U. S. NUCLEAR REGULATORY COMMISSION

REGION I

DOCKET/REPORT NO: 50-220/94-25 (OL)

LICENSEE: Niagara Mohawk Power Corporation

FACILITY: Nine Mile Point Nuclear Station, Unit 1
Syracuse, New York 13212

DATES: December 5-9, 1994

EXAMINERS: D. Florek, Senior Operations Engineer
K. Kolaczyk, Operations Engineer
D. Draper, Examiner (PNL)
B. Ferguson, Examiner (PNL)
R. Orton, Examiner (PNL)

CHIEF EXAMINER: D. Florek 1/5/95
D. Florek, Senior Operations Engineer Date
BWR & PWR Sections
Division of Reactor Safety

APPROVED BY: Glenn W. Meyer 1/12/95
Glenn W. Meyer, Chief Date
BWR & PWR Sections
Division of Reactor Safety

EXAMINATION SUMMARY

Examination Report 50-220/94-25 (OL)

Initial examinations were administered to two senior reactor operator (SRO) instant applicants and seven reactor operator (RO) applicants during the period of December 5-9, 1994, at the Nine Mile Point Nuclear Station, Unit 1.

OPERATIONS

All applicants passed the examination. The applicants demonstrated very good performance during all parts of the examination with few generic weaknesses identified.

DETAILS

1.0 INTRODUCTION

The NRC administered initial examinations to two senior reactor operator (SRO) instant applicants and seven reactor operator (RO) applicants. One of the reactor operator applicants only took the written portion of the examination. The examinations were administered in accordance with NUREG-1021, "Examiner Standards," Revision 7.

2.0 PREEXAMINATION ACTIVITIES

The facility reviewed the written examinations during the week of November 14, 1994. The simulator scenarios and job performance measures (JPMs) were validated during the week of November 14, 1994, on the facility's simulator and in the plant. The facility staff who were involved with these reviews signed security agreements to ensure that the initial examinations were not compromised.

3.0 EXAMINATION RESULTS AND RELATED FINDINGS, OBSERVATIONS AND CONCLUSIONS

3.1 Examination Results

The results of the examinations are summarized below:

	SRO Pass/Fail	RO Pass/Fail
Written	2/0	7/0
Operating	2/0	6/0
Overall	2/0	7/0

3.2 Facility Generic Strengths and Weaknesses

The following is a summary of the strengths and weaknesses noted during initial examination administration. This information is being provided to aid the licensee in upgrading their training program.

Written Examination

Questions related to the following specific knowledge/ability topics were missed by at least half of the applicants, indicating a generic weakness in the subject:

RO-11, SRO-11 — The consequences for failing to complete main turbine control and intercept valve venting prior to reactor heating and pressurization.

RO-21 — Identification of the failure mechanism that would cause a high drive flow during insertion of a stuck control rod.

RO-50 Knowledge of the purpose of the control rod valve disk.

RO-59, SRO-50 Required operator actions for an inadvertent criticality during refueling.

Operating Examination

The applicants were well prepared for the examination with generally solid performance by all applicants. No generic strengths were specifically identified. Only one generic weakness was identified during the walkthrough examination. At least half of the applicants had difficulty in predicting the response of the turbine control system to a failure of the bypass opening jack motor in the open position.

3.3 Remote Shutdown Panel Observations

During the examination, the examiners noted that the remote shutdown panel contained incorrect unauthorized aids to identify emergency condenser valves. It appeared that the numbers 39-09 and 39-07 were handwritten on the panel with a black marker.

The examiners also noted that the emergency condenser valves are commonly referred to as 39-07 and 39-09, whereas the procedure and laminated labels refer to these as EC Steam Isolation Valve 111 and 112. This may have contributed to the unauthorized operator aids on the remote shutdown panels.

4.0 EXIT MEETING

An exit meeting was conducted on December 9, 1994. Preliminary generic strengths and weaknesses on the operating tests were presented. The chief examiner informed the licensee representatives regarding the observations on the remote shutdown panel. The general supervisor of operations identified that these observations will be corrected. The chief examiner identified at the exit meeting that any comments on the written examination were required to be submitted by December 16, 1994. The support given by all of the Niagara Mohawk personnel enabled the examination to be developed and administered very efficiently and effectively.

On December 12, 1994, B. Mertha, General Supervisor, Operations Training, Unit 1, informed D. Florek, the chief examiner, that there were two questions on the written examination that they would like to provide a comment. Common question SRO-17 and RO-17 had a typo in the answer key, and common question RO-94 and SRO-93 had two correct answers. During the preliminary review of the grading of the written examination, the chief examiner also identified potential changes to those common questions. Based on the phone call and the chief examiner's review, the answer key was revised. The chief examiner informed the operations training supervisor that no additional correspondence was required to address their comments.

Persons contacted and attendees at the exit meeting are listed below:

Licensee Personnel

M. Balduzzi, General Supervisor, Operations
B. Murtha, General Supervisor Operations Training, Unit 1
R. Slade, General Supervisor, Operations Training - Unit 2
R. Tessier, Manager of Nuclear Training

NRC Personnel

D. Florek, Sr. Operations Engineer
K. Kolaczyk, Operations Engineer

Attachments:
1. RO Examination and Answer Key
2. SRO Examination and Answer Key
3. Simulation Facility Report

ATTACHMENT 1

RO EXAMINATION AND ANSWER KEY

U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
REACTOR OPERATOR LICENSE
REGION 1

APPLICANT'S NAME: _____

FACILITY: Nine Mile Point 1

REACTOR TYPE: BWR-GE2

DATE ADMINISTERED: December 9, 1994

INSTRUCTIONS TO APPLICANT

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires a final grade of at least 80%. Examination papers will be picked up four (4) hours after the examination starts.

TEST VALUE	APPLICANT'S SCORE	FINAL GRADE %
100.00		

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

_____
Candidate's Signature

ANSWER SHEET

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

MULTIPLE CHOICE

001	a	b	c	d	___	023	a	b	c	d	___
002	a	b	c	d	___	024	a	b	c	d	___
003	a	b	c	d	___	025	a	b	c	d	___
004	a	b	c	d	___	026	a	b	c	d	___
005	a	b	c	d	___	027	a	b	c	d	___
006	a	b	c	d	___	028	a	b	c	d	___
007	a	b	c	d	___	029	a	b	c	d	___
008	a	b	c	d	___	030	a	b	c	d	___
009	a	b	c	d	___	031	a	b	c	d	___
010	a	b	c	d	___	032	a	b	c	d	___
011	a	b	c	d	___	033	a	b	c	d	___
012	a	b	c	d	___	034	a	b	c	d	___
013	a	b	c	d	___	035	a	b	c	d	___
014	a	b	c	d	___	036	a	b	c	d	___
015	a	b	c	d	___	037	a	b	c	d	___
016	a	b	c	d	___	038	a	b	c	d	___
017	a	b	c	d	___	039	a	b	c	d	___
018	a	b	c	d	___	040	a	b	c	d	___
019	a	b	c	d	___	041	a	b	c	d	___
020	a	b	c	d	___	042	a	b	c	d	___
021	a	b	c	d	___	043	a	b	c	d	___
022	a	b	c	d	___	044	a	b	c	d	___
						045	a	b	c	d	___

ANSWER SHEET

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

046	a	b	c	d	___	069	a	b	c	d	___
047	a	b	c	d	___	070	a	b	c	d	___
048	a	b	c	d	___	071	a	b	c	d	___
049	a	b	c	d	___	072	a	b	c	d	___
050	a	b	c	d	___	073	a	b	c	d	___
051	a	b	c	d	___	074	a	b	c	d	___
052	a	b	c	d	___	075	a	b	c	d	___
053	a	b	c	d	___	076	a	b	c	d	___
054	a	b	c	d	___	077	a	b	c	d	___
055	a	b	c	d	___	078	a	b	c	d	___
056	a	b	c	d	___	079	a	b	c	d	___
057	a	b	c	d	___	080	a	b	c	d	___
058	a	b	c	d	___	081	a	b	c	d	___
059	a	b	c	d	___	082	a	b	c	d	___
060	a	b	c	d	___	083	a	b	c	d	___
061	a	b	c	d	___	084	a	b	c	d	___
062	a	b	c	d	___	085	a	b	c	d	___
063	a	b	c	d	___	086	a	b	c	d	___
064	a	b	c	d	___	087	a	b	c	d	___
065	a	b	c	d	___	088	a	b	c	d	___
066	a	b	c	d	___	089	a	b	c	d	___
067	a	b	c	d	___	090	a	b	c	d	___
068	a	b	c	d	___	091	a	b	c	d	___

ANSWER SHEET

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

092	a	b	c	d	___
093	a	b	c	d	___
094	a	b	c	d	___
095	a	b	c	d	___
096	a	b	c	d	___
097	a	b	c	d	___
098	a	b	c	d	___
099	a	b	c	d	___
100	a	b	c	d	___

(********** END OF EXAMINATION **********)

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

(next page is 7)

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.

2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.

3. Restroom trips are to be limited and only one applicant at a time may leave. You must avoid all contacts with anyone outside the examination Room to avoid even the appearance or possibility of cheating.

4. Use black ink or dark pencil ONLY to facilitate legible reproductions.

5. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet and each answer sheet.

6. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.

7. The point value for each question is indicated in parentheses after the question.

8. If the intent of a question is unclear, ask questions of the examiner only.

9. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.

10. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.

11. To pass the examination, you must achieve a grade of 80% or greater.

12. There is a time limit of four (4) hours for completion of the examination.

13. When you are done and have turned in your examination, leave the examination area (EXAMINER WILL DEFINE THE AREA). If you are found in this area while the examination is still in progress, your license may be denied or revoked.

QUESTION: 001 (1.00)

An Electromatic Relief Valve (ERV) has inadvertently stuck open during full power operation. WHICH ONE (1) of the following is directed in N1-OP-1 in order to close the ERV?

a. Cycle the ERV Control Switch.

b. Install jumpers across the appropriate Control Power fuses in Panel F.

c. Place the ADS Inhibit Switches in BYPASS.

d. Depress the ADS Timer Reset Pushbuttons.

QUESTION: 002 (1.00)

The reactor is being refueled, the fuel pool canal gates are removed and the inboard MSIV leak rate test is in progress. WHICH ONE (1) of the following is the possible result of these conditions?

a. Shutdown cooling may be lost.

b. The Spent Fuel Pool level may be lowered.

c. Secondary containment integrity may be challenged.

d. The LPRM detectors may be damaged.

QUESTION: 003 (1.00)

All 125 VDC power has been lost to the ADS valve actuation circuits. WHICH ONE (1) of the following describes the operational status of the ADS?

a. Automatic initiation of ADS and manual operation of all ERVs from panel F is not available.

b. Automatic initiation of ADS is not available, but manual operation of the ERVs from panel F is still possible.

c. Automatic initiation of ADS is still possible, but manual operation of the ERVs from panel F is not available.

d. Automatic initiation of ADS and manual operation of the ERVs from panel F is still possible.

QUESTION: 004 (1.00)

Reactor shutdown is in progress. Reactor pressure is 550 psig. WHICH ONE (1) of the following reactor scrams is bypassed?

a. Main Steam Line High Radiation

b. MSIV Closure

c. High Reactor Water Level

d. High Reactor Pressure

QUESTION: 005 (1.00)

The reactor is operating at 100% power. One of the two operating RBCLC Heat Exchangers was removed from service. The RBCLC System temperature has increased 14 deg F during the last hour. WHICH ONE (1) of the following is the possible consequence of this condition?

a. Recirculation pump seal damage.

b. Cleanup System isolation.

c. Oxygen and hydrogen analyzers become inoperable.

d. Drywell coolers become ineffective.

QUESTION: 006 (1.00)

During Reactor operation power is lost to Reactor Trip System 141. WHICH ONE (1) of the following is the status of the RPS Channel 11 and 12 scram pilot valves and the ATWS/ARI solenoid valves?

a.	RPS Channel 11 Scram Pilot valves	Deenergized
	RPS Channel 12 Scram Pilot valves	Energized
	ATWS/ARI Solenoid Valves	Energized
b.	RPS Channel 11 Scram Pilot valves	Energized
	RPS Channel 12 Scram Pilot valves	Deenergized
	ATWS/ARI Solenoid Valves	Energized
c.	RPS Channel 11 Scram Pilot valves	Deenergized
	RPS Channel 12 Scram Pilot valves	Energized
	ATWS/ARI Solenoid Valves	Deenergized
d.	RPS Channel 11 Scram Pilot valves	Energized
	RPS Channel 12 Scram Pilot valves	Deenergized
	ATWS/ARI Solenoid Valves	Deenergized

QUESTION: 007 (1.00)

The reactor is operating at 100% and testing of the RPS is in progress. A half scram is inserted in RPS channel 11. When the half scram is reset, a WHITE scram indicating light fails to illuminate and goes undetected by the operator. (All light bulbs are good.) WHICH ONE (1) of the following would be the initial consequence of inserting a half scram on channel 12?

a. Full reactor scram.

b. One quarter of the rods would scram.

c. Half scram with no rod movement.

d. Half scram with rods drifting in.

QUESTION: 008 (1.00)

A diesel engine has operated at idle speed for 9 hours and is then shut down. Twelve hours later the diesel is started and loaded under emergency conditions. WHICH ONE (1) of the following is the possible consequence of these actions?

a. Bearing damage.

b. Exhaust system fire.

c. Piston scoring.

d. Slow engine ramp.

QUESTION: 009 (1.00)

The plant is operating at 100% and the Feedwater Level Control is 3-ELEMENT. Control power is lost to the 13 Feedwater Pump Flow Control Valve (FCV). WHICH ONE (1) of the following describes the operation of the FCV and how local control is taken?

a. The valve fails CLOSED; insert the Manual Coupling Fork into slots of the shaft at the top of the actuator.

b. The valve fails CLOSED; insert the Control Pin into the Manual Control collar hole.

c. The valve fails AS-IS; insert the Manual Coupling Fork into slots of the shaft at the top of the actuator.

d. The valve fails AS-IS; insert the Control Pin into the Manual Control collar hole.

QUESTION: 010 (1.00)

The Feedwater Master Controller is in the BALANCE mode. WHICH ONE (1) of the following is the indication on the Feedwater Master Controller Deviation Meter?

a. The difference between AUTO setpoint level and actual level.

b. The difference between AUTO valve position and actual valve position.

c. The difference between the AUTO signal and the MANUAL signal.

d. The difference between the AUTO signal and the BALANCE signal.

QUESTION: 011 (1.00)

A reactor startup is in progress. WHICH ONE (1) of the following is the potential result of failing to complete Main Turbine Control and Intercept Valve venting prior to reactor heating and pressurization?

a. Turbine rotor bow.

b. IRM scram.

c. Main Turbine Control and Intercept Valve closure.

d. Turbine trip.

QUESTION: 012 (1.00)

The main generator has just been paralleled to the grid. Reactor operation requires discharging of primary water through the Reactor Water Cleanup System to the Waste System. WHICH ONE (1) of the following is the possible consequence of opening 33-11, Cleanup to Condenser Valve, during this operation?

a. Isolation of the Cleanup system.

b. Damage to the resin beds.

c. Loss of condenser vacuum.

d. Water hammer.

QUESTION: 013 (1.00)

During power ascension, while operating on the 90% rod line, a recirculation pump trips which results in entry into the restricted zone of the Power to Flow Map. No thermal instabilities are detected. WHICH ONE (1) of the following is the method permitted for exiting the Restricted Zone?

a. Increase recirculation pump speed.

b. Restart the tripped pump.

c. Insert control rods in reverse order of the pull sheet.

d. Withdraw control rods in order of the pull sheet.

QUESTION: 014 (1.00)

While starting a reactor recirculation pump, the MG drive motor breaker does not close. WHICH ONE (1) of the following conditions prevented the breaker from closing?

a. 86 lockout relay was reset

b. MG field breaker was closed

c. Reactor water level was 57 inches

d. Recirculation pump discharge bypass valve was open

QUESTION: 015 (1.00)

WHICH ONE (1) of the following will cause the interstage blocking valves (OG-BV-11 and -12) to close?

a. Low Off-Gas flow

b. Low Off-Gas Pressure

c. High hydrogen concentration

d. High Off-Gas temperature

QUESTION: 016 (1.00)

The reactor is in start up and approaching critical. WHICH ONE (1) of the following is the result of a loss of 24 VDC Bus 12.

a. Inability to insert or withdraw SRM detectors.

b. SRM Upscale High rod block.

c. SRM INOP rod block only.

d. SRM INOP and Downscale rod blocks.

QUESTION: 017 (1.00)

Emergency Cooling Loop 11 was manually initiated following a vessel isolation. Subsequently the steam flow between the vessel and the emergency condenser indicated 11.5 psid (approximately 300% flow) concurrent with the loss of the #11 Battery Board. WHICH ONE (1) of the following is the position of the Steam Isolation Valves 39-09 and 39-07 and the Condensate Return Valve 39-05?

a. 39-09 Closed
   39-07 Open
   39-05 Closed

b. 39-09 Open
   39-07 Open
   39-05 Open

c. 39-09 Closed
   39-07 Open
   39-05 Open

d. 39-09 Closed
   39-07 Closed
   39-05 Closed

QUESTION: 018 (1.00)

WHICH ONE (1) of the following is the backup source of makeup water to the emergency cooling makeup tanks?

a. Fire Protection Water

b. Shutdown Cooling Water

c. Reactor Building Closed Cooling Water

d. Emergency Service Water

QUESTION: 019 (1.00)

The CORE SPRAY SPARGER DIFF PRESS alarm sounds during full power operation. WHICH ONE (1) of the following is the possible location of the break in the Core Spray piping?

a. Inside the core shroud.

b. Between the core shroud and the reactor vessel wall.

c. Between the reactor vessel wall and the inside isolation valves.

d. Between the inside isolation valves and the drywell wall.

QUESTION: 020 (1.00)

WHICH ONE (1) of the following will isolate on a High Drywell Pressure signal?

a. MSIVs

b. Reactor Water Clean-up supply and return lines

c. Shutdown Cooling isolation valves

d. Core Spray Pump discharge test line

QUESTION: 021 (1.00)

While attempting to insert a stuck control rod the operator notices that the drive flow is exceedingly high. WHICH ONE (1) of the following is a possible cause of the high drive water flow?

a. Failed open scram inlet valve.

b. Stuck open cooling water check valve.

c. Failed open CRD flow control valve.

d. Stuck open stabilizing valve.

QUESTION: 022 (1.00)

Reactor power is 100% when a High-High Feedwater Heater Level alarm is received. Feedwater temperature drops by 70 deg F and reactor power begins to increase. WHICH ONE (1) of the following is the required operator action?

a. Scram the reactor.

b. Insert the CRAM rods to less than 80% reactor power.

c. Reduce recirc flow to less than 80% reactor power.

d. Reduce recirc flow to maintain 100% reactor power.

QUESTION: 023 (1.00)

A reactor startup is in progress. WHICH ONE (1) of the following is a reason for maximizing the Reactor Water Cleanup flow rate by using two Reactor Water Cleanup pumps?

a. To maintain control of reactor water level.

b. To minimize the thermal cycling of the feedwater nozzles.

c. To prevent system isolation from low flow.

d. To reduce the loss of Cleanup filter media.

QUESTION: 024 (1.00)

Shutdown cooling is in service and maintaining the reactor water level above the main steam nozzles. WHICH ONE (1) of the following is the only reliable level instrument?

a. Narrow Range GEMAC

b. Wide Range GEMAC

c. Hi/Lo Rosemount

d. Fuel Zone Water Level Monitoring System

QUESTION: 025 (1.00)

The Containment Spray System is being put into service to cool down torus water temperature during actuation of the ERVs. WHICH ONE (1) of the following is the action that should be taken to prevent release of contamination to the environment?

a. Start the containment spray pump prior to starting the associated raw water cooling pump.

b. Start the raw water cooling pump prior to starting the associated containment spray pump.

c. The raw water cooling pump discharge valve must be throttled prior to starting the associated raw water cooling pump.

d. Start the associated raw water cooling pumps after the ERV has closed.

QUESTION: 026 (1.00)

WHICH ONE (1) of the following describes the effect of an under voltage lockout on Powerboard 17?

a. Control Rod Drive Pump 12 Breaker closes.

b. Bus Tie R-1052 closes.

c. Reactor Shutdown Cooling Pump 13 Breaker opens.

d. Emergency Service Water Pump 11 Breaker opens.

QUESTION: 027 (1.00)

An ATWS is in progress and Liquid Poison Pump 11 is injecting into the reactor. Subsequently the plant experiences a loss of off-site power. Only DG-103 responds and energizes its respective buses. WHICH ONE (1) of the following will describes how liquid poison injection is reestablished?

a. Liquid Poison Pump 11 automatically starts.

b. Liquid Poison Pump 12 automatically starts.

c. Liquid Poison Pump 11 is manually started.

d. Liquid Poison Pump 12 is manually started.

QUESTION: 028 (1.00)

Power to Motor Generator Sets 131 and 141 has been lost. WHICH ONE (1) of the following is also lost?

a. EPR

b. All alarm relays

c. Process computer

d. Feedwater heating

QUESTION: 029 (1.00)

WHICH ONE (1) of the following will cause a rod block when the refuel platform is over the reactor vessel?

a. The reactor mode switch is in STARTUP. The fuel grapple is loaded to 700 lbs.

b. The reactor mode switch is in STARTUP. One of the auxiliary hoists is loaded to 375 lbs.

c. The reactor mode switch is in REFUEL. The fuel grapple is loaded to 700 lbs.

d. The reactor mode switch is in REFUEL. One of the auxiliary hoists is loaded to 375 lbs.

QUESTION: 030 (1.00)

WHICH ONE (1) of the following describes CRD pump operation whenever the Diesel Generators start and load on a loss of voltage?

a. CRD pumps auto-start to maintain cooling to the control rods.

b. CRD pumps must be manually started to maintain cooling to the control rods.

c. CRD pumps auto-start to provide high pressure coolant injection.

d. CRD pumps must be manually started to provide high pressure coolant injection.

QUESTION: 031 (1.00)

Reactor power is 22% and power ascension is in progress. The Rod Worth Minimizer is energized. The operator inadvertently withdraws a control rod beyond its programmed position. WHICH ONE (1) of the following is the Rod Worth Minimizer alarm indication?

a. Withdraw Block

b. Out Of Sequence

c. Select Error

d. RWM Error

QUESTION: 032 (1.00)

WHICH ONE (1) of the following APRMs may be bypassed at the same time?

a. 11 and 14

b. 11 and 15

c. 12 and 14

d. 12 and 15

QUESTION: 033 (1.00)

The following is the status of the APRMs and their associated LPRMs:

APRM	BYPASSED LPRMs
11	28-33 A, 28-49 A, 36-41 A
12	04-33 C, 12-41 C, 20-33 C
13	04-35 A, 12-17 C, 20-09 A
14	28-09 A, 28-25 A, 36-17 C, 44-25 C

WHICH ONE (1) of the following APRM Channels is INOPERABLE?

a. 11

b. 12

c. 13

d. 14

QUESTION: 034 (1.00)

The Transversing Incore Probe (TIP) system is operating in automatic mode. A TIP detector has just inserted into the reactor core when a valid high drywell pressure signal is received. WHICH ONE (1) of the following describes the operation of the TIP system?

a. Continues programmed run. The ball valve automatically closes at the end of the sequence.

b. Shifts to manual reverse mode and withdraws the detector. The ball valve automatically closes.

c. The explosive shear valve automatically fires.

d. Shifts to manual reverse mode and withdraws the detector. The explosive shear valve automatically fires.

QUESTION: 035 (1.00)

WHICH ONE (1) of the following may be the result of opening the Turbine Control Valves greater than 10% during Turbine roll-up?

a. Turbine trip/reactor scram.

b. Bypass Valve oscillations.

c. Aerodynamic buffeting or flutter.

d. Reverse power turbine trip.

QUESTION: 036 (1.00)

The Emergency Cooling System has initiated on a valid signal. Emergency Cooling Loop 11 then spuriously isolates. The SSS directs that the EMERG COOLING CHANNEL 11 Bypass Switch be placed in BYPASS. The initiation signal is still present. WHICH ONE (1) of the following will establish Emergency Cooling via Loop 11?

a. The steam isolation valves and the condensate return isolation valve will automatically open.

b. Manually open the steam isolation valves and the condensate return isolation valve.

c. Manually open the steam isolation valves. The condensate return isolation valve will automatically open.

d. Manually open the condensate return isolation valve. The steam isolation valves will automatically open.

QUESTION: 037 (1.00)

The remote shutdown panel control transfer switches have been placed in EMERGENCY. WHICH ONE (1) of the following describes the automatic capabilities of the Emergency Cooling System?

a. Automatic system isolation and initiation are available.

b. Automatic system isolation is available and automatic system initiation has been defeated.

c. Automatic system isolation has been defeated and automatic system initiation is available.

d. Automatic system isolation and initiation have been defeated.

QUESTION: 038 (1.00)

The Reactor Building Emergency Ventilation System (RBEVS) has automatically initiated. WHICH ONE (1) of the following is the reason that one RBEVS train must be secured?

a. To reduce contamination release rates.

b. To prevent a fire in the charcoal filters.

c. To ensure that system humidity requirements are met.

d. To maintain proper reactor building differential pressure.

QUESTION: 039 (1.00)

WHICH ONE (1) of the following would result in automatic initiation of the Emergency Ventilation System?

a. Reactor Building Vent Rad Monitor indicating 1.5 mr/hr with the Refuel/Bypass Switch in the BYPASS position.

b. Reactor Building Vent Rad Monitor indicating 3.5 mr/hr with the Refuel/Bypass Switch in the REFUEL position.

c. Fuel Pool High Range Rad Monitor indicating 3.5 R/hr with the Refuel/Bypass Switch in the BYPASS position.

d. Fuel Pool High Range Rad Monitor indicating 1.5 R/hr with the Refuel/Bypass Switch in the REFUEL position.

QUESTION: 040 (1.00)

A reactor startup is in progress. The reactor is at 15% of rated power and control rods are being withdrawn. The operator reports that all position indication for control rod 18-19 has been lost. During attempts to re-insert the control rod all LPRMs near the rod remained constant and position indication was not regained.

WHICH ONE (1) of the following describes the condition of the control rod?

a. The control rod is drifting.

b. The control rod has scrammed.

c. The control rod is uncoupled.

d. The control rod is stuck.

QUESTION: 041 (1.00)

An ATWS is in progress. Reactor pressure is 975 psig. The SSS has directed that liquid poison be injected into the reactor. WHICH ONE (1) of the following indicates that liquid poison is being injected?

a. Liquid Poison Pump Discharge Header Pressure is 950 psig.
White continuity lights are out.

b. Liquid Poison Pump Discharge Header Pressure is 1035 psig.
White continuity lights are out.

c. Liquid Poison Pump Discharge Header Pressure is 980 psig.
White continuity lights are lit.

d. Liquid Poison Pump Discharge Header Pressure is 1430 psig.
White continuity lights are lit.

QUESTION: 042 (1.00)

The following conditions exist:

- Containment Inerting is in progress
- Reactor Mode Switch is in STARTUP.
- Reactor pressure is 720 psig.
- Reactor water level is +8 inches.
- Main Condenser Vacuum is 5 inches Hg.
- Temperature in the steam tunnel is 180 deg F.

WHICH ONE (1) of the following will have isolated?

a. Reactor Sample Valves

b. Reactor Water Cleanup Isolation Valves

c. Drywell Vent and Purge Valves

d. Containment Spray to Radwaste Valves

QUESTION: 043 (1.00)

The reactor has been placed into cold shutdown following extended high power operation. A loss of shutdown cooling occurs 36 hours after reactor shutdown. Plant condition immediately after the loss of shutdown cooling are as follows:

- The coolant temperature in the unisolated recirculation loops is approximately 150 deg F.
- Vessel metal temperatures just below the vessel water level are 155 to 165 deg F.

WHICH ONE (1) of the following is positive indication that thermal stratification is occurring?

a. Unisolated recirc loop temperature is steady. Vessel metal temperatures just below the vessel water level are 155 to 165 deg F and decreasing.

b. Unisolated recirc loop temperature is steady. Vessel metal temperatures just below the vessel water level are 135 to 145 deg F and decreasing.

c. Unisolated recirc loop temperature is increasing. Vessel metal temperatures just below the vessel water level are 155 to 165 deg F and increasing.

d. Unisolated recirc loop temperature is decreasing. Vessel metal temperatures just below the vessel water level are 175 to 185 deg F and increasing.

QUESTION: 044 (1.00)

During reactor startup reactor pressure is being controlled via the EPR through the turbine bypass valves. The control room operator notices that there are pressure oscillations from bypass valve motion. WHICH ONE (1) of the following methods will take control of the bypass valves?

a. Decrease the Reactor Flow Limit setpoint.

b. Increase the Speed/Changer setpoint.

c. Place the MPR in service.

d. Close the By-Pass Opening Jack.

QUESTION: 045 (1.00)

Following a Loss of Coolant Accident, Core Spray system 111 and 122 are operating and injecting into the reactor; Core Spray pumps 112 and 121 are locked out. Normal 115 KV supply is then lost to PB 102 and 103. WHICH ONE of the following would describe the plant response?

a. Core Spray Pumps 111 and 122 will start immediately; and Core Spray Topping Pumps 111 and 122 will start 7 seconds later.

b. EDGs start and output breakers close; Core Spray Pump 111 starts immediately; CS Topping Pump 111 starts 7 seconds later; Core Spray pump 122 starts at 13 seconds; CS Topping Pump 122 starts at 20 seconds.

c. Core Spray Pump 111 starts immediately; Core Spray Pump 122 starts 7 seconds later; CS Topping Pump 111 starts at 13 seconds; CS Topping Pump 122 starts at 20 seconds.

d. EDGs start and output breakers close; Core Spray Pumps 111 and 122 will start immediately; and Core Spray Topping Pumps 111 and 122 will start as soon as Core Spray header pressure reaches 200 psig.

QUESTION: 046 (1.00)

During the recovery from a reactor scram the control room operator notices that the BLUE light next to each ERV control switch is lit. WHICH ONE (1) of the following is indicated by the BLUE light?

a. The ERV solenoids have DC control power.

b. The ERVs have received an initiation signal.

c. The ERVs are closed.

d. The ERV acoustic monitors have been activated.

QUESTION: 047 (1.00)

A loss of Off-site power is in progress. Diesel 102 has failed to start on a incomplete start sequence. WHICH ONE (1) of the following actions is required before the diesel can be started?

a. Depress the Reset/Fast Stop pushbutton.

b. Place the Remote/Local switch in LOCAL.

c. Reset the 48X pushbutton.

d. Set the Droop to 65.

QUESTION: 048 (1.00)

The reactor mode switch is in STARTUP. All the IRM detectors are fully inserted. All IRM channels are on range 2. WHICH ONE (1) of the following will cause an IRM rod block?

a. IRM 16 reads 82% of full scale.

b. IRM 14 reads 3% of full scale.

c. IRM 13 loses power to its detector drive motor.

d. IRM 12 mode switch is placed in TRIP TEST.

QUESTION: 049 (1.00)

The reactor is at full power. Isolation of a CRD Hydraulic Control Unit is in progress. WHICH ONE (1) of the following valve lineups could cause personnel injury if a scram were to occur?

a. CRD 101, Insert Riser Isolation Valve, OPEN
CRD 102, Withdraw Riser Isolation Valve, OPEN

b. CRD 101, Insert Riser Isolation Valve, OPEN
CRD 102, Withdraw Riser Isolation Valve, CLOSED

c. CRD 101, Insert Riser Isolation Valve, CLOSED
CRD 102, Withdraw Riser Isolation Valve, OPEN

d. CRD 101, Insert Riser Isolation Valve, CLOSED
CRD 102, Withdraw Riser Isolation Valve, CLOSED

QUESTION: 050 (1.00)

A control rod is fully withdrawn with accumulator pressure at 0 psig. WHICH ONE (1) of the following components assures reactor vessel water is available at the ball check valve to initiate a control rod scram?

a. Cooling Water Orifice

b. Control Rod Valve Disk

c. Drive Piston Seals

d. Withdraw Port

QUESTION: 051 (1.00)

WHICH ONE (1) of the following could result from operating the Fire Protection AC and DC Foam Pumps simultaneously?

a. Pump cavitation.

b. Pump runout.

c. System overpressurization.

d. Spray head damage.

QUESTION: 052 (1.00)

Control Room ventilation is lined up as follows:

Circulating Fan	ON
Emergency Vent Fan 11	OFF
Emergency Vent Fan 12	AUTO
Normal Supply Dampers	OPEN
Emergency Supply Dampers	CLOSED

WHICH ONE (1) of the following will be the system status after the Control Room Ventilation Radiation Monitor 11 fails upscale?

a.

Circulating Fan	OFF
Emergency Vent Fan 11	OFF
Emergency Vent Fan 12	RUNNING
Normal Supply Dampers	OPEN
Emergency Supply Dampers	CLOSED

b.

Circulating Fan	OFF
Emergency Vent Fan 11	RUNNING
Emergency Vent Fan 12	OFF
Normal Supply Dampers	CLOSED
Emergency Supply Dampers	OPEN

c.

Circulating Fan	RUNNING
Emergency Vent Fan 11	OFF
Emergency Vent Fan 12	RUNNING
Normal Supply Dampers	CLOSED
Emergency Supply Dampers	OPEN

d.

Circulating Fan	RUNNING
Emergency Vent Fan 11	RUNNING
Emergency Vent Fan 12	OFF
Normal Supply Dampers	CLOSED
Emergency Supply Dampers	OPEN

QUESTION: 053 (1.00)

Following a reactor scram the drywell radiation monitors are reading 1 R/hr. WHICH ONE (1) of the following is the cause of these readings?

a. Failed instrument indicator for the radiation monitor.

b. The reactor core has been damaged.

c. Internal sources keep the radiation monitors on scale.

d. High airborne activity is present.

QUESTION: 054 (1.00)

A Station Blackout is progress. Both Emergency Condenser loops are in service. WHICH ONE (1) of the following should be done?

a. Maintain both Emergency Condenser loops in service to reduce battery loads.

b. Maintain both Emergency Condenser loops in service to maintain RPV inventory.

c. Secure one Emergency Condenser loop to reduce battery loads.

d. Secure one Emergency Condenser loop to maintain RPV inventory.

QUESTION: 055 (1.00)

The MSIVs close at 100% reactor power. Reactor pressure increases to 1200 psig. 4 ERVs and 2 Safety Valves open. WHICH ONE (1) of the following properly evaluates the response of the ERVs and the Safety Valves?

a. ERVs responded correctly.
2 Safety Valves are inadvertently open.

b. 2 ERVs have failed to open.
2 Safety Valves are inadvertently open.

c. 2 ERVs have failed to open.
Safety Valves responded correctly.

d. ERVs and Safety Valves responded correctly

QUESTION: 056 (1.00)

WHICH ONE (1) of the following is significantly affected from operating at a reactor level of 60 inches?

a. Core flow

b. Turbine blade life

c. Reactor power

d. Recirculation pump net positive suction head

QUESTION: 057 (1.00)

The reactor is operating at 100% power. WHICH ONE (1) of the following will be the response of drywell pressure and torus water level if Powerboard 16A is lost?

a. Drywell pressure increases
Torus water level decreases

b. Drywell pressure increases
Torus water level increases

c. Drywell pressure decreases
Torus water level decreases

d. Drywell pressure decreases
Torus water level increases

QUESTION: 058 (1.00)

The reactor has scrammed from full power on a MSIV isolation. A LOCA is progress. ERVs are being used to control reactor pressure. WHICH ONE (1) of the following sets of plant parameters are used to determine if the Heat Capacity Temperature Limit has been exceeded?

a. Torus temperature, drywell pressure, torus level.

b. Torus temperature, RPV pressure, torus level.

c. Drywell temperature, drywell pressure, RPV level.

d. Drywell temperature, RPV pressure, RPV level.

QUESTION: 059 (1.00)

The reactor is being refueled and all control rods are operable. A fuel bundle is being lowered into the reactor core during refueling. The SRM count rate begins to increase and a positive period is indicated. WHICH ONE (1) of the following are the required operator(s)actions?

a. Stop fuel movement and evacuate the refuel floor.

b. Contact Reactor Engineering and continue refuel operation.

c. Stop fuel movement and start the Emergency Ventilation System.

d. Raise the fuel bundle and insert a manual scram.

QUESTION: 060 (1.00)

WHICH ONE (1) of the following is the consequence of the water level in the torus exceeding 27 feet?

a. The pressure suppression function of the torus becomes inoperable.

b. The torus level instrumentation is no longer reliable.

c. The operability of the torus vent cannot be assured.

d. The torus pressure limit is exceeded.

QUESTION: 061 (1.00)

A LOCA is in progress and drywell pressure is 16 psig. WHICH ONE (1) of the following must be tripped prior to the initiation of the containment sprays?

a. Drywell cooling fans

b. Drywell vent and purge fans

c. Reactor building exhaust fans

d. Emergency ventilation fans

QUESTION: 062 (1.00)

All level instrumentation has been lost during a severe LOCA. 30 control rods are stuck out. WHICH ONE (1) of the following can be used to determine reactor water level?

a. Core differential pressure

b. Core spray sparger line differential pressure

c. SRMs

d. LPRMs

QUESTION: 063 (1.00)

WHICH ONE (1) of the following may be used as an alternate method to inject boron?

a. Core Spray

b. Containment Spray

c. Feedwater

d. Reactor Water Cleanup

QUESTION: 064 (1.00)

An ATWS is in progress. Reactor water level has been lowered. WHICH ONE (1) of the following is the reason that operators must wait for 850 gallons of boron solution to be injected into the reactor before raising the reactor water level?

a. To assure that Cold Shutdown Boron Weight has been injected.

b. To assure that Hot Shutdown Boron Weight has been injected.

c. To allow time manually drive in control rods.

d. To allow time reset and attempt a reactor scram.

QUESTION: 065 (1.00)

WHICH ONE (1) of the following is the reason that EOP-6, Radioactivity Release Control, requires the operator to restart the Turbine Building Ventilation System if it has shutdown?

a. To provide filtered release.

b. To prevent overheating of accident mitigation equipment.

c. To assure positive building pressure.

d. To maintain building access to operating personnel.

QUESTION: 066 (1.00)

A loss of AC power is progress. Only one diesel generator is in service and operating at 2300 KW. WHICH ONE (1) of the following is the MAXIMUM additional load that can be added without violating the diesel generator emergency load limits?

a. 400 KW

b. 500 KW

c. 600 KW

d. 700 KW

QUESTION: 067 (1.00)

WHICH ONE (1) of the following is the reason that the Scram Discharge Volume High Level Bypass switches are placed in BYPASS prior to resetting a reactor scram?

a. Inserts a second reactor scram signal.

b. Prevents a second reactor scram signal.

c. Opens the Scram Discharge Volume vent and drain valves.

d. Closes the Scram Discharge Volume vent and drain valves.

QUESTION: 068 (1.00)

WHICH ONE (1) of the following is a time when the Fuel Zone Water Level Monitoring System should NOT be used?

a. A core spray loop is injecting.

b. A recirculation pump is running.

c. RPV pressure is less than 50 psig.

d. Drywell Temperature is above 400 deg F.

QUESTION: 069 (1.00)

The Control Room has been evacuated. WHICH ONE (1) of the following is the preferred method for controlling RPV cooldown using the Emergency Cooling System?

a. Throttling the inside steam isolation valves.

b. Throttling the outside steam isolation valves.

c. Cycling the condensate return valves.

d. Maintaining condenser shell level between 6 and 7 feet.

QUESTION: 070 (1.00)

The reactor is operating at full power. EMERGENCY CONDENSER VENT RADIATION HIGH alarm has come in. As the control room operator surveys the Emergency Cooling System he notes the following:

All the steam isolation valves indicate open and all the condensate return valves indicate closed. EC 112 level is 6'3" and EC 121 level is 6'2". EC 121 shell temperature is 215 deg F.

WHICH ONE (1) of the following is indicative of these conditions?

a. Low condenser level

b. Condenser tube bundle leakage

c. High non-condensable gas content

d. Condensate return valve leakage

QUESTION: 071 (1.00)

Emergency Depressurization is in progress. WHICH ONE (1) of the following will require that the ERVs be closed?

a. Torus level decreases to 7.8 feet.

b. Reactor pressure decreases to 46 psig.

c. Torus pressure increases to 22 psig.

d. Reactor water level increases to 96 inches.

QUESTION: 072 (1.00)

WHICH ONE (1) of the following will be affected by a loss of Turbine Building Closed Loop Cooling System?

a. Reactor Water Cleanup Pump Coolers

b. Recirculation MG Set Coolers

c. Fuel Pool Cooling

d. Drywell Cooling

QUESTION: 073 (1.00)

A primary leak in the secondary containment has resulted in increasing radiation levels. WHICH ONE (1) of the following explains why the reactor is manually scrammed before any area radiation level reaches 2.5 R/hr?

a. To allow shutdown of the CRD system which may be the source of the leak.

b. To ensure that personnel can access equipment required for safe shutdown of the plant.

c. To ensure that dose rates at the site boundary do not exceed ALERT levels.

d. To allow the control room to focus their actions on isolating the leak.

QUESTION: 074 (1.00)

The Shutdown Cooling (SDC) system was in service with two pumps (11 and 12) and two heat exchangers in service. A trip of the 11 SDC pump has resulted in increasing RPV temperature and pressure. Current plant conditions are as follows.

- RPV temperature is 355 degrees
- RPV pressure is 125 psig

WHICH ONE (1) of the following describes the expected SDC system response to these conditions? (Assuming no operator actions are taken).

a. SDC pump 13 will automatically start to assist in RPV cooling.

b. ALL SDC system isolation valves will close, AND SDC pump 12 will trip.

c. ONLY the SDC system suction isolation valves will close, AND SDC pump 12 will remain running.

d. The SDC system isolation valves will remain open, AND SDC pump 12 will trip.

QUESTION: 075 (1.00)

The reactor is in cold shutdown with the Shutdown Cooling System in operation. A leak in the Reactor Building Closed Loop Cooling System (RBCLC) has resulted in below normal system pressure and increasing component temperatures. The SSS has directed the securing of affected equipment.

WHICH ONE (1) of the following loads would have the greatest impact on reducing the heat load on the RBCLC system under these conditions?

a. Fuel Pool Heat Exchanger.

b. RWCU Regenerative Heat Exchanger.

c. Instrument Air Compressors.

d. Drywell Air Coolers.

QUESTION: 076 (1.00)

The reactor is shutdown, with shutdown cooling in service, when a loss of instrument air occurs. WHICH ONE (1) of the following actions will occur as a result of the loss of instrument air?

a. The scram discharge volume will isolate.

b. The Breathing Air system will automatically align to the instrument air system.

c. The RBCLC temperature control valve (TCV-70-137) will fail full open.

d. The SDC pumps will trip.

QUESTION: 077 (1.00)

WHICH ONE (1) of the following conditions will bypass the MSIV closure on low condenser vacuum signal?

a. The reactor mode switch is in RUN AND reactor pressure is 870 psig.

b. The reactor mode switch is in SHUTDOWN AND the reactor is depressurized.

c. The reactor mode switch is in STARTUP AND reactor pressure is 845 psig.

d. The reactor mode switch is in STARTUP AND reactor pressure is 500 psig.

QUESTION: 078 (1.00)

A loss of all instrument air has resulted in the isolation of Reactor Building Ventilation. Secondary Containment differential pressure is greater than 0 inches of water. WHICH ONE (1) of the following describes the status of the Emergency Ventilation System (EVS) under these conditions?

a. The EVS is inoperable and will not automatically start since the inlet and outlet blocking valves are failed closed.

b. The EVS has automatically initiated and is operating as designed.

c. The EVS exhaust fans have automatically started and operator action is required to manually open the inlet and outlet blocking valves.

d. The inlet and outlet blocking valves have failed open and the EVS fans may be manually started.

QUESTION: 079 (1.00)

A reactor power reduction to 90% power has just been completed to perform a surveillance. During the surveillance a loss of DC power results in the loss of several alarms and annunciators in the Control Room. WHICH ONE (1) of the following actions should be taken in response to these conditions?

a. Stop the surveillance and maintain plant conditions stable.

b. Reduce reactor power by lowering recirc flow to just outside the "Restricted Zone".

c. Reduce reactor power by inserting the CRAM control rods until below the 80 % rod line.

d. Manually scram the reactor.

QUESTION: 080 (1.00)

WHICH ONE (1) of the following annunciator alarms (confirmed) would require entry into EOP-5, Secondary Containment Control?

a. DRYWELL FLOOR DRAIN LEVEL-HIGH

b. R BLDG FL DR SUMPS 11-16 AREA WTR LEVEL HIGH

c. R BUILDING EQUIP DRAIN LEVEL-HIGH

d. R BUILDING PERIM SUMP LEVEL-HIGH

QUESTION: 081 (1.00)

The plant is operating at approximately 35% power when the following annunciators alarm.

- MOIST SEP 122 LEVEL HIGH
- MOIST SEP 111, 112, 121, 122 LEVEL HIGH

WHICH ONE (1) of the following describes how the plant will respond to these conditions?

a. The plant will remain on line as long as the level in moisture separator 112 remains normal.

b. ONLY the main turbine will trip.

c. BOTH the main turbine will trip AND the reactor will scram.

d. The main generator will runback to 25% rated power.

QUESTION: 082 (1.00)

WHICH ONE (1) of the following conditions will trip the recirc pumps?

a. Turbine Control Valve fast closure.

b. Reactor water level dropping to +53 inches.

c. Reactor pressure above 1135 psig

d. A loss of 125 VDC power.

QUESTION: 083 (1.00)

A faulty reactor pressure instrument has satisfied the ATWS-ARI logic. The operator immediately turns the key locked switch on the "F" Panel from "NORMAL" to "OVERRIDE".

WHICH ONE (1) of the following describes the effect this has on the ATWS-ARI initiation logic?

a. The initiation logic will be overridden ONLY if the initiating signal has cleared.

b. The initiation logic will immediately be overridden.

c. Once the logic has sealed in the key locked switch has no effect.

d. It enables the ATWS "LOV RESET" pushbutton which must be depressed to override the logic.

QUESTION: 084 (1.00)

An ATWS has occurred in conjunction with a loss of one RPS power supply. The Reactor Operator depresses the "MANUAL ARI" pushbutton to insert control rods. WHICH ONE (1) of the following describes the response of the ATWS-ARI system under these conditions?

a. The system should IMMEDIATELY initiate and respond as designed.

b. The system will initiate AFTER a 25 second time delay to vent the CRD scram air header.

c. The system will NOT initiate since one of the RPS power supplies is lost.

d. The system will IMMEDIATELY initiate but the response will be SLOWER since only one half of the ARI valves will energize.

QUESTION: 085 (1.00)

The plant is operating at 100% power when a leak into the torus causes torus water level to increase rapidly. ALL OTHER containment conditions are NORMAL.

WHICH ONE (1) of the following EOP limits will be challenged under these conditions?

a. Heat Capacity Temperature Limit

b. Containment Spray Initiation Limit

c. ERV Tail Pipe Level Limit

d. Core Spray Pump NPSH Limit

QUESTION: 086 (1.00)

Torus level is decreasing due to a small leak. EOP-4, Primary Containment Control has been entered. WHICH ONE (1) of the following systems should be operated to add water to the torus?

a. Core Spray

b. Containment Spray Raw Water

c. Fire Protection

d. Condensate Transfer

QUESTION: 087 (1.00)

During normal power operations the following annunciator alarm is received.

- LQ PROCESS RAD MON

Investigation reveals that the Service Water monitor is in alarm. WHICH ONE (1) of the following identifies the sample location of this monitor?

a. The effluent stream of the Containment Spray Raw Water heat exchangers.

b. The Radwaste liquid effluent discharge stream.

c. At the discharge of the Service Water Pumps.

d. The Turbine Building service water, downstream of the heat exchangers.

QUESTION: 088 (1.00)

WHICH ONE (1) of the following procedures can be executed without regard to the sequence in which the steps are performed?

a. Emergency Operating Procedures

b. Annunciator Response Procedures

c. Special Test Procedures

d. Surveillance Procedures

QUESTION: 089 (1.00)

WHICH ONE (1) of the following actions should you take (after you have arrived on site) if you have been called into work for a non-emergency condition and you have consumed alcohol within the last five (5) hours?

a. Report to the Medical Review Officer that you have consumed alcohol in the last 5 hours.

b. Ensure that a Control Room Logbook entry is made noting that you are responding to an unscheduled call out.

c. Request an alcohol test before entering the Protected Area.

d. Immediately report to your supervisor so that he or she may assess your fitness for duty.

QUESTION: 090 (1.00)

WHICH ONE (1) of the following is the MINIMUM level of authority, by title, that can approve the implementation of emergency actions that depart from Technical Specifications?

a. The NRC Operations Center.

b. A licensed SRO.

c. A licensed RO.

d. The Plant Manager.

QUESTION: 091 (1.00)

In addition to the Station Shift Supervisor (SSS), WHICH ONE (1) of the following must authorize the installation of a temporary modification?

a. Chief Shift Operator (CSO)

b. Assistant SSS

c. General Supervisor Operations

d. Manager Technical Support

QUESTION: 092 (1.00)

WHICH ONE (1) of the following is the MAXIMUM time period that a Hot Work Permit (HWP) can be in place.

a. 8 hours

b. 12 hours

c. 16 hours

d. 24 hours

QUESTION: 093 (1.00)

WHICH ONE (1) of the following describes the requirements that must be met when a motor-operated valve is manually seated during a valve lineup?

a. The valve must be marked with a yellow hold-out tag requiring manual operation before motor operation.

b. The electrical supply breaker must be tagged open.

c. The valve position must be independently verified.

d. The valve must be marked with a blue markup (BMU) requiring manual operation before motor operation.

QUESTION: 094 (1.00)

WHICH ONE (1) of the following can grant permission to operate equipment under a Blue Markup (BMU)?

a. Any licensed RO or SRO

b. Any on shift non-licensed operator

c. The Markup Controller

d. The Markup Person

QUESTION: 095 (1.00)

WHICH ONE (1) of the following requirements applies to markups on safety related systems?

a. The markup MUST be applied by a licensed RO.

b. The markup MUST be applied by a licensed SRO.

c. A licensed RO MUST either apply or independently verify the markup.

d. The markup MUST be independently verified by a licensed SRO.

QUESTION: 096 (1.00)

WHICH ONE (1) of the following radiological postings is the MINIMUM required for an area in which an individual may receive an absorbed dose in excess of 500 rads in one hour?

a. High Radiation Area

b. Locked High Radiation Area

c. Very High Radiation Area

d. Transient High Radiation Area

QUESTION: 097 (1.00)

An emergency requires sending an operator into an area, with a dose rate of 5 Rem/hr, to take action to protect valuable property. WHICH ONE (1) of the following is the MAXIMUM amount of time the operator can work in the area without exceeding the emergency dose limit?

a. 1 hour

b. 2 hours

c. 5 hours

d. 10 hours

QUESTION: 098 (1.00)

WHICH ONE (1) of the following describes the required actions that the incoming CSO must take with regard to the control room log books?

a. The CSO shall review and sign the CSO log book BEFORE the off-going CSO leaves the control room. The CSO must review the SSS log book, which can be done AFTER shift turnover.

b. The CSO shall review and sign the CSO log book BEFORE the off-going CSO leaves the control room. The CSO shall review the SSS log book BEFORE shift turnover.

c. The CSO may review and sign the CSO log book AFTER the off-going CSO leaves the control room. The CSO must review the SSS log book, which can be done AFTER shift turnover.

d. The CSO may review and sign the CSO log book AFTER the off-going CSO leaves the control room. The CSO is not required to review the SSS log book.

QUESTION: 099 (1.00)

WHICH ONE (1) of the following describes the meaning of an "R" in parenthesis, (R), on a valve lineup sheet?

a. The valve position needs to be independently verified.

b. The valve is safety related.

c. The valve is reverse seated.

d. The valve has a remote handwheel operator.

QUESTION: 100 (1.00)

The Station Evacuation Alarm has been activated due to a High Airborne Radiation condition in the Protected Area. Where should on-site, but off-shift auxiliary operators report after accountability is completed?

a. Technical Support Center (TSC).

b. Operations Support Center (OSC).

c. Security Building Lobby.

d. Nuclear Learning Center.

(********** END OF EXAMINATION **********)

ANSWER KEY

MULTIPLE CHOICE

001	d
002	b
003	a
004	b
005	a
006	d
007	b
008	b
009	c
010	c
011	b
012	c
013	a
014	b
015	d
016	d
017	a
018	a
019	b
020	d
021	b
022	c
023	b
024	b
025	b
026	a
027	d
028	d
029	c
030	c
031	b
032	d
033	b
034	b
035	b
036	c
037	a
038	c
039	d
040	d
041	b
042	a
043	d
044	c
045	b

ANSWER KEY

046	a	069	c
047	c	070	b
048	d	071	a
049	b	072	b
050	b	073	b
051	a	074	d
052	c	075	a
053	c	076	a
054	d	077	d
055	b	078	d
056	d	079	a
057	b	080	b
058	b	081	b
059	d	082	c
060	c	083	b
061	a	084	a
062	c	085	c
063	d	086	b
064	b	087	d
065	d	088	b
066	b	089	c
067	b	090	b
068	b	091	a

A N S W E R K E Y

092 d

093 a

094 d & C

095 c

096 c

097 b

098 a

099 c

100 b

(********** END OF EXAMINATION **********)

-0

ATTACHMENT 2

SRO EXAMINATION AND ANSWER KEY

U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
SENIOR OPERATOR LICENSE
REGION 1

APPLICANT'S NAME: _____

FACILITY: Nine Mile Point 1

REACTOR TYPE: BWR-GE2

DATE ADMINISTERED: December 9, 1994

INSTRUCTIONS TO APPLICANT:

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires a final grade of at least 80%. Examination papers will be picked up four (4) hours after the examination starts.

TEST VALUE	APPLICANT'S SCORE	FINAL GRADE %
100.00		

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

_____
Applicant's Signature

ANSWER SHEET

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

MULTIPLE CHOICE

001	a	b	c	d	___	023	a	b	c	d	___
002	a	b	c	d	___	024	a	b	c	d	___
003	a	b	c	d	___	025	a	b	c	d	___
004	a	b	c	d	___	026	a	b	c	d	___
005	a	b	c	d	___	027	a	b	c	d	___
006	a	b	c	d	___	028	a	b	c	d	___
007	a	b	c	d	___	029	a	b	c	d	___
008	a	b	c	d	___	030	a	b	c	d	___
009	a	b	c	d	___	031	a	b	c	d	___
010	a	b	c	d	___	032	a	b	c	d	___
011	a	b	c	d	___	033	a	b	c	d	___
012	a	b	c	d	___	034	a	b	c	d	___
013	a	b	c	d	___	035	a	b	c	d	___
014	a	b	c	d	___	036	a	b	c	d	___
015	a	b	c	d	___	037	a	b	c	d	___
016	a	b	c	d	___	038	a	b	c	d	___
017	a	b	c	d	___	039	a	b	c	d	___
018	a	b	c	d	___	040	a	b	c	d	___
019	a	b	c	d	___	041	a	b	c	d	___
020	a	b	c	d	___	042	a	b	c	d	___
021	a	b	c	d	___	043	a	b	c	d	___
022	a	b	c	d	___	044	a	b	c	d	___
						045	a	b	c	d	___

ANSWER SHEET

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

046	a	b	c	d	___	069	a	b	c	d	___
047	a	b	c	d	___	070	a	b	c	d	___
048	a	b	c	d	___	071	a	b	c	d	___
049	a	b	c	d	___	072	a	b	c	d	___
050	a	b	c	d	___	073	a	b	c	d	___
051	a	b	c	d	___	074	a	b	c	d	___
052	a	b	c	d	___	075	a	b	c	d	___
053	a	b	c	d	___	076	a	b	c	d	___
054	a	b	c	d	___	077	a	b	c	d	___
055	a	b	c	d	___	078	a	b	c	d	___
056	a	b	c	d	___	079	a	b	c	d	___
057	a	b	c	d	___	080	a	b	c	d	___
058	a	b	c	d	___	081	a	b	c	d	___
059	a	b	c	d	___	082	a	b	c	d	___
060	a	b	c	d	___	083	a	b	c	d	___
061	a	b	c	d	___	084	a	b	c	d	___
062	a	b	c	d	___	085	a	b	c	d	___
063	a	b	c	d	___	086	a	b	c	d	___
064	a	b	c	d	___	087	a	b	c	d	___
065	a	b	c	d	___	088	a	b	c	d	___
066	a	b	c	d	___	089	a	b	c	d	___
067	a	b	c	d	___	090	a	b	c	d	___
068	a	b	c	d	___	091	a	b	c	d	___

ANSWER SHEET

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

092	a	b	c	d	___
093	a	b	c	d	___
094	a	b	c	d	___
095	a	b	c	d	___
096	a	b	c	d	___
097	a	b	c	d	___
098	a	b	c	d	___
099	a	b	c	d	___
100	a	b	c	d	___

(********** END OF EXAMINATION **********)

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS (Next page is 7)

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.

2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.

3. Restroom trips are to be limited and only one applicant at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.

4. Use black ink or dark pencil ONLY to facilitate legible reproductions.

5. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet and each answer sheet.

6. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.

7. The point value for each question is indicated in parentheses after the question.

8. If the intent of a question is unclear, ask questions of the examiner only.

9. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.

10. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.

11. To pass the examination, you must achieve a grade of 80% or greater.

12. There is a time limit of four (4) hours for completion of the examination.

13. When you are done and have turned in your examination, leave the examination area (EXAMINER WILL DEFINE THE AREA). If you are found in this area while the examination is still in progress, your license may be denied or revoked.

QUESTION: 001 (1.00)

An Electromatic Relief Valve (ERV) has inadvertently stuck open during full power operation. WHICH ONE (1) of the following is directed in N1-OP-1 in order to close the ERV?

a. Cycle the ERV Control Switch.

b. Install jumpers across the appropriate Control Power fuses in Panel F.

c. Place the ADS Inhibit Switches in BYPASS.

d. Depress the ADS Timer Reset Pushbuttons.

QUESTION: 002 (1.00)

The reactor is being refueled, the fuel pool canal gates are removed and the inboard MSIV leak rate test is in progress. WHICH ONE (1) of the following is the possible result of these conditions?

a. Shutdown cooling may be lost.

b. The Spent Fuel Pool level may be lowered.

c. Secondary containment integrity may be challenged.

d. The LPRM detectors may be damaged.

QUESTION: 003 (1.00)

All 125 VDC power has been lost to the ADS valve actuation circuits. WHICH ONE (1) of the following describes the operational status of the ADS?

a. Automatic initiation of ADS and manual operation of all ERVs from panel F is NOT available.

b. Automatic initiation of ADS is NOT available, but manual operation of the ERVs from panel F is still possible.

c. Automatic initiation of ADS is still possible, but manual operation of the ERVs from panel F is NOT available.

d. Automatic initiation of ADS and manual operation of the ERVs from panel F is still possible.

QUESTION: 004 (1.00)

The reactor is operating at 100% power. One of the two operating RBCLC Heat Exchangers was removed from service. The RBCLC System temperature has increased 14 deg F during the last hour. WHICH ONE (1) of the following is the possible consequence of this condition?

a. Recirculation pump seal damage.

b. Cleanup System isolation.

c. Oxygen and hydrogen analyzers become inoperable.

d. Drywell coolers become ineffective.

QUESTION: 005 (1.00)

During Reactor operation power is lost to Reactor Trip System 141. WHICH ONE (1) of the following is the status of the RPS Channel 11 and 12 scram pilot valves and the ATWS/ARI solenoid valves?

a. RPS Channel 11 Scram Pilot valves — Deenergized
   RPS Channel 12 Scram Pilot valves — Energized
   ATWS/ARI Solenoid Valves — Energized

b. RPS Channel 11 Scram Pilot valves — Energized
   RPS Channel 12 Scram Pilot valves — Deenergized
   ATWS/ARI Solenoid Valves — Energized

c. RPS Channel 11 Scram Pilot valves — Deenergized
   RPS Channel 12 Scram Pilot valves — Energized
   ATWS/ARI Solenoid Valves — Deenergized

d. RPS Channel 11 Scram Pilot valves — Energized
   RPS Channel 12 Scram Pilot valves — Deenergized
   ATWS/ARI Solenoid Valves — Deenergized

QUESTION: 006 (1.00)

Reactor startup is commencing after a refueling outage. After the fifth control rod has been withdrawn the Rod Worth Minimizer is declared inoperable. WHICH ONE (1) of the following is the required action?

a. Scram the reactor.

b. Stop startup until the rod Worth Minimizer can be repaired or insert all control rods within 10 hours.

c. Insert the control rods in the reverse order that they were withdrawn with a second operator verifier present.

d. Continue reactor startup with a second operator verifier present.

QUESTION: 007 (1.00)

Given the following:

Mass of water in the reactor vessel and recirculation piping at Hot Rated Conditions is 501500 lbs. Each liquid poison pump will operate at a flow rate of 30 gpm. The current Boron-10 enrichment is 65 atom%.

WHICH ONE (1) of the following conditions WILL REQUIRE the reactor to be shutdown within one hour?

a.	Sodium pentaborate solution concentration	10 wt %
	Liquid poison tank solution volume	1500 gallons
	Liquid poison solution temperature	79 deg F
b.	Sodium pentaborate solution concentration	11 wt %
	Liquid poison tank solution volume	1255 gallons
	Liquid poison solution temperature	82 deg F
c.	Sodium pentaborate solution concentration	15 wt %
	Liquid poison tank solution volume	1135 gallons
	Liquid poison solution temperature	95 deg F
d.	Sodium pentaborate solution concentration	16 wt %
	Liquid poison tank solution volume	1420 gallons
	Liquid poison solution temperature	88 deg F

QUESTION: 008 (1.00)

A diesel engine has operated at idle speed for 9 hours and is then shut down. Twelve hours later the diesel is started and loaded under emergency conditions. WHICH ONE (1) of the following is the possible consequence of these actions?

a. Bearing damage.

b. Exhaust system fire.

c. Piston scoring.

d. Slow engine ramp.

QUESTION: 009 (1.00)

The plant is operating at 100% and the Feedwater Level Control is 3-ELEMENT. Control power is lost to the 13 Feedwater Pump Flow Control Valve (FCV). WHICH ONE (1) of the following describes the operation of the FCV and how local control is taken?

a. The valve fails CLOSED; insert the Manual Coupling Fork into slots of the shaft at the top of the actuator.

b. The valve fails CLOSED; insert the Control Pin into the Manual Control collar hole.

c. The valve fails AS-IS; insert the Manual Coupling Fork into slots of the shaft at the top of the actuator.

d. The valve fails AS-IS; insert the Control Pin into the Manual Control collar hole.

QUESTION: 010 (1.00)

The Feedwater Master Controller is in the BALANCE mode. WHICH ONE (1) of the following is the indication on the Feedwater Master Controller Deviation Meter?

a. The difference between AUTO setpoint level and actual level.

b. The difference between AUTO valve position and actual valve position.

c. The difference between the AUTO signal and the MANUAL signal.

d. The difference between the AUTO signal and the BALANCE signal.

QUESTION: 011 (1.00)

A reactor startup is in progress. WHICH ONE (1) of the following is the potential result of failing to complete Main Turbine Control and Intercept Valve venting prior to reactor heating and pressurization?

a. Turbine rotor bow.

b. IRM scram.

c. Main Turbine Control and Intercept Valve closure.

d. Turbine trip.

QUESTION: 012 (1.00)

The main generator has just been paralleled to the grid. Reactor operation requires discharging of primary water through the Reactor Water Cleanup System to the Waste System. WHICH ONE (1) of the following is the possible consequence of opening 33-11, Cleanup to Condenser Valve, during this operation?

a. Isolation of the Cleanup system.

b. Damage to the resin beds.

c. Loss of condenser vacuum.

d. Water hammer.

QUESTION: 013 (1.00)

During power ascension, while operating on the 90% rod line, a recirculation pump trips which results in entry into the restricted zone of the Power to Flow Map. No thermal instabilities are detected. WHICH ONE (1) of the following is the method permitted for exiting the Restricted Zone?

a. Increase recirculation pump speed.

b. Restart the tripped pump.

c. Insert control rods in reverse order of the pull sheet.

d. Withdraw control rods in order of the pull sheet.

QUESTION: 014 (1.00)

While starting a reactor recirculation pump, the MG drive motor breaker does NOT close. WHICH ONE (1) of the following conditions prevented the breaker from closing?

a. 86 lockout relay was reset

b. MG field breaker was closed

c. Reactor water level was 57 inches

d. Recirculation pump discharge bypass valve was open

QUESTION: 015 (1.00)

WHICH ONE (1) of the following will cause the interstage blocking valves (OG-BV-11 and -12) to close?

a. Low Off-Gas flow

b. Low Off-Gas Pressure

c. High hydrogen concentration

d. High Off-Gas temperature

QUESTION: 016 (1.00)

The reactor is in start up and approaching critical. WHICH ONE (1) of the following is the result of a loss of 24 VDC Bus 12.

a. Inability to insert or withdraw SRM detectors.

b. SRM Upscale High rod block.

c. SRM INOP rod block only.

d. SRM INOP and Downscale rod blocks.

QUESTION: 017 (1.00)

Emergency Cooling Loop 11 was manually initiated following a vessel isolation. Subsequently the steam flow between the vessel and the emergency condenser indicated 11.5 psid (approximately 300% flow) concurrent with the loss of the #11 Battery Board. WHICH ONE (1) of the following is the position of the Steam Isolation Valves 39-09 and 39-07 and the Condensate Return Valve 39-05?

a. 39-09 Closed
   39-07 Open
   39-05 Closed

b. 39-09 Open
   39-07 Open
   39-05 Open

c. 39-09 Closed
   39-07 Open
   39-05 Open

d. 39-09 Closed
   39-07 Closed
   39-05 Closed

QUESTION: 018 (1.00)

The CORE SPRAY SPARGER DIFF PRESS alarm sounds during full power operation. WHICH ONE (1) of the following is the possible location of the break in the Core Spray piping?

a. Inside the core shroud.

b. Between the core shroud and the reactor vessel wall.

c. Between the reactor vessel wall and the inside isolation valves.

d. Between the inside isolation valves and the drywell wall.

QUESTION: 019 (1.00)

Reactor power is 100% when a High-High Feedwater Heater Level alarm is received. Feedwater temperature drops by 70 deg F and reactor power begins to increase. WHICH ONE (1) of the following is the required operator action?

a. Scram the reactor.

b. Insert the CRAM rods to less than 80% reactor power.

c. Reduce recirc flow to less than 80% reactor power.

d. Reduce recirc flow to maintain 100% reactor power.

QUESTION: 020 (1.00)

A reactor startup is in progress. WHICH ONE (1) of the following is a reason for maximizing the Reactor Water Cleanup flow rate by using two Reactor Water Cleanup pumps?

a. To maintain control of reactor water level.

b. To minimize the thermal cycling of the feedwater nozzles.

c. To prevent system isolation from low flow.

d. To reduce the loss of Cleanup filter media.

QUESTION: 021 (1.00)

Shutdown cooling is in service and maintaining the reactor water level above the main steam nozzles. WHICH ONE (1) of the following is the only reliable level instrument?

a. Narrow Range GEMAC

b. Wide Range GEMAC

c. Hi/Lo Rosemount

d. Fuel Zone Water Level Monitoring System

QUESTION: 022 (1.00)

The reactor is operating at full power. After the performance of the Containment Spray System Loop 111 Quarterly Operability Test, the following conditions are reported:

- Lake water temperature 83 deg F
- Containment Spray Pump 111
  Differential Pressure 165.4 psid
  Flow 2894 gpm
- Containment Spray Raw Water Cooling Pump
  Differential Pressure 204.7 psid
  Flow 3342 gpm

(See attached Section 10.0 of N1-ST-Q6A)

WHICH ONE (1) of the following is the required action?

a. Return the system to operable condition within 15 days or shutdown shall begin within one hour and the reactor coolant shall be below 215 deg F within ten hours.

b. Return the system to operable condition within 7 days or shutdown shall begin within one hour and the reactor coolant shall be below 215 deg F within ten hours.

c. Begin reactor shutdown within one hour and be in Hot Shutdown within 8 hours and Cold Shutdown within 24 hours.

d. Operation may continue provided that the loop is declared inoperable and removed from service.

QUESTION: 023 (1.00)

WHICH ONE (1) of the following describes the effect of an under voltage lockout on Powerboard 17?

a. Control Rod Drive Pump 12 Breaker closes.

b. Bus Tie R-1052 closes.

c. Reactor Shutdown Cooling Pump 13 Breaker opens.

d. Emergency Service Water Pump 11 Breaker opens.

QUESTION: 024 (1.00)

An ATWS is in progress and Liquid Poison Pump 11 is injecting into the reactor. Subsequently the plant experiences a loss of off-site power. Only DG-103 responds and energizes its respective buses. WHICH ONE (1) of the following will describes how liquid poison injection is reestablished?

a. Liquid Poison Pump 11 automatically starts.

b. Liquid Poison Pump 12 automatically starts.

c. Liquid Poison Pump 11 is manually started.

d. Liquid Poison Pump 12 is manually started.

QUESTION: 025 (1.00)

Power to Motor Generator Sets 131 and 141 has been lost. WHICH ONE (1) of the following is also lost?

a. EPR

b. All alarm relays

c. Process computer

d. Feedwater heating

QUESTION: 026 (1.00)

WHICH ONE (1) of the following will cause a rod block when the refuel platform is over the reactor vessel?

a. The reactor mode switch is in STARTUP. The fuel grapple is loaded to 700 lbs.

b. The reactor mode switch is in STARTUP. One of the auxiliary hoists is loaded to 375 lbs.

c. The reactor mode switch is in REFUEL. The fuel grapple is loaded to 700 lbs.

d. The reactor mode switch is in REFUEL. One of the auxiliary hoists is loaded to 375 lbs.

QUESTION: 027 (1.00)

WHICH ONE (1) of the following describes CRD pump operation whenever the Diesel Generators start and load on a loss of voltage?

a. CRD pumps auto-start to maintain cooling to the control rods.

b. CRD pumps must be manually started to maintain cooling to the control rods.

c. CRD pumps auto-start to provide high pressure coolant injection.

d. CRD pumps must be manually started to provide high pressure coolant injection.

QUESTION: 028 (1.00)

Reactor power is 22% and power ascension is in progress. The Rod Worth Minimizer is energized. The operator inadvertently withdraws a control rod beyond its programmed position. WHICH ONE (1) of the following is the Rod Worth Minimizer alarm indication?

a. Withdraw Block

b. Out Of Sequence

c. Select Error

d. RWM Error

QUESTION: 029 (1.00)

WHICH ONE (1) of the following APRMs may be bypassed at the same time?

a. 11 and 14

b. 11 and 15

c. 12 and 14

d. 12 and 15

QUESTION: 030 (1.00)

The following is the status of the APRMs and their associated LPRMs:

APRM	BYPASSED LPRMs
11	28-33 A, 28-49 A, 36-41 A
12	04-33 C, 12-41 C, 20-33 C
13	04-35 A, 12-17 C, 20-09 A
14	28-09 A, 28-25 A, 36-17 C, 44-25 C

WHICH ONE (1) of the following APRM Channels is INOPERABLE?

a. 11

b. 12

c. 13

d. 14

QUESTION: 031 (1.00)

The Transversing Incore Probe (TIP) system is operating in automatic mode. A TIP detector has just inserted into the reactor core when a valid high drywell pressure signal is received. WHICH ONE (1) of the following describes the operation of the TIP system?

a. Continues programmed run. The ball valve automatically closes at the end of the sequence.

b. Shifts to manual reverse mode and withdraws the detector. The ball valve automatically closes.

c. The explosive shear valve automatically fires.

d. Shifts to manual reverse mode and withdraws the detector. The explosive shear valve automatically fires.

QUESTION: 032 (1.00)

WHICH ONE (1) of the following may be the result of opening the Turbine Control Valves greater than 10% during Turbine roll-up?

a. Turbine trip/reactor scram.

b. Bypass Valve oscillations.

c. Aerodynamic buffeting or flutter.

d. Reverse power turbine trip.

QUESTION: 033 (1.00)

The Emergency Cooling System has initiated on a valid signal. Emergency Cooling Loop 11 then spuriously isolates. The SSS directs that the EMERG COOLING CHANNEL 11 Bypass Switch be placed in BYPASS. The initiation signal is still present. WHICH ONE (1) of the following will establish Emergency Cooling via Loop 11?

a. The steam isolation valves and the condensate return isolation valve will automatically open.

b. Manually open the steam isolation valves and the condensate return isolation valve.

c. Manually open the steam isolation valves. The condensate return isolation valve will automatically open.

d. Manually open the condensate return isolation valve. The steam isolation valves will automatically open.

QUESTION: 034 (1.00)

The remote shutdown panel control transfer switches have been placed in EMERGENCY. WHICH ONE (1) of the following describes the automatic capabilities of the Emergency Cooling System?

a. Automatic system isolation and initiation are available.

b. Automatic system isolation is available and automatic system initiation has been defeated.

c. Automatic system isolation has been defeated and automatic system initiation is available.

d. Automatic system isolation and initiation have been defeated.

QUESTION: 035 (1.00)

The Reactor Building Emergency Ventilation System (RBEVS) has automatically initiated. WHICH ONE (1) of the following is the reason that one RBEVS train must be secured?

a. To reduce contamination release rates.

b. To prevent a fire in the charcoal filters.

c. To ensure that system humidity requirements are met.

d. To maintain proper reactor building differential pressure.

QUESTION: 036 (1.00)

WHICH ONE (1) of the following would result in automatic initiation of the Emergency Ventilation System?

a. Reactor Building Vent Rad Monitor indicating 1.5 mr/hr with the Refuel/Bypass Switch in the BYPASS position.

b. Reactor Building Vent Rad Monitor indicating 3.5 mr/hr with the Refuel/Bypass Switch in the REFUEL position.

c. Fuel Pool High Range Rad Monitor indicating 3.5 R/hr with the Refuel/Bypass Switch in the BYPASS position.

d. Fuel Pool High Range Rad Monitor indicating 1.5 R/hr with the Refuel/Bypass Switch in the REFUEL position.

QUESTION: 037 (1.00)

The reactor has just been shutdown for refueling and the vessel head is still in place. All spent fuel pool cooling is lost. High radiation levels prevents use of alternate methods of decay heat removal from the fuel pool. The temperature of the fuel pool has risen 12 deg F in during the last 24 hours and is presently 127 deg F. WHICH ONE (1) of the following is estimated time to boil in the spent fuel pool?

a. 60 to 80 hours

b. 170 to 190 hours

c. 220 to 240 hours

d. 400 to 420 hours

QUESTION: 038 (1.00)

The following conditions exist:

- Containment Inerting is in progress
- Reactor Mode Switch is in STARTUP.
- Reactor pressure is 720 psig.
- Reactor water level is +8 inches.
- Main Condenser Vacuum is 5 inches Hg.
- Temperature in the steam tunnel is 180 deg F.

WHICH ONE (1) of the following will have isolated?

a. Reactor Sample Valves

b. Reactor Water Cleanup Isolation Valves

c. Drywell Vent and Purge Valves

d. Containment Spray to Radwaste Valves

QUESTION: 039 (1.00)

The reactor is operating at full power. The following conditions exist:

- DG 102 has been removed from service for preventative maintenance.

- Reserve Transformer T-101N is tagged out for repair.

Reserve Transformer T-101S has just been declared inoperable. WHICH ONE (1) of the following is the required action?

a. Begin reactor shutdown within one hour and be in COLD SHUTDOWN within 10 hours.

b. Commence an emergency power reduction and be COLD SHUTDOWN within 10 hours.

c. Start DG 103 and return DG 102 to service within 24 hours or begin reactor shutdown.

d. Return a reserve transformer to service within 24 hours or begin reactor shutdown.

QUESTION: 040 (1.00)

The reactor is operating at 20% power and ERV testing is in progress. WHICH ONE (1) of the following is the MAXIMUM torus pool temperature allowed during the test?

a. 85 deg F

b. 95 deg F

c. 110 deg F

d. 120 deg F

QUESTION: 041 (1.00)

Following a Loss of Coolant Accident, Core Spray system 111 and 122 are operating and injecting into the reactor; Core Spray pumps 112 and 121 are locked out. Normal 115 KV supply is then lost to PB 102 and 103. WHICH ONE of the following would describe the plant response?

a. Core Spray Pumps 111 and 122 will start immediately; and Core Spray Topping Pumps 111 and 122 will start 7 seconds later.

b. EDGs start and output breakers close; Core Spray Pump 111 starts immediately; CS Topping Pump 111 starts 7 seconds later; Core Spray pump 122 starts at 13 seconds; CS Topping Pump 122 starts at 20 seconds.

c. Core Spray Pump 111 starts immediately; Core Spray Pump 122 starts 7 seconds later; CS Topping Pump 111 starts at 13 seconds; CS Topping Pump 122 starts at 20 seconds.

d. EDGs start and output breakers close; Core Spray Pumps 111 and 122 will start immediately; and Core Spray Topping Pumps 111 and 122 will start as soon as Core Spray header pressure reaches 200 psig.

QUESTION: 042 (1.00)

The reactor is operating at full power. A report is made that the Condenser Inlet/Discharge Tunnel differential temperature is 37 deg F. WHICH ONE (1) of the following will result from this condition?

a. Excessive thermal stress to the condenser tubes.

b. SPDES permit limit violation.

c. High recirculation pump seal temperatures.

d. Bacterial growth in the circulating water system.

QUESTION: 043 (1.00)

A Station Blackout is progress. Both Emergency Condenser loops are in service. WHICH ONE (1) of the following should be done?

a. Maintain both Emergency Condenser loops in service to reduce battery loads.

b. Maintain both Emergency Condenser loops in service to maintain RPV inventory.

c. Secure one Emergency Condenser loop to reduce battery loads.

d. Secure one Emergency Condenser loop to maintain RPV inventory.

QUESTION: 044 (1.00)

Following a reactor scram, entry into EOP-2, RPV CONTROL, is required. During the transient the operator notices that the ERVs are cycling. WHICH ONE (1) of the following is the reason that ERV cycling should be avoided?

a. Prevent power oscillations.

b. Prevent RPV level fluctuation.

c. Prevent pressurizing the torus.

d. Prevent exceeding the RPV Saturation Temperature curve.

QUESTION: 045 (1.00)

The MSIVs close at 100% reactor power. Reactor pressure increases to 1200 psig. 4 ERVs and 2 Safety Valves open. WHICH ONE (1) of the following properly evaluates the response of the ERVs and the Safety Valves?

a. ERVs responded correctly.
2 Safety Valves are inadvertently open.

b. 2 ERVs have failed to open.
2 Safety Valves are inadvertently open.

c. 2 ERVs have failed to open.
Safety Valves responded correctly.

d. ERVs and Safety Valves responded correctly

QUESTION: 046 (1.00)

WHICH ONE (1) of the following is significantly affected from operating at a reactor level of 60 inches?

a. Core flow

b. Turbine blade life

c. Reactor power

d. Recirculation pump net positive suction head

QUESTION: 047 (1.00)

The reactor is operating at 100% power. WHICH ONE (1) of the following will be the response of drywell pressure and torus water level if Powerboard 16A is lost?

a. Drywell pressure increases
Torus water level decreases

b. Drywell pressure increases
Torus water level increases

c. Drywell pressure decreases
Torus water level decreases

d. Drywell pressure decreases
Torus water level increases

QUESTION: 048 (1.00)

A LOCA is in progress and the Containment Sprays have been initiated. WHICH ONE (1) of the following is the reason that Containment Sprays are terminated when drywell pressure drops below 3.5 psig?

a. To prevent cycling of the Torus to Drywell vacuum breakers.

b. To minimize the potential for a combustible gas mixture in the drywell.

c. To avoid containment spray pump cavitation.

d. To allow RPS scram reset.

QUESTION: 049 (1.00)

The plant has experienced a transient that required ERV operation for RPV pressure control. Reactor pressure is presently 215 psig and bulk suppression temperature is 182 deg F. WHICH ONE (1) of the following must be completed prior to resuming normal power operation?

a. Verify downcomer integrity.

b. Verify ERV setpoints.

c. Perform external visual examination of the suppression chamber.

d. Perform reactor building/torus vacuum breaker surveillance.

QUESTION: 050 (1.00)

The reactor is being refueled and all control rods are operable. A fuel bundle is being lowered into the reactor core during refueling. The SRM count rate begins to increase and a positive period is indicated. WHICH ONE (1) of the following are the required operator(s)actions?

a. Stop fuel movement and evacuate the refuel floor.

b. Contact Reactor Engineering and continue refuel operation.

c. Stop fuel movement and start the Emergency Ventilation System.

d. Raise the fuel bundle and insert a manual scram.

QUESTION: 051 (1.00)

A LOCA is progress and chemistry has reported that the hydrogen concentration in the drywell is 3%. Minor fuel damage has occurred, but offsite radioactive release rates are expected to remain below LCO limits. The primary containment interlocks have been bypassed. The following conditions exist:

Drywell pressure	3.4 psig
Drywell temperature	138 deg F
Torus level	13.45 feet
Torus pressure	3.2 psig
Torus temperature	97 deg F

WHICH ONE (1) of the following is the required containment vent path?

a. Vent the Torus through the Emergency Vent System.

b. Vent the Torus through the Drywell and Torus Vent and Purge Fan.

c. Vent the Drywell through the Emergency Vent System.

d. Vent the Drywell through the Drywell and Torus Vent and Purge Fan.

QUESTION: 052 (1.00)

The plant is in a LOCA condition. The reactor is depressurizing via the pipe break. WHICH ONE (1) of the following will require entry into EOP-8, Emergency RPV Depressurization?

a.	Reactor pressure	1000 psig
	Torus temperature	119 deg F
	Torus level	10.3 feet
b.	Reactor pressure	800 psig
	Torus temperature	121 deg F
	Torus level	10.0 feet
c.	Reactor pressure	600 psig
	Torus temperature	124 deg F
	Torus level	9.8 feet
d.	Reactor pressure	400psig
	Torus temperature	127 deg F
	Torus level	9.6 feet

QUESTION: 053 (1.00)

A LOCA is in progress. Only one core spray subsystem is available and is injecting into the reactor to restore water level. The following conditions exist:

RPV pressure	225 psig
Torus water level	14.5 feet
Torus pressure	3.1 psig
Torus temperature	200 deg F

WHICH ONE (1) of the following is the MAXIMUM allowable core spray flow?

a. 100 x 10E4 lb/hr

b. 175 x 10E4 lb/hr

c. 200 x 10E4 lb/hr

d. 350 x 10E4 lb/hr

QUESTION: 054 (1.00)

All level instrumentation has been lost during a severe LOCA. 30 control rods are stuck out. WHICH ONE (1) of the following can be used to determine reactor water level?

a. Core differential pressure

b. Core spray sparger line differential pressure

c. SRMs

d. LPRMs

QUESTION: 055 (1.00)

WHICH ONE (1) of the following may be used as an alternate method to inject boron?

a. Core Spray

b. Containment Spray

c. Feedwater

d. Reactor Water Cleanup

QUESTION: 056 (1.00)

An ATWS is in progress. Reactor water level has been lowered. WHICH ONE (1) of the following is the reason that operators must wait for 850 gallons of boron solution to be injected into the reactor before raising the reactor water level?

a. To assure that Cold Shutdown Boron Weight has been injected.

b. To assure that Hot Shutdown Boron Weight has been injected.

c. To allow time manually drive in control rods.

d. To allow time reset and attempt a reactor scram.

QUESTION: 057 (1.00)

WHICH ONE (1) of the following is the reason that EOP-6, Radioactivity Release Control, requires the operator to restart the Turbine Building Ventilation System if it has shutdown?

a. To provide filtered release.

b. To prevent overheating of accident mitigation equipment.

c. To assure positive building pressure.

d. To maintain building access to operating personnel.

QUESTION: 058 (1.00)

A loss of AC power is progress. Only one diesel generator is in service and operating at 2300 KW. WHICH ONE (1) of the following is the MAXIMUM additional load that can be added without violating the diesel generator emergency load limits?

a. 400 KW

b. 500 KW

c. 600 KW

d. 700 KW

QUESTION: 059 (1.00)

WHICH ONE (1) of the following is the reason that the Scram Discharge Volume High Level Bypass switches are placed in BYPASS prior to resetting a reactor scram?

a. Inserts a second reactor scram signal.

b. Prevents a second reactor scram signal.

c. Opens the Scram Discharge Volume vent and drain valves.

d. Closes the Scram Discharge Volume vent and drain valves.

QUESTION: 060 (1.00)

The Control Room has been evacuated. WHICH ONE (1) of the following is the preferred method for controlling RPV cooldown using the Emergency Cooling System?

a. Throttling the inside steam isolation valves.

b. Throttling the outside steam isolation valves.

c. Cycling the condensate return valves.

d. Maintaining condenser shell level between 6 and 7 feet.

QUESTION: 061 (1.00)

The reactor is operating at full power. EMERGENCY CONDENSER VENT RADIATION HIGH alarm has come in. As the control room operator surveys the Emergency Cooling System he notes the following:

All the steam isolation valves indicate open and all the condensate return valves indicate closed. EC 112 level is 6'3" and EC 121 level is 6'2". EC 121 shell temperature is 215 deg F.

WHICH ONE (1) of the following is indicative of these conditions?

a. Low condenser level

b. Condenser tube bundle leakage

c. High non-condensable gas content

d. Condensate return valve leakage

QUESTION: 062 (1.00)

WHICH ONE (1) of the following conditions would require the reactor to be emergency depressurized due to secondary containment concerns?

a. A primary system leak into the secondary containment has occurred and attempts to manually isolate the leak were unsuccessful.

b. A fire has resulted in the EC Condensate Return Valve Area and the Emergency Condenser Area (RB 340) exceeding their maximum safe operating temperature.

c. A RWCU system leak has resulted in a Cleanup Corridor area temperature of 150 deg F AND Cleanup Surge Tank area temperature of 140 deg F.

d. A line break on the suction of the Shutdown Cooling Pumps has resulted in an area temperature of 175 degrees F AND an area radiation level that is greater than the alarm setpoint in the Shutdown Cooling Pump area.

QUESTION: 063 (1.00)

A primary leak in the secondary containment has resulted in increasing radiation levels. WHICH ONE (1) of the following explains why the reactor is manually scrammed before any area radiation level reaches 2.5 R/hr?

a. To allow shutdown of the CRD system which may be the source of the leak.

b. To ensure that personnel can access equipment required for safe shutdown of the plant.

c. To ensure that dose rates at the site boundary do NOT exceed ALERT levels.

d. To allow the control room to focus their actions on isolating the leak.

QUESTION: 064 (1.00)

The Reactor Building (RB) Ventilation System has isolated on a high exhaust radiation level signal. WHICH ONE (1) of the following conditions would allow bypassing the isolation signal to restore operation of the RB Ventilation System?

a. The Emergency Ventilation System (EVS) failed to automatically start.

b. The exhaust radiation level decreases to less than 10 mr/hr.

c. When establishing a nitrogen purge to the drywell and venting the torus per EOP-4.1.

d. The secondary containment blowout panels have been blown.

QUESTION: 065 (1.00)

The Shutdown Cooling (SDC) system was in service with two pumps (11 and 12) and two heat exchangers in service. A trip of the 11 SDC pump has resulted in increasing RPV temperature and pressure. Current plant conditions are as follows.

- RPV temperature is 355 degrees
- RPV pressure is 125 psig

WHICH ONE (1) of the following describes the expected SDC system response to these conditions? (Assuming no operator actions are taken).

a. SDC pump 13 will automatically start to assist in RPV cooling.

b. ALL SDC system isolation valves will close, AND SDC pump 12 will trip.

c. ONLY the SDC system suction isolation valves will close, AND SDC pump 12 will remain running.

d. The SDC system isolation valves will remain open, AND SDC pump 12 will trip.

QUESTION: 066 (1.00)

A failure of the 11 CRD pump resulted in a momentary loss of all CRD flow. The operator successfully started the 12 CRD pump and restored system flow. WHICH ONE (1) of the following restrictions are placed on plant operations?

a. At least one control rod must be inserted one notch every shift to verify CRD system operation.

b. The failed CRD pump must be restored to service within 24 hours or a plant shutdown and cooldown is required.

c. The failed CRD pump must be restored to service within 7 days or a plant shutdown and cooldown is required.

d. A normal plant shutdown and cooldown must be initiated and completed within the next 10 hours.

QUESTION: 067 (1.00)

A failure of two reactor recirc pumps has resulted in the plant operating with only three loops in service. WHICH ONE (1) of the following explains why the MAXIMUM allowable reactor power under these conditions is 90%.

a. To ensure that the "Restricted Zone" is NOT entered if another recirc pump should trip.

b. To compensate for the reduced core flow coastdown should a LOCA occur.

c. To prevent the occurrence of thermal hydraulic instability should another recirc pump trip.

d. To reduce the temperature differential between the operating and non-operating loops.

QUESTION: 068 (1.00)

The plant is operating at approximately 80% power when the following annunciator is received.

- STACK GAS MONITORS HIGH RADIATION

Investigation has revealed that Stack Gas Radiation Monitors 11 and 12 indicate upscale High High. WHICH ONE (1) of the following actions should have occurred as a result of this failure?

a. #11 and #12 H2/O2 monitor should have isolated.

b. The Reactor Building Emergency Ventilation system should have started.

c. The drywell air vent and purge valves should have received an isolation signal.

d. The drywell CAM should have isolated.

QUESTION: 069 (1.00)

The reactor is in cold shutdown with the Shutdown Cooling System in operation. A leak in the Reactor Building Closed Loop Cooling System (RBCLC) has resulted in below normal system pressure and increasing component temperatures. The SSS has directed the securing of affected equipment.

WHICH ONE (1) of the following loads would have the greatest impact on reducing the heat load on the RBCLC system under these conditions?

a. Fuel Pool Heat Exchanger.

b. RWCU Regenerative Heat Exchanger.

c. Instrument Air Compressors.

d. Drywell Air Coolers.

QUESTION: 070 (1.00)

The plant is operating at approximately 50% power with reactor recirc flow at 35.0 Mlb/hr when the following annunciator is received.

- CIRCULATING WATER PUMP INTAKE LEVEL LOW

WHICH ONE (1) of the following actions should be taken immediately?

a. Reduce power by lowering recirc flow.

b. Manually scram the reactor.

c. Trip ONE Circulating Water Pump.

d. Trip BOTH Circulating Water Pumps.

QUESTION: 071 (1.00)

The reactor is shutdown, with shutdown cooling in service, when a loss of instrument air occurs. WHICH ONE (1) of the following actions will occur as a result of the loss of instrument air?

a. The scram discharge volume will isolate.

b. The Breathing Air system will automatically align to the instrument air system.

c. The RBCLC temperature control valve (TCV-70-137) will fail full open.

d. The SDC pumps will trip.

QUESTION: 072 (1.00)

WHICH ONE (1) of the following conditions will bypass the MSIV closure on low condenser vacuum signal?

a. The reactor mode switch is in RUN AND reactor pressure is 870 psig.

b. The reactor mode switch is in SHUTDOWN AND the reactor is depressurized.

c. The reactor mode switch is in STARTUP AND reactor pressure is 845 psig.

d. The reactor mode switch is in STARTUP AND reactor pressure is 500 psig.

QUESTION: 073 (1.00)

A loss of all instrument air has resulted in the isolation of Reactor Building Ventilation. Secondary Containment differential pressure is greater than 0 inches of water. WHICH ONE (1) of the following describes the status of the Emergency Ventilation System (EVS) under these conditions?

a. The EVS is inoperable and will NOT automatically start since the inlet and outlet blocking valves are failed closed.

b. The EVS has automatically initiated and is operating as designed.

c. The EVS exhaust fans have automatically started and operator action is required to manually open the inlet and outlet blocking valves.

d. The inlet and outlet blocking valves have failed open and the EVS fans may be manually started.

QUESTION: 074 (1.00)

A reactor power reduction to 90% power has just been completed to perform a surveillance. During the surveillance a loss of DC power results in the loss of several alarms and annunciators in the Control Room. WHICH ONE (1) of the following actions should be taken in response to these conditions?

a. Stop the surveillance and maintain plant conditions stable.

b. Reduce reactor power by lowering recirc flow to just outside the "Restricted Zone".

c. Reduce reactor power by inserting the CRAM control rods until below the 80 % rod line.

d. Manually scram the reactor.

QUESTION: 075 (1.00)

WHICH ONE (1) of the following conditions would require declaring a safety related 125 VDC battery system INOPERABLE?

a. Battery voltage at the battery terminals drops to 120 VDC.

b. The associated emergency diesel generator is declared INOPERABLE.

c. Computer supply MG set 167 becomes INOPERABLE.

d. The associated Static Battery Chargers (SBC) are removed from service.

QUESTION: 076 (1.00)

The plant is operating at approximately 35% power when the following annunciators alarm.

- MOIST SEP 122 LEVEL HIGH
- MOIST SEP 111, 112, 121, 122 LEVEL HIGH

WHICH ONE (1) of the following describes how the plant will respond to these conditions?

a. The plant will remain on line as long as the level in moisture separator 112 remains normal.

b. ONLY the main turbine will trip.

c. BOTH the main turbine will trip AND the reactor will scram.

d. The main generator will runback to 25% rated power.

QUESTION: 077 (1.00)

A large break LOCA has occurred. WHICH ONE (1) of the following conditions represents adequate core cooling?

a. Reactor power: Shutdown
RPV water level: - 90 inches being maintained with Fire System water.
Reactor pressure: 50 psig
ERVs: All shut

b. Reactor power: Shutdown
RPV water level: - 125 inches with no injection sources.
Reactor pressure: 300 psig
Emergency Cooling: Initiated
ERVs: All shut

c. Reactor power: NOT Shutdown
RPV water level: Unknown
Reactor pressure: 350 psig
ERVs: 3 are open
Drywell pressure: 25 psig

d. Reactor power: Shutdown
RPV water level: Unknown
Reactor pressure: 90 psig
ERVs: 3 are open
Drywell pressure: 25 psig

QUESTION: 078 (1.00)

WHICH ONE (1) of the following conditions will trip the recirc pumps?

a. Turbine Control Valve fast closure.

b. Reactor water level dropping to +53 inches.

c. Reactor pressure above 1135 psig

d. A loss of 125 VDC power.

QUESTION: 079 (1.00)

A failure of a recirc pump has resulted in the plant operating with only four loops in operation. The idle loop is **NOT** isolated.

WHICH ONE (1) of the following thermal limits is required to be adjusted to continue operating with only four loops in service?

a. MCPR ONLY

b. APLHGR ONLY

c. MCPR AND APLHGR

d. LHGR AND MCPR

QUESTION: 080 (1.00)

A faulty reactor pressure instrument has satisfied the ATWS-ARI logic. The operator immediately turns the key locked switch on the "F" Panel from "NORMAL" to "OVERRIDE".

WHICH ONE (1) of the following describes the effect this has on the ATWS-ARI initiation logic?

a. The initiation logic will be overridden ONLY if the initiating signal has cleared.

b. The initiation logic will immediately be overridden.

c. Once the logic has sealed in the key locked switch has no effect.

d. It enables the ATWS "LOV RESET" pushbutton which must be depressed to override the logic.

QUESTION: 081 (1.00)

An ATWS has occurred in conjunction with a loss of one RPS power supply. The Reactor Operator depresses the "MANUAL ARI" pushbutton to insert control rods. WHICH ONE (1) of the following describes the response of the ATWS-ARI system under these conditions?

a. The system should IMMEDIATELY initiate and respond as designed.

b. The system will initiate AFTER a 25 second time delay to vent the CRD scram air header.

c. The system will NOT initiate since one of the RPS power supplies is lost.

d. The system will IMMEDIATELY initiate but the response will be SLOWER since only one half of the ARI valves will energize.

QUESTION: 082 (1.00)

Torus level is decreasing due to a small leak. EOP-4, Primary Containment Control has been entered. WHICH ONE (1) of the following systems should be operated to add water to the torus?

a. Core Spray

b. Containment Spray Raw Water

c. Fire Protection

d. Condensate Transfer

QUESTION: 083 (1.00)

During normal power operations the following annunciator alarm is received.

- LQ PROCESS RAD MON

Investigation reveals that the Service Water monitor is in alarm. WHICH ONE (1) of the following identifies the sample location of this monitor?

a. The effluent stream of the Containment Spray Raw Water heat exchangers.

b. The Radwaste liquid effluent discharge stream.

c. At the discharge of the Service Water Pumps.

d. The Turbine Building service water, downstream of the heat exchangers.

QUESTION: 084 (1.00)

WHICH ONE (1) of the following procedures can be executed without regard to the sequence in which the steps are performed?

a. Emergency Operating Procedures

b. Annunciator Response Procedures

c. Special Test Procedures

d. Surveillance Procedures

QUESTION: 085 (1.00)

WHICH ONE (1) of the following actions should you take (after you have arrived on site) if you have been called into work for a non-emergency condition and you have consumed alcohol within the last five (5) hours?

a. Report to the Medical Review Officer that you have consumed alcohol in the last 5 hours.

b. Ensure that a Control Room Logbook entry is made noting that you are responding to an unscheduled call out.

c. Request an alcohol test before entering the Protected Area.

d. Immediately report to your supervisor so that he or she may assess your fitness for duty.

QUESTION: 086 (1.00)

WHICH ONE (1) of the following is the MAXIMUM time allowed to complete the final review and approval of a Type 1 Immediate Procedure Change Evaluation (PCE)?

a. 24 hours

b. 72 hours

c. 14 days

d. 30 days

QUESTION: 087 (1.00)

WHICH ONE (1) of the following will result in the LOWEST ALARA job exposure?

a. One individual performing a job in a 60 mrem/hr field for 60 minutes.

b. One individual installing temporary shielding in a 60 mrem/hr field for 30 minutes and then performing the job in a 6 mrem/hr field for 60 minutes.

c. Two individuals performing a job in a 60 mrem/hr field for 35 minutes.

d. Two individuals installing temporary shielding in a 60 mrem/hr field for 15 minutes and then both performing the job in a 6 mrem/hr field for 40 minutes.

QUESTION: 088 (1.00)

WHICH ONE (1) of the following would be considered a Temporary Modification as defined by GAP-DES-03, Control of Temporary Modifications?

a. A hose connected to a system vent connection that directs the system process fluid to a drain during fill and vent operations.

b. Installation of a temporary catch containment under a leaking valve.

c. Installation of temporary piping supports.

d. Circuit alteration performed during the execution of Emergency Operating Procedures (EOPs).

QUESTION: 089 (1.00)

WHICH ONE (1) of the following is the MAXIMUM time period that a Hot Work Permit (HWP) can be in place.

a. 8 hours

b. 12 hours

c. 16 hours

d. 24 hours

QUESTION: 090 (1.00)

WHICH ONE (1) of the following conditions would require the presence of three (3) licensed Reactor Operators on shift.

a. The unit is operating at 100% power with the Process Computer out of service.

b. The unit is in the middle of a reactor startup with the mode switch in STARTUP.

c. The unit is in a shutdown condition making preparations to place shutdown cooling in service.

d. The unit is in a shutdown condition with refueling operations in progress.

QUESTION: 091 (1.00)

WHICH ONE (1) of the following describes the requirements that must be met when a motor-operated valve is manually seated during a valve lineup?

a. The valve must be marked with a yellow hold-out tag requiring manual operation before motor operation.

b. The electrical supply breaker must be tagged open.

c. The valve position must be independently verified.

d. The valve must be marked with a blue markup (BMU) requiring manual operation before motor operation.

QUESTION: 092 (1.00)

WHICH ONE (1) of the following events would REQUIRE the SSS or his designee to make a notification to the Plant Manager (at the earliest convenience)?

a. Any unexpected change in station output greater than 50 MWe.

b. Whenever the reactor mode switch is placed in the "Startup" position as part of a planned reactor startup.

c. Any planned entry into a Limiting Condition for Operation (LCO) on a safety related system.

d. Whenever the reactor mode switch is placed in the "Shutdown" position as part of a planned reactor shutdown.

QUESTION: 093 (1.00)

WHICH ONE (1) of the following can grant permission to operate equipment under a Blue Markup (BMU)?

a. Any licensed RO or SRO

b. Any on shift non-licensed operator

c. The Markup Controller

d. The Markup Person

QUESTION: 094 (1.00)

WHICH ONE (1) of the following requirements applies to markups on safety related systems?

a. The markup MUST be applied by a licensed RO.

b. The markup MUST be applied by a licensed SRO.

c. A licensed RO MUST either apply or independently verify the markup.

d. The markup MUST be independently verified by a licensed SRO.

QUESTION: 095 (1.00)

A female worker has just reported to you that she is six months pregnant. It has been determined that her occupational exposure for the six months of her pregnancy is 475 mrem total effective dose equivalent (TEDE).

WHICH ONE (1) of the following represents her occupational exposure limit during the remainder of her pregnancy?

a. She may receive a maximum of 50 mrem per month for the remainder of her pregnancy.

b. She may receive a maximum of 25 mrem of exposure for the remainder of her pregnancy.

c. She may receive a maximum of 50 mrem of exposure for the remainder of her pregnancy.

d. She may receive up to 500 mrem exposure from the day that she declared her pregnancy.

QUESTION: 096 (1.00)

An emergency requires sending an operator into an area, with a dose rate of 5 Rem/hr, to take action to protect valuable property. WHICH ONE (1) of the following is the MAXIMUM amount of time the operator can work in the area without exceeding the emergency dose limit?

a. 1 hour

b. 2 hours

c. 5 hours

d. 10 hours

QUESTION: 097 (1.00)

WHICH ONE (1) of the following describes the meaning of an "R" in parenthesis, (R), on a valve lineup sheet?

a. The valve position needs to be independently verified.

b. The valve is safety related.

c. The valve is reverse seated.

d. The valve has a remote handwheel operator.

QUESTION: 098 (1.00)

A Site Area Emergency has been declared by the SSS. A turnover is in progress between the SSS and the TSC Site Emergency Director (TSC-SED).

WHICH ONE (1) of the following responsibilities is NOT transferred to the TSC-SED?

a. Making Protective Action Recommendations (PARs).

b. Classifying the emergency event.

c. Determining whether a site evacuation is appropriate.

d. Coordinating radiological field teams

QUESTION: 099 (1.00)

The Station Evacuation Alarm has been activated. The emergency accountability process has been initiated.

WHICH ONE (1) of the following describes when an individual should be declared missing and search and rescue efforts initiated?

The individual should be declared missing if he/she has **NOT** been accounted for within approximately ...

a. 30 minutes

b. 45 minutes

c. 1 hour

d. 1 1/2 hours

QUESTION: 100 (1.00)

A General Emergency has been declared. Dose assessments are in progress. WHICH ONE (1) of the following represents the initial Protective Action Recommendations (PARs) that should be made to state authorities?

a. Shelter ALL Emergency Response Planning Areas (ERPAs).

b. Evacuate ERPAs that are within a 2 mile radius of the plant; Shelter all remaining ERPAs.

c. Evacuate those ERPAs that are within the 2 mile radius of the plant and 5-miles downwind of the plant; Shelter all remaining ERPAs.

d. Evacuate those ERPAs that are within the 5 mile radius of the plant and 10 miles downwind of the plant; Shelter all remaining ERPAs.

(********** END OF EXAMINATION **********)

QUES 22

10.0 ACCEPTANCE CRITERIA

10.1 Operation Review

10.1.1 a. Check valve data meets IST Acceptance Criteria.

VALVE NUMBERS	TEST DIRECTION	ACCEPTANCE CRITERIA **	RESULTS	
			SAT	UNSAT
80-06	PARTIAL FORWARD	FLOW ≥2842 GPM. STEP 8.1.28	(X)	(__)
80-06	REVERSE FLOW	Change in Discharge Pressure less than 10 (Step 8.1.33.c)	(X)	(__)
93-10	FULL FORWARD	FLOW ≥3055 GPM. STEP 8.1.32	(X)	(__)
93-57	FULL FORWARD	FLOW ≥3055 GPM. STEP 8.1.32	(X)	(__)

* Acceptable valve exercising in the direction indicated verifies acceptable Fail Safe testing.

** If any stroke time exceeds the IST stroke time/acceptance limit or if any IST acceptance criteria is exceeded, the valve shall be declared inoperable immediately. Notify the IST Department of the inoperable valve.

10.1.1 b. Motor Current Limits

COMPONENT	MEASURED VALUE	ACCEPTANCE CRITERIA	RESULTS*	
			SAT	UNSAT
80-04	_____ AMPS (Step 8.1.16)	≤ 53.5 AMPS	X	
93-82	_____ AMPS (Step 8.1.20)	≤ 76.5 AMPS	X	

The motor current limits have been established through disposition of DER 1-92-4195. If these limits are exceeded, generate a DER. The motor current limits are guide values and have no immediate impact on pump operability.

10.1.2 Pump Data meets IST Acceptance Criteria

a. 80-04, CONTAINMENT SPRAY PUMP 111

TEST QUANTITY	MEASURED VALUE	ACCEPTANCE RANGE		ALERT RANGE		REQUIRED ACTION RANGE		OVERALL RESULTS		
		LOW	HIGH	LOW	HIGH	LOW	HIGH	ACC *	AL*	R/A**
SUCT PRESS (PSIG) STEP 8.1.25	1.2	≥0.46	N/A	N/A	N/A	N/A	N/A			
DIFF PRESS (PSID) STEP 8.1.27	165.4	151.66	166.33	146.77 to 151.66	166.33 to 167.96	<146.77	>167.96			
FLOW GPM STEP 8.1.28	2894	2842	2958	N/A	N/A	N/A	N/A			
VIB. VERT. PT.1V(IN/SEC) STEP 8.1.21	SAT	≤0.250		>0.250		>0.600				
VIB. HORZ. PT.1H(IN/SEC) STEP 8.1.21	SAT	≤0.250		>0.250		>0.600				
VIB. AXIAL PT.1A(IN/SEC) STEP 8.1.21	SAT	≤0.250		>0.250		>0.600				

* Pump test results which fall into the Alert Range require that the test frequency be doubled until the cause is determined and condition corrected. Subsequently, inform the IST Department of the pump condition. Alert Range test results are considered satisfactory for continued operation.

** Pump test results falling within the required action range shall be the basis for declaring the pump inoperable immediately. Notify the IST Department of the inoperable pump.

10.1.2 (Cont)

b. 93-02, CONTAINMENT SPRAY RAW WATER PUMP 111

TEST QUANTITY	MEASURED VALUE	ACCEPTANCE RANGE		ALERT RANGE		REQUIRED ACTION RANGE		OVERALL RESULTS		
		LOW	HIGH	LOW	HIGH	LOW	HIGH	ACC	AL*	R/A**
SUCT PRESS (PSIG) STEP 8.1.29	6.1	≥ 4.8	N/A	N/A	N/A	N/A	N/A			
DIFF PRESS (PSID) STEP 8.1.31	204.7	185.83	203.82	179.84 to 185.83	203.82 to 205.81	<179.84	>205.81			
FLOW (GPM) STEP 8.1.32	3342	3136	3264	N/A	N/A	N/A	N/A			
VIB. VERT. PT.1V(IN/SEC) STEP 8.1.22	SAT	≤ 0.220		> 0.22		> 0.528				
VIB. HORZ. PT.1H(IN/SEC) STEP 8.1.22	SAT	≤ 0.207		> 0.207		> 0.498				
VIB. AXIAL PT.1A(IN/SEC) STEP 8.1.22	SAT	≤ 0.117		> 0.117		> 0.282				

* Pump test results which fall into the Alert Range require that the test frequency be doubled until the cause is determined and condition corrected. Subsequently, inform the IST Department of the pump condition. Alert Range test results are considered satisfactory for continued operation.

** Pump test results falling within the required action range shall be the basis for declaring the pump inoperable immediately. Notify the IST Department of the inoperable pump.

10.1.3 Pump Motor Bearing Data Meets EQ Requirements

a. 80-04, Containment Spray Pump 111

1. Lubrication levels are satisfactory in accordance with N1-PM-Q9, Procedure for Operations Lubrication.

(__) YES (__) NO

2. Bearing temperatures are ≤ 200°F.

(__) YES (__) NO

10.1.3.a (Cont)

3. Vibration levels are satisfactory in accordance with NMP1 Pump and Valve IST Program Plan.

(__) YES (__) NO

10.1.4 Pump Data Meets Technical Specification Acceptance Criteria.

a. 80-04, Containment Spray Pump 111.

1. Differential Pressure recorded in Step 8.1.27 vs. Flow recorded in Step 8.1.28 fall on OR above the minimum performance curve in MDC-11, Appendix A to assure 3600 gpm at 87.7 psid.

(__) YES (__) NO

2. Flow recorded in Step 8.1.28 is ≥2800

(__) YES (__) NO

b. 93-02, Containment Spray Raw Water Pump 111.

1. Flow recorded in Step 8.1.32 is ≥3055 gpm.

(__) YES (__) NO

2. Pressure recorded in Step 8.1.18 is ≥141 psig.

(__) YES (__) NO

10.1.5 All test documents completed. (__) YES (__) NO

_____/_____/_____

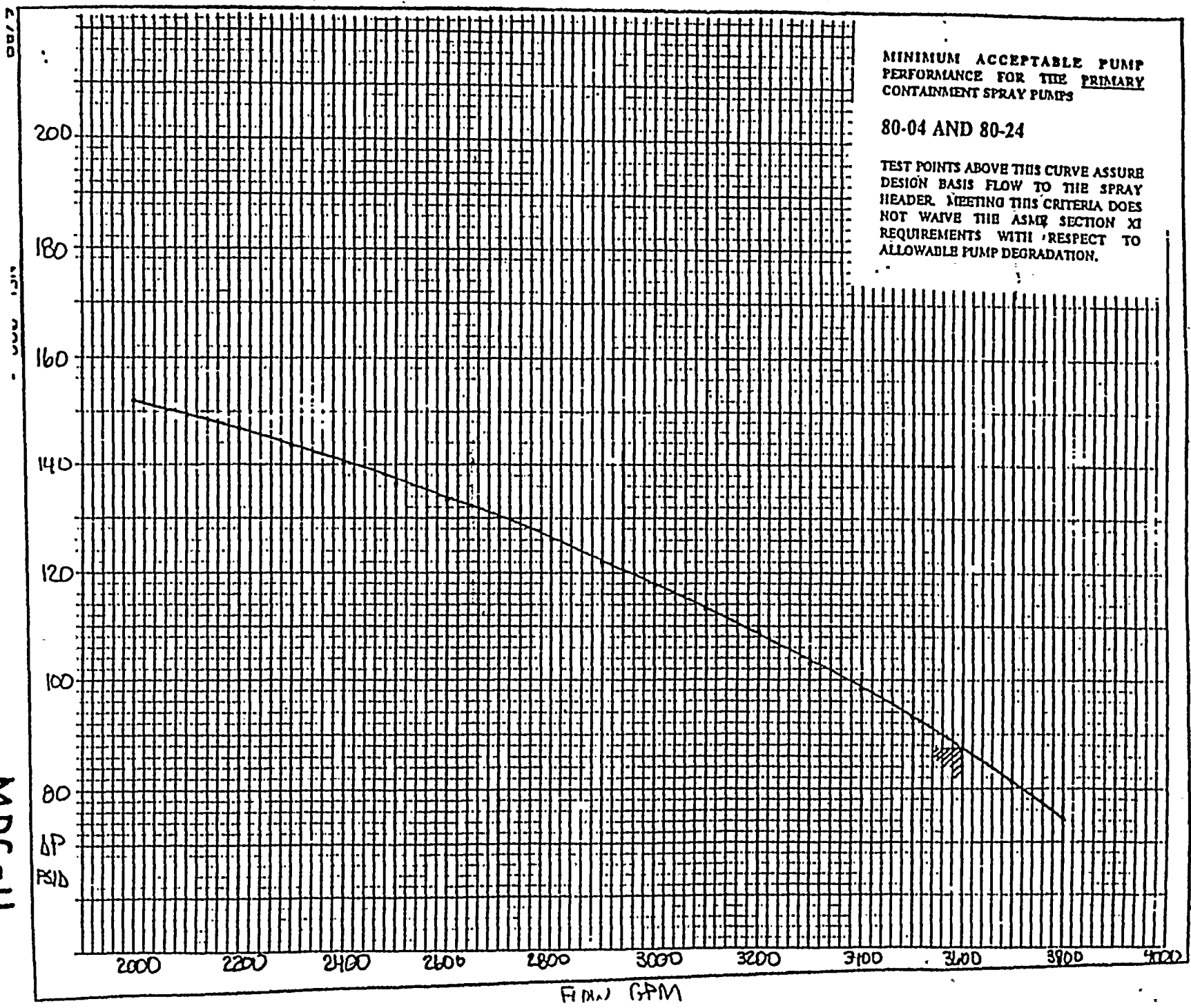
Completed by SSS/ASSS Date Time

10.1.6 SSS Review

(__) Satisfactory, no corrective action required.

(__) Satisfactory, corrective action required.(Use Remarks Section as necessary. Indicate WR number).

(__) Unsatisfactory (Use Remarks Section as necessary. Initiate a WR and immediately notify* the Station Shift Superintendent or alternate).



EPN = 80-04, 80-2

MDC-11
REV. 5

N1-SOP-20
LOSS OF SFP / RX CAVITY LEVEL / DECAY HEAT REMOVAL

EVENT DESCRIPTION

Reported or observed loss of :
- Fuel Pool Inventory
- Reactor Cavity Inventory
- Decay Heat Removal (DHR)

Activate Emergency Plan, if required, in accordance with EPIP-EPP-18

IF	THEN
1. Fuel Pool Inventory OR Reactor Cavity Inventory decreasing,	1. Go to A
2. Spent Fuel Pool Cooling is lost	2. Continue at (C) page 4.
3. RPV Decay Heat Removal capability lost,	3. Continue at (B) page 4.

A

While executing the following steps:

IF	THEN
Irradiated Fuel Bundle has been uncovered, OR Refuel Bridge High Radiation Alarm has sounded,	1. Evacuate Reactor Building elev. 340 AND DW. 2. Verify initiation of EVS. 3. Check Radiation Monitors for evidence of gaseous release.

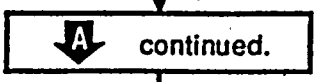
Notify Radiation Protection

Evacuate non-essential personnel from Refuel Floor (el. 340)

A Continued on page 3.

While executing the following steps:

IF	THEN
Irradiated Fuel Bundle has been uncovered, OR Refuel Bridge High Radiation Alarm has sounded,	1. Evacuate Reactor Building elev. 340 AND DW. 2. Verify initiation of EVS. 3. Check Radiation Monitors for evidence of gaseous release.



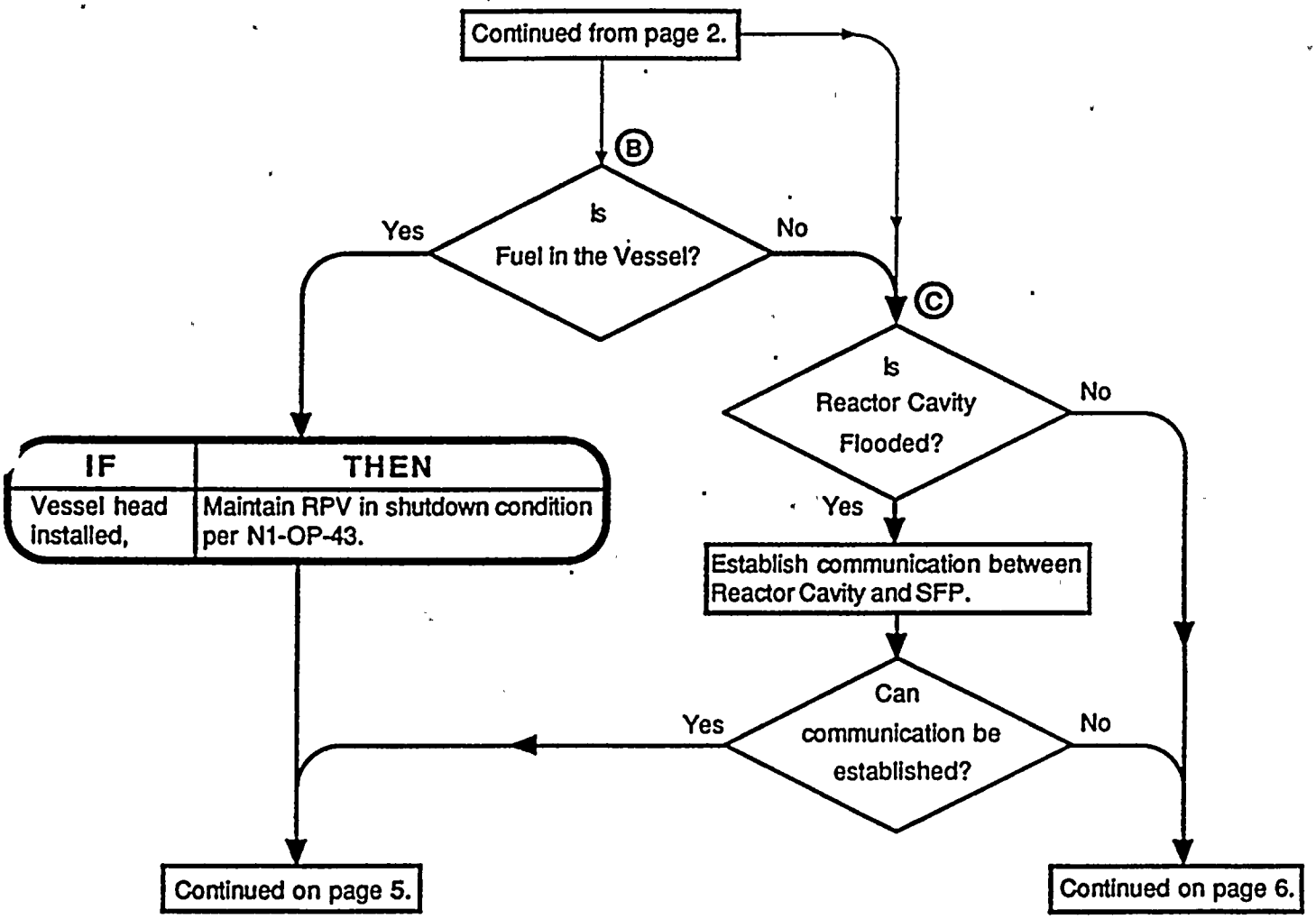
Verify the following actions have been performed, as radiological conditions permit:

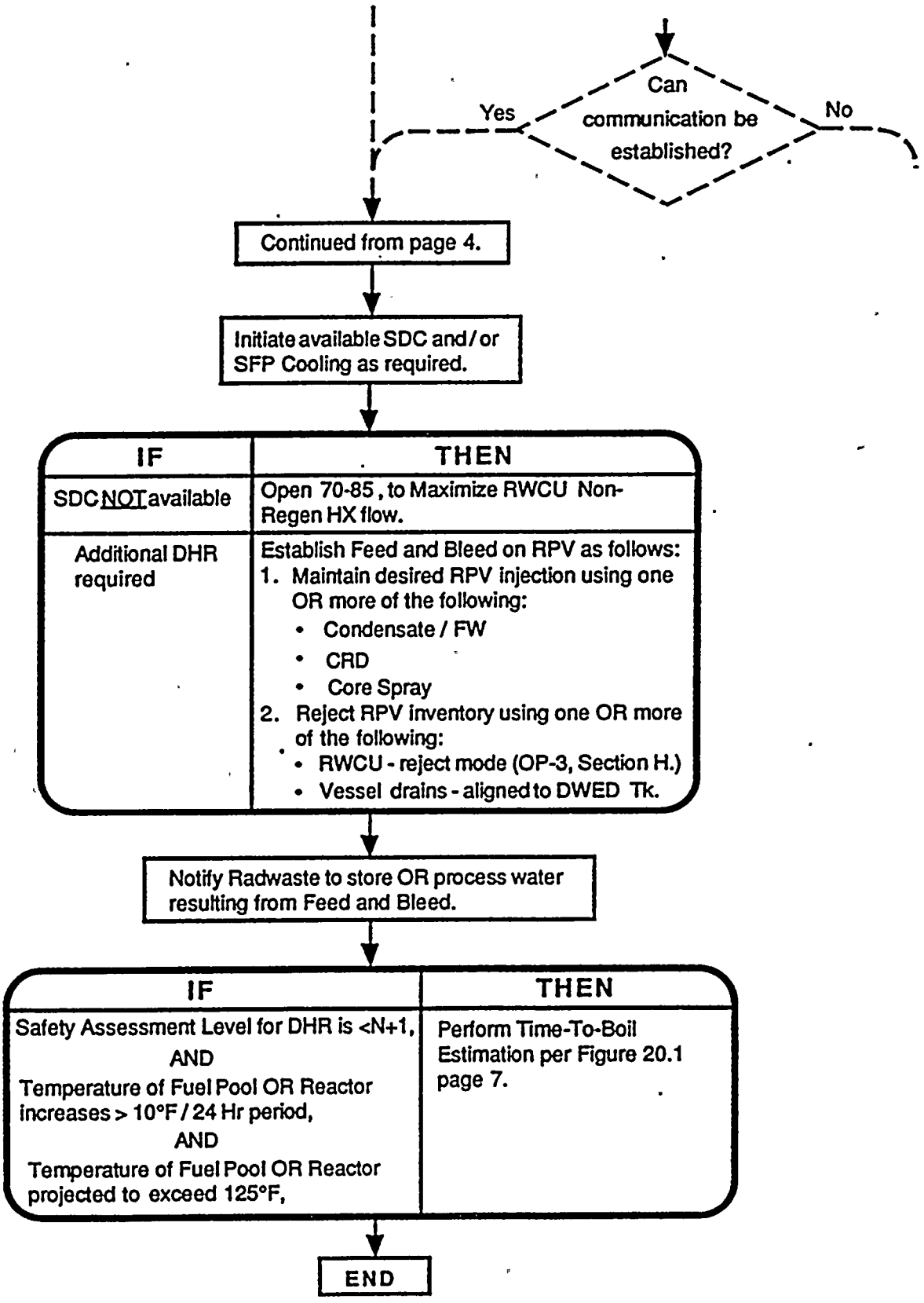
1. Return to nearest storage location in Spent Fuel Pool OR Core, core components being transferred.
2. At SSS discretion, lower into Spent Fuel Storage Pool ANY items stored above Spent Fuel Racks.

IF	THEN
Reactor cavity level decreasing:	Restore and maintain Reactor Cavity level using one or more of the following: • Condensate / FW • CRD • Core Spray • Condensate Transfer, hoses run from header on west wall. • Demineralized Water, hoses run from refueling service connections.
Fuel Pool level decreasing: (Gates installed)	Restore and maintain Fuel Pool level using one OR more of the following: • Verify Fuel Pool makeup • Condensate Transfer, hoses run from header on west wall. • Demineralized Water, hoses run from refueling service connections.

IF	THEN
Reactor Cavity / Fuel Pool inventory can NOT be restored:	Restore and maintain level using one or more of the following: • Cross-connect Ct Spray Raw Wtr to Core Spray per N1-OP-2, Section H. • Cross-Connect Fire Water to FW per N1-OP-21A, Section H. • Fire hoses located on el. 340

END


Continued from page 2.
B
Is Fuel in the Vessel?
Yes
No
C
Is Reactor Cavity Flooded?
No
Yes
IF
THEN
Vessel head installed,
Maintain RPV in shutdown condition per N1-OP-43.
Establish communication between Reactor Cavity and SFP.
Can communication be established?
Yes
No
Continued on page 5.
Continued on page 6.


Can communication be established?
Yes
No
Continued from page 4.
Initiate available SDC and/or SFP Cooling as required.
IF
THEN
SDC NOT available
Open 70-85, to Maximize RWCU Non-Regen HX flow.
Additional DHR required
Establish Feed and Bleed on RPV as follows:
1. Maintain desired RPV injection using one OR more of the following:
• Condensate / FW
• CRD
• Core Spray
2. Reject RPV inventory using one OR more of the following:
• RWCU - reject mode (OP-3, Section H.)
• Vessel drains - aligned to DWED Tk.
Notify Radwaste to store OR process water resulting from Feed and Bleed.
IF
THEN
Safety Assessment Level for DHR is <N+1,
AND
Temperature of Fuel Pool OR Reactor increases > 10°F / 24 Hr period,
AND
Temperature of Fuel Pool OR Reactor projected to exceed 125°F,
Perform Time-To-Boil Estimation per Figure 20.1 page 7.
END

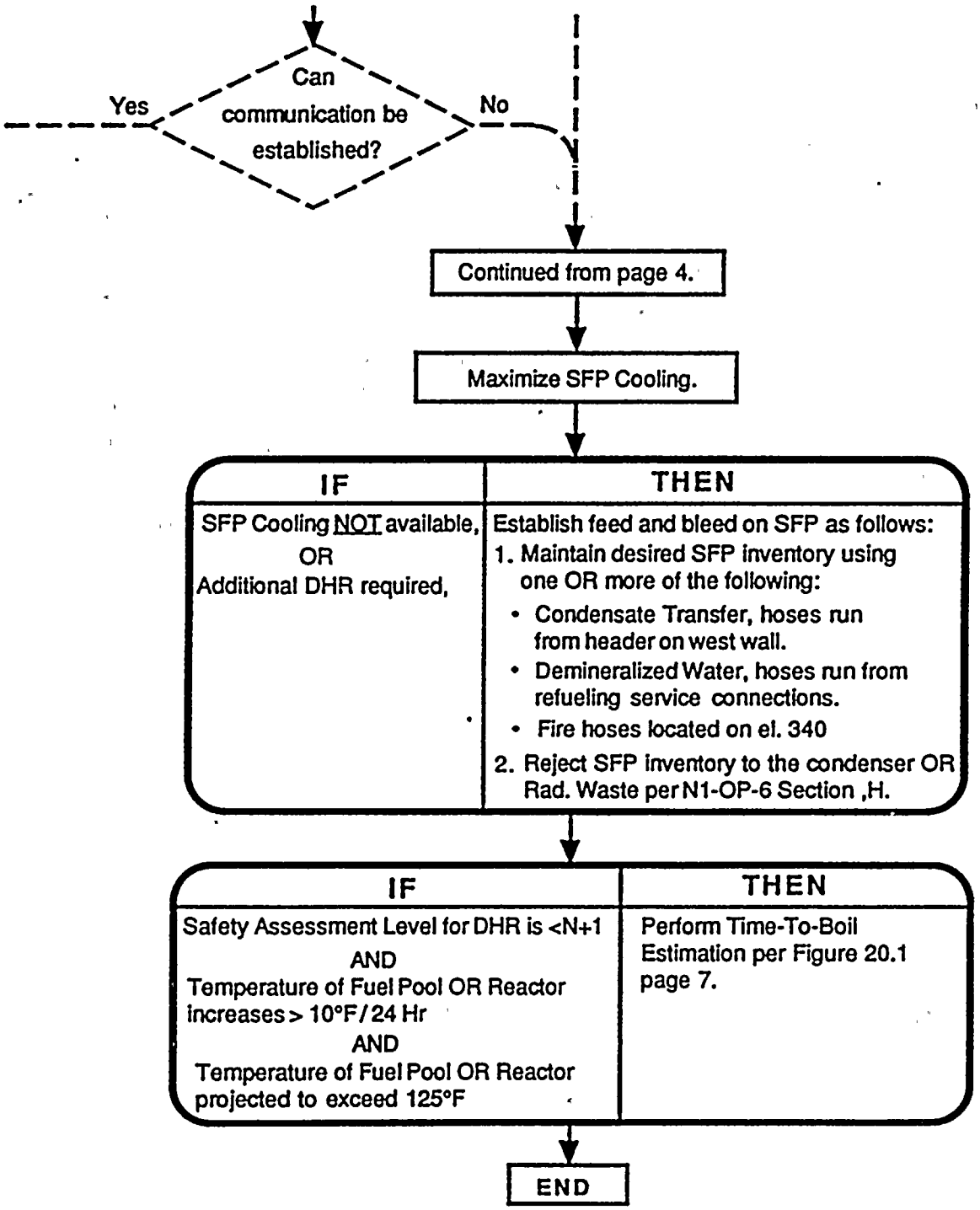

Can communication be established?
Yes
No
Continued from page 4.
Maximize SFP Cooling.
IF
THEN
SFP Cooling NOT available,
OR
Additional DHR required,
Establish feed and bleed on SFP as follows:
1. Maintain desired SFP inventory using one OR more of the following:
• Condensate Transfer, hoses run from header on west wall.
• Demineralized Water, hoses run from refueling service connections.
• Fire hoses located on el. 340
2. Reject SFP inventory to the condenser OR Rad. Waste per N1-OP-6 Section ,H.
IF
THEN
Safety Assessment Level for DHR is <N+1
AND
Temperature of Fuel Pool OR Reactor increases > 10°F/24 Hr
AND
Temperature of Fuel Pool OR Reactor projected to exceed 125°F
Perform Time-To-Boil Estimation per Figure 20.1 page 7.
END

FIGURE 20.1 Time-To-Boil Estimation Sheet

This formula may be used to estimate Time-To-Boil in either the Rx OR the Fuel Pool.

$$\text{Time-To-Boil} = \frac{212°F - \text{Actual Temp}}{(\text{DH Production} - \text{DH Removal} - \text{Ambient loses}) / K}$$

Actual Temp = Rx Temp OR Fuel Pool Temp (°F)
Decay Heat Production (DHP) = Value obtained from Figure 20.2 based on time after S/D
Decay Heat Removal (DHR) = Value obtained from Figure 20.3 BTU/ Hr
Ambient Losses = $4x10^6$ BTU/Hr for the fuel pool
= $4x10^6$ BTU/Hr for the vessel
= $8x10^6$ BTU/Hr for the fuel pool and vessel
Constant (K) = For a given condition, the amount of heat required to raise Rx Coolant OR fuel pool 1°F

K for fuel in vessel (RPV level @ flange)	= 0.338×10^6 BTU/°F
K for fuel in vessel (cavity flooded)	= 2.19×10^6 BTU/ °F
K for fuel in pool	= 2.66×10^6 BTU/ °F
K for pool and vessel (combined) with level 338 - 339 feet	= 4.85×10^6 BTU/ °F
DHP for pool (prior to core offload)	= 5.0×10^6 BTU/ Hr

Time-To-Boil = $\frac{(212°F - \_\_\_\_°F)}{(\_\_\_\_BTU/Hr - \_\_\_\_BTU/Hr - \_\_\_\_BTU/Hr) / \_\_\_\_BTU/°F}$

Time-To-Boil = $\frac{(\_\_\_\_°F)}{(\_\_\_\_BTU/Hr) / (\_\_\_\_BTU/°F)}$

Time-To-Boil = $\frac{(\_\_\_\_°F)}{(\_\_\_\_°F/Hr)}$

Time-To-Boil = _____Hours

Figure 20.2
Decay Heat Production Rates
(BTU/Hr in millions)

Days	hours	
1	24	29.87
7	168	16.6
14	336	13.2
21	504	9.8
28	672	8.4
35	840	7.3
42	1008	6.5
49	1176	5.9
56	1344	5.4
63	1512	5.0
69	1680	4.7

Figure 20.3
Decay Heat Removal Capacities
(BTU/Hr in millions)

1 EC Loop = 231
2 EC Loops = 462
Cleanup (NRHX) = 40
1 SDC Loop = 12.5
2 SDC Loops = 25
3 SDC Loops = 37.5
1 SFPC Loop = 8.3
2 SFPC Loops = 16.6
1 SFPC Loop(emerg) = 20

ATTACHMENT 3

SIMULATION FACILITY REPORT

Facility License: DPR-63

Facility Docket No: 50-220

Operating Test Preparation and Administration: December 5-8, 1994

This form is to be used only to report 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.

During the conduct of the simulator portion of the operating tests, no items were observed.

ITEM	DESCRIPTION
None	

ANSWER KEY

092 a

093 d or C

094 c

095 c

096 b

097 c

098 a

099 a

100 c

(********** END OF EXAMINATION **********)

ANSWER KEY

MULTIPLE CHOICE

001	d
002	b
003	a
004	a
005	d
006	c
007	c
008	b
009	c
010	c
011	b
012	c
013	a
014	b
015	d
016	d
017	~~c~~ a
018	b
019	c
020	b
021	b
022	c
023	a
024	d
025	d
026	c
027	c
028	b
029	d
030	b
031	b
032	b
033	c
034	a
035	c
036	d
037	c
038	a
039	a
040	b
041	b
042	b
043	d
044	b
045	b

ANSWER KEY

046	d	069	a
047	b	070	c
048	b	071	a
049	c	072	d
050	d	073	d
051	b	074	a
052	a	075	d
053	b	076	b
054	c	077	c
055	d	078	c
056	b	079	b
057	d	080	b
058	b	081	a
059	b	082	b
060	c	083	d
061	b	084	b
062	c	085	c
063	b	086	c
064	c	087	b
065	d	088	c
066	c	089	d
067	b	090	b
068	c	091	a