

U. S. NUCLEAR REGULATORY COMMISSION  
REGION 1

Docket Nos.: 50-352  
50-353

Report No.: 98-01

License Nos.: NPF-39  
NPF-85

Licensee: PECO Nuclear

Facility: Limerick Generating Station

Location: Sanatoga, Pennsylvania

Dates: January 20-23, 1998

Chief Examiner: J. Williams, Senior Operations Engineer/Examiner

Examiners: T. Fish, Operations Engineer/Examiner  
S. Dennis, Operations Engineer/Examiner

Approved By: Richard J. Conte, Chief, Operator Licensing and  
Human Performance Branch  
Division of Reactor Safety

## EXECUTIVE SUMMARY

Limerick Generating Station  
Inspection Report Nos. 50-352/98-01 & 50-353/98-01

### Operations

Two reactor operator (RO), two senior reactor operator upgrades (SROU) and four senior reactor operator instant (SROI) candidates were administered initial licensing examinations. All eight candidates passed all portions of the license examination.

Generic strengths were noted during the examination in the areas of crew communications and control board awareness during the simulator portion of the operating examination. The NRC examiners observed communications to be direct, succinct, and that all crew members were kept well informed. The written exams were developed at the appropriate RO and SRO knowledge levels, as were the job performance measures and follow-up questions. Several JPMs, in lieu of questions, were appropriately developed to test the knowledge level of the applicants in the administrative area of the exam.

The facility used a knowledgeable and experienced team of training personnel to develop the exams. This resulted in exams that required minimum changes as a result of the NRC review.



## Report Details

### I. Operations

#### 05 Operator Training and Qualifications

##### 05.1 Reactor Operator and Senior Reactor Operator Initial Examinations

###### a. Scope

The examinations were prepared by a team of Limerick training personnel in accordance with the guidelines in interim Revision 8, of NUREG-1021, "Examiner Standards," and Revision 1 of NUREG-1123, "Knowledge and Abilities Catalog for Nuclear Power Plant Operators: Boiling Water Reactors." The NRC examiners administered initial operating licensing examinations to two reactor operator and six senior reactor operator candidates. The written examinations were administered by the facility's training organization.

###### b. Observations and Findings

The results of the examinations are summarized below:

	SRO Pass/Fail	RO Pass/Fail
Written	6/0	2/0
Operating	6/0	2/0
Overall	6/0	2/0

The written examinations, job performance measures (JPMs) and simulator scenarios were developed by a team of experienced Limerick trainers in accordance with NUREG-1021. Appropriate individuals signed a security agreement once the development of the examination commenced. Limerick personnel validated the exam prior to their submitting it to the NRC. The NRC subsequently reviewed and validated, along with Limerick training personnel, all portions of the proposed examinations.

The written examinations were administered on January 16, 1998, and consisted of 100 multiple choice questions for both the RO and SRO exams. There were no post exam comments by either the NRC or the utility concerning the validity of questions on the written examinations.

Based upon an analysis of the written exam results, the following topic areas had several questions that were missed by over 50% of the candidates:

- Administrative requirements (SRO) 70, 90, 93, 96 and 97
- System response to plant conditions 12, 30, 41, 47 and 82

This indicated a potential weakness in understanding of the subject areas. These potential weaknesses were identified by the Limerick exam team and were planned to be discussed with the candidates during the exam review.

The operating examinations were conducted from January 20-23, 1998. All JPMs were followed up with two system-related questions. All candidates were also examined using JPMs and/or questions to evaluate the administrative requirement portion of the examination. On several occasions the SROI candidates showed a weakness in print reading when answering JPM questions.

Simulator performance by the candidates was good. Communications were also good, including the use of repeat backs. The examiners noted that crew briefings were routinely performed by the SROs. Control board awareness by the candidates was evident throughout each of the scenarios.

c. Conclusions

The candidates performed well on both the written and operating examinations, and thus were issued licenses. The candidates appeared to be well prepared for the examinations, indicating that the facility thoroughly evaluated the knowledge and ability of each candidate in an effort to determine which individuals were ready to sit for an NRC exam. Crew communications, control board awareness, and crew briefings were good. Print reading skills of some of the candidates were weak. The Limerick exam team did an excellent job in adhering to the examiner standards and in developing the examination materials needed to administer the examinations.

**E8 Review of UFSAR commitments**

A recent discovery of a licensee operating their facility in a manner contrary to the updated final safety analysis report (UFSAR) description highlighted the need for a special focused review that compares plant practices, procedures and /or parameters to the UFSAR descriptions. While performing the preexamination activities discussed in this report, the inspectors reviewed applicable portions of the UFSAR that related to the selected examination questions or topic areas. No discrepancies were identified as a result of this review.



V. Management Meetings**X1 Exit Meeting Summary**

On January 27, 1998, the NRC examiners discussed some of their observations from the examinations with Limerick Generating Station operations and training management representatives.

The NRC examiners expressed their appreciation for the cooperation and assistance that was provided during both the preparation and examination week by the facility exam team and other facility personnel. Limerick facility personnel contacted and/or present at the exit meeting included:

Limerick Generating Station

- B. Boyce, Plant Manager
- J. Hutton, Senior Operations Manager
- P. Orphanos, Operations Training Manager
- B. Tracey, Exam Team Leader
- B. Ruffe, Exam Team member
- D. Mainowski, Exam Team member
- D. Weiksner, Exam Team member

## Attachments:

1. Limerick SRO Written Examination w/Answer Key
2. Limerick RO Written Examination w/Answer Key
3. Simulation Facility Report

Attachments 1 and 2

Limerick exams with answer keys



1997-98 LOT NRC WRITTEN EXAMINATION

RO/SRO

NAME: ANSWER KEY

SS#: N/A

Completed By William J. Truss  
 Verified By Spencer/Whitaker

DATE: N/A

- |              |              |              |               |
|--------------|--------------|--------------|---------------|
| 1. <u>B</u>  | 26. <u>B</u> | 51. <u>D</u> | 76. <u>A</u>  |
| 2. <u>B</u>  | 27. <u>B</u> | 52. <u>A</u> | 77. <u>S</u>  |
| 3. <u>B</u>  | 28. <u>A</u> | 53. <u>A</u> | 78. <u>D</u>  |
| 4. <u>A</u>  | 29. <u>B</u> | 54. <u>A</u> | 79. <u>A</u>  |
| 5. <u>D</u>  | 30. <u>B</u> | 55. <u>A</u> | 80. <u>D</u>  |
| 6. <u>B</u>  | 31. <u>A</u> | 56. <u>A</u> | 81. <u>A</u>  |
| 7. <u>C</u>  | 32. <u>B</u> | 57. <u>D</u> | 82. <u>B</u>  |
| 8. <u>D</u>  | 33. <u>C</u> | 58. <u>D</u> | 83. <u>A</u>  |
| 9. <u>B</u>  | 34. <u>D</u> | 59. <u>A</u> | 84. <u>C</u>  |
| 10. <u>C</u> | 35. <u>C</u> | 60. <u>C</u> | 85. <u>B</u>  |
| 11. <u>C</u> | 36. <u>C</u> | 61. <u>A</u> | 86. <u>A</u>  |
| 12. <u>B</u> | 37. <u>A</u> | 62. <u>A</u> | 87. <u>D</u>  |
| 13. <u>A</u> | 38. <u>C</u> | 63. <u>C</u> | 88. <u>A</u>  |
| 14. <u>C</u> | 39. <u>A</u> | 64. <u>B</u> | 89. <u>B</u>  |
| 15. <u>D</u> | 40. <u>B</u> | 65. <u>D</u> | 90. <u>C</u>  |
| 16. <u>C</u> | 41. <u>A</u> | 66. <u>D</u> | 91. <u>D</u>  |
| 17. <u>D</u> | 42. <u>A</u> | 67. <u>C</u> | 92. <u>C</u>  |
| 18. <u>B</u> | 43. <u>D</u> | 68. <u>C</u> | 93. <u>D</u>  |
| 19. <u>B</u> | 44. <u>C</u> | 69. <u>C</u> | 94. <u>A</u>  |
| 20. <u>D</u> | 45. <u>D</u> | 70. <u>C</u> | 95. <u>B</u>  |
| 21. <u>B</u> | 46. <u>A</u> | 71. <u>B</u> | 96. <u>B</u>  |
| 22. <u>D</u> | 47. <u>A</u> | 72. <u>B</u> | 97. <u>D</u>  |
| 23. <u>B</u> | 48. <u>A</u> | 73. <u>A</u> | 98. <u>D</u>  |
| 24. <u>D</u> | 49. <u>D</u> | 74. <u>C</u> | 99. <u>D</u>  |
| 25. <u>B</u> | 50. <u>D</u> | 75. <u>D</u> | 100. <u>C</u> |

1) PV:1.0

"A" RHR Pump is running in Suppression Pool Cooling mode.

A complete loss of offsite power occurs.

All emergency diesel generators have automatically started and aligned to their respective busses.

WHICH ONE of the following describes the response of the "A" RHR Pump?

- a. remains in service
- b. trips and remains secured
- c. trips and auto restarts 5 seconds after bus reenergized
- d. trips and auto restarts 10 seconds after bus reenergized

2) PV:1.0

The Reactor Protection System has caused an automatic scram of Unit 2.

NO alarms have been acknowledged by operators.

WHICH ONE of the following alarming annunciators distinguishes it as the cause of the SCRAM?

<u>ANNUNCIATOR</u>	<u>STATUS</u>
a. MSIV NOT FULLY OPEN TRIP	Solid
b. REACTOR HIGH PRESSURE TRIP	Flashing
c. MAIN STEAM LINE HI HI RADIATION	Flashing
d. SCRAM DISCHARGE VOLUME HIGH LEVEL TRIP	Solid



3) PV:1.0

OT-102, Reactor High Pressure has been entered due to an MSIV closure.

WHICH ONE of the following is the bases for reducing power to 75%?

- a. ensures reactor power does not increase to >100%
- b. maintains the margin between operating steam line flow and the Group 1 isolation trip setpoint
- c. ensures reactor pressure safety limit is not exceeded
- d. maintains adequate partial-arc admission characteristics for the high pressure turbine

4) PV:1.0

Unit 2 plant conditions are as follows:

- 100% power
- Feedwater Level Select Switch in "A"
- 3 element control is selected

WHICH ONE of the following describes the reactor recirculation flow control system response to the following transient?

- 'A' narrow range level transmitter fails low
  - RO immediately swaps level select switch to 'B' position
  - Setpoint setdown light is lit on C603
  - RPV level is stable at +17.5 inches
- a. 28% speed (low) runback
  - b. 42% speed (high) runback
  - c. scoop tube positioners lock
  - d. scoop tube positioners reduced to min. speed

5) \*PV:1.0

Unit 2 Drywell pressure = 1.9 psig  
Unit 2 Reactor Level = +10 inches  
Unit 2 Containment Leak Detector has isolated

WHICH ONE of the following describes the reason for the isolation and Bypass capability?

- a. low reactor level, bypass capability is available
- b. low reactor level, no bypass capability
- c. high drywell pressure, bypass capability is available
- d. high drywell pressure, no bypass capability

6) PV:1.0

WHICH ONE of the following describes why the ADS SRVs are opened in a predetermined sequence when carrying out T-101 actions?

- a. ensures uniform pressure loading on individual Main Steam Lines
- b. prevent uneven heat distribution in the Suppression Pool
- c. ensure equal loading on the Instrument Gas headers
- d. prevent uneven pressure loading on the suppression chamber wall



7) PV:1.0

- A Reactor Startup is in progress
- The reactor is approaching criticality

The following sequence of events occurs:

- The RO single notch withdraws rod 02-35 from position 10 to position 12.
- The rod unexpectedly double notches to position 14 with a +30 second reactor period.

WHICH ONE of the following actions should be taken?

- a. allow reactor period to decay and continue reactor startup
- b. insert rod to position 00 and notify Reactor Engineers
- c. insert rod to position 10 and notify Control Room Supervisor
- d. immediately determine if thermal limits have been violated

8) PV:1.0

Unit 2 was operating at 100% when a scram signal occurred. Two (2) minutes later the following conditions are noted:

- Reactor Power: <4%
- Reactor Pressure: 960 psig and steady
- Rod 26-11 is at position 48
- Rod 50-31 is at position 48
- Rod 22-51 is at position 48
- All other control rods are at 00
- Boron is not being injected

WHICH ONE of the following describes conditions where the ATWS is no longer in progress?

- a. rod 26-11 at position 00 and rods 50-31 and 22-51 at position 08
- b. rods 26-11, 50-31, and 22-51 inserted to position 12
- c. rod 26-11 and 50-31 at position 04 and 22-51 at position 00
- d. rods 26-11 and 50-31 at position 00 and 22-51 at position 48

9) PV:1.0

WHICH ONE of the following requires entry into SE-2 Toxic Gas/Chlorine?

- a. a manual Radiation Isolation initiated
- b. a strong musty haylike odor present in the MCR
- c. failure of standby CREFAS to start during testing
- d. inability to maintain a positive MCR delta P

10) PV:1.0

WHICH ONE of the following conditions requires entry into both T-103 and T-104?

- a. NORTH STACK HI-HI RADIATION alarm condition
- b. SOUTH STACK HI-HI RADIATION alarm condition
- c. REACTOR ENCLOSURE STEAM FLOODING DAMPER ACTUATION
- d. STEAM LEAK DETECTION ALARM CONDITION FOR DIV I, II, III or IV

11) PV:1.0

- Core alterations are in progress
- Step #67 of the attached CCTAS has commenced

WHICH ONE of the following sets of SRM readings for step #67 REQUIRES entry into ON-120 Fuel Handling Problems?

	<u>COUNTRATE</u>			
	A	B	C	D
	SRM	SRM	SRM	SRM
a.	202	186	192	184
b.	300	200	220	300
c.	268	192	205	371
d.	398	360	370	358



12) PV:1.0

- LOCA in progress
- Drywell pressure at 3.0 psig
- Drywell temperature at 220°F.

WHICH ONE of the following describes the reason DWCW HEAD TANK HI/LO alarm status on PMS must be checked prior to bypassing the DWCW isolation?

- a. prevent creating a potential Primary Containment boundary bypass flowpath
- b. prevent potential steam voiding and subsequent water hammer of DWCW System piping
- c. ensure DW hydrogen mixing fans will not trip on low DWCW flow after 25 seconds time delay
- d. ensure adequate chilled water flow to DWCW cooled components outside Primary Containment

13) PV:1.0

- Unit 1 is at 20% reactor power

WHICH ONE of the following will trip the Recirc RPT Breakers?  
(NO Operator actions are taken)

- a. Group 1 MSIV isolation
- b. Main Turbine trip
- c. Recirc Pump Suction Valve closed
- d. Main Generator Lockout signal

14) PV:1.0

Plant conditions are as follows:

- Suppression Pool Pressure: 1.2 psig
- Suppression Pool Level: 23 ft and stable
- Suppression Pool Temperature: 180°F and rising
- Reactor Pressure: 600 psig and steady

WHICH ONE of the following is required?

- a. reduce Suppression Pool level
- b. spray the Suppression Pool
- c. depressurize to stay on safe side of SP/T-1
- d. immediately conduct an Emergency Blowdown per T-112

15) \*PV:1.0

Plant conditions are as follows:

- Reactor Power: All rods in
- Reactor Pressure: 600 psig
- Reactor Level: -145" and dropping slowly
- Supp Pool Level: 17'10"
- HPCI running and injecting 5600 gpm
- HPCI suction aligned to the Suppression Pool

WHICH ONE of the following HPCI actions is required?

- a. continue injecting at 5600 gpm
- b. reduce flow rate to 4000 gpm
- c. transfer suction to CST
- d. isolate HPCI



16) PV:1.0

An ATWS is in progress.

Reactor Recirc. Pumps are tripped.

Reactor level is being lowered.

WHICH ONE of the following describes how core flow and power respond?

	<u>CORE FLOW</u>	<u>POWER</u>
a.	increase	decrease
b.	decrease	increase
c.	decrease	decrease
d.	increase	increase

17) PV:1.0

Unit 2 is undergoing an ATWS and the CRS is performing T-101 and T-117. Plant conditions are as follows:

- Reactor Power: 2%
- Reactor Pressure: 900 psig and steady
- Reactor Level: -120" and steady
- Supp Pool Temp: 102°F
- DW Pressure: 0.5 psig
- SLC Tank level: 1375 gallons

No SRV's are open.

Boron is being injected via RCIC (T-209).

WHICH ONE of the following describes the bases for the direction in T-117 to "Maintain RPV Level between 12.5" and 54"?

- a. reactor power is <4% on APRM's
- b. Cold Shutdown Boron Weight has been injected
- c. low level in Standby Liquid Control Tank
- d. Hot Shutdown Boron Weight has been injected

18) PV:1.0

Unit 2 Reactor Power 40%.

A fuel clad leak develops on a fuel bundle in the core.

WHICH ONE of the following radiation monitors will provide indication of the current offsite release rate?

- a. South Stack
- b. North Stack
- c. Air Ejector Discharge Fine
- d. Off Gas Charcoal Treatment Exhaust

19) PV:1.0

Drywell H<sub>2</sub> and O<sub>2</sub> concentrations are above 6% following a LOCA.

WHICH ONE of the following describes the operation of Drywell Cooler Fans and the reason for it?

- a. operate Drywell Cooler Fans to prevent local hydrogen buildup
- b. secure Drywell Cooler Fans to remove potential ignition sources
- c. operate Drywell Cooler Fans to cool Post-LOCA Recombiner inert gas discharge
- d. secure Drywell Cooler Fans to increase Post-LOCA Recombiner inert gas inlet temperatures



20) PV:1.0

Unit 1 is undergoing a LOCA/ATWS.

Plant conditions are as follows:

- Time since scram signal: 1 hour
- Reactor pressure: 250 psig
- Reactor level: +30"
- Boron was not injected

A caution on T-101 states, "APRM downscapes may be used to ensure power less than 4% only during the first 20 minutes after a LOCA".

WHICH ONE of the following can be used to determine the reactor is shutdown?

- a. SRM's reading 35,000 cps
- b. IRM's reading 60 on range 4
- c. reactor heat balance via PMS
- d. all rods inserted to or beyond 02

21) \*PV:1.0

A single Recirc Pump is operating.

WHICH ONE of the following describes the reason why Core Plate Delta P is used when the Operating Loop Recirc Pump speed is less than 60%?

- | <u>Core Flow</u>                 | <u>Idle Jet Pump Flow</u> |
|----------------------------------|---------------------------|
| a. indicated greater than actual | forward                   |
| b. indicated less than actual    | forward                   |
| c. indicated greater than actual | reverse                   |
| d. indicated less than actual    | reverse                   |

22) PV:1.0

- Reactor power is 20%
- Main Condenser vacuum is 23" Hg and slowly lowering

WHICH ONE of the following statements is the reason the Mechanical Vacuum Pump should not be started?

- a. Hold-Up Pipe will be overpressurized
- b. excessive South Stack release
- c. exceed the moisture capacity of TEECE filters
- d. combustion could occur in Mechanical Vacuum Pump

23) PV:1.0

WHICH ONE of the following actions should be taken to maintain RWCU System flowpath during the restoration of 1FA "Division I Safeguard 125V/250V DC Bus"?

- a. throttle open RWCU Demin Bypass Valve, HV44-1F044
- b. open breaker for RWCU Suction Inboard Valve, HV44-1F001
- c. hold RWCU pump handswitches in "START"
- d. bypass Group III Isolation signal per GP-8



24) PV:1.0

- "A1 MOISTURE SEPARATOR DRAIN TANK HI LEVEL alarm is in.
- "MOISTURE SEPARATOR HI LEVEL TRIP alarm is in.

Field reports confirm a Hi-Hi level condition in "A1" Moisture Separator Drain Tank.

Unit 1 Main Generator is loaded to 900 MW.

WHICH ONE of the following actions should be taken?

- a. reduce load per GP-5
- b. reduce reactor pressure to 900#
- c. isolate air to the dump valve
- d. manually trip the turbine

25) PV:1.0

Unit 1 is operating at 100% power.

The "1C" Feed Flow transmitter fails to  $3.0 \times 10^6$  lbm/hr.

WHICH ONE of the following describes plant response?

- a. reactor water level will remain constant, a control signal failure will occur
- b. reactor water level will rise, the Main Turbine and Reactor Feed pumps will continue to operate
- c. reactor water level will drop, a high Recirc runback will be received
- d. reactor water level will drop, a low Recirc runback will be received

26) PV:1.0

Plant conditions are as follows:

- Drywell pressure is 3.0 psig.
- A LOCA signal was received 7 minutes ago.

WHICH ONE of the following configurations is required to maximize Drywell cooling?

- a. bypass isolation, start 2 chillers and 1 circulating pump
- b. bypass isolation, start 1 chiller and 2 circulating pumps
- c. isolation bypass NOT required, start 1 chiller and 2 circulating pumps
- d. isolation bypass NOT required, start 2 chillers and 1 circulating pump

27) PV:1.0

An EO reports that both Instrument Gas Compressors tripped and header pressure is currently 80#.

WHICH ONE of the following is the cause of the Instrument Gas Compressor trips?

- a. low nitrogen makeup temperature
- b. both RECW pumps tripped
- c. both TECW pumps tripped
- d. low nitrogen makeup flowrate

28) PV:1.0

Instrument Air pressure is dropping on Unit 2.

WHICH ONE of the following describes why REHVAC will isolate?

- a. HV76-296 (RX ENCL/SGTS CONN) fails open
- b. HV76-257 (RX ENCL EXH FAN ISLN) fails open
- c. HV76-209 (RERS SUPPLY) fails closed
- d. HV76-251 (EQUIP COMPT ISLN) fails closed

29) PV:1.0

Unit 1 Fuel Pool Cooling is aligned for Core Decay Heat Removal.

Shutdown Cooling is secured.

1B RHR System is being flushed in preparation for Shutdown Cooling.

WHICH ONE of the following will cause a loss of "Core Decay Heat Removal" under these conditions?

- a. raise Skimmer Surge Tank level
- b. increase RWCU System dump flow
- c. reduce Fuel Pool Cooling letdown
- d. increase makeup from CRD

30) PV:1.0

WHICH ONE of the following conditions is PREVENTED by maintaining the reference leg backfill portion of CRD aligned during power operations?

- a. erroneous low level during RPV cooldown
- b. erroneous high level during RPV cooldown
- c. erroneous low level during reactor startup
- d. erroneous high level during reactor startup



31) PV:1.0

WHICH ONE of the following describes why an Emergency Blowdown is performed when Drywell temperature reaches 340°F?

- a. maintain SRV availability
- b. prevent exceeding containment deflagration limits
- c. prevent RPV level instrument reference leg boiling
- d. maintain downcomer vacuum breaker availability

32) PV:1.0

T-103 is being executed.

WHICH ONE of the following describes the bases for performing T-250 "Remote Manual Primary Containment Isolation Valves"?

- a. reduce RPV inventory loss
- b. reduce fission product releases
- c. reduce RPV cooldown rate
- d. reduce Primary Containment pressure

33) PV:1.0

WHICH ONE of the following activities can be performed while the Refuel Floor HVAC High Rad Isolation is bypassed per GP-6.1?

- a. irradiated fuel moves in spent fuel pool
- b. control rod movement in fueled cell
- c. Steam Dryer / Separator Removal
- d. CRD mechanism removal

34) PV:1.0

During startup of REHVAC, the RE Exhaust Fans trip and the RE Supply Fans remain running until secured manually.

RE HVAC has been restarted. Differential pressure cannot be restored.

WHICH ONE of the following describes plant status?

- a. steam flooding dampers actuated, Secondary Containment is intact
- b. steam flooding dampers actuated, Secondary Containment is lost
- c. steam vent (blowout) panel(s) actuated, Secondary Containment is intact
- d. steam vent (blowout) panel(s) actuated, Secondary Containment is lost

35) \*PV:1.0

T-103 is in progress on Unit 1.

T-236 Transferring Reactor Enclosure Floor Drain Sump To Suppression Pool Via Core Spray System is completed.

- HSS-61-104 REACTOR ENCL. FLOOR DRAIN SUMP SELECTION SW is in "HI-HI" position.

WHICH ONE of the following describes the operation of the "A" and "B" RE Floor Drain Sump Pumps given the above conditions?

- a. both "A" and "B" pumps run continuously and will only trip on thermals
- b. both "A" and "B" pumps run continuously and will trip on a HI-HI radiation signal
- c. both "A" and "B" pumps run based on sump level and will only trip on thermals
- d. both "A" and "B" pumps run based on sump level and will trip on a HI-HI radiation signal

36) PV:1.0

WHICH ONE of the following is the expected set of indications following a Recirculation MG Set Generator overcurrent lockout at 100% power?

	<u>Percent Speed(s)</u>	<u>Percent Speed (Demand)</u>	<u>Deviation (DEVN)</u>
a.	100	0	+10
b.	0	100	+10
c.	0	40	0
d.	40	0	0

37) PV:1.0

1D RHR is in Full Flow Test.

- RPV level drops to -130"
- RPV pressure drops to 200 psig

WHICH ONE of the following will prevent '1D' RHR Pump runout?

- a. automatic closure of HV-51-1F010B, (Flow Test D) valve
- b. trip and auto restart of the 1D RHR Pump
- c. automatic closure of HV-51-125B (Return) valve
- d. HV-51-1F017D (Injection) prevented from automatic opening

38) PV:1.0

Unit 2 HPCI is running in full flow test CST to CST. A loss of Division 2 DC power occurs.

WHICH ONE of the following describes the effect, if any, on Unit 2 HPCI?

- a. continues to run
- b. Division II isolation occurs
- c. turbine governor valve closes
- d. loss of oil pressure shutdown occurs



39) PV:1.0

Plant conditions are as follows:

- Reactor Pressure: 35 psig
- Reactor Level: -110"

The DIV III Core Spray Manual Initiation Pushbutton is armed and depressed.

WHICH ONE of the following describes the response of Core Spray?

- a. "C" Core Spray pump starts on min flow
- b. "C" Core Spray pump starts and injects
- c. "A" and "C" Core Spray pumps start on min flow
- d. "A" and "C" Core Spray pumps start and inject

40) PV:1.0

Unit 1 plant conditions are as follows:

- HPCI isolated for maintenance
- ATWS has been in progress for 3 minutes
- Reactor power is 18% on all APRMs
- RPV pressure is 1040 psig and steady
- RPV level is -50 inches and steady
- No low pressure ECCS systems are operating

WHICH ONE of the following indications can be used to confirm SBLC boron injection to the RPV?

- a. RWCU Suction Inboard (HV-44-1F001) closed
- b. "CORE SPRAY LINE INTERNAL BREAK" alarm annunciated
- c. operating SBLC pump discharge pressures reading 395 psig
- d. Squib valve continuity white lights lit

41) PV:1.0

A Unit 2 Reactor scrammed on low level.

Level dropped to -75" before being recovered.

Present plant conditions are as follows:

- Reactor pressure: 960 psig
- Reactor level: +35" and steady
- Reactor Mode Switch in shutdown
- Scram discharge volume Hi level bypass key in bypass
- The RPS reset switch is taken to Group 1/3 and Group 2/4

WHICH ONE of the following describes RPS System and scram air header response?

	<u>RPS</u>	<u>Scram Air Header</u>
a.	reset	remains depressurized
b.	reset	pressurizes
c.	not reset	remains depressurized
d.	not reset	pressurizes

42) PV:1.0

Unit 1 startup in progress.

SRM/IRM overlap data is recorded.

The RO begins to withdraw SRM's.

WHICH ONE of the following will cause a control rod withdrawal block?

	<u>SRM Counts</u>	<u>IRM Range</u>
a.	85 cps	2
b.	85 cps	3
c.	350 cps	2
d.	350 cps	3

43) PV:1.0

Reactor Mode Switch is in STARTUP.

"B" APRM is reading 2% power.

"B" IRM is reading 122/125 of scale.

WHICH ONE of the following describes plant response?

- a. half scram only
- b. full reactor scram
- c. rod withdraw block only
- d. rod withdraw block and half scram

44) PV:1.0

Unit 2 is shut down with a cooldown in progress.

Reactor pressure is 400 psig.

CRD is secured.

"B" Narrow Range level has increased from +35" to +40" for several seconds, then returned to +35" four times in the last 45 minutes.

"A" and "C" Narrow Range level indications have remained at +35".

WHICH ONE of the following conditions explains the "B" level indication response?

- a. elevated temperatures around the reference leg
- b. intermittent actuation of an excess flow check valve
- c. non-condensable gas accumulation in the reference leg
- d. density compensation of the narrow range



45) PV:1.0

An ADS blowdown is in progress with 3 ADS SRV's open.

"A" and "B" Core Spray pumps are running.

"D" RHR pump is running.

All other low pressure ECCS pumps are secure.

WHICH ONE of the following will result in all 5 ADS SRVs closing?

- a. secure "A" Core Spray pump
- b. secure "B" Core Spray pump
- c. secure both "A" and "B" Core Spray pumps
- d. secure "D" RHR pump

46) PV:1.0

Unit 1 is at 100% reactor power with a LOCA (in the Drywell) in progress.

WHICH ONE of the following describes the purpose of Primary Containment Vacuum Breakers?

- a. open to prevent downcomer collapse
- b. close to limit upward force on drywell floor
- c. open to limit negative pressure in suppression chamber
- d. close to prevent negative pressure in the drywell

47) PV:1.0

Unit 1 is operating at 100% with the Reactor Water Cleanup (RWCU) System in service with two (2) pumps running.

Level transmitter LT-1N081A fails low (Division I Lo-Lo level input to NSSSS).

Actual RPV level is 35".

WHICH ONE of the following describes the response of the RWCU system?

- a. RWCU remains aligned, RWCU pumps remain in service
- b. HV-44-1F001 RWCU Inboard Isolation Valve closes
- c. HV-44-1F004 RWCU Outboard Isolation Valve closes
- d. RWCU remains aligned, RWCU pumps trip

48) PV:1.0

A LOCA is in progress on Unit 1.

All ECCS have responded as designed.

- RPV pressure: 250 psig
- DW Pressure: 30 psig
- DW Temperature: 280°F
- RPV Level: -100"

WHICH ONE of the following additional conditions will allow both "A" loop Inboard and Outboard Drywell Spray valves to be opened at the same time?

- a. 1F017A LPCI Injection Valve closed
- b. RPV level below -129"
- c. LOCA signal manually inserted
- d. 1F024A Suppression Pool Cooling isolation closed



49) PV:1.0

A leak in the tubing has caused the long term N2 bottles for "E", "K" ADS valves to depressurize.

All other Instrument Gas System parameters are normal.

"A" and "B" Instrument Gas Headers are at 100 psig.

WHICH ONE of the following describes the pneumatic supply for the "E" and "K" ADS valves?

- a. there is no pneumatic supply
- b. "A" Instrument Gas Header only
- c. "B" Instrument Gas Header only
- d. both "A" and "B" Instrument Gas Headers

50) PV:1.0

Unit 1 plant conditions are as follows:

- 100% Reactor Power
- "A" EHC Pressure Control Transmitter is controlling
- "B" EHC Pressure control Transmitter fails HIGH
- Pressure Averaging Manifold (PAM) is reading 990 psig
- EHC Pressure set at 960 psig

Refer to the attached EHC Logic diagram to answer the following question.

WHICH ONE of the following is the expected EHC System and plant response?

- a. "A" EHC Pressure Control Transmitter remains in control, PAM pressure will increase
- b. "A" EHC Pressure Control Transmitter remains in control, PAM pressure will decrease
- c. "B" EHC Pressure Control Transmitter will gain control, PAM pressure will increase
- d. "B" EHC Pressure Control Transmitter will gain control, PAM pressure will decrease



51) PV:1.0

Refuel Floor HVAC is in service.

SGD-76-206-3 Refuel Floor to SGTS Connecting Slide Gate Damper is closed.

HV-76-019 (Refuel Area/SGTS Conn) FAILS OPEN.

WHICH ONE of the following describes the effect of this failure on SGTS and Refuel Floor Ventilation?

	<u>SGTS</u>	<u>Refuel Floor Ventilation</u>
a.	starts	shuts down and aligns to SGTS
b.	starts	remains in service
c.	remains shutdown	shuts down and aligns to SGTS
d.	remains shutdown	remains in service

52) \*PV:1.0

A steam line ruptures in the Outboard MSIV Room.

WHICH ONE of the following describes the designed steam release flowpaths from the Outboard MSIV Room?

- a. simultaneously to Turbine Enclosure and outside
- b. simultaneously to Control Enclosure and outside
- c. to Reactor Enclosure, through Radwaste Enclosure, then outside
- d. to Reactor Enclosure, through Control Enclosure, then outside

53) PV:1.0

A LOCA is in progress on the Unit.

Division I DC is deenergized.

- Reactor pressure: 650 psig
- Reactor level: -139"
- Drywell Pressure: 17 psig
- The LOCA signal occurred 100 seconds ago
- B, C, and D RHR pumps are running
- "B" loop of Core Spray is running

WHICH ONE of the following describes how the ADS System will operate under these conditions?

- a. ADS will initiate without any operator intervention
- b. ADS will NOT initiate, ADS SRV's will only cycle on pressure
- c. ADS valves will open ONLY if the 5 keylock switches in the AER are taken to OPEN
- d. ADS will initiate ONLY if both Division 3 Manual Initiation pushbuttons are depressed in the MCR

54) PV:1.0

The Turbine Bypass Valves have been manually opened to 20% with the Jack.

WHICH ONE of the following describes the Turbine Bypass Valve response to a Main Condenser Low Vacuum signal of 0" vacuum?

- a. will fully close
- b. will fully open
- c. will remain at their current position of 20% open
- d. will open to maintain the Pressure Set setpoint



55) \*PV:1.0

Unit 1 plant conditions are as follows:

- 100% power
- Scram Discharge Volume Inboard Drain Valve (XV-47-1F011) is failed closed
- SCRAM DISCHARGE VOLUME NOT DRAINED alarmed 10 seconds ago

WHICH ONE of the following describes control rod response to a valid scram signal?

- a. all control rods will fully insert
- b. no control rods fully insert
- c. only control rods associated with east side HCU's will insert
- d. only control rods associated with west side HCU's will insert

56) PV:1.0

Plant conditions are as follows:

- Unit 1 in OPCON 2
- Control rod 42-43 is being withdrawn from notch 08 to 12
- The rod group target is position 12

A directional control valve sticks resulting in control rod 42-43 being withdrawn to position 14.

WHICH ONE of the following must occur to allow continued rod motion?

- a. rod 42-43 must be inserted to position 12
- b. rod 42-43 must be bypassed and then inserted to position 08
- c. associated group rods must be withdrawn to position 14
- d. previous groups rods must be inserted to position 14



57) PV:1.0

Unit 2 Plant conditions are as follows:

- Shutdown Cooling (SDC) is in service with the 2A RHR Pump
- D22 bus is de-energized
- All Unit 1 Safeguard Busses are energized

WHICH ONE of the following describes the pumps available for SDC if a D21 Bus Lockout occurs?

- a. 2A RHR Pump, 0D RHRSW Pump
- b. 2B RHR Pump, 0C RHRSW Pump
- c. 2C RHR Pump, 0D RHRSW Pump
- d. 2D RHR Pump, 0B RHRSW Pump

58) PV:1.0

Control rod 30-31 is being inserted from position 12 to position 08.

The RO notes that during rod motion the following occur:

- Control Rod 30-31 position indicates "XX" on the 4-Rod display
- Control Rod 30-31 position indicates "\*\*\*" on PMS
- RPIS Status DATA FAULT light on 10C603 is lit

WHICH ONE of the following describes the status of rod 30-31?

- a. scrambled
- b. uncoupled
- c. stuck at position 09
- d. reed switch has failed

59) PV:1.0

During movement of fuel in the Fuel Pool, the compressed air system on the Refueling Bridge is lost.

A fuel bundle is currently grappled.

WHICH ONE of the following describes the effect on the main fuel hoist grapple and the loaded bundle?

- a. grapple will remain as-is, bundle cannot be released
- b. grapple will remain as-is, bundle will release only when seated
- c. grapple will open, bundle will be released immediately
- d. grapple will open after time delay, bundle will release

60) PV:1.0

Unit 2 Reactor Power is 2%.

"2B" RFP is running with all 3 Condensate Pumps in service.

Reactor pressure is 760 psig.

Reactor level is 35".

WHICH ONE of the following feedwater flowpath(s) must be used to maintain reactor level at 35"?

HV06-208B "2B" RFP DISCHARGE VALVE  
HV06-238A STARTUP LEVEL CONTROL VALVE  
HV06-220 STARTUP BYPASS VALVE

- a. HV06-238A
- b. HV06-220
- c. HV06-208B
- d. HV06-238A and HV06-220



61) PV:1.0

120 VAC panel 10Y109 circuit 5 supplies normal power to the 1A FW UPS inverter.

WHICH ONE of the following describes the effect of opening 10Y109 circuit 5 on the 1A FW UPS inverter loads?

- a. all loads will remain energized for at least 10 minutes
- b. some loads immediately lose power, the remainder will deenergize in 10 minutes
- c. the circuit is auctioneered, no loads are lost
- d. all loads remain energized for 2 hours and then all loads deenergize

62) PV:1.0

Unit 1 is operating at 60% power.

Offgas Recombiner Outlet temperatures are as follows:

TSH-69-135A	945°F
TSH-69-135B	934°F
TSH 69-135C	827°F

WHICH ONE of the following describes system response?

- a. First Stage Air Ejector "AIR" valves will close
- b. First Stage Air Ejector "STEAM" valve will close
- c. Second Stage Air Ejector "AIR" valve will close
- d. Second Stage Air Ejector "STEAM" valve will close



63) PV:1.0

Unit 1 Cable Spread Room Fire Suppression System is manually initiated.

WHICH ONE of the following describes system response?

- a. CO2 initiates after a 5 second time delay
- b. Halon initiates after a 5 second time delay
- c. CO2 initiates after a 20 second time delay
- d. Halon initiates after a 20 second time delay

64) PV:1.0

A complete Main Control Room Radiation Isolation is initiated.

WHICH ONE of the following describes the HVAC alignment and effect on MCR dP?

- a. MCR HVAC aligns to Recirc, MCR dP decays to zero
- b. outside air provides makeup, MCR dP remains positive
- c. MCR HVAC aligns to Recirc, MCR dP remains positive
- d. outside air provides makeup, MCR dP decays to zero

65) PV:1.0

Instrument Air Compressors have tripped and both Instrument Air headers are completely depressurized.

WHICH ONE of the following describes how the Primary Containment Instrument Gas (PCIG) System responds?

- | <u>PCIG Compressors</u> | <u>Drywell PCIG Loads</u> |
|-------------------------|---------------------------|
| a. continue to run      | supplied by receivers     |
| b. continue to run      | not supplied by receivers |
| c. trip                 | supplied by receivers     |
| d. trip                 | not supplied by receivers |

66) PV:1.0

A unit startup is in progress.

A control rod is suspected of being stuck at position 24.

WHICH ONE of the following indications can be used to confirm a stuck rod during subsequent one notch rod movement attempts?

- a. ROD OVERTRAVEL alarm
- b. high CRD drive water flow
- c. low CRD drive water pressure
- d. no change in nuclear instrumentation

67) PV:1.0

An OD-1 is in progress on Unit 1.

Reactor level drops to -80" and is stabilized.

WHICH ONE of the following describe response of the TIP system?

- a. TIP's in the core are retracted to the indexer and the ball valves close
- b. TIP's are retracted to the shield chamber, the ball valves remains open
- c. TIP's are retracted to the shield chamber, the ball valve closes
- d. TIP's in the core are retracted to the indexer and the Shear Valve actuates



68) PV:1.0

WHICH ONE of the following describes the effect of Reactor Core Flow Orificing?

- a. allows peripheral bundles to operate at twice the power of central region bundles
- b. redirects coolant flow to maximize two phase flow in high power fuel bundles
- c. equalizes coolant flow among fuel bundles having different amounts of two phase flow
- d. maximizes coolant flow pressure drop in fuel bundles operating without two phase flow

69) PV:1.0

Fuel Pool Cooling is in service.

Fuel Pool level is above the weir plates.

Skimmer Surge Tank level is 10 feet.

A leak develops on the Fuel Pool Cooling Pump suction line from the Skimmer Surge Tank which can not be isolated.

WHICH ONE of the following describes ultimate effect on Fuel Pool and Skimmer Surge Tank Level?

<u>Fuel Pool Level</u>	<u>Skimmer Surge Tank</u>
a. Drops to weir plate	Overflows
b. Drops below weir plate	Drains
c. Drops to weir plate	Drains
d. Drops below weir plate	Overflows



70) PV:1.0

An Equipment Operator is dispatched to locally operate breakers in the 500 KV yard.

A pre-job brief was conducted which included the System Manager, an EO, a PRO and the CRS.

WHICH ONE of the following describes communication requirements for this evolution?

- a. the System Manager is responsible for communicating with the PSD
- b. communications with the PSD are not required for this evolution
- c. direct communication can occur between the PSD and the EO
- d. communications with the PSD can only be made by the CRS

71) \*PV:1.0

During the performance of an ST the RO requests the PRO to complete the IVOR section.

The PRO finds a switch in the wrong position.

WHICH ONE of the following describes the actions that should be taken by the PRO?

- a. reposition the switch, complete the IVOR section and sign the ST off as satisfactory
- b. immediately report discrepancy to the RO and Shift Management
- c. immediately sign off the ST as unsatisfactory and report discrepancies to Shift Management
- d. reposition the switch, annotate in comments section and report discrepancy to the RO

72) PV:1.0

A worker has received 2.9 Rem TEDE (Total Effective Dose Equivalent) for this year.

The worker is needed to perform a job where the estimated dose is in excess of 150 mRem.

WHICH ONE of the following describes requirements, if any, for allowing this worker to be assigned to the job?

- a. worker can perform the job without exceeding any limits
- b. worker can perform the job as long as a dose extension is approved
- c. 10CFR20 Dose Limits will be exceeded and worker shall not be assigned to the job
- d. worker can perform the job as long as a current year exposure statement is on file

73) PV:1.0

WHICH ONE of the following describes requirements associated with Level II Procedure use?

- a. reference during activity performance
- b. continuous in hand use during activity performance
- c. initial actions required shall be memorized
- d. referenced only if unsure of actions after activity complete

74) PV:1.0

WHICH ONE of the following describes activities allowed under an Administrative Clearance?

- a. DIN repairs
- b. FIN Team maintenance
- c. no work shall be performed
- d. TPA installation or removal



75) PV:1.0

Conditions are as follows:

- Unit 1 Reactor Scrammed
- Reactor Level Unknown
- Suppression Pool pressure 32 psig

WHICH ONE of the following describes conditions where adequate Core Cooling is assured?

- a. reactor pressure = 50#, 4 SRV's are open
- b. reactor pressure = 85#, 4 SRV's are open
- c. reactor pressure = 50#, 5 SRV's are open
- d. reactor pressure = 85#, 5 SRV's are open

76) PV:1.0

T-118 directs Primary Containment water level to be maintained between 115 ft and 115 ft 9 inches.

WHICH ONE of the following describes the bases for this level band?

- a. fuel covered, containment vent capability maintained
- b. Recirc suction covered, Drywell equipment hatch not submerged
- c. reactor head vent covered, Suppression Pool integrity maintained
- d. Main Steam Lines covered, Drywell pressure instrument not submerged

77) PV:1.0

WHICH ONE of the following will cause a Rod Block with the Main Fuel Hoist loaded?

- a. Refuel platform over the core and Mode Switch in SHUTDOWN
- b. Refuel platform over the core and Mode Switch in REFUEL
- c. Refuel platform over the fuel pool and Mode Switch in SHUTDOWN
- d. Refuel platform over the fuel pool and Mode Switch in STARTUP



78) PV:1.0

Unit 2 is in STARTUP.

"B" IRM is reading 50/125 on Range 4.

The "B" IRM Range Switch is placed to Range "3".

WHICH ONE of the following describes "B" IRM response?

- a. indicates 22/40
- b. indicates full downscale
- c. indicates 75/125 and initiates a Rod Out Block signal
- d. indicates full upscale and initiates a 1/2 scram signal

79) PV:1.0

Unit 1 is at 500 psig.

RCIC is aligned for normal standby operation.

Reactor Level increases to +60" and then restored to +35".

WHICH ONE of the following describes actions required to inject with RCIC?

- a. arm and depress "RCIC INITIATION" pushbutton for 2 seconds
- b. open HV50-1F045 (INLET), arm and depress "RCIC INITIATION" pushbutton for 2 seconds
- c. open HV50-112 (TRIP THROTTLE), arm and depress "RCIC INITIATION" pushbutton for 2 seconds
- d. close and then open HV50-112 (TRIP THROTTLE), arm and depress "RCIC INITIATION" pushbutton for 2 seconds

80) PV:1.0

Unit 2 is operating at 50% power.

The "2D" Narrow Range Level transmitter is failed high.

WHICH ONE of the following describes the plant response if the "2B" Narrow Range Level transmitter fails high?

	<u>RFP Turbines</u>	<u>Main Turbine</u>
a.	continue running	continues running
b.	continue running	trips
c.	trip	continues running
d.	trip	trips

81) PV:1.0

"OB" ESW pump is blocked for repairs and not available.

A Loss of offsite power occurs.

D24 Diesel fails to start.

WHICH ONE of the following describes the status of the "B" ESW loop?

- a. not available
- b. operating as designed
- c. is available if crosstied to "A" ESW loop
- d. is available if crosstied to Unit 2 cooling tower



82) PV:1.0

HPCI is aligned for automatic operation.

Reactor pressure is 960 psig.

Reactor level increases and stabilizes at +60".

Drywell pressure is 2.0 psig.

WHICH ONE of the following describes when HPCI will inject?

- a. immediately
- b. if RPV level drops to -38"
- c. if the HIGH LEVEL RESET pushbutton is depressed
- d. if manually started

83) PV:1.0

RWCU is in service.

1C Standby Liquid Pump was manually started from the MCR.

WHICH ONE of the following describes RWCU System isolation valve response, if any?

HV-44-1F001 = RWCU INBOARD ISOLATION  
HV-44-1F004 = RWCU OUTBOARD ISOLATION

- a. HV-44-1F001 closes
- b. HV-44-1F004 closes
- c. HV-44-1F001 and HV-44-1F004 close
- d. Neither HV-44-1F001 or HV-44-1F004 close

84) PV:1.0

Unit 1 is operating at 60% power.

1BY160 (RPS B Uninterruptible AC Power Supply) is deenergized.

WHICH ONE of the following describes RPS System response?

- a. no rod motion, 1/2 scram signal that can be reset
- b. multiple rods scram, 1/2 scram signal that can be reset
- c. no rod motion, 1/2 scram signal that cannot be reset
- d. multiple rods scrams, 1/2 scram signal that cannot be reset

85) PV:1.0

Offsite power has been lost.

D11 D/G is running on D11 Bus.

"A" RHR is required for suppression pool spray.

D11 load is 1400 kW.

T-225 cautions that the RHR pump should not be started with greater than 1000 KW load when the diesel is supplying the bus.

WHICH ONE of the following describes the concern with starting the "A" RHR pump?

- a. tripping "A" RHR pump on undervoltage
- b. tripping other D11 loads on undervoltage
- c. tripping D11 diesel on overspeed
- d. tripping D11 diesel generator on overcurrent



86) PV:1.0

WHICH ONE of the following describes when a reactor Recirculation System End-Of-Cycle (EOC/OC) RPT Breaker trip will occur?

- a. reactor power greater than 30%, Main Turbine Stop Valves less than 95% open
- b. reactor power greater than 30%, Main Turbine Control Valves less than 95% open
- c. reactor power less than 30%, Main Turbine Stop Valves less than 95% open
- d. reactor power less than 30%, Main Turbine Control Valves less than 95% open

87) PV:1.0

Reactor power is 45%.

ALL sixteen (16) LPRM DETECTOR BYPASS (white) lights on the C603 panel are lit?

WHICH ONE of the following will cause this to occur?

- a. Rod Block Monitor Self-Test function failure
- b. APRM "A" channel bypassed and APRM "D" channel failed downscale
- c. "A" RBM channel joystick in "Bypass" and APRM "D" output greater than 92%
- d. an edge rod is selected at the rod select matrix

88) PV:1.0

Suppression Pool cooling is in operation.

WHICH ONE of the following describes how RHR loop flow will effect Suppression Pool level?

<u>RHR Loop Flow</u>	<u>Suppression Pool Level</u>
a. >8500 gpm	increase
b. >8500 gpm	decrease
c. <8500 gpm	increase
d. <8500 gpm	decrease

89) PV:1.0

All Unit 1 MSIV's are open.

Power is lost to 1AY160.

WHICH ONE of the following describes the status of the MSIV's?

<u>MSIV's</u>	<u>MSIV Solenoids</u>	<u>MSIV Position</u>
a. INBD	energized	closed
b. INBD	de-energized	open
c. OTBD	energized	closed
d. OTBD	de-energized	open



90) PV:1.0

Unit 1 is operating at 75% power.

Instrument Air is lost.

WHICH ONE of the following describes how the operating Condensate Filter Outlet Valves will fail?

- a. open
- b. to 50%
- c. as-is
- d. closed

91) PV:1.0

Division IV (Safeguard) DC power is lost.

WHICH ONE of the following valves lose isolation capability?

- a. RCIC Outboard Isolation Valve
- b. HPCI Outboard Isolation Valve
- c. RCIC Inboard Isolation Valve
- d. HPCI Inboard Isolation Valve

92) PV:1.0

"0C" and "0D" RHRSW pumps are running.

"2B" RHR Heat Exchanger is in service.

The "B" RHRSW Loop Rad Monitor fails downscale.

WHICH ONE of the following describes RHRSW System response?

- | <u>"2B" RHRHX</u>   | <u>"0D" RHRSW Pp</u> |
|---------------------|----------------------|
| a. isolates         | trips                |
| b. isolates         | continues to run     |
| c. does not isolate | trips                |
| d. does not isolate | continues to run     |

93) PV:1.0

WHICH ONE of the following components will continue to operate normally without TECW flow?

- Condensate pumps
- Instrument Air Compressors
- Service Air Compressors
- Backup Service Air Compressor

94) PV:1.0

WHICH ONE of the following should be annotated in the Unified Narrative Log?

- MCR alarms received during unplanned events
- expected MCR alarms received during i&C Surveillance Testing
- MCR annunciator panel alarms received that have ETT's applied
- expected MCR alarms produced from planned plant evolutions



95) PV:1.0

A Locked High Radiation Area is found uncontrolled and accessible. WHICH ONE of the following shall be immediately performed?

- a. inform the Shift Manager and search the area for personnel
- b. inform HP Supervision and initiate access control of area
- c. inform Industrial Risk Management and evacuate area
- d. inform Security and initiate an audit of Level II Keys

96) PV:1.0

WHICH ONE of the following states requirements for an aborted Surveillance Test (ST)?

- a. test cover sheet shall be signed off as "unsatisfactory"
- b. "ABORTED" should be conspicuously written on test cover sheet
- c. incomplete steps noted and ST signed off as satisfactory
- d. test cover sheet shall be signed off as "partial satisfactory"

97) PV:1.0

WHICH ONE of the following plant personnel can approve changes to an in-use CCTAS?

- a. Refuel Floor Foreman
- b. Duty Shift Supervisor
- c. Refuel Bridge Operator
- d. Duty Reactor Engineer

98) PV:1.0

Health Physics determines an area contains 1800 dpm/100cm<sup>2</sup> Beta contamination.

WHICH ONE of the following describes the required posting for this area?

- a. Red Zone
- b. Yellow Zone
- c. Controlled Area
- d. Contaminated Area

99) PV:1.0

WHICH ONE of the following is an Immediate Operator Action per SE-8 (Fire)?

- a. perform a partial plant evacuation
- b. start diesel driven fire pump
- c. start motor driven fire pump
- d. activate and dispatch fire brigade to scene

100) PV:1.0

The Shift Manager has declared an ALERT and assigned an RO as the NRC Communicator.

WHICH ONE of the following describes when the NRC Communicator can secure communications with the NRC?

- a. technical support Center is activated
- b. transient is over and the plant is recovering
- c. NRC disconnects or authorizes securing line
- d. once initial classification date is provided to the NRC



## 1997-98 LOT NRC WRITTEN EXAMINATION

NAME: ANSWER KEYSS#: N/A

RO(SRO)

DATE: N/ACompleted by [Signature]  
Verified by William M. Franky

- |              |              |              |               |
|--------------|--------------|--------------|---------------|
| 1. <u>B</u>  | 26. <u>B</u> | 51. <u>D</u> | 76. <u>B</u>  |
| 2. <u>B</u>  | 27. <u>B</u> | 52. <u>A</u> | 77. <u>D</u>  |
| 3. <u>B</u>  | 28. <u>A</u> | 53. <u>A</u> | 78. <u>A</u>  |
| 4. <u>A</u>  | 29. <u>B</u> | 54. <u>A</u> | 79. <u>B</u>  |
| 5. <u>D</u>  | 30. <u>B</u> | 55. <u>A</u> | 80. <u>B</u>  |
| 6. <u>B</u>  | 31. <u>A</u> | 56. <u>A</u> | 81. <u>C</u>  |
| 7. <u>C</u>  | 32. <u>B</u> | 57. <u>D</u> | 82. <u>C</u>  |
| 8. <u>D</u>  | 33. <u>C</u> | 58. <u>D</u> | 83. <u>B</u>  |
| 9. <u>B</u>  | 34. <u>D</u> | 59. <u>A</u> | 84. <u>D</u>  |
| 10. <u>C</u> | 35. <u>C</u> | 60. <u>C</u> | 85. <u>D</u>  |
| 11. <u>C</u> | 36. <u>C</u> | 61. <u>A</u> | 86. <u>D</u>  |
| 12. <u>B</u> | 37. <u>A</u> | 62. <u>A</u> | 87. <u>D</u>  |
| 13. <u>A</u> | 38. <u>C</u> | 63. <u>C</u> | 88. <u>C</u>  |
| 14. <u>C</u> | 39. <u>A</u> | 64. <u>B</u> | 89. <u>A</u>  |
| 15. <u>D</u> | 40. <u>B</u> | 65. <u>D</u> | 90. <u>D</u>  |
| 16. <u>C</u> | 41. <u>A</u> | 66. <u>D</u> | 91. <u>C</u>  |
| 17. <u>D</u> | 42. <u>A</u> | 67. <u>C</u> | 92. <u>C</u>  |
| 18. <u>B</u> | 43. <u>D</u> | 68. <u>C</u> | 93. <u>D</u>  |
| 19. <u>B</u> | 44. <u>C</u> | 69. <u>C</u> | 94. <u>A</u>  |
| 20. <u>D</u> | 45. <u>D</u> | 70. <u>C</u> | 95. <u>A</u>  |
| 21. <u>B</u> | 46. <u>A</u> | 71. <u>B</u> | 96. <u>C</u>  |
| 22. <u>D</u> | 47. <u>A</u> | 72. <u>B</u> | 97. <u>B</u>  |
| 23. <u>B</u> | 48. <u>A</u> | 73. <u>A</u> | 98. <u>C</u>  |
| 24. <u>D</u> | 49. <u>D</u> | 74. <u>C</u> | 99. <u>B</u>  |
| 25. <u>B</u> | 50. <u>D</u> | 75. <u>D</u> | 100. <u>C</u> |

1) PV:1.0

"A" RHR Pump is running in Suppression Pool Cooling mode.

A complete loss of offsite power occurs.

All emergency diesel generators have automatically started and aligned to their respective busses.

WHICH ONE of the following describes the response of the "A" RHR Pump?

- a. remains in service
- b. trips and remains secured
- c. trips and auto restarts 5 seconds after bus reenergized
- d. trips and auto restarts 10 seconds after bus reenergized

2) PV:1.0

The Reactor Protection System has caused an automatic scram of Unit 2.

NO alarms have been acknowledged by operators.

WHICH ONE of the following alarming annunciators distinguishes it as the cause of the SCRAM?

<u>ANNUNCIATOR</u>	<u>STATUS</u>
a. MSIV NOT FULLY OPEN TRIP	Solid
b. REACTOR HIGH PRESSURE TRIP	Flashing
c. MAIN STEAM LINE HI HI RADIATION	Flashing
d. SCRAM DISCHARGE VOLUME HIGH LEVEL TRIP	Solid



3) PV:1.0

OT-102, Reactor High Pressure has been entered due to an MSIV closure.

WHICH ONE of the following is the bases for reducing power  $\leq 75\%$ ?

- a. ensures reactor power does not increase to  $>100\%$
- b. maintains the margin between operating steam line flow and the Group 1 isolation trip setpoint
- c. ensures reactor pressure safety limit is not exceeded
- d. maintains adequate partial-arc admission characteristics for the high pressure turbine

4) PV:1.0

Unit 2 plant conditions are as follows:

- 100% power
- Feedwater Level Select Switch in "A"
- 3 element control is selected

WHICH ONE of the following describes the reactor recirculation flow control system response to the following transient?

- 'A' narrow range level transmitter fails low
  - RO immediately swaps level select switch to 'B' position
  - Setpoint setdown light is lit on C603
  - RPV level is stable at +17.5 inches
- a. 28% speed (low) runback
  - b. 42% speed (high) runback
  - c. scoop tube positioners lock
  - d. scoop tube positioners reduced to min. speed

5) \*PV:1.0

Unit 2 Drywell pressure = 1.9 psig  
Unit 2 Reactor Level = +10 inches  
Unit 2 Containment Leak Detector has isolated

WHICH ONE of the following describes the reason for the isolation and Bypass capability?

- a. low reactor level, bypass capability is available
- b. low reactor level, no bypass capability
- c. high drywell pressure, bypass capability is available
- d. high drywell pressure, no bypass capability

6) PV:1.0

WHICH ONE of the following describes why the ADS SRVs are opened in a predetermined sequence when carrying out T-101 actions?

- a. ensures uniform pressure loading on individual Main Steam Lines
- b. prevent uneven heat distribution in the Suppression Pool
- c. ensure equal loading on the Instrument Gas headers
- d. prevent uneven pressure loading on the suppression chamber wall



7) PV:1.0

- A Reactor Startup is in progress
- The reactor is approaching criticality

The following sequence of events occurs:

- The RO single notch withdraws rod 02-35 from position 10 to position 12.
- The rod unexpectedly double notches to position 14 with a +30 second reactor period.

WHICH ONE of the following actions should be taken?

- a. allow reactor period to decay and continue reactor startup
- b. insert rod to position 00 and notify Reactor Engineers
- c. insert rod to position 10 and notify Control Room Supervisor
- d. immediately determine if thermal limits have been violated

8) PV:1.0

Unit 2 was operating at 100% when a scram signal occurred. Two (2) minutes later the following conditions are noted:

- Reactor Power: <4%
- Reactor Pressure: 960 psig and steady
- Rod 26-11 is at position 48
- Rod 50-31 is at position 48
- Rod 22-51 is at position 48
- All other control rods are at 00
- Boron is not being injected

WHICH ONE of the following describes conditions where the ATWS is no longer in progress?

- a. rod 26-11 at position 00 and rods 50-31 and 22-51 at position 08
- b. rods 26-11, 50-31, and 22-51 inserted to position 12
- c. rod 26-11 and 50-31 at position 04 and 22-51 at position 00
- d. rods 26-11 and 50-31 at position 00 and 22-51 at position 48

9) PV:1.0

WHICH ONE of the following requires entry into SE-2 Toxic Gas/Chlorine?

- a. a manual Radiation Isolation initiated
- b. a strong musty haylike odor present in the MCR
- c. failure of standby CREFAS to start during testing
- d. inability to maintain a positive MCR delta P

10) PV:1.0

WHICH ONE of the following conditions requires entry into both T-103 and T-104?

- a. NORTH STACK HI-HI RADIATION alarm condition
- b. SOUTH STACK HI-HI RADIATION alarm condition
- c. REACTOR ENCLOSURE STEAM FLOODING DAMPER ACTUATION
- d. STEAM LEAK DETECTION ALARM CONDITION FOR DIV I, II, III or IV

11) PV:1.0

- Core alterations are in progress
- Step #67 of the attached CCTAS has commenced

WHICH ONE of the following sets of SRM readings for step #67 REQUIRES entry into ON-120 Fuel Handling Problems?

	<u>COUNTRATE</u>			
	A	B	C	D
	SRM	SRM	SRM	SRM
a.	202	186	192	184
b.	300	200	220	300
c.	268	192	205	371
d.	298	360	370	358



12) PV:1.0

- LOCA in progress
- Drywell pressure at 3.0 psig
- Drywell temperature at 220°F.

WHICH ONE of the following describes the reason DWCW HEAD TANK HI/LO alarm status on PMS must be checked prior to bypassing the DWCW isolation?

- a. prevent creating a potential Primary Containment boundary bypass flowpath
- b. prevent potential steam voiding and subsequent water hammer of DWCW System piping
- c. ensure DW hydrogen mixing fans will not trip on low DWCW flow after 25 seconds time delay
- d. ensure adequate chilled water flow to DWCW cooled components outside Primary Containment

13) PV:1.0

- Unit 1 is at 20% reactor power

WHICH ONE of the following will trip the Recirc RPT Breakers?  
(NO Operator actions are taken)

- a. Group 1 MSIV isolation
- b. Main Turbine trip
- c. Recirc Pump Suction Valve closed
- d. Main Generator Lockout signal

14) PV:1.0

Plant conditions are as follows:

- Suppression Pool Pressure: 1.2 psig
- Suppression Pool Level: 23 ft and stable
- Suppression Pool Temperature: 180°F and rising
- Reactor Pressure: 600 psig and steady

WHICH ONE of the following is required?

- a. reduce Suppression Pool level
- b. spray the Suppression Pool
- c. depressurize to stay on safe side of SP/T-1
- d. immediately conduct an Emergency Blowdown per T-112

15) \*PV:1.0

Plant conditions are as follows:

- Reactor Power: All rods in
- Reactor Pressure: 600 psig
- Reactor Level: -145" and dropping slowly
- Supp Pool Level: 17'10"
- HPCI running and injecting 5600 gpm
- HPCI suction aligned to the Suppression Pool

WHICH ONE of the following HPCI actions is required?

- a. continue injecting at 5600 gpm
- b. reduce flow rate to 4000 gpm
- c. transfer suction to CST
- d. isolate HPCI



16) PV:1.0

An ATWS is in progress.

Reactor Recirc. Pumps are tripped.

Reactor level is being lowered.

WHICH ONE of the following describes how core flow and power respond?

<u>CORE FLOW</u>	<u>POWER</u>
a. increase	decrease
b. decrease	increase
c. decrease	decrease
d. increase	increase

17) PV:1.0

Unit 2 is undergoing an ATWS and the CRS is performing T-101 and T-117. Plant conditions are as follows:

- Reactor Power: 2%
- Reactor Pressure: 900 psig and steady
- Reactor Level: -120" and steady
- Supp Pool Temp: 102°F
- DW Pressure: 0.5 psig
- SLC Tank level: 13 1/5 gallons

No SRV's are open.

Boron is being injected via RCIC (T-209).

WHICH ONE of the following describes the bases for the direction in T-117 to "Maintain RPV Level between 12.5" and 54"?

- a. reactor power is <4% on APRM's
- b. Cold Shutdown Boron Weight has been injected
- c. low level in Standby Liquid Control Tank
- d. Hot Shutdown Boron Weight has been injected

18) PV:1.0

Unit 2 Reactor Power 40%.

A fuel clad leak develops on a fuel bundle in the core.

WHICH ONE of the following radiation monitors will provide indication of the current offsite release rate?

- a. South Stack
- b. North Stack
- c. Air Ejector Discharge Fine
- d. Off Gas Charcoal Treatment Exhaust

19) PV:1.0

Drywell H<sub>2</sub> and O<sub>2</sub> concentrations are above 6% following a LOCA.

WHICH ONE of the following describes the operation of Drywell Cooler Fans and the reason for it?

- a. operate Drywell Cooler Fans to prevent local hydrogen buildup
- b. secure Drywell Cooler Fans to remove potential ignition sources
- c. operate Drywell Cooler Fans to cool Post-LOCA Recombiner inert gas discharge
- d. secure Drywell Cooler Fans to increase Post-LOCA Recombiner inert gas inlet temperatures



20) PV:1.0

Unit 1 is undergoing a LOCA/ATWS.

Plant conditions are as follows:

- Time since scram signal: 1 hour
- Reactor pressure: 250 psig
- Reactor level: +30"
- Boron was not injected

A caution on T-101 states, "APRM downscals may be used to ensure power less than 4% only during the first 20 minutes after a LOCA".

WHICH ONE of the following can be used to determine the reactor is shutdown?

- a. SRM's reading 35,000 cps
- b. IRM's reading 60 on range 4
- c. reactor heat balance via PMS
- d. all rods inserted to or beyond 02

21) \*PV:1.0

A single Recirc Pump is operating.

WHICH ONE of the following describes the reason why Core Plate Delta P is used when the Operating Loop Recirc Pump speed is less than 60%?

- | <u>Core Flow</u>                 | <u>Idle Jet Pump Flow</u> |
|----------------------------------|---------------------------|
| a. indicated greater than actual | forward                   |
| b. indicated less than actual    | forward                   |
| c. indicated greater than actual | reverse                   |
| d. indicated less than actual    | reverse                   |

22) PV:1.0

- Reactor power is 20%
- Main Condenser vacuum is 23" Hg and slowly lowering

WHICH ONE of the following statements is the reason the Mechanical Vacuum Pump should not be started?

- a. Hold-Up Pipe will be overpressurized
- b. excessive South Stack release
- c. exceed the moisture capacity of filters
- d. combustion could occur in Mechanical Vacuum Pump

23) PV:1.0

WHICH ONE of the following actions should be taken to maintain RWCU System flowpath during the restoration of 1FA "Division I Safeguard 125V/250V DC Bus"?

- a. throttle open RWCU Demin Bypass Valve, HV44-1F044
- b. open breaker for RWCU Suction Inboard Valve, HV44-1F001
- c. hold RWCU pump handswitches in "START"
- d. bypass Group III Isolation signal per GP-8



24) PV:1.0

- "A1 MOISTURE SEPARATOR DRAIN TANK HI LEVEL alarm is in.
- "MOISTURE SEPARATOR HI LEVEL TRIP alarm is in.

Field reports confirm a Hi-Hi level condition in "A1" Moisture Separator Drain Tank.

Unit 1 Main Generator is loaded to 900 MW.

WHICH ONE of the following actions should be taken?

- a. reduce load per GP-5
- b. reduce reactor pressure to 900#
- c. isolate air to the dump valve
- d. manually trip the turbine

25) PV:1.0

Unit 1 is operating at 100% power.

The "1C" Feed Flow transmitter fails to  $3.0 \times 10^6$  lbm/hr.

WHICH ONE of the following describes plant response?

- a. reactor water level will remain constant, a control signal failure will occur
- b. reactor water level will rise, the Main Turbine and Reactor Feed pumps will continue to operate
- c. reactor water level will drop, a high Recirc runback will be received
- d. reactor water level will drop, a low Recirc runback will be received

25) PV:1.0

Plant conditions are as follows:

- Drywell pressure is 3.0 psig.
- A LOCA signal was received 7 minutes ago.

WHICH ONE of the following configurations is required to maximize Drywell cooling?

- a. bypass isolation, start 2 chillers and 1 circulating pump
- b. bypass isolation, start 1 chiller and 2 circulating pumps
- c. isolation bypass NOT required, start 1 chiller and 2 circulating pumps
- d. isolation bypass NOT required, start 2 chillers and 1 circulating pump

27) PV:1.0

An EO reports that both Instrument Gas Compressors tripped and header pressure is currently 80#.

WHICH ONE of the following is the cause of the Instrument Gas Compressor trips?

- a. low nitrogen makeup temperature
- b. both RECW pumps tripped
- c. both TECW pumps tripped
- d. low nitrogen makeup flowrate



28) PV:1.0

Instrument Air pressure is dropping on Unit 2.

WHICH ONE of the following describes why REHVAC will isolate?

- a. HV76-296 (RX ENCL/SGTS CONN) fails open
- b. HV76-257 (RX FNCL EXH FAN ISLN) fails open
- c. HV76-209 (RERS SUPPLY) fails closed
- d. HV76-251 (EQUIP COMPT ISLN) fails closed

29) PV:1.0

Unit 1 Fuel Pool Cooling is aligned for Core Decay Heat Removal.

Shutdown Cooling is secured.

1B RHR System is being flushed in preparation for Shutdown Cooling.

WHICH ONE of the following will cause a loss of "Core Decay Heat Removal" under these conditions?

- a. raise Skimmer Surge Tank level
- b. increase RWCU System dump flow
- c. reduce Fuel Pool Cooling letdown
- d. increase makeup from CRD

30) PV:1.0

WHICH ONE of the following conditions is PREVENTED by maintaining the reference leg backfill portion of CRD aligned during power operations?

- a. erroneous low level during RPV cooldown
- b. erroneous high level during RPV cooldown
- c. erroneous low level during reactor startup
- d. erroneous high level during reactor startup

31) PV:1.0

WHICH ONE of the following describes why an Emergency Blowdown is performed when Drywell temperature reaches 340°F?

- a. maintain SRV availability
- b. prevent exceeding containment deflagration limits
- c. prevent RPV level instrument reference leg boiling
- d. maintain downcomer vacuum breaker availability

32) PV:1.0

T-103 is being executed.

WHICH ONE of the following describes the bases for performing T-250 "Remote Manual Primary Containment Isolation Valves"?

- a. reduce RPV inventory loss
- b. reduce fission product releases
- c. reduce RPV cooldown rate
- d. reduce Primary Containment pressure

33) PV:1.0

WHICH ONE of the following activities can be performed while the Refuel Floor HVAC High Rad Isolation is bypassed per GP-6.1?

- a. irradiated fuel moves in spent fuel pool
- b. control rod movement in fueled cell
- c. Steam Dryer / Separator Removal
- d. CRD mechanism removal



34) PV:1.0

During startup of REHVAC, the RE Exhaust Fans trip and the RE Supply Fans remain running until secured manually.

RE HVAC has been restarted. Differential pressure cannot be restored.

WHICH ONE of the following describes plant status?

- a. steam flooding dampers actuated, Secondary Containment is intact
- b. steam flooding dampers actuated, Secondary Containment is lost
- c. steam vent (blowout) panel(s) actuated, Secondary Containment is intact
- d. steam vent (blowout) panel(s) actuated, Secondary Containment is lost

35) \*PV:1.0

T-103 is in progress on Unit 1.

T-236 Transferring Reactor Enclosure Floor Drain Sump To Suppression Pool Via Core Spray System is completed.

- HSS-61-104 REACTOR ENCL. FLOOR DRAIN SUMP SELECTION SW is in "HI-HI" position.

WHICH ONE of the following describes the operation of the "A" and "B" RE Floor Drain Sump Pumps given the above conditions?

- a. both "A" and "B" pumps run continuously and will only trip on thermals
- b. both "A" and "B" pumps run continuously and will trip on a HI-HI radiation signal
- c. both "A" and "B" pumps run based on sump level and will only trip on thermals
- d. both "A" and "B" pumps run based on sump level and will trip on a HI-HI radiation signal

36) PV:1.0

WHICH ONE of the following is the expected set of indications following a Recirculation MG Set Generator overcurrent lockout at 100% power?

	<u>Percent Speed(s)</u>	<u>Percent Speed (Demand)</u>	<u>Deviation (DEVN)</u>
a.	100	0	+10
b.	0	100	+10
c.	0	40	0
d.	40	0	0

37) PV:1.0

1D RHR is in Full Flow Test.

- RPV level drops to -130"
- RPV pressure drops to 200 psig

WHICH ONE of the following will prevent '1D' RHR Pump runout?

- a. automatic closure of HV-51-1F010B, (Flow Test D) valve
- b. trip and auto restart of the 1D RHR Pump
- c. automatic closure of HV-51-125B (Return) valve
- d. HV-51-1F017D (Injection) prevented from automatic opening

38) PV:1.0

Unit 2 HPCI is running in full flow test CST to CST. A loss of Division 2 DC power occurs.

WHICH ONE of the following describes the effect, if any, on Unit 2 HPCI?

- a. continues to run
- b. Division II isolation occurs
- c. turbine governor valve closes
- d. loss of oil pressure shutdown occurs



39) PV:1.0

Plant conditions are as follows:

- Reactor Pressure: 35 psig
- Reactor Level: -110"

The DIV III Core Spray Manual Initiation Pushbutton is armed and depressed.

WHICH ONE of the following describes the response of Core Spray?

- a. "C" Core Spray pump starts on min flow
- b. "C" Core Spray pump starts and injects
- c. "A" and "C" Core Spray pumps start on min flow
- d. "A" and "C" Core Spray pumps start and inject

40) PV:1.0

Unit 1 plant conditions are as follows:

- HPCI isolated for maintenance
- ATWS has been in progress for 3 minutes
- Reactor power is 18% on all APRMs
- RPV pressure is 1040 psig and steady
- RPV level is -50 inches and steady
- No low pressure ECCS systems are operating

WHICH ONE of the following indications can be used to confirm SBLC boron injection to the RPV?

- a. RWCU Suction Inboard (HV-44-1F001) closed
- b. "CORE SPRAY LINE INTERNAL BREAK" alarm annunciated
- c. operating SBLC pump discharge pressures reading 395 psig
- d. Squib valve continuity white lights lit

41) PV:1.0

A Unit 2 Reactor scrammed on low level.

Level dropped to -75" before being recovered.

Present plant conditions are as follows:

- Reactor pressure: 960 psig
- Reactor level: +35" and steady
- Reactor Mode Switch in shutdown
- Scram discharge volume Hi level bypass key in bypass
- The RPS reset switch is taken to Group 1/3 and Group 2/4

WHICH ONE of the following describes RPS System and scram air header response?

	<u>RPS</u>	<u>Scram Air Header</u>
a.	reset	remains depressurized
b.	reset	pressurizes
c.	not reset	remains depressurized
d.	not reset	pressurizes

42) PV:1.0

Unit 1 startup in progress.

SRM/IRM overlap data is recorded.

The RO begins to withdraw SRM's.

WHICH ONE of the following will cause a control rod withdrawal block?

	<u>SRM Counts</u>	<u>IRM Range</u>
a.	85 cps	2
b.	85 cps	3
c.	350 cps	2
d.	350 cps	3



43) PV:1.0

Reactor Mode Switch is in STARTUP.

"B" APRM is reading 2% power.

"B" IRM is reading 122/125 of scale.

WHICH ONE of the following describes plant response?

- a. half scram only
- b. full reactor scram
- c. rod withdraw block only
- d. rod withdraw block and half scram

44) PV:1.0

Unit 2 is shut down with a cooldown in progress.

Reactor pressure is 400 psig.

CRD is secured.

"B" Narrow Range level has increased from +35" to +40" for several seconds, then returned to +35" four times in the last 45 minutes.

"A" and "C" Narrow Range level indications have remained at +35".

WHICH ONE of the following conditions explains the "B" level indication response?

- a. elevated temperatures around the reference leg
- b. interminant actuation of an excess flow check valve
- c. non-condensable gas accumulation in the reference leg
- d. density compensation of the narrow range

45) PV:1.0

An ADS blowdown is in progress with 5 ADS SRV's open.

"A" and "B" Core Spray pumps are running.

"D" RHR pump is running.

All other low pressure ECCS pumps are secure.

WHICH ONE of the following will result in all 5 ADS SRVs closing?

- a. secure "A" Core Spray pump
- b. secure "B" Core Spray pump
- c. secure both "A" and "B" Core Spray pumps
- d. secure "D" RHR pump

46) PV:1.0

Unit 1 is at 100% reactor power with a LOCA (in the Drywell) in progress.

WHICH ONE of the following describes the purpose of Primary Containment Vacuum Breakers?

- a. open to prevent downcomer collapse
- b. close to limit upward force on drywell floor
- c. open to limit negative pressure in suppression chamber
- d. close to prevent negative pressure in the drywell



47) PV:1.0

Unit 1 is operating at 100% with the Reactor Water Cleanup (RWCU) System in service with two (2) pumps running.

Level transmitter LT-1N081A fails low (Division I Lo-Lo level input to NSSSS).

Actual RPV level is 35".

WHICH ONE of the following describes the response of the RWCU system?

- a. RWCU remains aligned, RWCU pumps remain in service
- b. HV-44-1F001 RWCU Inboard Isolation Valve closes
- c. HV-44-1F004 RWCU Outboard Isolation Valve closes
- d. RWCU remains aligned, RWCU pumps trip

48) PV:1.0

A LOCA is in progress on Unit 1.

All ECCS have responded as designed.

- RPV pressure: 250 psig
- DW Pressure: 30 psig
- DW Temperature: 280°F
- RPV Level: -100"

WHICH ONE of the following additional conditions will allow both "A" loop Inboard and Outboard Drywell Spray valves to be opened at the same time?

- a. 1F017A LPCI Injection Valve closed
- b. RPV level below -129"
- c. LOCA signal manually inserted
- d. 1F024A Suppression Pool Cooling isolation closed

49) PV:1.0

A leak in the tubing has caused the long term N2 bottles for "E", "K" ADS valves to depressurize.

All other Instrument Gas System parameters are normal.

"A" and "B" Instrument Gas Headers are at 100 psig.

WHICH ONE of the following describes the pneumatic supply for the "E" and "K" ADS valves?

- a. there is no pneumatic supply
- b. "A" Instrument Gas Header only
- c. "B" Instrument Gas Header only
- d. both "A" and "B" Instrument Gas Headers

50) PV:1.0

Unit 1 plant conditions are as follows:

- 100% Reactor Power
- "A" EHC Pressure Control Transmitter is controlling
- "B" EHC Pressure control Transmitter fails HIGH
- Pressure Averaging Manifold (PAM) is reading 990 psig
- EHC Pressure set at 960 psig

Refer to the attached EHC Logic diagram to answer the following question.

WHICH ONE of the following is the expected EHC System and plant response?

- a. "A" EHC Pressure Control transmitter remains in control, PAM pressure will increase
- b. "A" EHC Pressure Control Transmitter remains in control, PAM pressure will decrease
- c. "B" EHC Pressure Control Transmitter will gain control, PAM pressure will increase
- d. "B" EHC Pressure Control Transmitter will gain control, PAM pressure will decrease



51) PV:1.0

Refuel Floor HVAC is in service.

SGD-76-206-3 Refuel Floor to SGTS Connecting Slide Gate Damper is closed.

HV-76-019 (Refuel Area/SGTS Conn) FAILS OPEN.

WHICH ONE of the following describes the effect of this failure on SGTS and Refuel Floor Ventilation?

	<u>SGTS</u>	<u>Refuel Floor Ventilation</u>
a.	starts	shuts down and aligns to SGTS
b.	starts	remains in service
c.	remains shutdown	shuts down and aligns to SGTS
d.	remains shutdown	remains in service

52) \*PV:1.0

A steam line ruptures in the Outboard MSIV Room.

WHICH ONE of the following describes the designed steam release flowpaths from the Outboard MSIV Room?

- simultaneously to Turbine Enclosure and outside
- simultaneously to Control Enclosure and outside
- to Reactor Enclosure, through Radwaste Enclosure, then outside
- to Reactor Enclosure, through Control Enclosure then outside

53) PV:1.0

A LOCA is in progress on the Unit.

Division I DC is deenergized.

- Reactor pressure: 650 psig
- Reactor level: -139"
- Drywell Pressure: 17 psig
- The LOCA signal occurred 100 seconds ago
- B, C, and D RHR pumps are running
- "B" loop of Core Spray is running

WHICH ONE of the following describes how the ADS System will operate under these conditions?

- a. ADS will initiate without any operator intervention
- b. ADS will NOT initiate, ADS SRV's will only cycle on pressure
- c. ADS valves will open ONLY if the 5 keylock switches in the AER are taken to OPEN
- d. ADS will initiate ONLY if both Division 3 Manual Initiation pushbuttons are depressed in the MCR

54) PV:1.0

The Turbine Bypass Valves have been manually opened to 20% with the Jack.

WHICH ONE of the following describes the Turbine Bypass Valve response to a Main Condenser Low Vacuum signal of 0" vacuum?

- a. will fully close
- b. will fully open
- c. will remain at their current position of 20% open
- d. will open to maintain the Pressure Set setpoint



55) PV:1.0

Unit 1 plant conditions are as follows:

- 100% power
- Scram Discharge Volume Inboard Drain Valve (XV-47-1F011) is failed closed
- SCRAM DISCHARGE VOLUME NOT DRAINED alarmed 10 seconds ago

WHICH ONE of the following describes control rod response to a valid scram signal?

- a. all control rods will fully insert
- b. no control rods fully insert
- c. only control rods associated with east side HCU's will insert
- d. only control rods associated with west side HCU's will insert

56) PV:1.0

Plant conditions are as follows:

- Unit 1 in OPCON 2
- Control rod 42-43 is being withdrawn from notch 08 to 12
- The rod group target is position 12

A directional control valve sticks resulting in control rod 42-43 being withdrawn to position 14.

WHICH ONE of the following must occur to allow continued rod motion?

- a. rod 42-43 must be inserted to position 12
- b. rod 42-43 must be bypassed and then inserted to position 08
- c. associated group rods must be withdrawn to position 14
- d. previous groups rods must be inserted to position 14

57) PV:1.0

Unit 2 Plant conditions are as follows:

- Shutdown Cooling (SDC) is in service with the 2A RHR Pump
- D22 bus is de-energized
- All Unit 1 Safeguard Busses are energized

WHICH ONE of the following describes the pumps available for SDC if a D21 Bus Lockout occurs?

- a. 2A RHR Pump, 0D RHRSW Pump
- b. 2B RHR Pump, 0C RHRSW Pump
- c. 2C RHR Pump, 0D RHRSW Pump
- d. 2D RHR Pump, 0B RHRSW Pump

58) PV:1.0

Control rod 30-31 is being inserted from position 12 to position 08.

The RO notes that during rod motion the following occur:

- Control Rod 30-31 position indicates "XX" on the 4-Rod display
- Control Rod 30-31 position indicates "\*\*\*" on PMS
- RPIS Status DATA FAULT light on 10C603 is lit

WHICH ONE of the following describes the status of rod 30-31?

- a. scrambled
- b. uncoupled
- c. stuck at position 09
- d. reed switch has failed



59) PV:1.0

During movement of fuel in the Fuel Pool, the compressed air system on the Refueling Bridge is lost.

A fuel bundle is currently grappled.

WHICH ONE of the following describes the effect on the main fuel hoist grapple and the loaded bundle?

- a. grapple will remain as-is, bundle cannot be released
- b. grapple will remain as-is, bundle will release only when seated
- c. grapple will open, bundle will be released immediately
- d. grapple will open after time delay, bundle will release

60) PV:1.0

Unit 2 Reactor Power is 2%.

"2B" RFP is running with all 3 Condensate Pumps in service.

Reactor pressure is 760 psig.

Reactor level is 35".

WHICH ONE of the following feedwater flowpath(s) must be used to maintain reactor level at 35"?

HV06-208B "2B" RFP DISCHARGE VALVE  
HV06-238A STARTUP LEVEL CONTROL VALVE  
HV06-220 STARTUP BYPASS VALVE

- a. HV06-238A
- b. HV06-220
- c. HV06-208B
- d. HV06-238A and HV06-220

61) PV:1.0

120 VAC panel 10Y109 circuit 5 supplies normal power to the 1A FW UPS inverter.

WHICH ONE of the following describes the effect of opening 10Y109 circuit 5 on the 1A FW UPS inverter loads?

- a. all loads will remain energized for at least 10 minutes
- b. some loads immediately lose power, the remainder will deenergize in 10 minutes
- c. the circuit is auctioneered, no loads are lost
- d. all loads remain energized for 2 hours and then all loads deenergize

62) PV:1.0

Unit 1 is operating at 60% power.

Offgas Recombiner Outlet temperatures are as follows:

TSH-69-135A	945°F
TSH-69-135B	934°F
TSH 69-135C	827°F

WHICH ONE of the following describes system response?

- a. First Stage Air Ejector "AIR" valves will close
- b. First Stage Air Ejector "STEAM" valves will close
- c. Second Stage Air Ejector "AIR" valve will close
- d. Second Stage Air Ejector "STEAM" valve will close



63) PV:1.0

Unit 1 Cable Spread Room Fire Suppression System is manually initiated.

WHICH ONE of the following describes system response?

- a. CO2 initiates after a 5 second time delay
- b. Halon initiates after a 5 second time delay
- c. CO2 initiates after a 20 second time delay
- d. Halon initiates after a 20 second time delay

64) PV:1.0

A complete Main Control Room Radiation Isolation is initiated.

WHICH ONE of the following describes the HVAC alignment and effect on MCR dP?

- a. MCR HVAC aligns to Recirc, MCR dP decays to zero
- b. outside air provides makeup, MCR dP remains positive
- c. MCR HVAC aligns to Recirc, MCR dP remains positive
- d. outside air provides makeup, MCR dP decays to zero

65) PV:1.0

Instrument Air Compressors have tripped and both Instrument Air headers are completely depressurized.

WHICH ONE of the following describes how the Primary Containment Instrument Gas (PCIG) System responds?

- | <u>PCIG Compressors</u> | <u>Drywell PCIG Loads</u> |
|-------------------------|---------------------------|
| a. continue to run      | supplied by receivers     |
| b. continue to run      | not supplied by receivers |
| c. trip                 | supplied by receivers     |
| d. trip                 | not supplied by receivers |

66) PV:1.0

A unit startup is in progress.

A control rod is suspected of being stuck at position 24.

WHICH ONE of the following indications can be used to confirm a stuck rod during subsequent one notch rod movement attempts?

- a. ROD OVERTRAVEL alarm
- b. high CRD drive water flow
- c. low CRD drive water pressure
- d. no change in nuclear instrumentation

67) PV:1.0

An OD-1 is in progress on Unit 1.

Reactor level drops to -80" and is stabilized.

WHICH ONE of the following describe response of the TIP system?

- a. TIP's in the core are retracted to the indexer and the ball valves close
- b. TIP's are retracted to the shield chamber, the ball valves remains open
- c. TIP's are retracted to the shield chamber, the ball valve closes
- d. TIP's in the core are retracted to the indexer and the Shear Valve actuates

68) PV:1.0

WHICH ONE of the following describes the effect of Reactor Core Flow Orificing?

- a. allows peripheral bundles to operate at twice the power of central region bundles
- b. redirects coolant flow to maximize two phase flow in high power fuel bundles
- c. equalizes coolant flow among fuel bundles having different amounts of two phase flow
- d. maximizes coolant flow pressure drop in fuel bundles operating without two phase flow

69) PV:1.0

Fuel Pool Cooling is in service.

Fuel Pool level is above the weir plates.

Skimmer Surge Tank level is 10 feet.

A leak develops on the Fuel Pool Cooling Pump suction line from the Skimmer Surge Tank which can not be isolated.

WHICH ONE of the following describes ultimate effect on Fuel Pool and Skimmer Surge Tank Level?

<u>Fuel Pool Level</u>	<u>Skimmer Surge Tank</u>
a. Drops to weir plate	Overflows
b. Drops below weir plate	Drains
c. Drops to weir plate	Drains
d. Drops below weir plate	Overflows



70) PV:1.0

An Equipment Operator is dispatched to locally operate breakers in the 500 KV yard.

A pre-job brief was conducted which included the System Manager, an EO, a PRO and the CRS.

WHICH ONE of the following describes communication requirements for this evolution?

- a. the System Manager is responsible for communicating with the PSD
- b. communications with the PSD are not required for this evolution
- c. direct communication can occur between the PSD and the EO
- d. communications with the PSD can only be made by the CRS

71) \*PV:1.0

During the performance of an ST the RO requests the PRO to complete the IVOR section.

The PRO finds a switch in the wrong position.

WHICH ONE of the following describes the actions that should be taken by the PRO?

- a. reposition the switch, complete the IVOR section and sign the ST off as satisfactory
- b. immediately report discrepancy to the RO and Shift Management
- c. immediately sign off the ST as unsatisfactory and report discrepancies to Shift Management
- d. reposition the switch, annotate in comments section and report discrepancy to the RO

72) PV:1.0

A worker has received 2.9 Rem TEDE (Total Effective Dose Equivalent) for this year.

The worker is needed to perform a job where the estimated dose is in excess of 150 mRem.

WHICH ONE of the following describes requirements, if any, for allowing this worker to be assigned to the job?

- a. worker can perform the job without exceeding any limits
- b. worker can perform the job as long as a dose extension is approved
- c. 10CFR20 Dose Limits will be exceeded and worker shall not be assigned to the job
- d. worker can perform the job as long as a current year exposure statement is on file

73) PV:1.0

WHICH ONE of the following describes requirements associated with Level II Procedure use?

- a. reference during activity performance
- b. continuous in hand use during activity performance
- c. initial actions required shall be memorized
- d. referenced only if unsure of actions after activity complete

74) PV:1.0

WHICH ONE of the following describes activities allowed under an Administrative Clearance?

- a. DIN repairs
- b. FIN Team maintenance
- c. no work shall be performed
- d. TPA installation or removal



75) PV:1.0

Conditions are as follows:

- Unit 1 Reactor Scrammed
- Reactor Level Unknown
- Suppression Pool pressure 32 psig

WHICH ONE of the following describes conditions where adequate Core Cooling is assured?

- a. reactor pressure = 50#, 4 SRV's are open
- b. reactor pressure = 85#, 4 SRV's are open
- c. reactor pressure = 50#, 5 SRV's are open
- d. reactor pressure = 85#, 5 SRV's are open

76) \*PV:1.0

101-D22 Breaker is closed.

201-D22 Breaker is green flagged.

D22 EDG is in normal alignment.

101 Safeguard Bus voltage drops to 2900 volts for several minutes.

WHICH ONE of the following describes 4KV status?

- |    | <u>101-D22<br/>Breaker</u> | <u>201-D22<br/>Breaker</u> | <u>D22 Diesel</u> |
|----|----------------------------|----------------------------|-------------------|
| a. | stays closed               | stays open                 | starts            |
| b. | trips                      | closes                     | starts            |
| c. | stays closed               | closes                     | stays shutdown    |
| d. | trips                      | stays open                 | stays shutdown    |



77) PV:1.0

The unit is at 100% power.

"K" ADS SRV has inadvertently opened.

WHICH ONE of the following is an immediate operator action for the inadvertent opening of the relief valve?

- a. reduce turbine inlet pressure to 900 psig
- b. enter ERP-101 and classify the event
- c. pull Auxiliary Equipment Room fuses for the stuck open SRV
- d. place both loops of Suppression Pool Cooling in service.

78) PV:1.0

Unit 1 is operating at 80% power when an inadvertent isolation of feedwater heating occurs to the 6B feedwater heater.

Feedwater inlet temperature is outside the operating region of the analyzed range of feedwater inlet temperature curve of OT-104 "Unexpected/Unexplained Reactivity Insertion".

WHICH ONE of the following describes the required actions to return to the operating region?

- a. reduce power in accordance with RMSI
- b. restore feedwater heating to increase feedwater temperature
- c. increase feedwater flow through the 6A and 6C feedwater heaters
- d. isolate the "B" low pressure feedwater heater string

79) PV:1.0

WHICH ONE of the following NSSSS Groups will receive an isolation signal upon receipt of a North Stack Effluent High Radiation condition?

- a. IIA, RHR Shutdown Cooling
- b. VIA, Primary Containment Purge Supply and Exhaust
- c. VIIA, Primary Containment Instrument Gas Process Lines
- d. VIIIA, Drywell Chilled Water and Recirc Pump Cooling Water

80) PV:1.0

The Refuel Platform Operator has inserted a spent fuel bundle into the North Fuel Prep Machine for inspection.

The following indications exist:

- Slack cable light = lit
- Hoist load indication = 10#
- Hoist encoder position = 157"

Using Attachment 2 of S97.0.M, WHICH ONE of the following actions should be directed?

- a. release the bundle
- b. stop fuel movements
- c. raise the North Fuel Prep Machine
- d. lower the grapple until the SLACK CABLE light goes out

81) PV:1.0

T-243 (ALTERNATE INJECTION BY WAY OF RHRSW TO RHR) is in progress on Unit 2.

WHICH ONE of the following describes why the RHRSW PUMP TRIP BYPASS A/C switch is placed in "BYPASS"?

- a. ensures isolation of 2A RHRSW Heat Exchanger
- b. prevents isolation of 2B RHRSW Heat Exchanger
- c. prevents trip of A/C RHRSW pump
- d. ensures trip of B/C RHRSW pump

82) PV:1.0

The unit has received an inadvertent 1.68 psig isolation signal.

The following systems have had NSSSS inboard and outboard signals bypassed and are restored:

- Drywell Chilled Water
- Reactor Enclosure Cooling Water
- H<sub>2</sub>/O<sub>2</sub> Analyzers
- PCIG Barrier Block and Vent Valves

WHICH ONE of the following will automatically re-isolate if RPV water level drops below -129"?

- a. Drywell Chilled Water
- b. Reactor Enclosure Cooling Water
- c. H<sub>2</sub>/O<sub>2</sub> analyzers
- d. PCIG Barrier Block and Vent Valves



83) PV:1.0

T-102 Primary Containment Control Suppression Pool level leg (SP/L) provides guidance for calculating containment level.

Drywell pressure is subtracted from Suppression Pool pressure and the result is multiplied by 2.3 to convert the value to feet.

This value then has 26.8 feet added to it to determine final level.

WHICH ONE of the following describes why a value of 26.8 feet is used?

- a. elevation of the Suppression Pool Vent
- b. elevation of the Suppression Pool Pressure Instrument tap
- c. elevation of the Drywell Floor
- d. elevation of the Suppression Pool/Drywell Vacuum Breakers

84) PV:1.0

Unit 1 RCIC System is lined-up for automatic operation.

All ECCS are operable.

WHICH ONE of the following describes RCIC System operability and actions, if any, required if "A" Loop of ESW becomes unavailable?

- a. RCIC is inoperable, be in a least HOT SHUTDOWN within the next 12 hours
- b. RCIC is inoperable, reduce reactor steam dome pressure below 150 psig in 24 hours
- c. RCIC is operable, realign "B" loop of ESW to RCIC room unit coolers
- d. RCIC is operable, verify Unit 1 Service Water lined up to RCIC room unit coolers

85) PV:1.0

Unit 2 is at 25% power.

A plant startup is in progress.

During performance of a surveillance test, I&C reports the following:

<u>Feedwater/Main Turbine Trip System Channel</u>	<u>Trip Setpoint</u>
A	54.3
B	53.5
C	56.5
D	55.9

WHICH ONE of the following describes the actions to be taken?

- power ascension must stop, inoperable channel(s) must be restored within 7 days
- power ascension must stop, inoperable channel(s) must be restored within 72 hours
- power ascension may continue, inoperable channel(s) must be restored within 7 days
- power ascension may continue, inoperable channel(s) must be restored within 72 hours

86) PV:1.0

Unit 2 is in OPCON 4.

The 22 Aux Bus is deenergized pending clearance application.

- All 3 feeder breakers are racked in
- All 3 feeder breaker handswitches are green flagged in the Main Control Room
- The 22 Aux Bus Fast Transfer Select Switch is in the 10-22 position.
- The 10 and 20 Startup Busses are energized.

Generator testing in the Aux Equipment Room results in an unexpected generator lockout signal.

WHICH ONE of the following describes the effects, if any, of the lockout signal on the 22 Aux Bus?

- a. becomes energized from 10 Startup Bus
- b. becomes energized from 20 Startup Bus
- c. becomes energized from Unit Aux Transformer
- d. remains deenergized

87) PV:1.0

Unit 1 is in OPCON 2.

D21 Diesel declared inop 3 days ago.

"0B" and "0L" RHRSW pumps declared inop.

WHICH ONE of the following describes required Unit 1 actions?

- a. restore one RHRSW pump/diesel pair to operable within 30 days
- b. restore one RHRSW pump/diesel pair to operable within 7 days
- c. restore one RHRSW pump to operable within 7 days
- d. restore one RHRSW pump to operable within 72 hours



88) PV:1.0

Unit 1 is in OPCON 5\*.

Mode switch is in REFUEL.

WHICH ONE of the following conditions will result in a Control Rod Block?

- a. Main Hoist loaded over Spent Fuel Pool
- b. Frame Hoist jam at 600 lbs. over the cask pit
- c. Main Hoist loaded over the reactor cavity
- d. Frame Hoist jam at 800 lbs. over the reactor cavity

89) PV:1.0

Unit 1 in OPCON 2.

A unit startup is in progress.

Div II DC 125 volt battery charger (1BCB1) output fails to 0 volts.

Two (2) Div IV battery pilot cells have specific gravities at 1.155.

WHICH ONE of the following describes when Unit 1 must be placed in Hot Shutdown in accordance with Tech Specs?

- a. 7 hours
- b. 12 hours
- c. 24 hours
- d. 72 hours

90) PV:1.0

A reactor shutdown is in progress.

WHICH ONE of the following statements describes the Reactor Engineering minimum staffing requirements?

- a. RE should be in the MCR, but is not required
- b. RE shall be in the MCR during reactivity manipulations
- c. RE shall be on-site during the shutdown
- d. RE shall be on-call during the shutdown

91) PV:1.0

WHICH ONE of the following activities is the Fuel Handling Director (LSRO License only) permitted to perform during core off-loading?

- a. sign reviewed by for ST-6-076-360-0 (REFUEL AREA SEC CNTMT INTEGRITY VERIFICATION)
- b. direct decontamination of in-vessel inspection equipment
- c. initiate changes to the CCTAS
- d. IVOR power restoration to Refuel Floor ARM's

92) PV:1.0

During performance of ON-124, RESTART OF UNIT 2 REACTOR HVAC WITH ABNORMAL RADIOLOGICAL CONDITIONS, the procedure cannot be completed as written due to a clearance applied to "2C" RE Exhaust fan.

WHICH ONE of the following describes the appropriate administrative control mechanism to allow procedure completion using "2A" RE Exhaust fan?

- a. PPIS
- b. Partial Procedure
- c. Temporary Change - Activity Unique
- d. Temporary Change - Permanent Revision



93) PV:1.0

WHICH ONE of the following illustrates an example of an activity required to be controlled with a troubleshooting control form (TCF)?

- a. lifting leads during clearance application
- b. replacement of indicator light bulbs on operating equipment
- c. pulling safety related, ADS SRV, fuses per OT-114
- d. temporary removal and reapplication of a TPA to support additional testing

94) PV:1.0

WHICH ONE of the following identifies how the Plant Evolution/Special Test controls of A-C-23 can be incorporated into a new complex plant evolution with significant impact?

- a. generate a special procedure
- b. generate a special event procedure
- c. generate a temporary change to a surveillance test
- d. generate a temporary change to a system procedure

95) PV:1.0

A Equipment Operator declares pregnancy at the beginning of the shift.

WHICH ONE of the following states the maximum exposure she can receive during the term of her pregnancy without exceeding PECO administrative controls?

- a. 0.4 rem
- b. 0.5 rem
- c. 3.0 rem
- d. 4.0 rem



96) PV:1.0

An outage is in progress.

The Drywell is open.

A Drywell entry is required to isolate a leak that threatens to lower Fuel Pool level.

WHICH ONE of the following describes the RWP requirements for this entry?

- a. the Control Point HP technician can authorize entry in lieu of signing on the existing RWP
- b. Senior Health Physicists must authorize the entry in lieu of signing on the existing RWP
- c. the Shift Manager can authorize entry with an HP technician acting in lieu of signing on the existing RWP
- d. an operator entering the drywell must follow the direction of the RWP without exception

97) PV:1.0

Following entry into a Locked High Radiation area in the Reactor Enclosure, the door cannot be locked due to a broken mechanism.

WHICH ONE of the following describes the method to be used to prevent unauthorized entry to the area?

- a. door is posted with a warning, door is added to security checklist and verified closed hourly
- b. area is checked to ensure all personnel out, door is padlocked, Shift Manager notified
- c. notify the Radiation Protection Manager, initiate walkdown of door to ensure closed every 2 hours
- d. notify HP Supervisor, access is controlled by an EO and placed on EO log for turnover

98) PV:1.0

A General Emergency is declared as the initial event following a plant transient.

WHICH ONE of the following statements describes Protective Action Recommendations (PAR)?

- a. Emergency Director furnishes information to NRC
- b. Emergency Response Manager furnishes information to NRC
- c. Emergency Director furnishes information to the State and Counties
- d. Emergency Response Manager furnishes information to the State and Counties

99) PV:1.0

A Site Emergency has been declared.

The Emergency Director is in the TSC which fills with smoke and quickly becomes uninhabitable.

WHICH ONE of the following areas does the Emergency Director relocate to?

- a. OSC
- b. MCR
- c. EFDC
- d. PPC



100) PV:1.0

A steam flooding damper for RCIC Pump Room 108 actuates.

T-103 is entered.

WHICH ONE of the following conditions will permit exit from T-103?

- a. all steam flooding dampers for Room 108 are verified closed
- b. all Room 108 temperatures are verified less than MSO value
- c. steam flooding damper verified to have failed closed spuriously
- d. the unit is manually shutdown per GP-3, Normal Plant shutdown

Attachment 3  
SIMULATION FACILITY REPORT

Facility Licensee: Limerick

Facility Docket Nos 50-352 and 50-353

Operating Tests Administered from: January 20-23, 1998

This form is used only to report simulator observations. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of noncompliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information that may be used in future evaluations. No licensee action is required in response to these observations.

No simulator deficiencies, that affected the scenario examinations or JPMs, were identified during the conduct of the examinations.