NRC Exam

Site-Specific RO Written Examination

Applicant Information	
Name:	
Date: June 28th, 2013	Facility/Unit: **Browns Ferry**
Region: I **II** III IV	Reactor Type: W CE BW **GE**
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination, you must achieve a final grade of at least 80.00 percent. Examination papers will be collected 6 hours after the examination begins.

Applicant Certification

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

_____
Applicant's Signature

Results	
Examination Value	____75____ Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

Reid 6/24/13

ILT 1306 NRC Written Exam Answer Key (RO)

Question #	K/A	Answer
1	295001 AK1.03	A
2	295003 AA2.02	D
3	295004 AA1.01	B
4	295005 AA1.01	D
5	295006 AK1.02	A
6	295016 G2.1.32	C
7	295018 AA1.02	D
8	295019 G2.2.39	A
9	295021 AA2.07	D
10	295023 AK3.04	D
11	295024 G2.4.8	C
12	295025 EA2.01	C
13	295026 EA1.01	C
14	295028 EK3.04	B
15	295030 EK2.01	A
16	295031 EK3.03	C
17	295037 EK1.03	C
18	295038 EK2.02	D
19	600000 AK2.01	B
20	700000 AK1.01	C
21	295008 AK1.02	B
22	295014 AA2.03	D
23	295015 AK3.01	C
24	295020 G2.4.4	C
25	295032 EK2.08	B

Question #	K/A	Answer
26	295033 EA1.05	C
27	295036 EA1.01	D
28	203000 A2.16	B
29	205000 A4.07	D
30	206000 G2.2.38	A
31	209001 A3.03	B
32	211000 K1.01	B
33	211000 K3.01	A
34	212000 K4.01	C
35	215003 A3.03	C
36	215004 K2.01	C
37	215005 K2.02	B
38	217000 A1.02	D
39	217000 K5.06	A
40	218000 K4.01	D
41	223002 A2.06	A
42	223002 K4.04	B
43	239002 K6.02	B
44	259002 K5.03	D
45	261000 A1.07	D
46	262001 K2.01	B
47	262001 K5.02	B
48	262002 K3.17	A
49	263000 A1.01	A
50	263000 K6.01	C

Question #	K/A	Answer
51	264000 K3.03	D
52	300000 G2.4.45	D
53	400000 K1.01	C
54	201002 K4.04	B
55	201006 A2.05	A
56	214000 K6.01	B
57	216000 A4.02	A
58	230000 A1.10	C
59	234000 K5.02	A
60	259001 G2.4.6	D
61	271000 K5.11	C
62	272000 K2.03	B
63	288000 K3.05	A
64	290003 A3.01	D
65	290002 K1.14	C
66	G2.1.27	D
67	G2.1.31	D
68	G2.1.36	D
69	G2.2.15	D
70	G2.2.25	A
71	G2.2.39	A
72	G2.3.13	A
73	G2.3.14	A
74	G2.4.1	B
75	G2.4.9	A

Question #	K/A	Answer
76	295003 AA2.05	D
77	295019 AA2.02	B
78	295023 G2.2.44	B
79	295024 G2.4.21	C
80	295037 G2.4.30	D
81	600000 AA2.13	C
82	700000 AA2.05	C
83	295017 AA2.01	A
84	295029 EA2.03	B
85	500000 G2.2.44	C
86	209001 G2.1.31	D
87	211000 A2.05	D
88	215003 A2.01	C
89	218000 A2.05	C
90	239002 G2.2.12	C
91	201003 G2.4.11	A
92	239001 A2.11	B
93	268000 A2.01	D
94	G2.1.35	A
95	G2.1.43	B
96	G2.2.18	A
97	G2.2.3	C
98	G2.3.4	A
99	G2.4.18	A
100	G2.4.19	B

QUESTION 1

Unit 2 was operating at 100% power when the following occurs:

- The 2B Reactor Recirc Pump trips
- It is desired to operate in single loop for greater than 24 hours

Which ONE of the following completes the statements below?

The MCPR Reactor Core Safety Limit for SINGLE loop operation on Unit 2 is $\geq$ __(1)__.

The SINGLE loop limit(s) for__(2)__ must be applied in accordance with Technical Specification 3.4.1, Reactor Coolant System (RCS).

A. (1) 1.10
(2) Minimum Critical Power Ratio (MCPR) and Average Planar Linear Heat Generation Rate (APLHGR)

B. (1) 1.10
(2) Minimum Critical Power Ratio (MCPR) ONLY

C. (1) 1.08
(2) Minimum Critical Power Ratio (MCPR) and Average Planar Linear Heat Generation Rate (APLHGR)

D. (1) 1.08
(2) Minimum Critical Power Ratio (MCPR) ONLY

QUESTION 2

Given Unit 2 is at 100% power with the following conditions:

- Steam Jet Air Ejector A is in service

Subsequently:

- Unit 2 I&C Cabinet 9-9-3 de-energizes

Which ONE of the following completes the statements below?

[Assume no operator actions]

Reactor thermal power will __(1)__.

Generator electrical output will __(2)__.

A. (1) rise
   (2) rise

B. (1) remain the same
   (2) lower

C. (1) remain the same
   (2) remain the same

D. (1) rise
   (2) lower

QUESTION 3

Given the following conditions:

- A complete loss of 250 VDC Battery Board 2 occurs

Which ONE of the following completes the statements below?

The **NORMAL** power supply to 250 VDC RMOV Bd __(1)__ has been lost.

After the RMOV Bd has been placed on its alternate power supply, operating a MOV that is powered from the board, for the purpose of completing a Tech Spec surveillance __(2)__ allowed.

A. (1) 2A
(2) is

B. (1) 2A
(2) is NOT

C. (1) 2C
(2) is

D. (1) 2C
(2) is NOT

QUESTION 4

Given the following conditions:

- Reactor power is 29%
- A Unit 1 startup is in progress
- RPS A bus is lost due to a trip of the RPS MG A
- Main Generator load is 295 MWe
- Main Turbine 1st Stage Pressure on Panel 1-9-7 EHC WORK STATION is 145 psig
- RPT LOGIC A TEST SWITCH (1-HS-099-5A-S14A) and RPT LOGIC B TEST SWITCH (1-HS-099-5A-S14B) are in NORMAL
- Both Reactor Recirculation Pumps are operating at 480 rpm
- Feedwater Level Control system is Three Element Control
- RPS bus A is deenergized

Which ONE of the following predicts the effect (if any) on the reactor recirculation pumps if an automatic Main Turbine trip subsequently occurs?

A. BOTH Reactor Recirculation Pumps would trip

B. ONLY the "A" Reactor Recirculation Pump would trip

C. BOTH Reactor Recirculation Pumps would run back due to the 28% limiter

D. The Reactor Recirculation Pumps would continue to operate at the current speed

QUESTION 5

Given the following conditions:

- Unit 1 Reactor power is 100% when a reactor scram occurs
- Twenty control rods are at position 02; all other rods are fully inserted
- RPV level lowered to (-)40 inches and is recovering
- Boron has NOT been injected

Which ONE of the following completes the statements below?

According to 1-EOI-1, RPV CONTROL, the reactor __(1)__ remain shutdown under all conditions.

The procedure required to be used for Reactor Water Level Control is __(2)__.

A. (1) will NOT
(2) 1-C-5, LEVEL/POWER CONTROL

B. (1) will NOT
(2) the RC/L leg of 1-EOI-1, RPV CONTROL

C. (1) will
(2) the RC/L leg of 1-EOI-1, RPV CONTROL

D. (1) will
(2) 1-C-5, LEVEL/POWER CONTROL

QUESTION 6

Given the following conditions:

- Unit 2 was operating at 100% power
- The MSIVs automatically closed on high steam flow
- The PCIS signal was not reset

The operators are carrying out the actions of 2-AOI-100-2, Control Room Abandonment, at Panel 2-25-32.

Which ONE of the following completes both statements below?

If the MAIN STEAM LINE A INBD ISOLATION VLV (MSIV) XFS switch, 2-XS-1-14, is placed in EMERG while 2-HS-1-14C handswitch is positioned as shown above, this MSIV will __(1)__.

After control is established at the Backup Control Panel, RCIC __(2)__ trip on low suction pressure.

A. (1) remain CLOSED
   (2) will still

B. (1) OPEN
   (2) will NOT

C. (1) OPEN
   (2) will still

D. (1) remain CLOSED
   (2) will NOT

QUESTION 7

Given the following conditions:

- Unit 1 is operating at 100% Reactor Power
- RBCCW Pump 1A trips
- RBCCW Pump discharge header pressure is 48 psig
- RBCCW PUMP DISCH HDR PRESS LOW, (1-9-4C, window 12), in alarm

Which ONE of the following system loads is isolated from RBCCW cooling?

A. Drywell Blowers

B. Drywell equipment drain sump heat exchanger

C. Reactor Recirculation Pump seal coolers

D. Reactor Building equipment drain sump heat exchanger

QUESTION 8

Given the following conditions:

- All three Units are operating at 100% power
- DIESEL GEN B TROUBLE (9-23B, Window 2) is in alarm

The AUO who was dispatched to investigate, finds the following conditions on the B Emergency Diesel Generator:

- The Left Bank Compressor breaker has tripped due to overload
- The Left Bank Air Receiver pressure is 0 psig
- The Right Bank Compressor is off
- The Right Bank Air Receiver pressure is 160 psig and stable

Which ONE of the following completes the statements below?

__(1)__ of the diesel generator starting air systems is(are) required for Tech Spec 3.8.3, Diesel Fuel Oil, Lube Oil, and Starting Air operability.

Given the conditions listed above, DG B __(2)__ required to be declared inoperable.

A. (1) ONLY one
   (2) is

B. (1) ONLY one
   (2) is NOT

C. (1) Both
   (2) is

D. (1) Both
   (2) is NOT

QUESTION 9

Given the following initial conditions for Unit 3:

- RPV level is 84 inches
- RHR Pump 3B is operating in Shutdown Cooling
- 3-FCV-74-66, RHR SYS II LPCI OUTBD INJECT VALVE, is throttled to 8000 gpm
- 3-FCV-23-46, RHR HX 3B RHRSW OUTLET VLV, is throttled to 4000 gpm
- Reactor Recirc conditions are as indicated on the ICS RECIRC screen shot

ICS RECIRC screen shot attached

Which ONE of the following completes the statements below?

The current plant configuration __(1)__ correct.

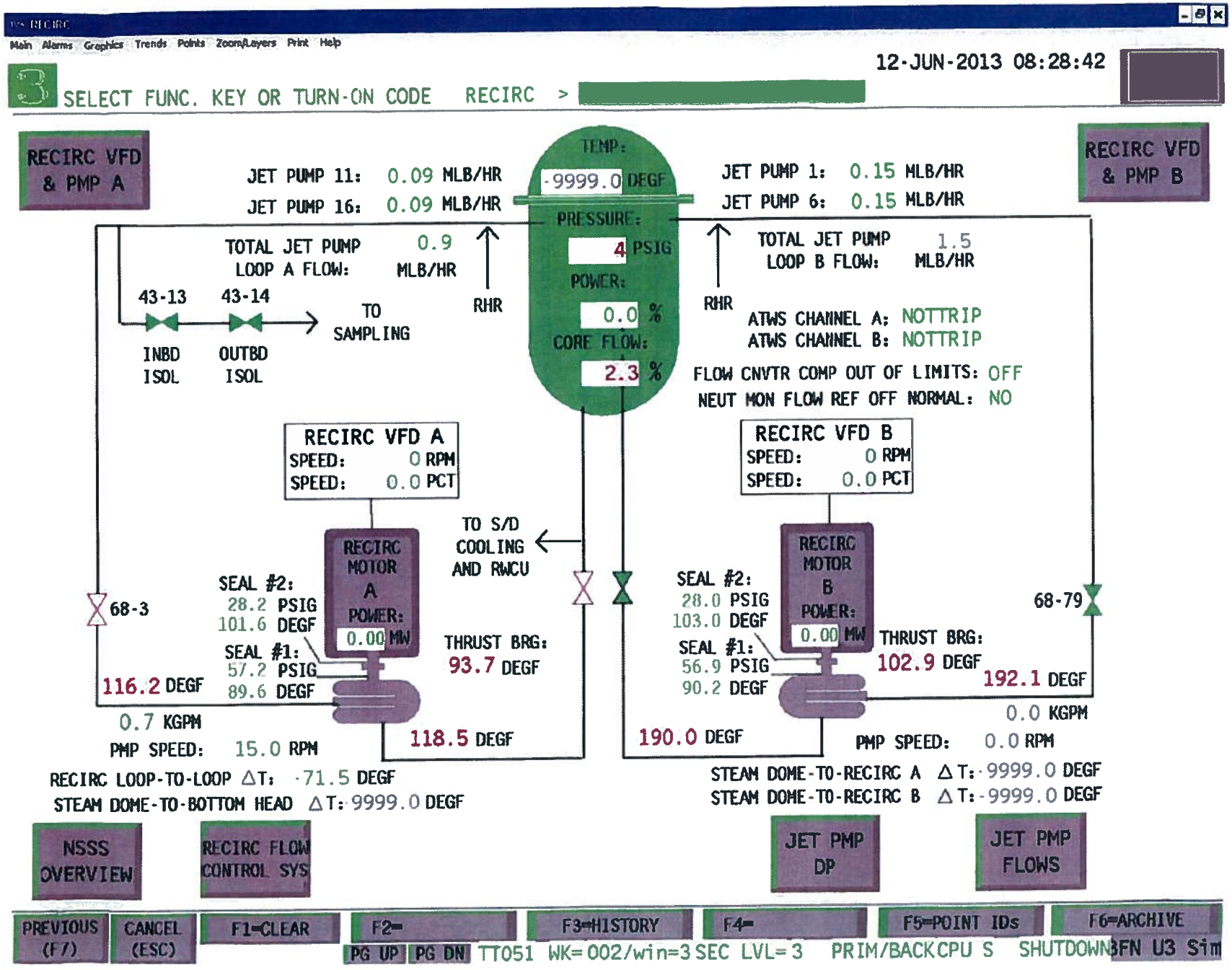
The indicated core flow is a result of __(2)__.

A. (1) is NOT
(2) forced flow from RHR System II ONLY

B. (1) is
(2) natural circulation

C. (1) is
(2) forced flow from RHR System II ONLY

D. (1) is NOT
(2) natural circulation


RECIRC
Main Alarms Graphics Trends Points Zoom/Layers Print Help
12-JUN-2013 08:28:42
SELECT FUNC. KEY OR TURN-ON CODE RECIRC >
RECIRC VFD & PMP A
RECIRC VFD & PMP B
JET PUMP 11: 0.09 MLB/HR
JET PUMP 16: 0.09 MLB/HR
JET PUMP 1: 0.15 MLB/HR
JET PUMP 6: 0.15 MLB/HR
TEMP:
-9999.0 DEGF
PRESSURE:
4 PSIG
POWER:
0.0 %
CORE FLOW:
2.3 %
TOTAL JET PUMP LOOP A FLOW: 0.9 MLB/HR
TOTAL JET PUMP LOOP B FLOW: 1.5 MLB/HR
43-13
43-14
INBD ISOL
OUTBD ISOL
TO SAMPLING
RHR
RHR
ATWS CHANNEL A: NOTTRIP
ATWS CHANNEL B: NOTTRIP
FLOW CNVTR COMP OUT OF LIMITS: OFF
NEUT MON FLOW REF OFF NORMAL: NO
RECIRC VFD A
SPEED: 0 RPM
SPEED: 0.0 PCT
RECIRC VFD B
SPEED: 0 RPM
SPEED: 0.0 PCT
TO S/D COOLING AND RWCU
RECIRC MOTOR A
POWER: 0.00 MW
RECIRC MOTOR B
POWER: 0.00 MW
68-3
68-79
SEAL #2: 28.2 PSIG 101.6 DEGF
SEAL #1: 57.2 PSIG 89.6 DEGF
SEAL #2: 28.0 PSIG 103.0 DEGF
SEAL #1: 56.9 PSIG 90.2 DEGF
THRUST BRG: 93.7 DEGF
THRUST BRG: 102.9 DEGF
116.2 DEGF
192.1 DEGF
0.7 KGPM
0.0 KGPM
PMP SPEED: 15.0 RPM
PMP SPEED: 0.0 RPM
118.5 DEGF
190.0 DEGF
RECIRC LOOP-TO-LOOP ΔT: -71.5 DEGF
STEAM DOME-TO-BOTTOM HEAD ΔT: 9999.0 DEGF
STEAM DOME-TO-RECIRC A ΔT: 9999.0 DEGF
STEAM DOME-TO-RECIRC B ΔT: -9999.0 DEGF
NSSS OVERVIEW
RECIRC FLOW CONTROL SYS
JET PMP DP
JET PMP FLOWS
PREVIOUS (F7)
CANCEL (ESC)
F1=CLEAR
F2=
F3=HISTORY
F4=
F5=POINT IDs
F6=ARCHIVE
PG UP
PG DN
TT051 WK=002/win=3 SEC LVL=3 PRIM/BACKCPU S SHUTDOWN3FN U3 Sim

QUESTION 10

A Subcriticality Check is in progress on Unit 2 in accordance with 0-GOI-100-3C, Fuel Movement Operations During Refueling, Attachment 7.

- 8 Shorting Links are attached to the Unit 2 Rx Mode Switch
- A control rod surrounded by fuel is being withdrawn

Which ONE of the following completes the statements below?

The SRMS are placed in the non-coincident mode because __(1)__.

With ALL shorting links removed, __(2)__ are in the non-coincident mode.

A. (1) a spiral reload is in progress
(2) the SRMs ONLY

B. (1) the SRMs are quadrant specific
(2) the SRMs ONLY

C. (1) a spiral reload is in progress
(2) ALL neutron monitors

D. (1) the SRMs are quadrant specific
(2) ALL neutron monitors

QUESTION 11

Given the following conditions:

- Unit 1 was operating at 50% power
- Drywell temperature and pressure began to slowly rise
- Operators entered 1-AOI-64-1, Drywell Pressure and/or Temperature High, or Excessive Leakage Into Drywell
- Drywell pressure reached 2.0 psig, the operators inserted a manual scram

After completing the immediate operator actions for 1-AOI-100-1, Reactor Scram, the following conditions exist:

- Reactor water level is (-)10 inches with level slowly rising
- Reactor pressure is steady at 960 psig
- All control rods indicate green double dashes
- Drywell pressure is 2.3 psig and slowly rising
- Drywell temperature is 150° F and slowly rising

Which ONE of the following completes the statement below?

Based on these conditions, the operating crew is required to _____.

A. continue in 1-AOI-64-1 and 1-AOI-100-1, ONLY

B. enter EOI-1, RPV Control, ONLY, and exit 1-AOI-64-1 and 1-AOI-100-1

C. enter EOI-1, RPV Control, and continue in 1-AOI-64-1 and 1-AOI-100-1

D. enter EOI-1, RPV Control and EOI-2, Primary Containment Control, and exit 1-AOI-100-1, and 1-AOI-64-1

QUESTION 12

Given the following conditions:

- Unit 3 Reactor operating at 100% power
- A failure in the EHC System causes reactor pressure to slowly rise

Which ONE of the following places the below list of events in the proper sequence?

1. Reactor scram on high pressure
2. REACTOR PRESS HIGH annunciator (9-5A, Window 1) alarms
3. First Group of Main Safety Relief Valves (MSRVs) opens
4. Technical Specification LCO 3.4.10 Reactor Steam Dome Pressure, LCO exceeded
5. ATWS AUTO INITIATE (9-4A, Window 10)

A. 2, 4, 1, 3

B. 2, 4, 1, 5

C. 4, 2, 1, 3

D. 4, 2, 5, 3

QUESTION 13

Given the following conditions:

- Unit 2 was at 100% power
- Main Steam Isolation Valve closure occurred
- BOTH loops of RHR are in Suppression Pool Cooling mode
- Drywell Pressure is 1.8 psig and steady
- Suppression Chamber Pressure 3.3 psig and steady
- Suppression Pool Level 11.4 feet and steady
- Suppression Pool Temp 140°F and lowering
- RHR A and C loop flow @ 11500 gpm
- RHR B and D loop flow @ 13200 gpm
- RHRSW A flow @ 4500 gpm
- RHRSW C flow @ 4000 gpm
- RHRSW B flow @ 4400 gpm
- RHRSW D flow @ 4400 gpm

[REFERENCE PROVIDED]

Based on these conditions, which ONE of the following describes the required operator action and the reason?

A. Match Loop I RHRSW pump flows to meet operating limits

B. Reduce Loop II RHRSW pump flows to ensure flow rate capability remains on the non-LOCA units

C. Reduce Loop II RHR system flow because it has exceeded operating limits

D. Raise Suppression Pool level to prevent RHR Pumps from air entrainment due to vortex limit concerns

QUESTION 14

Unit 2 was operating at 100% power when a small steam leak caused an automatic scram.

Given the following conditions:

- RPV Pressure is 900 psig and steady
- RPV Level is (+)25 inches and steady
- Drywell Pressure is 10 psig and slowly rising
- Suppression Chamber Pressure is 8.5 psig and slowly rising
- Drywell Temperature is 165° F and slowly rising
- Suppression Pool Level is (-)11 inches
- Suppression Pool Temperature is 90° F

Which ONE of the following describes the NEXT action required by 2-EOI-2, PRIMARY CONTAINMENT CONTROL and the reason for that action?

A. Operate drywell sprays because the drywell pressure is high

B. Operate all available drywell coolers because the drywell temperature is high

C. Emergency depressurize because the suppression chamber pressure is high

D. Emergency depressurize because the suppression pool level is low

QUESTION 15

Which ONE of the following completes the statement below?

In accordance with 1-EOI-2, Primary Containment Control, Step SP/L-17, If suppression pool level cannot be maintained above a minimum level of __(1)__, HPCI is required to be secured because __(2)__.

A. (1) 12.75 ft
   (2) the turbine steam exhaust line is uncovered

B. (1) 12.75 ft
   (2) of insufficient lube oil cooling

C. (1) 11.5 ft
   (2) the turbine steam exhaust line is uncovered

D. (1) 11.5 ft
   (2) of insufficient lube oil cooling

QUESTION 16

Given the following conditions:

- A Loss of Coolant Accident has occurred on Unit 1
- RPV level can NOT be maintained and Primary Containment flooding is required per step C1-26

Which ONE of the following completes the statement below?

The core is adequately cooled if the MIMINUM RPV Water level is at or above __(1)__ inches and the Core Spray System is operating with a MINIMUM of__(2)__.

A (1) (-) 215
(2) two loops injecting at 3125 gpm each

B. (1) (-) 180
(2) two loops injecting at 3125 gpm each

C. (1) (-) 215
(2) one loop injecting at 6250 gpm

D. (1) (-) 180
(2) one loop injecting at 6250 gpm

QUESTION 17

Given the following conditions:

- A reactor scram occurred on Unit 2 and control rods failed to fully insert
- Initial power level after the scram was 23%

Currently:

- Standby Liquid Control System (SLC) is injecting into the reactor
- SLC Storage Tank Level is 63%
- RPV Pressure is 900 psig and steady
- RPV Level is (-)90 inches
- All APRMs are DOWNSCALE
- IRMS are inserted and indicating on Ranges 4 and 5
- SRMs are inserted and indicating between 10^5 and 10^6 CPM
- SRM period indication is -40 seconds

Which ONE of the following completes the statements below?

At this time, the reactor __(1)__ subcritical.

If, at this SLC tank level, RPV Water level is restored to (+)2 to (+)51 inches, the reactor will be __(2)__.

A. (1) is NOT
(2) critical

B. (1) is
(2) critical

C. (1) is
(2) subcritical

D. (1) is NOT
(2) subcritical

QUESTION 18

Given the following conditions:

- Unit 2 is performing a startup
- STACK GAS RADIATION HIGH (2-9-3A, Window 13) is in alarm
- OG POST-TREATMENT RADIATION HIGH, (2-9-4C, Window 33) is in alarm
- OG POST TREATMENT RADIATION HIGH-HIGH (2-9-4C, Window 34) is in alarm
- OG POST-TREATMENT CH A RAD MON RTMR, 2-RM-90-265A, is reading 6.5×10^4 cps
- OG POST-TREATMENT CH B RAD MON RTMR, 2-RM-90-265B, is reading 6.3×10^4 cps
- The Off Gas Treatment Select Switch, 2-XS-66-113, is in **BYPASS**

Which ONE of the following identifies the AUTOMATIC actions (if any) of the Offgas system to limit the offsite release rate?

A. Adsorber Bypass Valve, 2-FCV-66-113B will CLOSE.
Adsorber Inlet Valve, 2-FCV-66- 113A will OPEN
Charcoal Adsorber Train 2 Inlet Valve, 2-FCV-66-118 will OPEN

B. Adsorber Bypass Valve, 2-FCV-66-113B will CLOSE
NO other valves will reposition

C. Adsorber Bypass Valve, 2-FCV-66-113B will CLOSE
Adsorber Inlet Valve, 2-FCV-66- 113A will OPEN
NO other valves will reposition

D. NO valves will reposition

QUESTION 19

Given the following conditions on Unit 1:

- The Fire Protection System is in a normal lineup with the Fire Pump Selector Switch (XS-26-43 on panel 9-20) in position CAB
- A loss of offsite power has occurred
- Main Transformer 1A has a fault
- Reactor water level is (-)130 inches and stable

Subsequently:

- An AUTOMATIC sprinkler actuation signal is received from a Unit 1 Reactor Building sensor
- With NO operator action, Fire Header pressure is 125 psig, fifty (50) seconds after the actuation signal is received

Which ONE of the following describes the status of the Electric Driven Fire Water Pumps?

A. ALL Electric Driven Fire Pumps are operating

B. ALL Electric Driven Fire Pumps are locked out for AUTOMATIC start

C. ONLY the C Electric Driven Fire Pump is operating

D. ONLY the B Electric Driven Fire Pump is operating

QUESTION 20

Given the following conditions:

- All units are operating at 100% RTP with lagging VARS
- Current system voltage is 542KV
- Current system frequency is 60.03 hz

Which ONE of the following completes the statements below?

The operators will coordinate between the units and, as directed by 0-AOI-57-1E, Grid Instability, lower__(1)__.

This will cause the power factor to __(2)__.

A. (1) reactor power approximately 1% per minute using the recirc master control buttons (LOWER SLOW 1, 2, 3-HS-96-33 or LOWER MEDIUM 1, 2, 3-HS-96-34)
(2) rise (closer to 1.0)

B. (1) reactor power approximately 1% per minute using the recirc master control buttons (LOWER SLOW 1, 2, 3-HS-96-33 or LOWER MEDIUM 1, 2, 3-HS-96-34)
(2) drop (further from 1.0)

C. (1) reactive power using VOLTAGE REGULATOR RAISE LOWER ADJUST (1, 2, 3 HS-57-26)
(2) rise (closer to 1.0)

D. (1) reactive power using VOLTAGE REGULATOR RAISE LOWER ADJUST (1, 2, 3 HS-57-26)
(2) drop (further from 1.0)

QUESTION 21

In accordance with 1-AOI-3-1, Loss of Reactor Feedwater or Reactor Water Level High/Low, which ONE of the following identifies a consequence of allowing water level to rise to the point that water enters the main steam lines?

A. The safety relief valves could fail to OPEN

B. The safety relief valves could fail to CLOSE

C. RCIC damage could occur

D. HPCI damage could occur

QUESTION 22

Given the following conditions:

- Unit 3 is operating at 65%
- Reactor Power is rising steadily
- RPV Water Level is 33 inches and stable
- Generator Output is rising steadily

Which ONE of the following identifies the cause of the above indications?

A. One MSRV is failing open.

B. The A Low Pressure Feedwater Heater String (Heaters 3A3, 3A4, 3A5) is isolating.

C. The B Main Steam Line Flow Instrument (3-FI-46-2) is slowly failing low.

D. One of the Recirc speed controllers is slowly failing high.

QUESTION 23

Given the following conditions:

- A hydraulic ATWS has occurred on Unit 3
- Reactor power is 28%
- MSIV are open
- Two RFPTs are operating
- The Main Turbine is tripped
- Reactor pressure is being maintained on the bypass valves
- All control rods inserted at least one notch on the scram

Which ONE of the following completes the statements below?

At this time the Rod Worth Minimizer __(1)__ enforcing an INSERT BLOCK.

The RWM LOW POWER SETPOINT (LPSP) is based on __(2)__.

A. (1) is
(2) ONLY reactor steam flow

B. (1) is
(2) reactor steam flow and feed flow

C. (1) is NOT
(2) reactor steam flow and feed flow

D. (1) is NOT
(2) ONLY reactor steam flow

QUESTION 24

Given the following conditions:

- A complete steam line rupture in the Turbine Building occurred
- RCIC STEAM LINE LEAK DETECTION TEMP HIGH is in alarm
- RCIC room temperature on 1-TE-071-0041 reached 160° F
- All other RCIC area temperatures reading between 130° F to 135° F (Peak values)
- Drywell temperature 143° F
- Drywell pressure 2.6 psig
- Suppression pool level (-)1.5 inches
- Suppression pool temperature is 107° F
- RPV Level is (+)30 inches with HPCI injecting to the vessel
- RPV Pressure is being controlled 800 to 1000 psig with the SRVs
- PCIS Groups 2,3,5, 6, and 8 are isolated

Which ONE of the following completes the statements below?

The Group 5 isolation __(1)__.

EOI-3 entry__(2)__ required.

A. (1) occurred as designed
   (2) is

B. (1) occurred as designed
   (2) is NOT

C. (1) should NOT have occurred
   (2) is

D. (1) should NOT have occurred
   (2) is NOT

QUESTION 25

Given the following conditions:

- A small break LOCA concurrent with a LOOP has occurred on Unit 1
- HPCI was manually initiated in accordance with Appendix 5D and is required to maintain RPV water level
- Drywell pressure is 15 psig
- RCIC is unavailable

Subsequently:

- HPCI LEAK DETECTION TEMP HIGH (9-3F, Window 10) is received due to a steam break in the HPCI room

Which ONE of the following completes both statements below?

In accordance with ARP 9-3F, window 10, the __(1)__ may give erroneous indications due to high temperatures in secondary containment.

In accordance with EOI-3, HPCI __(2)__ required to be isolated.

A. (1) SUPP CHBR WTR LVL, 1-LT-64-159
(2) is

B. (1) SUPP CHBR WTR LVL, 1-LT-64-159
(2) is NOT

C. (1) SHUTDOWN FLOODUP, 1-LI-3-55
(2) is NOT

D. (1) SHUTDOWN FLOODUP, 1-LI-3-55
(2) is

QUESTION 26

Given the following conditions:

- Unit 2 scrammed
- RX BLDG AREA RADIATION HIGH (Panel 9-3A Window 22) is in alarm
- RB EL 565E CRD-HCU EAST 2-RE-90-21A is reading 450 mR/hr and slowly rising
- All other area radiation monitors are reading normally
- No Reactor Building area temperatures are in alarm

Which ONE of the following completes both of the statements below?

Based on the location of this alarm, EOI-3 Table 4, Secondary Containment Area Radiation, indicates that a potential isolation source is the __(1)__.

The MINIMUM required action(s) to isolate the leak is/are to__(2)__.

A. (1) Reactor Water Cleanup System
(2) close RWCU INBD SUCTION ISOLATION, 2-FCV-69-1, RWCU OUTBD SUCTION ISOLATION, 2-FCV-69-2, and RWCU RETURN ISOLATION VALVE, 2-FCV-69-12

B. (1) Reactor Water Cleanup System
(2) close RWCU INBD SUCTION ISOLATION, 2-FCV-69-1 and RWCU OUTBD SUCTION ISOLATION, 2-FCV-69-2 ONLY

C. (1) Scram Discharge Volume vents and drains
(2) depress the NORMAL/ISOLATE pushbutton at the SDV Display on Panel 2-9-5 ONLY

D. (1) Scram Discharge Volume vents and drains
(2) place the SCRAM DISCH VOLUME HI LEVEL BYPASS, 2-HS-99-5A-S4, keylock switch in BYPASS, and then depress the NORMAL/ISOLATE pushbutton at the SDV Display on Panel 2-9-5

QUESTION 27

Given the following conditions:

- Unit 2 RHR Loop I is in suppression pool cooling
- A 75 gpm RHRSW leak occurs in the RHR heat exchanger room

Which ONE of the following completes the statements below?

The FIRST available indication to the operators that entry into 2-EOI-3 is required is __(1)__.

If, while executing 2-EOI-3, water level continues to rise, the operators __(2)__ determine when area water level reaches 20 inches using Control Room alarms.

A. (1) a high level alarm on control room panel 9-4C
(2) can

B. (1) a high level alarm on control room panel 9-4C
(2) can NOT

C. (1) high level alarm in the radwaste control room
(2) can

D. (1) high level alarm in the radwaste control room
(2) can NOT

QUESTION 28

Given the following conditions:

- A LOCA has occurred on Unit 3
- The lowest RPV level reached during the transient was (-) 190 inches
- RPV Level is 33 inches and slowly rising
- RPV Pressure is 200 psig
- Drywell Pressure is 8 psig
- RHR Loop I is currently injecting with two (2) pumps at 17,000 gpm
- RHR Loop II is in suppression pool cooling
- LPCI AUTO-INT LOGIC A (B) SEALED IN (3-IL-74-151 and 152) are illuminated

NOTE:

- 3-FCV-74-52 is the RHR SYS I LPCI OUTBD INJECT VALVE
- 3-XS-74-122 is the RHR SYS I LPCI 2/3 CORE HEIGHT OVRD switch
- 3-HS-74-155A is the LPCI SYS I OUTBD INJ VLV BYPASS SEL switch

Which ONE of the following is (are) the MINIMUM operator action(s) necessary to reduce RHR flow and stabilize level per 3-EOI APPENDIX 6B, INJECTION SUBSYSTEMS LINEUP RHR SYSTEM I LPCI MODE?

A. Throttle 3-FCV-74-52 ONLY

B. Place 3-HS-74-155A in BYPASS, and throttle 3-FCV-74-52 ONLY

C. Place 3-XS-74-122 in MANUAL OVERRIDE, and throttle 3-FCV-74-52 ONLY

D. Place 3-HS-74-155A in BYPASS, place 3-XS-74-122 in MANUAL OVERRIDE, and throttle 3-FCV-74-52

QUESTION 29

Given the following conditions:

- Unit 2 has been scrammed
- A cooldown to cold shutdown is in progress with shutdown cooling in operation
- Reactor Water Cleanup is in service
- 2-DRV-010-0505, RPV DRAIN TO RWCU, is OPEN
- 2-SR-3.4.9.1(1), Reactor Heatup and Cooldown Rate Monitoring, Attachment 1, Reactor Heatup and Cooldown Rate Monitoring is being performed

The following data has been recorded:

At 1600:

Steam Dome Pressure	50 psig
Rx Vessel Drain Temp ICS Point ID 56-8	281°F
Rx Vessel Head Temp ICS Point ID 56-1	310°F

At 1630:

Steam Dome Pressure	20 psig
Rx Vessel Drain Temp ICS Point ID 56-8	250°F
Rx Vessel Head Temp ICS Point ID 56-1	260°F

Which ONE of the following is the calculated cooldown RATE in accordance with 2-SR-3.4.9.1(1)?

[REFERENCE PROVIDED]

A. 31°F /HR

B. 39°F/HR

C. 62°F/HR

D. 78°F/HR

QUESTION 30

Which ONE of the following completes the statements below?

[consider each statement separately]

With Unit 2 in MODE 3 at 160 psig, HPCI __(1)__required by Technical Specifications to be OPERABLE.

In accordance with BFN ODM 4.20, Strategies for Successful Transient Mitigation, if HPCI initiates on a high drywell pressure signal, and HPCI IS NOT needed for reactor water level control, then __(2)__ .

A. (1) is
(2) trip HPCI and place the Aux Oil Pump (AOP) control switch in Pull- to-Lock (PTL)

B. (1) is NOT
(2) trip HPCI and place the Aux Oil Pump (AOP) control switch in Pull- to-Lock (PTL)

C. (1) is
(2) trip HPCI and ensure the Aux Oil Pump (AOP) control switch remains in the AUTO position

D. (1) is NOT
(2) trip HPCI and ensure the Aux Oil Pump (AOP) control switch remains in the AUTO position

QUESTION 31

Given the following conditions:

- Unit 1 was operating at 80%
- Core Spray pump 1A is running for 1-SR-3.5.1.6, Core Spray Flow Rate Loop I, with system flow of 3200 gpm and discharge pressure of 240 psig
- A LOCA occurs
- Drywell pressure 11 psig
- Reactor water level (-)65 inches
- Reactor pressure 400 psig

Which ONE of the following completes the statements below?

Core Spray Pump 1A Discharge Pressure will __(1)__ .

Core Spray Loop I __(2)__ injecting to the reactor.

A. (1) REMAIN THE SAME
(2) is

B. (1) RISE
(2) is NOT

C. (1) RISE
(2) is

D. (1) REMAIN THE SAME
(2) is NOT

QUESTION 32

Which ONE of the following completes the statements below?

The Standby Liquid Control System shares an RPV penetration with an instrument tap for the __(1)__ annunciator.

The Standby Liquid Control System injection line terminates at and disperses sodium pentaborate slightly __(2)__ the reactor core plate.

A. (1) CORE SPRAY SYS I SPARGER BREAK, Panel 9-3C, window 14
(2) above

B. (1) CORE SPRAY SYS I SPARGER BREAK, Panel 9-3C, window 14
(2) below

C. (1) RX PRESS LOW CORE SPRAY/RHR PERMISSIVE, Panel 9-3C, window 35
(2) above

D. (1) RX PRESS LOW CORE SPRAY/RHR PERMISSIVE, Panel 9-3C, window 35
(2) below

QUESTION 33

Given the following conditions:

- A Unit 1 ATWS occurred
- During the performance of 1-EOI-Appendix 3A, SLC INJECTION, the Standby Liquid Control (SLC) pump control switch was placed in the START-A position
- RPV pressure is 1020 psig
- SLC discharge pressure is 1100 psig
- SQUIB VALVE A CONTINUITY blue light is illuminated
- SQUIB VALVE B CONTINUITY blue light is extinguished
- SLC SQUIB VALVE CONTINUITY LOST(Panel 1-9-5B, Window 20) is in alarm
- SLC INJECTION FLOW TO REACTOR (Panel 1-9-5B, Window 14) is in alarm

Which ONE of the following completes the statements below?

The SLC Squib valve __(1)__ is OPEN.

The time to inject Hot Shutdown Boron Weight is __(2)__ compared to the time with both squib valves open.

A. (1) B
(2) the same

B. (1) A
(2) longer

C. (1) B
(2) longer

D. (1) A
(2) the same

QUESTION 34

Given the following conditions:

- Unit 3 is operating at 90% and Turbine Stop Valve Closure-RPS Trip Logic System Function Test, 3-SR-3.3.1.1.14 (8I), is being performed
- Main Turbine Stop Valve, MSV-2, is simulated CLOSED
- On panel 3-9-7, the Unit Operator depresses and holds MSV-1 TEST pushbutton 3-HS-47-141 until the MSV-1 position indicator 3-ZI-1-74 indicates 0%

Which ONE of the following completes the statements below?

The RPS Trip Logic senses Main Turbine Stop Valve, MSV-1, CLOSED when the valve position first reaches a setpoint of __(1)__.

During this surveillance step, annunciator RPT SYS A TRIP (3-9-4A, window 11) __(2)__ alarm.

A. (1) <90% OPEN
   (2) will NOT

B. (1) <5% OPEN
   (2) will NOT

C. (1) <90% OPEN
   (2) will

D. (1) <5% OPEN
   (2) will

QUESTION 35

Given the following conditions:

- A Unit 1 plant startup is in progress
- The REACTOR MODE SELECTOR switch is in STARTUP
- IRM C indicates 57/125 on Range 6
- IRM H indicates 27/125 on Range 6

Which ONE of the following describes the conditions that will occur if IRM C and IRM H are ranged down to Range 5?

A. Rod Block from IRM C ONLY

B. Rod block from both IRM C and H ONLY

C. Rod block AND a Half scram ONLY

D. Rod block AND a Full scram

QUESTION 36

Given the following conditions:

- Unit 1 plant startup is in progress
- SRM 'A' drawer in Panel 3-9-12, loses power
- All IRMs are on range 4
- The RPS shorting links are installed

Which ONE of the following completes the statement below?

The power supply to the SRM 'A' drawer is __(1)__ .

The plant response to the SRM A loss of power is __(2)__.

A. (1) 120 VAC
(2) a half scram and rod block

B. (1) ±24VDC
(2) a half scram and rod block

C. (1) ±24VDC
(2) a rod block ONLY

D. (1) 120 VAC
(2) a rod block ONLY

QUESTION 37

Which ONE of the following completes the statements below for the Unit 2 APRM power supply arrangement?

Each APRM is __(1)__ at Panel 2-9-14.

Within a Quad Low Voltage Power Supply (QVPS), Low Voltage Power Supplies (LVPS) 1 and 2 are powered from __(2)__.

A. (1) only powered from the QLVPS located in its associated bay
   (2) RPS B

B. (1) only powered from the QLVPS located in its associated bay
   (2) RPS A

C. (1) powered from two QLVPS
   (2) RPS B

D. (1) powered from two QLVPS
   (2) RPS A

QUESTION 38

With Unit 2 in Mode 1 the following surveillance is in progress:

- 2-SR-3.5.3.3, RCIC System Rated Flow at Normal Operating Pressure
- RCIC SYSTEM FLOW/CONTROL, 2-FIC-71-36A is in AUTO and set at 620 GPM

While establishing RCIC Pump discharge pressure 80 psig greater than reactor pressure, the Operator inadvertently fully **CLOSES** the RCIC PUMP CST TEST VLV, 2-FCV-71-38.

Which ONE of the following completes the statements below?

The RCIC PUMP MIN FLOW VALVE, 2-FCV-71-34A __(1)__ automatically open.

RCIC Turbine Speed will __(2)__.

A. (1) will
(2) decrease

B. (1) will
(2) increase

C. (1) will NOT
(2) decrease

D. (1) will NOT
(2) increase

QUESTION 39

Given the following conditions:

- Unit 2 RCIC tripped
- The UO closed and then re-opened the RCIC TURBINE TRIP/THROTTLE VALVE, 2-FCV-71-9

The following RCIC indications exist:

- RCIC TURB TRIP/THROTTLE VALVE, 2-ZI-71-9 - green light ON, red light OFF
- Handswitch RCIC TURB TRIP/THROTTLE VALVE, 2-HS-71-9 - red light ON, Green light OFF
- RCIC TURBINE CONTROL VALVE, 2-FCV-71-10 - green light ON, red light ON

Which ONE of the following completes the statement below?

RCIC is _____.

A. tripped on overspeed

B. reset and will start as soon as RCIC TURBINE STEAM SUPPLY VLV, 2-FCV-71-8, first begins to open

C. reset and will start after RCIC TURBINE STEAM SUPPLY VLV, 2-FCV-71-8, has reached its full open position

D. tripped on high water level

QUESTION 40

Given the following conditions:

- Unit 1 was operating at 100% Reactor Power
- RHR Pump 1D is tagged

Subsequently:

- A Loss of Coolant Accident and a Loss of Off Site Power occur
- Reactor Water Level is (-)125 inches
- Drywell Pressure is 4.1 psig
- A and C 4KV Shutdown Boards are de-energized
- RHR Pump 1C tripped

Which ONE of the following identifies the MINIMUM action, if any, that will prevent the Automatic Depressurization System (ADS) logic from an Auto-Initiation?

A. Place ONLY ADS Logic Inhibit Switch 'A' to INHIBIT

B. Place ONLY ADS Logic Inhibit Switch 'B' to INHIBIT

C. Place BOTH ADS Logic Inhibit Switches 'A' AND 'B' to INHIBIT

D. NO action is required

QUESTION 41

Given the following plant conditions:

- During performance of 2-SR-3.3.1.1.13, "Reactor Protection and Primary Containment Isolation Systems Low Reactor Water Level Instrument Channel B2 Calibration," 2-LlS-3-203D, RX WATER LEVEL LOW, fails to actuate.

- The Shift Manager has determined that the proper action is to trip the inoperable channel by removing fuse 2-FU1-3-203DA ONLY.

Which ONE of the following completes the statement below in accordance with 2-OI-64, Primary Containment System and 2-OI-99, Reactor Protection System (RPS)?

When the fuse is removed, the operator in the control room will observe __(1)__, and __(2)__.

A. (1) all four lights over the PCIS Reset Switches on Panel 9-4 remain illuminated
(2) a half scram

B. (1) one of the lights over the PCIS Reset Switches on Panel 9-4 will extinguish
(2) NO half scram

C. (1) one of the lights over the PCIS Reset Switches on Panel 9-4 will extinguish
(2) a half scram

D. (1) all four lights over the PCIS Reset Switches on Panel 9-4 remain illuminated
(2) NO half scram

QUESTION 42

Given the following condition:

- Reactor pressure is slowly lowering

Which ONE of the following completes the statement below in accordance with 1-OI-1, Main Steam, Section 3.2.2.B?

When reactor pressure FIRST reaches __(1)__ and the reactor mode switch is in the __(2)__ position, the MSIVs will auto-close.

A. (1) 852 psig
(2) START/HOT STBY

B. (1) 852 psig
(2) RUN

C. (1) 725 psig
(2) START/HOT STBY

D. (1) 725 psig
(2) RUN

QUESTION 43

Which ONE of the following completes the statement below?

On Unit 2, __(1)__ are equipped with accumulators, which are sized to contain sufficient pneumatic pressure for a minimum of 5 __(2)__.

A. (1) ALL MSRVs
   (2) valve operations

B. (1) ONLY the ADS MSRVs
   (2) valve operations

C. (1) ALL MSRVs
   (2) hours

D. (1) ONLY the ADS MSRVs
   (2) hours

QUESTION 44

Given the following condition:

- Unit 3 is at 85% power
- Reactor Vessel Narrow Range instrument, LT-3-53, has a small leak on the reference leg tap
- The Feedwater Level Control System (FWLCS) is in 3-element control

The Narrow Range instruments indicate as follows:

- LT-3-53 44 inches
- LT-3-60 33 inches
- LT-3-206 31 inches
- LT-3-253 33 inches

Which ONE of the following indicates the Reactor Vessel Level that the FWLCS is using as the current RPV level?

A. 37 Inches

B. 35 inches

C. 33 inches

D. 32 inches

QUESTION 45

Which ONE of the following completes the statement below?

When the SBGT charcoal filter temperature first reaches__(1)__ due to iodine adsorption following a LOCA, the decay heat removal dampers __(2)__ once the train has been shutdown.

A. (1) 125° F
(2) automatically open

B. (1) 150° F
(2) automatically open

C. (1) 125° F
(2) must be manually opened

D. (1) 150° F
(2) must be manually opened

QUESTION 46

Which ONE of the following completes the statements below?

There are __(1)__ 500KV Off-site Lines connected to the Browns Ferry Switchyard.

The capacitor banks at Browns Ferry are physically connected directly onto 161KV bus __(2)__.

A. (1) five
(2) 2 (Athens)

B. (1) seven
(2) 2 (Athens)

C. (1) five
(2) 1 (Trinity)

D. (1) seven
(2) 1 (Trinity)

QUESTION 47

Given the following conditions on panel 0-9-23-7:

- 0-43-211-A, 4kV SD BD A AUTO/LOCKOUT RESET switch is in the TRIPPED condition
- 4kV SD BD A ALT FDR BKR 1716 is CLOSED
- 4kV SD BD A NORM FDR BKR 1614 is OPEN

Which ONE of the following completes the statement below if the Unit Operator places the 0-43-211-A switch to the RESET position?

The Shutdown Board will __(1)__ Transfer AND will be supplied from __(2)__.

A. (1) FAST
(2) Shutdown Bus 1

B. (1) SLOW
(2) Shutdown Bus 1

C. (1) FAST
(2) Shutdown Bus 2

D. (1) SLOW
(2) Shutdown Bus 2

QUESTION 48

Given the following conditions:

- Unit 2 is operating at 90%
- An electrical fault occurs causing a loss of Unit Preferred Panel 2-9-9 Cabinet 6

Which ONE of the following completes the statements below?

In accordance with 2-AOI-57-4, Loss of Unit Preferred, the power to _____ is (are) lost.

A. RFWCS Panel Display Stations

B. SRV Acoustic Monitors on Panel 9-3

C. CRD System Flow Control Valves, 2-FCV-85-11 A / B

D. CRD Accumulator Pressure and Level Instruments

QUESTION 49

The following are indicated on Battery Board 2 Panel 1:

- BATTERY BOARD 2 250V DC BUS GND INDICATOR 0-GI-280-0002/103 is (-)4V
- BATTERY BOARD 2 250V DC BUS VOLTMETER(0-EI-280-0002/102) indicates 255 VDC
- BATTERY 2 AMMETER (0-II-280-0002/101) indicates as shown:

The following are indicated on 250V Battery Charger 2A:

- Charger DC Voltage is 255 VDC
- AC ON light is lit
- All other lights are extinguished
- The equalize timer is set for 0 hours

Which ONE of the following predicts the expected Battery Board 2 Panel 1 voltage trend and the reason for that trend with NO operator action?

A. LOWER, because the bus load exceeds the charger's capacity

B. LOWER, because a ground exceeding the allowable normal value is indicated

C. REMAIN THE SAME, because the charger's output voltage is the same as the battery board voltage

D. REMAIN THE SAME, because the charger is on float charge

QUESTION 50

All three units were initially operating at 100% power when the following occurred:

- Offsite power was lost to the entire site
- EDG 3EA failed to start and cannot be manually started
- A Unit 2 accident signal is received

Which ONE of the following completes the statement below?

250VDC Battery Chargers _____ have received a 480V load shed signal.

A. 1, 2A, 2B, and 4

B. 2A and 2B ONLY

C. 1, 2A, and 2B ONLY

D. 1, 2A, 2B, and 3

QUESTION 51

All three units were initially operating at 100% power when the following occurred:

- A loss of offsite power to the entire site
- An accident signal is received on Unit 3

Subsequently:

- 1 minute later Diesel Generator 3EB trips on overspeed

Which ONE of the following describes the current status of the 3A and 3B Core Spray pumps?

	3A Core Spray pump	**3B** Core Spray pump
A.	NOT Running	Running
B.	Running	NOT Running
C.	NOT Running	NOT Running
D.	Running	Running

QUESTION 52

Given the following conditions:

- All three Units are operating at 100% power
- Control Air Compressors in their normal line up
- SCRAM PILOT AIR HEADER PRESS LOW, **2**-9-5B, (Window 28) is in alarm
- AIR COMPRESSOR ABNORMAL, **1**-9-20 (Window 29) is in alarm
- CONTROL AIR PRESSURE, on Panel **1**-9-20, indicates 84 psig and lowering

Which ONE of the following completes the statements below?

The cause of the AIR COMPRESSOR ABNORMAL annunciator is __(1)__.

The operator required action(s) per 0-AOI-32-1, Loss of Control and Service Air Compressors, is (are) to __(2)__.

A. (1) a trip of Air Compressor F
(2) verify OPEN **2**-FCV-32-28, 29, and 91, CONTROL AIR ISOLATION VALVE SECONDARY CTMT

B. (1) a trip of Air Compressor F
(2) verify OPEN 0-PCV-33-1, SERVICE AIR TO CONTROL AIR ISOLATION VALVE

C. (1) a trip of Air Compressor G
(2) verify OPEN **2**-FCV-32-28, 29, and 91, CONTROL AIR ISOLATION VALVE SECONDARY CTMT

D. (1) a trip of Air Compressor G
(2) verify OPEN 0-PCV-33-1, SERVICE AIR TO CONTROL AIR ISOLATION VALVE

QUESTION 53

Given the following conditions:

- All three units are operating at 100% power
- The operating A3 EECW Pump trips
- The C3 EECW pump fails to start

Which ONE of the following describes the impact of the A3 EECW Pump trip and failure of the C3 EECW pump to start?

The backup cooling water supply to the _____ is NOT available. Assume NO operator actions.

A. control air compressors ONLY

B. Unit 1 and 2 RBCCW heat exchangers ONLY

C. control air compressors and the Unit 3 RBCCW heat exchanger ONLY

D. control air compressors and all three units' RBCCW heat exchangers

QUESTION 54

Given the following conditions:

Unit 2 is operating at 20% power with the following indications on Panel 9-5:

Which ONE of the following completes the statements below?

Using ONLY the CRD CONTROL SWITCH (2-HS-85-48) the operator may withdraw control rods by __(1)__ .

If a control rod is withdrawn one notch past its RWM group withdraw limit, the BLUE Rod Out Permit light will __(2)__.

A. (1) single notch ONLY
   (2) remain illuminated

B. (1) single notch ONLY
   (2) extinguish

C. (1) single notch OR continuous rod withdrawal
   (2) remain illuminated

D. (1) single notch OR continuous rod withdrawal
   (2) extinguish

QUESTION 55

Given the following conditions:

- A Unit 3 startup is in progress and power is 15%
- The Rod Worth Minimizer (RWM) is in service with Sequence Control ON
- The next control rod in the sequence is 30-47; however the operator incorrectly selects rod 46-31, which is also in the currently latched Rod Group
- Continuous withdraw is attempted

Which ONE of the following completes the statements below?

The control rod will withdraw __(1)__.

In accordance with Tech Spec 3.1.6, Rod Pattern Control, an action __(2)__ required.

A. (1) ONLY one notch
(2) is NOT

B. (1) ONLY one notch
(2) is

C. (1) continuously
(2) is

D. (1) continuously
(2) is NOT

QUESTION 56

Which ONE of the following is the power supply to the full core display rod position indications?

A. ICS, Panel 2-LPNL-925-532

B. Unit Preferred, Panel 2-9-9 Cabinet 6

C. Plant Preferred, Panel 2-9-9 Cabinet 4

D. Unit Non-Preferred, Panel 2-9-9 Cabinet 5

QUESTION 57

Given the following conditions:

- Unit 2 is operating at 100% power
- 2-PI-3-54, Wide Range Pressure indicates 1045 psig
- 2-PI-3-61, Wide Range Pressure indicates 966 psig
- 2-PI-3-207, Wide Range Pressure indicates 1020 psig

Which ONE of the following is the reactor pressure used by the Feedwater Level Control System (FWLCS)?

A. 1010.3 psig

B. 1020.0 psig

C. 1032.5 psig

D. 1035.0 psig

QUESTION 58

Unit 2 scrammed due to a small LOCA and the following occurred:

- RPV Water Level dropped to (-)45 inches
- Drywell Pressure reached 12.5 psig
- RHR Loop I was placed in Suppression Chamber and Drywell Sprays

The following conditions now currently exist:

- RPV Level is (+)20 inches and slowly rising
- RPV Pressure is 500 psig slowly lowering
- Drywell Pressure is 1.82 psig
- Suppression Pool Temperature and is 93°F and steady

Which ONE of the following completes the statements?

The RHR Loop I Suppression Chamber Spray Valves, 2-FCV-74-57 and 2-FCV-74-58 __(1)__.

RHR Loop I __(2)__ be simultaneously operated in Suppression Chamber Spray and Suppression Pool Cooling mode at this time.

A. (1) have automatically shut
   (2) may

B. (1) have automatically shut
   (2) may NOT

C. (1) remain open
   (2) may

D. (1) remain open
   (2) may NOT

QUESTION 59

Given the following conditions:

- Unit 3 Mode Switch is in REFUEL
- ALL control rods are inserted
- ONE control rod is selected
- The Refueling Bridge operator grappled a fuel bundle, raised the grapple, AND commenced moving the bundle towards the core

Which ONE of the following completes the statement below?

As the Refueling Bridge moves towards the core, a control rod withdrawal block __(1)__ be generated, and the bridge will __(2)__.

A. (1) will
(2) continue over the core

B. (1) will NOT
(2) continue over the core

C. (1) will
(2) stop before it reaches the core

D. (1) will NOT
(2) stop before it reaches the core

QUESTION 60

Given the following conditions:

- Unit 1 has automatically scrammed
- Control rods failed to fully insert
- Reactor power is 4% RTP
- RPV pressure is 970 psig being maintained by the Main Turbine Bypass Valves
- RPV level is being maintained at 25 inches by the feedwater system
- Suppression Pool temperature is 91° F and rising slowly
- EOI C-5, Level/Power Control has been entered

Which ONE of the following completes the statements below?

[Consider each statement separately]

For the conditions stated above, EOI C-5, Level/Power Control, __(1)__ stopping and preventing injection to the RPV.

The purpose of deliberately lowering RPV water level in EOI C-5, Level/Power Control, is to __(2)__.

A. (1) requires
(2) maximize boron concentration

B. (1) requires
(2) minimize core inlet subcooling

C. (1) does NOT require
(2) maximize boron concentration

D. (1) does NOT require
(2) minimize core inlet subcooling

QUESTION 61

Given the following conditions:

- All three units are operating at 100% power
- CHARCOAL BED GAS REHTR OUTL DEW PT TEMP HIGH, (Panel 9-53, window 27) is in alarm

Which one of the following identifies:

(1) a component malfunction that can cause this alarm, and
(2) an operational implication if no corrective action is taken?

A. (1) Offgas Preheater
(2) Main stack release rate rises

B. (1) Offgas Preheater
(2) Offgas piping hydrogen explosion

C. (1) Cooler Condenser
(2) Main stack release rate rises

D. (1) Cooler Condenser
(2) Offgas piping hydrogen explosion

QUESTION 62

Which ONE of the following completes the statements below?

The Wide Range Gaseous Effluent Radiation Monitor (WRGERM), 0-RM-90-306, is powered from __(1)__.

The Stack-Gas Radiation Monitor detectors (RM-90-147 & 148) are powered from __(2)__.

A. (1) 250VDC Battery Board 2
   (2) 48VDC Annunciator Battery System

B. (1) 250VDC Battery Board 2
   (2) ±24VDC Neutron Monitoring Battery System

C. (1) 250VDC Battery Board 1
   (2) 48VDC Annunciator Battery System

D. (1) 250VDC Battery Board 1
   (2) ±24VDC Neutron Monitoring Battery System

QUESTION 63

Given the following conditions:

- Unit 2 is operating at 90%
- Reactor Building Ventilation Supply and Exhaust fans "A" are in service in FAST
- Due to a dP instrument malfunction, the 2-PDIC-064-0002, Reactor Zone dP Controller, incorrectly senses Reactor Building dP is (-) 0.5" H_2O

Which ONE of the following completes the statements below?

[Consider each statement separately]

The controller will cause actual Unit 2 Reactor Building pressure, as compared to outside, to __(1)__.

An EOI-3 entry condition is Secondary Containment dP at or above __(2)__.

A. (1) rise
(2) (-) 0.17" H_2O

B. (1) lower
(2) (-) 0.25" H_2O

C. (1) rise
(2) (-) 0.25" H_2O

D. (1) lower
(2) (-) 0.17" H_2O

QUESTION 64

Given the following plant conditions:

- RX ZONE EXH RADIATION MONITOR DNSC (Panel 9-3A window 35) is in alarm
- Reactor Zone Exh CH A Rad Mon, 1-RM-90-142A is reading 1.0 X E^{-1} mr/hr
- Reactor Zone Exh CH A Rad Mon, 1-RM-90-143A is reading 9.3 X E^{-1} mr/hr
- Reactor Zone Exh CH B Rad Mon, 1-RM-90-142B is reading 7.3 X E^{1} mr/hr
- Reactor Zone Exh CH B Rad Mon, 1-RM-90-143B is reading 9.3 X E^{-1} mr/hr

- CONT RM ISOL RAD MONITOR DNSCL OR INOP, (Panel 9-6B window 10) is in alarm
- 0-RM-90-259A, CREVs Rad Mon is reading 30 cpm above background
- 0-RM-90-259B, CREVs Rad Mon, is reading 10 cpm above background

Which ONE of the following describes the Control Room Emergency Ventilation (CREV) System response?

A. BOTH CREV units will automatically start immediately

B. The Selected CREV unit will automatically start after a time delay. When Control Bay Ventilation is restarted CREV will automatically stop

C. The Selected CREV unit will automatically start after a time delay. The Standby CREV unit will ONLY start if the selected CREV unit fails to develop sufficient flow

D. NEITHER CREV unit will automatically start under these conditions

QUESTION 65

Which ONE of the following describes the piping configuration for the RWCU system return flow back to the reactor?

A. Units 2 and 3 can return via "A" or "B" Feedwater spargers

B. Units 1 and 2 can return via "A" or "B" Feedwater spargers

C. ONLY Unit 3 can return via "A" or "B" Feedwater spargers

D. ONLY Unit 1 can return via the "A" or "B" Feedwater spargers

QUESTION 66

Which ONE of the following completes the statement below?

The Traversing In-Core Probe System (TIPS) probes are __(1)__ and are used to calibrate the __(2)__.

A. (1) gamma sensitive ion chambers
(2) source range and intermediate range monitors (SRMs/IRMs)

B. (1) fission chambers
(2) local power range monitors (LPRMs)

C. (1) fission chambers
(2) source range and intermediate range monitors (SRMs/IRMs)

D. (1) gamma sensitive ion chambers
(2) local power range monitors (LPRMs)

QUESTION 67

Given the following conditions:

- Unit 3 was at 100% Reactor Power
- An event occurred and the operators are performing actions of EOI C-2, EMERGENCY DEPRESSURIZATION

Which ONE of the following completes the statements below?

A Wide Range RPV Pressure Indicator __(1)__ located at Panel 3-9-3.

The SRVs will begin to close when the Wide Range RPV Pressure Indicator is __(2)__.

A. (1) is
(2) 0 psig

B. (1) is NOT
(2) 50 psig

C. (1) is NOT
(2) 0 psig

D. (1) is
(2) 50 psig

QUESTION 68

In accordance with 0-GOI-100-3C, Fuel Movement Operations During Refueling, which ONE of the following completes the statements below?

The Fuel Pool Cooling System is only required to be in service to maintain fuel pool water within specifications listed in NPG-SPP-05.3, Chemistry Control, and water temperature less than __(1)__ but greater than 72° F.

RPV water level shall be __(2)__feet above the top of the RPV flange during movement of fuel assemblies or the handling of Control Rods within the RPV, when irradiated fuel assemblies are seated within the RPV.

A. (1) 100° F
   (2) ≥21.5

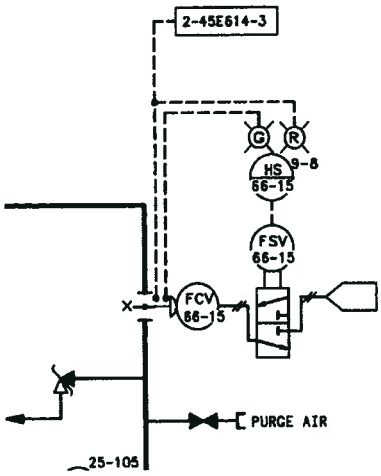
B. (1) 125° F
   (2) ≥21.5

C. (1) 100° F
   (2) ≥ 22.0

D. (1) 125° F
   (2) ≥ 22.0

QUESTION 69

The operating crew is implementing a clearance on the component shown below.



Which ONE of the following completes the statements below?

The solenoid is shown __(1)__.

The flow control valve fails __ (2)__.

A. (1) energized
(2) closed

B. (1) energized
(2) open

C. (1) de-energized
(2) open

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

QUESTION 70

Which ONE of the following completes the statement below in accordance with the bases for Tech Spec 2.1.1, Reactor Core Safety Limits?

The __(1)__ ensures that during normal operation and during abnormal operational transients, __(2)__.

A. (1) MCPR safety limit
(2) at least 99.9% of the fuel rods in the core do not experience transition boiling

B. (1) APLHGR safety limit
(2) cladding oxidation does not exceed 0.17 percent of the total cladding thickness

C. (1) APLHGR safety limit
(2) at least 99.9% of the fuel rods in the core do not experience transition boiling

D. (1) MCPR safety limit
(2) cladding oxidation does not exceed 0.17 percent of the total cladding thickness

QUESTION RO 71

Which ONE of the following completes the statement below in accordance with Tech Spec 3.1.3, Control Rod Operability?

In accordance with Tech Spec 3.1.3, Condition A, if one withdrawn control rod is stuck, then _____.

A. Immediately verify separation criteria are met

B. Disarm the adjacent control rods within 1 hour

C. Declare the control rod "slow" within 1 hour

D. Immediately insert and disarm adjacent control rods

QUESTION 72

In accordance with 2-GOI-200-2, Primary Containment Initial Entry and Closeout, entering the drywell, with the primary system at or near rated operating temperature and pressure, requires permission from which ONE of the following?

A. Plant Manager

B. Site Vice President

C. Radiation Protection Manager

D. Operations Manager

QUESTION RO 73

The **Unit 3** is operating at 50%.

Which ONE of the following completes both statements below in accordance with the Precautions and Limitations of 3-OI-4, Hydrogen Water Chemistry System?

The **MAXIMUM** H_2 injection rate allowed is __(1)__.

Placing HWC System in service at higher power levels can result in __(2)__.

A. (1) 25 scfm
(2) MAIN STEAM LINE RADIATION HIGH annunciator alarming on Panel 3-9~~C~~A, window 7

B. (1) 12 scfm
(2) MAIN STEAM LINE RADIATION HIGH annunciator alarming on Panel 3-9~~C~~A, window 7

C. (1) 25 scfm
(2) HIGH OFFGAS % H_2 TRAIN A(B) annunciator, Panel 3-53, window 3 (13)

D. (1) 12 scfm
(2) HIGH OFFGAS % H_2 TRAIN A(B) annunciator, Panel 3-53, window 3 (13)

BL
6-28-13
@ 11:15 EST

QUESTION RO 74

Given the following conditions:

- The Unit 1 reactor has automatically scrammed
- Reactor power 3%
- Reactor water level (+)10 inches (slowly rising, lowest level observed was (-)25 inches)
- Reactor pressure 1047 psig
- Suppression Pool Level 16 feet
- Suppression Pool Temperature 94° F and slowly rising
- Drywell temperature is 140° F and slowly rising

Which ONE of the following completes the statements below?

The Crew __(1)__ required to enter C-5, LEVEL/POWER CONTROL.

The OATC __(2)__ required to trip the Recirc Pumps.

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 75

Given the following conditions:

- Unit 2 is in MODE 4, and Shutdown Cooling has been lost

Which one of the following completes the statements below In accordance with 2-AOI-74-1, Loss of Shutdown Cooling?

RWCU __(1)__ is required to be maximized.

Prior to exceeding 212° F moderator temperature, the preferred mitigation strategy is __(2)__.

A. (1) blowdown flow to the condenser
(2) to establish a reactor vessel vent path to the condenser

B. (1) return flow to the vessel
(2) open SRVs to the Suppression Pool

C. (1) blowdown flow to the condenser
(2) open SRVs to the Suppression Pool

D. (1) return flow to the vessel
(2) to establish a reactor vessel vent path to the condenser

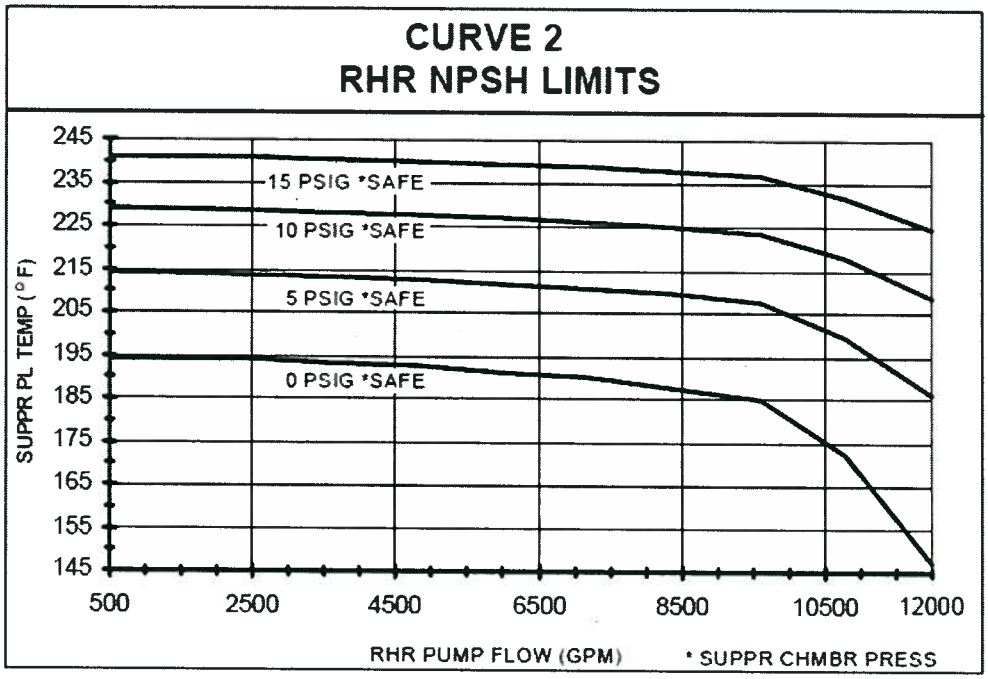
RO Reference Table of Contents

13. EOI Curve 2 NPSH Limits

29. 2-SR-3.4.9.1 (1) Table 2

NPSH MONITORING

Adequate NPSH is assured by maintaining pump flow rates below the curve for the applicable Suppression Chamber pressure. For Suppression Chamber pressures between the values on the curves extrapolation must be used.



Other indications of inadequate NPSH are:

- Suppression pool level below 10.0 ft
- System flowrate decreasing with constant valve position
- System flowrate or discharge pressure less than expected for present system conditions
- Pump discharge pressure lower than expected or fluctuating excessively
- Pump motor amps lower than expected or fluctuating excessively
- Pump suction pressure low (local indication)

Table 1
(Page 1 of 2)
General Electric P/T Data for 30 EFPY

NOTE

The data in this Table corresponds to Figure 3.4.9-1 of the Unit 2 Technical Specifications **AND** was obtained from TS Change TS-441, Revision 1. Linear interpolation may be performed. It is conservative to select the higher pressure data whenever the measured pressure is between data points.

Pressure (psig)	Bottom Head NON-critical Heatup & Cooldown (Curve 1) (°F)	Upper RPV AND Beltline NON-critical Heatup & Cooldown (Curve 2) (°F)	Reactor Critical Operations (Curve 3) (°F)	Pressure (psig)	Bottom Head NON-critical Heatup & Cooldown (Curve 1) (°F)	Upper RPV AND Beltline NON-critical Heatup & Cooldown (Curve 2) (°F)	Reactor Critical Operations (Curve 3) (°F)
0	68	83	83	340	68	143	183
10	68	83	83	350	68	143	183
20	68	83	83	360	68	143	183
30	68	83	83	370	68	143	183
40	68	83	83	380	68	143	183
50	68	83	83	390	68	143	183
60	68	83	84	400	68	143	183
70	68	83	91.2	410	68	143	183
80	68	83	97.2	420	68	143	183
90	68	83	102.3	430	68	143	183
100	68	83	106.8	440	68	143.4	183.4
110	68	83	110.9	450	68	145.5	185.5
120	68	83	114.7	460	68	147.5	187.5
130	68	83	118.2	470	68	149.5	189.5
140	68	83	121.4	480	68	151.4	191.4
150	68	84.2	124.2	490	68	153.2	193.2
160	68	86.9	126.9	500	68	154.9	194.9
170	68	89.5	129.5	510	68	156.6	196.6
180	68	91.9	131.9	520	68.2	158.2	198.2
190	68	94.2	134.2	530	70.2	159.8	199.8
200	68	96.3	136.3	540	72.1	161.3	201.3
210	68	98.3	138.3	550	73.9	162.8	202.8
220	68	100.3	140.3	560	75.7	164.3	204.3
230	68	102.1	142.1	570	77.4	165.7	205.7
240	68	103.9	143.9	580	79	167	207
250	68	105.6	145.6	590	80.6	168.4	208.4
260	68	107.2	147.2	600	82.2	169.7	209.7
270	68	108.8	148.8	610	83.7	170.9	210.9
280	68	110.3	150.3	620	85.1	172.1	212.1
290	68	111.8	151.8	630	86.5	173.3	213.3
300	68	113.2	153.2	640	87.9	174.5	214.5
310	68	114.5	154.5	650	89.2	175.7	215.7
312.5	68	114.9	154.9	660	90.5	176.8	216.8
312.5	68	143	183	670	91.8	177.9	217.9
320	68	143	183	680	93.1	178.9	218.9
330	68	143	183	690	94.3	180	220

Table 1
(Page 2 of 2)
General Electric P/T Data for 30 EFPY

NOTE

The data in this Table corresponds to Figure 3.4.9-1 of the Unit 2 Technical Specifications **AND** was obtained from TS Change TS-441, Revision 1. Linear interpolation may be performed. It is conservative to select the higher pressure data whenever the measured pressure is between data points.

Pressure (psig)	Bottom Head NON-critical Heatup & Cooldown (Curve 1) (°F)	Upper RPV AND Beltline NON-critical Heatup & Cooldown (Curve 2) (°F)	Reactor Critical Operations (Curve 3) (°F)	Pressure (psig)	Bottom Head NON-critical Heatup & Cooldown (Curve 1) (°F)	Upper RPV AND Beltline NON-critical Heatup & Cooldown (Curve 2) (°F)	Reactor Critical Operations (Curve 3) (°F)
700	95.4	181	221	1064	126.2	208.7	248.7
710	96.6	182	222	1070	126.5	209.1	249.1
720	97.7	183	223	1080	127.2	209.7	249.7
730	98.8	184	224	1090	127.8	210.2	250.2
740	99.9	184.9	224.9	1100	128.4	210.8	250.8
750	101	185.9	225.9	1105	128.7	211.1	251.1
760	102	186.8	226.8	1110	129	211.4	251.4
770	103	187.7	227.7	1120	129.6	211.9	251.9
780	104	188.6	228.6	1130	130.2	212.4	252.4
790	105	189.4	229.4	1140	130.7	213	253
800	105.9	190.3	230.3	1150	131.3	213.5	253.5
810	106.9	191.1	231.1	1160	131.9	214	254
820	107.8	191.9	231.9	1170	132.4	214.6	254.6
830	108.7	192.8	232.8	1180	133	215.1	255.1
840	109.6	193.6	233.6	1190	133.5	215.6	255.6
850	110.4	194.3	234.3	1200	134.1	216.1	256.1
860	111.3	195.1	235.1	1210	134.6	216.6	256.6
870	112.1	195.9	235.9	1220	135.2	217.1	257.1
880	113	196.6	236.6	1230	135.7	217.6	257.6
890	113.8	197.4	237.4	1240	136.2	218.1	258.1
900	114.6	198.1	238.1	1250	136.7	218.6	258.6
910	115.4	198.8	238.8	1260	137.2	219	259
920	116.1	199.5	239.5	1270	137.7	219.5	259.5
930	116.9	200.2	240.2	1280	138.2	220	260
940	117.7	200.9	240.9	1290	138.7	220.5	260.5
950	118.4	201.6	241.6	1300	139.2	220.9	260.9
960	119.1	202.3	242.3	1310	139.7	221.4	261.4
970	119.9	202.9	242.9	1320	140.2	221.8	261.8
980	120.6	203.6	243.6	1330	140.6	222.3	262.3
990	121.3	204.2	244.2	1340	141.1	222.7	262.7
1000	122	204.8	244.8	1350	141.6	223.2	263.2
1010	122.6	205.5	245.5	1360	142	223.6	263.6
1020	123.3	206.1	246.1	1370	142.5	224	264
1030	124	206.7	246.7	1380	142.9	224.4	264.4
1040	124.6	207.3	247.3	1390	143.4	224.9	264.9
1050	125.3	207.9	247.9	1400	143.8	225.3	265.3
1060	125.9	208.5	248.5				