

U.S. Nuclear Regulatory Commission

Site-Specific RO Written Examination

Applicant Information

Name:

Date: May 22, 2012

Facility/Unit: Prairie Island NGP U1/U2

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. Present 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

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Site-Specific SRO Written Examination

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Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination you must achieve a final grade of at least 80.00 percent overall, with 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require a final grade of 80.00 percent to pass. You have 8 hours to complete the combined examination, and 3 hours if you are only taking the SRO portion.

Applicant Certification

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

Applicant's Signature

Results

RO/SRO-Only/Total Examination Values 75 / 25 / 100 Points

Applicant's Scores _____ / _____ / _____ Points

Applicant's Grade _____ / _____ / _____ Percent

Each examinee shall be briefed on the policies and guidelines applicable to the examination category (written, operating, walk-through, and/or simulator test) being administered. The examinees may be briefed individually or as a group. Facility licensees are encouraged to distribute a copy of this appendix to every examinee before the examination begins. All items apply to both initial and requalification examinations, except as noted.

Part A: General Guidelines

1. **[Read Verbatim]** Cheating on any part of the examination will result in a denial of your application and/or action against your license.
2. If you have any questions concerning the administration of any part of the examination, do not hesitate to ask them before starting that part of the test.
3. SRO applicants will be tested at the level of responsibility of the senior licensed shift position (i.e., shift supervisor, senior shift supervisor, or whatever the title of the position may be).
4. You must pass every part of the examination to receive a license or to continue performing license duties. Applicants for an SRO-upgrade license may require remedial training in order to continue their RO duties if the examination reveals deficiencies in the required knowledge and abilities.
5. The NRC examiner is not allowed to reveal the results of any part of the examination until they have been reviewed and approved by NRC management. Grades provided by the facility licensee are preliminary until approved by the NRC. You will be informed of the official examination results about 30 days after all the examinations are complete.

Part B: Written Examination Guidelines

1. **[Read Verbatim]** After you complete the examination, sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination.
2. To pass the examination, you must achieve an overall grade of 80.00 percent or greater, with 70.00 percent or greater on the SRO-only items, if applicable. If you take only the SRO portion of the exam (as a retake or with an upgrade waiver of the RO exam), you must achieve an overall grade of 80.00 percent or better to pass. SRO-upgrade applicants who do take the RO portion of the exam an score below 80.00 percent on that part of the exam can still pass overall, but may require remediation. Grades will not be rounded up to achieve a passing score. Every question is worth one point.
3. For an initial examination, the nominal time limit for completing the examination is 6 hours for the RO exam; 3 hours for the 25-question SRO-only exam; 8 hours for the combined RO/SRO exam. Notify the proctor if you need more time.
4. You may bring pens, pencils, and calculators into the examination room; however, programmable memories must be erased. Use dark pencil to facilitate machine grading.

5. Print your name in the blank provided on the examination cover sheet **and** the answer sheet. Print your name on the first page of the examination, the facility will retain the examinations and you will want to see your own examination during the exam review.
6. Mark your answers on the answer sheet provided. Use the paper provided, and write on the back side of the pages to document your thought process. If you have recorded an incorrect answer on your answer sheet, carefully erase and mark the correct answer. If the scan-tron and chief examiner cannot determine which answer you intended, the answer will be marked as incorrect. If you have an 'e' column do not mark any answer in that column. It will not be considered as a 'd' answer, it will be marked as incorrect. If you mark answer d. on your examination and c. on the answer sheet, your official answer is c. even if d. is the correct answer.
7. If you have any questions concerning the intent or the initial conditions of a question, do *not* hesitate to ask them before answering the question. Note that questions asked during the examination are taken into consideration during the grading process and when reviewing applicant appeals. Ask questions of the NRC examiner or the designated facility instructor *only*. A dictionary is available if you need it.

When answering a question, do *not* make assumptions regarding conditions that are not specified in the question unless they occur as a consequence of other conditions that are stated in the question. For example, you should not assume that any alarm has activated unless the question so states or the alarm is expected to activate as a result of the conditions that are stated in the question. Similarly, you should assume that no operator actions have been taken, unless the stem of the question or the answer choices specifically state otherwise. Finally, answer all questions based on actual plant operation, procedures, and references. If you believe that the answer would be different based on simulator operation or training references, you should answer the question based on the *actual plant*.

8. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating.
9. When you complete the examination, assemble a package that includes the examination answer sheets and cover sheet and give it to the NRC examiner or proctor. Leave the remaining materials at your workstation, face-down. Remember to sign the statement on the examination cover sheet indicating that the work is your own and that you have neither given nor received assistance in completing the examination. The scrap paper will be disposed of immediately after the examination.
10. After turning in your examination, leave the examination area as defined by the proctor or NRC examiner. If you are found in this area while the examination is still in progress, your license may be denied or revoked.
11. Do you have any questions?

Question # 001

Given the following conditions:

- Unit 1 was at 100% power.
- A Reactor Trip occurred.
- 1ES-0.1, Reactor Trip Recovery, is in progress.

- RCS T_{ave} is 550°F and lowering.
- Both RCPs are running.
- 11 SG NR level is 42% and rising.
- 12 SG NR level is 46% and rising.
- Auxiliary feedwater (AFW) flow is approximately 500 GPM.

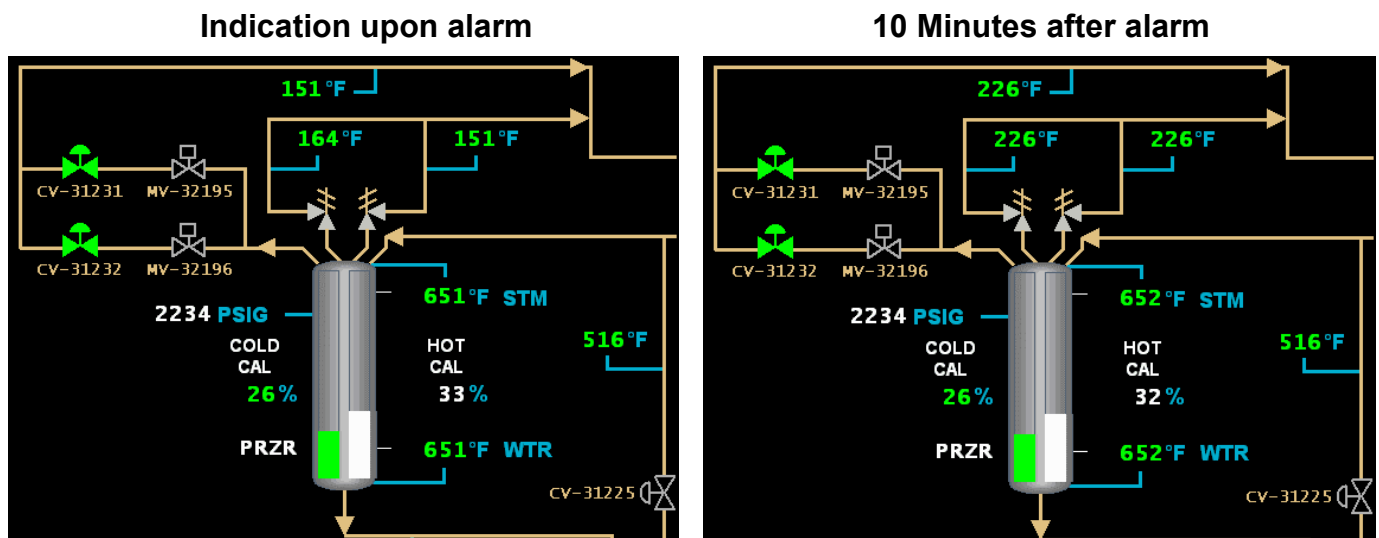
What is/are the required action(s) concerning the main and auxiliary feedwater systems?

- a. Stop dumping steam AND reduce total feed flow until both SG NR levels are less than 5%.
- b. Immediately reduce AFW flow AND maintain narrow range level between 5% and 36%.
- c. Manually close feedwater containment isolation valves (MV-32023 and MV-32024).
- d. Maintain total feed flow greater than 200 GPM using the Main FW bypass Valves.

Question # 002

Given the following conditions:

- Unit 1 is at 100% power.
- All tailpipe temperatures are 86°F and stable.
- 47012-0109, PRZR SAFETY/RELIEF VALVE FLOW, is LIT.
- No operator action has been taken.
- ERCS indications are as follows:



Based on the above conditions, a Pressurizer _____.

- PORV is CLOSED and LEAKING by
- PORV is FULL open
- Safety is CLOSED and LEAKING by
- Safety is FULL open

Question # 003

Given the following conditions:

- Unit 1 experienced a LOCA 30 minutes ago.
- 1E-1, Loss of Reactor or Secondary Coolant, is in-progress.
- All ECCS Pumps are running.
- RCS Pressure is 1400 psig and stable.

Which of the following alarms is lit in the Control Room?

- a. 47016-0104, 11 RWST LO-LO LVL
- b. 47016-0204, 11 RWST LO LVL
- c. 47016-0604, RESIDUAL HEAT REMOVAL SYSTEM TROUBLE
- d. 47018-0201, 11 SI PUMP OVERLOAD

Question # 004

Given the following conditions:

- A LOCA occurred on Unit 1.
- Core Exit Thermocouples are 300°F and slowly lowering.
- RCS pressure is slightly higher than containment pressure.
- SG pressures are 675 psig and slowly lowering.

Heat removal is occurring by _____.

Heat removal will be continued by maintaining _____.

- a. break flow ONLY
at least the minimum necessary ECCS injection flow
- b. break flow ONLY
SG NR level using aux feed, and reducing steam pressure using SG PORVs or Steam Dumps to the condenser if available
- c. reflux cooling ONLY
SG NR level using aux feed, and reducing steam pressure using SG PORVs or Steam Dumps to the condenser if available
- d. reflux cooling ONLY
at least the minimum necessary ECCS injection flow

Question # 005

Given the following conditions:

- Unit 1 was operating at 100%.
- 47012-0102, 12 RCP LOCKED OUT is NOT lit.
- 47012-0202, 12 RCP OVERLOAD is NOT lit.
- 12 RCP current is 100 amps.
- ALL 3 Loop B RC flow meters read 20%.

The 12 RCP...

- a. impeller has seized within the pump casing.
- b. flywheel has separated from the motor shaft.
- c. shaft has sheared at the motor to pump coupling.
- d. has an electrical fault in the stator windings with no breaker trip.

Question # 006

Given the following conditions:

- Unit 1 experienced a Large Break LOCA.
- RHR is operating in recirculation mode.

- 47019-0501, 11 ANNULUS SUMP HI LVL, alarms.
- Containment level is 4.5 feet and lowering rapidly.

Sump B will _____ and RHR recirculation will _____.

- a. empty out into the annulus
be lost
- b. maintain level once Annulus Sump Pumps start to transfer the water back into sump B
not be interrupted
- c. empty out into the annulus
transfer back to RWST
- d. maintain level once Annulus Sump Pumps overfill sump A and it overflows into Sump B
not be interrupted

Question # 007

Given the following conditions:

- Unit 2 is at 100% power.
- Steam Generator Blowdown (SGB) is aligned to the discharge canal.
- 2R-19, Steam Generator Blowdown Radiation Monitor, HIGH alarm actuates.

Which of the following automatic actions occurred, and why are the automatic actions required?

<u>Actions</u>	<u>Reason</u>
a. 21 and 22 SGB motor operated containment isolation valves go CLOSE.	Minimize the effects of inadvertent release of radioactivity to the environment.
b. 21 and 22 SGB flow control valves to the 21 SGB flash tank go CLOSE.	Minimize exhaustion of the cation/anion resin beds in the SGB ion exchangers.
c. 21 and 22 SGB flow control valves to the 21 SGB flash tank go CLOSE.	Minimize the effects of inadvertent release of radioactivity to the environment.
d. 21 and 22 SGB motor operated containment isolation valves go CLOSE.	Minimize exhaustion of the cation/anion resin beds in the SGB ion exchangers

Question # 008

Given the following conditions:

- Unit 1 was at 50% power and at End Of Cycle (EOC).
- Rod Control was in manual.
- 12 SG experienced a Main Steam Line Break UPSTREAM of the MSIV.
- No operator actions have occurred.

How will reactor power respond during the initial phase of the MSLB?

- a. Reactor power will rise rapidly until the MSIVs close and then lower and stabilize at the POAH.
- b. Reactor power will initially rise and then return to the original value of 50% rated power when the 12 SG is dry.
- c. Reactor power will initially rise and then lower and stabilize at approximately 25% rated power.
- d. Reactor power will rise rapidly until terminated by a reactor trip generated by the SI initiation signal.

Question # 009

Given the following conditions:

- Unit 2 was at 6% power.
- 22 Condensate Pump was running.
- 21 Main Feed Pump was running.

- The 22 Condensate Pump locks out.
- Assume no operator action.

What will the final configuration of the following components be?**21 MD AFWP _____.****22 TD AFWP _____.****21 MD AFWP discharge valves _____.****22 TD AFWP discharge valves _____.**

- | | | |
|----|-----------------------------------|-----------------------------------|
| a. | starts
remain open | starts
remain open |
| b. | remains in standby
shut | starts
remain open |
| c. | starts
remain open | remains in standby
shut |
| d. | remains in standby
remain open | remains in standby
remain open |

Question # 010

Given the following conditions:

- Unit 1 is shutdown in Mode 4.
- D1 is out of service for maintenance.
- Unit 2 is at 100% power.

- A LOOP occurs to both units.
- D2 does NOT start.

Which EOP entry conditions, for both Units, were met?

	<u>Unit 1</u>	<u>Unit 2</u>
a.	1ECA-0.0	2E-0
b.	1ECA-0.1	2E-0
c.	1E-4	2E-0 and 2ECA-0.0
d.	1ECA-0.0	2E-0 and 2ECA-0.0

Question # 011

Given the following conditions:

- One hour ago Unit 1 tripped due to a loss of offsite power.
- Operators are maintaining RCS cold leg temperatures and SG levels constant.

Which of the following statements is true?

- a. Actual RCS flow is higher than it was 30 minutes ago.
- b. Pressurizer heaters are insufficient to maintain RCS subcooling.
- c. CST levels are currently lowering at a slower rate than compared to 30 minutes ago.
- d. Core Exit Thermocouple temperatures are at the saturation temperature for the SG pressures.

Question # 012

Given the following conditions:

- Unit 1 is at 100% power.
- 47018-0501, SAFEGUARD LOGIC TRAIN A DC FAILURE, alarms.
- 47024-1003, D1 EMERGENCY GENERATOR LOSS OF CONTROL VOLTAGE, alarms.
- 47024-1102, 11 DC SYSTEM TROUBLE, alarms.
- 47024-1201, 11 DC PANEL UNDERVOLTAGE, alarms.

The Unit 1 Reactor will _____ and D1 will _____.

- a. remain at power
lose control power
- b. remain at power
auto start but the field will not flash
- c. trip
NOT auto start and auto fuel oil transfer is lost.
- d. trip
auto start and the field may flash due to residual magnetic flux. Fuel oil transfer still works in automatic.

Question # 013

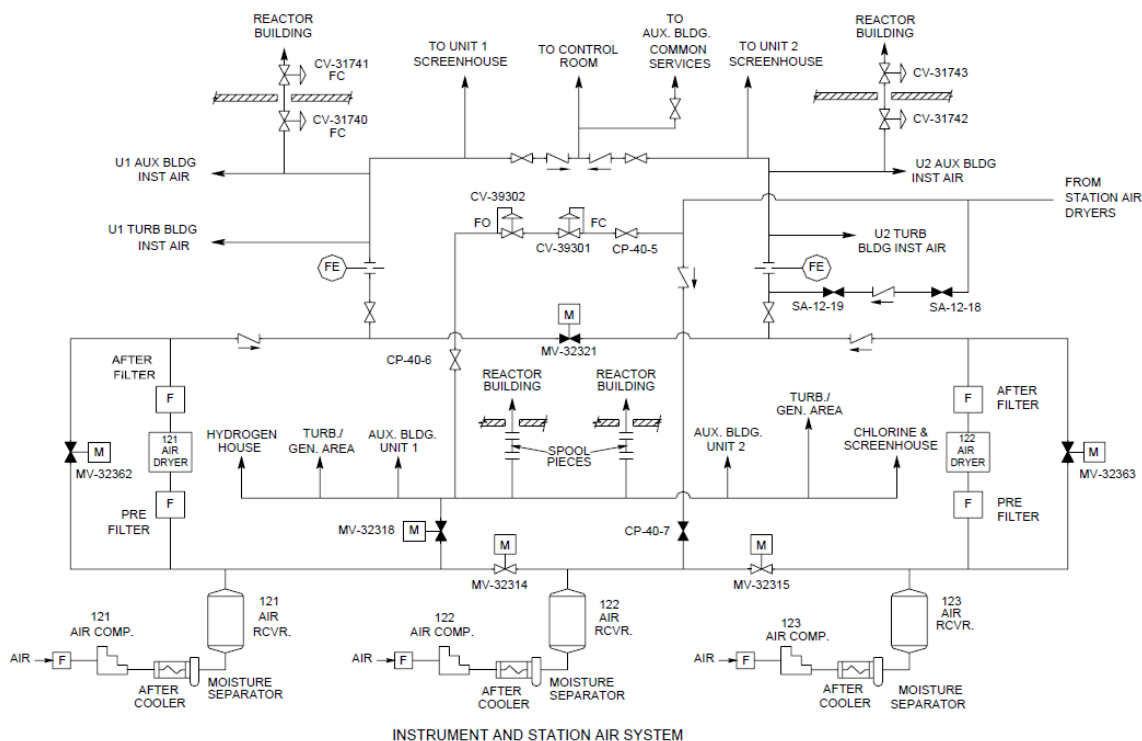
Which of the following Cooling Water inlet temperatures is the HIGHEST that would NOT result in declaring safety systems inoperable?

- a. 79°F
- b. 84°F
- c. 89°F
- d. 94°F

Question # 014

Given the following conditions:

- 121 & 122 air compressors are running in PREFERRED.
- 123 air compressor is in FIRST STANDBY.
- 124 air compressor is running in PREFERRED.
- 125 air compressor is in STANDBY.



- Unit 1 Instrument Air Header pressure rapidly drops to <75 psig.

In response, ____ air compressor will start AND ____.

- 123
MV-32314, STA AIR HDR ISOL MV A, CLOSES
- 125
MV-32318, STA AIR HDR ISOL MV, OPENS
- 123
CV-39302 and CV-39301, COND POL STA AIR DSCH HDR PRESS RLF/REG CV, OPEN
- 125
CV-31740 and CV-31741, 1 RX BLDG INSTR AIR ISOL CV, CLOSE

Question # 015

Given the following alarms:

- 47515-0509, REGEN HX LTDN LINE HI TEMP (395°F)
 - 47515-0505, VOLUME CONTROL TANK HI/LO LVL (8%)
 - 47515-0206, 21 RCP LABYRINTH SEAL LO ΔP (14" H₂O)
 - 47515-0206, 22 RCP LABYRINTH SEAL LO ΔP (14" H₂O)
 - 47512-0507, PRESSURIZER LEVEL DEVIATION ($\pm 10\%$)
 - 47515-0203, CHARGING PUMP IN AUTO TROUBLE
 - 47019-0603, AUX BLDG SUMP HI LVL
-
- WHUT level increasing on Recorder 53009, 121 ARTD/NON-ARTD SUMP TNKS LVL RCDR

Which of the following is the cause of the alarms?

- a. Charging line leak outside containment
- b. Letdown line leak outside containment
- c. Charging line leak inside containment
- d. RCP seal failure

Question # 016

Given the following conditions:

- 1ECA-1.1, Loss of Emergency Coolant Recirculation, Step 5, given below, is being performed.
- Containment pressure is 29 psig and lowering.
- One RHR pump is injecting from the RWST.
- RWST level is 42% and lowering.
- ALL CFCUs are running in safeguards mode.

5 Determine Containment Spray Requirements:

a. Determine number of spray pumps required from table:

RWST LEVEL	CONTAINMENT PRESSURE	FCUs RUNNING IN SAFEGUARDS MODE	SPRAY PUMPS REQUIRED
GREATER THAN 33 %	GREATER THAN 46 PSIG	N/A	2
	BETWEEN 20 PSIG AND 46 PSIG	LESS THAN 2	2
		2 OR 3	1
		4	0
	LESS THAN 20 PSIG	N/A	0
BETWEEN 33% AND 8.0%	GREATER THAN 46 PSIG	N/A	2
	BETWEEN 20 PSIG AND 46 PSIG	1 OR 2	1
		3 OR 4	0
	LESS THAN 20 PSIG	N/A	0
LESS THAN 8.0%	N/A	N/A	0

b. Spray pumps running –
EQUAL TO NUMBER
REQUIRED

b. Manually operate spray
pumps as necessary.

Question # 016 continued. See previous page for additional conditions

At the completion of Step 5, _____ Containment Spray Pump(s) will be running because the operator _____.

- a. NO
stopped BOTH running Containment Spray Pumps
- b. ONE
stopped ONE Containment Spray Pump
- c. ONE
started ONE Containment Spray Pump
- d. TWO
took NO action

Question # 017

Given the following conditions:

- Unit 1 was at 100% power when a reactor trip and safety injection occurred
- The crew has transitioned to 1FR-H.1, "Response to Loss of Secondary Heat Sink"
- While attempting to restore AFW, the following conditions are noted:
 - o 47010-0107, 12 AFWP LOCKOUT, is in alarm.
 - o 11 SG pressure is 75 psig and lowering.
 - o 12 SG pressure is 800 psig and slowly lowering.
 - o CST levels are 100,000 gallons each.

Which cause below explains the above indications AND will allow a restart of 12 AFWP from the control room per the Alarm Response Procedure?

- a. Bus Load Rejection
- b. Electrical overcurrent trip
- c. Low suction pressure trip
- d. Low discharge pressure trip

Question # 018

Given the following conditions:

- Both Units were operating at 100% power.
- 2RX transformer was taken out of service due to an oil leak.
- C20.3 AOP4, Electrical Power System Operating Restrictions and Limitations Loss of 2RX Transformer, actions for removing 2RX from service are complete.

- Unit 1 trips.

Which of the following correctly shows the power supplies to the listed buses?

	<u>Bus 11</u>	<u>Bus 12</u>	<u>Bus 21</u>	<u>Bus 22</u>
a.	1RX	1RX	2M	2M
b.	de-energized	de-energized	2M	2M
c.	1RY	1RY	2RY	2RY
d.	de-energized	de-energized	1RX	1RX

Question # 019

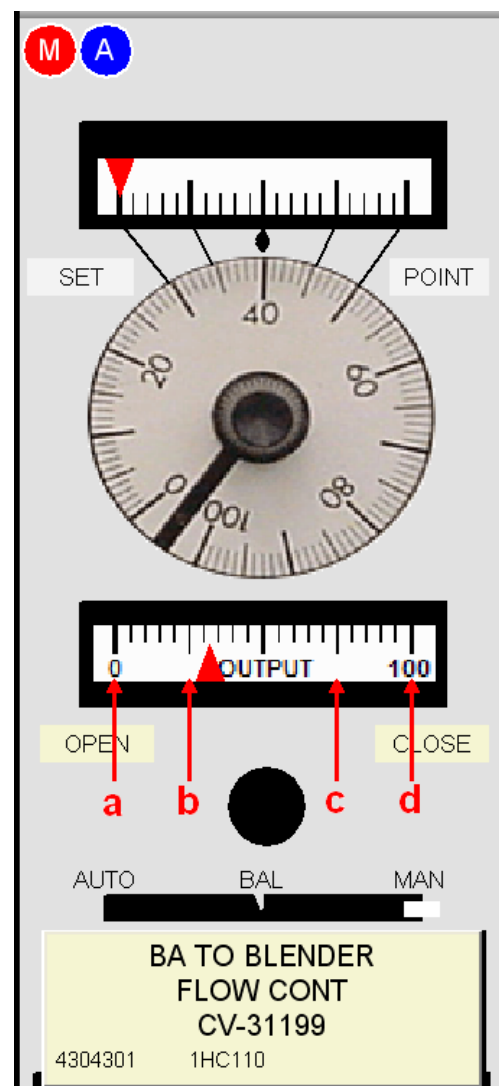
Given the following conditions:

- Charging is aligned normally.
- 1ES-0.1, Reactor Trip Recovery, is in progress.
- A boration is required due to multiple control rods failing to insert during the reactor trip.
- A Manual boration at the MAXIMUM flowrate for current conditions is to be performed.

Of the positions indicated in the picture, controller OUTPUT will be set to _____ to achieve the MAXIMUM allowed boric acid flowrate under the present conditions.

ACTUAL boric acid flowrate will _____ over the course of the boration.

- a. position a
lower
- b. position b
rise
- c. position c
rise
- d. position d
lower



Question # 020

Given the following conditions:

- Unit 1 is at 100% power.
- 11 Charging pump is running in Automatic.
- 12 Charging pump is running in Manual.

- 1LI427, PRZR LEVEL, is 15% and rising.
- 1FI134, LETDOWN HX OUTLET FLOW, reads 0 GPM.
- No operator actions have occurred.

Which one of the following would have resulted in the above conditions?

- a. The charging pump controller has failed high.
- b. The controlling Pressurizer Level channel has failed high.
- c. Instrument air was lost to CV-31328, Regen HX CHG Line OUTL.
- d. The control power fuse for CV-31226, Letdown Line ISOL, has blown.

Question # 021

Given the following conditions:

- Unit 2 was performing a reactor startup per 2C1.2, Unit 2 Startup Procedure.
- N35, Intermediate Range Nuclear Instrument, reads 2×10^{-10} amps
- N36, Intermediate Range Nuclear Instrument, reads 3×10^{-10} amps.
- The Permissive P-6 is actuated, but SR trips have NOT been blocked.
- Proper SR/IR overlap has just been verified.

- N31, Source Range Nuclear Instrument, has just failed low.

Unit 2 Tech Specs _____ met. The crew will _____.

- a. are NOT
trip the reactor and implement 2E-0, Reactor Trip or Safety Injection
- b. are NOT
fully insert control rods to maintain the reactor subcritical
- c. are
suspend any positive reactivity changes until N31 is repaired
- d. are
block the SR trips and continue the reactor startup

Question # 022

Given the following conditions:

- Unit 1 was at 100% power.
- 47013-0502, N35 INTERMEDIATE RANGE LOSS OF COMP VOLT, alarms.

- Unit 1 Reactor tripped.
- No operator actions have occurred.

Which of the following describes the response of the Source Range Detectors?

- a. BOTH N31 and N32 will automatically energize EARLIER than expected after a reactor trip.
- b. ONLY N31 Source Range Detector will automatically energize at a HIGHER power level on decreasing power.
- c. BOTH N31 and N32 Source Range Detectors will FAIL to automatically energize on a reactor trip.
- d. ONLY N32 Source Range Detector will FAIL to automatically energize on decreasing power.

Question # 023

Given the following conditions:

- A fuel handling accident has occurred in the Spent Fuel Pool.
- R-25, Spent Fuel Pool Air Monitor A, is in alarm.
- R-31, Spent Fuel Pool Air Monitor B, is in alarm.
- NO operator actions have occurred.

121 Spent Fuel Pool Normal Exhaust Fan is ____.

121 Spent Fuel Special & 11 In-Service Purge Exhaust Fans are ____.

122 Spent Fuel Special & 21 In-Service Purge Exhaust Fans are ____.

- a. on
off
off
- b. off
on
off
- c. off
on
on
- d. off
off
on

Question # 024

Given the following conditions:

- A Steam Generator Tube Rupture has occurred on Unit 2.
- Ruptured SG level has returned in the narrow range (>5% NR).
- The SS directs all feed flow to the ruptured SG stopped.

Terminating Feedwater flow to the ruptured SG. . .

- a. prevents an unnecessary transition to FR-H.1.
- b. minimizes the possibility of steam generator overfill.
- c. promotes thermal stratification and prevents SG tubes from coming in contact with the ruptured SG steam space.
- d. reduces the radioactive release rate by "filtering the release" through a layer of water prior to it escaping to the atmosphere.

Question # 025

Given the following conditions:

- A release of liquid waste is in progress.
- R-18, Waste Disposal Liquid Effluent Monitor, alarms.

What automatic action(s) occur?

- a. CV-31465, 11 SGB FLASH TNK RIVER DISCH ISOL CV, closes.
- b. CV-31256, R-18 WST DISP SYS LIQ EFFL MON ISOL CV, closes.
- c. CV-31841, WST LIQ COM DISCH HDR TO DISCH CANAL CV, closes.
- d. CV-31519 and CV-31607, 11 and 21 SGB FLASH TNK TO RIVER FLOW CV, close.

Question # 026

Given the following conditions:

- A release of 121 and 125 Waste Gas Decay Tanks is in progress.
- The radioactivity content of these tanks is 1000 times higher than expected.
- 2R-30, Unit 2 Aux Building Vent Gas Monitor, is in high alarm.
- The operators are verifying automatic actions per the ARP.

Which of the following actions will occur automatically to stop the gaseous radwaste release?

- a. 122 Aux Building Special Ventilation starts.
- b. 121 and 122 Sample Room exhaust fans stop.
- c. CV-31271, GAS DCY TNKS TO PLNT VNT, closes.
- d. Laundry, Locker, and Filter Room ventilation exhaust fans stop.

Question # 027

Given the following conditions:

- Both units are operating at 100% power.
- R-1, Control Room Area Radiation Monitor, alarms

What automatic action(s), if any, occur?

- a. There are NO automatic actions.
- b. ONLY the Unit 1 Outside Air Supply Damper will CLOSE.
- c. ONLY the PAC Filter Outside Air Supply Damper will CLOSE.
- d. BOTH Unit 1 and Unit 2 Outside Air Supply Dampers will CLOSE.

Question # 028

Given the following conditions:

- Unit 1 was at 5% power.
- 47006-0101, 1R RESERVE AUX XFMR SUDDEN PRESS TRIP, alarms.
- Bus 15 and 16 are powered from their respective diesels.
- AMSAC/DSS was in AUTO.

With the above conditions, _____ Unit 1 Reactor Coolant pump(s) are running and Control Rods will drop to the bottom of the core due to _____.

- a. both
11 STM GEN LO-LO Reactor Trip
- b. one
One Loop LO Flow or RCP BKR Open Reactor Trip
- c. NO
AMSAC/DSS actuation
- d. NO
11 STM GEN LO-LO Reactor Trip

Question # 029

Given the following conditions:

- Unit 1 Main Generator Load 600MW and rising
- 1RX and 1RY winding voltages 3300VAC
- 1MX and 1MY winding voltages 3300VAC
- RCS Flow 95%

Which of the following is the correct next action?

- a. Manually trip the Unit 1 Reactor.
- b. Manually start D1 and D2 EDGs.
- c. Continue to closely monitor parameters.
- d. Reduce load to prevent overpowering the Unit 1 Reactor.

Question # 030

Given the following conditions:

- Unit 1 was at 100% power.
- RCS Boron Concentration was 450 ppm.
- HC-110, BA To Blender Flow Cont, was in AUTO and set to 10%.
- HC-111, RX M-U WTR to Blender Flow Cont, was in AUTO and set to 45%.
- The rack mounted controller HFC-111, Reactor Makeup Water Flow, failed to MINIMUM output.
- An auto make-up to the VCT has just occurred.
- No operator action occurred.
- Figure 1, Blended Flow Nomograph, from C12.5, Boron Concentration Control, is provided.

Blended flow will be _____ ppm Boron and RCS T_{AVG} will _____.

- a. 95
rise
- b. 450
remain constant
- c. 800
lower
- d. 3250
lower

Question # 031

Given the following conditions:

- Unit 1 is stabilized at 1×10^{-8} amps by IRNIs to collect critical data.
- 1C1.2, Unit 1 Startup Procedure, is in progress.
- Reactor Power begins to rise.
- ITC is negative.

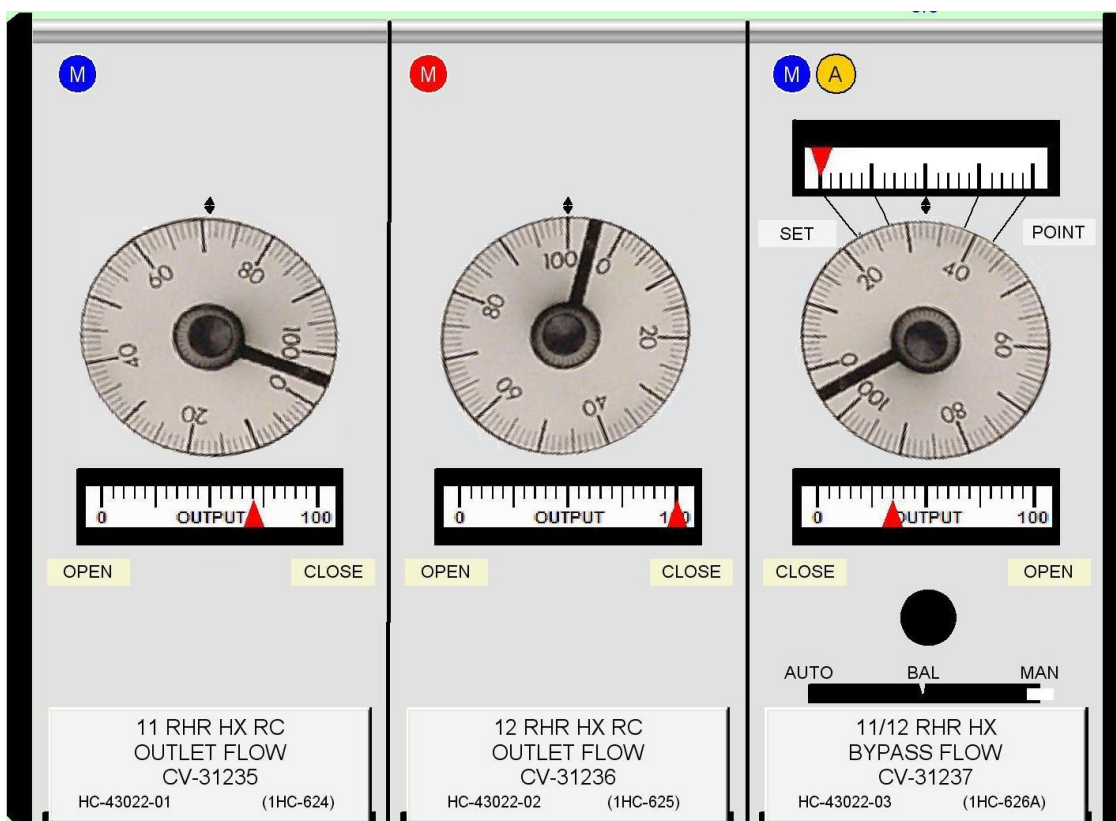
**The power rise is the result of _____ and
can be confirmed by observing _____.**

- a. a small SG tube leak developing in one SG
steam line radiation levels
- b. a leak in the Seal Water Heat Exchanger tubes
CC surge tank level
- c. 1PT-484, MS Header Pressure transmitter, failing low
MCB light indications for the steam dumps
- d. the Letdown Heat Exchanger TCV M/A station failing to 0% output
Letdown HX outlet temperature and pressure

Question # 032

Given the following conditions:

- Unit 1 is currently in a refueling outage.
- PNL 114 Inst Bus IV (Yellow) was lost earlier in the shift.
- 1C15 AOP 3, RHR Operation Without Control Room Instrumentation or Flow Control, has been implemented
- The 'A' RHR Train is in Phase II cooling.
- The 'B' RHR Train is in Standby.



To LOWER RCS temperature, OUTPUT will be (1) on (2); Total RHR flow is maintained less than 2000 GPM by (3) OUTPUT on (4).

- | | <u>(1)</u> | <u>(2)</u> | <u>(3)</u> | <u>(4)</u> |
|------------|------------|------------|------------|------------|
| a. raised | | 1HC-624 | lowering | 1HC-626A |
| b. raised | | 1HC-626A | raising | 1HC-624 |
| c. lowered | | 1HC-624 | lowering | 1HC-626A |
| d. lowered | | 1HC-626A | raising | 1HC-624 |

Question #

033

Given the following conditions:

- A RED path condition exists on the Core Cooling status tree.
- Attempts to restore ECCS flow to the RCS have NOT been successful.
- The next required action is depressurization of the SGs.

The SGs must be depressurized RAPIDLY to...

- a. prevent pressurized thermal shock of the reactor vessel.
- b. prevent SG from becoming a heat source to the RCS.
- c. establish conditions for starting RCPs.
- d. enable ECCS flow.

Question # 034

Given the following conditions:

- Unit 1 is at 100% power.
- 'A' Loop SI Accumulator was inadvertently completely drained to the RCDT.
- Simultaneously the following occurs:
 - o A Loss of Off-Site Power occurs.
 - o 'B' Loop's cold leg suffers a double ended guillotine shear on Unit 1.
- D1 and D2 sequence onto Bus 15 and Bus 16 respectively.

PRIOR to SI pump injection, which of the following is true concerning Unit 1?

- a. ECCS water will refill the reactor vessel to the nozzles.
- b. The core can be assumed to remain covered during this time.
- c. No core cooling is assumed to occur from the ECCS during this time.
- d. ECCS water will fill the volume outside the core barrel, the bottom plenum and about $\frac{1}{2}$ the core.

Question # 035

Given the following conditions:

- Unit 1 is operating at 100% power.
- 47012-0406, PRZR RELIEF TANK HI TEMP/LVL/PRESS OR LO LVL, alarms.
- Current PRT conditions are as follows:
 - o Level 80% and rising
 - o Pressure 11 PSIG and rising
 - o Temperature 100°F and stable

**The source of PRT in-leakage is the. . .
AND the PRT. . .**

- a. RCP seal return relief
CAN NOT be drained to the RCDT Pump suction.
- b. reactor vessel flange leakage
CANNOT be vented to the WG header to reduce pressure.
- c. CVCS orifice isolation relief valve
CAN be vented to the WG header to reduce pressure.
- d. RHR suction relief due to valve leakage
CAN be drained to the RCDT Pump suction.

Question # 036

Given the following conditions:

- Both Units are at 100% power.
- Bus 25 locks out.

Which one of the following correctly describes the effect of the loss of Bus 25?

- a. The 121 Control Room Ventilation Cleanup fan will fail to start on an SI signal.
- b. The 123 Instrument Air Compressor starts on low Instrument Air pressure.
- c. The 22 Component Cooling pump auto started on low discharge pressure.
- d. The 121 Cooling Water Pump auto started on low CL pressure.

Question # 037

Given the following conditions:

- Unit 1 is in mode 3.
- RCS is at normal operating temperature and pressure.
- The Aux Building APEO is performing a clearance order on the 11 Accumulator.
- Engineers are walking down containment for closeout inspections.

- One Pressurizer safety fails open.

What action should be taken NEXT?

- a. Evacuate containment to control personal exposure.
- b. Secure both RCPs and initiate RCS cooldown using the steam dumps to effect repairs.
- c. Direct personnel in containment to open RC-22-1, Aux PRT vent to prevent PRT rupture disc failure.
- d. Direct personnel in containment to close the Pressurizer safety manual isolation valve to attempt to reseal the safety valve.

Question # 038

Given the following conditions:

- Unit 1 is at 18% power.
- 1PT-431, Blue Channel Pressurizer pressure, failed.
- All associated protective bistables have been tripped.
- Pressurizer Pressure Control has been returned to automatic.

- An instrument failure then results in a Unit 1 reactor trip.

Which of the following instrument failures caused the Unit 1 reactor trip?

- a. PT-485, Turbine 1st Stage Pressure, failed HIGH.
- b. T_{hot} , Red Channel, failed HIGH.
- c. T_{cold} , Red Channel, failed HIGH.
- d. N-35, IR Nuclear Instrument, failed HIGH.

Question # 039

Given the following conditions:

- Unit 1 is in Mode 3.
- 11 TD AFW pump is in SHUTDOWN AUTO and NOT running.
- 12 MD AFW pump is in SHUTDOWN AUTO and NOT running.
- AMSAC/DSS is BLOCKED.
- 11 and 12 SG NR levels are 35%.
- 11 MFP is running.

- 11 TD AFW pump starts.

11 TD AFW pump started AUTOMATICALLY due to. . .

- a. undervoltage on Bus 11 AND Bus 12.
- b. placing 11 TD AFW pump in AUTO.
- c. unblocking AMSAC/DSS.
- d. 11 MFP tripping.

Question # 040

Given the following conditions:

- Unit 1 tripped due to a Main Steam Line Break.
- The following Step of 1E-0, Attachment L: SI Alignment Verification, is in progress.

c. "SI ACTIVE" lights -
LIT FOR PLANT
CONDITIONS

c. Manually align
components as
necessary.

Note any exceptions:

- The "13 CNTNMT FAN COIL RUNNING" SI active status light is NOT lit.

What action, if any, is required?

- a. Place the 13 CFCU discharge to containment dome/auto/gap CS to the DOME position, and verify proper damper alignment.
- b. If the MSLB is outside of containment, the SI Active light for the 13 CFCU is not required to be lit and no further alignment is required.
- c. Place the Train A Cooling Water/Chilled Water valves control switch in the ISOLATE position and check the green and blue lights on.
- d. Place any closed Cooling Water MVs associated with the 13 CFCU in the OPEN position and verify the 13 CFCU is running in slow speed.

Question # 041

Which of the following Engineered Safety Features Actuation System signals is NOT AUTOMATICALLY generated upon any Safety Injection signal AND IS designed to prevent containment from exceeding its design limits?

- a. Containment Spray
- b. Containment Isolation
- c. Main Steam Line Isolation
- d. Containment Ventilation Isolation

Question # 042

Given the following conditions:

- A Design Basis LOCA occurred on Unit 1.

Containment Pressure will remain below the design limit of _____.
The Containment Fan Coil Unit(s) must be running in SLOW to the DOME to _____.

- a. 23 psig, if ALL 4 Containment Fan Coil Units are running
prevent the discharge of the fans from interfering with the operation of the Containment Spray System
- b. 23 psig, if 2 Containment Fan Coil Units are running
prevent stalling under the high density atmospheric conditions in the Containment
- c. 46 psig, if 1 Containment Spray Pump AND 1 Containment Fan Coil Unit are running
prevent the discharge of the fan from interfering with the operation of the Containment Spray System
- d. 46 psig, if 1 Containment Spray Pump AND 2 Containment Fan Coil Units are running
prevent stalling under the high density atmospheric conditions in the Containment

Question # 043

Given the following conditions:

- Unit 1 is at 12% power.
- ITC is positive.

**An INCREASE in steam demand causes a _____ reactivity addition.
The turbine should be maintained in _____ mode to ensure the plant will stabilize at a lower RCS temperature.**

- a. negative
VPC
- b. negative
FSP
- c. positive
VPC
- d. positive
FSP

Question # 044

Given the following conditions:

- Unit 1 is at 70% power.
- A rupture of the main feedwater system occurs inside containment UPSTREAM of the check valve.

BOTH Main Feed Water Pumps will be tripped by a _____.
Entry conditions for _____ are met.

- a. low-low steam generator level reactor trip
1E-0 followed by 1ES-0.1, Reactor Trip Recovery,
- b. high containment pressure safeguards actuation
1E-0 followed by 1ES-0.2, SI Termination,
- c. low steam generator pressure safeguards actuation
1E-0 followed by 1ES-0.2, SI Termination,
- d. SGWLC system high steam flow/feed flow mismatch
1C1.4 AOP 1, Rapid Power Reduction Unit 1,

Question # 045

Which one of the following is NOT a possible Auxiliary Feedwater flowpath to the 11 SG?

- a. 21 CST to 21 MDAFW pump to 11 SG
- b. 22 CST to 11 TDAFW pump to 11 SG
- c. 11 CST to 22 TDAFW pump to 11 SG
- d. 11 CST to 12 MDAFW pump to 11 SG

Question # 046

Given the following conditions:

- Unit 1 was at 100% power for 100 days.
- Unit 1 tripped and 1E-0, Reactor Trip or Safety Injection, was entered.

Procedurally, AFW flow must be maintained at least _____ GPM with ≥ 1000 psig discharge pressure in order to ensure _____.

- a. 160
Steam Generator tube integrity is maintained
- b. 185
cooldown does not exceed 100°F/hr
- c. 200
adequate decay heat removal
- d. 225
adequate decay heat removal plus cooldown flow

Question # 047

The fire brigade is composed of:

The _____ (1) _____ acting as the Fire Brigade Chief.

A total of _____ (2) _____ fire brigade members,

but NOT including the _____ (3) _____ members of the minimum shift crew for safe shutdown of the reactors.

	<u>(1)</u>	<u>(2)</u>	<u>(3)</u>
a. Unit 1 Turbine Building APEO		5	6
b. Unaffected unit shift supervisor		5	6
c. Unit 1 Turbine Building APEO		7	5
d. Unaffected unit shift supervisor		7	5

Question # 048

Given the following conditions:

- Unit 1 was at 100% power.
- 47018-0501, SAFEGUARD LOGIC TRAIN A DC FAILURE, alarms.
- 47024-1003, D1 EMERGENCY GENERATOR LOSS OF CONTROL VOLTAGE, alarms.
- 47024-1102, 11 DC SYSTEM TROUBLE, alarms.
- 47024-1201, 11 DC PANEL UNDERVOLTAGE, alarms.

As a result, _____ and _____.

- a. 11 Turbine Driven AFW Pump STARTS
Non-Safeguards buses 11, 12, 13 and 14 de-energize
- b. 11 Turbine Driven AFW Pump STARTS
Buses 11 and 12 AUTOMATICALLY transfer control power to DC Panel 21
- c. Main Generator Output Breaker AUTOMATICALLY TRIPS
Non-Safeguards buses 11, 12, 13 and 14 de-energize
- d. Main Generator Output Breaker AUTOMATICALLY TRIPS
Buses 11 and 12 AUTOMATICALLY transfer control power to DC Panel 21

Question # 049

Given the following conditions:

- Unit 1 is at 100% power.
- SP 1093, D1 Diesel Generator Monthly Slow Start Test, is in progress.
- D2 is in its normal standby mode.
- While unloading D1, the "Motoring Current" relay actuates.

- PRIOR to any operator action, a Loss of Offsite Power occurs CONCURRENTLY with an automatic Safety Injection actuation.
- No operator actions have taken place.

D1 will. . .

- a. stop AND not restart.
- b. continue to run unloaded.
- c. stop, restart, and run unloaded.
- d. continue to run AND will re-power Bus 15.

Question # 050

Given the following conditions:

- ΔT is 100%.
- OT ΔT setpoint is 110%.
- Pressurizer pressure is decreasing due to a small Reactor Coolant System leak.

Which one of the following responses describes the initial response of the OT ΔT setpoint relative to actual ΔT ?

- a. Actual ΔT increases and the setpoint decreases causing the difference between setpoint and actual ΔT to increase.
- b. Actual ΔT decreases and the setpoint increases causing the difference between setpoint and actual ΔT to decrease.
- c. Setpoint increases causing the difference between the setpoint and actual ΔT to increase.
- d. Setpoint decreases causing the difference between the setpoint and actual ΔT to decrease.

Question # 051

Given the following conditions:

- Unit 1 Gas Decay Tank #127 is being released to the atmosphere.
 - Cooling Towers are in operation.
 - Wind direction is coming from 30°.
 - Wind speed is 13 mph and stable.
-
- C21.3-10.7, Releasing Radioactive Gas from 127 Low Level Decay Tank, is provided.

What action will be taken and why?

- a. Continue to monitor the release, parameters are acceptable.
- b. Stop the release until the wind speed becomes favorable.
- c. Stop the release until the wind direction becomes favorable.
- d. Stop the release until wind speed AND direction becomes favorable.

Question # 052

Given the following conditions:

- Unit 1 has tripped and SI has actuated.
- The slave relays for the SI actuation of the Cooling Water system Train B have failed to operate.
- All other systems respond normally.
- No Operator actions have been taken.

What is the status of 12 Component Cooling Water Heat Exchanger?

- a. There is NO cooling water flow through the heat exchanger.
- b. The outlet FCV strokes open but open travel is limited by the travel stop, and the valve does not modulate based on temperature.
- c. The outlet FCV opens to control temperature and is NOT limited by the travel stop in opening.
- d. The outlet FCV opens to control temperature but maximum open position is limited by the travel stop.

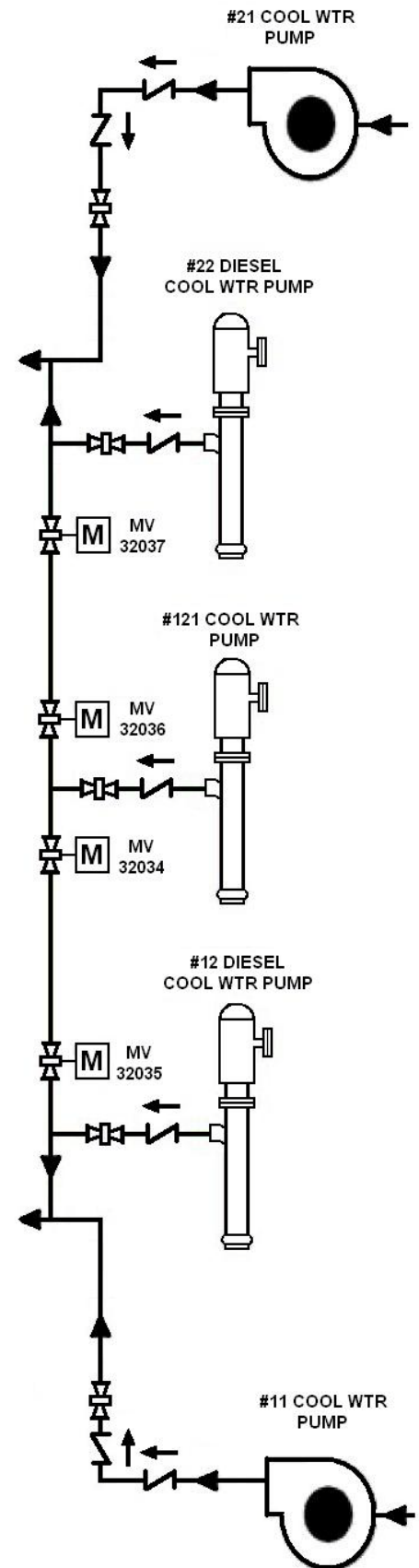
Question # 053

Given the following conditions:

- Both Units are operating at 100% power.
- An inadvertent SI Train A and Train B initiates on Unit 2.

What is the status of the Cooling Water System after the SI signal?

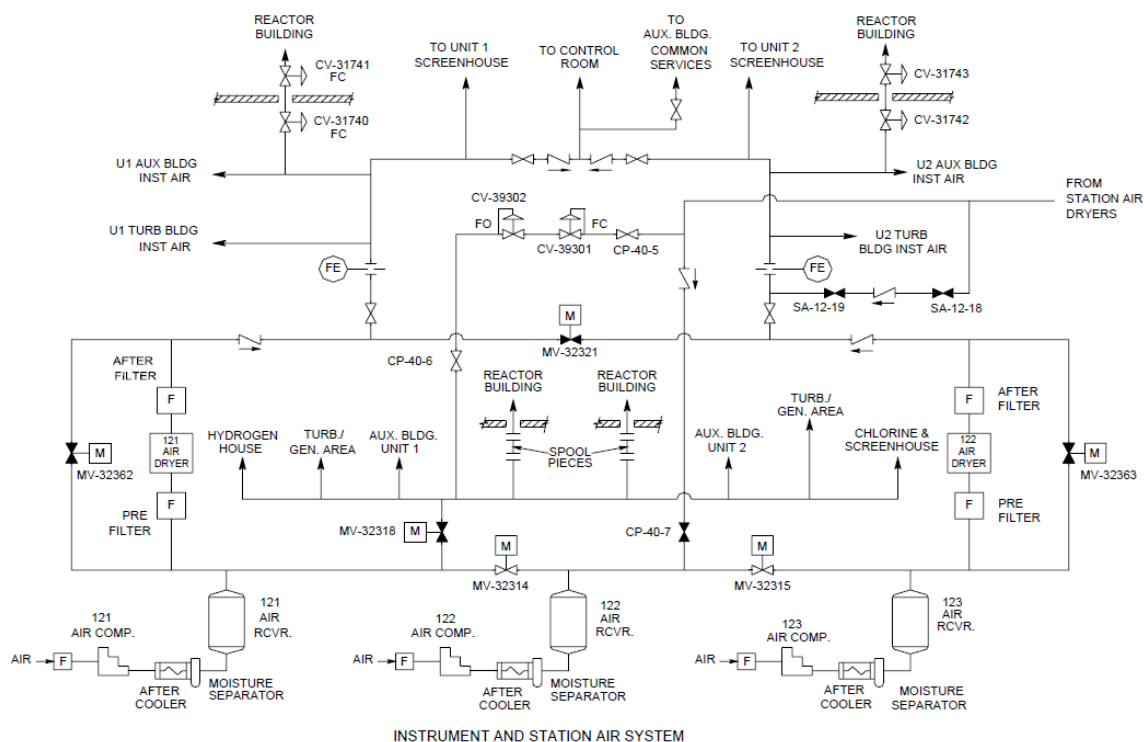
- a. MV-32036 and MV-32037 - SHUT
MV-32034 and MV-32035 - SHUT
- b. MV-32036 and MV-32037 - SHUT
MV-32034 and MV-32035 - OPEN
- c. MV-32036 and MV-32037 - OPEN
MV-32034 and MV-32035 - SHUT
- d. MV-32036 and MV-32037 - OPEN
MV-32034 and MV-32035 - OPEN



Question# 054

Given the following conditions:

- There is a leak on Unit 2 Instrument Air to Containment.
- A Instrument Air Header Pressure dropped to 73 psig.
- B Instrument Air Header Pressure dropped to 74 psig.
- Unit 2 Instrument Air pressure continues to lower.
- Unit 1 Instrument Air pressure is rising.



Which of the following could jeopardize the UNIT 1 instrument air supply?

- Opening MV-32321, 11/21 INSTR AIR HDR ISOL VLV.
- Opening MV-32314, INSTR AIR HDR ISOL VLV A.
- Opening MV-32315, INSTR AIR HDR ISOL VLV B.
- Closing CP-40-7, STATION AIR RECEIVE X-CONN TO INSTRUMENT AIR.

Question # 055

Given the following conditions:

- A Safety Injection occurred on Unit 1.
- Containment pressure is 5 psig.
- No operator actions have occurred.

To open Containment Isolation valves under these conditions:

- **Containment Pressure _____ required to be reduced below 3.5 psig.**
- **_____ reset pushbuttons are required to be depressed.**

- a. is NOT
ONLY SI
- b. is NOT
SI AND CI
- c. is
ONLY CI
- d. is
SI AND CI

Question # 056

Given the following conditions:

- Unit 1 has just started up, following a refueling outage.
- Unit 1 Main turbine load is 60 MWe.
- T_{ave} is 547°F.
- Nuclear Instruments read as follows:
 - N41 = 10%
 - N42 = 9%
 - N43 = 8%
 - N44 = 9%
- The Rod Control Selector switch is in AUTO.
- Steam Dumps are in STM PRESS mode.
- The Steam Dump controller is set to 1050 PSIG.

If the Main Generator trips. . .

- a. rods will not move.
- b. rods will ONLY step IN.
- c. rods will step IN, then OUT.
- d. the Reactor trips automatically.

Question # 057

Given the following conditions:

- 1ES-0.1, Reactor Trip Recovery, is in progress.
- 11 and 12 RCPs are NOT running.
- 11 and 12 SG pressures are 916 psig.
- RCS Parameters are as follows:
 - o Cold leg temperatures are 536°F.
 - o Hot leg temperatures are 563°F.
 - o Pressure is 2181 psig.

Natural Circulation is _____.

To increase/initiate natural circulation flow, the operators will _____ SG pressure.

- a. occurring
lower
- b. occurring
raise
- c. NOT occurring
lower
- d. NOT occurring
raise

Question # 058

Given the following conditions:

- A Small break LOCA has occurred on Unit 1.
- Both RCPs have been tripped.
- Subcooling is 0°F.
- ALL Pressurizer level indication has FAILED.

The crew will be unable to. . .

- a. terminate SI, when required.
- b. quantify the actual RCS leak rate.
- c. determine if water has passed through the PRZR safeties.
- d. determine if the conditions necessary for natural circulation exist.

Question # 059

Given the following conditions:

- Unit 1 is at 8% power during a plant startup.
- Vital instrument bus 111 (White bus) is mistakenly shifted to the Alternate AC Power source, Panel 117.

Which of the following describes the resulting plant response and reason?

- a. The reactor does NOT trip because power is above P-6.
- b. The reactor does NOT trip because power is still below P-10.
- c. A reactor trip occurs because IRNI channel N36 momentarily de-energizes.
- d. A reactor trip occurs because PRNI channel N41 momentarily de-energizes.

Question # 060

Given the following conditions:

- Unit 1 is at 100% power.
- Steam Dumps are in Tavg Mode.
- TE-404A, RCS Loop T_{hot} Transmitter, fails HIGH.

- Unit 1 reactor trips.
- No operator actions are taken.

At what temperature will the RCS stabilize?

- a. 540°F
- b. 547°F
- c. 550°F
- d. 552°F

Question # 061

Given the following conditions:

- Unit 1 is at 100% power.
- 11 & 12 Condensate Pumps are running.
- BKR 14-6, 12 CD Pump, fails OPEN.
- The lowest condensate pump discharge pressure seen is 250 psig.

(1) Condensate pump(s) will be running.(2) Feedwater pump will be running.A Reactor Trip (3) required.

	<u>(1)</u>	<u>(2)</u>	<u>(3)</u>
a.	11	11	is NOT
b.	11	12	is
c.	11 and 13	11	is NOT
d.	11 and 13	12	is

Question # 062

Given the following conditions:

- Unit 1 is at 100% power.
- 11 SI Accumulator level is being lowered.
- CV-31443, 11 ACCUM TO RC DRN TNK, is OPEN.
- 11 RCDT level is steady with 11 RCDT Pump running.

- An inadvertent SI occurs on Unit 1.
- NO operator action occurs.

RCDT level _____, because the _____.

- a. rises
RCDT Pump discharge valves shut
- b. rises
PRT drain valve automatically opens
- c. lowers
RCDT Pump discharge valves stay open
- d. lowers
SI Accumulator is automatically isolated from the RCDT

Question # 063

Given the following conditions:

- The Aux Building APEO is in the Control Room (CR).
- The on-line WGDT pressure is 110 psig and rising.

Which of the following indicates that WGDT swap-over has occurred?

- a. 47015-0603, RAD WASTE BLDG LOCAL ALARM.
- b. 47015-0503, LIQUID WASTE DISPOSAL LOCAL ALARM.
- c. 47015-0101, WASTE DISPOSAL BORON RECYCLE LOCAL ALARM.
- d. 47012-0406, PRZR RELIEF TANK HI TEMP/LVL/PRESS OR LO LVL.

Question # 064

Given the following conditions:

- Unidentified leakage determined by SP 1001AA, Daily Reactor Coolant System Leakage Test, has been rising.
- 1R-7, U-1 In-Core Seal Table Area, has just alarmed.
- Pressurizer Level is on program and stable.

Entry Conditions are met for _____.

- a. 1E-0, Reactor Trip or Safety Injection
- b. 1C4 AOP1, Reactor Coolant Leakage
- c. 1C4 AOP2, Steam Generator Tube Leak
- d. 1C14 AOP2, Leakage Into the Component Cooling System

Question # 065

The Emergency Intake Bay is backwashed by using water from the discharge of the. . .

- a. Cooling Water pumps.
- b. Deicing Water pumps.
- c. Cooling Tower pump 121 or 122.
- d. Circulating Water pumps 12 and 21.

Question # 066

In accordance with SWI O-10, Operations Manual Usage, while performing abnormal or emergency procedures, the Reactor Operator SHALL perform (1) from memory, until (2).

<u>(1)</u>	<u>(2)</u>
a. immediate operator actions	the SS has obtained the appropriate procedure, and is ready to use the procedure, beginning with step 1.
b. continuous action steps	the SS has found, and read aloud the particular continuous action steps.
c. notes and/or cautions	the SS has reached, and read aloud the particular note and/or caution.
d. continuous action steps	the SS has obtained the appropriate procedure, and is ready to use the procedure, beginning with step 1.

Question # 067

Given the following conditions:

- Rod G-11 (CB-D) is at 172 steps.
- All other control bank D rods are at 146 steps.
- 1C5 AOP5, Misaligned rod, Stuck Rod, and/or RPI Failure or Drift, is entered.
- All control bank D rods have been determined to be OPERABLE.

- Assume the turbine is operated as necessary to maintain T_{ave} to T_{ref} .

Procedurally, Rod G-11 will be aligned with Control Bank D by. . .

- a. alternating between insertion of rod G-11 and withdrawal of Control Bank D.
- b. maintaining rod G-11 stationary while withdrawing control bank D to 160 steps.
- c. inserting rod G-11 to 146 steps while maintaining all other rods in the control bank stationary.
- d. fully inserting all four control bank D rods into the core, then withdrawing them to their initial position.

Question # 068

Given the following conditions:

- A power reduction at 2%/min per 1C1.4 AOP1, Rapid Power Reduction – Unit 1, is being performed due to degrading performance of 12 MFP.
- Reactor Power is 90% when the 12 Main Feed Pump trips.
- The SS directs the power reduction rate raised to 5%/min and continuation of the power reduction.

The RO will _____.

- a. adjust rate to 5%/min, but request a re-evaluation of the boration rate
- b. trip the reactor and enter 1E-0, Reactor Trip or Safety Injection
- c. continue the downpower at the briefed rate of 2%/min
- d. adjust rate to 5%/min AND manually open FRVs

Question # 069

Given the following conditions:

- Unit 1 is at 100% power.
- At 0735:
 - o SP 1001B, Unit 1 Control Room Logs – Modes 1 and 2, is completed satisfactorily.
- At 0830:
 - o PRNI N43 removed from service for routine surveillance.
- At 1230:
 - o PRNI N43 returned to service upon completion of routine surveillance.
- At 1415:
 - o Parameters OUTSIDE the acceptance criteria for PRNI N43 are discovered during review of the routine surveillance paper work.
- At 1545:
 - o Routine surveillance repeated and completed satisfactorily.
- At 1935:
 - o SP 1001B, Unit 1 Control Room Logs – Modes 1 and 2, is completed satisfactorily.
- T.S. LCO 3.3.1 Condition D requires 4 channels of PRNI.

The time clock for T.S. LCO 3.3.1, Condition D required action started at. . .

- a. 0730 and ran until 1230; restarted at 1415 and ran until 1545.
- b. 0735 and runs until 1545.
- c. 0830 and ran until 1230; restarted at 1415 and ran until 1935.
- d. 0830 and runs until 1545.

Question # 070

Given the following conditions:

- 47016-0204, 11 RWST Level Low, has alarmed 15 times in the past minute.
- RWST Level has been verified at 92%.
- The SS has authorized disabling of the alarm.

Which of the following are required to track the DISABLED Control Room Annunciator?

- a. Annunciator Out of Service Record Sheet completed, Operations Turnover Log, AND OOS Sticker Placed on Annunciator.
- b. Annunciator Out of Service Record Sheet completed, Operations Turnover Log, AND Top 10 Equipment List.
- c. Annunciator Out of Service Record Sheet completed, Top 10 Equipment List, AND OOS Sticker Placed on Annunciator.
- d. Top 10 Equipment List, Operations Turnover Log, AND OOS Sticker Placed on Annunciator.

Question # 071

Which of the following radiation monitors can NOT be used to detect primary to secondary leakage?

- a. 1R-9, RC LETDN LINE R UNIT 1
- b. 1R-15, CDSR AIR EJCTR GAS RADIOACTIVITY
- c. 1R-19, STM GEN BD LIQUID RADIOACTIVITY
- d. 1R-51, 11 SG MS LOOP RAD LVL

Question # 072

Given the following conditions:

- Unit 2 is at 100% power.
- Flux mapping is in progress.
- A small leak has developed in the Unit 2 RCS.
- Unit 2 SS has directed two operators to perform a containment entry to investigate.

Containment entry is. . .

- a. allowed IF accompanied by a qualified RP specialist.
- b. allowed WITH Radiation Protection Manager approval.
- c. NOT allowed, because a worker safety review was not completed.
- d. NOT allowed, because flux mapping is in progress with the reactor critical.

Question # 073

Given the following conditions:

- While using the Portal Monitor at the Security Access Facility the Portal Monitor alarms.

Prior to exiting the site, Radiation Protection will be notified AND. . .

- a. is required to perform a personnel decontamination.
- b. TWO additional scans, with no contamination detected, are required to be performed at Access Control using the Two Step Monitor.
- c. ONE additional scan, with no contamination detected, is required to be performed at the Security Access Facility using the Portal Monitor.
- d. TWO additional scans, with no contamination detected, are required to be performed at the Security Access Facility using the Portal Monitor.

Question # 074

Given the following conditions:

- Unit 1 was at 100%.
- A valid Reactor Trip signal due to a Dropped Rod occurred.
- The Reactor Operator has operated both Manual Trip Switches and the AMSAC/DSS switch
- The following indications exist:
 - Reactor Trip Breakers 'A' is closed
 'B' is open
 - IR Neutron flux slowly increasing
 - IR SUR slightly positive
 - RPIs All Zero
 - Rod Bottom Lights NOT lit
 - Reactor Power 6%
 - Bus 15 0 volts
 - Bus 16 0 volts

What is required NEXT?

- a. Transition to 1ECA-0.0, Loss of all Safeguards AC Power.
- b. Transition to 1FR-S.1, Response to Nuclear Power Generation/ATWS.
- c. Continue in 1E-0, Reactor Trip or Safety Injection, verifying turbine trip.
- d. Perform 1C20.5 AOP1(2), Re-energizing 4.16KV Bus 15(16), to restore power to one of the safeguards buses.

Question # 075

Per SWI-O-10, Operations Manual Usage, which of the following correctly describes when an emergency procedure action on the Information Page is applicable?

- a. PRIOR to performing the applicable step in the main body of the procedure.
- b. ANY time during the applicable procedure performance, following the completion of any applicable immediate action steps.
- c. AFTER proceeding PAST the applicable step in the main body of the procedure, AND it MAY apply after a transition is made to another procedure.
- d. AFTER proceeding PAST the applicable step in the main body of the procedure, BUT it will NEVER apply after a transition is made to another procedure.

Question # 076

Given the following conditions:

- Unit 1 is at 100% Power.
- A .45 GPM leak rate was determined by SP 1001AA, Daily Reactor Coolant System Leakage Test.
- SP 1001AAA, Reactor Coolant Leakage Investigation, has been initiated.
- The leak is determined to be at the Spray Line weld connection to the Pressurizer.
- ALL leakage is collecting in Sump 'A'.
- No other equipment is impacted.

Currently...

- a. RCS unidentified leakage exceeds limits.
- b. RCS pressure boundary leakage exceeds limits.
- c. RCS identified leakage not within limit for reasons other than pressure boundary leakage or primary to secondary leakage.
- d. RCS leakage is within limits; continue to monitor to ensure the leakage does not interfere with RCS leakage detection systems.

Question # 077

Given the following conditions:

- Unit 1 is at 100% power.
- A SGTR developed on 11 SG.
- Both 11 and 12 RCPs were secured due to loss of seal cooling.
- 1ES-3.1, POST-SGTR Cooldown Using Backfill, is in progress.
- The TSC has just reported that a status evaluation for the loss of RCP seal cooling has been completed, and the 11 RCP may be started.
- The step to depressurize the RCS to backfill from the ruptured SG is about to be performed.

The SS will. . .

- a. direct starting of 11 RCP per 1C3 AOP1, Post Accident Start of a RCP and use Normal Pressurizer Spray.
- b. use the Pressurizer PORV per 1ES-3.1 until 12 RCP becomes available and then use Normal Pressurizer Spray.
- c. direct starting of 11 RCP per 1C3 AOP1, Post Accident Start of a RCP and use Auxiliary Pressurizer Spray.
- d. use Auxiliary Pressurizer Spray per 1ES-3.1 until 12 RCP becomes available and then use Normal Pressurizer Spray.

Question # 078

Given the following conditions:

- Unit 1 is at 100% power.
- 11 TD AFW Pump is OOS.
- A loss of ALL Main Feedwater occurs causing a reactor trip.
- 12 MD AFW Pump fails to start.
- 11 and 12 SG WR levels are 40%.

- No operator actions have occurred.

47017: _____ **Reactor Trip, will be flashing.**

After leaving 1E-0, Reactor Trip or Safety Injection, the NEXT step the SS will direct to be performed is _____.

- a. 0102, PRZR HI PRESS
1FR-H.1, Response to Loss of Secondary Heat Sink, step 1
- b. 0102, PRZR HI PRESS
1ES-0.1, Reactor Trip Recovery, step 1
- c. 0304, 11 STM GEN LO-LO LVL
1FR-H.1, Response to Loss of Secondary Heat Sink, step 1
- d. 0304, 11 STM GEN LO-LO LVL
1ES-0.1, Reactor Trip Recovery, step 1

Question # 079

Given the following conditions:

- Both units are at 100% power.
- TWO of the FOUR Bus 16 Degraded Voltage Function channels are INOPERABLE.
- The Bus 16 Automatic Load Sequencer Function is INOPERABLE

- TS LCO 3.0.6, 3.3.4 and 3.8.1 are provided.

D2 is _____;
LCO(s) _____ is(are) NOT met;
LCO 3.0.6 _____ applicable.

- a. OPERABLE
3.3.4 AND 3.8.1
is

- b. INOPERABLE
3.3.4 AND 3.8.1
is

- c. OPERABLE
3.3.4
is NOT

- d. INOPERABLE
3.8.1
is NOT

Question # 080

Given the following conditions:

- 0100 - 12 DDCLP was placed OOS.
- 0200 - Bus 27 can NOT be aligned to Bus 25.
- 0300 - 21 Safeguards Screenhouse Exhaust Fan seizes.
- 0400 - 121 MDCLP is aligned to Train B Cooling Water Header.
- 0500 - 12 DDCLP is returned to service.

- LCO 3.7.8 is provided.

LCO _____ was entered at _____ and exited at _____.

- a. 3.0.3
0300
0500
- b. 3.7.8 A
0200
0500
- c. 3.7.8 B
0300
0500
- d. 3.7.8 C
0400
0500

Question # 081

Given the following conditions:

- A transition from 1E-0, Reactor Trip or Safety Injection, to 1FR-C.2, Response to Degraded Core Cooling, occurred due to an ORANGE path on Core Cooling.
- A RED path on Heat Sink occurs, directing performance of 1FR-H.1, Response to Loss of Secondary Heat Sink.

The SS is required to. . .

- a. complete all steps of 1FR-C.2, then transition to 1FR-H.1.
- b. complete the step in progress in 1FR-C.2, then transition to 1FR-H.1.
- c. immediately transition to 1FR-H.1 without completing the step in progress in 1FR-C.2
- d. complete all steps of 1FR-C.2, then transition to 1FR-H.1 only if the CFST for Core Cooling is satisfied.

Question # 082

Given the following conditions:

- Unit 1 core offload is in progress.
- A fuel element has JUST been placed into the SFP upender.
- Improper alignment of WGDT system results in a gaseous release into containment.
- 1R-12, U1 CNTM/SHLD BLD VENT GAS R, is in alarm and reading 120,000 cpm.
- 1R-22, U1 SHLD BLD STACK LO RNG R, is in alarm and reading 2,000 cpm.

The Containment SRO will perform _____.

- a. C1.6 AOP1, Containment Evacuation
- b. D5.1 AOP1, SFP Area Evacuation – Non-Refueling
- c. D5.2 AOP1, Damaged Fuel Assembly
- d. D5.2 AOP4, Spent Fuel Pool Area Evacuation – Refueling

Question # 083

Given the following conditions:

- The Control Room has been evacuated due to a fire.
- F5 Appendix B, Control Room Evacuation (Fire), is in progress.
- The Unit 1 Shift Supervisor is performing Attachment I, Establish AFW Flow.

If AFWP suction pressure approaches 3 psi, the Unit 1 SS is required to. . .

- a. locally trip the TDAFWPs.
- b. refill the CSTs from the Condensate System.
- c. switch over to Cooling Water for AFWP suction.
- d. prepare to feed the Steam Generators from Main Feedwater.

Question # 084

Given the following conditions:

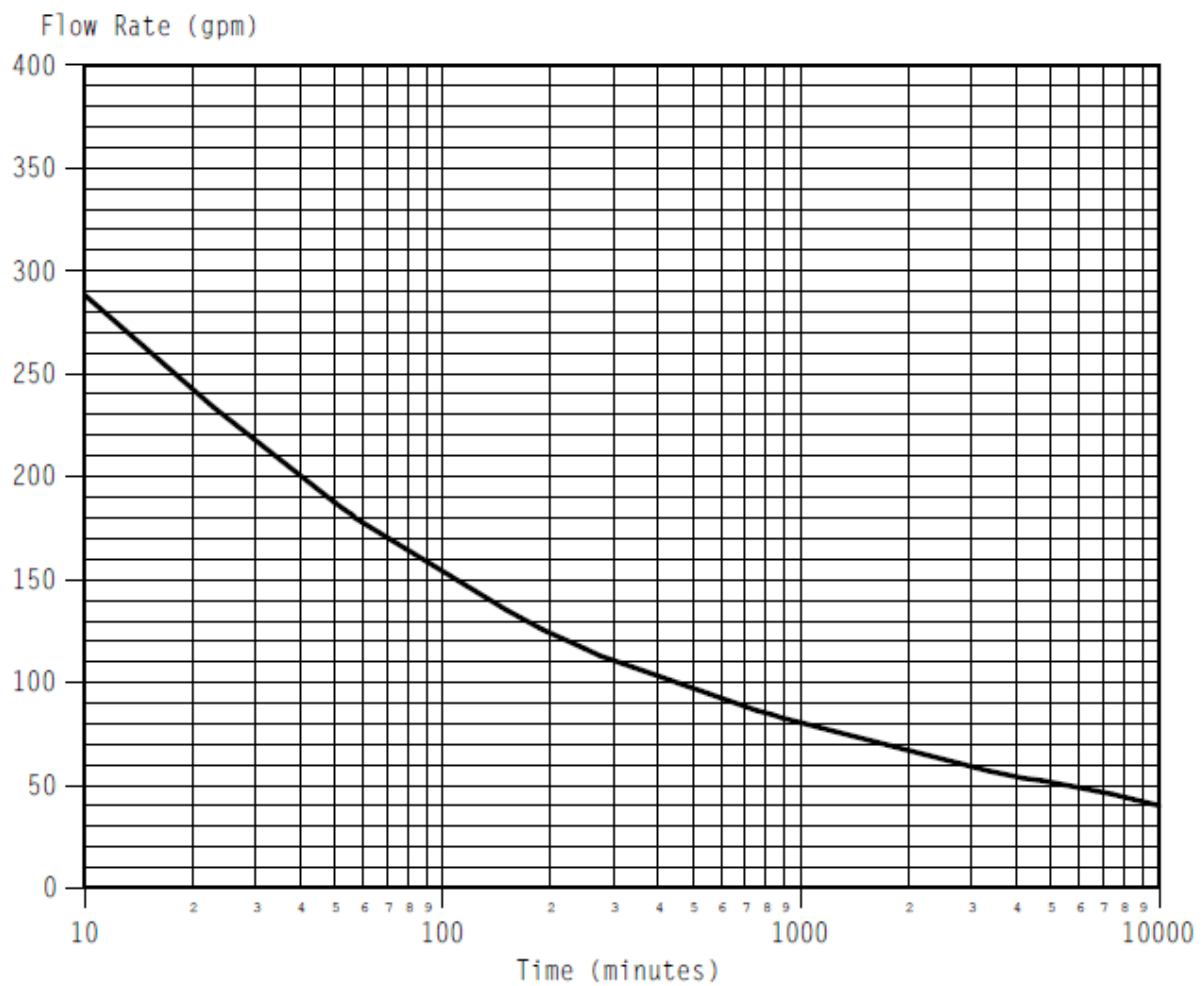


FIGURE ECA11-1. MINIMUM INJECTION FLOW RATE VERSUS TIME AFTER TRIP

Question # 084 continued. See previous page for additional conditions

- At 10:10 am, Unit 2 SI and Reactor trip occurred.
- At 10:35 am, Unit 2 SS transitioned to 2ECA-1.1, Loss of Emergency Coolant Recirculation, due to inability to isolate the leak outside containment
- At 10:50 am, 2ECA-1.1, Loss of Emergency Coolant Recirculation, Step 14.b RNO (BELOW) is being performed:

b. Establish minimum injection flow to remove decay heat. Perform the following:

- 1) Determine minimum injection flow required from Figure ECA11-1.
- 2) Establish minimum injection flow using SI, RHR, or charging pumps as necessary.
- 3) Go to Step 19.

- 21 SI pump is running.
- 21 Charging pump is running and manually aligned to the RWST.

The minimum injection flow required per Figure ECA11-1 is _____.
To establish the minimum injection flow the SS will direct the _____ be stopped.

- a. 200 gpm
21 SI pump
- b. 200 gpm
21 Charging pump
- c. 230 gpm
21 SI pump
- d. 230 gpm
21 Charging pump

Question # 085

Given the following conditions:

- Unit 1 is at 100% power.
- Unit 1 experiences a SBLOCA.
- Containment radiation level indicates 250 R/hr and rising slowly.
- Containment pressure is 4 psig and stable.

To reduce containment radiation levels and permit longer Aux Building stay times the Unit 1 SS will direct placing the _____ in service per _____.

- a. Containment Spray system
1E-1, Response to Loss of Reactor or Secondary Coolant
- b. Containment Cleanup system
1FR-Z.3, Response to High Containment Radiation
- c. Containment Post-LOCA Ventilation system
1FR-Z.3, Response to High Containment Radiation
- d. Containment Dome Recirculation Fans
1E-1, Response to Loss of Reactor or Secondary Coolant

Question # 086

Given the following conditions:

- Unit 1 is shutdown.
- RCS temperature is 175°F.
- RCS pressure is 320 psig.

- The running RHR pump locks out.
- RCS temperature and pressure are increasing.
- Both RCS loops are available for decay heat removal.

Overpressure protection for the RHR system is _____
AND _____ should be entered FIRST.

- a. adequate because the OPPS system is in service
1E-4, Core Cooling following Loss of RHR Flow
- b. adequate because the RHR suction MOVs automatically close on high pressure
1C15 AOP1, RHR Flow Restoration
- c. adequate because the RHR suction MOVs automatically close on high pressure
1E-4, Core Cooling following Loss of RHR Flow
- d. NOT adequate because the OPPS system is NOT in service
1C15 AOP1, RHR Flow Restoration

Question # 087

Given the following conditions:

- Unit 1 experienced a Large Break LOCA.
- 12 RHR pump is OOS.
- 11 RHR pump is running in recirculation mode supplied by Sump B.
- RWST Level is 7%.
- Containment pressure is 10 PSIG and lowering slowly.
- Containment level is 6.5 feet and stable.
- Sump B level indicates 60% and slowly lowering.

- 1E-1, Loss of Reactor or Secondary Coolant, has been completed and long term plant status is being evaluated.
- 11 RHR pump amps have been lowering slowly since being started AND are oscillating.

The 11 RHR pump is cavitating due to _____.

The SS will _____.

- a. insufficient sump water level
ensure all actions of 1ES-1.3, Transfer To Recirculation With One Safeguard Train Out of Service, have been performed
- b. boiling in the RHR heat exchangers
complete the steps in 1ES-1.3, Transfer To Recirculation With One Safeguard Train Out of Service, to align more CC flow to 11 RHR HX
- c. Sump B strainers clogging with loose debris
transition to 1ECA-1.3, Recirculation Sump Blockage, to secure pumps as needed
- d. flashing in the RHR pump suction lines from lowering Containment pressure
transition to 1ECA-1.1, Loss of Emergency Coolant Recirculation, to reduce recirculation flow

Question # 088

Given the following conditions:

- Unit 1 is at 100% power.
- A complete loss of CC flow to the letdown HX occurs.
- No operator actions have been taken.

**As a result, _____ AND,
to mitigate the failure, the SS is required to _____.**

- a. VCT level will lower to a new stable value
implement 1E-0, Reactor Trip or Safety Injection
- b. Pressurizer level will rise until the reactor trips
implement 1C14 AOP1, Loss of Component Cooling
- c. Ion exchanger resins will release contaminants
enter 1C12.1 AOP2, Loss of Charging Flow to the Regen HX
- d. VCT temperature will rise uncontrollably
place Excess Letdown in service per 1C12.1, Letdown, Charging, and Seal Water Injection – Unit 1

Question # 089

Given the following caution from various EOPs:

Caution *IF offsite power is lost after SI reset, THEN manual action may be required to restart safeguards equipment.*

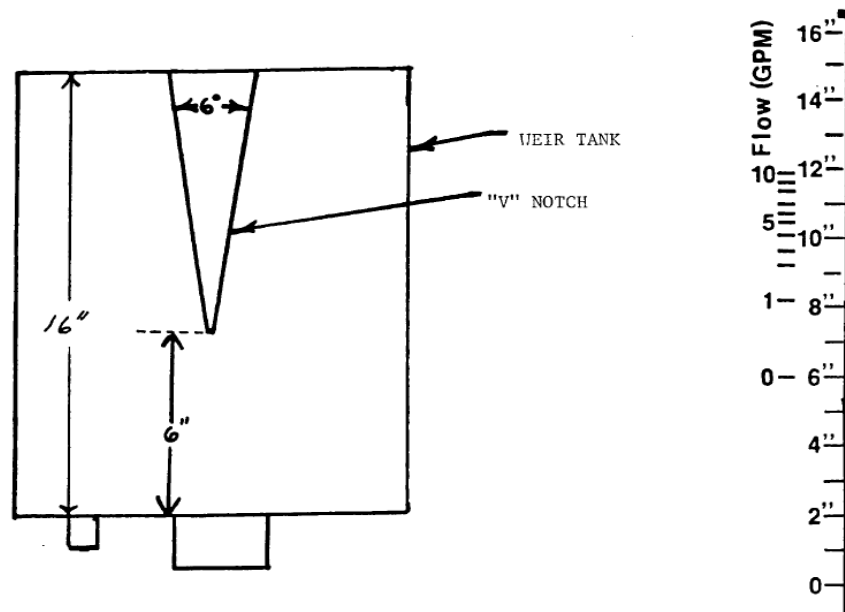
The basis for this Caution is that _____ and the 'Manual Operator Action' _____ maintain OPERABILITY of the safeguards equipment.

- a. SI logic requires manual operator action to remove the undervoltage signal to reset the circuitry
does
- b. manual action must be taken to realign ALL safeguards equipment; otherwise the equipment would NOT restart
does NOT
- c. SI must be reset to allow operating equipment to be shutdown, and automatic SI signals are NOT blocked after SI reset
does
- d. safeguard equipment will NOT load onto emergency buses during normal sequencing after diesel generator startup
does NOT

Question # 090

Given the following conditions:

- 47019-0607, Unit 1 Containment condensate High Leak Rate, has been received.
- The 11 Fan Coil Unit Weir Tank was found at 16 inches.
- The 11 Fan Coil Unit Weir Tank was drained to 0 inches.
- 5 minutes later, the 11 Fan Coil Unit Weir Tank level returned to 16 inches and stabilized.
- Figure 1 from C19.3, Leakage within Containment, is provided below.



There is a ____ gpm leak on the 11 Fan Coil Unit AND the SS is required to direct entry into _____.

- a. 4
C35 AOP4, Cooling Water Leakage in Containment
- b. 4
C37.11 AOP1, Loss of Safeguards Chilled Water
- c. >10
C35 AOP4, Cooling Water Leakage in Containment
- d. >10
C37.11 AOP1, Loss of Safeguards Chilled Water

Question # 091

Given the following conditions:

- Step 13 of 1FR-S.1, Response to Nuclear Power Generation/ATWS, is in progress with the following conditions:
 - o The reactor trip breakers are being opened locally.
 - o Control rods are NOT Fully Inserted.
 - o The turbine is tripped.
 - o Emergency boration has been established.
 - o All power range channels read 5% reactor power.
 - o Both intermediate range (NFM) channels read 0.0 DPM.
 - o PZR level is off scale low.
 - o RCS pressure is 300 psig.
 - o Core exit thermocouples indicate 1350°F and lowering slowly.
- 1FR-S.1 page 7 and 8 are provided.

The SS will _____
because _____.

- a. transition to 1FR-C.1, RESPONSE TO INADEQUATE CORE COOLING
core exit thermocouples reading >1200°F indicate an extreme challenge to the fuel clad/matrix barrier and requires immediate operator action
- b. transition to 1SACRG-1, SEVERE ACCIDENT CONTROL ROOM GUIDELINE INITIAL RESPONSE
attempts to restore core cooling have failed, core damage cannot be prevented and the operators should go to the SAMGs
- c. remain in 1FR-S.1, RESPONSE TO NUCLEAR POWER GENERATION/ATWS and continue to borate the RCS
core exit thermocouples lowering indicates core cooling has been successful
- d. return to procedure and step in effect AND transition to 1FR-C.1, RESPONSE TO INADEQUATE CORE COOLING
SI has not been successful in cooling the core, and the operators must perform alternative actions for establishing core cooling

Question # 092

Given the following conditions:

- Unit 1 has just entered Mode 1.
- In-Service Purge's 18 Inch Blind Flanges are discovered to be removed.

What are the implications, if any, of this discovery?

- a. None, as long as overall containment leakage was verified less than total allowed leakage.
- b. Unit 1 would enter LCO 3.0.3 for both trains of SBVS being INOPERABLE.
- c. None, T.S. credit the valves in the In-Service Purge line NOT the flanges.
- d. T.S. 3.6.3, Containment Isolation Valves, is not met.

Question # 093

Given the following conditions:

- Core reload refueling activities are in progress.
- An irradiated fuel assembly is being lowered into the core with the HOIST JOG SWITCH.
- The ENTERING CORE SLOW ZONE light has just extinguished.
- The manipulator crane operator continues lowering the irradiated fuel assembly into the core, now using the HOIST CONTROL LEVER.

- The hoist abruptly stops and the mast support tube is shaking noticeably.
- The manipulator crane camera shows the fuel assembly is FULLY inserted.

- The following indications are present:
 - o ENTERING CORE SLOW ZONE light is OFF.
 - o INTERMEDIATE CORE ZONE light is ON.
 - o BOTTOM CORE SLOW ZONE light is OFF.
 - o UNDERLOAD light is ON.
 - o SLACK CABLE light is ON.
 - o Gas bubbles are visible rising from the vicinity of the fuel assembly.

The _____ control signal has failed.

The Containment SRO will implement _____ AND _____.

- a. UNDERLOAD
C1.6 AOP1, Containment Evacuation
D5.2 AOP1, Damaged Fuel Assembly

- b. UNDERLOAD
D5.2 AOP1, Damaged Fuel Assembly
D5.2 AOP4, Spent Fuel Pool Area Evacuation-Refueling

- c. BOTTOM CORE SLOW ZONE
C1.6 AOP1, Containment Evacuation
D5.2 AOP1, Damaged Fuel Assembly

- d. BOTTOM CORE SLOW ZONE
C1.6 AOP1, Containment Evacuation
D5.2 AOP4, Spent Fuel Pool Area Evacuation-Refueling

Question # 094

Given the following conditions:

- Step 14 of 1FR-S.1, Response to Nuclear Power Generation/ATWS, is in progress with the following conditions:
 - o The reactor trip breakers are NOT OPEN.
 - o Control rods are NOT Fully Inserted.
 - o Normal and emergency boration CANNOT be established, including aligning the RWST to charging, due to flow path blockages.
 - o The turbine is tripped.
 - o All power range channels read 3% to 4% power.
 - o Both intermediate range (NFM) channels read +0.1 DPM
 - o CETC indicate <700°F.
- 1FR-S.1 page 7 and 8 are provided.

The SS will _____
because _____.

- a. exit 1FR-S.1 and return to the procedure and step in effect
power is less than the design power level for auxiliary feedwater heat removal capability
- b. exit 1FR-S.1 and transition to 1FR-S.2, Response to Loss of Core Shutdown
power channels are less than 5% with a startup rate greater than -0.2 DPM
- c. maintain stable RCS temperature and return to the procedure and step in effect
stable temperatures preclude positive reactivity insertion by dilution
- d. allow the RCS to heat up and continue efforts to establish normal or emergency boration
the RCS heat up will insert negative reactivity

Question # 095

Given the following conditions:

- Unit 1 and 2 are at 100% power.
- An IMMINENT Airborne Threat has been verified with the NRC.
- AB-8, Response to Security Threats, has been completed through Step 4, Initiate Plant Evacuation.
- The Unit 1 SS, Unit 1 RO and Unit 2 RO are the ONLY personnel in the control room.

What are the minimum control room staffing requirements for the current plant conditions, and, in addition to continuing in AB-8, what action is required next?

<u>Minimum Control Room Staffing</u>	<u>Required Action</u>
a. 2 SROs and 3 ROs	invoke 10 CFR 50.54(x)
b. 2 SROs and 2 ROs	have the Unit 2 SS go to the Control Room
c. 1 SRO and 2 ROs	immediately Trip Both Units and enter EOPs
d. 1 SRO and 1 RO	immediately Trip Both Units and enter EOPs

Question # 096

Given the following note from T.S. 3.4.6:

2. No RCP shall be started with any RCS cold leg temperature \leq the Over Pressure Protection System (OPPS) enable temperature specified in the PTLR unless:
 - a. The secondary side water temperature of each steam generator (SG) is $\leq 50^{\circ}\text{F}$ above each of the RCS cold leg temperatures; or
 - b. There is a steam or gas bubble in the pressurizer.

What is the basis for this restriction?

- a. Prevent outsurge from emptying the pressurizer following an RCP start.
- b. Minimize RCS pressure transient caused by heat transfer from a hot SG.
- c. Minimize RCS pressure transient caused by additional heat transfer from the core.
- d. Minimize RCS pressure transient due to additional RCP pressure head added to RCS pressure.

Question # 097

Given the following conditions:

- You are the Unit 1 SS.
- A Unit 1 reactor startup is in progress following an inadvertent plant trip.
- 1C1.2, Unit 1 Startup Procedure, is in progress.
- Control Bank 'A' is being withdrawn.
- ICCR is 0.28.
- The last two 1/M plots indicate that criticality will be achieved on Control Bank "B" at approximately 100 steps.
- The calculated ECC is CBD at 180 steps.

The SS is required to direct _____
per _____.

- a. a manual trip of the reactor
1E-0, Reactor Trip or Safety Injection
- b. manual insertion of ALL Control and Shutdown Bank rods
1C5, Control Rod and Rod Position Indication Systems
- c. manual insertion of the Control Bank rods AND verify minimum boron concentration
C1B, Appendix - Reactor Startup
- d. suspending the startup to determine if criticality will be within 750 pcm of the ECC prior to proceeding
C1A, Reactivity Calculations

Question # 098

To perform fuel handling, _____ is required to be OPERABLE per tech specs to _____ in the event of a fuel handling accident.

- a. R-5, Spent Fuel Pool Area Monitor,
ensure Aux Building Special Ventilation initiates,
- b. R-25, Spent Fuel Pool Air Monitor A,
prevent offsite dose from exceeding the limits of 10CFR100,
- c. R-28, New Fuel Pit CRIT Area Rad Meter,
ensure that a single train of SFPSVS is capable of filtering SFP enclosure air before it is
vented to the AB ventilation system,
- d. R-31, Spent Fuel Pool Air Monitor B,
prevent the CR operator dose from exceeding the limits of 10CFR50.67,

Question # 099

Given the following conditions:

- The Shift Manager became incapacitated and was transported offsite 30 minutes ago.
- Unit 1 experienced a LOCA 15 Minutes ago.
- The Plant Manager is the duty Emergency Director, but is not onsite yet.
- A Non-Licensed Operator (NLO) has sustained life-threatening injuries in a high dose area while attempting to isolate the uncontrolled release.

- Three rescue options are presented:
 - o Plan A would result in a dose of 37 Rem TEDE to the rescuer with very high probability of success.
 - o Plan B would result in a dose of 25 Rem TEDE to the rescuer with medium probability of success.
 - o Plan C would result in a dose of 4 Rem TEDE to the rescuer with low probability of success.

- The rescuer is knowledgeable, fully briefed AND a volunteer.

The rescue plan is required to be authorized by the _____.

Based on expected dose, _____ CAN be authorized.

- a. Unit 1 SS
ONLY Plan C

- b. Unit 1 SS
ONLY Plan B OR Plan C

- c. Unit 2 SS
ONLY Plan B OR Plan C

- d. Unit 2 SS
ANY of the plans

Question # 100

Given the following conditions:

- Unit 2 is at 100% power.
- A Reactor trip and Safety Injection occur.

- The Shift Supervisor notices the following:
 - o 22 SI Pump does NOT automatically start.
 - o 22 RHR Pump does NOT automatically start.
- 2E-0, Reactor Trip or Safety Injection, immediate actions are in progress.

The SS will direct the 22 SI pump and 22 RHR pump be started. . .

- a. immediately upon discovery.
- b. ONLY if Train 'A' Safeguards equipment fails.
- c. after read through of 2E-0 Immediate Actions has been performed.
- d. ONLY if the Reactor Operator fails to start them as required by Immediate Actions.

001	b.	021	d.	041	a.	061	d.	081	c.
002	c.	022	c.	042	d.	062	a.	082	a.
003	c.	023	c.	043	a.	063	c.	083	c.
004	a.	024	b.	044	b.	064	b.	084	b.
005	c.	025	b.	045	c.	065	d.	085	b.
006	a.	026	c.	046	c.	066	a.	086	b.
007	c.	027	a.	047	a.	067	c.	087	c.
008	d.	028	c.	048	b.	068	b.	088	d.
009	a.	029	a.	049	a.	069	d.	089	d.
010	a.	030	d.	050	d.	070	a.	090	c.
011	c.	031	b.	051	a.	071	a.	091	c.
012	c.	032	c.	052	d.	072	d.	092	d.
013	d.	033	d.	053	c.	073	d.	093	c.
014	a.	034	c.	054	a. or c.	074	b.	094	d.
015	a.	035	d.	055	b.	075	b.	095	c.
016	a.	036	c.	056	b.	076	b.	096	b.
017	d.	037	a.	057	a.	077	a.	097	c.
018	a.	038	b.	058	a.	078	c.	098	b.
019	a.	039	a.	059	c.	079	b.	099	d.
020	b.	040	d.	060	a.	080	a.	100	c.