

FINAL SUBMITTAL

**ST. LUCIE EXAM
50-335, 389/2001-301**

MAY 14 - 18 & 21 - 25, 2001

**FINAL RO AND SRO
WRITTEN EXAM WITH ANSWERS**

Question #	RO Q #	SRO Q #	Answer		Question #	RO Q #	SRO Q #	Answer
1	1	1	D		63	62	49	D
2	2	2	C		64	63	50	C
3	3	3	C		65	64	51	D
4	4	4	A		66	65	52	C
5	5	5	D		67	66	53	D
6	6	6	B		68	67	54	B
7	7	7	B		69	68	55	C
8	8	8	C		70	69	56	A
9	9	9	A		71	70		B
10		10	C		72	71	57	A
11	10		C		73	72	58	A or D
12	11		D		74	73	59	C
13	12	11	A		75	74	60	C
14	13	12	C		76	75		B
15	14	13	C		77	76	61	D
16	15		B		78	77		B
17	16		C		79	78		A
18	17	14	B		80		62	B
19	18		B		81	79		B
20	19	15	D		82	80	63	C
21	20	16	A		83	81	64	B
22	21	17	C		84	82	65	A
23	22	18	C		85	83	66	C
24	23		D		86	84		C
25	24	19	B		87	85	67	A
26	25	20	B or D		88	86	68	B
27	26	21	D		89	87	69	D
28	27		D		90	88	70	C
29	28	22	A		91	89		D
30	29		C		92	90	71	C
31	30		C		93	91		B
32	31	23	A		94	92	72	B
33	32	24	D		95	93	73	A
34	33		C		96	94	74	B or D
35	34	25	C		97	95		C
36	35	26	B		98	96	75	A
37	36	27	C		99		76	B
38	37	28	A		100		77	D
39	38	29	B		101		78	B
40	39	30	C		102		79	A
41	40	31	A		103		80	D
42	41	32	B		104		81	A
43	42	33	B		105	97	82	A
44	43	34	D		106	98	83	B
45	44		C		107	99		B
46	45	35	B		108	100		A
47	46	36	A		109		84	D
48	47	37	C		110		85	A
49	48		B		111		86	A
50	49	38	B		112		87	D
51	50	39	A		113		88	A
52	51	40	A		114		89	C
53	52	41	D		115		90	D
54	53	42	B		116		91	C
55	54	43	C		117		92	A
56	55	44	A		118		93	C
57	56		A		119		94	C
58	57		B		120		95	C
59	58	45	B		121		96	C
60	59	46	A		122		97	A
61	60	47	B		123		98	A or B
62	61	48	D		124		99	C
					125		100	A

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Question 1

Given the following conditions:

- Unit 1 has just tripped from 100% power due to loss of the 1A 125 VDC bus
- Normal AC electrical lineup prior to trip
- AB DC electrical lineup is to the B side
- Operators are performing 1-EOP-01, 'Standard post trip actions'
- No Contingency Actions have been performed.

Which of the following describes the configuration of the AFW system immediately following AFAS actuation?

- A. All AFW pumps running and feeding both Steam Generators.
- B. Only the 1C AFW pump running and feeding both Steam Generators.
- C. Only the 1B AFW pump running and feeding the 1B Steam Generator.
- D. 1C AFW pump running feeding both Steam Generators and 1B AFW pump running feeding 1B Steam Generator.

Question 2

Unit 1 has experienced a LOOP followed by a LOCA. The 1B CCW pump failed to start following the LOOP. Which of the following describes the configuration of the CCW system?

(assume all 'AB' lineup to the 'B' side and no Operator actions)

- A. The 1A and 1C CCW pumps running with the 1C CCW pump supplying both the 'A' and 'B' CCW headers.
- B. The 1A and 1C CCW pumps running with the 1C CCW pump supplying only the 1B CCW header.
- C. The 1A CCW pump running supplying only the 1A CCW header.
- D. The 1A CCW pump running supplying the 1A and 1B CCW headers.

Question 3

Unit 1 Turbine load is 350 MWE and increasing at 2 MWE per minute. Which of the following requires the Unit to be manually tripped?

- A. Condenser A reads 3.6" Hg absolute, Condenser B reads 2" Hg absolute.
- B. Condenser A reads 4" Hg absolute, Condenser B reads 2" Hg absolute.
- C. Condenser A reads 5.2" Hg absolute, Condenser B reads 2.6" Hg absolute.
- D. Condenser A reads 5.4 Hg absolute, Condenser B reads 3" Hg absolute.

Question 4

Unit 1 was manually tripped from 100% power due to a fire in the control room. All control room actions from 1-ONP-100.02 'Control Room Inaccessibility' have been performed and the control room was evacuated.

Which of the following describes how RCS temperature is normally controlled when the remote Shutdown panel is declared operational.

- A. ADV's in auto control from the remote shutdown panel
- B. ADV's in manual control, locally at the valve
- C. SBCS in automatic control
- D. SBCS in manual control

Question 5

Given the following conditions on Unit 1:

- LOOP has occurred
- Reactor is in Mode 3
- RCS pressure is 1800 psia and slowly rising
- Tcold is 540°F and constant
- Rep. CET temperature is 587°F
- Steam Generator (S/G) A and B levels are 15% NR and slowly rising
- Thot is 565°F and constant

All of the following conditions meet the criteria for single phase natural circulation in accordance with 1-EOP-09 Loss of Offsite Power with the **EXCEPTION OF:**

- A. Tcold Temperature trend
- B. Subcooled Margin
- C. Thot – Tcold differential temperature
- D. Thot – CET differential temperature

Question 6

Unit 2 is at 100% power, steady state. A leak has developed in the common reference leg for Pressurizer pressure transmitter PT-1100X and Pressurizer level transmitter LT-1110X.

Which of the following describes the indications that will be observed in the control room due to this condition?

	<u>PT-1100X</u>	<u>LT-1110X</u>
A.	Lowers	Lowers
B.	Lowers	Raises
C.	Raises	Lowers
D.	Raises	Raises

Question 7

Unit 1 has entered 1-EOP-03 LOCA with a LOOP and the following conditions:

- RCS pressure 280 psia stable
- Thot 390°F
- Rep. CET 398°F
- Pressurizer level 35% and stable
- Reactor Vessel level indicates 4 through 8 covered
- 1A S/G level 18% wide range with 155 gpm AFW flow
- 1B S/G level 14% wide range 200 gpm AFW flow

Which of the following prohibits stopping the LPSI pumps?

- A. Pressurizer level
- B. Subcooling
- C. RCS pressure
- D. S/G level

Question 8

Unit 2 is in a station blackout. The 2B Diesel was out of service prior to the event and the 2A Diesel did not load on the bus. Below are some of the alarms received on RTGB 201:

- B-14 4.16 KV 2A3 Δ current trip
- B-6 2A Emer. D/G Brk. Failure
- B-35 480V LC 2A5 UV/UV test/ground
- B-46 4.16 KV Emerg. SWGR. 2A3 UV/UV test
- B-28 480 V LC 2A2 UV/UV test ground
- B-48 4.16 KV SWGR./480V LC/MCC 2AB UV
- B-39 480V MCC 2A5/2A6/2A8 Non-Ess. Sect. Lockout

When conditions permit, which of the following action will re-energize the 2A3 4.16 KV bus from the 2A Diesel generator?

- A. Manually close the 2A Diesel Generator output breaker from RTGB 201
- B. Reset the 4.16 KV Undervoltage relays
- C. Reset the differential current relay
- D. Reset the Non-Essential section lockout

Question 9

Unit 1 is in a station blackout. Unit 2 is supplying Unit 1 with its only operable Diesel Generator.

In accordance with 1-EOP-10 'Station Blackout', which of the following Unit 1 pumps **CANNOT** be started?

- A. Intake cooling water pump.
- B. Electrical driven Auxiliary feedwater pump.
- C. High pressure safety injection pump.
- D. Low pressure safety injection pump.

Question 10

Given the following:

- Unit 2 is in Mode 5 on SDC preparing to heatup the RCS.
- One Personnel airlock door is closed and one currently open.
- Equipment and escape hatch are closed.
- A loss of shutdown cooling occurs and the RCS temperature rises to 207°F

Which of the below statements describes the current status of containment integrity?

Containment Integrity is:

- A. not required for the current conditions.
- B. not required if, within 1 hour, RCS temperature is lowered to 190°F.
- C. met with one airlock door closed
- D. not met. Both airlock doors must be maintained closed

Question 11

Unit 1 is in Mode 5 when the CCW valve (MV-14-6) to the 1A and 1B Containment fan coolers failed closed.

Which of the following states the impact of this CCW valve closure on the 1A and 1B Containment fan coolers?

The Containment fan coolers will:

- A. continue to run with no CCW flow to the motors and cooling coils.
- B. continue to run with only the cooling coils losing CCW flow.
- C. trip on low CCW flow.
- D. trip on high temperature.

Question 12

Unit 2 is at 100% power with Pressurizer Level Control Channel 1110-Y selected for control.

Level transmitter 1110Y fails low

Which of the following describes the plant response? (assume no Operator actions)

- A. All heaters on, Pressurizer pressure increases. Spray valves open on high pressure.
- B. Maximum letdown, Pressurizer level and pressure decrease, all but one charging pump off.
- C. Minimum letdown, Pressurizer level and pressure increases. Spray valves open on high pressure.
- D. Minimum letdown, all charging pumps and Pressurizer heaters on. Spray valves open on high pressure.

Question 13

Unit 1 is at 48% power increasing at 4 MWE/Min. with the following:

- Both Main Feedwater pumps are running
- Both Condensate pumps are running

If the 1A Condensate pump trips and the power increase is allowed to continue, which of the following will occur first?

- A. The 1A Main Feedwater pump trips on low suction pressure.
- B. The 1A Main Feedwater pump trips on low suction flow.
- C. The 1A Main Feedwater pump trips as a direct result of 2A Condensate pump trip.
- D. The plant trips on low S/G level.

Question 14

Unit 1 was in a loss of off-site power (LOOP) when the 1A Emergency Diesel Generator tripped. Which of the following conditions caused the 1A EDG to trip?

Engine:

- A. oil pressure is 15 psig.
- B. speed of 1050 rpm.
- C. water temperature is 215°F.
- D. crankcase pressure is 2" H₂O.

Question 15

Unit 2 has experienced a Large Break LOCA with the following conditions:

- Containment pressure is 11 psig
- RCS pressure is 210 psia
- 2A Containment spray pump failed to start
- All other ECCS equipment running as designed

Which of the following describes the status of the Iodine removal system?

- A. A and B hydrazine pumps running with their associated injection valves open.
- B. The B hydrazine pump running and associated injection valve open, the A hydrazine pump running with its injection valve closed.
- C. The B hydrazine pump running and associated injection valve open, the A hydrazine pump is off with its injection valve open.
- D. The B hydrazine pump running and associated injection valve open, the A hydrazine pump is off with its injection valve closed.

Question 16

Unit 2 is in Mode 5, Pressurizer solid, with the following:

- Charging and letdown in service
- Letdown level control valves in manual fully open
- Letdown backpressure control valves in auto set at 250 psia

Which of the following will cause RCS pressure to increase?

- A. Loss of Instrument air to Containment.
- B. Selected Pressurizer level channel X fails low.
- C. Selected Pressurizer pressure channel X fails high.
- D. Delta P instrument (PDIS 2216) across the Regenerative heat exchanger fails low.

Question 17

Given the following conditions at Unit 1:

- Mode 4, conducting RCS Heatup.
- RCS Tave is 300°F.
- Pressurizer Pressure is 450 psia.

Which of the following will occur on a loss of the 1A 125 volt DC bus prior to immediate operator actions being taken?

- A. Total Loss of Feedwater
- B. Excess Steam Demand Event
- C. Loss of Coolant Accident
- D. Loss of Off-Site Power

Question 18

While performing 1-EOP-01 Standard Post Trip Actions, the following indications are observed:

- RCS temperature 538°F lowering
- Turbine Throttle valve additive position: 100% with position indicating lights red
- Turbine Governor valve additive position: 80% with position indicating lights on valves 1-3 red, valve 4 red and green

Which of the following describes the FIRST required Operator action?

- A. Open the Generator OCB's 8W30 and 8W26
- B. Open the Exciter supply breaker CB FB 1
- C. Close the Main Steam isolation valves
- D. Trip the Turbine at the front standard.

Question 19

Unit 2 is experiencing a transient with the following indications:

- Channel A RPS indicates loss of power
- Four TCB's indicate open

Which of the below electrical malfunctions has resulted in the above transient?

Loss of:

- A. Vital AC bus
- B. Instrument AC bus
- C. MCC 2A3
- D. Both AC power supplies to a logic matrix

Question 20

Unit 1 is in 1-EOP-03 'Loss of Coolant Accident' with the following conditions:

- Containment pressure is 15 psig
- Pre LOCA RWT level was 33 feet
- Current RWT level is 9 feet
- Containment sump level is 22 feet

The Containment sump level indicates:

- A. significant RWT inventory is not being transferred to the sump.
- B. all RWT water up to this point has remained in the Containment sump.
- C. additional water other than RWT inventory has been added to the sump.
- D. some sump inventory is being lost outside containment.

Question 21

Unit 2 is in a Loss of offsite power (LOOP) with the following conditions:

- 2A3 4.16 KV bus is energized from the 2A Diesel Generator
- 2B3 4.16 KV bus is de-energized

Which of the following explains the operation of the Atmospheric dump valves (ADV's)?

- A. Two ADV's from the 'A' steam header can only be operated in the Auto/Manual mode
- B. Two ADV's from the 'A' steam header can only be operated in Manual/Manual mode.
- C. Four ADV's are capable of being operated in Auto/Auto mode.
- D. One ADV from the 'A' steam header can be operated in Auto/Auto, the other ADV from the 'A' steam header can only be operated in Manual/Manual mode.

Question 22

Unit 1 RCS is solid, preparing to draw a bubble in the Pressurizer with the following conditions:

- RCS pressure is 240 psia controlled by PIC-2201 in auto
- All Pressurizer heaters have been energized

PIC-2201 is now adjusted to obtain 132 GPM letdown flow. Pressure is now 230 psia and stable, with level stable at 33%.

What is the current temperature of the Pressurizer fluid?

- A. 394°F
- B. 397°F
- C. 402°F
- D. 406°F

Question 23

Unit 1 has been at 100% power for 130 days when the letdown monitor trend chart shows:

- Channel 41, Iodine activity, increased significantly above alarm levels and is remaining at these levels.
- Channel 40, gross activity has not changed

These trends are indicative of:

- A. fuel failure
- B. high D/P across the purification filter.
- C. a purification ion exchanger resin failure.
- D. a CRUD burst

Question 24

Unit 2 is at 100% power when a loss of Instrument Air occurs. Instrument air pressure is currently 55 psig and lowering.

Which of the following is the required operator action.

- A. Open the Service Air to Instrument Air cross-tie valve.
- B. Close the Unit 1 to Unit 2 Instrument Air cross-tie valve.
- C. Commence a controlled unit downpower.
- D. Trip the Reactor and Turbine.

Question 25

Unit 1 is performing a natural circulation cooldown with the following conditions:

- RCS pressure 1250 psia
- CET: 565°F
- Reactor Vessel Head temperature (QSPDS Pg. 211): 572°F
- Reactor Vessel Level indicates 2 segments voided.

If each of the following were initiated for 5 minutes, which would result in Pressurizer level going up?

- A. Start an additional Charging pump and continue charging to the loops.
- B. Operate additional Pressurizer heaters to increase RCS pressure
- C. Open Auxiliary Spray valves
- D. Isolate Letdown

Question 26

Unit 1 has been in a LOCA (EOP-03) for 10 hours. Shutdown cooling can not be established and the following line-up is being performed:

- A Containment spray pump running
- A SDC Hx outlet valve V3456 open, FCV-3306 SDC return closed
- Both LPSI pumps off with A LPSI suction and discharge valves closed.
- SDC warm-up valve MV-03-1A open
- HCV-3480 and HCV-3481 SDC Loop 1A open
- LPSI Injection valves on 1A2, 1A1, 1B1, and 1B2 closed
- SDC HCV-3657 Temp Control throttled to 280 gpm flow
- Aux. HPSI Hdr 1A1, 1A2, 1B1, 1B2, throttled to 500 total flow

Which of the following explains the above line-up?

- A. Primary line-up for Hot and Cold Leg Injection.
- B. Second alternate line-up for Hot and Cold Leg Injection.
- C. Line-up for cooling ECCS water post RAS.
- D. Line-up to reduce Containment temperature and pressure.

Question 27

Unit 1 is heating up the RCS with the following conditions:

- RCS pressure 1800 psia
- RCS temperature 515° F

	RCP 1A1	RCP 1A2	RCP 1B1	RCP 1B2
	Running	Running	Running	Running
RCP controlled bleedoff flow	0.85 GPM	0.95 GPM	0.9 GPM	1.1 GPM
Middle cavity pressure	1100 psia	1120 psia	1070 psia	950 psia
Upper cavity pressure	610 psia	610 psia	600 psia	615 psia
Controlled Bleedoff pressure	80 psia	75 psia	80 psia	90 psia
Controlled Bleedoff Temperature	180°F	170°F	175°F	178°F

Which of the below statements describes the status of the RCP's?

- 1A1 bleedoff temperature is higher than allowable limit.
- 1A2 is indicating failed seal.
- 1B2 has excessive controlled bleedoff flow
- Parameters are acceptable for continued operation of all RCP's.

Question 28

Unit 1 is performing a reactor startup when Thot input to the selected Reactor Regulating system fails to 615°F.

Which of the following describes the plant response?

- A. Backup Charging pump starts.
- B. CEA low power auto motion prohibit.
- C. Steam Bypass control system valve PCV 8801 opens.
- D. Letdown flow increases to maximum flow.

Question 29

Unit 2 is experiencing a loss of coolant accident (LOCA). RCS Pressure initially lowered to 1090 psia and is now stable at 1180 psia, with:

- Containment pressure at 5.8 psig
- RCS Thot 556°F

Which of the following Operator actions will maximize the RCS heat removal process?

- A. Feed and steam both Steam Generators using Auxiliary Feedwater and Steam Bypass Control system.
- B. Feed and steam both Steam Generators using Auxiliary Feedwater and Atmospheric dump valves.
- C. Lower RCS pressure using Auxiliary Spray valves to increase High Pressure Safety Injection flow.
- D. Lower RCS pressure using Main Spray valves to increase High Pressure Safety Injection flow.

Question 30

A liquid release is in progress at Unit 1. A high radiation alarm is received on the liquid release radiation monitor channel 43.

Which of the following are the immediate operator actions?

- A. Compare the radiation levels on channel 43 to the limits on the liquid release permit. If channel 43 higher than permit, call Chemistry.
- B. Ensure the waste monitor pump being used for the liquid release automatically stopped upon the high radiation alarm.
- C. Ensure FCV-6627X, the final effluent flow control valve, closed automatically upon the high radiation alarm.
- D. Close and lock V21462, the final effluent discharge valve, to terminate the liquid release to the discharge canal.

Question 31

During the performance of Standard Post trip actions a loss of the DC bus that feeds the AB DC bus occurs. The AB DC bus is now being realigned to an operable DC bus.

Which of the following defines which Unit this is being performed on and the reason why?

- A. Unit 1, to ensure the availability of the 1C Auxiliary Feedwater pump because all 1C AFW pump steam and feed valves are AB DC powered.
- B. Unit 1, to ensure the availability of the 1C Auxiliary Feedwater pump because only the Trip and Throttle valve MV-08-03 is AB DC powered and is normally closed.
- C. Unit 2, to ensure the availability of the 1C Auxiliary Feedwater pump because all 1C AFW pump steam and feed valves are AB DC powered.
- D. Unit 2, to ensure the availability of the 1C Auxiliary Feedwater pump because only the Trip and Throttle valve MV-08-03 is AB DC powered and is normally closed.

Question 32

Which of the following constitutes positive indication that a PORV is open on Unit 1?

- A. Red position indicating light on the RTGB.
- B. PORV acoustic monitor LED's lit.
- C. Tailpipe temperature on TIA-1106 on RTGB 103.
- D. Quench Tank parameters, temperature, pressure, and level increasing.

Question 33

Unit 2 is in Mode 2, $1 \times 10^{-5}\%$ power. CEA's are in manual sequential being withdrawn with CEA group 5 at 62 inches withdrawn. CEA #59 drops fully into the core.

Which of the following interlock will prevent continued CEA motion in manual sequential?

CEA:

- A. withdrawal prohibit
- B. motion inhibit
- C. auto withdraw prohibit
- D. PDIL

Question 34

Unit 1 is at 100% power with PT-07-2A, Containment pressure transmitter failed high and has yet to be bypassed. A loss of the MD instrument bus occurs.

Which of the following Engineered Safety Features Actuation signals will actuate?

- A. SIAS, CSAS, MSIS and CIAS
- B. CSAS and SIAS
- C. SIAS, MSIS and CIAS
- D. SIAS and CIAS

Question 35

Unit 2 is performing a load reduction to 60% power. It has been determined that the Axial Shape Index (ASI) will need to be controlled during this power maneuver. Current ASI is +0.2 RPS units which is on the Equilibrium Shape Index (ESI) value.

Which of the following describes the method to control ASI at the 100% power level during the power reduction?

(Assume CEA's are currently at 129" withdrawn)

- A. CEA withdrawal for ASI control, Boric acid addition for power reduction
- B. CEA insertion for ASI control, Boric acid addition for power reduction
- C. No CEA motion for ASI control, Boric acid addition for power reduction
- D. Only CEA insertion for ASI control and power reduction

Question 36

The Unit 1 'A' QSPDS has displayed one of the Core Exit Thermocouples (CET) as 'suspicious'.

A 'suspicious' CET is displayed on the QSPDS plasma screen as:
(assume no other CET abnormalities)

- A. a question mark in front of the value, and discarded from the calculation.
- B. parameter value field filled with question marks in the inverse mode, but still used in the calculation
- C. system error, and discarded from the calculation
- D. setpoint error, but still used in the calculation

Question 37

Unit 2 is in a refueling outage and is currently in Mode 5. The temporary containment cooler chiller units are being installed.

Which of the following is **NOT** an acceptable method to control this temporary system alteration?

- A. Equipment clearance order.
- B. Nuclear Plant Work Order (NPWO).
- C. Station an operator at the equipment.
- D. Declaring the Containment Coolers out of service.

Question 38

During the performance of Standard Post trip actions on Unit 2, you observe the 2A Steam Generator (S/G) blowdown radiation monitor on the PC-11 as 'Magenta' and the 2B Steam Generator (S/G) blowdown radiation monitor as 'Yellow'.

Which of the following conditions does this indicate?

2A S/G has a:

- A. monitor communication failure, 2B S/G is in 'high' alarm on radiation.
- B. monitor communication failure, 2B S/G is in 'alert' alarm on radiation.
- C. loss of process flow, 2B S/G is in 'high' alarm on radiation.
- D. loss of process flow, 2B S/G is in 'alert' alarm on radiation.

Question 39

During a Unit 2 rapid downpower the following annunciators were received:

- G-9 2B S/G Level High/Low
- G-15 'FW Reg. Valve supply Air Press Low

Instrument air has been lost to the 2B Main Feedwater Regulating Valve (MFRV)

Which of the following explains the 2B S/G level response as the downpower continues? (assume no Operator actions)

2B S/G level is trending:

- A. high due the MFRV failing as is
- B. high due to the MFRV failing open
- C. low due to the MFRV failing closed
- D. low due to the MFRV failing as is

Question 40

Which of the following will have the greatest impact on Spent Fuel Pool temperature?

(assume no Operator actions)

- A. SIAS
- B. Fuel Pool Heat Exchanger tube leak
- C. Loss of 1 of 2 running Fuel Pool Cooling Pumps
- D. Loss of 1 of 2 running CCW Pumps

Question 41

A waste gas release is being performed from the 1A Gas Decay Tank at Unit 1. Which of the following will automatically terminate the release?

- A. An unexpected drop in the 1A Gas Decay Tank pressure.
- B. Gas decay tank oxygen concentration > 4% by volume.
- C. High radiation alarm on the Plant Vent process radiation monitor.
- D. Neither RAB Exhaust fan HVE-10A or HVE-10B are running.

Question 42

Unit 2 was operating at 100% power with the following conditions:

- 2C AFW pump out of service
- Reactor trip occurred due to a Loss of Off-Site Power.
- 2A Emergency Diesel Generator automatically loaded on the bus
- 2B Emergency Diesel Generator started but its breaker didn't close and was manually closed two minutes later.
- 2-EOP-09 LOOP has been entered
- AFAS has actuated

Assuming no Operator actions, which of the following explains the AFW lineup?

- A. The 2A and 2B AFW pumps are running feeding their respective S/G's
- B. The 2A AFW pump is running feeding only the 2A S/G. The 2B AFW pump is running but not feeding the 2B S/G.
- C. The 2A and 2B AFW pumps are running but not feeding either S/G
- D. The 2A AFW pump is feeding both S/G's

Question 43

A Loss of Coolant Accident has occurred with the following conditions:

- RCS Thot is 512°F
- Pressurizer pressure 1120 psia

Which of the following describes the RCP operating strategy and the reason for such?

- A. Trip all RCP's to conserve RCS inventory.
- B. Trip all RCP's due to loss of RCP NPSH.
- C. Run one RCP in each loop, to enhance the RCS heat removal process.
- D. Run three RCP's, continuing to run four RCP's may result in fuel uplift.

Question 44

The Unit 2 Fuel Handling Bldg has experienced a high radiation condition on the Spent Fuel Pool Radiation Monitors.

When the high radiation condition has cleared, what operator action is initially required to restore the ventilation systems to their normal configuration?

- A. Depress the Fuel Pool HVAC high radiation reset pushbuttons.
- B. Stop the operating Shield Building Exhaust fans.
- C. Start a Fuel Pool Exhaust fan.
- D. Start the Fuel Handling Building Exhaust fans.

Question 45

Unit 1 is in Mode 6. Which of the following will cause an actuation that will stop a running Containment Purge fan (HVE 8A or 8B)?

Containment:

- A. Atmosphere Radiation Monitor in high alarm.
- B. Containment Radiation Monitors (CIAS) increase to 1 R/Hr.
- C. Containment pressure transmitter for PIS-07-1B fails high.
- D. Containment High Range Radiation Monitors increase to 1 R/Hr.

Question 46

1-EOP-05 Excess Steam Demand is being implemented with the following:

- A S/G pressure is 880 psia and steady
- B S/G pressure is 230 psia and steady
- RCS pressure is 1050 psia
- RCS Thot is 485°F
- One RCP in each Loop is Operating
- Pressurizer level 100%
- Reactor Vessel level 100%

Which of the following actions should be performed?

- A. cooldown the RCS, establish a bubble in the pressurizer.
- B. cooldown the RCS, stop the running RCP's
- C. depressurize the RCS, maintain temperature constant.
- D. depressurize the RCS, stop the running RCP's

Question 47

Unit 1 has a LOOP and an ESD on the 1A Steam Generator. 1-EOP-05 'Excess Steam Demand' has been implemented with the following conditions:

- 1A Steam Generator blown dry and isolated

Which of the following method is used in attempt to stabilize RCS temperature prior to Instrument air being restored?

- A. Control the 1B Steam Generator ADV from the control room.
- B. Operate the 1C AFW pump from the 1B Steam Generator.
- C. Establish maximum Steam Generator blowdown and feed the 1B Steam Generator with AFW.
- D. Open the Turbine main steam drains from the RTGB.

Question 48

The following S/G level indications are observed on Unit 2 at 100% power:

- LT 9013A has failed high and has yet to be bypassed.
- LT 9013D is drifting high
- LT 9013 B and LT 9013 C indicate 65% and stable.

When 9013D reaches 80% S/G level, which of the following explains the plant response?

(assume no Operator action)

- A. Main Feedwater regulating and 100% bypass valves receive a close signal.
- B. Both Main Feedwater pumps will trip.
- C. Unit will trip on high S/G water level.
- D. The 2A Main Feedwater regulating valve receives a close signal.

Question 49

Which of the following is the annual regulatory dose limit (NRC) for total dose equivalent (TEDE)

- A. 1000 mrem
- B. 2500 mrem
- C. 4500 mrem
- D. 5000 mrem

Question 50

A reactor start-up is being performed at Unit 2.

- Mode 2 was entered at 40 inches on CEA Group 3.
- The reactor was critical at 60 inches on CEA Group 5.
- CEAs are being withdrawn to raise power to the POAH.
- A steam bypass control valve stuck open.
- Tave is currently 512°F.

What operator actions are required to be taken?

Restore Tave to:

- A. $\geq 515^{\circ}\text{F}$ within 30 minutes.
- B. $\geq 525^{\circ}\text{F}$ within 15 minutes.
- C. $\geq 515^{\circ}\text{F}$ within 15 minutes.
- D. $\geq 525^{\circ}\text{F}$ within 30 minutes.

Question 51

Unit 2 has a Loss of Offsite Power with a Steam Generator tube rupture. During the downpower, blowdown and SJAE radiation monitors were in alarm. Due to AFW problems the crew has entered 2-EOP-15 'Functional Recovery' with the following conditions:

- RCS Thot 520°F
- RCS pressure 1650 psia
- Local surveys indicate secondary activity
- CIAS monitors indicate no alarms or increasing trends

Which of the following is the status of Containment Isolation Safety function?

Containment Isolation Safety function:

- A. is currently met due to CIAS actuated
- B. is currently met due to CIAS monitors indicate no alarms or increasing trends
- C. will be met when offsite power restored and the faulted S/G is no longer steaming by ADV's.
- D. will be met when the faulted Steam Generator is isolated per Appendix R from EOP-99.

Question 52

A step in an EOP is preceded by an asterisk (*). Which of the following describes the meaning of this asterisk (*)?

The step:

- A. indicates a management directive.
- B. indicates a regulatory commitment.
- C. may be performed out of sequence.
- D. is required to be performed in sequence.

Question 53

Unit 1 is drained down to Mid-Loop with the following conditions:

- The Unit has been shutdown for 4 days.
- RCS temperature is 120°F.
- Shutdown Cooling has been lost.

Which of the following is the time to boil and the makeup flow rate for Boil off?

- A. 11 minutes, 25 gpm
- B. 11 minutes, 65 gpm
- C. 14 minutes, 25 gpm
- D. 14 minutes, 65 gpm

Question 54

A CEA on Unit 1 has dropped to the bottom of the core while at 100% power. The CEA is unable to be re-aligned within the required time limits. Which of the following states the reason for power reduction?

Reduce reactor power to:

- A. maintain Shutdown margin.
- B. prevent exceeding DNBR based on the total unrodded integrated radial peaking factor (F_r^t).
- C. prevent exceeding DNBR based on Unrodded Planar Radial Peaking Factor (F_{xy}).
- D. prevent exceeding linear heat rate based on Azimuthal Power Tilt (T_q).

Question 55

At 100% power a loss of the 1A2 480 Volt Load Center has occurred and cannot be immediately recovered. A short time later, the plant trips and RCS temperature indicates 502°F and lowering.

Which of the following Operator actions should be taken?

- A. Start both Boric acid makeup pumps, close both Boric acid pump recirc valves and open emergency borate valve V 2514.
- B. Start both Boric acid makeup pumps, close both Boric acid pump recirc valves and open Boron load control valve V 2525.
- C. Open Gravity feed valves V 2508 and V 2509, close and hold closed VCT outlet valve V 2501.
- D. Open Gravity feed valves V 2508 and V 2509, and emergency borate valve V 2514.

Question 56

The Fire Computer Console on Unit 2 has failed. Cross-connecting to the Unit 1 Fire Computer has not been successful.

Which of the following states the actions to be taken?

- A. Station an individual at the Master Local Fire Alarm Panel at Unit 2 to monitor and report fire alarms to the Control Room.
- B. Notify Security to commence continuous roving fire watch to all vital areas at Unit 2.
- C. Assign additional operators to monitor the local fire panels and report fire alarms to the Control Room.
- D. Suspend all maintenance involving Hot Work Permit jobs until the Fire Computer is operable.

Question 57

Which of the following explains the response of the Auxiliary Feedwater system following a Unit 1 trip from 100% power?

The Auxiliary Feedwater Actuation System (AFAS) will:

- A. actuate at 19.5% NR S/G level and augment the Main Feedwater system to feed the S/G's.
- B. actuate at 19.5% NR S/G level and will be the only source of Feedwater to the S/G's.
- C. not actuate, the Main Feedwater system will maintain S/G levels through the 15% bypass valves.
- D. not actuate, the Main Feedwater system will maintain S/G levels through the Main Feedwater regulating valve.

Question 58

Unit 1 is in Mode 2 with CEA's being withdrawn for a Reactor Startup. When Group 7 rods are stepped out to 70" withdrawn, CEA #41 continues to withdraw with the CEDMCS panel in off. CEA #41 stops moving at 77 inches withdrawn.

Which of the following describes the operability of CEA #41?

CEA #41 is:

- A. operable and meets the meets the technical specification alignment requirements.
- B. operable, but must be realigned to 70" withdrawn within one hour.
- C. inoperable and the remainder of group 7 CEA's must be positioned to 77" withdrawn within one hour.
- D. inoperable, and shutdown margin requirements must be satisfied.

Question 59

A St. Lucie non-licensed operator is being sent to perform a valve alignment in the RAB. The dose rate in the area of the job is 120 mr/hr. The operator's exposure record to date for the year is 890 mrem.

What is the maximum time the Operator can stay in this area without exceeding his FPL annual limit?

- A. 40 minutes
- B. 45 minutes
- C. 55 minutes
- D. 60 minutes

Question 60

Unit 1 has manually tripped the Reactor and Turbine due to an oil leak on the 1B1 Reactor Coolant pump. 1B1 Reactor Coolant pump has been stopped and 1-EOP-02 has been entered.

Which of the following states the required action as a direct result of stopping the 1B1 Reactor Coolant pump (RCP)?

- A. Cooldown the RCS to less than 545°F
- B. Isolate controlled bleedoff from the 1B1 RCP
- C. Depressurize the RCS to 1850 psia.
- D. Open V2507 RCP Bleedoff Relief Stop valve.

Question 61

During a reactor startup, which of the following CEA surveillances is performed to ensure shutdown margin will be maintained?

Verifying:

- A. Reed switch position indication and pulse counting position indication agree within 3 inches.
- B. CEA motion stops if deviation of ≥ 4 inches occurs.
- C. Regulating group overlap is < 58 inches.
- D. Regulating groups will not withdraw if the Shutdown groups are inserted.

Question 62

Unit 1 has experienced an ESD in the Containment with the following conditions:

- Containment pressure is 15 psig
- Containment temperature is 226°F

Which of the following are the **minimum** Containment Coolers/Containment Spray header combinations that will meet the Containment Temperature and Pressure Safety Function while in 1-EOP-05?

	Containment Coolers	Containment Spray Headers
A.	1 operating	One with 2500 gpm flow, one with 2600 gpm
B.	2 operating	One with 2900 gpm flow
C.	3 operating	One with 2600 gpm flow
D.	3 operating	None

Question 63

Which of the following do NOT require prior ANPS/NPS (individual with Control Room Command Function duties) concurrence and or approval.

- A. Skipping parameter log entries
- B. Shift relief during a surveillance that is in a steady state condition
- C. On Unit 2, closing MSR block valves during performance of SPTA's
- D. On Unit 1, adding 30 gallons of primary water to the RCS to maintain steady state RCS temperature.

Question 64

Unit 1 has experienced a SGTR on the 1A S/G. The ruptured S/G has been isolated. The crew is cooling down on the 1B S/G using SBCS and AFW, with the following conditions:

- 1A S/G pressure: 870 psia
- 1B S/G pressure: 780 psia
- 1A S/G level is 60% narrow range
- 1B S/G level is 20% narrow range

Assuming the 1A S/G remains at 870 psia during the cooldown, which of the following describes WHEN Operator actions would be required to re-establish AFW flow?

Manually initiate AFAS 2:

- A. when 1B S/G pressure reaches 750 psia.
- B. when 1B S/G pressure reaches 595 psia.
- C. now, based on the current 1B S/G pressure.
- D. now, based on the current 1B S/G level.

Question 65

Unit 2 has a large break LOCA with the following conditions:

- Current RWT level is 21 feet and decreasing at 1.2 feet per minute.

Based on the above ECCS flow rate and current RWT level, how long before RAS actuates?

- A. 12.5 minutes
- B. 14.2 minutes
- C. 15.3 minutes
- D. 16.5 minutes

Question 66

Unit 1 has been in 1-EOP-03 per the following time frame:

1:52 p.m.

- RCS pressure: 310 psia
- CET: 440°F
- ECCS flow: 920 gpm
- Pressurizer level: 20%

2:02 p.m.

- RCS pressure: 290 psia
- CET: 440°F
- ECCS flow: 930 gpm
- Pressurizer level: 40%

Which of the following states the proper EOP implementation strategy?

(assume all ECCS equipment operating and contingency actions are being taken as appropriate)

- A. Continue with EOP-03 and depressurize the RCS to increase ECCS flow.
- B. Continue with EOP-03, throttle HPSI flow per Appendix S.
- C. Exit to EOP-15 within 5 minutes and perform SIAS table 1
- D. Exit to EOP-15 within 5 minutes and restore letdown.

Question 67

A controlled liquid release to the circulating water discharge is in progress.

If a Circulating Water Pump trips, resulting in one less than required on the release permit, which of the following are the required actions?

- A. Terminate the release immediately.
- B. Terminate the release within 30 minutes of the CWP tripping.
- C. The release may continue with a loss of one CWP pump, but is to be terminated upon loss of two CWP's.
- D. The release may continue as long as the required pumps were running when the release was initiated.

Question 68

Unit 1 has established a vacuum in preparation for startup with the following equipment in service:

- A and B AFW pumps
- 1A Condensate pump

Which of the following will have the largest impact on Condenser vacuum?

- A. PCV-12-29, Steam jet air ejector main steam pressure regulator failing open.
- B. FCV-12-1 Condensate Header Recirc to Condenser failing closed.
- C. TCV-22-61 Turbine Exhaust Hood sprays fails closed.
- D. PCV-12-34 Auxiliary Priming Ejectors main steam pressure regulator failing open.

Question 69

Unit 2 RCS unidentified leakage is currently 3.5 gpm and stable. When the Unit was shutdown a Loss of Offsite Power (LOOP) occurred with the following:

- Reactor Cavity leakage FR-07-3 indicates '0' flow immediately upon entering 2-EOP-03 LOCA procedure
- Annunciator 'Reactor Cavity Leakage High' (N-46) from LS-07-12 is illuminated

Which of the following describes the reason for the current flow indication on FR-07-3 and annunciator (N-46) response?

Loss of:

- A. power to FR-07-3 and continued RCS leakage results in N-46 staying illuminated.
- B. power to FR-07-3 and LS-07-12
- C. instrument air pressure and loss of power to LS-07-12
- D. instrument air pressure and continued RCS leakage results in N-46 staying illuminated.

Question 70

EOP-15 has been implemented and the following success paths are in service:

- RCS and Core Heat Removal Success Path 3 is not being met
- RCS Inventory Control Success Path 2 is not being met
- RCS Pressure Control by Success Path 3
- Reactivity Control by Success Path 3

Which of the following should be addressed first?

- A. Reactivity Control
- B. RCS and Core Heat Removal
- C. RCS Inventory Control
- D. RCS Pressure Control

Question 71

Unit 1 has isolated the 1A S/G due to a SGTR.

In accordance with 1-EOP-04, which of the following is the preferred method of maintaining the isolated S/G level to acceptable limits?

- A. Unisolate and Steam the ruptured S/G to the condenser.
- B. Align and open S/G blowdown to the Monitor Storage tanks.
- C. Depressurize the RCS to less than the ruptured S/G pressure.
- D. Align and open S/G blowdown to the Aerated Waste Storage tanks.

Question 72

Unit 1 is in Mode 3, middle of core life, performing a Reactor startup. Which of the following evolutions could result in entering Mode 2 earlier than expected?

- A. Placing the Boric Acid makeup tanks on Recirc.
- B. Placing the Hogging Ejectors in service.
- C. Starting the first Condensate pump.
- D. Removing Steam Generator blowdown from service.

Question 73

Unit 1 is in Mode 3 performing a controlled cooldown for a refueling outage with the following conditions:

- RCS Tave 505 °F
- A and B S/G pressure 710 psia
- RCS pressure 1720 psia

Immediately after the above conditions were observed the following occurs:

- RCS pressure, temperature and 1A S/G pressure is falling rapidly

Which of the following describe the correct procedure to implement.

- A. EOP-05 'Excess Steam Demand'.
- B. EOP-15 'Functional Recovery'.
- C. 1-ONP-01.01 'PC-1, 'S/G Heat removal LTOP not in effect'.
- D. 1-ONP-01.02 'PC-2, 'S/G Heat removal LTOP in effect'

Question 74

A loss of Feedwater has occurred at beginning of core life. Steam Generator levels are 15% Narrow range and all CEA's are fully withdrawn.

As S/G levels continue to lower and CEA's remain fully withdrawn, which of the following explains the initial plant response?
(assume Turbine is tripped)

- A. RCS pressure will increase and will be the initial contributor to adding negative reactivity.
- B. RCS temperature will increase and will be the initial contributor to adding negative reactivity.
- C. RCS void fraction will develop and will be the initial contributor to adding negative reactivity.
- D. Fuel temperature will increase and will be the initial contributor to adding negative reactivity.

Question 75

Unit 1 is in Mode 3. It is desirable to perform a cooldown to SDC entry conditions, however RCS makeup water sources are unavailable and VCT level is low.

In accordance with 1-ONP-02.01 Boron Concentration Control, which of the following can be used for RCS makeup water sources and under what conditions?

- A. Safety injection tanks if the RWT and PWT are unavailable due to tornado damage.
- B. Safety injection tanks if the RWT and PWT are unavailable due to a seismic event.
- C. Demineralized water tank and BAMT's only if the RWT is unavailable due to tornado damage.
- D. Demineralized water tank and BAMT's only if the RWT is unavailable due to a seismic event.

Question 76

Unit 2 is performing a natural circulation cooldown. The unit has been cooling down at 30°F/hour from hot standby conditions for 5.5 hours. What is the current saturation pressure of the upper head?

- A. 650 psia.
- B. 775 psia.
- C. 850 psia.
- D. 900 psia.

Question 77

Unit 1 has entered 1-EOP-05 Excess Steam Demand, with the following conditions:

- RCS pressure is 1300 psia and constant
- T_{hot} is 352 °F and constant
- CET 355 °F and constant
- 1A S/G wide range level is '0' % with no feedwater flow
- 1B S/G level is 34% wide range and lowering, feeding at 100 gpm AFW flow
- Pressurizer level is '0' %
- One RCP in each loop is operating
- Reactor Vessel level sensors 7 and 8 covered

All ECCS equipment is operating as designed.

In the order of Safety Function hierarchy, which of the following safety functions is not being met and should be addressed next?

- A. Core Heat Removal
- B. RCS Heat Removal
- C. RCS Inventory Control
- D. RCS Pressure Control

Question 78

A loss of offsite power has occurred with the following conditions:

- Unit 1 has no Diesel Generators operable
- Unit 2 has only the 2B Diesel Generator tied to the 2B3 4.16 KV bus.

Which of the following explains the preferred power lineup to supply power to Unit 1? (assume all equipment available to be energized on Unit 1)

Utilize 2B Diesel Generator through the:

- A. Station Blackout crosstie breaker to the 1AB 4.16 KV bus to the 1A3 4.16 KV bus.
- B. Station Blackout crosstie breaker to the 1AB 4.16 KV bus to the 1B3 4.16 KV bus.
- C. 2B4 switchgear to the Unit 1 1B startup transformer to the 1B2 4.16 KV bus tied to the 1B3 4.16 KV bus.
- D. 2B4 switchgear to the Unit 1 1B startup transformer to the 1B2 4.16 KV bus to the 1B3 4.16 KV bus to the 1AB 4.16 KV bus to the 1A3 4.16 KV bus.

Question 79

Unit 1 is at 100% power when a major fire has been reported to the control room. In accordance with 1-ONP-100.01 Response to Fire, which of the following situations would require the Unit to be shutdown?

The Unit is:

- A. being severely affected by spurious operation of equipment and all safe shutdown equipment on the protected train is operable.
- B. being severely affected by loss of equipment and various safe shutdown equipment on the protected train is inoperable and unrecoverable.
- C. experiencing minor loss of equipment and all safe shutdown equipment on the protected train is operable.
- D. experiencing minor spurious operation of equipment and all safe shutdown equipment on the protected train is lost and unrecoverable.

Question 80

Unit 1 has manned the Hot Shutdown Control Panel due to a fire in the Control Room. All subsequent actions from 1-ONP-100.02 Control Room Inaccessibility have been performed. A loss of offsite power occurs shortly after the Hot Shutdown Control Panel is manned.

Which of the following states the correct procedure to implement and the status of the 1B Diesel Generator?

- A. Implement 1-EOP-09 LOOP. The 1B Diesel Generator will not start due to all normal/isolate switches in isolate.
- B. Implement 1-EOP-09 LOOP. The 1B Diesel Generator will not start due to overspeed trip levers placed in trip.
- C. Stay in 1-ONP-100.02 Control Room Inaccessibility. The 1B Diesel Generator will start and load on the vital 4.16 KV bus.
- D. Stay in 1-ONP-100.02 Control Room Inaccessibility. The 1B Diesel Generator will start but not load on the vital 4.16 KV bus due to the Diesel output breaker normal/isolate switch in isolate.

Question 81

Given the following conditions and time line on Unit 1:

- A small break LOCA occurred at 10:28 am
- SIAS/CIAS actuated at 10:42 am
- One RCP in each loop is operating
- CCW was restored to the RCP's at 10:50 am
- Current time is 11:14 am

Which of the following describes the required Operator actions?

- A. Secure the running RCP's.
- B. Isolate CCW to the RCP's.
- C. Open SE-01-1 and V2505, RCP bleedoff containment isolation valves.
- D. Open V2507, RCP bleedoff relief stop valve.

Question 82

Unit 2 is experiencing a LOCA with a breach of Containment integrity. Wind direction is from the east/southeast.

Which of the following explains how Unit 1 Control Room Ventilation system will be aligned?

HVE-13A and/or HVE-13B running with:

- A. the north outside air makeup throttled open and the south outside air closed, maintaining a slight positive pressure in the control room.
- B. the north outside air makeup throttled open and the south outside air throttled open, maintaining a slight positive pressure in the control room.
- C. the north outside air makeup throttled closed and the south outside air throttled open, maintaining a slight positive pressure in the control room.
- D. the north outside air makeup closed and the south outside air closed.

Question 83

Given the following Area Radiation Monitors:

- Fuel Storage Pool Area
- Containment Isolation
- Control Room outside air intake monitors
- Containment High Range

All of these Area Radiation Monitors:

- A. provide Emergency Safeguards actuation signals.
- B. have Technical Specifications required actions.
- C. provide automatic control functions.
- D. do not have Class 1E power supplies.

Question 84

Unit 1 is in Mode 3 pulling the Shutdown CEA's in preparation for a Unit restart. The 'A' Safety Channel Steam Generator pressure has just failed low.

Which of the following explains the required actions.
(assume all other channels operable)

Place the failed channel in

- A. trip. Shutdown CEA's can be withdrawn but reactor cannot enter Mode 2 until channel is repaired.
- B. trip. Terminate CEA withdraw until the channel is repaired.
- C. bypass. Terminate CEA withdraw until the channel is repaired.
- D. bypass. Reactor startup can continue.

Question 85

During a LOCA, which of the following describes the mitigation strategy to limit the hydrogen concentration in the Containment?

- A. No hydrogen mitigation systems are placed in service until hydrogen in the Containment reaches a predetermined level.
- B. Place the Hydrogen purge system and Hydrogen recombiners in service for all conditions requiring entry into EOP-03 LOCA.
- C. Place the Hydrogen purge system in service when Containment hydrogen concentration reaches $\geq 0.5\%$.
- D. Place the Hydrogen purge system and the Hydrogen recombiners in service when Containment hydrogen concentration reaches $\geq 1.5\%$.

Question 86

Unit 1 Diesel Generator 1A was declared out of service at 0235 on March 5. The diesel was discovered to have a corroded radiator and was leaking coolant. The current time is 0245 March 5.

Which of the following describes required actions as a result of the 1A diesel being declared out of service?

Demonstrate operability of offsite AC sources no later than:

- A. 0335 March 5 and restore the 1A Diesel Generator to operable status by 0235 March 19.
- B. 0335 March 5 and restore the 1A Diesel Generator to operable status by 0235 March 8.
- C. 1035 March 5 and demonstrate the operability of the 1B Diesel Generator by performing the specified surveillance no later than 0235 March 8.
- D. 1035 March 5 and demonstrate the operability of the 1C AFW by performing the specified surveillance no later than 0335 March 5.

Question 87

Unit 1 was manually tripped from 60% power due to S/G level problems. Shortly after the trip 'A' train SIAS actuated. The following parameters were observed during implementation of 1-EOP-01:

- RCS pressure lowered to 1890 psia and is currently 2100 psia and rising.
- RCS temperature lowered to 532°F and is stable at that value.
- All Safety Functions met in EOP-01
- All other parameters are within EOP-01 acceptance criteria.

Which of the following describes the procedure implementation strategy?

- A. 1-EOP-03 Loss of Coolant Accident, if all Safety Functions met, perform applicable EOP-99 table, reset 'A' train SIAS then restore ESFAS affected components
- B. 1-EOP-15 Functional Recovery, if all Safety Functions met, reset 'A' train SIAS, restore ESFAS affected components then perform applicable EOP-99 table
- C. 1-EOP-02 Reactor Trip Recovery, reset 'A' train SIAS, restore ESFAS affected components then perform applicable EOP-99 table.
- D. 1-EOP-02 Reactor Trip Recovery, perform applicable EOP-99 table, reset 'A' train SIAS then restore ESFAS affected components.

Question 88

Unit 1 RCS is solid at 310 psia preparing to start an RCP on an idle loop during fill and vent. Upon starting the RCP, RCS pressure rapidly increases.

Which of the following caused the pressure excursion?

- A. RCS temperature was 40°F lower than Steam Generator temperature on the idle loop.
- B. RCS temperature was 40°F higher than Steam Generator temperature on the idle loop.
- C. RCS temperature increase due to heat added from running RCP.
- D. Loss of the 1D DC bus

Question 89

The plant has declared an Unusual event due to hurricane warnings. Both Units are in cold shutdown. Reports are coming in that winds are expected to be 180 MPH. At 0800 the storm surge has resulted in water levels in the Turbine building to be over the Main Feedwater pump auxiliary oil pumps.

As Emergency Coordinator which of the following applies?

- A. Maintain the current classification and update the State by 0900 with the new information.
- B. Maintain the current classification and update the State by 0815 with the new information.
- C. Upgrade the event as Site Area Emergency. Notify the State by 0815.
- D. Upgrade the event as an Alert. Notify the State by 0815.

Question 90

Unit 1 is on SDC performing a normal plant cooldown. The RCS is solid, cooling the Pressurizer with the following conditions:

- RCS pressure 60 psia
- Both S/G levels are 65% Narrow range

In accordance with NOP-1-0030127 'Reactor Plant Cooldown-Hot Standby to Cold Shutdown' which of the following strategy would be used to meet the Technical Specification criteria for "RCS loops filled" if SDC were lost?

- A. Start additional charging pumps to increase RCS pressure.
- B. Close letdown isolation valves to increase RCS pressure.
- C. Close Auxiliary spray valves to increase RCS pressure.
- D. Adjust PIC-2201 Letdown pressure controller to increase RCS pressure.

Question 91

In accordance with Technical Specifications, which of the following is the minimum Nuclear Instrumentation channels that must be operable to conduct core alterations?

- A. Unit 1, two Wide Range log safety channels, one with audible in the Containment and Control room, each with visual indication in the control room.
- B. Unit 1, two Wide Range log safety channels, one with audible in the Containment and one with visual indication in the Control Room
- C. Unit 2, two Start-up Range flux monitors, one with audible in the Containment and Control room, each with visual indication in the control room.
- D. Unit 2, two Start-up Range flux monitors, one with audible in the Containment and one with visual in the Control room.

Question 92

Unit 1 is in Mode 3 with all CEA's inserted. The Main Steam header is pressurized from Unit 2.

The following alarm is received:

- Q47 Main Steam Isol HCV-08-1A Low Air Press/DC Failure.

The 1A MSIV indicates open and the 1B MSIV indicates closed.

Which of the following describes the reason for the 1A MSIV opening and its operability?

The 1A MSIV has opened on loss of:

- A. DC power and must be declared out of service.
- B. Instrument air pressure and must be declared out of service.
- C. DC power but is operable as long as long as Instrument air is available.
- D. Instrument air pressure but is operable as DC power is available.

Question 93

A Loss of Offsite power has occurred on Unit 1. The transient has resulted in various breakers tripping. As a result, AFW flow instrumentation on the RTGB is unavailable. Which of the following describes an alternate method of determining approximately 150 gpm AFW flow to each S/G's?

- A. Adjust the 1C AFW turbine speed to equal 100 psig above the S/G pressure with the header throttle valves fully open.
- B. Locally open the respective header FCV to 10 turns open on each AFW header.
- C. On each AFW header, open the respective header FCV for six seconds from the full closed position.
- D. On each AFW header, close the respective header FCV for six seconds from the full open position.

Question 94

Unit 1 has been in a refueling outage for 12 days, with a total core offload in progress.

Which of the following requires immediate suspension of refueling operations?

- A. Spent fuel pool temperature is reported to be 125 °F.
- B. One of the two running spent fuel pool pumps is temporarily stopped for electrical train swap.
- C. Refueling canal level is 22 feet above the top of fuel assemblies that are seated in the reactor.
- D. Refueling canal level is 22 feet above the top of the reactor flange.

Question 95

Unit 1 is in day 15 of a refueling outage and has completed the refueling shuffle. Reduced inventory has just been entered. Maintenance has requested to open the Containment equipment hatch.

Which of the following applies.

The Containment equipment hatch:

- A. cannot be opened while in reduced inventory.
- B. cannot be opened until the Reactor has been shutdown for at least 20 days.
- C. can be opened if Maintenance personnel are on station prepared to close the hatch within 30 minutes upon loss of SDC.
- D. can be opened if reduced inventory can be exited within 30 minutes upon loss of SDC.

Question 96

The SNPO at Unit 1 has been asked to enter the pipe tunnel area, in the -5 ft. elevation of the RAB, to investigate a primary leak. The latest Health Physics survey shows about 1200 mr/hr throughout the room.

Which of the following describes the minimum RWP requirements for entry into this area?

- A. General entry RWP
- B. RWP or Health Physics escort under general entry RWP
- C. Specific RWP with continuous Health Physics coverage
- D. Specific RWP approved by RPM and Plant General Manager

Question 97

Unit 2 is in Mode 1 when the 2A Diesel Generator was declared out of service. No other equipment is out of service.

Which of the following describes the operability of the ECCS system as a result of the 2A Diesel Generator out of service?

- A. All ECCS equipment is considered operable.
- B. The A train ECCS equipment is considered inoperable until surveillance's can be performed to prove operability. The B train ECCS is considered operable.
- C. The A train ECCS equipment is considered inoperable until the Diesel is returned to service. The B train ECCS is considered operable.
- D. The A train ECCS equipment is considered inoperable until the Diesel is returned to service. The B train ECCS is considered operable but surveillance's are required to be performed to confirm operability.

Question 98

Unit 2 has entered a refueling outage. The Unit was in Mid loop when an unidentified leak occurs in the RCS and level continues to drop. A loss of SDC occurs.

Which of the following explains the procedure implementation strategy?

Implement:

- A. SDC ONOP and 2-ONP-01.04 PC-4 'SDC In Operation-Reduced Inventory'. Implement the actions of both procedures until all exit conditions met.
- B. SDC ONOP and 2-ONP-01.04 PC-4 'SDC In Operation-Reduced Inventory'. If any Safety Functions not met in PC-4, exit SDC ONOP within 15 minutes and continue with PC-4.
- C. 2-ONP-01.04 PC-4 'SDC In Operation-Reduced Inventory.' If any Safety Functions not met in PC-4, implement SDC ONOP within 15 minutes.
- D. 2-ONP-01.04 PC-4 'SDC In Operation-Reduced Inventory.' If all Safety Functions met, exit PC-4 and implement SDC ONOP.

Question 99

A Large Break Loss of Coolant accident and Loss of Offsite power has occurred on Unit 1. The leak has not been isolated. The 1A LPSI pump has failed to start.

The following indications are observed:

- RCS pressure 280 psia and stable.
- CET temperature 408°F and slowly going down.
- QSPDS Reactor Vessel level indicates sensors 4 through 8 covered.
- Excore Nuclear Instrumentation indicate $10^{-7}\%$ and stable.
- All CEA's inserted

Which of the following explains the status of Reactor Core?

Reactor Core is:

- A. voided as indicated by Excore NI power $>10^{-8}\%$, and lack of 20°F subcooled.
- B. voided as indicated by lack of 20°F subcooled and sensors 1 through 3 uncovered.
- C. not voided as indicated by RCS subcooled conditions and sensors 4 through 8 covered.
- D. not voided as indicated by stable Excore NI power of $10^{-7}\%$ and RCS subcooled conditions.

Question 100

Unit 1 is operating at 100% power with the 1A Charging Pump out of service. The 1B BAM tank is out of service on low level. Both gravity feed valves have just been declared out of service due to discovery of non qualified parts on the motors.

The Tech Spec LCO for boration flow paths will:

- A. be met by two of the three flow paths available.
- B. be met by one of the three flow paths available.
- C. not be met since two of the three flow paths are unavailable.
- D. not be met since none of the flow paths are available.

Question #	RO Q #	SRO Q #	Answer		Question #	RO Q #	SRO Q #	Answer
1	1	1	D		63	62	49	D
2	2	2	C		64	63	50	C
3	3	3	C		65	64	51	D
4	4	4	A		66	65	52	C
5	5	5	D		67	66	53	D
6	6	6	B		68	67	54	B
7	7	7	B		69	68	55	C
8	8	8	C		70	69	56	A
9	9	9	A		71	70		B
10		10	C		72	71	57	A
11	10		C		73	72	58	A or D
12	11		D		74	73	59	C
13	12	11	A		75	74	60	C
14	13	12	C		76	75		B
15	14	13	C		77	76	61	D
16	15		B		78	77		B
17	16		C		79	78		A
18	17	14	B		80		62	B
19	18		B		81	79		B
20	19	15	D		82	80	63	C
21	20	16	A		83	81	64	B
22	21	17	C		84	82	65	A
23	22	18	C		85	83	66	C
24	23		D		86	84		C
25	24	19	B		87	85	67	A
26	25	20	B or D		88	86	68	B
27	26	21	D		89	87	69	D
28	27		D		90	88	70	C
29	28	22	A		91	89		D
30	29		C		92	90	71	C
31	30		C		93	91		B
32	31	23	A		94	92	72	B
33	32	24	D		95	93	73	A
34	33		C		96	94	74	B or D
35	34	25	C		97	95		C
36	35	26	B		98	96	75	A
37	36	27	C		99		76	B
38	37	28	A		100		77	D
39	38	29	B		101		78	B
40	39	30	C		102		79	A
41	40	31	A		103		80	D
42	41	32	B		104		81	A
43	42	33	B		105	97	82	A
44	43	34	D		106	98	83	B
45	44		C		107	99		B
46	45	35	B		108	100		A
47	46	36	A		109		84	D
48	47	37	C		110		85	A
49	48		B		111		86	A
50	49	38	B		112		87	D
51	50	39	A		113		88	A
52	51	40	A		114		89	C
53	52	41	D		115		90	D
54	53	42	B		116		91	C
55	54	43	C		117		92	A
56	55	44	A		118		93	C
57	56		A		119		94	C
58	57		B		120		95	C
59	58	45	B		121		96	C
60	59	46	A		122		97	A
61	60	47	B		123		98	A or B
62	61	48	D		124		99	C
					125		100	A

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Question 1

Given the following conditions:

- Unit 1 has just tripped from 100% power due to loss of the 1A 125 VDC bus
- Normal AC electrical lineup prior to trip
- AB DC electrical lineup is to the B side
- Operators are performing 1-EOP-01, 'Standard post trip actions'
- No Contingency Actions have been performed.

Which of the following describes the configuration of the AFW system immediately following AFAS actuation?

- A. All AFW pumps running and feeding both Steam Generators.
- B. Only the 1C AFW pump running and feeding both Steam Generators.
- C. Only the 1B AFW pump running and feeding the 1B Steam Generator.
- D. 1C AFW pump running feeding both Steam Generators and 1B AFW pump running feeding 1B Steam Generator.

Question 2

Unit 1 has experienced a LOOP followed by a LOCA. The 1B CCW pump failed to start following the LOOP. Which of the following describes the configuration of the CCW system?

(assume all 'AB' lineup to the 'B' side and no Operator actions)

- A. The 1A and 1C CCW pumps running with the 1C CCW pump supplying both the 'A' and 'B' CCW headers.
- B. The 1A and 1C CCW pumps running with the 1C CCW pump supplying only the 1B CCW header.
- C. The 1A CCW pump running supplying only the 1A CCW header.
- D. The 1A CCW pump running supplying the 1A and 1B CCW headers.

Question 3

Unit 1 Turbine load is 350 MWE and increasing at 2 MWE per minute. Which of the following requires the Unit to be manually tripped?

- A. Condenser A reads 3.6" Hg absolute, Condenser B reads 2" Hg absolute.
- B. Condenser A reads 4" Hg absolute, Condenser B reads 2" Hg absolute.
- C. Condenser A reads 5.2" Hg absolute, Condenser B reads 2.6" Hg absolute.
- D. Condenser A reads 5.4 Hg absolute, Condenser B reads 3" Hg absolute.

Question 4

Unit 1 was manually tripped from 100% power due to a fire in the control room. All control room actions from 1-ONP-100.02 'Control Room Inaccessibility' have been performed and the control room was evacuated.

Which of the following describes how RCS temperature is normally controlled when the remote Shutdown panel is declared operational.

- A. ADV's in auto control from the remote shutdown panel
- B. ADV's in manual control, locally at the valve
- C. SBCS in automatic control
- D. SBCS in manual control

Question 5

Given the following conditions on Unit 1:

- LOOP has occurred
- Reactor is in Mode 3
- RCS pressure is 1800 psia and slowly rising
- Tcold is 540°F and constant
- Rep. CET temperature is 587°F
- Steam Generator (S/G) A and B levels are 15% NR and slowly rising
- Thot is 565°F and constant

All of the following conditions meet the criteria for single phase natural circulation in accordance with 1-EOP-09 Loss of Offsite Power with the **EXCEPTION OF:**

- A. Tcold Temperature trend
- B. Subcooled Margin
- C. Thot – Tcold differential temperature
- D. Thot – CET differential temperature

Question 6

Unit 2 is at 100% power, steady state. A leak has developed in the common reference leg for Pressurizer pressure transmitter PT-1100X and Pressurizer level transmitter LT-1110X.

Which of the following describes the indications that will be observed in the control room due to this condition?

	<u>PT-1100X</u>	<u>LT-1110X</u>
A.	Lowers	Lowers
B.	Lowers	Raises
C.	Raises	Lowers
D.	Raises	Raises

Question 7

Unit 1 has entered 1-EOP-03 LOCA with a LOOP and the following conditions:

- RCS pressure 280 psia stable
- Thot 390°F
- Rep. CET 398°F
- Pressurizer level 35% and stable
- Reactor Vessel level indicates 4 through 8 covered
- 1A S/G level 18% wide range with 155 gpm AFW flow
- 1B S/G level 14% wide range 200 gpm AFW flow

Which of the following prohibits stopping the LPSI pumps?

- A. Pressurizer level
- B. Subcooling
- C. RCS pressure
- D. S/G level

Question 8

Unit 2 is in a station blackout. The 2B Diesel was out of service prior to the event and the 2A Diesel did not load on the bus. Below are some of the alarms received on RTGB 201:

- B-14 4.16 KV 2A3 Δ current trip
- B-6 2A Emer. D/G Brk. Failure
- B-35 480V LC 2A5 UV/UV test/ground
- B-46 4.16 KV Emerg. SWGR. 2A3 UV/UV test
- B-28 480 V LC 2A2 UV/UV test ground
- B-48 4.16 KV SWGR./480V LC/MCC 2AB UV
- B-39 480V MCC 2A5/2A6/2A8 Non-Ess. Sect. Lockout

When conditions permit, which of the following action will re-energize the 2A3 4.16 KV bus from the 2A Diesel generator?

- A. Manually close the 2A Diesel Generator output breaker from RTGB 201
- B. Reset the 4.16 KV Undervoltage relays
- C. Reset the differential current relay
- D. Reset the Non-Essential section lockout

Question 9

Unit 1 is in a station blackout. Unit 2 is supplying Unit 1 with its only operable Diesel Generator.

In accordance with 1-EOP-10 'Station Blackout', which of the following Unit 1 pumps **CANNOT** be started?

- A. Intake cooling water pump.
- B. Electrical driven Auxiliary feedwater pump.
- C. High pressure safety injection pump.
- D. Low pressure safety injection pump.

Question 10

Which of the following explains the Unit 1 & 2 Spent Fuel Pool Area Radiation Monitors?

- A. Gamma and Beta detection, using sodium iodine that emits light when it is excited by ionizing radiation
- B. Gamma detection, using scintillation detectors with photomultipliers.
- C. Gamma detection, using a gas filled chamber that is ionized by the incident radiation.
- D. Beta and Alpha detection using a beta scintillation from one side and a alpha detector on the other side

Question 11

Unit 2 has experienced a LOCA with the following conditions:

- RCS pressure is 1640 psia
- Containment pressure is 2.2 psig

Which of the following explains the configuration of the Containment cooling fans?

- A. Three Containment Cooling fans running in fast speed
- B. Three Containment Cooling fans running in slow speed
- C. Four Containment Cooling fans running in fast speed
- D. Four Containment Cooling fans running in slow speed

Question 12

Unit 1 is in Mode 5 when the CCW valve (MV-14-6) to the 1A and 1B Containment fan coolers failed closed.

Which of the following states the impact of this CCW valve closure on the 1A and 1B Containment fan coolers?

The Containment fan coolers will:

- A. continue to run with no CCW flow to the motors and cooling coils.
- B. continue to run with only the cooling coils losing CCW flow.
- C. trip on low CCW flow.
- D. trip on high temperature.

Question 13

Unit 2 is at 100% power with Pressurizer Level Control Channel 1110-Y selected for control.

Level transmitter 1110Y fails low

Which of the following describes the plant response? (assume no Operator actions)

- A. All heaters on, Pressurizer pressure increases. Spray valves open on high pressure.
- B. Maximum letdown, Pressurizer level and pressure decrease, all but one charging pump off.
- C. Minimum letdown, Pressurizer level and pressure increases. Spray valves open on high pressure.
- D. Minimum letdown, all charging pumps and Pressurizer heaters on. Spray valves open on high pressure.

Question 14

Unit 1 is at 48% power increasing at 4 MWE/Min. with the following:

- Both Main Feedwater pumps are running
- Both Condensate pumps are running

If the 1A Condensate pump trips and the power increase is allowed to continue, which of the following will occur first?

- A. The 1A Main Feedwater pump trips on low suction pressure.
- B. The 1A Main Feedwater pump trips on low suction flow.
- C. The 1A Main Feedwater pump trips as a direct result of 2A Condensate pump trip.
- D. The plant trips on low S/G level.

Question 15

At 100% power a MSR TCV (8" valve) suddenly goes fully closed. Which of the following explains the initial plant response?
(assume no operator action)

	RCS Temperature	RCS Pressure	Reactor Power
A.	Increase	Increase	Increase
B.	Increase	Increase	Decrease
C.	Decrease	Decrease	Decrease
D.	Decrease	Decrease	Increase

Question 16

Unit 2 is performing a Turbine startup with the 15% Main Feedwater bypass valves in automatic utilizing the Low Power Feedwater Control System (LPFWCS). The Turbine has been latched and both Main Feedwater block valves are closed.

Which of the following conditions will terminate Main Feedwater flow to the 2B S/G?

- A. NI channel 10 fails high
- B. The turbine trip pushbutton is depressed.
- C. LPFWCS loss of power.
- D. LPFWCS CPU failure (red light on in a flashing mode).

Question 17

Unit 1 was in a loss of off-site power (LOOP) when the 1A Emergency Diesel Generator tripped. Which of the following conditions caused the 1A EDG to trip?

Engine:

- A. oil pressure is 15 psig.
- B. speed of 1050 rpm.
- C. water temperature is 215°F.
- D. crankcase pressure is 2" H₂O.

Question 18

Unit 2 is at 100% power when a 'B' side CCW leak, greater than capacity of the makeup occurs.

Which of the following describes the configuration of the CCW system in response to the leak?

(assume normal line-up and no Operator action)

- A. All running CCW pumps will lose suction.
- B. All the 'N' header valves will close separating the 'A' CCW header from the 'B' CCW header.
- C. Only the 'N' header valves from the 'B' side will close separating the 'A' CCW header from the 'B' side CCW header.
- D. Only the 'N' header valves from the 'A' side will close separating the 'A' CCW header from the 'B' side CCW header.

Question 19

Unit 2 has experienced a Large Break LOCA with the following conditions:

- Containment pressure is 11 psig
- RCS pressure is 210 psia
- 2A Containment spray pump failed to start
- All other ECCS equipment running as designed

Which of the following describes the status of the Iodine removal system?

- A. A and B hydrazine pumps running with their associated injection valves open.
- B. The B hydrazine pump running and associated injection valve open, the A hydrazine pump running with its injection valve closed.
- C. The B hydrazine pump running and associated injection valve open, the A hydrazine pump is off with its injection valve open.
- D. The B hydrazine pump running and associated injection valve open, the A hydrazine pump is off with its injection valve closed.

Question 20

Unit 2 is in Mode 5, Pressurizer solid, with the following:

- Charging and letdown in service
- Letdown level control valves in manual fully open
- Letdown backpressure control valves in auto set at 250 psia

Which of the following will cause RCS pressure to increase?

- A. Loss of Instrument air to Containment.
- B. Selected Pressurizer level channel X fails low.
- C. Selected Pressurizer pressure channel X fails high.
- D. Delta P instrument (PDIS 2216) across the Regenerative heat exchanger fails low.

Question 21

Given the following conditions at Unit 1:

- Mode 4, conducting RCS Heatup.
- RCS Tave is 300°F.
- Pressurizer Pressure is 450 psia.

Which of the following will occur on a loss of the 1A 125 volt DC bus prior to immediate operator actions being taken?

- A. Total Loss of Feedwater
- B. Excess Steam Demand Event
- C. Loss of Coolant Accident
- D. Loss of Off-Site Power

Question 22

While performing 1-EOP-01 Standard Post Trip Actions, the following indications are observed:

- RCS temperature 538°F lowering
- Turbine Throttle valve additive position: 100% with position indicating lights red
- Turbine Governor valve additive position: 80% with position indicating lights on valves 1-3 red, valve 4 red and green

Which of the following describes the FIRST required Operator action?

- A. Open the Generator OCB's 8W30 and 8W26
- B. Open the Exciter supply breaker CB FB 1
- C. Close the Main Steam isolation valves
- D. Trip the Turbine at the front standard.

Question 23

Unit 2 is on Shutdown Cooling with both trains of SDC in service.

Which of the following explains the SDC system response to an inadvertent SIAS on 'A' train:

A' SDC heat exchanger outlet flow control valve HCV-3657 will:

- A. open and 'A' SDC heat exchanger bypass valve HCV-3306 will close.
- B. close and 'A' SDC heat exchanger bypass valve HCV-3306 will open.
- C. open and 'A' SDC heat exchanger bypass valve HCV-3306 will open.
- D. not change position and 'A' SDC heat exchanger bypass valve HCV-3306 will not change position.

Question 24

Unit 2 is experiencing a transient with the following indications:

- Channel A RPS indicates loss of power
- Four TCB's indicate open

Which of the below electrical malfunctions has resulted in the above transient?

Loss of:

- A. Vital AC bus
- B. Instrument AC bus
- C. MCC 2A3
- D. Both AC power supplies to a logic matrix

Question 25

Unit 1 is in 1-EOP-03 'Loss of Coolant Accident' with the following conditions:

- Containment pressure is 15 psig
- Pre LOCA RWT level was 33 feet
- Current RWT level is 9 feet
- Containment sump level is 22 feet

The Containment sump level indicates:

- A. significant RWT inventory is not being transferred to the sump.
- B. all RWT water up to this point has remained in the Containment sump.
- C. additional water other than RWT inventory has been added to the sump.
- D. some sump inventory is being lost outside containment.

Question 26

Unit 2 is in a Loss of offsite power (LOOP) with the following conditions:

- 2A3 4.16 KV bus is energized from the 2A Diesel Generator
- 2B3 4.16 KV bus is de-energized

Which of the following explains the operation of the Atmospheric dump valves (ADV's)?

- A. Two ADV's from the 'A' steam header can only be operated in the Auto/Manual mode
- B. Two ADV's from the 'A' steam header can only be operated in Manual/Manual mode.
- C. Four ADV's are capable of being operated in Auto/Auto mode.
- D. One ADV from the 'A' steam header can be operated in Auto/Auto, the other ADV from the 'A' steam header can only be operated in Manual/Manual mode.

Question 27

A small break LOCA has occurred on Unit 2. SIAS and CIAS have actuated, pressurizer level initially dropped to 10% and now has recovered to 29%.

Which of the following describes the minimum actions necessary to re-energize the pressurizer heaters?

- A. Place the heater control switches for all proportional and back-up heaters to the RESET position, then back to AUTO.
- B. Place the backup interlock bypass keyswitch to the LEVEL position then place the heater control switches to the RESET position, then back to AUTO.
- C. Reset SIAS, then place the heater control switches to the RESET position, then back to AUTO.
- D. Reset SIAS, close the 4160V Pzr. feeder breaker, then place the heater control switches to the RESET position, then back in AUTO.

Question 28

Unit 1 RCS is solid, preparing to draw a bubble in the Pressurizer with the following conditions:

- RCS pressure is 240 psia controlled by PIC-2201 in auto
- All Pressurizer heaters have been energized

PIC-2201 is now adjusted to obtain 132 GPM letdown flow. Pressure is now 230 psia and stable, with level stable at 33%.

What is the current temperature of the Pressurizer fluid?

- A. 394°F
- B. 397°F
- C. 402°F
- D. 406°F

Question 29

Unit 2 tripped due to a loss of condenser vacuum. Condenser vacuum lowered to 15" Hg backpressure before recovering. The following post-trip conditions now exist:

- Tave is 532°F and stable
- 2A and 2B S/G pressure is 900 psia
- Condenser backpressure is 5.5" Hg
- SBCS PCV-8801 is in MANUAL

Which of the following describes the actions that must be taken to commence a cooldown to SDC entry conditions using the SBCS?

- A. Place the SBCS permissive switch in MANUAL and manually control the cooldown using PCV-8801.
- B. Place the SBCS permissive switch in AUTO, the SBCS valves will automatically modulate as needed.
- C. Depress the vacuum interlock reset pushbutton and place the permissive switch in MANUAL to manually control the cooldown using PCV-8801.
- D. Depress the vacuum interlock reset pushbutton and place the permissive switch in AUTO, the SBCS valves will automatically modulate as needed.

Question 30

Unit 1 is operating at 100% power when the CCW TCV on the Letdown Heat exchanger fails closed.

Which of the following describes the initial response of the CVCS system?

Letdown:

- A. isolation valve V2515 closes on high temperature
- B. isolates on high VCT temperature
- C. diverts around the Purification ion exchangers on high temperature.
- D. diverts to the Waste management system on high temperature

Question 31

Unit 1 has been at 100% power for 130 days when the letdown monitor trend chart shows:

- Channel 41, Iodine activity, increased significantly above alarm levels and is remaining at these levels.
- Channel 40, gross activity has not changed

These trends are indicative of:

- A. fuel failure
- B. high D/P across the purification filter.
- C. a purification ion exchanger resin failure.
- D. a CRUD burst

Question 32

Unit 2 is at 100% power when a loss of Instrument Air occurs. Instrument air pressure is currently 55 psig and lowering.

Which of the following is the required operator action.

- A. Open the Service Air to Instrument Air cross-tie valve.
- B. Close the Unit 1 to Unit 2 Instrument Air cross-tie valve.
- C. Commence a controlled unit downpower.
- D. Trip the Reactor and Turbine.

Question 33

Unit 1 is implementing 1-EOP-03 due to a large break LOCA with the following:

- Containment Hydrogen Concentration is 1.0%

Which of the following is the **minimum** equipment lineup that will satisfy the Containment Combustible Gas Control safety function?
(assume no equipment out of service at start of event)

	Hydrogen Recombiners	Hydrogen purge
A.	None	None
B.	None	Two in service
C.	Two in service	None
D.	Two in service	One is service

Question 34

Unit 1 is performing a natural circulation cooldown with the following conditions:

- RCS pressure 1250 psia
- CET: 565°F
- Reactor Vessel Head temperature (QSPDS Pg. 211): 572°F
- Reactor Vessel Level indicates 2 segments voided.

If each of the following were initiated for 5 minutes, which would result in Pressurizer level going up?

- A. Start an additional Charging pump and continue charging to the loops.
- B. Operate additional Pressurizer heaters to increase RCS pressure
- C. Open Auxiliary Spray valves
- D. Isolate Letdown

Question 35

Unit 1 has been in a LOCA (EOP-03) for 10 hours. Shutdown cooling can not be established and the following line-up is being performed:

- A Containment spray pump running
- A SDC Hx outlet valve V3456 open, FCV-3306 SDC return closed
- Both LPSI pumps off with A LPSI suction and discharge valves closed.
- SDC warm-up valve MV-03-1A open
- HCV-3480 and HCV-3481 SDC Loop 1A open
- LPSI Injection valves on 1A2, 1A1, 1B1, and 1B2 closed
- SDC HCV-3657 Temp Control throttled to 280 gpm flow
- Aux. HPSI Hdr 1A1, 1A2, 1B1, 1B2, throttled to 500 total flow

Which of the following explains the above line-up?

- A. Primary line-up for Hot and Cold Leg Injection.
- B. Second alternate line-up for Hot and Cold Leg Injection.
- C. Line-up for cooling ECCS water post RAS.
- D. Line-up to reduce Containment temperature and pressure.

Question 36

Unit 1 is heating up the RCS with the following conditions:

- RCS pressure 1800 psia
- RCS temperature 515° F

	RCP 1A1	RCP 1A2	RCP 1B1	RCP 1B2
	Running	Running	Running	Running
RCP controlled bleedoff flow	0.85 GPM	0.95 GPM	0.9 GPM	1.1 GPM
Middle cavity pressure	1100 psia	1120 psia	1070 psia	950 psia
Upper cavity pressure	610 psia	610 psia	600 psia	615 psia
Controlled Bleedoff pressure	80 psia	75 psia	80 psia	90 psia
Controlled Bleedoff Temperature	180°F	170°F	175°F	178°F

Which of the below statements describes the status of the RCP's?

- 1A1 bleedoff temperature is higher than allowable limit.
- 1A2 is indicating failed seal.
- 1B2 has excessive controlled bleedoff flow
- Parameters are acceptable for continued operation of all RCP's.

Question 37

Unit 1 is performing a reactor startup when Thot input to the selected Reactor Regulating system fails to 615°F.

Which of the following describes the plant response?

- A. Backup Charging pump starts.
- B. CEA low power auto motion prohibit.
- C. Steam Bypass control system valve PCV 8801 opens.
- D. Letdown flow increases to maximum flow.

Question 38

Unit 2 is experiencing a loss of coolant accident (LOCA). RCS Pressure initially lowered to 1090 psia and is now stable at 1180 psia, with:

- Containment pressure at 5.8 psig
- RCS Thot 556°F

Which of the following Operator actions will maximize the RCS heat removal process?

- A. Feed and steam both Steam Generators using Auxiliary Feedwater and Steam Bypass Control system.
- B. Feed and steam both Steam Generators using Auxiliary Feedwater and Atmospheric dump valves.
- C. Lower RCS pressure using Auxiliary Spray valves to increase High Pressure Safety Injection flow.
- D. Lower RCS pressure using Main Spray valves to increase High Pressure Safety Injection flow.

Question 39

A liquid release is in progress at Unit 1. A high radiation alarm is received on the liquid release radiation monitor channel 43.

Which of the following are the immediate operator actions?

- A. Compare the radiation levels on channel 43 to the limits on the liquid release permit. If channel 43 higher than permit, call Chemistry.
- B. Ensure the waste monitor pump being used for the liquid release automatically stopped upon the high radiation alarm.
- C. Ensure FCV-6627X, the final effluent flow control valve, closed automatically upon the high radiation alarm.
- D. Close and lock V21462, the final effluent discharge valve, to terminate the liquid release to the discharge canal.

Question 40

During the performance of Standard Post trip actions a loss of the DC bus that feeds the AB DC bus occurs. The AB DC bus is now being realigned to an operable DC bus.

Which of the following defines which Unit this is being performed on and the reason why?

- A. Unit 1, to ensure the availability of the 1C Auxiliary Feedwater pump because all 1C AFW pump steam and feed valves are AB DC powered.
- B. Unit 1, to ensure the availability of the 1C Auxiliary Feedwater pump because only the Trip and Throttle valve MV-08-03 is AB DC powered and is normally closed.
- C. Unit 2, to ensure the availability of the 1C Auxiliary Feedwater pump because all 1C AFW pump steam and feed valves are AB DC powered.
- D. Unit 2, to ensure the availability of the 1C Auxiliary Feedwater pump because only the Trip and Throttle valve MV-08-03 is AB DC powered and is normally closed.

Question 41

Which of the following constitutes positive indication that a PORV is open on Unit 1?

- A. Red position indicating light on the RTGB.
- B. PORV acoustic monitor LED's lit.
- C. Tailpipe temperature on TIA-1106 on RTGB 103.
- D. Quench Tank parameters, temperature, pressure, and level increasing.

Question 42

Unit 2 is in Mode 2, $1 \times 10^{-5}\%$ power. CEA's are in manual sequential being withdrawn with CEA group 5 at 62 inches withdrawn. CEA #59 drops fully into the core.

Which of the following interlock will prevent continued CEA motion in manual sequential?

CEA:

- A. withdrawal prohibit
- B. motion inhibit
- C. auto withdraw prohibit
- D. PDIL

Question 43

Unit 1 is at 100% power with PT-07-2A, Containment pressure transmitter failed high and has yet to be bypassed. A loss of the MD instrument bus occurs.

Which of the following Engineered Safety Features Actuation signals will actuate?

- A. SIAS, CSAS, MSIS and CIAS
- B. CSAS and SIAS
- C. SIAS, MSIS and CIAS
- D. SIAS and CIAS

Question 44

Unit 2 is in Mode 3 when a loss of the 2B DC bus occurs. A and B S/G narrow range levels are 65%.

Which of the following explains the response of the AFAS system?

- A. Only AFAS 2 will actuate
- B. AFAS 1 and 2 will actuate
- C. AFAS channel B goes to bypass, channel D goes to trip
- D. AFAS channel B goes to trip, channel D goes to bypass.

Question 45

Unit 2 is performing a load reduction to 60% power. It has been determined that the Axial Shape Index (ASI) will need to be controlled during this power maneuver. Current ASI is +0.2 RPS units which is on the Equilibrium Shape Index (ESI) value.

Which of the following describes the method to control ASI at the 100% power level during the power reduction?

(Assume CEA's are currently at 129" withdrawn)

- A. CEA withdrawal for ASI control, Boric acid addition for power reduction
- B. CEA insertion for ASI control, Boric acid addition for power reduction
- C. No CEA motion for ASI control, Boric acid addition for power reduction
- D. Only CEA insertion for ASI control and power reduction

Question 46

The Unit 1 'A' QSPDS has displayed one of the Core Exit Thermocouples (CET) as 'suspicious'.

A 'suspicious' CET is displayed on the QSPDS plasma screen as:
(assume no other CET abnormalities)

- A. a question mark in front of the value, and discarded from the calculation.
- B. parameter value field filled with question marks in the inverse mode, but still used in the calculation
- C. system error, and discarded from the calculation
- D. setpoint error, but still used in the calculation

Question 47

Unit 2 is in a refueling outage and is currently in Mode 5. The temporary containment cooler chiller units are being installed.

Which of the following is **NOT** an acceptable method to control this temporary system alteration?

- A. Equipment clearance order.
- B. Nuclear Plant Work Order (NPWO).
- C. Station an operator at the equipment.
- D. Declaring the Containment Coolers out of service.

Question 48

Due to a loss of instrument air, Unit 2 Instrument Air System has been cross-tied with the Station Air System.

In accordance with ONP-2-1010030, Loss of Instrument Air, what actions must be taken within 1 hour?

- A. Install a diesel driven air compressor to augment the Station Air supply.
- B. Blow down the Instrument Air header drains to remove oil, water, and crud build-up.
- C. Isolate the Station Air cross-tie and open the Unit 1 cross-tie to the Unit 2 Instrument Air System.
- D. Perform a controlled downpower and take the Unit off the line.

Question 49

During the performance of Standard Post trip actions on Unit 2, you observe the 2A Steam Generator (S/G) blowdown radiation monitor on the PC-11 as 'Magenta' and the 2B Steam Generator (S/G) blowdown radiation monitor as 'Yellow'.

Which of the following conditions does this indicate?

2A S/G has a:

- A. monitor communication failure, 2B S/G is in 'high' alarm on radiation.
- B. monitor communication failure, 2B S/G is in 'alert' alarm on radiation.
- C. loss of process flow, 2B S/G is in 'high' alarm on radiation.
- D. loss of process flow, 2B S/G is in 'alert' alarm on radiation.

Question 50

During a Unit 2 rapid downpower the following annunciators were received:

- G-9 2B S/G Level High/Low
- G-15 'FW Reg. Valve supply Air Press Low

Instrument air has been lost to the 2B Main Feedwater Regulating Valve (MFRV)

Which of the following explains the 2B S/G level response as the downpower continues? (assume no Operator actions)

2B S/G level is trending:

- A. high due the MFRV failing as is
- B. high due to the MFRV failing open
- C. low due to the MFRV failing closed
- D. low due to the MFRV failing as is

Question 51

Which of the following will have the greatest impact on Spent Fuel Pool temperature?

(assume no Operator actions)

- A. SIAS
- B. Fuel Pool Heat Exchanger tube leak
- C. Loss of 1 of 2 running Fuel Pool Cooling Pumps
- D. Loss of 1 of 2 running CCW Pumps

Question 52

A waste gas release is being performed from the 1A Gas Decay Tank at Unit 1. Which of the following will automatically terminate the release?

- A. An unexpected drop in the 1A Gas Decay Tank pressure.
- B. Gas decay tank oxygen concentration > 4% by volume.
- C. High radiation alarm on the Plant Vent process radiation monitor.
- D. Neither RAB Exhaust fan HVE-10A or HVE-10B are running.

Question 53

Unit 2 was operating at 100% power with the following conditions:

- 2C AFW pump out of service
- Reactor trip occurred due to a Loss of Off-Site Power.
- 2A Emergency Diesel Generator automatically loaded on the bus
- 2B Emergency Diesel Generator started but its breaker didn't close and was manually closed two minutes later.
- 2-EOP-09 LOOP has been entered
- AFAS has actuated

Assuming no Operator actions, which of the following explains the AFW lineup?

- A. The 2A and 2B AFW pumps are running feeding their respective S/G's
- B. The 2A AFW pump is running feeding only the 2A S/G. The 2B AFW pump is running but not feeding the 2B S/G.
- C. The 2A and 2B AFW pumps are running but not feeding either S/G
- D. The 2A AFW pump is feeding both S/G's

Question 54

A Loss of Coolant Accident has occurred with the following conditions:

- RCS Thot is 512°F
- Pressurizer pressure 1120 psia

Which of the following describes the RCP operating strategy and the reason for such?

- A. Trip all RCP's to conserve RCS inventory.
- B. Trip all RCP's due to loss of RCP NPSH.
- C. Run one RCP in each loop, to enhance the RCS heat removal process.
- D. Run three RCP's, continuing to run four RCP's may result in fuel uplift.

Question 55

The Unit 2 Fuel Handling Bldg has experienced a high radiation condition on the Spent Fuel Pool Radiation Monitors.

When the high radiation condition has cleared, what operator action is initially required to restore the ventilation systems to their normal configuration?

- A. Depress the Fuel Pool HVAC high radiation reset pushbuttons.
- B. Stop the operating Shield Building Exhaust fans.
- C. Start a Fuel Pool Exhaust fan.
- D. Start the Fuel Handling Building Exhaust fans.

Question 56

Unit 1 channel 'A' Pressurizer pressure safety channel has failed low and has yet to be bypassed. Shortly thereafter, safety channel 'B' Steam Generator pressure on the 1B Steam Generator failed high.

Which of the following describes the plant response?
(assume no Operator action)

The plant will:

- A. trip due to RPS channel 'A' TMLP and RPS channel 'B' TMLP in trip.
- B. trip due to RPS channel 'A' Pressurizer pressure and RPS channel 'B' TMLP in trip.
- C. not trip, but RPS channel 'A' TMLP and RPS channel 'B' Steam Generator pressure will be in trip.
- D. not trip, but RPS channel 'A' Pressurizer pressure and RPS channel 'B' Steam Generator pressure will be in trip.

Question 57

On Unit 2 Group 5 CEA's have just been withdrawn to 100 inches when the following alarms and indications occur:

- CEA motion inhibit alarm
- Group out of sequence alarm
- Pulse counter indicates Group 5 and CEA #9 at 100 inches
- CEA #9 rod bottom light on the core mimic is not illuminated
- CEA #9 lower electrical limit (LEL) on the CEDMCS panel is illuminated

Which of the following explains why the pulse counters indicate CEA #9 at 100 inches.

- A. 100 inches is the actual CEA #9 position
- B. Pulse counter will not automatically reset if the CEA did not drop to rod bottom position.
- C. Pulse counter has to be manually reset for any single dropped CEA.
- D. Pulse counter has malfunctioned, the LEL should have reset CEA #9 to the actual position.

Question 58

Unit 1 is in Mode 6. Which of the following will cause an actuation that will stop a running Containment Purge fan (HVE 8A or 8B)?

Containment:

- A. Atmosphere Radiation Monitor in high alarm.
- B. Containment Radiation Monitors (CIAS) increase to 1 R/Hr.
- C. Containment pressure transmitter for PIS-07-1B fails high.
- D. Containment High Range Radiation Monitors increase to 1 R/Hr.

Question 59

1-EOP-05 Excess Steam Demand is being implemented with the following:

- A S/G pressure is 880 psia and steady
- B S/G pressure is 230 psia and steady
- RCS pressure is 1050 psia
- RCS Thot is 485°F
- One RCP in each Loop is Operating
- Pressurizer level 100%
- Reactor Vessel level 100%

Which of the following actions should be performed?

- A. cooldown the RCS, establish a bubble in the pressurizer.
- B. cooldown the RCS, stop the running RCP's
- C. depressurize the RCS, maintain temperature constant.
- D. depressurize the RCS, stop the running RCP's

Question 60

Unit 1 has a LOOP and an ESD on the 1A Steam Generator. 1-EOP-05 'Excess Steam Demand' has been implemented with the following conditions:

- 1A Steam Generator blown dry and isolated

Which of the following method is used in attempt to stabilize RCS temperature prior to Instrument air being restored?

- A. Control the 1B Steam Generator ADV from the control room.
- B. Operate the 1C AFW pump from the 1B Steam Generator.
- C. Establish maximum Steam Generator blowdown and feed the 1B Steam Generator with AFW.
- D. Open the Turbine main steam drains from the RTGB.

Question 61

The following S/G level indications are observed on Unit 2 at 100% power:

- LT 9013A has failed high and has yet to be bypassed.
- LT 9013D is drifting high
- LT 9013 B and LT 9013 C indicate 65% and stable.

When 9013D reaches 80% S/G level, which of the following explains the plant response?

(assume no Operator action)

- A. Main Feedwater regulating and 100% bypass valves receive a close signal.
- B. Both Main Feedwater pumps will trip.
- C. Unit will trip on high S/G water level.
- D. The 2A Main Feedwater regulating valve receives a close signal.

Question 62

Which of the following is the annual regulatory dose limit (NRC) for total dose equivalent (TEDE)

- A. 1000 mrem
- B. 2500 mrem
- C. 4500 mrem
- D. 5000 mrem

Question 63

A reactor start-up is being performed at Unit 2.

- Mode 2 was entered at 40 inches on CEA Group 3.
- The reactor was critical at 60 inches on CEA Group 5.
- CEAs are being withdrawn to raise power to the POAH.
- A steam bypass control valve stuck open.
- Tave is currently 512°F.

What operator actions are required to be taken?

Restore Tave to:

- A. $\geq 515^{\circ}\text{F}$ within 30 minutes.
- B. $\geq 525^{\circ}\text{F}$ within 15 minutes.
- C. $\geq 515^{\circ}\text{F}$ within 15 minutes.
- D. $\geq 525^{\circ}\text{F}$ within 30 minutes.

Question 64

Unit 2 has a Loss of Offsite Power with a Steam Generator tube rupture. During the downpower, blowdown and SJAЕ radiation monitors were in alarm. Due to AFW problems the crew has entered 2-EOP-15 'Functional Recovery' with the following conditions:

- RCS Thot 520°F
- RCS pressure 1650 psia
- Local surveys indicate secondary activity
- CIAS monitors indicate no alarms or increasing trends

Which of the following is the status of Containment Isolation Safety function?

Containment Isolation Safety function:

- A. is currently met due to CIAS actuated
- B. is currently met due to CIAS monitors indicate no alarms or increasing trends
- C. will be met when offsite power restored and the faulted S/G is no longer steaming by ADV's.
- D. will be met when the faulted Steam Generator is isolated per Appendix R from EOP-99.

Question 65

A step in an EOP is preceded by an asterisk (*). Which of the following describes the meaning of this asterisk (*)?

The step:

- A. indicates a management directive.
- B. indicates a regulatory commitment.
- C. may be performed out of sequence.
- D. is required to be performed in sequence.

Question 66

Unit 1 is drained down to Mid-Loop with the following conditions:

- The Unit has been shutdown for 4 days.
- RCS temperature is 120°F.
- Shutdown Cooling has been lost.

Which of the following is the time to boil and the makeup flow rate for Boil off?

- A. 11 minutes, 25 gpm
- B. 11 minutes, 65 gpm
- C. 14 minutes, 25 gpm
- D. 14 minutes, 65 gpm

Question 67

A CEA on Unit 1 has dropped to the bottom of the core while at 100% power. The CEA is unable to be re-aligned within the required time limits. Which of the following states the reason for power reduction?

Reduce reactor power to:

- A. maintain Shutdown margin.
- B. prevent exceeding DNBR based on the total unrodded integrated radial peaking factor (F_r^t).
- C. prevent exceeding DNBR based on Unrodded Planar Radial Peaking Factor (F_{xy}).
- D. prevent exceeding linear heat rate based on Azimuthal Power Tilt (T_q).

Question 68

At 100% power a loss of the 1A2 480 Volt Load Center has occurred and cannot be immediately recovered. A short time later, the plant trips and RCS temperature indicates 502°F and lowering.

Which of the following Operator actions should be taken?

- A. Start both Boric acid makeup pumps, close both Boric acid pump recirc valves and open emergency borate valve V 2514.
- B. Start both Boric acid makeup pumps, close both Boric acid pump recirc valves and open Boron load control valve V 2525.
- C. Open Gravity feed valves V 2508 and V 2509, close and hold closed VCT outlet valve V 2501.
- D. Open Gravity feed valves V 2508 and V 2509, and emergency borate valve V 2514.

Question 69

The Fire Computer Console on Unit 2 has failed. Cross-connecting to the Unit 1 Fire Computer has not been successful.

Which of the following states the actions to be taken?

- A. Station an individual at the Master Local Fire Alarm Panel at Unit 2 to monitor and report fire alarms to the Control Room.
- B. Notify Security to commence continuous roving fire watch to all vital areas at Unit 2.
- C. Assign additional operators to monitor the local fire panels and report fire alarms to the Control Room.
- D. Suspend all maintenance involving Hot Work Permit jobs until the Fire Computer is operable.

Question 70

Unit 1 is performing a Reactor startup and received a CEA Withdrawal Prohibit.

Which of the following caused the condition?

RPS Channel:

	A Power/SUR	B Power/SUR	C Power/SUR	D Power/SUR
A.	$10^{-5\%}$ /1.3 DPM	$10^{-5\%}$ /1.4 DPM	$10^{-4\%}$ /1.3 DPM	$10^{-4\%}$ /1.2 DPM
B.	$10^{-4\%}$ /1.4 DPM	$10^{-4\%}$ /1.4 DPM	$10^{-5\%}$ /1.4 DPM	$10^{-5\%}$ /1.3 DPM
C.	$10^{-3\%}$ /1.2 DPM	$10^{-4\%}$ /1.2 DPM	$10^{-4\%}$ /1.3 DPM	$10^{-4\%}$ /1.2 DPM
D.	$10^{-4\%}$ /1.4 DPM	$10^{-5\%}$ /1.4 DPM	$10^{-5\%}$ /1.3 DPM	$10^{-5\%}$ /1.4 DPM

Question 71

Which of the following explains the response of the Auxiliary Feedwater system following a Unit 1 trip from 100% power?

The Auxiliary Feedwater Actuation System (AFAS) will:

- A. actuate at 19.5% NR S/G level and augment the Main Feedwater system to feed the S/G's.
- B. actuate at 19.5% NR S/G level and will be the only source of Feedwater to the S/G's.
- C. not actuate, the Main Feedwater system will maintain S/G levels through the 15% bypass valves.
- D. not actuate, the Main Feedwater system will maintain S/G levels through the Main Feedwater regulating valve.

Question 72

Unit 1 is in Mode 2 with CEA's being withdrawn for a Reactor Startup. When Group 7 rods are stepped out to 70" withdrawn, CEA #41 continues to withdraw with the CEDMCS panel in off. CEA #41 stops moving at 77 inches withdrawn.

Which of the following describes the operability of CEA #41?

CEA #41 is:

- A. operable and meets the meets the technical specification alignment requirements.
- B. operable, but must be realigned to 70" withdrawn within one hour.
- C. inoperable and the remainder of group 7 CEA's must be positioned to 77" withdrawn within one hour.
- D. inoperable, and shutdown margin requirements must be satisfied.

Question 73

A St. Lucie non-licensed operator is being sent to perform a valve alignment in the RAB. The dose rate in the area of the job is 120 mr/hr. The operator's exposure record to date for the year is 890 mrem.

What is the maximum time the Operator can stay in this area without exceeding his FPL annual limit?

- A. 40 minutes
- B. 45 minutes
- C. 55 minutes
- D. 60 minutes

Question 74

Unit 1 has manually tripped the Reactor and Turbine due to an oil leak on the 1B1 Reactor Coolant pump. 1B1 Reactor Coolant pump has been stopped and 1-EOP-02 has been entered.

Which of the following states the required action as a direct result of stopping the 1B1 Reactor Coolant pump (RCP)?

- A. Cooldown the RCS to less than 545°F
- B. Isolate controlled bleedoff from the 1B1 RCP
- C. Depressurize the RCS to 1850 psia.
- D. Open V2507 RCP Bleedoff Relief Stop valve.

Question 75

At 100% power, Unit 1 has received the following annunciator:

- 'K-26 CEDS Trouble/Continuous Gripper Voltage High'

It has been determined that CEA #26 has a high voltage condition.

Which of the following must be performed within 10 minutes?

- A. Transfer CEA #26 to Upper Gripper.
- B. Transfer CEA #26 on the Hold Bus.
- C. Actuate the Reset Toggle Switch for CEA #26 timer module.
- D. Contact I&C Maintenance to investigate CEA #26 for operability.

Question 76

During a reactor startup, which of the following CEA surveillances is performed to ensure shutdown margin will be maintained?

Verifying:

- A. Reed switch position indication and pulse counting position indication agree within 3 inches.
- B. CEA motion stops if deviation of ≥ 4 inches occurs.
- C. Regulating group overlap is < 58 inches.
- D. Regulating groups will not withdraw if the Shutdown groups are inserted.

Question 77

Unit 1 is performing a startup with the following conditions:

- 0.3% power
- 1B Main Feedwater pump in service

A loss 2B1 6.9 KV bus occurs.

Which of the following explains the initial plant response?

Unit will:

- A. trip on low S/G level
- B. trip on low RCS flow
- C. not trip due to Zero Power Mode bypass in service
- D. not trip due to Loss of Load bypass in service.

Question 78

Which of the following determines if the Waste Gas system will be lined up directly from the Gas Surge Tank to the Plant Vent or from the Gas Surge Tank to the Gas Decay Tank?

- A. Off-site dose calculations as projected by Chemistry
- B. Operability of Met Tower
- C. Volume of Nitrogen in the Waste Gas system
- D. Operability of the Waste Gas Release Radiation Monitor

Question 79

Unit 2 has tripped from 100% power. Which of the following actions are specifically performed in 2-EOP-01 to prevent excessive RCS cooldown?

- A. Throttling AFW flow to less than 150 gpm per Steam Generator.
- B. Closing MSR block valves.
- C. Resetting the Main Feedwater 15% bypass valves.
- D. Closing the Steam Spillover Bypass valve MV 08-814

Question 80

Which of the following do NOT require prior ANPS/NPS (individual with Control Room Command Function duties) concurrence and or approval.

- A. Skipping parameter log entries
- B. Shift relief during a surveillance that is in a steady state condition
- C. On Unit 2, closing MSR block valves during performance of SPTA's
- D. On Unit 1, adding 30 gallons of primary water to the RCS to maintain steady state RCS temperature.

Question 81

Unit 1 has experienced a SGTR on the 1A S/G. The ruptured S/G has been isolated. The crew is cooling down on the 1B S/G using SBCS and AFW, with the following conditions:

- 1A S/G pressure: 870 psia
- 1B S/G pressure: 780 psia
- 1A S/G level is 60% narrow range
- 1B S/G level is 20% narrow range

Assuming the 1A S/G remains at 870 psia during the cooldown, which of the following describes WHEN Operator actions would be required to re-establish AFW flow?

Manually initiate AFAS 2:

- A. when 1B S/G pressure reaches 750 psia.
- B. when 1B S/G pressure reaches 595 psia.
- C. now, based on the current 1B S/G pressure.
- D. now, based on the current 1B S/G level.

Question 82

Unit 2 has a large break LOCA with the following conditions:

- Current RWT level is 21 feet and decreasing at 1.2 feet per minute.

Based on the above ECCS flow rate and current RWT level, how long before RAS actuates?

- A. 12.5 minutes
- B. 14.2 minutes
- C. 15.3 minutes
- D. 16.5 minutes

Question 83

Unit 1 has been in 1-EOP-03 per the following time frame:

1:52 p.m.

- RCS pressure: 310 psia
- CET: 440°F
- ECCS flow: 920 gpm
- Pressurizer level: 20%

2:02 p.m.

- RCS pressure: 290 psia
- CET: 440°F
- ECCS flow: 930 gpm
- Pressurizer level: 40%

Which of the following states the proper EOP implementation strategy?

(assume all ECCS equipment operating and contingency actions are being taken as appropriate)

- A. Continue with EOP-03 and depressurize the RCS to increase ECCS flow.
- B. Continue with EOP-03, throttle HPSI flow per Appendix S.
- C. Exit to EOP-15 within 5 minutes and perform SIAS table 1
- D. Exit to EOP-15 within 5 minutes and restore letdown.

Question 84

Unit 1 has manually tripped the plant due to excessive RCS leakage with the following conditions:

- 1-EOP-03 has been entered and RCS pressure is 1580 psia.
- A major fire has been reported on the 1A Main Transformer and the Deluge system has actuated.
- The fire pumps were running when a LOOP occurs.
- Both Diesel Generators have loaded on the bus.

Which of the following describes the status of the fire protection system?

The fire pumps will:

- A. automatically load on the Diesel Generator and will automatically stop when the deluge system is reset.
- B. automatically load on the Diesel Generator and will have to be manually stopped when the deluge system is reset.
- C. have to be manually re-started and will have to be manually stopped when the deluge system is reset.
- D. have to be manually re-started and will automatically stop when the deluge system is reset.

Question 85

A controlled liquid release to the circulating water discharge is in progress.

If a Circulating Water Pump trips, resulting in one less than required on the release permit, which of the following are the required actions?

- A. Terminate the release immediately.
- B. Terminate the release within 30 minutes of the CWP tripping.
- C. The release may continue with a loss of one CWP pump, but is to be terminated upon loss of two CWP's.
- D. The release may continue as long as the required pumps were running when the release was initiated.

Question 86

Unit 1 has established a vacuum in preparation for startup with the following equipment in service:

- A and B AFW pumps
- 1A Condensate pump

Which of the following will have the largest impact on Condenser vacuum?

- A. PCV-12-29, Steam jet air ejector main steam pressure regulator failing open.
- B. FCV-12-1 Condensate Header Recirc to Condenser failing closed.
- C. TCV-22-61 Turbine Exhaust Hood sprays fails closed.
- D. PCV-12-34 Auxiliary Priming Ejectors main steam pressure regulator failing open.

Question 87

Unit 2 RCS unidentified leakage is currently 3.5 gpm and stable. When the Unit was shutdown a Loss of Offsite Power (LOOP) occurred with the following:

- Reactor Cavity leakage FR-07-3 indicates '0' flow immediately upon entering 2-EOP-03 LOCA procedure
- Annunciator 'Reactor Cavity Leakage High' (N-46) from LS-07-12 is illuminated

Which of the following describes the reason for the current flow indication on FR-07-3 and annunciator (N-46) response?

Loss of:

- A. power to FR-07-3 and continued RCS leakage results in N-46 staying illuminated.
- B. power to FR-07-3 and LS-07-12
- C. instrument air pressure and loss of power to LS-07-12
- D. instrument air pressure and continued RCS leakage results in N-46 staying illuminated.

Question 88

EOP-15 has been implemented and the following success paths are in service:

- RCS and Core Heat Removal Success Path 3 is not being met
- RCS Inventory Control Success Path 2 is not being met
- RCS Pressure Control by Success Path 3
- Reactivity Control by Success Path 3

Which of the following should be addressed first?

- A. Reactivity Control
- B. RCS and Core Heat Removal
- C. RCS Inventory Control
- D. RCS Pressure Control

Question 89

Unit 1 is moving fuel in the reactor core with the following:

- All Wide Range Neutron flux monitors operating with audible count rate selected to A.
- All CIS monitors operable

In accordance with Unit 1 Technical Specifications, which of the following requires immediate suspension of movement of fuel in the reactor core?

Loss of:

- A. channel A CIS monitor.
- B. channel B and D Wide Range Neutron flux monitors.
- C. audible count rate indication in the Control Room.
- D. audible count rate indication in the Containment.

Question 90

Unit 1 has isolated the 1A S/G due to a SGTR.

In accordance with 1-EOP-04, which of the following is the preferred method of maintaining the isolated S/G level to acceptable limits?

- A. Unisolate and Steam the ruptured S/G to the condenser.
- B. Align and open S/G blowdown to the Monitor Storage tanks.
- C. Depressurize the RCS to less than the ruptured S/G pressure.
- D. Align and open S/G blowdown to the Aerated Waste Storage tanks.

Question 91

An operator is required to perform a 30 minute valve lineup inside the Reactor Auxiliary Bldg. in an area posted as follows:

- Radiation Controlled Area
- General area 50 mr/hr
- Surface contamination 20,000 dpm/100 cm²

Which of the following is required by the St. Lucie Plant ALARA Program?

- A. General Entry RWP
- B. Job Specific RWP
- C. Pre-Job ALARA Review
- D. TEDE ALARA Review

Question 92

Unit 1 is in Mode 3, middle of core life, performing a Reactor startup. Which of the following evolutions could result in entering Mode 2 earlier than expected?

- A. Placing the Boric Acid makeup tanks on Recirc.
- B. Placing the Hogging Ejectors in service.
- C. Starting the first Condensate pump.
- D. Removing Steam Generator blowdown from service.

Question 93

Unit 1 is in Mode 3 performing a controlled cooldown for a refueling outage with the following conditions:

- RCS Tave 505 °F
- A and B S/G pressure 710 psia
- RCS pressure 1720 psia

Immediately after the above conditions were observed the following occurs:

- RCS pressure, temperature and 1A S/G pressure is falling rapidly

Which of the following describe the correct procedure to implement.

- A. EOP-05 'Excess Steam Demand'.
- B. EOP-15 'Functional Recovery'.
- C. 1-ONP-01.01 'PC-1, 'S/G Heat removal LTOP not in effect'.
- D. 1-ONP-01.02 'PC-2, 'S/G Heat removal LTOP in effect'

Question 94

A loss of Feedwater has occurred at beginning of core life. Steam Generator levels are 15% Narrow range and all CEA's are fully withdrawn.

As S/G levels continue to lower and CEA's remain fully withdrawn, which of the following explains the initial plant response?
(assume Turbine is tripped)

- A. RCS pressure will increase and will be the initial contributor to adding negative reactivity.
- B. RCS temperature will increase and will be the initial contributor to adding negative reactivity.
- C. RCS void fraction will develop and will be the initial contributor to adding negative reactivity.
- D. Fuel temperature will increase and will be the initial contributor to adding negative reactivity.

Question 95

Unit 2 is in 2-EOP-15 'Functional Recovery'. A lineup is being performed that will pump ECCS area sumps to the Reactor Cavity sump.

Which of the following explains the reason for this lineup?

To:

- A. ensure all available water is returned to the Containment for core cooling prior to RAS.
- B. limit flooding and possible damage to ECCS equipment in the event of safeguards pump leakage.
- C. limit contamination of the liquid waste management system which could result in an uncontrolled liquid release and elevated radiation levels in the RAB.
- D. prevent overloading the liquid waste management system, which is no longer able to process large volumes of waste water due to the Boric Acid Concentrators no longer being used.

Question 96

Unit 1 is in Mode 3. It is desirable to perform a cooldown to SDC entry conditions, however RCS makeup water sources are unavailable and VCT level is low.

In accordance with 1-ONP-02.01 Boron Concentration Control, which of the following can be used for RCS makeup water sources and under what conditions?

- A. Safety injection tanks if the RWT and PWT are unavailable due to tornado damage.
- B. Safety injection tanks if the RWT and PWT are unavailable due to a seismic event.
- C. Demineralized water tank and BAMT's only if the RWT is unavailable due to tornado damage.
- D. Demineralized water tank and BAMT's only if the RWT is unavailable due to a seismic event.

Question 97

Unit 2 is experiencing a LOCA with a breach of Containment integrity. Wind direction is from the east/southeast.

Which of the following explains how Unit 1 Control Room Ventilation system will be aligned?

HVE-13A and/or HVE-13B running with:

- A. the north outside air makeup throttled open and the south outside air closed, maintaining a slight positive pressure in the control room.
- B. the north outside air makeup throttled open and the south outside air throttled open, maintaining a slight positive pressure in the control room.
- C. the north outside air makeup throttled closed and the south outside air throttled open, maintaining a slight positive pressure in the control room.
- D. the north outside air makeup closed and the south outside air closed.

Question 98

Given the following Area Radiation Monitors:

- Fuel Storage Pool Area
- Containment Isolation
- Control Room outside air intake monitors
- Containment High Range

All of these Area Radiation Monitors:

- A. provide Emergency Safeguards actuation signals.
- B. have Technical Specifications required actions.
- C. provide automatic control functions.
- D. do not have Class 1E power supplies.

Question 99

If a valid high radiation alarm is received on the 2B Steam Generator Blowdown Radiation Monitor at Unit 2, which of the following automatic actions will occur?

- A. The S/G blowdown isolation valves and the blowdown sample isolation valves for both S/Gs will close.
- B. The S/G blowdown isolation valve and the blowdown sample isolation valve for the 2B S/G will close.
- C. Only the S/G blowdown isolation valve for the 2B S/G will close, the S/G blowdown sample isolation valves for both S/Gs close.
- D. Only the S/G blowdown isolation valve for the 2B S/G will close, the S/G blowdown sample valves remain open.

Question 100

Unit 1 has experienced a large break LOCA.

Which of the following is the **minimum** equipment required to be operating to prevent exceeding the Containment temperature and pressure design limits?

- A. Four Containment coolers
- B. Three Containment coolers
- C. One Containment spray pump with a flow rate of 3000 gpm and one Containment cooler
- D. Two Containment spray pumps each with a flow of 2500 gpm.