	2BD	Regulation Failure

21. Given the following plant conditions:
    - The plant is EOL and operating at 95% power
    - The crew has entered AOP-038, Rapid Downpower
    - Reactor power must be reduced to 65%
    - A rapid addition of Boric Acid to the RCS will be performed using 1CS-278, Emergency Boric Acid Addition valve

    Which ONE of the following identifies the gallons of Boric Acid required for the power reduction in accordance with AOP-038? **(Reference provided)**

    A. 392

    B. 565

    C. 630

    D. 695

22. Given the following plant conditions:
    - The compensating voltage on Intermediate Range (IR) channel NI-35 is set too HIGH
    - A plant shutdown is in progress in accordance with GP-006, Normal Plant Shutdown From Power Operation To Hot Standby (Mode 1 to Mode 3)

    Which ONE of the following describes the effect on NI-35 indication AND the effect on SR NI operation as power decreases into the Source Range?

    A. NI-35 will indicate LOWER than NI-36;
    Both SR NIs will automatically energize

    B. NI-35 will indicate LOWER than NI-36;
    Both SR NIs must be manually energized

    C. NI-35 will indicate HIGHER than NI-36;
    Both SR NIs will automatically energize

    D. NI-35 will indicate HIGHER than NI-36;
    Both SR NIs must be manually energized

23. Given the following plant conditions:
    - The plant is operating at 100% power
    - Rad monitor REM-01TV-3534, Condenser Vacuum Pump is under clearance
    - 'B' SG has a known 4 gpd tube leak
    - AOP-016, Excessive Primary Plant Leakage, is in progress

    Chemistry reports 'B' SG tube leakage has increased and provides the following data:

Time	Leak Rate
0200	48 gpd
0300	76 gpd
0400	77 gpd
0500	78 gpd
0600	85 gpd
0700	126 gpd
0800	158 gpd

Which ONE of the following describes the LATEST time by which the plant must be in Mode 3 in accordance with AOP-016? (**Reference provided**)

A. Today at 0900

B. Today at 1000

C. Today at 1400

D. Tomorrow at 0400

24. Given the following plant conditions:
    - The crew is performing FRP-C.1, Response To Inadequate Core Cooling
    - Both CSIPs are running
    - SI flow indication is 0 gpm
    - 1SI-3 and 1SI-4, BIT Outlet Valves will not OPEN from the MCB
    - The RO has been directed to establish another high head injection flow path

    Which ONE of the following describes which valve will be operated preferentially to establish this flow path in accordance with FRP-C.1 and the actions required to supply control power to that valve?

    A. 1SI-52, Alt High Head SI To Cold Leg;
       Direct operators locally to shut control power breakers in the field

    B. 1SI-52, Alt High Head SI To Cold Leg;
       Turn on valve control power at the Main Control Board

    C. 1SI-86, High Head SI To Hot Leg;
       Direct operators locally to shut control power breakers in the field

    D. 1SI-86, High Head SI To Hot Leg;
       Turn on valve control power at the Main Control Board

25. Given the following plant conditions:
    - The plant is operating at 100% power
    - 'A' Train Safety Equipment is in service

    The following radiation monitors go into HIGH Alarm on the RM-11:
    - RM-1RR-3595, Volume Control Tank Rm
    - RM-1RR-3599A, Charging Pump 1A Rm
    - RM-1RR-3601, Letdown Hx Vlv Gallery

    Which ONE of the following identifies the procedure that must be entered?

    A. AOP-008, Accidental Release of Liquid Waste

    B. AOP-009, Accidental Release of Waste Gas

    C. AOP-016, Excessive Primary Plant Leakage

    D. AOP-032, High RCS Activity

26. Given the following plant conditions:
    - A LOCA has occurred
    - RCS pressure is 1100 psig and stable
    - Containment pressure is 5 psig and stable
    - The crew is performing actions contained in EPP-009, Post LOCA Cooldown and Depressurization

    Which ONE of the following describes the method that will be used to perform the cooldown of the RCS?

    Perform the cooldown using. . .

    A. S/G PORVs at less than 100°F per hour.

    B. S/G PORVs at the maximum achievable rate.

    C. Condenser steam dumps at less than 100°F per hour.

    D. Condenser steam dumps at maximum achievable rate.

27. Given the following plant conditions:
    - The crew is performing EPP-007, Natural Circulation Cooldown With Steam Void In Vessel Without RVLIS

    Current plant conditions are:
    - RCS pressure is 1600 psig
    - All hot leg temperatures are 449°F and stable
    - Pressurizer level is 30%
    - Letdown flow is 60 GPM
    - Total RCP Seal Return Flow is 8 GPM
    - Total RCP Seal Injection Flow is 27 GPM
    - An RCS depressurization to 800 psig is about to be performed

    Which ONE of the following describes what charging flow should be adjusted to prior to starting the depressurization and the reason for making this adjustment?

	Charging Flow	Reason
A.	41 GPM	to accommodate void growth
B.	41 GPM	to allow accurate monitoring of void growth
C.	33 GPM	to accommodate void growth
D.	33 GPM	to allow accurate monitoring of void growth

28. Given the following plant conditions:
    - GP-001, Reactor Coolant System Fill and Vent Mode 5, is in progress
    - The crew is preparing to start the first RCP

    Which ONE of the following sets of plant conditions meets the requirements for starting the first RCP in accordance with OP-100, Reactor Coolant System?

	RCS pressure	# 1 Seal ΔP	# 1 Seal Leakoff Flow
A.	350 psig	220 psid	0.1 gpm
B.	330 psig	205 psid	0.5 gpm
C.	310 psig	190 psid	0.9 gpm
D.	290 psig	175 psid	1.3 gpm

29. Given the following plant conditions:
    - The plant is operating at 100% power
    - A manual blend to the RWST is being performed in accordance with OP-107.01, CVCS Boration, Dilution, and Chemistry Control
    - All other systems are in automatic

    The following annunciators alarm:
    - ALB-007-4-3, VCT High-Low Level
    - ALB-007-5-5, Computer Alarm Chem & Vol Systems
    - ALB-006-8-3, Boric Acid Auto Make-Up Signal Blocked

    Plant Computer provides the following information:

ERFIS ID	Description	Value and Trend
LCS0115	VCT Level	14% and lowering
LCS0112	VCT Level	86% and rising
ZCS0241	FCV115A Letdown to VCT Divert	RHT

Which ONE of the following identifies the failing indicator and the status of Emergency Makeup from the RWST (assuming NO operator action)?

	Failing indicator	Emergency Makeup Status
A.	LT-115 failing LOW	Available
B.	LT-115 failing LOW	Unavailable
C.	LT-112 failing HIGH	Available
D.	LT-112 failing HIGH	Unavailable

30. Given the following plant conditions:
    - The plant is operating at 100% power near the end of core life
    - An RCS alternate dilution is in progress
    - During the alternate dilution, an inadvertent Safety Injection occurs

    Following the SI actuation, the alternate dilution will. . .

    A. continue to fill the VCT until the total makeup water batch counter reaches zero.

    B. continue to fill the VCT until VCT level reaches 40%.

    C. stop due to an automatic flow deviation caused by the RMUW pumps deenergizing.

    D. stop due to an automatic flow deviation caused by the closure of FCV-114A (1CS-155, Makeup to VCT).

31. Given the following plant conditions:
    - The plant is in Mode 5
    - The RCS is in solid plant operation
    - 'A' Train equipment is in service
    - 'A' Train RHR is aligned for Shutdown Cooling
    - PCV-145 (1CS-38), Letdown Pressure Control Valve, is in AUTO

    Which ONE of the following will result in an increase in RCS pressure?

    A. Output fails to 100% on HC-142.1 (1CS-28), RHR Letdown Controller

    B. Output fails to 100% on PK-145.1 (1CS-38), Letdown Pressure Controller

    C. Instrument Air is lost to HCV-142 (1CS-28), RHR Letdown Control Valve

    D. Instrument Air is lost to PCV-145 (1CS-38), Letdown Pressure Control Valve

32. Given the following plant conditions:
    - A plant cooldown is in progress in accordance with GP-007, Normal Plant Cooldown Mode 3 to Mode 5

    In accordance with GP-007, prior to decreasing to less than or equal to ____°F, one CSIP must be de-energized.

    A. 350°F

    B. 325°F

    C. 200°F

    D. 190°F

33. Given the following plant conditions:
    - An inadvertent SI has occurred
    - PATH-1 is in progress
    - The RO notes that a PRZ PORV lifts correctly to reduce RCS pressure

    Subsequently, the RO notes the following:
    - The PORV indicates shut but it is suspected of having failed to fully reseat
    - PRT pressure indicates 54 psig

    Which ONE of the following describes the expected PORV Tailpipe Temperature if the Pressurizer PORV has failed to fully reseat?

    PORV Tailpipe Temperature will be approximately equal to. . .

    A. Pressurizer temperature.

    B. Containment temperature

    C. Saturation Temperature for PRT pressure

    D. Saturation Temperature for Containment pressure

34. Given the following plant conditions:
    - The plant is operating at 100% power
    - ALB-009-8-1, Pressurizer Relief Tank High-Low Level Press Or Temp, is in alarm
    - PRT pressure indicates 9 psig
    - PRT temperature indicates 101°F
    - PRT level indicates 74%

    Which ONE of the following describes the required action for this alarm in accordance with the Annunciator Panel Procedure and OP-100, Reactor Coolant System?

    A. Drain the PRT to the Waste Hold Tank

    B. Drain the PRT to the Reactor Coolant Drain Tank

    C. Vent the PRT to the Waste Gas Vent Header

    D. Vent the PRT to the Reactor Coolant Drain Tank

35. Given the following plant conditions:
    - The plant is operating at 100% power
    - Excess Letdown is in service in preparation for removing Normal Letdown from service

    The RO observes the following indications:
    - Reactor Power has increased
    - Control Bank 'D' Rods begin to step

    Which ONE of the following CCW leak locations would result in these indications and what direction of rod motion is expected?

CCW Leak	Rod Direction
A. Seal Water Heat Exchanger	IN
B. Seal Water Heat Exchanger	OUT
C. Excess Letdown Heat Exchanger	IN
D. Excess Letdown Heat Exchanger	OUT

36. Given the following plant conditions:
    - The plant is operating at 100% power
    - 'A' CCW pump is running
    - 'B' CCW pump is in standby

    The following occurs:
    - 'A' CCW trips on overcurrent
    - Breaker 105, Emergency Bus A-SA to Aux Bus D Tie, trips open on fault

    Which ONE of the following describes the response of the 'B' CCW Pump?

    A. Will NOT auto start. Must be started manually

    B. Will auto start directly from a sequenced safeguards signal

    C. Will auto start directly from low pressure in the CCW header

    D. Will auto start directly from the electrical trip of the 'A' CCW pump

37. Given the following plant conditions:
    - The plant is operating at 100% power
    - Multiple annunciators alarm in the MCR
    - The BOP announces that all MSIVs have shut
    - The USCO directs a manual reactor trip
    - The RO announces that 1CS-11, Letdown Isolation valve and 1MS-72, MS Line 'C' to TDAFW have lost power

    Which ONE of the following Pressurizer PORV indications is lost and what Technical Specification action is required due to this event?

    A. 1RC-114 (PCV-444B SB)
    Close the associated block valve and remove power

    B. 1RC-114 (PCV-444B SB)
    Close the associated block valve with power maintained

    C. 1RC-118 (PCV-445A SA)
    Close the associated block valve and remove power

    D. 1RC-118 (PCV-445A SA)
    Close the associated block valve with power maintained

38. Given the following plant conditions:
    - The plant is operating at 90% power
    - Pressurizer pressure is 2235 psig
    - RCS average temperature is 587°F
    - AFD is indicating + 4%

    Which ONE of the following will cause the OTΔT trip setpoint to LOWER?

    A. Increasing AFD to +15%

    B. Decreasing power to 88%

    C. Increasing pressure to 2250 psig

    D. Decreasing temperature to 585°F

39. Which ONE of the following Reactor trips has the primary function of assuring fuel integrity by limiting the allowable heat generation rate (kW/ft) in accordance with Technical Specification bases?

A. Overpower Delta T (OPΔT)

B. Power Range High Flux Trip

C. Low Primary Coolant Flow Trip

D. Overtemperature Delta T (OTΔT)

40. Given the following plant conditions:
    - A LOCA has occurred
    - RCS pressure is 400 psig and stable
    - CNMT pressure is 15.1 psig and lowering

    During performance of PATH-1 Guide Attachment 6, the BOP identifies the following:
    - ALL four fans in the 'A' Train CNMT Fan Coolers are in HIGH SPEED

    Which ONE of the following describes the required condition of the fans for 'A' Train of CNMT Fan Coolers and the effect of this failure on CNMT if NOT corrected?

    A. One fan per unit running in SLOW SPEED;
    The 'A' Train Post-Accident Dampers will NOT OPEN resulting in INADEQUATE mixing of the CNMT atmosphere

    B. One fan per unit running in SLOW SPEED;
    The 'A' Train fans will overload under higher density atmospheric conditions resulting in HIGHER CNMT pressure

    C. One fan per unit running in HIGH SPEED;
    The 'A' Train fans will overload under higher density atmospheric conditions resulting in higher CNMT pressure

    D. One fan per unit running in HIGH SPEED;
    The 'A' Train Post-Accident Dampers will NOT OPEN resulting in INADEQUATE mixing of the CNMT atmosphere

41. Given the following plant conditions:
    - The plant is operating at 100% power
    - The breaker to MCC 1A34-SA has tripped OPEN

    Due to this malfunction, which ONE of the following components has lost power?

    A. CRDM Cooling Fan E-80A

    B. Primary Shield Cooling Fan S-2A-SA

    C. CNMT Fan Cooler AH-3A-SA

    D. RX Support Cooling Fan S-4A-SA

42. Given the following plant conditions:
    - The plant is operating at 100% power
    - 'A' Containment Spray Pump is running on recirculation per OST-1118, Containment Spray Operability Train A Quarterly Interval Modes 1-4

    Current Conditions:
    - A small break LOCA occurs in Containment
    - The crew performs a manual Reactor Trip and SI
    - Containment pressure is 3.8 psig and rising

    Which ONE of the following describes the 'A' Containment Spray System response to the conditions that have developed?

    A. The 'A' Containment Spray Pump has been tripped by the Sequencer

    B. The 'A' Containment Spray Pump has been tripped by the Containment Phase A Isolation (T) signal

    C. The 'A' Containment Spray Pump will continue to run and the spray header isolation valve will open if Containment pressure exceeds 10 psig

    D. The 'A' Containment Spray Pump will continue to run, but the spray header isolation valve will NOT open if Containment pressure exceeds 10 psig

43. Given the following plant conditions:
    - A Large Break LOCA has occurred
    - Containment Spray actuated automatically
    - 'A' Containment Spray pump breaker tripped open on start
    - 'B' Containment Spray pump is running
    - The crew has completed the actions of PATH-1 and transitioned to EPP-010, Transfer To Cold Leg Recirculation

    Current plant condictions:
    - RWST Level is 23%
    - Containment Spray Additive Tank level is 3.5%

    Which one of the following describes the expected status of the Containment Sump Recirculation Valves (1CT-102 and 1CT-105) and the Chemical Addition Isolation Valves (1CT-12 and 1CT-11)? **NOTE**: Assume no operator action has taken place.

    A. BOTH trains of Containment Sump Recirculation Valves OPEN; Chemical Addition Isolation Valves OPEN

    B. BOTH trains of Containment Sump Recirculation Valves OPEN; Chemical Addition Isolation Valves SHUT

    C. ONLY 'B' Train of Containment Sump Recirculation Valve OPEN; Chemical Addition Isolation Valves OPEN

    D. ONLY 'B' Train of Containment Sump Recirculation Valve OPEN; Chemical Addition Isolation Valves SHUT

44. Given the following plant conditions:
    - GP-007, Normal Plant Cooldown, is in progress
    - RCS Cold Leg Temperature is 255°F
    - The BOP has been directed to establish the required cooldown rate using Condenser Steam Dumps

    Currently, in accordance with Technical Specifications, a maximum cooldown of ___(1)___ °F in any one hour period is allowed based on limiting the ___(2)___ stresses on the Reactor Vessel Inner Wall.

    A. (1) 30
       (2) tensile

    B. (1) 30
       (2) compressive

    C. (1) 50
       (2) tensile

    D. (1) 50
       (2) compressive

45. Given the following plant conditions:
    - A reactor trip has just occurred from full power

    The following plant conditions currently exist:
    - RCS Tavg is slowly increasing
    - All SG levels are 28% and slowly decreasing
    - Loop Low Tavg Bistable lights are lit on TSLB 3
    - Loop Low-Low Tavg Bistable lights are NOT lit on TSLB 3
    - The crew has entered EPP-004, Reactor Trip Response

    Which ONE of the following describes the status of the Main Feedwater system and the action required to stabilize and maintain Steam Generator level in accordance with EPP-004?

    A. ONLY Main Feed Reg Valves auto shut;
       Adjust MDAFW FCVs to control level

    B. ONLY Main Feed Reg Valves auto shut;
       Adjust Main Feed Reg Bypass Valves to control level

    C. Main Feed Reg AND Main Feed Reg Bypass Valves auto shut;
       Adjust MDAFW FCVs to control level

    D. Main Feed Reg AND Main Feed Reg Bypass Valves auto shut;
       Adjust Main Feed Reg Bypass Valves to control level

46. Given the following plant conditions:
    - Reactor Trip and Safety Injection have occurred from 100% power
    - The crew is implementing PATH-1
    - Containment pressure is 3.7 psig
    - 'A' SG pressure is 1100 psig
    - 'B' SG pressure is 880 psig
    - 'C' SG pressure is 990 psig
    - 80 KPPH AFW Flow exists to each SG

    Which ONE of the following describes the status of AFW Isolation signal and the action(s) required?

    A. AFW Isolation signal is NOT required;
    maintain SG Water Levels between 25% and 50%.

    B. AFW Isolation signal is NOT required;
    maintain SG Water Levels between 40% and 50%.

    C. AFW Isolation signal is required for the 'B' SG;
    manually isolate AFW Flow to 'B' SG.

    D. AFW Isolation signal is required for the 'B' and 'C' SGs;
    manually isolate AFW Flow to 'B' and 'C' SGs.

47. Given the following plant conditions:
    - The plant is operating at 35% power
    - The 6.9 KV Aux buses are being supplied by the UATs
    - Breaker 52-7 is open for inspection by transmission personnel

    Breaker 52-9 has just tripped open on a fault.

    If a Generator Lockout occurs, a bus transfer to the SUT...

    A. will automatically occur immediately AND the Safety Buses will remain energized from Offsite Power.

    B. will automatically occur after 30 seconds AND the Safety Buses will remain energized from Offsite Power.

    C. will NOT occur automatically AND the Safety Buses will be reenergized from the EDGs within 10 seconds.

    D. will NOT occur automatically AND the Safety Buses will be reenergized from the EDGs ONLY after 10 seconds.

48. Which ONE of the following answers the statement below regarding power to the Reactor Trip Breakers?

Each Reactor Trip Breaker undervoltage (UV) coil is powered by __(1)__.
Each shunt coil is powered by __(2)__.

A. (1) SSPS
(2) SSPS

B. (1) SSPS
(2) DC Vital bus

C. (1) DC Vital bus
(2) SSPS

D. (1) DC Vital bus
(2) DC Vital bus

49. Given the following plant conditions:
    - The plant is operating at 100% power
    - A loss of DC Bus 1A-SA occurs

    Which ONE of the following answers the statement below describing the effects on the 'A' EDG?

    The EDG Output breaker __(1)__ closed from the MCB.
    The Governor and Generator Excitation circuits will be __(2)__.

    A. (1) can be
       (2) unaffected

    B. (1) can be
       (2) deenergized

    C. (1) can NOT be
       (2) unaffected

    D. (1) can NOT be
       (2) deenergized

50. Given the following plant conditions:
    - The plant is operating at 25% power
    - 'A' EDG is operating in parallel with the grid for surveillence testing
    - A loss of off-site power occurs

    Which ONE of the following describes the response of the 'A' EDG output breaker and the mode in which the EDG will be running after the event?
    NOTE: Assume no operator action has taken place.

	EDG Output Breaker	EDG Mode
A.	Remains closed	Droop mode
B.	Remains closed	Isochronous mode
C.	Opens and then recloses	Droop mode
D.	Opens and then recloses	Isochronous mode

51. The Main Control Room receives the following reports from the field:
    - Specific gravity of the fuel oil in both Fuel Oil Day Tanks is .835
    - 'A' EDG Fuel Oil Day Tank indicated level is 47%
    - 'A' EDG Fuel Oil Storage Tank indicates 90,000 gallons
    - 'B' EDG Fuel Oil Day Tank indicated level is 42%
    - 'B' EDG Fuel Oil Storage Tank indicates 110,000 gallons

    Which ONE of the following is the current OPERABILITY status of the Emergency Diesel Generators? (**Reference provided**)

	'A' EDG	'B' EDG
A.	OPERABLE	OPERABLE
B.	OPERABLE	INOPERABLE
C.	INOPERABLE	OPERABLE
D.	INOPERABLE	INOPERABLE

52. Given the following plant conditions:
    - Control Room Ventilation is in a normal lineup with 'A' Train fans in operation
    - Power is lost to the 'B' Train North MCR Emergency Outside Air Intake (OAI) Radiation Monitor, RM-3505B2SB

    Which ONE of the following describes the status of the Control Room Isolation Signal and the action required by Technical Specifications?

    A Control Room Isolation Signal. . .

    A. has NOT occurred;
       maintain the respective OAI isolated.

    B. has NOT occurred;
       place MCR Ventilation in recirculation with ALL OAIs isolated.

    C. has occurred;
       maintain the respective OAI isolated.

    D. has occurred;
       maintain MCR Ventilation in recirculation with ALL OAIs isolated.

53. Following a Reactor Trip and Safety Injection Actuation, which ONE of the following sets of components are directly supplied by the Emergency Service Water system?

A. CSIP Oil Coolers
EDG Jacket Water Heat Exchangers
Containment Fan Coil Units (AH-37,-38,-39)

B. CSIP Oil Coolers
CCW Heat Exchangers
Containment Fan Coolers (AH-1,-2,-3,-4)

C. RHR Heat Exchangers
CCW Heat Exchangers
AFW Pump Emergency Makeup

D. RCP Bearing Oil Coolers
EDG Jacket Water Heat Exchangers
Containment Fan Coolers (AH-1,-2,-3,-4)

54. Given the following plant conditions:
    - The Reactor is at 3% power
    - Main Feed Reg Valve Bypasses are controlling SG Level in AUTO
    - GP-005, Power Operation Mode 2 to Mode 1 is in progress

    Current Plant Conditions:
    - Instrument Air (IA) Pressure begins lowering due to a leak and cannot be stabilized

    Which ONE of the following describes the action required in accordance with AOP-017, Loss of Instrument Air and at what MINIMUM pressure this action is required?

	Action Required	IA Pressure
A.	Trip the Reactor and Perform PATH-1	60 psig
B.	Trip the Reactor and Perform PATH-1	35 psig
C.	Initiate AFW flow to maintain Steam Generator levels	60 psig
D.	Initiate AFW flow to maintain Steam Generator levels	35 psig

55. Following a Containment Isolation Phase 'A' signal, which one of the following sampling pathways can be unisolated without resetting the Phase A signal?

A. RHR loops

B. RCS Hot Legs

C. Pressurizer Liquid Space

D. Safety Injection Accumulators

56. Which ONE of the following describes the power supplies to the Rod Drive Motor Generator (MG) sets and the breakers that would be locally tripped first during an ATWS in accordance with the local operator aid?

RDMG Power Supplies	Breakers
A. 1D2 and 1E2	MG set motor breakers
B. 1D2 and 1E2	MG set generator output breakers
C. 1D3 and 1E3	MG set motor breakers
D. 1D3 and 1E3	MG set generator output breakers

57. Given the following plant conditions:
    - Following a rapid power reduction from 100% power, the plant is stabilized at 40% power
    - Pressurizer level is 47% and decreasing
    - RCS pressure is 2275 psig and decreasing
    - RCS Tavg is at Tref

    Based on these conditions Pressurizer Reference level should be ___(1)___ AND Pressurizer Backup Heaters should be ___(2)___.

    A. (1) 25
       (2) energized

    B. (1) 25
       (2) de-energized

    C. (1) 39
       (2) energized

    D. (1) 39
       (2) de-energized

58. Given the following plant conditions:
    - A reactor startup is in progress in accordance with GP-004, Reactor Startup
    - The Reactor Operator is currently withdrawing Control Bank 'C' rods

    Which ONE of the following is the indicated rod height on the Control Bank 'C' Step Counters at which Control Bank 'D' rods are expected to begin withdrawing and what is the expected rod speed?

	Control Bank 'C' Step Counter Indication	Control Bank 'D' Rod Speed
A.	103 Steps	48 SPM
B.	103 Steps	64 SPM
C.	128 Steps	48 SPM
D.	128 Steps	64 SPM

59. Given the following plant conditions:
    - The plant was operating at 100% power

    The following occurs:

    - The crew has entered AOP-001, Malfunction of Rod Control and Indication System, for a dropped rod
    - Control Bank 'D' Rod H-2 is currently at 0 steps
    - ALL other Control Bank 'D' Rods are currently indicating 218 steps
    - The dropped control rod cannot be recovered within the time constraints in Technical Specifications

    Which ONE of the following describes the effect on AFD for the channel NEAREST the dropped rod and the concern with this rod configuration?

    A. AFD will be MORE negative;
       Rod recovery will result in localized power peaking

    B. AFD will be MORE negative;
       Technical Specification LCO for Shutdown Margin will not be met

    C. AFD will be LESS negative;
       Rod recovery will result in localized power peaking

    D. AFD will be LESS negative;
       Technical Specification LCO for Shutdown Margin will not be met

60. Given the following plant conditions:
    - EPP-004, Reactor Trip Response, has been entered following a reactor trip
    - The crew is verifying Natural Circulation conditions as a result of a loss of power to all RCPs
    - Five (5) core exit thermocouples have been identified as failed but no additional actions have been taken to address these thermocouples

    Which ONE of the following describes the expected indication on the RVLIS Plasma Display for the failed thermocouples and the expected effect, if any, on RCS subcooling as indicated on ERFIS?

	Expected Indication	Subcooling Indication
A.	50°F	MORE subcooling than actual
B.	50°F	SAME subcooling as actual
C.	2500°F	LESS subcooling than actual
D.	2500°F	SAME subcooling as actual

61. Given the following plant conditions:
    - The plant is in Mode 5 with the RCS loops filled
    - Train 'B' RHR is OPERABLE and in operation
    - Train 'A' RHR pump tripped on overcurrent

    Which ONE of the following identifies the SG water level that must be maintained in accordance with T.S. 3.4.1.4.1, RCS Cold Shutdown - Loops Filled?

    A. Wide Range (WR) water level greater than 57% in at least ONE SG

    B. Wide Range (WR) water level greater than 57% in at least TWO SGs

    C. Narrow Range (NR) water level greater than 30% in at least ONE SG

    D. Narrow Range (NR) water level greater than 30% in at least TWO SGs

62. Given the following plant conditions:
    - The plant is operating at 100% power
    - A leak has developed in the DEH system
    - DEH fluid pressure 1725 psig and decreasing
    - DEH reservoir level is lowering

    The following indications are received:
    - ALB-020-4-2B, EH Fluid Low Press, is in alarm
    - ALB-020-4-4A, EH RSVR Low Level, is in alarm
    - ALB-020-4-4B, EH RSVR Low-Low Level, is in alarm
    - The LFT LOCKOUT relay on Generator Protective Relay Panel 1A has tripped

    Which ONE of the following describes the automatic operation of the standby DEH Pump if DEH fluid pressure and reservoir level continue to lower?

    The standby DEH Pump . . .

    A. will start when DEH fluid pressure lowers to 1450 psig.

    B. will start when DEH fluid pressure lowers to 1500 psig.

    C. was prevented from starting when the LFT LOCKOUT relay tripped.

    D. was prevented from starting when the EH RSVR Low-Low Level annunciator alarmed.

63. Given the following plant conditions:
    - A Release of Waste Gas Decay Tank 'J' is in progress in accordance with OP-120.07, Waste Gas Processing

    Which ONE of the following Radiation Monitors will initiate an automatic isolation of the Waste Gas Release?

    A. RM-3546, Stack 5 PIG

    B. RM-3546-1, Stack 5 WRGM

    C. RM-3547, Stack 5A PIG

    D. RM-3547-1, Stack 5A WRGM

64. Given the following plant conditions:
    - A rupture in the Instrument Air system has occurred
    - Instrument Air header pressure is 85 psig and lowering slowly

    Which ONE of the following describes the status of 1SA-506, Instrument Air from Service Air Isolation Valve, and the status of ALB-002-8-1, Instrument Air Low Pressure Alarm?

	1SA-506	Alarm status
A.	OPEN	Lit
B.	OPEN	NOT Lit
C.	CLOSED	Lit
D.	CLOSED	NOT Lit

65. Given the following plant conditions:
    - An Ultra Violet Detector has failed in the Diesel Generator Building resulting in ALB-030-8-1, Fire Detection System Fire, going into alarm

Which ONE of the following describes the type of sprinkler system in the Diesel Generator Building and the status of the sprinkler system deluge valve in response to this condition?

Sprinkler Type	Sprinkler Deluge Valve status
A. Multicycle	Actuated
B. Multicycle	NOT Actuated
C. Wet Pipe	Actuated
D. Wet Pipe	NOT Actuated

66. Given the following plant conditions:
    - AOP-004, Remote Shutdown, is in progress due to a fire in the MCR
    - You have been directed to isolate the SI Accumulators

    Which ONE of the following describes the required RCS pressure range to isolate the SI Accumulators in accordance with AOP-004 and where the SI Accumulator Discharge Valves controls are located?

	RCS Pressure Range	Location
A.	900-1000 psig	Auxiliary Control Panel
B.	900-1000 psig	Auxiliary Transfer Panels
C.	1900-1950 psig	Auxiliary Control Panel
D.	1900-1950 psig	Auxiliary Transfer Panels

67. Given the following plant conditions:
    - The plant is in Mode 6
    - Fuel Handling activities are in progress
    - Boron concentration in the Refueling Cavity has been determined to be less than the required Refueling Boron Concentration

    Which ONE of the following actions must be initiated immediately in accordance with GP-009, Refueling Cavity Fill, Refueling and Drain of the Refueling Cavity?

    A. Suspend core alterations since required K_{eff} cannot be ensured;
    Initiate Emergency Boration in accordance with AOP-002, Emergency Boration

    B. Suspend core alterations since required K_{eff} cannot be ensured;
    Initiate Rapid Addition of Boric Acid to RCS in accordance with OP-107.01, CVCS Boration, Dilution, and Chemistry Control

    C. Shut Fuel Transfer Tube Gate Valve to minimize total boration required;
    Initiate Emergency Boration in accordance with AOP-002, Emergency Boration

    D. Shut Fuel Transfer Tube Gate Valve to minimize total boration required;
    Initiate Rapid Addition of Boric Acid to RCS in accordance with OP-107.01, CVCS Boration, Dilution, and Chemistry Control

68. Given the following plant conditions:
    - The plant is operating at 100% power
    - Troubleshooting is in progress on the 1A-SA ESCW Chiller in accordance with AP-929, Troubleshooting Guide
    - Leads must be lifted in the Control Circuit to support the troubleshooting
    - The lead lift does not pose a risk of personnel injury or equipment damage

    Of the following, which are acceptable methods of documentation for the lead lift in accordance with AP-929?

    1. Clearance Order (OPS-NGGC-1301, Equipment Clearance)
    2. Verification Sign-Off Sheet (OPS-NGGC-1303, Independent Verification)
    3. Component Manipulation Sign-Off Sheet (OPS-NGGC-1308, Plant Status Control)
    4. Add to the Work Order Instructions at the time of lift (ADM-NGGC-0104, Work Management Process)

    A. 1 and 2

    B. 2 and 3

    C. 3 and 4

    D. 1 and 4

69. Which ONE of the following describes the Technical Specification Basis for the High Pressurizer Water Level reactor trip?

A. Provides a backup trip to PZR High Pressure reactor trip and ensures that water relief through the PZR PORVs will NOT occur

B. Provides primary protection for loss of load events and ensures that the PZR PORVs will NOT lift

C. Provides a backup trip to PZR High Pressure reactor trip and ensures that water relief through the PZR safety valves will NOT occur

D. Provides primary protection for loss of load events and ensures that the PZR safety valves will NOT lift

70. Given the following plant conditions:
    - The plant was operating at 100% power
    - A Steam Generator Tube Rupture has occurred in the 'B' SG
    - The crew is performing the actions in PATH-2 to isolate the 'B' SG

    Which ONE of the following describes the actions required to minimize radiation releases in accordance with PATH-2?

    A. Verify the 'B' SG PORV controller setpoint at 85% and place in AUTO

    B. Adjust the 'B' SG PORV controller setpoint to 88% and place in AUTO

    C. Place the 'B' SG PORV controller in MANUAL and control pressure at 1107 psig

    D. Place the 'B' SG PORV controller in MANUAL and control pressure at 1145 psig

71. A Source Check is being performed on the Plant Vent Stack Wide Range Gas Monitor, (RM-3509-1-SA).

The activity measured by the channel is lower than required when the source is exposed.

Which ONE of the following describes the expected indication for this condition?

A. The Check Source (C/S) button on the RM-11 console flashes

B. The Check Source (C/S) button on the RM-23 module flashes

C. The symbol (**) is presented on the RM-11 screen indicating Channel Check Source Failed

D. The symbol (**) is presented on the RM-23 module indicating Channel Check Source Failed

72. Given the following plant conditions:
    - A Refueling Outage is in progress
    - You have been assigned a task in the RCA and are preparing to sign on to the Operations RWP
    - The survey map records the radiation levels as 1050 mRem/hour in the general area

Which ONE of the following describes the classification of this area and the MINIMUM approval authority?

Area Classification	Individual Approving Entry
A. Very High Radiation Area	Plant General Manager
B. Very High Radiation Area	Radiation Control Supervisor
C. Locked High Radiation Area	Plant General Manager
D. Locked High Radiation Area	Radiation Control Supervisor

73. Given the following plant conditions:
    - The crew is performing EPP-009, Post LOCA Cooldown and Depressurization, due to a small break LOCA
    - The crew has initiated a cooldown to Cold Shutdown
    - The first CSIP has been secured and the crew is evaluating RCS Pressure response
    - The USCO has asked if "RCS pressure is stable or decreasing"

    The following is observed:

Time	RCS Temperature (°F)	RCS Pressure (psig)
1400	435	462
1402	433	460
1404	431	458
1406	429	456

Which ONE of the following describes the correct response for this event in accordance with the EOP User's Guide?

A. STABLE because the crew is controlling the RCS pressure decrease

B. STABLE because RCS subcooling is increasing

C. DECREASING even though RCS subcooling is increasing

D. DECREASING because the crew cannot control the RCS pressure decrease

74. Given the following plant conditions:
    - The plant is operating at 100% power
    - A loss of MCB annunciators has occurred and the crew has entered AOP-037, Loss of Main Control Room Annunciators
    - The USCO has determined that the following ALBs are lost
        - ALB-001, Containment Spray & Accumulator System
        - ALB-002, Emergency Service Normal Service Water System
        - ALB-003, Miscellaneous Systems
        - ALB-004, RHR/RWST System

    Which ONE of the following describes the Technical Specification implications and required action for loss of these ALBs?

    A. The CNMT Sump Level and Flow Monitoring Alarm is Inoperable;
    Begin logging CNMT Sump Level and determining Flow manually within 10 minutes

    B. The CNMT Sump Level and Flow Monitoring Alarm is Inoperable;
    Begin logging CNMT Sump Level and determining Flow manually within 1 hour

    C. The Main and Aux Reservoir Level and Temperature Alarms are Inoperable;
    Begin logging Temperature and Level for both Reservoirs within 10 minutes

    D. The Main and Aux Reservoir Level and Temperature Alarms are Inoperable;
    Begin logging Temperature and Level for both Reservoirs within 1 hour

75. Given the following plant conditions:
- The plant is operating in Mode 5
- The RCS is in solid plant operation
- Both Trains of RHR are aligned in the Shutdown Cooling Mode
- A large RCS leak has developed
- The crew has aligned flow through the BIT with 'A' CSIP in service as directed by AOP-020, Loss Of RCS Inventory Or Residual Heat Removal While Shutdown
- Core Exit Thermocouples continue to rise
- RCS water level continues to lower

Which ONE of the following is the action required by AOP-020 to mitigate the event?

A. Start the 'B' CSIP with flow through 1SI-3 and 1SI-4, BIT Outlet Valves

B. Start the 'B' CSIP with flow through 1SI-52, Alternate High Head SI to Cold Leg Valve

C. Align 'A' RHR Pump for Low Head SI with flow through 1SI-340, Low Head SI Train A to Cold Leg Valve

D. Align 'A' RHR Pump for Low Head SI with flow through 1SI-359, Low Head SI Trains to Hot Leg Valve

You have completed the test!

ANSWER KEY REPORT
for 2009A NRC RO EXAM FINAL Test Form: 0

#	ID	Points	Type	Answers 0
1	2009A NRC RO 1	1.00	MCS	A
2	2009A NRC RO 2	1.00	MCS	A
3	2009A NRC RO 3	1.00	MCS	A
4	2009A NRC RO 4	1.00	MCS	B
5	2009A NRC RO 5	1.00	MCS	B
6	2009A NRC RO 6	1.00	MCS	B
7	2009A NRC RO 7	1.00	MCS	A
8	2009A NRC RO 8	1.00	MCS	D
9	2009A NRC RO 9	1.00	MCS	C
10	2009A NRC RO 10	1.00	MCS	D
11	2009A NRC RO 11	1.00	MCS	C
12	2009A NRC RO 12	1.00	MCS	D
13	2009A NRC RO 13	1.00	MCS	D
14	2009A NRC RO 14	1.00	MCS	C
15	2009A NRC RO 15	1.00	MCS	A
16	2009A NRC RO 16	1.00	MCS	C
17	2009A NRC RO 17	1.00	MCS	D
18	2009A NRC RO 18	1.00	MCS	B
19	2009A NRC RO 19	1.00	MCS	C
20	2009A NRC RO 20	1.00	MCS	B
21	2009A NRC RO 21	1.00	MCS	C
22	2009A NRC RO 22	1.00	MCS	A
23	2009A NRC RO 23	1.00	MCS	A
24	2009A NRC RO 24	1.00	MCS	B
25	2009A NRC RO 25	1.00	MCS	D
26	2009A NRC RO 26	1.00	MCS	A
27	2009A NRC RO 27	1.00	MCS	B
28	2009A NRC RO 28	1.00	MCS	B
29	2009A NRC RO 29	1.00	MCS	D
30	2009A NRC RO 30	1.00	MCS	C
31	2009A NRC RO 31	1.00	MCS	C
32	2009A NRC RO 32	1.00	MCS	B
33	2009A NRC RO 33	1.00	MCS	C
34	2009A NRC RO 34	1.00	MCS	C
35	2009A NRC RO 35	1.00	MCS	A
36	2009A NRC RO 36	1.00	MCS	C
37	2009A NRC RO 37	1.00	MCS	A
38	2009A NRC RO 38	1.00	MCS	A
39	2009A NRC RO 39	1.00	MCS	A
40	2009A NRC RO 40	1.00	MCS	B
41	2009A NRC RO 41	1.00	MCS	C
42	2009A NRC RO 42	1.00	MCS	B
43	2009A NRC RO 43	1.00	MCS	C
44	2009A NRC RO 44	1.00	MCS	C
45	2009A NRC RO 45	1.00	MCS	B
46	2009A NRC RO 46	1.00	MCS	C

ANSWER KEY REPORT
for 2009A NRC RO EXAM FINAL Test Form: 0

#	ID	Points	Type	Answers 0
47	2009A NRC RO 47	1.00	MCS	C
48	2009A NRC RO 48	1.00	MCS	B
49	2009A NRC RO 49	1.00	MCS	D
50	2009A NRC RO 50	1.00	MCS	D
51	2009A NRC RO 51	1.00	MCS	C
52	2009A NRC RO 52	1.00	MCS	C
53	2009A NRC RO 53	1.00	MCS	B
54	2009A NRC RO 54	1.00	MCS	B
55	2009A NRC RO 55	1.00	MCS	A
56	2009A NRC RO 56	1.00	MCS	B
57	2009A NRC RO 57	1.00	MCS	C
58	2009A NRC RO 58	1.00	MCS	C
59	2009A NRC RO 59	1.00	MCS	A
60	2009A NRC RO 60	1.00	MCS	B
61	2009A NRC RO 61	1.00	MCS	D
62	2009A NRC RO 62	1.00	MCS	C
63	2009A NRC RO 63	1.00	MCS	A
64	2009A NRC RO 64	1.00	MCS	D
65	2009A NRC RO 65	1.00	MCS	B
66	2009A NRC RO 66	1.00	MCS	B
67	2009A NRC RO 67	1.00	MCS	A
68	2009A NRC RO 68	1.00	MCS	B
69	2009A NRC RO 69	1.00	MCS	C
70	2009A NRC RO 70	1.00	MCS	B
71	2009A NRC RO 71	1.00	MCS	C
72	2009A NRC RO 72	1.00	MCS	D
73	2009A NRC RO 73	1.00	MCS	B
74	2009A NRC RO 74	1.00	MCS	A
75	2009A NRC RO 75	1.00	MCS	C
SECTION 1 (75 items)		**75.00**		

Attachment 2
Sheet 1 of 1

Gallons of Boric Acid/Target Rod Height Required for Power Reduction

NOTE

- This Attachment serves as a reactivity plan. **[C.3]**
- This table applies to Cycle 15 only.
- Target rod heights correspond to the lower (target) power level in each row.
- Gallons of boric acid in the table are for 10% power reduction increments. These are additive for power reductions of greater than 10%.

  Example: A power reduction from 90% to 60% at BOL would require [180 gal + 171 gal +163 gal = 514 gal]
- For purposes of this procedure, 5% increments can be obtained by dividing by two.
- As used in this table, the following times in core life are assumed:

  BOL (0 ≤ EFPD ≤161) (3000 MWD/MTU)

  MOL (161 < EFPD ≤ 333) (10,000 MWD/MTU)

  EOL (333 < EFPD ≤ 527) (17,000 MWD/MTU)

Power Level (%)	Target Rod Height (D Bank)	Gallons of Boric Acid Required for Power Reduction		
		BOL 0 ≤ EFPD ≤161	MOL 161 < EFPD ≤ 333	EOL 333 < EFPD ≤ 527
100 to 90	206	206	266	303
90 to 80	194	180	207	196
80 to 70	183	171	191	196
70 to 60	171	163	174	173
60 to 50	159	154	157	182
50 to 40	147	155	166	191
40 to 30	135	155	158	207
30 to 20	124	165	167	240
20 to 10	112	165	176	289

--END OF ATTACHMENT 2--

Attachment 1
Sheet 6 of 7

Primary-To-Secondary Leak

INSTRUCTIONS	RESPONSE NOT OBTAINED

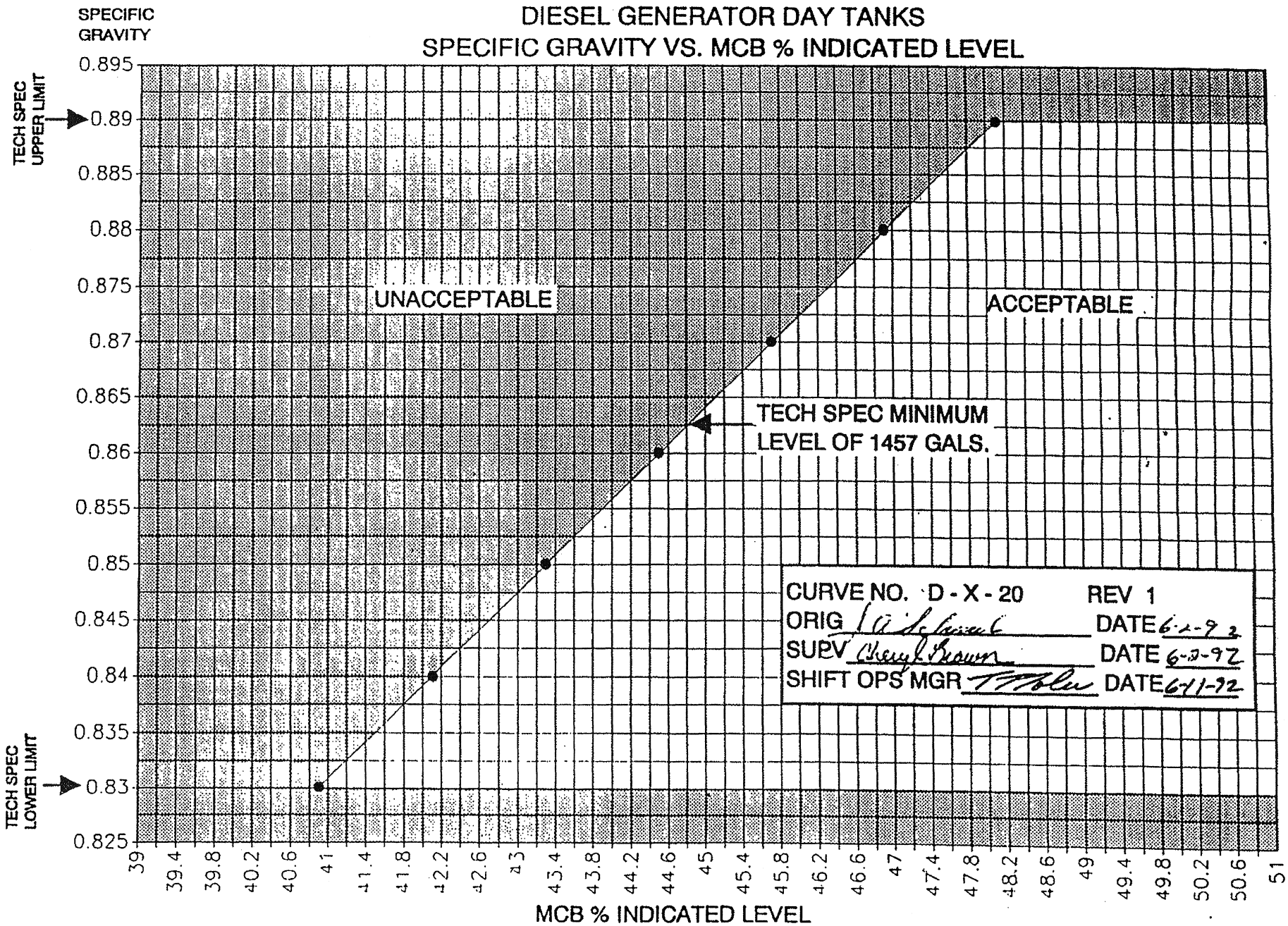
NOTE

- For initial leakage reports, where no previous leakage existed, leakage should be assumed to have changed from zero to the current value in the last hour.
- The monitoring requirements of Step 3 become optional if Step 10 directs performance of Attachment 9, 10, or 11.

✱☐ **10. PERFORM** the required actions based on the following: **[C.5, 7]**

Leak Rate (gpd) in any SG	+	Rate of Increase (gpd/hr) in any SG	=	Required Action
Leakage Detected				
less than 5	+	N/A	=	• Notify Chemistry to refer to CRC-804
Increased Monitoring				
5 to less than 30	+	N/A	=	• Perform Attachment 9
Action Level 1				
30 to less than 75	+	N/A	=	• Perform Attachment 10
Action Level 2				
Greater than or equal to 75 sustained for 1 hour	+	Less than 30	=	• Perform Attachment 11 • Be in Mode 3 within 24 hours
Action Level 3				
Greater than or equal to 75	+	Greater than or equal to 30	=	• Verify sustained rate of change above 30 gpd/hr (not followed by a decrease - spike) • Perform Attachment 11 • Reduce power to 50% within 1 hour • Be in Mode 3 within the next 2 hours (3 hours total time)
Greater than or equal to 75 **AND** LOSS of REM-01TV-3534, Condenser Vacuum Pump Rad Monitor (Grid 2)	+	N/A	=	• Perform Attachment 11 • Be in Mode 3 in less than 6 hours
Greater than or equal to 150	+	Less than 30	=	• Perform Attachment 11 • Be in Mode 3 in less than 6 hours • Be in Mode 5 within the next 30 hours (36 hours total)

DIESEL GENERATOR DAY TANKS
SPECIFIC GRAVITY VS. MCB % INDICATED LEVEL



CURVE NO. D - X - 20 REV 1
ORIG [illegible] DATE 6-2-92
SUPV Cheryl Brown DATE 6-2-92
SHIFT OPS MGR [illegible] DATE 6-11-92