Surry Power Station
2019 SPS RO NRC Examination

Question: 1
(1 point)

Initial Conditions:

A plant transient has led to a high pressure reactor trip of Unit 1. Following the trip, one of the pressurizer safety valves opened and did not reclose. RCS pressure lowered and SI actuation occurred.

Current Conditions (9 minutes after the trip):

- RCS subcooling is 4 °F.
- RCS pressure is at 980 psig and rapidly lowering.
- Hot leg and CETC temperatures indicate 540°F.
- Pressurizer level is 72% and rising.
- While in 1-E-0, SI was reset and the A Charging pump and the A LHSI pump secured in AUTO.
- HHSI flow to the RCS is 420 gpm.
- Crew is currently performing 1-E-1, Loss of Reactor or Secondary Coolant, step 6, CHECK IF SI FLOW SHOULD BE REDUCED.

Based on the evaluation at Step 6 of 1-E-1, which one of the following alignments will be required for:

1) 1-CH-P-1B, "B" Charging pump.
2) 1-SI-P-1B, "B" LHSI pump.

	1-CH-P-1B	1-SI-P-1B
A.	1) Secured.	2) Secured.
B.	1) Running.	2) Running.
C.	1) Running.	2) Secured.
D.	1) Secured.	2) Running.

Question: 2
(1 point)

With Unit 1 at 100% power, an inadvertent phase III containment isolation occurs. Approximately 15 minutes later, the following RCP temperatures exist:

"A" RCP

- Upper Motor radial bearing 205°F
- RCP lower bearing Seal Water Temp 215°F
- Stator winding 285°F

"C" RCP

- Upper Motor radial bearing 180°F
- RCP lower bearing Seal Water Temp 210°F
- Stator winding 295°F

In order to mitigate these plant conditions, the crew will monitor RCP temperatures using _____(1)_____, then initiate 1-E-0, Reactor Trip or Safety Injection, trip the reactor, and stop _____(2)_____.

A. 1) 1-AP-15.00, Loss of Component Cooling
   2) "C" RCP

B. 1) 1-AP-15.00, Loss of Component Cooling
   2) "A" RCP

C. 1) 1-AP-9.00, RCP Abnormal Conditions
   2) "A" RCP

D. 1) 1-AP-9.00, RCP Abnormal Conditions
   2) "C" RCP

Question: 3
(1 point)

Initial Conditions:

- Unit 1 is at 70% power and ramping up to 100% in accordance with 1-GOP-1.5, Unit Startup, 2% to Max Allowable Power.
- Tave and Tref are matched.

Current Conditions:

- Median Tave fails to a stable indication of 570 °F.
- Annunciator 1D-E5, CHG PP TO REGEN HX HI-LO FLOW is alarming.
- The Immediate Actions of 0-AP-53.00 have been completed and the RO is maintaining Pressurizer level at pre-event level.

Which ONE of the following states:

1) Because of the Median Tave failure, the **indicated** Pressurizer level control setpoint is __(1)__.
2) Per 0-AP-53.00, once Median Tave has been repaired, controller __(2)__ must be unsaturated during restoration of Pressurizer Level Control.

A. 1) 41.2%
   2) 1-CH-FC-1122C, Charging Flow Control

B. 1) 50.0%
   2) 1-CH-FC-1122C, Charging Flow Control

C. 1) 41.2%
   2) 1-RC-LC-1459G, Pressurizer Master Level Control

D. 1) 50.0%
   2) 1-RC-LC-1459G, Pressurizer Master Level Control

Question: 4
(1 point)

Initial Conditions:

- Unit 1 is cooling down with the Pressurizer solid.
- 1-RH-P-1B is tagged out due to a breaker problem.
- RCS temperature is 238 °F.
- RCS pressure is 297 psig.
- All SG Narrow Range levels are approximately 45% and stable.
- All RCPs are secured.
- 1-RH-P-1A is running on the 'A' RHR heat exchanger.
- All other equipment is operable.

Current Conditions:

- 1-RH-P-1A, RHR pump trips on overcurrent and cannot be restarted.
- RCS temperature is 240 °F and slowly rising.

Which ONE of the following completes the statement below:

1) Based on the given conditions, in accordance with 1-AP-27.00, Loss of Decay Heat Removal Capability, the crew is required to re-establish core cooling using __(1)__.
2) Per 1-AP-27.00, Loss of Decay Heat Removal Capability, Core Cooling is verified by stable or slowly lowering __(2)__.

A. 1) Natural Circulation
   2) RCS cold leg temperatures

B. 1) Reflux cooling
   2) RCS cold leg temperatures

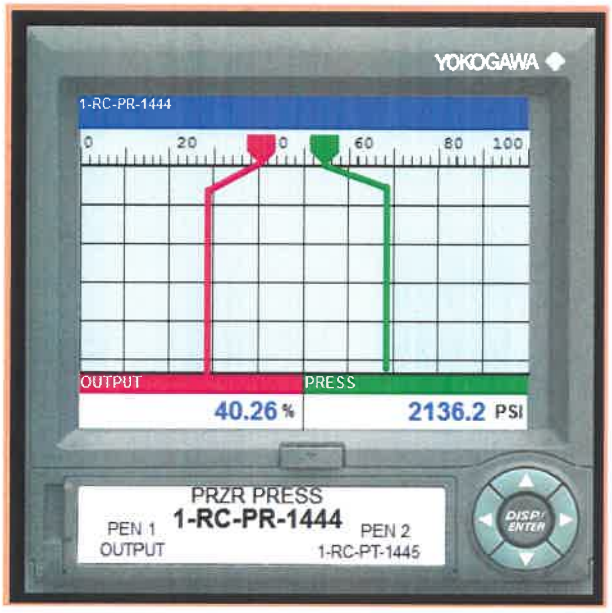
C. 1) Natural Circulation
   2) CETCs

D. 1) Reflux cooling
   2) CETCs

Question: 5
(1 point)

Unit 1 is at 100% power.

- A Failure occurs in the Pressurizer pressure control system.
- All Pressurizer pressure controllers are in AUTO.
- The RO observes the recorder trend shown:



Based on the above conditions, which ONE of the following describes:

1) The reason the team needs to perform immediate actions of 0-AP-53.00, Loss of Vital Instrumentation/Controls?
2) When the immediate actions are complete, which PORV will be inoperable?

A. 1) 1-RC-PT-1445 channel failure.
   2) 1-RC-PCV-1455C.

B. 1) 1-RC-PT-1445 channel failure.
   2) 1-RC-PCV-1456.

C. 1) Master Pressure Controller failure.
   2) 1-RC-PCV-1455C.

D. 1) Master Pressure Controller failure.
   2) 1-RC-PCV-1456.

Question: 6
(1 point)

Given the following conditions:

- Unit 1 is at 100% power.
- 1-PT-8.1, Reactor Protection System Logic testing is in progress.
- The 'A' Bypass Bkr (BYA) has just been CLOSED.

An auto Reactor trip is received due to a Generator lockout but only the 'A' RPS Train actuates.

Which ONE of the following identifies:

1) The status of the 'A' Bypass Bkr (BYA).
2) The status of the Reactor.

	'A' Bypass Bkr	**Reactor**
A.	OPEN	TRIPPED
B.	OPEN	ATWS
C.	CLOSED	ATWS
D.	CLOSED	TRIPPED

Question: 7
(1 point)

Initial Conditions:

- The Operating Team is in E-3, Steam Generator Tube Rupture and has completed RCS cooldown and depressurization.
- CHG pump suction has been aligned to the VCT.

Current Conditions::

- Containment pressure is 24 psia and slowly lowering.
- PRZR level is 44.5% and slowly lowering.
- S/G NR levels are as follows:
  - 'A' S/G is 70% and rising.
  - 'B' S/G is 0% and stable.
  - 'C' S/G is 23% and rising.
- RCS pressure is 1000 psig.
- S/G pressures are as follows:
  - 'A' S/G is 985 psig and rising.
  - 'B' S/G is 0 psig and stable.
  - 'C' S/G is 610 psig and stable.

Which ONE of the following states the MINIMUM action(s) required to be taken by the Operating Team in accordance with step 36 of E-3?

(REFERENCE PROVIDED)

A. Raise CHG flow and depressurize the RCS.

B. Depressurize the RCS only.

C. Raise CHG flow only.

D. Turn on PRZR heaters only.

Question: 8
(1 point)

Initial Conditions:

- Unit 2 is at 100% MOL.
- A Reactor Trip and SI actuate.
- The team enters 2-E-0, Reactor Trip, or SI.
- The following indications are reported by the RO and BOP:
  - Containment Pressure is 25 psia and rising.
  - SG A, SG B, SG C levels and pressures are as follows:

	SG A	SG B	SG C
Pressure	774 psig ↓	498 psig ↓	768 psig ↓
Level (WR)	46% ↓	15% ↓	45% ↓

Current Conditions (7 minutes later):

- The crew is performing diagnostic steps of 2-E-0.
- RCS pressure is 904 psig and lowering.
- Tave is 456°F, and lowering.
- Containment pressure is 35 psia and starting to lower.
- Containment sump level is 20 inches and rising.
- Containment Gas Rad monitor is 1.16 E2 cpm and steady.
- AFW is isolated to SG B, and throttled to 230 gpm to SG A and SG C.
- SG A, SG B, SG C levels and pressures are as follows:

	SG A	SG B	SG C
Pressure	481 psig ↔	50 psig ↔	452 psig ↔
Level (WR)	46% ↔	1% ↔	45% ↔

Based on the above conditions, which ONE of the following describes:

1) The positive reactivity added by this event, at this time in core life (MOL), is __(1)__ than it would be at EOL.
2) Based on the indications given, the next procedure the team is required to enter is __(2)__.

A. 1) less 2) 2-E-1, Loss of Reactor or Secondary Coolant

B. 1) less 2) 2-E-2, Faulted Steam Generator Isolation

C. 1) greater 2) 2-E-2, Faulted Steam Generator Isolation

D. 1) greater 2) 2-E-1, Loss of Reactor or Secondary Coolant

Question: 9
(1 point)

Initial Conditions:

- Unit 1 was at 100%.
- The reactor tripped due to a loss of "A" Station Service Bus.

Current Conditions:

- The team has transitioned to 1-ES-0.1, Reactor Trip Response.
- RCS Pressure is 2010 psig and rising.
- 1-FW-P-2 (TDAFW Pump) is tripped.
- 1-FW-P-3A did not start.
- The following secondary parameters are observed:
  - All S/G narrow range levels:
    - "A" S/G = 4%.
    - "B" S/G = 0%.
    - "C" S/G = 0%.
  - AFW flows to each S/G:
    - "A" S/G = 315 gpm.
    - "B" S/G = 10 gpm.
    - "C" S/G = 10 gpm.

Based on the above conditions, which ONE of the following describes the next action the team is required to take?

A. Establish MFW flow using bypass HCVs IAW 1-ES-0.1.

B. Direct Unit 2 to cross-tie AFW flow IAW 0-AP-50.00, Opposite Unit Emergency.

C. Throttle "A" S/G AFW flow to between 60 and 100 gpm IAW 1-ES-0.1.

D. GO to 1-FR-H.1, Loss of Secondary Heat Sink.

Question: 10
(1 point)

Given the following:

- # 1 EDG is tagged out.
- Both units are at 100%.
- A loss of offsite power occurs.
- #2 EDG starts and loads onto the 2H bus.
- #3 EDG starts and loads onto the 2J bus.
- The AAC Diesel failed to start.

In accordance with 1-ECA-0.0, Loss of All AC Power; which ONE of the following actions is required to energize Unit 1 J bus, AND commit #3 EDG to Unit 1?

A. Place 25J3 in pull-to-lock. THEN place the Unit 2 PNL 3-2 SWITCH 43-15J3 in BYPASS.

B. Place 25J3 in pull-to-lock. THEN place the Unit 1 PNL 3-1 SWITCH 43-25J3 in BYPASS.

C. Place the Unit 1 PNL 3-1 SWITCH 43-25J3 in BYPASS, and verify breaker 25J3 trips. THEN manually sync and close breaker 15J3.

D. Place the Unit 2 PNL 3-2 SWITCH 43-15J3 in BYPASS, and verify breaker 25J3 trips. THEN manually sync and close breaker 15J3.

Question: 11
(1 point)

Given the following:

- A Loss of Offsite power to both units occurs.
- The team is performing the Immediate Actions of 1-E-0, Reactor Trip Or Safety Injection.
- At Step 3 of 1-E-0, the following ANNUNCIATORS are locked in:
  - 1K-F4, 4KV EMERG BUS NORM SUP BKR AUTO TRIP.
  - 1K-G4, 4KV EMERG BUS EMERG SUP BKR AUTO TRIP.
  - 1K-G1, BUS 1H DEGRADED VOLTAGE.
  - 1K-G8, BUS 1J DEGRADED VOLTAGE.
  - 1K-H2, BUS 1H UNDERVOLT.
  - 1K-H3, BUS 1J UNDERVOLT.

Which ONE of the following completes the statements below?

1) EDG #1 ___(1)___ auto start.
2) The procedure that addresses this condition is ____(2)____.

A. 1) did not 2) 1-AP-10.07, Loss of Unit 1 Power

B. 1) did not 2) 1-ECA-0.0, Loss of All AC Power

C. 1) did 2) 1-AP-10.07, Loss of Unit 1 Power

D. 1) did 2) 1-ECA-0.0, Loss of All AC Power

Question: 12
(1 point)

Initial Conditions:

- Unit 1 is at 100%, and the RO is recording 'B' RCP temperatures for Logs using PCS. (NOTE: PCS Drawing included in RO References)

Current Conditions:

- A transient causes 1K-B8, UPS SYSTEM 1B TROUBLE to alarm.
- The Control room team is performing actions per 1-AP-10.02, Loss of Vital Bus II.
- An operator reports there is an acrid odor in the vicinity of the affected UPS, and discoloration on the front panel of the UPS.

Which ONE of the following completes the statements below?

1) As a result of this loss __(1)__ will automatically close.
2) Per 1-AP-10.02, the crew is required to __(2)__ .

(REFERENCE PROVIDED)

A. 1) 1-CC-TV-140B, RCP THERM BARR CC RTN O/S TV
   2) monitor the RCP per Attachment 1. If any parameter reaches their action level then the unit should be taken off line

B. 1) 1-CC-TV-140B, RCP THERM BARR CC RTN O/S TV
   2) trip the reactor and initiate 1-E-0, Reactor Trip or Safety Injection. Stop 1-RC-P-1B

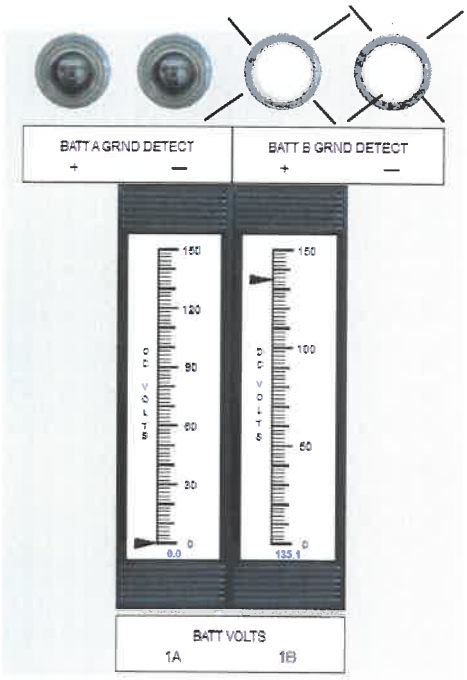
C. 1) 1-CC-TV-105B, RCP B CLR CC RTN TV
   2) monitor the RCP per Attachment 1. If any parameter reaches their action level then the unit should be taken off line

D. 1) 1- CC-TV-105B, RCP B CLR CC RTN TV
   2) trip the reactor and initiate 1-E-0, Reactor Trip or Safety Injection. Stop 1-RC-P-1B

Question: 13
(1 point)

Given the following:

- Unit 1 was at 100% power and stable.
- An event occurred one minute ago.
- The following annunciators related to the 1A DC bus are LIT:
  - 1K-A7, BATT SYSTEM 1A TROUBLE
  - 1K-A8, UPS SYSTEM 1A TROUBLE
  - 1K-F7, BATT HI/LO VOLTAGE
  - 1K-H2, BUS 1H UNDERVOLT
- In addition, the indication to the right is observed:



Which ONE of the following correctly describes the status of EDG #1?

A. Will not start, remotely or locally.

B. Will not start automatically, but can be manually started and loaded.

C. Will automatically start, but will not load.

D. Will automatically start and load.

Question: 14
(1 point)

Given the following conditions:

- Unit 2 is experiencing a sustained loss of Instrument Air.
- The operating team has tripped the reactor and initiated 2-E-0, Reactor Trip or Safety Injection.

Assuming that instrument air is NOT restored which ONE of the following describes the effect this has on the components below:

1) Feed Regulating valves have an air bottle to ensure __(1)__ .
2) Per 0-AP-40.00, LOSS OF INSTRUMENT AIR, decay heat removal from the RCS will occur by operation of S/G PORVs from __(2)__.

A. 1) Feed Reg valves will close on an isolation
   2) Safeguards

B. 1) continued operation of Feed Reg valves for multiple cycles
   2) the Main Control Room

C. 1) Feed Reg valves will close on an isolation
   2) the Main Control Room

D. 1) continued operation of Feed Reg valves for multiple cycles
   2) Safeguards

Question: 15
(1 point)

Initial Conditions:

- Unit 1 is operating at 75%.
- The Unit 1 Main Generator parameters are shown below:

	GEN MWe	GEN MVARS	Grid Freq	Gen Amps	Gen Volts	Gen H2 Press
Initial	630	+ 45	60 Hz	16,500	22.3 KV	75 psig

Current Conditions:

- The Voltage Regulator had an intermittent malfunction.
- The Generator MVAR indication now indicates -110 MVARs (IN).

Which ONE of the following completes the statements below?

1) After the intermittent malfunction, overall generator amps are __(1)__ than initial amps.
2) If the malfunction caused MVARs IN to continuously go IN (more negative), the greatest adverse impact on the Main Generator will be at the ___(2)___.

(REFERENCE PROVIDED)

A. 1) lower
   2) rotor windings

B. 1) lower
   2) stator core

C. 1) higher
   2) rotor windings

D. 1) higher
   2) stator core

Question: 16
(1 point)

Given the following:

- A reactor trip and SI occurred from full power for Unit 1.
- The crew transitioned from 1-E-0, Reactor Trip or Safety Injection, to 1-ECA-1.2, LOCA Outside Containment.
- Pressurizer level is offscale low.
- RVLIS indicates 90% and lowering.
- The crew closed 1-CH-HCV-1310A, CHARGING LINE ISOLATION valve in an effort to isolate the leak.

As stated in 1-ECA-1.2, LOCA Outside Containment, which ONE of the following parameters indicate that the leak has been isolated.

A. RCS subcooling rising.

B. RVLIS level rising.

C. Pressurizer level on scale and rising.

D. RCS Pressure rising.

Question: 17
(1 point)

Given the following:

- The team is in 1-FR-H.1, Response to Loss of Secondary Heat Sink.
- The team is at Step 9, attempting to establish feed flow using the Main Condensate System.

Which ONE of the following correctly completes the statement below?

In accordance with 1-FR-H.1 Step 9, the team is required to depressurize _____(1)_____ to less than __(2)__.

A. 1) one intact Steam Generator 2) 300 psig

B. 1) one intact Steam Generator 2) 550 psig

C. 1) all intact Steam Generators 2) 300 psig

D. 1) all intact Steam Generators 2) 550 psig

Question: 18
(1 point)

A Large break LOCA is in progress on Unit 1.

Which ONE of the following complete the statements below.

1) The RWST level where entry into 1-ES-1.3, Transfer to Cold leg Recirculation, is required is first reached when annunciator __(1)__ alarms.

2) The RWST level setpoint for Auto Swapover to RMT is __(2)__.

A. 1) 1A-B7, RWST EMPTY
   2) 13%

B. 1) 1A-A7, RWST LO LVL
   2) 13%

C. 1) 1A-B7, RWST EMPTY
   2) 13.5%

D. 1) 1A-A7, RWST LO LVL
   2) 13.5%

Question: 19
(1 point)

Given the following:

- A Unit 2 plant startup is in progress, with power being held between 4% and 6%.
- Steam Dumps are controlling Main Steam header pressure in AUTO.
- 2-RC-LT-459, Pressurizer Level Protection – Channel I, is in TRIP for I&C corrective maintenance.
- Pressurizer Level Selector Switch is in the III/II position.
- An Instrument Tech is erroneously opening the equalizing valve at the wrong d/p cell (at 2-RC-LT-460, Pressurizer Level Protection – Channel II).

Which ONE of the following describes:

1) The normal coincidence for the Pressurizer Level Reactor Trip is __(1)__.
2) After the Instrument Tech has opened the equalizing valve, the unit 2 Reactor Trip breakers __(2)__ automatically open.

A. 1) 2 of 4
   2) will

B. 1) 2 of 4
   2) will not

C. 1) 2 of 3
   2) will

D. 1) 2 of 3
   2) will not

Question: 20
(1 point)

Given the following:

- Unit 2 is in Cold Shutdown, and preparing to conduct a Reactor Startup.
- Due to a loss of power, Source Range Channel N-32 Fails low, resulting in a loss of the audio count rate signal.

Per 2-AP-4.00, Nuclear Instrumentation Malfunction, which ONE of the following describes the actions necessary to restore the audio count rate signal to the control room?

A. Place the audio count rate CHANNEL SELECTOR switch on the front of the Audio Count Rate Drawer to the SR N-31 position.

B. Place the audio count rate CHANNEL SELECTOR switch on the front of the Audio Count Rate Drawer to the SR N-32 position.

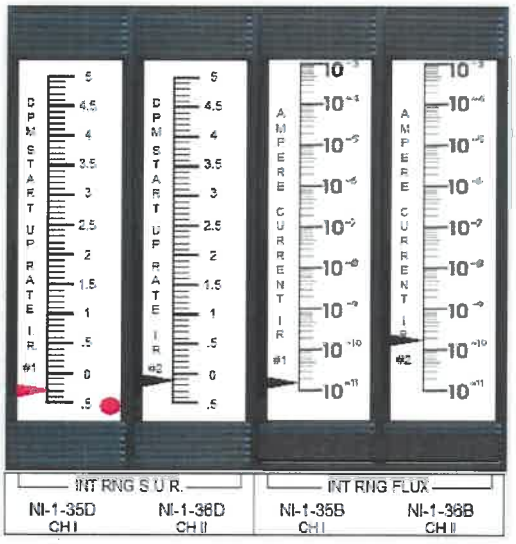
C. Place the AMPLIFIER SELECT switch on the rear of the audio count rate drawer assembly to the A1 position.

D. Place the AMPLIFIER SELECT switch on the rear of the audio count rate drawer assembly to the A2 position.

Question: 21
(1 point)

Initial Conditions:

- Unit 1 Reactor has tripped from 100% power.
- 15 minutes after the trip, the following indications are observed:



Which of the following is true regarding the current status of the Intermediate Range NIs?

A. NI-35 is UNDER compensated.

B. NI-35 is OVER compensated.

C. NI-36 is UNDER compensated.

D. NI-36 is OVER compensated.

Question: 22
(1 point)

Given the following:

- Chemistry has just completed sampling both Waste Gas Decay Tanks and report the following results:
  - 'A' Waste Gas Decay Tank – 25,000 curies.
  - 'B' Waste Gas Decay Tank – 12,500 curies.

Based on the conditions given above, which ONE of the following completes the statements below?

1) The Radioactivity contained in __(1)__ is greater than the maximum quantity allowed per Technical Specifications 3.11, Radioactive Gas Storage.

2) Per Technical Specifications 3.11, gaseous additions to the 'A' Waste Gas Decay Tank shall be suspended __(2)__.

A. 1) both Waste Gas Decay tanks
   2) within one hour

B. 1) 'A' Waste Gas Decay Tank only
   2) immediately

C. 1) both Waste Gas Decay tanks
   2) immediately

D. 1) 'A' Waste Gas Decay Tank only
   2) within one hour

Question: 23
(1 point)

Initial Conditions:

- A fire was identified within the Protected Area.
- 0-AP-48.00, Fire Protection – Operations Response, has been initiated.
- The Motor Driven Fire Pump is running.

Current conditions:

- The fire has been extinguished.
- The team is performing 0-AP-48.00 steps to secure the Motor Driven Fire Pump.

Which ONE of the following completes the statements below?

1) 1-FP-36 (Motor Driven Fire Pump Recirc) must be closed __(1)__ the Motor Driven Fire Pump is secured.
2) Per 0-AP-48.00, the Motor Driven Fire Pump is secured __(2)__.

A. 1) after 2) from the Main Control Room

B. 1) after 2) locally

C. 1) before 2) from the Main Control Room

D. 1) before 2) locally

Question: 24
(1 point)

A chemical spill in the control room necessitated the evacuation of the control room in accordance with 0-AP-20.00, Main Control Room Inaccessibility.

When reaching the Aux Shutdown Panel, it was discovered that the pressurizer pressure indication has failed low.

Which ONE of the following completes the statement below?

In accordance with 0-FCA-11.00, REMOTE MONITORING, pressurizer pressure will be monitored at the _____.

A. Pressurizer Heater "Robocon" panel in the Upper Cable Vault room

B. Remote Monitoring panel in the cable spreading room

C. Relay room adjacent to Protection racks

D. Appendix "R" panel in the Lower Cable Vault Room

Question: 25
(1 point)

Given the following:

Unit 1 is shutdown and has been borated to CSD boron concentration in preparation for Cooldown to CSD for a Refueling outage.

Chemistry has notified the Team that the RCS crud burst has been initiated.

Several Unit 1 Radiation Monitors are elevated and above the HIGH setpoint.

Which ONE of the following describes:

1) The FIRST Radiation monitor that will detect the increased RCS Activity caused by the crud burst.
2) In accordance with the associated HIGH RM ARP procedures, what is required of the CVCS Letdown flowpath?

A. 1) Letdown Radiation monitor.
   2) Verify or place Letdown in service.

B. 1) Letdown Radiation Monitor.
   2) Remove Letdown from service.

C. 1) Auxiliary Building Control Area Radiation Monitor.
   2) Verify or place Letdown in service.

D. 1) Auxiliary Building Control Area Radiation Monitor.
   2) Remove Letdown from service.

Question: 26
(1 point)

Initial Conditions:

- Unit 1 was operating at 100% when a seismic event occurred causing a reactor trip.
- The crew performs the immediate actions of 1-E-0, Reactor Trip or SI, and enters 1-ES-0.1, Reactor Trip Response.
- At step 9 of 1-ES-0.1, Initiate Boration of the RCS, a large break LOCA occurs.

Current Conditions:

- RCS pressure is 25 psig.
- Containment pressure is 36 psia.
- The crew is performing step 7 of 1-E-0, Reactor Trip or SI.
- The BOP is performing attachment 4 of 1-E-0.
- The STA reports that red path for Integrity is satisfied.

Which of the following describes the actions the crew shall take in response to the Integrity Red Path?

A. Go to FR-P.1, and perform steps to completion of the FRP until the red path is cleared or completion of procedure.

B. Go to FR-P.1, and after verifying LHSI flow is greater than 1000 gpm, return to 1-E-0.

C. Continue in 1-E-0 until directed to 1-E-1, Loss of Reactor or Secondary Coolant.

D. Continue in 1-E-0 until directed to initiate monitoring of Critical Safety Function Status Trees.

Question: 27
(1 point)

Given the following:

- A loss of offsite power has occurred on both units.
- Unit 1 is performing 1-ES-0.2, Natural Circulation Cooldown.
- The Cooldown has just commenced.

1-ES-0.2 states that the initial maximum Cooldown rate must be less than _____.

A. 10°F/hr

B. 25°F/hr

C. 50°F/hr

D. 100°F/hr

Question: 28
(1 point)

Given the following:

- Unit 1 is at 25% power.
- RCP 'C' trips on overcurrent.

Which ONE of the following identifies how the Loop flow in the 'A' and 'B' (Active) RCS loops will change, and the effect of the RCP trip on reactor status?

	A/B Loop Flow	Reactor Status
A.	Rise	RCP trip generates an automatic reactor trip.
B.	Rise	Manual reactor trip is required due to RCP tripping.
C.	Lower	RCP trip generates an automatic reactor trip.
D.	Lower	Manual reactor trip is required due to RCP tripping.

Question: 29
(1 point)

Initial Conditions:

- Unit 1 is shutdown.
- Cooldown is in progress.
- "A" and "C" RCPs are running.
- The CC system is split out between units.
- "A" CC pump is tagged out.
- 34.5 KV Bus #7 is tagged out.

Current Conditions:

- A loss of 34.5 KV Bus #6 occurs.

Based on the above conditions, which ONE of the following describes:

1) Which RCP will remain running?
2) The current status of Component Cooling to the running RCP?

A. 1) "A" RCP.
   2) Lost.

B. 1) "A" RCP.
   2) Not lost.

C. 1) "C" RCP.
   2) Lost.

D. 1) "C" RCP.
   2) Not lost.

Question: 30
(1 point)

Given the following plant conditions and sequence of events:

- Unit 1 is operating at 70% following a ramp down from 100%.
- A 200 gal. Alt Dilute directly to the Charging pump suction is in progress.
- Primary Grade Water pump, 1-PG-P-1A is operating in HAND, and 1-PG-P-1B is in AUTO.
- The following annunciators alarm:
  - 0-BR-D10, PRI GRADE WTR LO HDR PRESS.
  - 1D-B4, PRI WTR TO BLEND LO PRESS.
- The Unit 2 operator reports that PG supply header pressure is 70 psig and lowering.
- 20 seconds later, 1D-A4, PRI WTR TO BLEND DEVIATION FLOW alarms.

With no operator actions, which ONE of the following describes the effects on Primary Grade water and CVCS?

1) The Standby PG pump, 1-PG-P-1B auto start setpoint is __(1)__ annunciator 0-BR-D10.

2) When annunciator 1D-A4 PRI WTR TO BLEND DEVIATION FLOW alarm is received 1-CH-FCV-1113B, BLENDER TO CHG PUMP __(2)__ auto CLOSE.

A. 1) lower than
   2) will not

B. 1) lower than
   2) will

C. 1) the same as
   2) will not

D. 1) the same as
   2) will

Question: 31
(1 point)

Initial Conditions:

- The Unit 1 RCS is solid.
- RCS temperature of 160°F.
- RCS pressure is 300 psig and stable.
- "C" RCP is running.
- Letdown Pressure Controller, 1-CH-PC-1145, is as shown:

Current Conditions:

- Unit 1 Letdown Pressure transmitter fails causing vertical board indication on 1-CH-PI-1145 to read 0 psig.

Based on the event, which ONE correctly completes the statements below?

1) In accordance with 0-AP-53.00, Loss of Vital Instrumentation/Controls, the operator should place 1-CH-PC-1145 in MANUAL and __(1)__ controller output.
2) The action in Part 1 needs to be taken before __(2)__.

A. 1) raise
   2) the "C" RCP has inadequate NPSH

B. 1) lower
   2) the letdown RV inside containment lifts

C. 1) raise
   2) the "C" RCP has inadequate seal delta-P

D. 1) lower
   2) a Pressurizer PORV lifts

Question: 32
(1 point)

Given the following:

- Unit 1 is in Refuel mode with core offload in progress.
- Refuel cavity level is at 27 feet.
- RWST level is at 31.3%.
- One of the operators in containment reports to the Control Room that Cavity level has dropped 2 inches in the last 10 minutes.
- Annunciator 1B-A3, CTMT SUMP HI LV is LIT.
- 1-AP-22.01, Loss of Refueling Cavity Level is entered.

Which ONE of the following identifies

1) Per 1-AP-22.01, Loss of Refueling Cavity Level, what method of Cavity makeup is required?
2) Which procedure is required to be entered, to address the loss of RCS inventory?

A. 1) Align LHSI pump to Unit 1 RWST and use LHSI pump to refill the Cavity.
2) 1-AP-27.00, Loss of Decay Heat Removal Capability.

B. 1) Cross tie Unit 2 RWST to Unit 1 and use Charging pump to refill the Cavity.
2) 1-AP-16.01, Shutdown LOCA.

C. 1) Align LHSI pump to Unit 1 RWST and use LHSI pump to refill the Cavity.
2) 1-AP-16.01, Shutdown LOCA.

D. 1) Cross tie Unit 2 RWST to Unit 1 and use Charging pump to refill the Cavity.
2) 1-AP-27.00, Loss of Decay Heat Removal Capability.

Question: 33
(1 point)

Initial Conditions:

- The "A" Steam Generator (S/G) has faulted outside Containment.
- Reactor Trip and Safety Injection have actuated.
- "A" S/G is isolated.
- The team has progressed through the EOPs to 1-ES-1.1, SI Termination.
- Charging and Letdown have been returned to service.

Current Conditions:

- The team is at 1-ES-1.1 Step 20, CONTROL PRZR PRESSURE.
- Current Critical parameters are as follows:
  - PRZR level is 100%.
  - PRZR Vapor temperature is 611°F.
  - PRZR Liquid temperature is 530°F.
  - RCS Subcooling is 172°F.
  - RCS Hot and Cold Leg Temperatures are 485°F.
- Annunciator 1D-H4, PRZR Sfty VV PWR Relief VV Open, is coming in repeatedly.
- PRZR PORV 1-RC-PCV-1455C is cycling at approximately 2335 psig.

Based on the above conditions, which ONE of the following completes the below statement?

In order to mitigate Pressurizer PORV cycling and support bringing the plant to CSD, the team is required to ___(1)___ Pressurizer heaters and ___(2)___.

A. 1) secure
   2) control Charging flow

B. 1) secure
   2) immediately draw a Pressurizer bubble

C. 1) turn on
   2) control Charging flow

D. 1) turn on
   2) immediately draw a Pressurizer bubble

Question: 34
(1 point)

Given the following plant conditions and sequence of events:

- Unit 1 is operating at 100% power with all systems operable.
- A Large Break LOCA occurs and all equipment functions as designed except:
  - Low Head Safety Injection Pump, 1-SI-P-1A trips on overcurrent.
  - MOV 1-SI-MOV-1863B, LHSI Pump B to Normal HHSI fails to OPEN (auto and manual).
- The RCS is depressurized.

Which ONE of the following describes how these failures impact ECCS performance?

1) **Before** Recirc Mode Transfer, there will be approximately __(1)__ Low Head SI flow.
2) **After** Recirc Mode Transfer, there will be __(2)__ Low Head SI pump(s) available to provide suction flow to the High Head SI pumps.

A. 1) 1500 gpm 2) NO

B. 1) 1500 gpm 2) ONE

C. 1) 3000 gpm 2) NO

D. 1) 3000 gpm 2) ONE

Question: 35
(1 point)

Which ONE of the following completes the statements below about the Pressurizer Relief Tank (PRT)?

1) The RHR HX outlet header relief valve __(1)__ discharge to the PRT.
2) The Reactor Head Vent SOVs __(2)__ discharge to the PRT.

A. 1) does
   2) do

B. 1) does not
   2) do

C. 1) does
   2) do not

D. 1) does not
   2) do not

Question: 36
(1 point)

Given the following:

- Unit 1 is operating at 100%.
- Chemistry is currently sampling the RCS.
- Annunciators associated with CC Rad monitors; 1-CC-RI-105, and 1-CC-RI-106 are alarming.
- 1-CC-RI-105, is reading 5.94 E3 cpm and trending higher.
- 1-CC-RI-106, is reading 4.11 E3 cpm and trending higher.

Which ONE of the following describes?

1) Which sets of component failures is the most likely cause of these rad monitors to alarm? (Both must be correct).
2) What is the physical location of the Component Cooling Radiation Monitors?

A. 1) RCP Thermal Barrier and Seal Return Heat Exchanger.
   2) Downstream of the CC Heat Exchangers.

B. 1) Non Regenerative Heat Exchanger and Primary Sample coolers.
   2) Downstream of the CC Heat Exchangers.

C. 1) RCP Thermal Barrier and Seal Return Heat Exchanger.
   2) On the Suction side of the CC Pumps.

D. 1) Non Regenerative Heat Exchanger and Primary Sample coolers.
   2) On the Suction side of the CC Pumps.

Question: 37
(1 point)

Given the following:

- A Loss of Offsite Power has occurred on both units.
- All EDGs load their respective emergency buses as designed.

One hundred forty seconds after all EDGs supply their respective buses, which banks of Unit 1 Pressurizer heaters are energized?

A. None.

B. A bank only.

C. E bank only.

D. A and E banks.

Question: 38
(1 point)

Given the following:

- Unit 1 is operating at 100%.
- 1-RC-PCV-1455B, PZR SPRAY from Loop C fails OPEN.

Which ONE of the following describes:

1) The Reactor Protection System Trip that protects against Departure from Nucleate Boiling?
2) How will the above failure affect the associated setpoint?

A. 1) Overpower Delta T (OPΔT).
   2) Setpoint will rise.

B. 1) Overpower Delta T (OPΔT).
   2) Setpoint will lower.

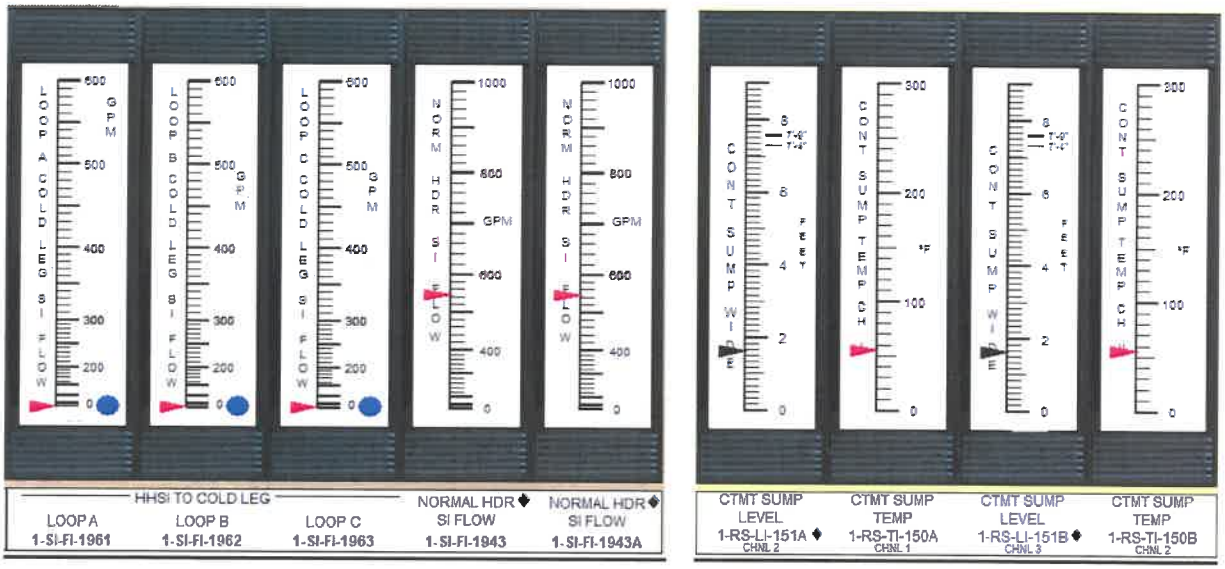
C. 1) Overtemperature Delta T (OTΔT).
   2) Setpoint will rise.

D. 1) Overtemperature Delta T (OTΔT).
   2) Setpoint will lower.

Question: 39
(1 point)

Initial Conditions:

- Unit 1 Reactor Trip and Safety Injection initiation occurred.
- The BOP is performing Step 12 of 1-E-0 Attachment 1, CHECK SI FLOW.
- 5 minutes after the reactor trip, High Head SI (HHSI) and Containment Sump indications are as shown below:



In accordance with 1-E-0, which ONE correctly answers the following questions?

1) Is HHSI flow established to the core?
2) Based on the indications above, what was the reason for the SI initiation?

A. 1) No.
2) Spurious SI actuation.

B. 1) No.
2) LBLOCA.

C. 1) Yes.
2) Spurious SI actuation.

D. 1) Yes.
2) LBLOCA.

Question: 40
(1 point)

Given the following:

- Unit 1 was operating at 100%.
- Auto Reactor Trip and SI initiation occurs.
- Containment Pressure is 30 psia and increasing.

Based on the above conditions, which ONE of the following identifies the automatic response of the Containment Cooling System?

A. Containment Air Recirculation Fans "A" and "C" trip.
Cooling water to CARFs isolated when Safety Injection was initiated.

B. Containment Air Recirculation Fans "A" and "B" trip.
Cooling water to CARFs isolated when Safety Injection was initiated.

C. Containment Air Recirculation Fans "A" and "C" trip.
Cooling water to CARFs isolated when HI-HI CLS was initiated.

D. Containment Air Recirculation Fans "A" and "B" trip.
Cooling water to CARFs isolated when HI-HI CLS was initiated.

Question: 41
(1 point)

Given the following:

- Unit 2 is at 100% power.
- The team is performing 2-OPT-CS-006, RWST Chemical Addition Tank and Containment Spray System MOV Stroke Test.
- Section 6.3, Cycle of 2-CS-P-1A MOVs and Sample of Discharge Header needs to be performed, which includes placing 2-CS-P-1A in Pull-To-Lock (PTL).

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

1) In accordance with 2-OPT-CS-006, a Tech Spec LCO entry is required ___(1)___.
2) As written in Tech Specs, the Containment Spray pumps are required to be operable prior to exceeding __(2)__.

A. 1) during the performance of the OPT
   2) 200°F

B. 1) during the performance of the OPT
   2) 350°F or 450 psig

C. 1) only if UNSAT data is obtained during the OPT
   2) 200°F

D. 1) only if UNSAT data is obtained during the OPT
   2) 350°F or 450 psig

Question: 42
(1 point)

Aux Feedwater was automatically actuated from a valid AMSAC signal. SG levels are now all greater than 50% NR.

Which ONE of the following describes the minimum actions the Operator must take to secure the TDAFW Pump?

A. 1) RESET AMSAC.
   2) Close 1-MS-PCV-102A and B by taking their switches to CLOSED.

B. 1) RESET AMSAC.
   2) Close 1-MS-PCV-102A and B by taking their switches to OPEN/RESET then CLOSED.

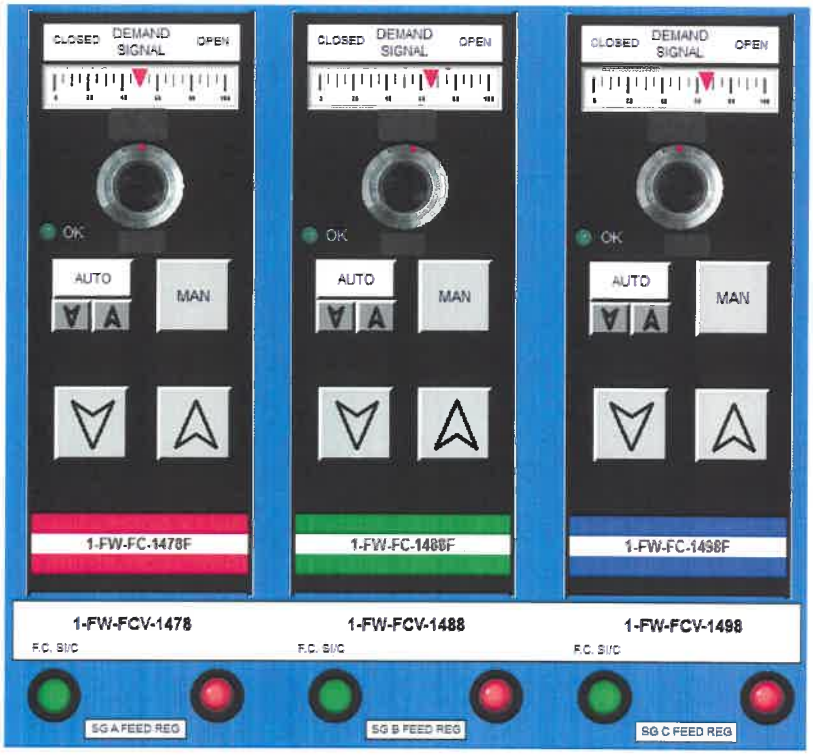
C. 1) RESET AMSAC AND place AMSAC BYPASS switch in BYPASS.
   2) Close 1-MS-PCV-102A and B by taking their switches to CLOSED.

D. 1) RESET AMSAC AND place AMSAC BYPASS switch in BYPASS.
   2) Close 1-MS-PCV-102A and B by taking their switches to OPEN/RESET then CLOSED.

Question: 43
(1 point)

Initial Conditions:

- Unit 1 is responding to a dropped rod.
- Unit 1 is ramping down to 70-74%, per 0-AP-1.00, Rod Control Malfunction.
- During the ramp, annunciator 1H-G5, STM GEN 1A LVL ERROR, came in.
- "A" S/G NR level was 50% and rising on all channels.
- "B" and "C" S/G NR levels were 44% and stable on all channels.
- The following was observed at the MFRV controllers:



Current Conditions:

- The operator completed the immediate actions of 0-AP-53.00, Loss of Vital Instrumentation/Controls, and stabilized all S/G levels at 44% NR.

Based on the above conditions, which ONE of the following describes:

1) The reason for abnormal "A" feedwater indications?
2) Per AP-53.00 feedwater to the 'A' S/G ____ be controlled.

A. 1) SGWLCS instrumentation failure. 2) cannot

B. 1) SGWLCS instrumentation failure. 2) can

C. 1) FRV is mechanically bound. 2) cannot

D. 1) FRV is mechanically bound. 2) can

Question: 44
(1 point)

Initial Conditions:

- Unit 1 is at 500 °F, and 1700 PSIG cooling down to Cold Shutdown.
- Unit 2 is at 100% power.
- The Unit 2 TDAFW pump, 2-FW-P-2 is tagged out.

Current Conditions:

- A loss of off-site power (LOOP) occurs to BOTH units.
- 2D-F2, STM GEN BD HI-LO FLOW alarms immediately.

Which ONE of the following describes:

1) The expected Total flowrate to the Unit 2 Steam generators from the AFW System?
2) Which Blowdown Trip Valves are CLOSED?

A. 1) All three (3) steam generators will be fed with a total AFW of approximately 700 gpm.
   2) Only the Inside BD Trip Valves for all three (3) steam generators will be CLOSED.

B. 1) All three (3) steam generators will be fed with a total AFW of approximately 350 gpm.
   2) The Inside AND Outside BD Trip Valves for all three (3) steam generators will be CLOSED.

C. 1) All three (3) steam generators will be fed with a total AFW of approximately 700 gpm.
   2) The Inside AND Outside BD Trip Valves for all three (3) steam generators will be CLOSED.

D. 1) All three (3) steam generators will be fed with a total AFW of approximately 350 gpm.
   2) Only the Inside BD Trip Valves for all three (3) steam generators will be CLOSED.

Question: 45
(1 point)

Given the following:

- 1K-A7, BATT SYSTEM 1A TRBL is LIT.
- 1K-A8, UPS SYSTEM 1A TROUBLE is LIT.
- The STA reports that PCS shows fluctuating voltage on UPS 1A1.
- An Operator has been dispatched in accordance with the ARPs to UPS 1A1.

Which ONE of the choices below correctly completes the following statement?

1) Vital Bus I ammeter indication __(1)__ be read in the MCR.
2) Vital Bus I ammeter indication __(2)__ be read at UPS 1A1.

A. 1) cannot
   2) cannot

B. 1) cannot
   2) can

C. 1) can
   2) cannot

D. 1) can
   2) can

Question: 46
(1 point)

Given the following:

- Unit 1 was operating at 100% power.
- Severe thunderstorm is in progress.
- Lightning strike to the station occurs causing the following:
  - Annunciator 1K-A7, BATT SYSTEM 1A TROUBLE, IS LIT.
  - An Operator has been dispatched and reports the following:
    - At UPS 1A1, the Battery Charger 1A-1 AC Input Breaker is CLOSED.
    - Battery Charger 1A-1 MCC Supply Breaker 1H1-1-4C is OPEN.
    - UPS 1A1 Inverter DC Input Breaker is OPEN.
    - At UPS 1A2, the Battery Charger 1A-2 AC Input Breaker is CLOSED.
    - Battery Charger 1A-2 MCC Supply Breaker 1H1-2S-2D is CLOSED.

Based on the above conditions, AND with no operator actions, DC bus 1A loads will be powered from __(1)__, and Vital Bus 1 loads will be powered from __(2)__.

A. 1) Station Battery 1A discharge
   2) DC bus 1A

B. 1) UPS 1A-2 Battery charger
   2) DC bus 1A

C. 1) Station Battery 1A discharge
   2) UPS 1A-1 RLC

D. 1) UPS 1A-2 Battery charger
   2) UPS 1A-1 RLC

Question: 47
(1 point)

Given the following:

- A loss of both emergency buses has occurred on Unit 1.
- 1-ECA-0.0, Loss of All AC Power, is in effect.

Which ONE of the following correctly completes the following statement?

When Station batteries or Black batteries reach ____(1)____ , the voltage will begin to lower exponentially. A complete loss of the bus could occur within a MINIMUM of ____(2)____ from the time the voltage limit is reached.

A. 1) 105 VDC
2) 20 – 30 minutes

B. 1) 105 VDC
2) 2 hours

C. 1) 120 VDC
2) 20 – 30 minutes

D. 1) 120 VDC
2) 2 hours

Question: 48
(1 point)

Given the following:

- Both Units are at 100% power.
- 0-OPT-EG-001, Number 3 EDG Monthly Start Exercise test was completed earlier in the shift.
- Annunciator 0-VSP-B5, EMERG GEN 3 TRBL is alarming.
- The EDG Operator reports the following:
  - The Lube Oil TEMP alarm light is lit on the EDG Controls.
  - Lube Oil temperature is 114°F.

Per 0-VSP-B5 what actions should be taken to correct this condition?

A. Check Room Ambient temperature, and EDG room heaters for proper operation.

B. Check immersion heater breaker and lube oil pump for proper operation.

C. Depress Alarm Reset and Alarm Silence pushbuttons, and verify no other alarming conditions on Annunciator panel.

D. Depress ECC STOP pushbutton to reset Start Ckt lockout, then depress Alarm Reset pushbutton.

Question: 49
(1 point)

Given the following:

- 1-OPT-EG-001, Number 1 Emergency Diesel Generator Monthly Start Exercise Test, is in progress.
- The #1 EDG is loaded on 1H in parallel with the normal supply.
- The operator is in the process of adjusting EDG parameters.

Which ONE of the following completes the statements below?

1) If the SPEED ADJ switch becomes stuck in the RAISE position, bus __(1)__ will rise.
2) If the VOLT ADJ switch becomes stuck in the RAISE position, bus __(2)__ will rise.

A. 1) frequency
   2) voltage

B. 1) frequency
   2) VARS

C. 1) KW
   2) voltage

D. 1) KW
   2) VARS

Question: 50
(1 point)

Refueling operations are about to commence in Unit 1.

Per Technical Specifications which ONE of the following completes the statements below?

1) Vent Vent Stack 1 Gas monitor, 1-VG-RI-104 __(1)__ required to be operable in order to move fuel in the Fuel Building.

2) Containment Gas monitor, 1-RM-RI-160 __(2)__ required to be operable in order to move fuel in Containment.

A. 1) is NOT
   2) is

B. 1) is
   2) is NOT

C. 1) is NOT
   2) Is NOT

D. 1) is
   2) is

Question: 51
(1 point)

Given the following:

- A lightning strike at the station caused an electrical transient.
- The Unit 1 bench board has indications that both Charging Pump SW pumps are lost.
- A spurious Halon actuation occurred in Unit 2 ESGR, making MER 3 inaccessible.
- An operator has been sent to MER 4 to establish Charging SW crosstie flow.

Which ONE of the following completes the below statements?

1) The Control Room must ensure ___(1)___ is running to provide adequate crosstie flow from MER 4.

2) Once Charging SW crosstie has been established, the Control Room annunciator for low ___(2)___ will clear.

A. 1) 2-SW-P-10A 2) discharge pressure

B. 1) 2-SW-P-10B 2) discharge pressure

C. 1) 2-SW-P-10A 2) flow

D. 1) 2-SW-P-10B 2) flow

Question: 52
(1 point)

Given the following:

- Unit 1 is operating at 100% power.
- A tagout for Service Air Compressor, 1-SA-C-4B is in progress for routine maintenance.
- 1-SA-C-4C, SA Compressor is in LEAD, 1-SA-C-4A is in LAG.
- Annunciator 0-VSP-G1, SA MASTER CONTROLLER TRBL was received immediately after opening the breaker for 1-SA-C-4B.
- Report from the field is Controller X-4I is not energized.

With a loss of Controller X-4I, how will the system respond with NO operator action?

	COMP	LEAD	LAG	LOAD	UNLOAD
A.	SA-C-4A	X		100 psig	110 psig
	SA-C-4C		X	92 psig	102 psig
B.	SA-C-4A	X		95 psig	105 psig
	SA-C-4C		X	92 psig	102 psig
C.	SA-C-4A		X	92 psig	102 psig
	SA-C-4C	X		100 psig	110 psig
D.	SA-C-4A		X	92 psig	102 psig
	SA-C-4C	X		95 psig	105 psig

Question: 53
(1 point)

Which of the following completes the below statements about Containment Instrument Air Compressor Outside Suction valve 1-IA-AOV-103?

1) 1-IA-AOV-103 __(1)__ be manually operated from Main Control Room.

2) At a MINIMUM, closing __(2)__ of the Containment Instrument Air Compressor Inside Suction trip valves (1-IA-TV-101A / -101B) will automatically open 1-IA-AOV-103.

A. 1) can
2) either

B. 1) can
2) both

C. 1) can not
2) either

D. 1) can not
2) both

Question: 54
(1 point)

Initial Conditions:

- Unit 1 was operating at 100% power.
- The BOP reports that "C" S/G pressure is 750 psig and dropping rapidly.
- The RO reports that Containment pressure is 12 psia and rising rapidly.
- The Crew trips the reactor and initiates safety injection.

Current Conditions:

- RCS pressure is 1700 psig and lowering.
- "C" steam generator pressure is 610 psig and lowering.
- Containment pressure is 18.5 psia and rising.
- The BOP is performing E-0, Attachment 1, System Alignment Verification, and has identified the following valves in the OPEN position:
  - 1-SI-TV-102A and 1-SI-TV-102B, RWST CROSS-TIE VALVES.
  - 1-IA-TV-100, CTMT COMP DISCH TV.
  - 1-CC-TV-110C, CARF C CLR CC RTN TV.
  - 1-CC-TV-109B, RHR HX B CC RTN HDR TV.

Which ONE of the following indicates the required Team response to these indications in accordance with 1-E-0, Attachment 1?

A. 1-IA-TV-100 shall be CLOSED.

B. 1-CC-TV-110C shall be CLOSED.

C. 1-SI-TV-102A and 1-SI-TV-102B shall be CLOSED.

D. 1-CC-TV-109B shall be CLOSED.

Question: 55
(1 point)

Which of the following completes the below statements about the Personnel Air Lock doors?

1) There __(1)__ an interlock between the Inner Door Emergency Escape Hatch and the Outer Personnel Air Lock door.

2) When operated, the Personnel Air Lock doors __(1)__ share the same annunciator tile in the MCR as the Inner Door Emergency Escape Hatch.

A. 1) is
2) do

B. 1) is
2) do not

C. 1) is not
2) do

D. 1) is not
2) do not

Question: 56
(1 point)

Given the following:

- A loss of Secondary Heat Sink has occurred on Unit 1.
- RCS Bleed and Feed was directed per 1-FR-H.1, LOSS OF SEC HEAT SINK but neither Pressurizer PORV could be opened.
- The RO was directed to open ALL Pressurizer and Reactor Head Vents.
- When he tried to open the first Head Vent he observed that both red and green lights are OFF for Train 'A' RX HEAD and PRZR VENT SOVs.

Which ONE of the following identifies:

1) The minimum valves that are required to be opened to establish at least ONE Reactor Head Vent Flowpath are __(1)__.
2) The 'B' Reactor Head Vents __(2)__ share the same RV HEAD penetration as the 'A' Reactor Head Vent Valves.

A. 1) 1-RC-SOV-100B-1 OR 1-RC-SOV-100B-2
   2) do

B. 1) 1-RC-SOV-100B-1 AND 1-RC-SOV-100B-2
   2) do

C. 1) 1-RC-SOV-100B-1 OR 1-RC-SOV-100B-2
   2) do not

D. 1) 1-RC-SOV-100B-1 AND 1-RC-SOV-100B-2
   2) do not

Question: 57
(1 point)

Initial Conditions:

- A Unit 2 startup is in progress.
- Reactor power is 1E-08 Amps.

Current Conditions:

- Prior to Power escalation, 2G-H2, RPI Rod Bottom <20 Steps, has come in.
- RCS Temperature and Pressure are stable.
- Reactor Power is 1E-10 Amps.
- A rod in "B" Shutdown Bank, J7, indicates 0 steps on CERPI.

Based on the above conditions, which ONE of the following describes the appropriate action to be taken by the team?

A. Stabilize power at current level until J7 CERPI is repaired per 0-AP-1.02.

B. Continue power escalation up to a maximum of 50% until J7 CERPI is repaired per 0-AP-1.02.

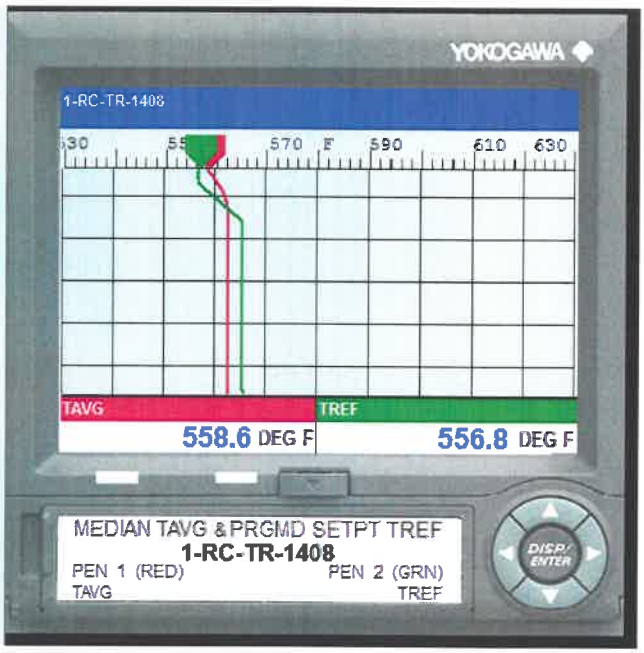
C. Trip the reactor and GO TO 2-E-0, Reactor Trip or Safety Injection.

D. Continue power escalation up to 75% until the dropped rod is recovered per 0-AP-1.01.

Question: 58
(1 point)

Given the following:

- Unit 1 is stabilizing power following a ramp.
- All SG Feed Flow, Steam Flow channels are selected to Channel 3.
- Pimp Channel 3 fails causing the indications on 1-RC-TR-1408 to change as shown.



Based on these conditions which ONE of the following completes the statements?

1) Turbine Power (Pimp Ch 3) is currently indicating __(1)__.
2) At the end of the transient with NO Operator actions, SG level will attempt to control at __(2)__.

A. 1) 38%
   2) 33%

B. 1) 38%
   2) 44%

C. 1) 44%
   2) 44%

D. 1) 44%
   2) 33%

Question: 59
(1 point)

Initial Conditions:

- Unit 1 is at 100% power.
- The following indications are in the Control Room:
  - 1-RC-PI-1402, RCS Wide Range Pressure = 2240 psig.
  - All PRZR Pressure Protection channels = 2240 psig.
  - All Wide Range RCS Hot Leg temperatures = 605°F.
  - CETCs (5 highest) on both ICCM trains = 605°F.

Current Conditions:

- 1-RC-PI-1402 experienced a step change and now indicates 1850 psig.
- All other RCS Pressure indications remain unchanged.

Which ONE of the following completes the statements below?

1) Indicated subcooling on "A" train ICCM is __(1)__.
2) The temperature input to ICCM subcooling is from the __(2)__ .

(REFERENCE PROVIDED)

A. 1) 21°F
   2) Wide Range RCS Hot Legs

B. 1) 21°F
   2) CETCs (5 highest)

C. 1) 48°F
   2) Wide Range RCS Hot Legs

D. 1) 48°F
   2) CETCs (5 highest)

Question: 60
(1 point)

Given the following conditions:

- Containment atmosphere cleanup on Unit 1 is in progress.
- 1-VS-F-3A and 1-VS-F-3B, Iodine Filtration Fans are running.

The loss of which ONE of the following electrical busses would cause 1-VS-F-3A to stop?

A. "A" Station Service bus.

B. "B" Station Service bus.

C. "H" Emergency bus.

D. "J" Emergency bus.

Question: 61
(1 point)

Initial Conditions:

- Both units are at 100%.
- Spent Fuel Pit (SFP) is being cooled by 1-FC-P-1B, "B" SFP Cooling Pump (on its normal power supply).

Current Conditions:

- A Loss of Offsite Power to both units occurs.

Based on the above conditions, which ONE of the following describes:

1) Where can SFP Temperature be remotely monitored from?
2) After the Emergency Buses are reenergized by their respective EDGs, where will the SFP Cooling Pumps be started from?

A. 1) Main Control Room.
   2) Locally.

B. 1) Main Control Room.
   2) Main Control Room.

C. 1) Cable Spreading Room.
   2) Locally.

D. 1) Cable Spreading Room
   2) Main Control Room.

Question: 62
(1 point)

Given the following:

- Unit 1 is in REFUELING SHUTDOWN mode.
- Preparations for core offload are in progress.
- Source Range N-32 is removed from service for corrective maintenance.

Per Technical Specifications which ONE of the following identify the minimum requirements for core offload with regard to Source Range Nuclear Instruments?

1) The minimum number of Source Range NIs required for core offload is (are) __(1)__ channel(s).

2) Source Range Audible count rate in Containment __(2)__ required.

A. 1) two
   2) is not

B. 1) one
   2) is

C. 1) two
   2) is

D. 1) one
   2) is not

Question: 63
(1 point)

Initial Conditions:

- Unit 1 was at 100%, when a spurious Hi-Hi CLS occurred.
- The team entered 1-E-0, Reactor Trip or Safety Injection.

Current Conditions:

- RCPs have been secured.
- Hi-Hi CLS was reset.
- The team is still in 1-E-0, at the step to isolate HHSI flow.
- The RO reports Median Tave is 548°F and slowly rising.
- All Steam Generator Narrow Range Levels are 42-50%.

In accordance with 1-E-0, which ONE of the following describes the correct action taken by the team, to control RCS Tave?

A. Operate Steam Generator PORVs.

B. Operate Steam Dumps in Steam Pressure mode.

C. Raise Aux Feedwater flow.

D. Operate Steam Dumps in Tave mode.

Question: 64
(1 point)

Given the following:

- The crew is preparing to release Waste Gas Decay Tank (WGDT) 1B.
- The desired WGDT header pressure is 4.5 to 6.5 psig on 1-GW-PI-103.

Which one of the following describes:

1) The method of adjusting WGDT header pressure if the indicated pressure falls outside the 4.5 to 6.5 psig band in accordance with OP-23.2.4?
2) The Release point of Waste Gas Decay Tank 1B?

A. 1) Adjust 1-GW-FCV-101, Process Vnt WGDT Effluent Flow Controller.
   2) Vent Stack number 1.

B. 1) Adjust 1-GW-FCV-101, Process Vnt WGDT Effluent Flow Controller.
   2) Process Vent Stack.

C. 1) Locally adjust 1-GW-PCV-103, Htr Prefilter Outlet Pressure Control Valve.
   2) Vent Stack number 1.

D. 1) Locally adjust 1-GW-PCV-103, Htr Prefilter Outlet Pressure Control Valve.
   2) Process Vent Stack.

Question: 65
(1 point)

Given the following:

- Both Units have experienced a Loss of All AC Power.
- An operator has been dispatched to start and align the Temporary Diesel Driven Air Compressor.

1) Which system(s) for both units will be supplied by the Temporary Diesel Driven Air Compressor?
2) Does the Temporary Diesel Driven Air Compressor use the same air dryers as the Service Air Compressors?

A. 1) Instrument Air and Service Air.
   2) No.

B. 1) Instrument Air and Service Air.
   2) Yes.

C. 1) Instrument Air ONLY.
   2) No.

D. 1) Instrument Air ONLY.
   2) Yes.

Question: 66
(1 point)

Which of the following is correct regarding plant wide announcements using the Gaitronics system?

1) A plant announcement for First Aid response __(1)__ required.
2) A plant announcement for starting a Charging pump during a test __(2)__ required.

A. (1) is (2) is not

B. (1) is not (2) is not

C. (1) is (2) is

D. (1) is not (2) is

Question: 67
(1 point)

Initial Conditions:

- Unit 2 startup is in progress.
- Reactor power is 1-2% using Steam Dumps in STEAM PRESSURE mode.
- RCS Tave is 548°F.
- The team is in 2-GOP-1.4, Unit Startup, HSD to 2% Reactor Power.
- All S/G PORVs are closed.

Current Conditions:

- An operator reports a small steam leak just upstream of a Main Steam Trap Drain inlet valve in the turbine building.
- At the same time, the RO observes Tave is 547°F and slowly lowering.
- The team has determined a reactor trip is not required and is taking action to restore Tave.

In accordance with OP-AP-300, Reactivity Management, which choice best completes the following statements?

1) Using Control Rods ___(1)___ allowed for restoring RCS Tave.
2) Using Steam Dumps ___(1)___ allowed for restoring RCS Tave.

A. 1) is
   2) is not

B. 1) is
   2) is

C. 1) is not
   2) is not

D. 1) is not
   2) is

Question: 68
(1 point)

Unit 1 and Unit 2 were at full power when an earthquake occurred. Unit 1 trips immediately.

- Both Unit 2 Feed pumps trip immediately.
- Unit 2 Reactor Trip First Out Annunciator is LIT.
  - The Reactor has NOT tripped.
  - The Turbine has NOT tripped.
- Control Rods are being INSERTED into the core.
- The Turbine is being run back manually.

Given the above conditions, which ONE of the following will give the BEST indication of core power?

A. Generator Megawatts

B. Calorimetric Power

C. Turbine First Stage pressure

D. Loop Delta T

Question: 69
(1 point)

Given the following:

- You are the Unit 2 RO.
- To support maintenance, it is desired to align the "B" Boric Acid Storage Tank (BAST) to the Unit 2 Blender in accordance with 2-OP-CH-010, BAST Operations.

Select the choice that best answers the following questions about Main Control Room controls and indications:

1) Where can "B" BAST level be monitored?
2) Where can "B" BAST Recirc flow be adjusted?

A. 1) Unit 1 vertical board only.
   2) Unit 1 vertical board only.

B. 1) Unit 1 vertical board only.
   2) Unit 1 or Unit 2 vertical board.

C. 1) Unit 1 or Unit 2 vertical board.
   2) Unit 1 vertical board only.

D. 1) Unit 1 or Unit 2 vertical board.
   2) Unit 1 or Unit 2 vertical board.

Question: 70
(1 point)

In accordance with OP-AA-106, Infrequently Conducted or Complex Evolutions, select the answer that correctly completes the following statements.

1) Specific criteria for terminating the test and contingency plans for unexpected occurrences __(1)__ required per OP-AA-106.

2) A Non Refueling Reactor Startup __(2)__ an example of an Infrequently Conducted or Complex Evolution per OP-AA-106.

A. 1) are
   2) is not

B. 1) are not
   2) is

C. 1) are not
   2) is not

D. 1) are
   2) is

Question: 71
(1 point)

Given the following:

- During log rounds, the Unit 1 turbine operator is checking for air flow at the piping tunnel just outside the Emergency Switchgear Room door.

In accordance with Operator Log instructions and 0-OP-VS-010, Turbine Ventilation System:

1) Which direction indicates <u>proper</u> air flow?
2) If air flow is found in the <u>wrong</u> direction, which action will correct it?

A. 1) Aux Building → Turbine Building.
   2) Start a Turbine Building Supply Fan

B. 1) Turbine Building → Aux Building.
   2) Stop a Turbine Building Supply Fan

C. 1) Turbine Building → Aux Building.
   2) Start a Turbine Building Supply Fan

D. 1) Aux Building → Turbine Building.
   2) Stop a Turbine Building Supply Fan

Question: 72
(1 point)

Which one of the following Radiation Monitors is one that is checked in 1-E-1, Loss of Reactor or Secondary Coolant, to determine if a LOCA Outside Containment is occurring and transition to 1-ECA-1.2, LOCA Outside Containment is required?

A. Aux Bldg Sample Area, 1-RM-RI-156.

B. Aux Bldg Control Area, 1-RM-RI-154.

C. Chem Lab Area, 1-RM-RI-158.

D. In Core Inst. Room, 1-RM-RI-164.

Question: 73
(1 point)

Select the choice that is correct regarding the Station Fire Brigade:

1) Per the Technical Requirements Manual, the minimum compliment of station personnel required to staff the Fire Brigade is __(1)__ .

2) Per CM-AA-FPA-100 (Fire Protection / Appendix R Fire Safe Shutdown Program), the Fire Incident Commander __(2)__required to be a member of Operations department.

A. 1) three
2) is

B. 1) three
2) is not

C. 1) five
2) is

D. 1) five
2) is not

Question: 74
(1 point)

Given the following:

- Core offload of Unit 1 is in progress.
- The core is approximately 1/3 off-loaded and there is a fuel assembly in the fuel transfer cart in transit to the Fuel Building.
- It is reported by the Refueling crew that SFP and Refueling cavity levels are lowering rapidly.
- Plant Personnel report the loss of water is due to a failure of the Cavity Seal Ring.
- Control Room operators direct entry into 1-AP-22.01, LOSS OF REFUELING CAVITY LEVEL .
- The Fuel Building is directed to close the Fuel Transfer Tube Gate Valve.

In accordance with 1-AP-22.01, LOSS OF REFUELING CAVITY LEVEL, which ONE of the following correctly completes the statements below:

1) In order to isolate the Spent Fuel Pit from the Refueling Cavity, the Fuel Transfer Cart must be in it's __(1)__ location prior to closing the Fuel Transfer Gate Valve.

2) The Fuel Transfer Tube Gate valve is closed by locally turning the handwheel located in __(2)__ in the CLOSE direction.

A. 1) Containment
   2) the Fuel Building

B. 1) Containment
   2) Containment

C. 1) Fuel Building
   2) Containment

D. 1) Fuel Building
   2) the Fuel Building

Question: 75
(1 point)

Initial Conditions:

- Unit 1 at 100% power.
- A large Condenser vacuum leak is in progress.
- The team is performing 1-AP-14.00, Loss of Main Condenser Vacuum.
- Condenser hoggers have been placed in service, but vacuum is still lowering (getting worse).

Current Conditions:

- Condenser vacuum is 24 in Hg and slowly lowering.
- The team has decided to perform the Immediate Actions of 1-E-0, Reactor Trip or Safety Injection.

Based on the above conditions, which ONE of the following describes:

1) What is the status of first-out annunciator 1F-C3, LO VAC TURB TRIP?
2) What action will the team take in the EOPs to stabilize RCS temperature at 547°F?

A. 1) NOT lit.
   2) Use S/G PORVs.

B. 1) NOT lit.
   2) Use Steam Dumps.

C. 1) LIT.
   2) Use S/G PORVs.

D. 1) LIT.
   2) Use Steam Dumps.

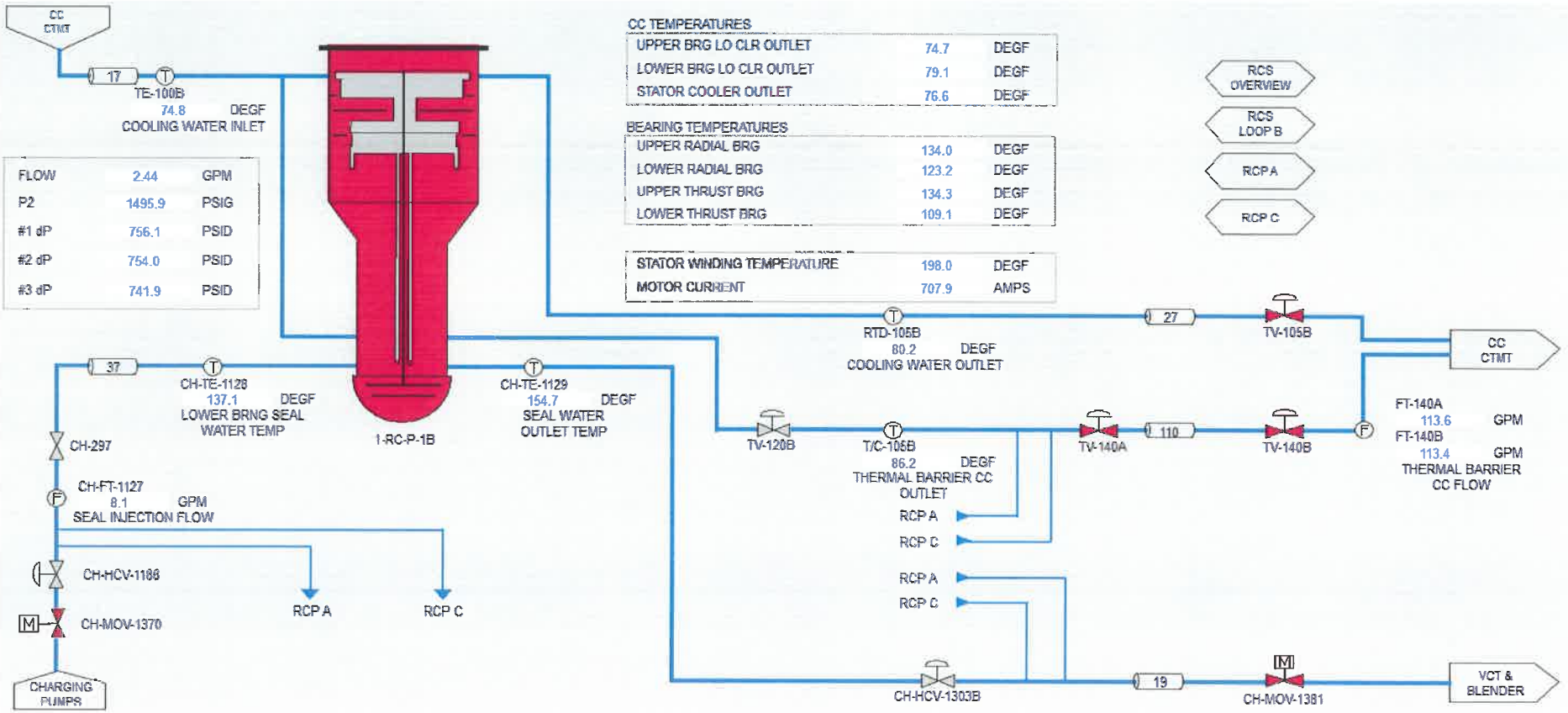
RO EXAM

LIST OF ATTACHMENTS

Attachment #	Attachment Description
1	Question 12 Figure
2	E-3 Table
3	Generator Capability Curve
Separate	STEAM TABLES

Attachment 1

Question 12 Figure



Attachment 2

E-3 Table

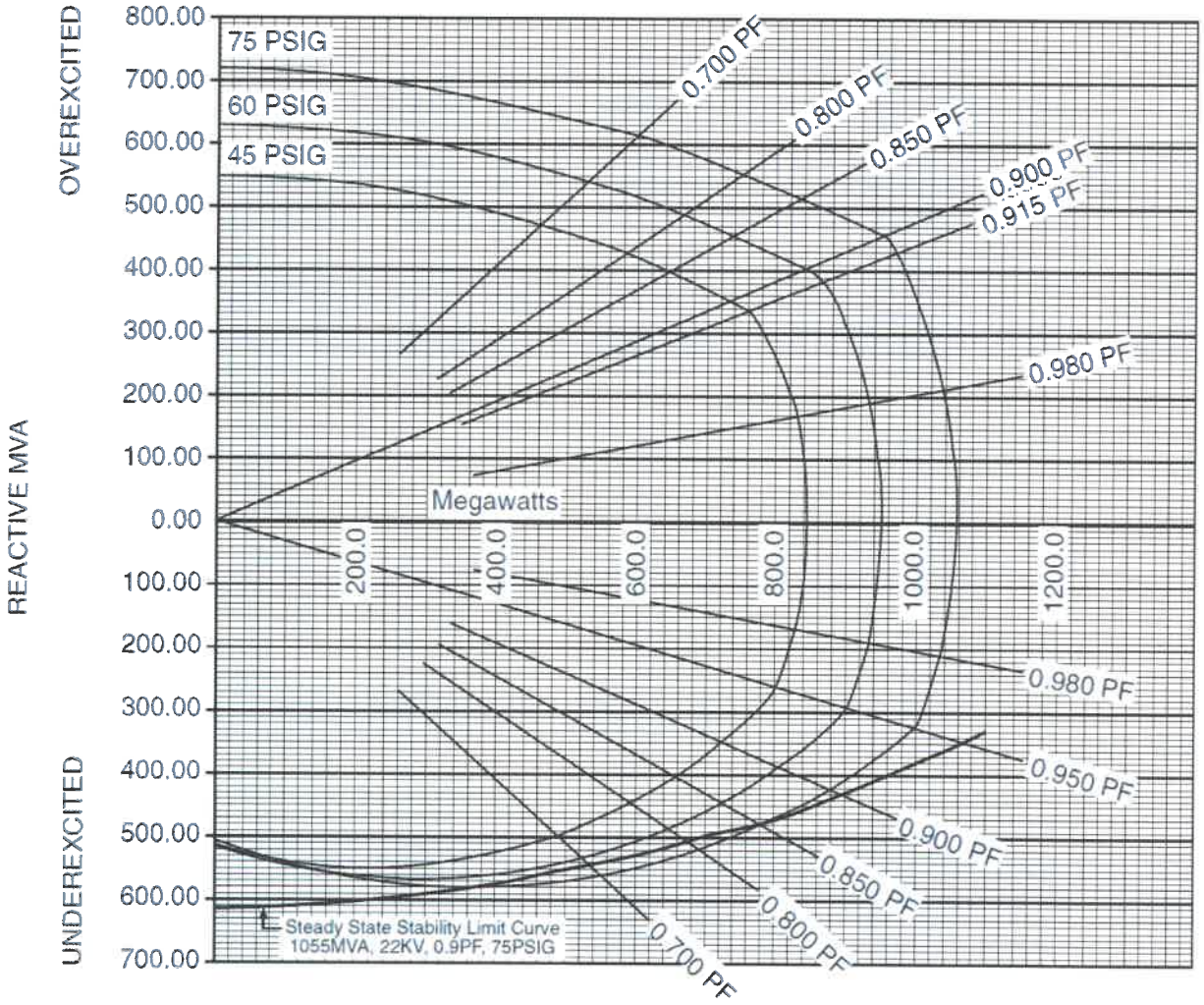
PRZR LEVEL	RUPTURED SG(s) NARROW RANGE LEVEL TREND		
	RISING	LOWERING	OFFSCALE HIGH
LESS THAN 35% [63%]	• Raise CHG Flow • Depressurize RCS	Raise CHG Flow	• Raise CHG Flow • Maintain RCS and Ruptured SG(s) Pressures Equal
BETWEEN 35% [63%] AND LESS THAN 65%	Depressurize RCS	Turn On PRZR Heaters	Maintain RCS and Ruptured SG(s) Pressures Equal
BETWEEN 65% AND 69%	• Depressurize RCS • Lower CHG Flow	Turn On PRZR Heaters	Maintain RCS and Ruptured SG(s) Pressures Equal
GREATER THAN 69%	Lower CHG Flow	Turn On PRZR Heaters	Maintain RCS and Ruptured SG(s) Pressures Equal

ATTACHMENT 3

(Page 1 of 2)

Attachment 52

CAPABILITY CURVES



1055.0 MVA 0.900 PF 22.0 kV 27686 AMPERES
3 PHASE 60 HERTZ 1800 RPM 0.54 SCR
COLD GAS 46°C

Graphics No. CS4665

Examination KEY for: 2019 SPS ~~SRO~~ NRC Examinat

Question Number	*Answer*
1	B
2	C
3	D
4	C
5	C
6	C
7	A
8	B
9	D
10	A
11	D
12	D
13	C
14	A
15	D
16	D
17	B
18	D
19	D
20	A
21	C
22	B
23	D
24	B
25	A

Examination KEY for: 2019 SPS SRO NRC Examinat

Question Number	*Answer*
26	B
27	B
28	B
29	B
30	B
31	D
32	A
33	C
34	C
35	C
36	B
37	A
38	D
39	A
40	D
41	B
42	B
43	D
44	C
45	B
46	D
47	A
48	B
49	D
50	A

Examination KEY for: 2019 SPS SRO NRC Examinat

Question Number	*Answer*
51	A
52	A
53	C
54	D
55	D
56	B
57	C
58	B
59	B
60	A
61	A
62	C
63	A
64	D
65	A
66	C
67	D
68	D
69	C
70	D
71	C
72	B
73	C
74	A
75	A