DEC 27 1990

U.S. NUCLEAR REGULATORY COMMISSION REGION I
OPERATOR LICENSING EXAMINATION REPORT

Examination Report No.: 50-293/90-24 (OL)

Facility Docket No.: 50-293

Facility License No.: DPR-35

Licensee: Boston Edison Company

Facility: Pilgrim Nuclear Power Station

Examination Dates: November 26 - 30, 1990

Examiners: C. Sisco, Operations Engineer
T. Easlick, Operations Engineer
G. Buckley, Pacific Northwest Lab (PNL)

Chief Examiner: Carl Sisco 12/27/90
C. Sisco, Operations Engineer Date

Approved by: Todd H. Zi for 12/27/90
R. Conte, Chief Date
BWR Section, Operations Branch
Division of Reactor Safety

Examination Summary: Written and operating examinations were administered to seven Reactor Operator (RO) candidates and three Senior Reactor Operator (SRO) candidates. All ten candidates passed the examinations. Overall, the candidates were well prepared for the examinations. Within this report, strengths and deficiencies are listed as feedback to the licensed operator training program. During the course of the examination, a number of procedure deficiencies were noted. In a subsequent conference call with members of the licensee's staff, corrective actions were initiated to resolve the procedural deficiencies.

DETAILS

1.0 Introduction and Overview

The NRC examiners administered initial examinations to seven RO candidates and three SRO candidates. The examinations were administered in accordance with NUREG 1021, Examiner Standards, Revision 5. The results of the examination are summarized below.

	RO PASS/FAIL	SRO PASS/FAIL
Written	7/0	3/0
Operating	7/0	3/0
Overall	7/0	3/0

2.0 Persons Contacted

2.1 Nuclear Regulatory Commission

C. Sisco, Operations Engineer (1) (2) (3) (4)
T. Easlick, Operations Engineer (1) (3) (4)
G. Buckley, PNL (2)

2.2 Boston Edison Company

E. Kraft, Plant Manager (2) (4)
L. Oliviea, Operations Section Manager (4)
T. Sullivan, Chief Operating Engineer (1) (2) (3) (4)
J. Alexander, Training Manager (2) (4)
H. Balfour, Operations Training Section Manager (2) (4)
A. Shiever, Operations Training Supervisor (1) (2) (3) (4)
E. Graham, Instructor (1)
J. Kelly, Senior Compliance Engineer (4)

Notes

(1) Denotes those present during the pre-examination review of the written examination on November 16, 1990.

(2) Denotes those present during the entrance meeting on November 26, 1990.

(3) Denotes those present during the Simulator Examination Validation and Verification on November 26, 1990.

(4) Denotes those present during the exit meeting on November 30, 1990.

3.0 Pre-Examination Activities

3.1 License Application Review

The license applications were reviewed in accordance with NUREG 1021, Examiner Standards, Revision 5. The applications contained sufficient information to determine the eligibility of the applicants to appear for the examination.

3.2 Examination Preparation

The written examination and operating test were prepared in accordance with NUREG 1021, Examiner Standards, Revision 5. The reference material provided by the licensee was found adequate for the preparation of the examination.

3.3 Pre-Examination Review

Prior to administration of the written examination, on November 16, 1990, the facility reviewed the written examination at the Regional Office. All facility comments were discussed, and the written examination was revised as appropriate. All facility individuals involved with the review of the written examination signed security agreements to ensure that there was no compromise of the examination.

3.4 Entrance Meeting

An entrance meeting with the licensee was held on November 26, 1990, at its training facility. The purpose of the meeting was to discuss the plan and schedule for the examination.

3.5 Simulator Examination Validation and Verificat

The simulator examination scenarios used for the operating test were validated and verified at the facility simulator on November 26, 1990. All facility individuals involved with the validation and verification signed security agreements to ensure that there was no compromise of the examination.

4.0 Examination-Related Findings and Conclusions

The following is a summary of the strengths and deficiencies noted during the administration of the written examinations and operating tests. This information is being provided to aid the licensee in upgrading license and requalification training programs.

The overall assessment by the examination team was that the applicants were well prepared for the examination.

4.1 Written Examination

There were no specific strengths or deficiencies noted from the written examination.

4.2 Operating Test

Strengths

Individual and crew communications.

Team work.

Procedure usage.

Control Room Command Function as demonstrated by the SROs.

Deficiencies

Manual operation of the main condenser hotwell level controller.

Knowledge of the temperature requirement of the cold shutdown mode.

Some applicants were prompted by the SRO to announce alarm conditions.

The knowledge that the responsibility to ensure Technical Specification compliance is shared between the RO and SRO.

4.3 Additional Findings

During the preparation and administration of the operating tests, the NRC examination team identified the following plant procedure deficiencies:

A. Procedure 2.2 106 Augmented Off - Gas System (AOG)

1. Directions on how to transfer operating recombiner trains during plant operations are not clearly stated in the procedure.

2. The procedure contains conflicting direction on placing AOG in service during plant startup.

B. Procedure 2.2.32 Salt Service Water System

Directions on how to alternate system pumps during plant operation are not in the procedure.

C. Procedure 8.9.16 Manually Start and Load Blackout Diesel

Labeling inconsistencies exist between the plant and the procedure.

D. Procedure 2.2.146 Station Blackout Diesel Generator

Direction regarding starting diesel engine locally is not in the procedure.

E. Procedure 2.2.133 H2/O2 Analyzer and C-19 System

Labeling inconsistencies exist between the plant and the procedure.

F. Procedure 2.4.20 Reactor Recirc System Speed or Flow Control System Malfunction

Direction regarding when to re-install the Function Generator is not in the procedure.

G. The main condenser vacuum setpoints are inconsistent between the Alarm Response Procedure and Abnormal Procedure 2.4.36, "Decreasing Condenser Vacuum."

H. The RCIC Flow Control setpoint at the Alternate Shutdown panel differs from the Flow Control setpoint in the main control room.

4.4 Resolution of Additional Findings

A telephone conference call was conducted December 10, 1990. The participants were:

Facility

L. Oliviea, Operations Section Manager
T. Sullivan, Chief Operating Engineer

NRC

C. Sisco, Chief Examiner

Each of the identified procedural deficiencies was discussed in detail. The licensee stated that a Permanent Change Notice would be submitted for each procedure to resolve the NRC examination team's concerns. Further, the procedures will be revised within 30 days.

The licensee also explained that the RCIC Flow Control setpoint at the Alternate Shutdown panel differs from the control room setpoint in accordance with management direction. The setpoint differs to allow a gradual, controlled startup of the RCIC system from the Alternate Shutdown panel.

The Chief Examiner stated that the proposed changes to these procedures would adequately address the NRC examination teams concerns.

5.0 Exit Meeting

An exit meeting was conducted on November 30, 1990, following the administration of the examinations. The licensee representatives that attended the meeting are listed in Section 2 of this report.

The strengths and deficiencies noted on the operating examinations were presented (see Section 4.2 of this report). Additionally, the Chief Examiner presented the procedural deficiencies noted (see Section 4.3). The licensee was not prepared to discuss these procedural deficiencies at the exit meeting. Arrangements were made to discuss these deficiencies at a later date (see Section 4.4).

The Chief Examiner stated that the examination results would be contained in the examination report in approximately 30 working days.

Attachments
1. Reactor Operator Examination and Answer Key
2. Senior Operator Examination and Answer Key
3. Facility Comments on Written Examination
4. NRC Resolution of Facility Comments
5. Simulator Facility Report

ATTACHMENT 5

SIMULATION FACILITY REPORT

Facility Licensee: Boston Edison Company

Facility Docket No.: 50-293

During the conduct of the simulator portion of the operating tests, the following items were observed:

ITEM	DESCRIPTION
--- NONE ---	

ATTACHMENT 1

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

FACILITY: Pilgrim 1

REACTOR TYPE: BWR-GE3

DATE ADMINISTERED: November 26, 1990

CANDIDATE:

INSTRUCTIONS TO CANDIDATE:

Points for each question are indicated in parentheses after the question. To pass this examination, you must achieve an overall grade of at least 80%. Examination papers will be picked up four and one half (4 1/2) hours after the examination starts.

NUMBER QUESTIONS	TOTAL POINTS	CANDIDATE'S POINTS	CANDIDATE'S OVERALL GRADE (%)
100	100.00		

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

Candidate's Signature

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

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 candidate 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.

6. Fill in the date on the cover sheet of the examination (if necessary).

7. You may write your answers on the examination question page or on a separate sheet of paper. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.

8. If you write your answers on the examination question page and you need more space to answer a specific question, use a separate sheet of the paper provided and insert it directly after the specific question. DO NOT WRITE ON THE BACK SIDE OF THE EXAMINATION QUESTION PAGE.

9. Print your name in the upper right-hand corner of the first page of answer sheets whether you use the examination question pages or separate sheets of paper. Initial each of the following answer pages.

10. Before you turn in your examination, consecutively number each answer sheet, including any additional pages inserted when writing your answers on the examination question page.

11. If you are using separate sheets, number each answer and skip at least 3 lines between answers to allow space for grading.

12. Write "Last Page" on the last answer sheet.

13. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.

14. The point value for each question is indicated in parentheses after the question. The amount of blank space on an examination question page is NOT an indication of the depth of answer required.

15. Show all calculations, methods, or assumptions used to obtain an answer.

16. Partial credit may be given. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK. NOTE: partial credit will NOT be given on multiple choice questions.

17. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of 1.00 even though you got the four correct answers.

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

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

20. To pass the examination, you must achieve an overall grade of 80% or greater.

21. There is a time limit of (4 1/2) hours for completion of the examination. (or some other time if less than the full examination is taken.)

22. When you are done and have turned in your examination, leave the examination area as defined by the examiner. 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)

The reactor is operating at 85% power at steady state. While responding to alarms a dispatched operator notifies the control room that one of the condensate demineralizers has an effluent conductivity of 6.0 umho/cm and the condensate cemineralizer bank has an effluent conductivity of 0.3 umho/cm. The Nuclear Operations Supervisor (NOS) orders an immediate reactor scram. WHICH ONE of the following states the basis for this action?

a. To prevent fuel damage.

b. To prevent exceeding thermal limits.

c. To prevent activation of demineralizer contaminants.

d. To prevent exceeding Technical Specification limits for Chlorides.

QUESTION: 002 (1.00)

The reactor is operating at 100% power. During shift turnover you are walking down your panel when you notice Annunciator 904R H3, CORE SPRAY PUMP A DISCH HEADER LOW PRESS, is lit. WHICH ONE of the following states the meaning of this alarm with respect to the core spray system status?

a. This alarm is normal for conditions in which the core spray pump is not running.

b. This alarm is normal for conditions in which there is no leakage from the core spray A loop injection check valve (1400-9A) and inboard injection valve (MO-1400-25A).

c. An LCO may exist for the core spray loop A since this annunciator alarms when the core spray pump is running and the discharge pressure is low, indicating inadequate pump performance.

d. An LCO may exist for the core spray loop A since this annunciator alarms when the core spray header pressure is low, indicating piping is not full and water hammer could occur upon a pump start.

QUESTION: 003 (1.00)

The GEMAC narrow range level transmitter LT-646A has just developed a leak in the diaphram; it is selected for feed water level control. The reactor feed pump (RFP) trip bypass switch is in the NORMAL position (unbypassed). WHICH ONE of the following describes the effect of the given conditions AND plant response on the reactor feedwater system narrow range level indicators? ASSUME that no operator action is taken.

a. Level indicated on LI-640A increases and the RFPs trip at +60 inches. Level indicated on LI-640B decreases first due to reduction in vessel feed by the feedwater level control and later due to the feed pump trip.

b. Level indicated on LI-640A increases and the RFPs keep running at +60 inches. Level indicated on LI-640B decreases due to reduction in vessel feed by the feedwater level control.

c. Level indicated on LI-640A decreases. Level indicated on LI-640B increases due to an increase in vessel feed by the feedwater level control and the RFPs trip at +60 inches.

d. Level indicated on LI-640A decreases. Level indicated on LI-640B increases due to an increase in vessel feed by the feedwater level control and the RFPs keep running at +60 inches.

QUESTION: 004 (1.00)

The reactor is at full power. The main turbine first stage pressure transmitter PT-652 signal fails low. WHICH ONE of the following states the response of the feedwater level control?

a. The feedwater level control level indicators will indicate lower than actual level level since this pressure is used to compensate for density changes.

b. Initiates the main steam line leakage alarm since a missmatch exists between the total steam flow and the steam flow corresponding to the PT-652 signal.

c. Initiates a low power alarm signal to the rod worth minimizer.

d. Initiates an automatic bypass signal to the rod worth minimizer.

QUESTION: 005 (1.00)

"A", "B", and "C" reactor feed pumps are operating and the master feed water level controller is in auto, three element control, with "A" level selected. Reactor level setpoint and level are at 30 inches. Reactor power is 100%. WHICH ONE of the following is the response of the level control output and plant response when the "B" feed flow transmitter output fails to zero?

a. Level stabilizes below set point.

b. Level control output increases and the reactor may scram due to a main turbine trip on high vessel level.

c. Level control output decreases and the reactor level stabilizes below setpoint.

d. Level control output decreases and the reactor scrams on low level.

QUESTION: 006 (1.00)

WHICH ONE of the following conditions would cause the diesel generator output breaker to trip automatically while the diesel generator is running due to an automatic start signal?

a. Reverse current

b. Differential overcurrent

c. Underfrequency

d. Unit auxiliary transformer breaker is closed

QUESTION: 007 (1.00)

A control rod block has occurred. Scanning the panels results in the following observations:

- Source range monitor (SRM) channel B is reading about 95 counts per second (cps)
- All other SRM channels are reading greater than 1.90 X10E4 cps
- All SRM detectors are not full in
- Intermediate range (IRM) channel F detector is on range 2
- All other IRM channels are on range 3

WHICH ONE of the following states the cause of the rod block?

a. SRM downscale

b. Inoperable SRM channel

c. Detector retract not permitted

d. SRM upscale high

QUESTION: 008 (1.00)

A loss of coolant (LOCA) has occurred in conjunction with a failure of off-site power. WHICH ONE of the following states the sequence of equipment automatically started after both emergency diesel generators start?

a. The first two residual heat removal (RHR) pumps, then the core spray pumps, then the turbine building closed cooling water (TBCCW) pump "A", then the second two RHR pumps, then the salt service water (SSW) pump "A"

b. The first two RHR pumps, then the second two RHR pumps, then the core spray pumps, then the TBCCW pump "A" and the SSW "A" pump

c. Core spray pumps, then the first two RHR pumps, then the second two RHR pumps, then the TBCCW pump "A" and the SSW "D" pump

d. Core spray pumps, then the first two RHR pumps, then the SSW "A" pump, then the second two RHR pumps, then the TBCCW pump "A"

QUESTION: 009 (1.00)

The salt service water (SSW) system is operating normally with pumps "A", "C", and "D" running and pumps "B" and "E" in standby. The loop select switch is in the "A" position. A sustained loss of 4 kv bus A-5 occurs. WHICH ONE of the following states which SSW pump will automatically start if loop pressure decreases to 15 psig? ASSUME no operator actions are taken.

a. Pump "A"

b. Pump "B"

c. Pump "D"

d. Pump "E"

QUESTION: 010 (1.00)

The reactor is operating at steady state full power. The reactor building closed cooling water (RBCCW) pump status is as follows:

- Pumps "A" and pump "E" are operating
- Pumps "B" and "F" are tagged out of service
- Pumps "C" and "D" are available

Pump "E" trips off. WHICH ONE of the following is the RBCCW system response with no operator action?

a. RBCCW pump "D" starts automatically after a 60 second time delay, if the system pressure decreases to 60 psig.

b. RBCCW pump "D" starts automatically after a 30 second time delay, if the system pressure decreases to 90 psig.

c. RBCCW pump "D" starts automatically after a 60 second time delay, if the system pressure decreases to 90 psig.

d. RBCCW pump "D" starts automatically after a 30 second time delay, if the system pressure decreases to 60 psig.

QUESTION: 011 (1.00)

The augmented off-gas (AOG) absorber system operation selector switch (S15) on panel CP 600 is in the AUTO position. A high trip occurs on the AOG post treatment process radiation monitor (PRM) 1705-5A. WHICH ONE of the following describes the AOG sysytem response? ASSUME no operator actions are taken.

a. Drain valve AO-3750 and isolation valve AO-3751 both close.

b. Drain valve AO-3750 closes and isolation valve AO-3751 remains open.

c. Charcoal absorber inlet valve AO-9227 closes and bypass valve AO-9228 open.

d. Charcoal absorber inlet valve AO-9227 opens and bypass valve AO-9228 closes.

QUESTION: 012 (1.00)

WHICH ONE of the following describes the reactor building exhaust component line up for zone three (contaminated area exhaust)?

a. Two parallel trains each with a filter and a fan. Both trains must be in service for normal operation.

b. Two parallel trains each with a filter and a fan. Only one train must be in service at one time for normal operation.

c. Two parallel filter trains and two parallel fan trains. One filter and one fan must be in service for normal operation.

d. Two parallel filter trains and two parallel fan trains. Both filters and one fan must be in service for normal operation.

QUESTION: 013 (1.00)

The reactor is operating at 15% power; start up is in progress. WHICH ONE of the following is the result of a failure of a rod position information system (RPIS) printed circuit card for ~~an~~ one individual control rod?

a. Withdrawal block

b. Insert block

c. Select block

d. Affected rod has all lights off on the full core display

QUESTION: 014 (1.00)

WHICH ONE of the following reactor manual control (RMC) component generates the signal for the control rod drive (CRD) travel beyond full out position?

a. Reed switch

b. Rod select matrix

c. Rod support housing limit switch

d. Collett housing limit switch

QUESTION: 015 (1.00)

WHICH ONE of the following areas is supplied by the fixed CARDOX fire protection system?

a. Control room

b. Reactor feed pump area

c. Recirculation motor generator set area

d. Station blackout diesel generator room

QUESTION: 016 (1.00)

The control room environmental control supply fans are in the following configuration:

- HS-77 (VSF-103A) is in AUTO
- HS-78 (VSF-103B) is in STBY

WHICH ONE of the following describes the automatic function of the control room environmental control system fans as a result of a HALON system initiation?

a. Both fan "A" and fan "B" start

b. Both fan "A" and fan "B" remain off

c. Fan "A" starts and fan "B" remains off

d. Fan "A" remains off and fan "B" starts

QUESTION: 017 (1.00)

The fire system is currently supplying 1800 gpm at 82 psig. WHICH ONE of the following describes the status of the fire pumps?

a. The jockey pump and the electric pump are running; the diesel fire pump is secured.

b. The electric pump and the diesel fire pump are running; the jockey pump is secured.

c. The jockey pump and the diesel fire pump are running; the electric fire pump is secured.

d. The jockey pump, the electric pump and the diesel fire pump are running.

QUESTION: 018 (1.00)

The reactor core isolation cooling (RCIC) system turbine is running and being controlled manually from the turbine test potentiometer. The RCIC flow controller is in AUTO. An automatic initiation signal occurs. WHICH ONE of the following describes the status of the RCIC control system?

a. The turbine is controlled by the highest signal of the two control systems.

b. The turbine is controlled from the test potentiometer.

c. The turbine control transfers to the flow controller AND responds automatically.

d. The turbine control transfers to the flow controller AND is locked at current speed.

QUESTION: 019 (1.00)

WHICH ONE of the following describes the refueling floor radiation monitor signals which will automatically start the standby gas treatment (SBGT) system?

a. Channel "A" downscale; channel "B" at 10 mR/hr; channel "C" at 20 mR/hr; channel "D" at 10 mR/hr.

b. Channel "A" downscale; channel "B" at 10 mR/hr; channel "C" at 20 mR/hr; channel "D" at 20 mR/hr.

c. Channel "A" downscale; channel "B" downscale; channel "C" at 20 mR/hr; channel "D" at 10 mR/hr.

d. Channel "A" at 20 mR/hr; channel "B" at 10 mR/hr; channel "C" at 20 mR/hr; channel "D" at 10 mR/hr.

QUESTION: 020 (1.00)

WHICH ONE of the following describes the sequence of the main components of the standby gas treatment system (SGTS) filters from inlet to outlet?

a. Heating coil, high efficiency particulate air (HEPA) filter, demister, carbon filter, HEPA filter

b. Heating coil, HEPA filter, demister, carbon filter, HEPA filter

c. Demister, HEPA filter, heating coil, carbon filter, HEPA filter

d. Demister, heating coil, HEPA filter, carbon filter, HEPA filter

QUESTION: 021 (1.00)

Refueling operations are in progress. Technical specifications requires that during a spiral core loading the source range monitors (SRM) must be checked with an external source every 12 hours. WHICH ONE of the following states the reason for this surveillance and when the surveillance is no longer required?

a. To assure operability of the SRM in the absence of adjacent fuel; the surveillance may be stopped when the SRM count rate is greater than 3 counts per second.

b. To assure the operability of the SRM in the absence of adjacent fuel; the surveillance may be stopped when at least one assembly with a minimum exposure of 1000 MWD/ST is in the control cell.

c. To assure that no flux traps (moderator surrounded by fuel) exist such that a criticality could occur; the surveillance may be stopped when the SRM count rate is greater than 3 counts per second.

d. To assure that no flux traps (moderator surrounded by fuel) exist such that a criticality could occur; the surveillance may be stopped when at least one assembly with a minimum exposure of 1000 MWD/ST is in the control cell.

QUESTION: 022 (1.00)

WHICH ONE of the following describes a basis for why the reactor core isolation cooling (RCIC) system is allowed by EOP-02, Failure to Scram, to continue inject reactor pressure vessel (RPV) when the procedure directs the operators to terminate and prevent injection of other sources into the RPV?

a. The injection is inside of the shroud.

b. The injection is required during depressurization.

c. The turbine steam use is sufficient to depressurize the RPV.

d. The injection effects are insignificant during depressurization.

QUESTION: 023 (1.00)

WHICH ONE of the following describes the response of the recirculation pumps to an anticipated transient without a scram (ATWS)? Reactor water level is decreasing.

a. When the level reaches -49 inches, the drive motor breaker trips; nine seconds later the recirculation pump motor field breaker trips.

b. When the level reaches -49 inches, the recirculation pump motor field breaker trips; nine seconds later the drive motor breaker trips.

c. When the level reaches +18 inches, the drive motor breaker trips; nine seconds later the recirculation pump motor field breaker trips.

d. When the level reaches +18 inches, the recirculation pump motor field breaker trips; nine seconds later the drive motor breaker trips.

QUESTION: 024 (1.00)

The control room auto transfer switches for all 6 4kV buses "A1" through "A6" are left in the OFF position. A reactor scram occurs. WHICH ONE of the following buses will be powered 30 seconds after the scram? ASSUME no operator actions are taken.

a. "A1"

b. "A2"

c. "A4"

d. "A5"

QUESTION: 025 (1.00)

Annunciator 905R D4, MSIV NOT FULLY OPEN SCRAM AT RX PRESSURE >600 PSI, alarms. A half scram was generated. WHICH ONE of the following states the status of the plant?

a. One MSIV has closed; reactor pressure is greater than 525 psig.

b. Two main steam lines are isolated; reactor pressure is greater than 525 psig.

c. Three main steam lines have isolated ; reactor pressure is less than 525 psig.

d. Four MSIVs have closed; reactor pressure is less than 525 psig.

QUESTION: 026 (1.00)

WHICH ONE of the following Emergency Classifications is the minimum classification required for failure of plant functions needed to protect the public?

a. General Emergency

b. Site Emergency

c. Alert

d. Unusual Event

QUESTION: 027 (1.00)

During an emergency the Emergency Director may authorize personnel to exceed administrative radiation exposure limits. WHICH ONE of the following is the allowable whole body dose that may be authorized for protective or corrective actions (NOT to save a life)?

a. 5 rem

b. 15 rem

c. 25 rem

d. 35 rem

QUESTION: 028 (1.00)

WHICH ONE of the following describes the approved method to cleanup and dispose of a gallon of spilled sodium pentaborate solution?

a. Mop up the spill and pour down a sanitary drain.

b. Soak up with dry rags and discard the rags in the waste bin.

c. Absorb the liquid into an inert solid and dispose of at an industrial waste facility.

d. Contact a hazardous waste response team for clean up and disposal.

QUESTION: 029 (1.00)

Procedure 2.2.84, Recirculation, establishes a limit on the successive starts of a recirculation motor generator (MG) set. WHICH ONE of the following conditions is the restart limitation designed to prevent? 2P)

a. Damage to the pump bearing due to inadequate lube oil being supplied on pump starts by the shaft driven oil pumps.

b. Mechanical and thermal stresses on the drive motor windings due to increased amperage on pump starts.

c. Electrical fire due to overheating of the supply breaker to the MG set.

d. Failure of the fluid drive coupling scoop tubes due to exceeding their design cyclic stress limits.

QUESTION: 030 (1.00)

WHICH ONE of the following states the PNPS whole body dose exposure control limit (ECL) for a visitor who has not obtained an approval to exceed the limit?

a. 10 mRem/day

b. 25 mRem/month

c. 50 mRem/quarter

d. 250 mRem/year

QUESTION: 031 (1.00)

WHICH ONE of the following describes the minimum posting and minimum radiation protection actions required for a room with whole body dose rates of 500 mRem/hr and loose surface contamination 1500 dpm/square-cm in gamma only?

a. radiation area; barricade

b. radiation area; contaminated area; barricade; step off pad; protective clothing removal instructions; location of nearest frisker.

c. high radiation area; contaminated area; barricade or guard when access to area is required; step off pad; protective clothing removal instructions; location of nearest frisker.

d. danger locked high radiation area; two men required for entry; door lockin instructions; double locked when not occupied or guarded when access is required; contaminated area; barricade; step off pad; protective clothing removal instructions; location of nearest frisker.

QUESTION: 032 (1.00)

The plant is at 100% power when the reactor water cleanup (RWCU) system isolates In accordance with Technical Specifications, WHICH ONE of the following is required minimum frequency for sampling the reactor coolant system?

a. Every 4 hours

b. Every 8 hours

c. Every 24 hours

d. Every 48 hours

QUESTION: 033 (1.00)

In accordance with 10 CFR 26 "Fitness for Duty Program," WHICH ONE of the following is the minimum period to abstain from alcohol proceeding any normal scheduled shift?

a. 3 hours

b. 5 hours

c. 8 hours

d. 12 hours

QUESTION: 034 (1.00)

WHICH ONE of the following describes the characteristics of HALON 1301?

a. Low toxicity; lighter than air

b. High toxicity; heavier than air

c. Low toxicity; heavier than air

d. High toxicity; lighter than air

QUESTION: 035 (1.00)

Using the steam tables, and given that the reactor at time +0 is subcritical following a scram and that the reactor pressure is 885 psig, WHICH ONE of the following pressures is the minimum pressure that the reactor may be reduced to after one hour of cool down (at time +1 hour)?

a. 322 psig

b. 336 psig

c. 351 psig

d. 366 psig

QUESTION: 036 (1.00)

A reactor recirculation pump motor generator (MG) set is being restarted after a spurious trip two hours ago. The MG set trips off again ten (10) minutes after being started. WHICH ONE of the following states the maximum number of times that a restart of a recirculation pump MG set may be attempted within a thirty minute period following this latest trip?

a. 0

b. 1

c. 2

d. 3

QUESTION: 037 (1.00)

Some repair work is to be performed on the reactor core isolation cooling (RCIC) system. This work requires that several leads be lifted for a tagout. There are no ALARA concerns. WHICH ONE of the following states the verifications which must be made?

a. After each lead is lifted, a direct and/or indirect verification is made to assure correct status is achieved. An independent verification shall be performed.

b. After each lead is lifted, a direct and/or indirect verification is made to assure that the correct status is achieved. An independent verificatio is waved.

c. Before each lead is lifted a non-independent verification is performed by a second individual at the job of the lead to be lifted. An independent verification of each lead which was lifted is made.

d. Before each lead is lifted a non-independent verification is performed by a second individual at the job of the lead to be lifted. An independent verification is waved.

QUESTION: 038 (1.00)

WHICH ONE of the following is the MINIMUM permissible value for oxygen in percent before personnel may enter the primary containment?

a. 15

b. 17

c. 19

d. 21

QUESTION: 039 (1.00)

The reactor has just scrammed from full power due to low level. Level continues to decrease.

- 10:27 the lo lo level alarm sounds
- 10:35 the drywell pressure reaches 2.6 psig
- 10:50 reactor pressure is 450 psig

Both recirculation pumps are running and no loop break was detected. WHICH ONE of the following describes the status of the LPCI system based upon the current given information?

a. The LPCI pumps are not running AND the "B" loop injection valve is selecte and open.

b. The LPCI pumps are running AND the "B" loop injection valve is selected and closed.

c. The LPCI pumps are running AND the "A" loop injection valve is selected and open.

d. The LPCI pumps are not running AND the "A" loop injection valve is selecte and closed

QUESTION: 040 (1.00)

The reactor is shutdown and shutdown cooling (SDC) is providing core heat removal. An (RCS) leak causes the vessel level to decrease to -60 inches. The riser pressure for the "B" recirculation loop is less than the "A" loop. WHICH ONE of the following describes the status of the LPCI injection valves? Use Attachment # 2, RHR one line diagram.

a. MO-1001-28A and -29A are closed and MO-1001-28B and -29B are open.

b. MO-1001-28A and -29A are open and MO-1001-28B and -29B are closed.

c. MO-1001-28A and -29A and MO-1001-28B are closed and MO-1001-29B is open.

d. MO-1001-28B and MO-1001-29B are closed and MO-1001-28A is open.

QUESTION: 041 (1.00)

Given the following conditions:

- o The reactor is in an ATWS
- o Vessel level is at -150 inches and decreasing
- o Pressure is being controlled below 1085 psig with SRVs
- o Drywell pressure is 1 psig
- o 15 minutes have elapsed since vessel level was at -49 inches

Based upon EOP-02, Failure to Scram, the decision is made to perform EOP-07, Alternate Depressurization. The direction is given to terminate and prevent injection into the reactor pressure vessel. The core spray pump control switches are placed in the stop position, and the control switches for the inboard injection valves (MO-1400-25A and -25B) and the outboard injection valves (MO-1400-24A and -24B) are placed in the close position.

WHICH ONE of the following describes the status of the core spray pumps and injection valves?

a. The core spray pumps are stopped, the inboard injection valves are closed and the outboard injection valves are open.

b. The core spray pumps are stopped, the inboard and outboard injection valves are closed.

c. The core spray pumps are running, the inboard injection valves are open and the outboard injection valves are closed.

d. The core spray pumps are running, the inboard and outboard injection valves are open.

QUESTION: 042 (1.00)

WHICH ONE of the following is the maximum allowable total reactor coolant system leakage rate over a 24 hour surveillance period with the reactor at 50% power?

a. 5 gpm

b. 15 gpm

c. 25 gpm

d. 35 gpm

QUESTION: 043 (1.00)

The reactor is at 100% power. The reactor feed pump sequential trip circuit is ON. WHICH ONE of the following conditions will cause a recirculation pump runback to 65% speed?

a. Recirculation Pump "A" discharge valve drifts closed.

b. "B" Feedwater Pump trips off and reactor water level decreases to +20 inches.

c. "A" Feedwater flow signal fails low.

d. "C" Condensate Pump trips off and reactor water level decreases to +18 inches.

QUESTION: 044 (1.00)

WHICH ONE of the following describes the normal operation of the high pressure coolant injection (HPCI) minimum flow valve (MO-2301-14) with its control switch in the AUTO position?

a. Normally closed, automatically opens on HPCI initiation and remains open until manually closed from the control room.

b. Normally open, automatically closes after HPCI initiation and system flow is greater than 800 gpm.

c. Normally open and is manually closed from the control room after HPCI initiation.

d. Normally closed, automatically opens on HPCI initiation and closes after system flow is greater than 800 gpm.

QUESTION: 045 (1.00)

WHICH ONE of the following high pressure coolant injection (HPCI) valve isolations does NOT occur automatically as a result of low steam supply pressure?

a. Injection valve, MO-2301-8, closes.

b. Turbine control valve, HO-2301-2, closes.

c. Steam supply valves, MO-2301-4 & -5, close.

d. Suppression pool isolation valves, MO-2301-35 & -36, close.

QUESTION: 046 (1.00)

WHICH ONE of the following meets the Technical Specification operability requirements for the standby liquid control (SLC) system?

a. Boron enrichment (atom %) 51.0
Concentration (% wt) 9.87
Pump flow rate (gpm) 51.2

b. Boron enrichment (atom %) 55.0
Concentration (% wt) 8.16
Pump flow rate (gpm) 48.7

c. Boron enrichment (atom %) 49.0
Concentration (% wt) 8.73
Pump flow rate (gpm) 52.3

d. Boron enrichment (atom %) 56.0
Concentration (% wt) 9.16
Pump flow rate (gpm) 42.5

QUESTION: 047 (1.00)

WHICH ONE of the following describe the function of the standby liquid control (SBLC) pump discharge accumulator?

a. Provides a means of injection during a failure of both SBLC pumps.

b. Provides immediate injection of solution until the SBLC pump comes up to speed.

c. Minimizes pulsations in system discharge pressure.

d. Protects pump if the discharge valve is inadvertently closed.

QUESTION: 048 (1.00)

WHICH ONE of the following conditions will bypass the average power range monitor (APRM) upscale thermal power trip for the reactor protection system (RPS)?

a. Mode switch in Run

b. APRM bypass switch in Bypass

c. Mode switch in Startup

d. IRM range switch on Range 1

QUESTION: 049 (1.00)

WHICH ONE of the following provides the signal for the control valve (CV) fast closure scram?

a. Position limit switches on CVs

b. Rate of position change monitors on CVs

c. Electric pressure regulator servomotor position signal

d. Emergency trip oil pressure to the acceleration relay pilot valve

QUESTION: 050 (1.00)

Reactor pressure is 450 psig and the mode switch is in the STARTUP position. WHICH ONE of the following scram trip signals is ACTIVE?

a. APRM high flux (flow biased)

b. APRM downscale with companion IRM high

c. Low condenser vacuum

d. High main steam line radiation

QUESTION: 051 (1.00)

WHICH ONE of the following events would cause the GEMAC narrow range level indication to fail fully downscale?

a. A break in the variable leg.

b. A rapid reactor depressurization.

c. Containment temperature increases to 300 deg. F.

d. A bellows leak in the differential pressure cell.

QUESTION: 052 (1.00)

The reactor is in start up at the point of adding heat. The excess flow check valve for the LI-640-29A reference leg shuts; there is no line break. WHICH ONE of the following is the response of the INDICATED level as reactor pressure increases?

a. Level increases as the pressure increases on the variable leg.

b. Level decreases as the pressure increases on the reference leg.

c. LI-640-29A will fail low as the pressure is felt equally on both legs.

d. LI-640-29A will fail high as the pressure is felt equally on both legs.

QUESTION: 053 (1.00)

During a transient all initiation signals have been received to start the automatic depressurization system (ADS) 120 second timer. WHICH ONE of the following will reset the 120 second timer?

a. Drywell pressure decreases to 1.5 psig.

b. Reactor water level increases to -45 inches.

c. ADS control switches are placed in the CLOSE position.

d. The operating core spray pump and residual heat removal pumps trip.

QUESTION: 054 (1.00)

The reactor is at full power. WHICH ONE of the following conditions will cause the main steam isolation valves to isolate?

a. Turbine basement exhaust duct is 160 deg. F.

b. Reactor vessel level is +45 inches.

c. Main steam line tunnel exhaust vent is 155 deg. F.

d. Reactor vessel level is -45 inches.

QUESTION: 055 (1.00)

The direction has been given to initiate containment sprays. WHICH ONE of the following describes a line-up which assures that design limits are met for: 1) adequate containment sprays, and 2) residual heat removal (RHR) equipment operation?

a. RHR pump "A" is running, the heat exchanger bypass valve (MO-1001-16A) is closed and the heat exchanger flow is 4850 gpm.

b. RHR pump "A" is running, the heat exchanger bypass valve (MO-1001-16A) is open and the heat exchanger flow is 3350 gpm.

c. RHR pumps "A" and "C" are running, the heat exchanger bypass valve (MO-1001-16A) is closed and the heat exchanger flow is 6150 gpm.

d. RHR pumps "A" and "C" are running, the heat exchanger bypass valve (MO-1001-16A) is open and the heat exchanger flow is 5050 gpm.

QUESTION: 056 (1.00)

GIVEN that the reactor is operating at steady state and that the electric pressure regulator is set at 930 psig and the turbine throttle pressure is 955 psig. WHICH ONE of the following states the current values for reactor pressure (RP) and steam flow (SF)? Use Attachment #1, Pressure-Steam Flow chart.

a. 945 psig RP, 32 % SF

b. 950 psig RP, 40 % SF

c. 956 psig RP, 48 % SF

d. 970 psig RP, 63 % SF

QUESTION: 057 (1.00)

The reactor is at full power conditions and the automatic depressurization system (ADS) is NOT actuated. WHICH ONE of the following describes the meaning of an illuminated green light above each safety relief valve (SRV) remote manual switch (RMS)?

a. The valve control switch is in AUTO position.

b. The valve solenoid open limit switch is energized.

c. There is a normal low temperature downstream of the valve.

d. There is a normal low noise level downstream of the valve.

QUESTION: 058 (1.00)

The reactor is at steady state full power conditions. Annunciator 903L B1 - AUTO BLOWDOWN RELIEF VALVE LEAKING alarms. Observation of tail pipe temperatures on recorder 260-20 indicate that SRV 203-4A is at 418 deg. F and increasing; all others are less than 195 deg. F. WHICH ONE of the following would be a verification that the SRV 203-4A is open?

a. Main steam line "A" flow has increased.

b. Main steam line "A" flow has decreased.

c. Main steam line "C" flow has increased.

d. Main steam line "C" flow has decreased.

QUESTION: 059 (1.00)

WHICH ONE of the following describes the power source to the backup scram valves and their response to a scram initiation condition?

a. The 120 VAC solenoids deenergize to vent the scram pilot valve air header (SPVAH).

b. The 120 VAC solenoids energize to vent the SPVAH.

c. The 125 VDC solenoids deenergize to vent the SPVAH.

d. The 125 VDC solenoids energize to vent the SPVAH.

QUESTION: 060 (1.00)

WHICH ONE of the following control rod drives, which have scram times greater than permitted by Technical Specifications (TS), is NOT counted as an inoperable control rod?

a. a control rod at position 48 which can be moved by normal drive pressure

b. a control rod at position 48 which is electrically isolated

c. a control rod at position 00 which can be moved by normal drive pressure

d. a control rod at position 00 which is electrically isolated

QUESTION: 061 (1.00)

The following hydraulic control unit directional control valve (DCV) actuation sequence is observed: DCV 121 and 123 energize for 0.5 seconds, then deenergize; the DCV 120 and 122 energize for about 1.5 seconds; the DCV 122 deenergizes and the 120 remains energized for an additional 6 seconds , then deenergizes. WHICH ONE of the following control rod movements results from the above sequence?

a. Single notch in

b. Single notch out

c. Continuous insertion

d. Continuous withdrawal

QUESTION: 062 (1.00)

Reactor start up is in progress. Control rod 12-24 is being withdrawn when a rod worth minimizer (RWM) withdraw block alarm is received; the rod settles to position 26. WHICH ONE of the following control rod manipulations is possible?

a. Insert control rod 12-24.

b. Select a control rod in a different group.

c. Select a different rod in this latched group and insert it one notch.

d. Select a different rod in this latched group and withdraw it one notch.

QUESTION: 063 (1.00)

WHICH ONE of the following secondary containment parameters (EOP-04) exceeds the entry condition level?

a. High pressure coolant injection (HPCI) room temperature is 101 deg. F.

b. HPCI pump room floor water level is 1/2 inch.

c. HPCI turbine area temperature is 101 deg. F.

d. HPCI compartment H&V cooler temperature is 101 deg. F.

QUESTION: 064 (1.00)

The reactor is operating at full power. A Group 1 (MSIV) isolation occurs and no control rods insert due to blockage of the scram discharge volumes. Reactor pressure iw observed to have reached 1405 psig. WHICH ONE of the following will trip off or not start during this transient?

a. High pressure coolant injection (HPCI)

b. Residual heat removal (RHR) pumps

c. Reactor feed pumps

d. Reactor building closed cooling water pumps

QUESTION: 065 (1.00)

The reactor is operating at full power when the "A" recirculation pump trips. In following procedure 2.4.17, Recirculation Pump(s) Trip, WHICH ONE of the following states the conditions which may result from the trip and if observed would require that the reactor be immediately scrammed? Use Attachment #3, Power Flow Map.

a. The reactor is operating greater than 80% load line with greater than 31.5 Mlbs/hr flow.

b. Average power range monitor oscillations of 5% of rated power from peak to peak.

c. Three local power range monitors upscale annunciators alarm repeatedly.

d. Reactor pressure is oscillating 5 psig.

QUESTION: 066 (1.00)

Which one of the following describes the function of the core shroud?

a. Supports the 12 peripheral fuel bundles vertically and laterally

b. Transfers weight of the central fuel bundles to the bottom head

c. Provides for forced circulation of coolant through the core

d. Separates the upward core flow from the downward annular flow

QUESTION: 067 (1.00)

WHICH ONE of the following describes the expected indications for a plugged number one recirculation pump seal orifice?

a. Number one seal pressure decreases

b. Number one seal pressure increases

c. Number two seal pressure decreases

d. Number two seal pressure increases

QUESTION: 068 (1.00)

Given the following conditions:

- High pressure coolant injection (HPCI) is operating
- The flow test valve is throttled open
- The HPCI flow controller is in MANUAL
- The injection valve is closed
- The minimum flow valve is closed

WHICH ONE of the following states the effect on the pump discharge pressure and pump flow as the reactor pressure decreases from 960 to 150 psig? ASSUME no operator actions are taken.

a. The pressure decreases and the flow increases.

b. The pressure decreases and the flow remains constant.

c. The pressure remains constant and the flow remains constant.

d. The pressure remains constant and the flow decreases.

QUESTION: 069 (1.00)

WHICH ONE of the following describes the method used for determining the efficiency of a condensate demineralizer?

a. Perform a chemical analysis on the demineralizer outlet stream for silicates.

b. Determine the change in conductivity of the demineralizer from the inlet to the outlet streams.

c. Determine the change in chloride concentration for the demineralizer from the inlet to the outlet streams.

d. Determine the pressure drop of the demineralizer from the inlet to the outlet streams.

QUESTION: 070 (1.00)

The vital motor generator (MG) set is to be started. WHICH ONE of the following is the power supply which is used for start up of the vital MG set and which is the alternate power supply to run the MG set if the normal source is removed from service?

a. start - B-6; alternate - D-10

b. start - D-10; alternate - B-6

c. start - B-6; alternate - B-15

d. start - B-15; alternate - D-10

QUESTION: 071 (1.00)

WHICH ONE of the following describes the effect of a mechanical failure of the vital motor generator set?

a. Power to the vital bus loads is lost; manual switching is required to resupply power to the vital bus from bus 15.

b. Power to the vital bus loads is lost; manual switching is required to resupply power to the vital bus from bus 14.

c. Power to the vital bus loads is continuous; automatic switching supplies power to the vital bus from bus 14.

d. Power to the vital bus loads is continuous; automatic switching supplies power to the vital bus from bus 15.

QUESTION: 072 (1.00)

WHICH ONE of the following is a valid initiator for a turbine runback?

a. Stator cooling water inlet temperature is 65 deg. C.

b. Stator cooling water outlet temperature is 89 deg. C.

c. Stator cooling water inlet pressure is 14 psig.

d. Stator cooling water outlet pressure is 11 psig.

QUESTION: 073 (1.00)

A main turbine runback begins at time zero. Examine individually each of the four choices of stator amps and time after the runback started. WHICH ONE would cause a turbine trip? ASSUME no operator actions are taken.

a. Load is reduced to 14,840 amps at +2.0 minutes.

b. Load is reduced to 14,840 amps at +2.5 minutes.

c. Load is reduced to 4,400 amps at +3.0 minutes.

d. Load is reduced to 4,400 amps at +3.5 minutes

QUESTION: 074 (1.00)

The reactor is at full power and steady state. Instrument air pressure is gradually decreasing. WHICH ONE of the following describes the plant response? ASSUME that no operator actions are taken.

a. At 85 psig the scram inlet and outlet valves open due to the spring tension overcomming the air pressure; control rods scram in.

b. At 65 psig the scram pilot valve air header dump valves open to the preset spring tension on its switching valve; control rods scram in.

c. At 85 psig the service air header isolation valve (AO-4350) closes ~~automatically isolating the leak from the instrument air~~; control rods are not affected.

d. At 55 psig the service air header isolation valve (AO-4350) closes ~~automatically isolating the air leak~~; control rods are not affected.

QUESTION: 075 (1.00)

A rupture on an instrument air line results in the instrument air header pressure decreasing to 83 psig. WHICH ONE of the following automatic actions has NOT occurred yet?

a. Stand by reciprocating compressor starts

b. Lag rotary compressor starts

c. Instrument air dryer bypass valve (AO-4310) opens

d. Non-essential instrument air header isolation valve (AO-4365) closes

QUESTION: 076 (1.00)

WHICH ONE of the following radiation monitors is powered by the reactor protection system (RPS) bus?

a. Refuel floor ventillation exhaust

b. Control room ventillation intake

c. Air ejector off-gas

d. Post treatment (off-gas)

QUESTION: 077 (1.00)

The traversing incore probe (TIP) is currently performing an automatic scan. A valid isolation signal for the TIP has just been initiated. WHICH ONE of the following describes the response of the TIP system isolation signal?

a. The TIP sequence continues at fast speed.

b. The TIP sequence is interrupted and the ball valves close.

c. The TIP sequence is interrupted and the shear valve fires.

d. The TIP sequence is interrupted, the probes are retracted and the ball valves close.

QUESTION: 078 (1.00)

WHICH ONE of the following conditions of the augmented off gas (AOG) system requires an immediate scram of the reactor?

a. Off gas radiation levels are two times normal.

b. Off gas recombiner temperature is 1020 deg. F .

c. Hydrogen concentration upstream of the AOG system is decreasing.

d. Off gas flow is decreasing and reactor water conductivity is increasing.

QUESTION: 079 (1.00)

Procedure 5.2.2 High Winds directs you to reduce power to 130 MWe when the wind conditions reach velocities of 75 miles per hour or greater. WHICH ONE of the following states the basis for this action?

a. To limit thermal transients from a scram resulting from a failure of the unit auxilliary transformer.

b. To limit thermal transients from a scram resulting from a failure of the 345KV power lines.

c. To limit the load to the reject capability of the turbine generator system due to pending failure of the 345 KV lines.

d. To limit the load to the reject capability of the turbine generator system due to pending failure of the unit auxillary transformer.

QUESTION: 080 (1.00)

WHICH ONE of the following sets of plant parameters have ALL the designed reacto building isolation trip signals?

a. Reactor building greater than 1/4 inch of water pressure, drywell pressure 2.5 psig, reactor building radiation level is greater than 16 mRem/hour.

b. RPV level +9 inches, drywell pressure 2.5 psig, reactor building vent radiation level greater than 16 mRem/hr.

c. Reactor building greater than 1/4 inch of water pressure, drywell pressure 2.5 psig, RPV level +9 inches.

d. RPV level +9 inches, reactor building vent radiation level greater than 16 mRem/hr, reactor building greater than 1/4 inch of water pressure.

QUESTION: 081 (1.00)

The reactor is at full power. WHICH ONE of the following valve(s) are designed to fail open during a complete loss of instrument air?

a. feedwater reg. valves

b. main stack isolation valve

c main condenser vapor valves

d. feedwater heating system dump valves

QUESTION: 082 (1.00)

The reactor is shut down in hot standby. WHICH ONE of the following valves will fail open during a complete loss of instrument air?

a. RBCCW surge tank level control valve

b. CRD flow control valve

c. RWCU "let-down" valve (PCV-1239)

d. TBCCW temperature control valve

QUESTION: 083 (1.00)

The plant is at 100% power. WHICH ONE of the follow describes the effects of a total loss of 125 VDC power on the main steam isolation valves?

a. Loss of control and position indicating lights for all MSIVs

b. Loss of control to the inboard MSIVs

c. loss of control to the outboard MSIVs

d. loss of MSIV position indicating lights

QUESTION: 084 (1.00)

The plant was at 100% power. A small steam leak occurs which causes drywell pressure to increase to 3.0 psig. The reactor scrammed. During the resulting transient, reactor water level decreased to +5 inches before being restored to the normal band. WHICH ONE of the following lists the primary containment isolation system (PCIS) isolations that should have occurred?

a. Group 1 (MSIV) and Group 2 (primary containment)

b. Group 2 (primary containment) and Group 6 (reactor water cleanup)

c. Group 4 (high pressure coolant injection) and Group 5 (reactor core isolation cooling)

d. Group 3 (shutdown cooling) and Group 4 (high pressure coolant injection)

QUESTION: 085 (1.00)

WHICH ONE of the following states the basis for Tech. Spec. limits on recirculation pump speed mismatches?

a. APRM flow bias scram setpoint will be inaccurate

b. LPCI loop select circuit errors following a LOCA

c. Error limiting network locks in recirc. pump speed

d. Prevent temperature stratifications within the RPV

QUESTION: 086 (1.00)

The following plant conditions exist:

- core thermal power is 800 MWt
- core flow is 35 MLB/HR.
- RPV level normal
- RPV pressure normal

WHICH ONE of he following states the immediate operator action taken upon receipt of a valid off gas high radiation level alarm? Use Attachment # 3, Power flow Map.

a. Place the mode switch to SHUTDOWN position.

b. Insert control rods in reverse order of the pull sheet as necessary to reduce activity.

c. Reduce recirc. pump speed until the increase in activity is terminated OR the pumps reach minimum speed.

d. Reduce recirc. pump speed, maintaining core flow above 31.5 MLB/HR, until the increase in activity is terminated.

QUESTION: 087 (1.00)

WHICH ONE of the following actions should NOT be taken if Region "C" of the power to flow map is unintentionally entered? Use Attachment # 3, Power Flow Map.

a. Insert control rods to below the 80% load line.

b. Increase total core flow to greater than 33 MLB/HR.

c. Monitor for APRM oscillations.

d. Start the idle recirculation pump.

QUESTION: 088 (1.00)

The reactor is shutdown with the residual heat removal (RHR) shutdown cooling (SDC) mode providing core heat removal. The RHR experiences a system isolation. WHICH ONE of the following conditions caused the isolation?

a. Reactor water level is +46 inches.

b. Drywell temperature is 137 deg F.

c. Drywell pressure is 2.25 psig.

d. Reactor pressure is 105 psig.

QUESTION: 089 (1.00)

WHICH ONE of the following conditions would be a safety limit violation?

a. While operating at full power the HPCI and ADS systems are declared inoperable.

b. While operating at 70% power, the main turbine and reactor feed pumps have tripped on high level; the reactor scrams on main turbine trip

c. While operating at 22% power and the MHC pressure regulators fail. The reactor pressure drops to 830 psig before the MSIVs close and the reactor scrams.

d. While refueling the reactor, RPV level decreases to a low point of -118 inches before it is restored to -15 inches.

QUESTION: 090 (1.00)

The following conditions exist in the containment:

- Hydrogen concentration is unknown
- Oxygen concentration is 3%
- Torus water level is 290 inches

Proc. 5.4.6-1 Primary Containment Vent And Purge, directs the operators to vent the torus and purge containment with nitrogen. WHICH ONE of the following describes the basis for this action?

a. To reduce the containment pressure.

b. To reduce the containment temperature.

c. To prevent a deflagration in containment.

d. To comply with the limiting condition for operation for oxygen.

QUESTION: 091 (1.00)

Current conditions of the reactor require that boron be injected into the vessel per EOP-02, Failure To Scram. WHICH ONE of the following describes the basis for inhibiting ADS immediately before boron injection?

a. To prevent a loss of boron from the vessel resulting in a reactivity increase.

b. To prevent a rapid injection of cold, unborated water resulting in a rapid increase in power.

c. To prevent rapid cooldown during depressurization resulting in a reactivity excursion.

d. To prevent an increase in natural circulation resulting in decreased voiding and an increase in power.

QUESTION: 092 (1.00)

While a primary system is discharging into the reactor building, EOP-04, Secondary Containment Control, directs the operator to enter and perform EOP-01, RPV Control, concurrently before the temperature in the secondary containment reaches maximum safe operating value in any area. EOP-01 directs a scram. WHICH ONE of the following states the basis for this scram?

a. Prevents failure of the secondary containment structure due to high pressure.

b. Reduces the energy that the RPV may be discharging into secondary containment to decay heat levels.

c. Allows personnel access to the reactor building before the temperature becomes too high.

d. Avoids the need for an emergency depressurization.

QUESTION: 093 (1.00)

WHICH ONE of the following is the basis for the action in EOP-01, RPV Control, which directs that reactor pressure vessel pressure be controlled below 1085 psig with safety relief valves (SRVs) IF any SRVs are cycling?

a. Controls RPV pressure to within the capability of high pressure injection systems to inject.

b. Controls RPV pressure below the lowest SRV lift pressure.

c. Prevents RPV damage due to cyclic loading.

d. Prevents SRV seat damage from cycling.

QUESTION: 094 (1.00)

The reactor is at full power. These observations were noted during the daily jet pump operability check:

- Recirculation pump speeds are missmatched 4%.
- FLow difference between the two recirculation loops is 18%.

WHICH ONE of the following describes the jet pump delta pressure which verifies a failed jet pump nozzle or body?

a. 7% higher than the established jet pump delta pressure

a. 9% lower than the established jet pump delta pressure

c. 11% higher than the established jet pump delta pressure

d. 12% lower than the established jet pump delta pressure

QUESTION: 095 (1.00)

WHICH ONE of the following is the operators action for a control rod drifting out from notch 24 while the plant is at 67% power?

a. Perform an individual rod scram.

b. Insert the rod full in using the EMERG IN switch.

c. Withdraw the control rod full out and do a coupling check.

d. Apply a drive signal to attempt to relatch the control rod drive.

QUESTION: 096 (1.00)

WHICH ONE of the following is a basis for allowing operators to initiate drywell sprays regardless of whether adequate core cooling is assured?

a. To maintain torus water level below the vacuum breakers.

b. To prevent excessive drywell-to-torus differential pressure.

c. To maintain drywell pressure below the Drywell Spray Initiation Limit.

d. To reduce the consequences of a deflagration of hydrogen and oxygen in containment.

QUESTION: 097 (1.00)

The reactor is operating at 95% power. The main condenser vacuum is at 26.5 inches Hg AND slowly decreasing. WHICH ONE of the following is an immediate operator action?

a. Manually scram the reactor.

b. Start the idle seawater pump.

c. Runback recirculation pumps to minimum.

d. Insert control rods in reverse order of pull sheet.

QUESTION: 098 (1.00)

The reactor core isolation cooling (RCIC) system is running as a result of a valid initiation signal and has operated for 15 minutes. The following conditions now exist:

- RCIC Steam Line Flow 175%
- RCIC Area Temperature 145 deg. F
- Reactor Pressure 125 psig
- Reactor Level +49 inches

WHICH ONE of the following is the RCIC system response?

a. Steam Line Isolation Valves, MO-1301-16 and -17, close.

b. Minimum Flow Valve, MO-1301-60, opens.

c. Governor valve, closes

d. Steam to turbine supply Valve, MO-1301-61, closes.

QUESTION: 099 (1.00)

The nuclear watch engineer (NWE) has just ordered an evacuation of the main control room. WHICH ONE of the following is NOT an immediate operator action?

a. Trip the recirculation pumps

b. Place mode switch in SHUTDOWN

c. Trip the main turbine

d. Trip the reactor feed pumps

QUESTION: 100 (1.00)

The reactor is in a hot shutdown condition. Reactor recirculation pump "A" is shut down. The pump suction and discharge valves are closed. WHICH ONE of the following describes the results from maintaining the seal purge flow to the pump seals?

a. Thermal damage to the seal elastomeres.

b. Overpressurization of the pump casing.

c. Erosion corosion of the seals while they are not rotating.

d. Damage to control rod drive stub tubes from the cool purge water in the loop as the pump is restarted.

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

ANSWER: 001 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.4.33 Cond. Chloride Intrusion, Rev. 4, pp. 3, 6 & 9.
2. 295006G010 (4.1/4.2), p. 4.2-20.

295006G010 ..(KA's)

ANSWER: 002 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Alarm Response Procedures, 904R-H3, Rev. 4.
2. PNPS: TS 3.5.H, p. 112, Amend. 39.
3. PNPS: LP O-RO-02-09-02, p. IG-5-8/89, ELO 7.
4. 209001K402 (3.0/3.2)

209001K402 ..(KA's)

ANSWER: 003 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-04-02 Cond. and Feedwater, p. IG-23-8/89, ELO-42.
2. PNPS: LP O-RO-02-04-02 Cond. and Feedwater, p. IG-25-8/89, ELO-67.
3. 259001K607 (3.8/3.8)

259001K607 ..(KA's)

ANSWER: 004 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: SRT Feedwater Level Control, p. FWLC-6-5/89.
2. 259002K114 (2.9/3.0)

259002K114 ..(KA's)

ANSWER: 005 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: O-RO-02-04-02 Cond. & Feedwater, p. IG-40-8/89, ELO-83.
2. 259002K301 (3.8/3.8), 3.2-44.

259002K301 ..(KA's)

ANSWER: 006 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: SRT 41670/31 EDG, Book 2, p. DGS-28-6/89.
2. 264000K402 (4.0/4.2)

264000K402 ..(KA's)

ANSWER: 007 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: SRT SRM, Book 2, pp. SRM-11 & -12-5/89.
2. 215004A105 (3.6/3.8), p. 3.7-40.

215004K401 ..(KA's)

ANSWER: 008 (1.00)

b. [+1.0]
c. 225

REFERENCE:

1. PNPS: Facility Question 52170/85.
2. PNPS: SRT 41540/20 Emerg. AC Distr., p. EACBOD-17-9/89.
3. 262001A304 (3.4/3.6), p. 3.6-3.

262001A304 ..(KA's)

ANSWER: 009 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: SRT 5990 SSW, p. SSW-4-4/89, ELO-3 -4 & -15.
2. 256000K119 (2.7/2.7), p. 3.2-20.

256000K119 ..(KA's)

ANSWER: 010 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Facility Question 52170/66.
2. PNPS: PNPS LP O-RO-02-02-06 RBCCW, p. IG-2-4/89, ELO-7.
3. 256000K119 (2.7/2.7), p. 3.2-20.

256000K119 ..(KA's)

ANSWER: 011 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.155 Att. 12 AOG PRM, Rev. 0, p. 1.
2. 271000K102 (3.2/3.3), p. p.3.9-5.

271000K102 ..(KA's)

ANSWER: 012 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: SRT 40990/8 Reactor Bldg. HVAC, Book 4, pp. RBV -3 & RBV-5-5/89.
2. 288000G007 (3.3/3.4), p. 3.9-13.

288000G007 ..(KA's)

ANSWER: 013 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: LP RPIS, IG-3-6/89, ELO-11.
2. 214000K303 (3.1/3.2), p. 3.7-27

214000K303 ..(KA's)

ANSWER: 014 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP RPIS, p. IG-2-6/89, ELO-06.
2. 214000K501 (2.7/2.8), p. 3.7-27.

214000K501 ..(KA's)

ANSWER: 015 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: SRT CO2 Fire Prot., Book 5. p.41890/6.
2. 286000K504 (2.9/2.9), p. 3.8-2.

286000K504 ..(KA's)

ANSWER: 016 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: SRT Cont. Room HVAC, p. 41910/12.
2. 290003A301 (3.3/3.5), p. 3.9-38.

290003A301 ..(KA's)

ANSWER: 017 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.4.54 Loss of Fire Prot. Pumps..., Rev.11, pp. 2 & 3.
2. 286000A301 (3.4/3.4), p. 3.8-3.

286000A301 ..(KA's)

ANSWER: 018 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: SRT RCIC, Book 5, p. RCIC-15-5/89.
2. 217000K405 (3.5/3.5), p. 3.2-26.

217000K406 ..(KA's)

ANSWER: 019 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: LP PRM, p. IG-7-7/89, EIO-5d.
2. 261000K401 (3.7/3.8), p. 3.9-33.

261000K401 ..(KA's)

ANSWER: 020 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: SRT SGTS, Book 4, Fig. 1.
2. 261000G007 (3.5/3.7), p. 3.9-34.

261000G007 ..(KA's)

ANSWER: 021 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: TS 3.10 Core Monitoring Bases, Rev 99. p.204A.
2. PNPS: Proc. 4.3 Fuel Handling, Rev. 43, pp. 3, 9, 12, & F-1.
2. 295023G007 (2.9/3.6), p. 4.2-72.

295023G007 ..(KA's)

ANSWER: 022 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Sim. LP EOP-02 Failure To Scram, p. IG-14-5/89.
2. 295037K303 (4.1/4.5), p. 4.1-37.

295037K303 ..(KA's)

ANSWER: 023 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP Recirc. Sys., p. IG-22-5/90.
2. 295037K203 (4.1/4.2), p. 4.1-37.

295037K301 ..(KA's)

ANSWER: 024 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP AC Elec. Fig. 1, Rev. 0.
2. 295003K301 (3.3/3.5), p. 4.2-9.

295003K301 ..(KA's)

ANSWER: 025 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: ARP-905R-D4, Rev. 4.
2. 295007K206 (3.5/3.7), p. 4.2-23.

295007K206 ..(KA's)

ANSWER: 026 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: T-ER-01-01-30 Em. Resp. Trng. Prgm., Rev. 4, p. 1561T/11.
2. 294001A116 (2.9/4.7), p.

294001A116 ..(KA's)

ANSWER: 027 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: LP T-ER-01-01-11 E Plan Trng. for ROs and STAs, Rev. 2, 1550T/42.
2. 294001A116 (2.9/4.7)

294001A116 ..(KA's)

ANSWER: 028 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 1.4.9 Storage Handling, and Disposal of Sodium Pentaborate, Rev. 7, p. 8.
2. 294001K110 (3.1/3.4), p.2-1.

294001K110 ..(KA's)

ANSWER: 029 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.84 Rx. Recirculation, Rev. 32, p. 19.
2. 294001K106 (3.2/3.4), p. 2-1.

294001K106 ..(KA's)

ANSWER: 030 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 6.1-212 Exposure Control, Rev. 2, p. 7.
2. 294001K104 (3.3/3.6), p. 2-1.

294001K104 ..(KA's)

ANSWER: 031 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 6.1-024 Radiological Posting, Rev. 16, p.16 & 17.
2. 294001K103 (3.3/3.8), p. 2-1.

294001K103 ..(KA's)

ANSWER: 032 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: TS 4.6.B.3.b. Coolant Chemistry, Amend. 42, p. 125.
2. 294001A114 (2.9/3.4), p. 2-2.

294001A114 ..(KA's)

ANSWER: 033 (1.00)

b. [+1.0]

REFERENCE:

1. 10 CFR 26.
2. PNPS Proc. 1.3.61-1 Fitness For Duty (Unscheduled Work), Rev. 1, p. 4.
3. 294001A103 (2.7/3.7), p. 2-2.

294001A103 ..(KA's)

ANSWER: 034 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: SRT [illegible]40 Halon Fire Protection System, pp. 18 &19.
2. PNPS: O-RO 02-10-01 Fire Protection System, p. 5-6/89, ELO 3 & 17.
3. 294001K116 (3.5/3.8), p. 2-1.

294001K116 ..(KA's)

ANSWER: 035 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: TS 3.6 Primary System Boundary, p. 122, Amend. 62.
2. PNPS: LP O-RO-02-06-01 Non Nuclear Inst., p. IG-23-4/89, ELO 18.
3. PNPS: Proc. 2.1.6 Reactor Scram, Rev. 28, p. 8.
4. 294001A108 (3.1/3.6), p. 2-2.

294001A108 ..(KA's)

ANSWER: 036 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.84 Rx. Recirculation Sys., Rev. 32, p. 19, [4].
2. 294001K106 (3.2/3.4), p. 2-1.

294001K106 ..(KA's)

ANSWER: 037 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 1.3.34 Conduct of Operations, Rev. 28, p. 24, 6.5.[6].(a).
2. 294001K102 (3.9/4.5), p. 2-1.

294001K102 ..(KA's)

ANSWER: 038 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-08-01, Primary Containment System, ELO 21, p. IG-50-9/89.
2. 294001K114 (3.2/3.4), p. 2-4.

294001K114 ..(KA's)

ANSWER: 039 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Systems Ref. Text book 5, RHR system 1001, RHR pp. 30 & 31.
2. PNPS: LP O-RO-02-09-01, p. 5-7/89, ELO 9 & 11.
3. 295031K205 (4.2/4.3), p. 4.1-21.

295031K205 ..(KA's)

ANSWER: 040 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Systems Ref. Text book 5, p. RHR-31.
2. PNPS: LP O-RO-02-09-01, LPCI & RHR, p. IG-16-7/89, ELO 9.
3. PNPS: LP O-RO-02-08-01, Primary Containment, IG-61-9-89, ELO 34.
4. 203000A301 (3.8/3.7), p. 3.2-52.

203000A301 ..(KA's)

ANSWER: 041 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-09-02, pp. IG-4-8/89 & IG-6-8/89, ELO 4 & 5.
2. K/A# 209001A301 (3.6/3.6), 209001A302 (3.8/3.7), p. 3.2-15.

209001A301 209001A302 ..(KA's)

ANSWER: 042 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: TS 3.6.C. Coolant Leakage, Amend. 42, p.125.
2. PNPS: O-RO-06-01-03 LCO, p. IG-33, ELO-3.
3. 223001G005 (3.3/4.1), p. 3.5-5.

223001G005 ..(KA's)

ANSWER: 043 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: SRT Book 3, Feedwater Control System. FWCS-29-5/89.
2. PNPS: O-RO-02-06-02 Recirculation System, p. IG-10-5/90, ELO-34c.
3. K/A 202002K402 (3.0/3.0), p.3.1-16.

202002K402 ..(KA's)

ANSWER: 044 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: O-RO-02-09-03 HPCI, p. IG-9-7/89 & IG-10-7/89, ELO 5 & 16.
2. K/A 206000K418 (3.2/3.3). p. 3.2-2.

206000K418 ..(KA's)

ANSWER: 045 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP HPCI, P. IG-26-7/89 & IG-27-7/89, ELO-10.
2. PNPS: LP Prim. Cont., p. IG-26-9/89, ELO-34.
3. K/A 206000A309 (4.2/4.1), p.3.2-4.

206000A309 ..(KA's)

ANSWER: 046 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: TS SLC, 3.4.C & 4.4.A.2.b, Rev. 106, pp. 95 & 97.
2. PNPS: O-RO-02-06-06 SLC, p. IG-3-6/89, ELO-9.
3. 211000G006 (3.1/4.2), p. 3.1-34.

211000G006 ..(KA's)

ANSWER: 047 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: O-RO-02-06-06 SLC, p. IG-5-6/89.
2. 211000G004 (4.1/4.1), p. 3.1-34.

211000G004 ..(KA's)

ANSWER: 048 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-07-01 NMS, p. IG-28-6/89, ELO-67.
2. 215005A405 (3.4/3.4), p. 3.7-4.

215005A405 ..(KA's)

ANSWER: 049 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-05-01 Main Turbine, p. IG-22-5/89, ELO-73.
2. 212000A215 (3.7/3.8), p. 3.7-20.

212000A215 ..(KA's)

ANSWER: 050 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-07-02 RPS, p. IG-12-6/89, ELO-14.
2. 212000K412 (3.9/4.1), p. 3.7-18.

212000K412 ..(KA's)

ANSWER: 051 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-06-01 Non-nuclear Instr., p. IG-18-4/89, ELO-2.
2. 216000K501 (3.1/3.2), p. 3.7-13.

216000K501 ..(KA's)

ANSWER: 052 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.80 Reactor Vessel Level, Temperature and Pressure Instr., Rev. 10, p. 6.
2. 216000K510 (3.1/3.3), p. 3.7-13.

216000K510 ..(KA's)

ANSWER: 053 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-09005 ADS, p. IG-5-7/89, ELO-12 &-14.
2. 218000A405 (4.2/4.2), p.3.3-3.

218000A405 ..(KA's)

ANSWER: 054 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-04-01 Main Steam, p. IG-7-4/89, ELO-14.
2. 223002K101 (3.8/3.9), 3.5-7.

223002K101 ..(KA's)

ANSWER: 055 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.19 Residual Heat Removal, Rev. 35, p.18, Precautions [6] & [7].
2. 226001G010 (3.2/3.4), p. 3.5-27.

226001G010 ..(KA's)

ANSWER: 056 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-05-01 Main Turbine Sys., Fig. 1, Rev. 1.
2. PNPS: LP O-RO-02-05-01 Main Turbine Sys., p. IG-16-5/89, ELO-58.
3. 241000A101 (3.9/3.8), 241000A105 (3.5/3.6), p. 3.3-15.

241000A105 241000A101 ..(KA's)

ANSWER: 057 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: SRT ADS, Rev. 6-90, bk. 5, p. ADS-9.
2. PNPS: O-RO-02-04-01 Main Steam, pp. IG-5-4/89 & IG-22-4/89, ELO-7 & -8.
3. 239002A407 (3.6/3.6), 3.3-21.

239002A407 ..(KA's)

ANSWER: 058 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-04-01 Main Steam, pp. IG-3-4/89, IG-22-4/89 & IG-4-4/89, ELO-25.
2. PNPS: Proc. 2.4.29 Stuck Open S/RV, Rev. 12,p. 2.
3. 239002A203 (4.1/4.2), p. 3.3-21.

239002A203 ..(KA's)

ANSWER: 059 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: SRT 4860/42 RPS, p. RPS-8-5/89.
2. pnps: lp O-RO-02-07-02 RPS/ATWS, p. IG-6-6/89, ELO-6.
3. 201001K203 (3.5/3.6), p. 3.1-1.

201001K203 ..(KA's)

ANSWER: 060 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.87 CRDS, Rev. 38, p. 17.
2. PNPS: TS 3.3.A Reactivity control, Rev. 129, p. 81.
3. 295006G003 (3.8/4.4), p. 4.2-20.

295006G003 ..(KA's)

ANSWER: 061 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: SRT 4850/9 RPIS, Book 2, p. RMC-7.
2. 201001K410 (3.1/3.0)

201001K410 ..(KA's)

ANSWER: 062 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-06-03 CRD, p. IG-29-8/89, ELO-29.
2. 201006K510 (3.2/3.3), p. 3.7-36.

201006K510 ..(KA's)

ANSWER: 063 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Facility Question, 48530/19, (altered).
2. PNPS: EOP-04, Rev. 0.
3. 295032G011 (4.1/4.2), p. 4.1-26.

295032G011 ..(KA's)

ANSWER: 064 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Facility Question 48530/17.
2. PNPS: LP O-RO-02-04-02 Cond./Feedwater, p. TP-25-8/89.
3. 295025K106 (3.5/3.6), p. 4.1-5.

295025K106 ..(KA's)

ANSWER: 065 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Facility Question 49300/39.
2. PNPS: Proc. 2.4.17 Recirc. Pump(s) Trip, Rev 12, p.4.
3. PNPS: Annunciator 905R I3, LPRM HIGH, Rev. 4.
4. 295001K304 (3.4/3.6), p. 4.2-1.

295001K304 ..(KA's)

ANSWER: 066 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Facility Question, 493000/48.
2. PNPS: LP O-RO-02-06-01 Non-nuclear Instr., p. IG-7-4/89, ELO-16.
3. 290002G004 (3.2/3.3), p. 3.5-15.

290002G004 ..(KA's)

ANSWER: 067 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-06-02 Recirc., Fig. 9, ELO-13.
2. 202001G007 (3.8/3.8), p. 3.1-24.

202001G007 ..(KA's)

ANSWER: 068 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: LP HPCI, p. IG-16-7/89 through IG-19-7/89, ELO-16.
2. 295008A104 (3.5/3.5), p. 4.2-26.

295008K305 ..(KA's)

ANSWER: 069 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.5.2.127 Cond. & Demineralizer Operations. (facility question).
2. PNPS: Proc. 2.4.33 Condenser Chloride Intrusion, Rev. 4, p. 3.
3. 256000G007 (3.4/3.4), p. 3.2-23.

256000G007 ..(KA's)

ANSWER: 070 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-01-02 AC Elec. Distr., p. IG-16-9/89, ELO-34.
2. 262002K601 (2.7/2.9), p. 3.6-16.

262002K601 ..(KA's)

ANSWER: 071 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-01-02 AC Elec. Distr., p. IG-16-9/89, ELO-37b.
2. 262002K401 (3.1/3.4), p. 3.6-16.

262002K401 ..(KA's)

ANSWER: 072 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Facility Question 52170/58
2. PNPS: SRT 1400/25 Main Turbine, Book 4, p. MT-23-4/89.
3. 245000K605 (2.9/2.9), p. 3.4-9.

245000K605 ..(KA's)

ANSWER: 073 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: SRT 1400/25 Main Turbine, Book 4, p. MT-23-4/89.
2. PNPS: LP Main Turbine, p. IG-34-5/89, ELO-21.
3. 245000K405 (2.9/3.0), p. 3.4-8.

245000K405 ..(KA's)

ANSWER: 074 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Facility Question 52170/50.
2. PNPS: LP O-RO-02-07-02 RPS/ATWS, p. IG-4-6/89, ELO-10.
3. PNPS: P&ID M220.
4. 295019K201 (3.8/3.9), p. 4.2-59.

295019K201 ..(KA's)

ANSWER: 075 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-02-04 Instr. & HP Air, p. all, ELO-7.
2. 295019K303 (3.2/3.2), p. 4.2-59.

295019K303 ..(KA's)

ANSWER: 076 (1.00)

a. [+1.0]
also accep c.

REFERENCE:

1. PNPS: LP O-RO-02-03-02 PRM, p. TP-8, ELO-3k.
2. 272000K603 (2.8/3.0), p. 3.9-15.

272000K603 ..(KA's)

ANSWER: 077 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: SRT TIP, p. TIP-19-5/89.
2. 215001K401 (3.4/3.5), p. 3.7-43.

215001K401 ..(KA's)

ANSWER: 078 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Proc, 2.4.141 Abnormal Recombiner Operation, Rev. 10, p. 2.
2. 295006G010 (4.1/4.2), p. 4.2-20.

295006G010 ..(KA's)

ANSWER: 079 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 5.2.2 High Winds, Rev. 14, p. 2.
2. 295003G007 (3.8/4.1), p. 4.2-20.

295003G007 ..(KA's)

ANSWER: 080 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Facility Question
2. PNPS: SRT 40990/18 RB HVAC, p. RBV-15-5/89.
3. 295034K204 (3.9/3.9), p. 4.1-31.

295034K204 ..(KA's)

ANSWER: 081 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: SRT I&HP Air, Book 3, p. AIR-21-4/89.
2. 295019K2031 (3.2/3.3), p. 4.2-59.

295019K203 ..(KA's)

ANSWER: 082 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: SRT I&HP Air, Book 3, p. AIR-21-4/89.
2. 295019K202 (2.9/3.0), p. 4.2-59.

295019K202 ..(KA's)

ANSWER: 083 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP Main Steam, p. IG-18-4/89, ELO-21.
2. PNPS: LP Main Steam, p. IG-9-4/89 & TP-11.
3. 295004A204 (3.2/3.3), p. 4.2-13.

295004A204 ..(KA's)

ANSWER: 084 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: SRT PCIS, Book 1, Fig. 2 & 6.
2. 295024K207 (3.9/3.9), p. 4.1-1.

295024K207 ..(KA's)

ANSWER: 085 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: LO JPM-39.
2. PNPS: TS
2. 295009G004 (3.3/4.2), p. 4.2-30.

295009G004 ..(KA's)

ANSWER: 086 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.4.40 Rapid Inc. in OG Activity, Rev. 10, p. 2.
2. 295038G010 (3.8/3.6), p. 4.1-42.

295038G010 ..(KA's)

ANSWER: 087 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.84 Reactor Recirc. Sys., Rev.32, p. 21.
2. 295001A101 (3.5/3.6), p. 4.2-1.

295001A101 ..(KA's)

ANSWER: 088 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: SRT RHR, Book 1, p. PCIS-15-6/89.
2. 295021A206 (3.2/3.3), p. 4.2-68.

295021A206 ..(KA's)

ANSWER: 089 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: TS 1.1.D Safety Limits.
2. 295009G003 (3.3/4.2), p. 4.2-30.

295009G003 ..(KA's)

ANSWER: 090 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 5.4.6 Pri. Cont. Vent & Purge, Rev. 22, p.4.
2. 295010A105 (3.1/3.4), p. 4.2-31.

295010A105 ..(KA's)

ANSWER: 091 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Sim. LP EOP-02 Failure to Scram, p. IG-35-5/89.
2. 295014A203 (4.0/4.3), p.4.2-42.

295014A203 ..(KA's)

ANSWER: 092 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: EOP-04.
2. PNPS: Sim. LP EOP-04 Sec. Cont. Control, p. SG-8-5/89.
32. 295032K302 (3.6/3.8), p. 4.1-25.

295032K302 ..(KA's)

ANSWER: 093 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Sim. LP EOP-01 RPV Control, p. IC-23-5/89.
2. PNPS: EOP-01.
3. 295007K304 (4.0/4.1), p.4.2-23.

295007K304 ..(KA's)

ANSWER: 094 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: TS & Bases 3.6.E, pp. 127, 147 & 147a.
2. 295001G008 (3.5/4.2), p. 4.2-2.

295001G008 ..(KA's)

ANSWER: 095 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.4.11 CRD Malfunctions, Rev. 5, p. 7.
2. 295014A103 (3.5/3.5) (I/I)

295014A103 ..(KA's)

ANSWER: 096 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Sim. LP EOP-3 Prim. Cont. Control, p. IG-21-5/89.
2. 295024A117 (3.9/3.9), p. 4.1-2.

295024A117 ..(KA's)

ANSWER: 097 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.4.36 Decr. Cond. Vacuum, Rev. 10, p. 2.
2. 295002K309 (3.2/3.2), p. 4.2-5.

295002K309 ..(KA's)

ANSWER: 098 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP RCIC, p. IG-4-7/89, ELO-12.
2. 295008K206 (3.4/3.6), p. 4.2-25.

295008K206 ..(KA's)

ANSWER: 099 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: 2.4.143 Shutdown From Outside the CR, Rev. 9, pp. 3 & 4.
2. 295016G010 (3.8/3.6), p. 4.2-50.

295016G010 ..(KA's)

ANSWER: 100 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.84 Reactor Recirc., Rev. 32, pp. 12 & 31.
2. 295018G007 (3.2/3.4), p. 4.2-56.
   295018G007 ..(KA's)

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

ANSWER KEY

001 d

002 d

003 b

004 b

005 b

006 b

007 c

008 ~~b~~ c ~~2.5~~

009 d

010 d

011 d

012 d

013 c

014 a

015 b

016 c

017 d

018 c

019 b

020 d

021 a

022 d

023 a

024 d

025 b

ANSWER KEY

026	b
027	c
028	c
029	b
030	c
031	c
032	c
033	b
034	c
035	b
036	a
037	d
038	c
039	b
040	d
041	a
042	c
043	d
044	d
045	a
046	d
047	c
048	b
049	d
050	d

ANSWER KEY

051	a
052	a
053	b
054	a
055	d
056	d
057	a
058	b
059	d
060	d
061	b
062	a
063	d
064	c
065	c
066	d
067	c
068	c
069	b
070	a
071	d
072	b
073	b
074	c
075	d

A N S W E R K E Y

076	a	also accept c Yes
077	d	
078	b	
079	c	
080	b	
081	d	
082	a	
083	d	
084	b	
085	b	
086	c	
087	d	
088	d	
089	d	
090	c	
091	b	
092	b	
093	b	
094	d	
095	d	
096	d	
097	d	
098	d	
099	a	
100	b	

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

QUESTION	VALUE	REFERENCE
001	1.00	8000016
002	1.00	8000026
003	1.00	8000027
004	1.00	8000028
005	1.00	8000029
006	1.00	8000030
007	1.00	8000031
008	1.00	8000033
009	1.00	8000034
010	1.00	8000035
011	1.00	8000036
012	1.00	8000037
013	1.00	8000038
014	1.00	8000039
015	1.00	8000040
016	1.00	8000041
017	1.00	8000042
018	1.00	8000043
019	1.00	8000044
020	1.00	8000045
021	1.00	8000046
022	1.00	8000047
023	1.00	8000048
024	1.00	8000049
025	1.00	8000050
026	1.00	8000051
027	1.00	8000052
028	1.00	8000053
029	1.00	8000054
030	1.00	8000055
031	1.00	8000056
032	1.00	8000057
033	1.00	8000058
034	1.00	8000059
035	1.00	8000060
036	1.00	8000061
037	1.00	8000062
038	1.00	8000063
039	1.00	8000064
040	1.00	8000065
041	1.00	8000066
042	1.00	8000067
043	1.00	8000068
044	1.00	8000069
045	1.00	8000070
046	1.00	8000071
047	1.00	8000072
048	1.00	8000073
049	1.00	8000074
050	1.00	8000075
051	1.00	8000076
052	1.00	8000077
053	1.00	8000078
054	1.00	8000079

QUESTION	VALUE	REFERENCE
055	1.00	8000080
056	1.00	8000081
057	1.00	8000082
058	1.00	8000083
059	1.00	8000084
060	1.00	8000085
061	1.00	8000086
062	1.00	8000087
063	1.00	8000088
064	1.00	8000089
065	1.00	8000090
066	1.00	8000091
067	1.00	8000092
068	1.00	8000093
069	1.00	8000094
070	1.00	8000095
071	1.00	8000096
072	1.00	8000097
073	1.00	8000098
074	1.00	8000099
075	1.00	8000100
076	1.00	8000101
077	1.00	8000102
078	1.00	8000103
079	1.00	8000104
080	1.00	8000105
081	1.00	8000106
082	1.00	8000107
083	1.00	8000108
084	1.00	8000109
085	1.00	8000110
086	1.00	8000111
087	1.00	8000112
088	1.00	8000113
089	1.00	8000114
090	1.00	8000115
091	1.00	8000116
092	1.00	8000117
093	1.00	8000118
094	1.00	8000119
095	1.00	8000120
096	1.00	8000121
097	1.00	8000122
098	1.00	8000123
099	1.00	8000124
100	1.00	8000125
	100.00	
	100.00	

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

001	a	b	c	d	_____
002	a	b	c	d	_____
003	a	b	c	d	_____
004	a	b	c	d	_____
005	a	b	c	d	_____
006	a	b	c	d	_____
007	a	b	c	d	_____
008	a	b	c	d	_____
009	a	b	c	d	_____
010	a	b	c	d	_____
011	a	b	c	d	_____
012	a	b	c	d	_____
013	a	b	c	d	_____
014	a	b	c	d	_____
015	a	b	c	d	_____
016	a	b	c	d	_____
017	a	b	c	d	_____
018	a	b	c	d	_____
019	a	b	c	d	_____
020	a	b	c	d	_____
021	a	b	c	d	_____
022	a	b	c	d	_____
023	a	b	c	d	_____
024	a	b	c	d	_____
025	a	b	c	d	_____

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

026	a	b	c	d	_____
027	a	b	c	d	_____
028	a	b	c	d	_____
029	a	b	c	d	_____
030	a	b	c	d	_____
031	a	b	c	d	_____
032	a	b	c	d	_____
033	a	b	c	d	_____
034	a	b	c	d	_____
035	a	b	c	d	_____
036	a	b	c	d	_____
037	a	b	c	d	_____
038	a	b	c	d	_____
039	a	b	c	d	_____
040	a	b	c	d	_____
041	a	b	c	d	_____
042	a	b	c	d	_____
043	a	b	c	d	_____
044	a	b	c	d	_____
045	a	b	c	d	_____
046	a	b	c	d	_____
047	a	b	c	d	_____
048	a	b	c	d	_____
049	a	b	c	d	_____
050	a	b	c	d	_____

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

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

051	a	b	c	d	_____
052	a	b	c	d	_____
053	a	b	c	d	_____
054	a	b	c	d	_____
055	a	b	c	d	_____
056	a	b	c	d	_____
057	a	b	c	d	_____
058	a	b	c	d	_____
059	a	b	c	d	_____
060	a	b	c	d	_____
061	a	b	c	d	_____
062	a	b	c	d	_____
063	a	b	c	d	_____
064	a	b	c	d	_____
065	a	b	c	d	_____
066	a	b	c	d	_____
067	a	b	c	d	_____
068	a	b	c	d	_____
069	a	b	c	d	_____
070	a	b	c	d	_____
071	a	b	c	d	_____
072	a	b	c	d	_____
073	a	b	c	d	_____
074	a	b	c	d	_____
075	a	b	c	d	_____

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

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

076	a	b	c	d	_____
077	a	b	c	d	_____
078	a	b	c	d	_____
079	a	b	c	d	_____
080	a	b	c	d	_____
081	a	b	c	d	_____
082	a	b	c	d	_____
083	a	b	c	d	_____
084	a	b	c	d	_____
085	a	b	c	d	_____
086	a	b	c	d	_____
087	a	b	c	d	_____
088	a	b	c	d	_____
089	a	b	c	d	_____
090	a	b	c	d	_____
091	a	b	c	d	_____
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 **********)

ATTACHMENT 2

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

FACILITY: Pilgrim 1

REACTOR TYPE: BWR-GE3

DATE ADMINISTERED: November 26, 1990

CANDIDATE:

INSTRUCTIONS TO CANDIDATE:

Points for each question are indicated in parentheses after the question. To pass this examination, you must achieve an overall grade of at least 80%. Examination papers will be picked up four and one half (4 1/2) hours after the examination starts.

NUMBER QUESTIONS	TOTAL POINTS	CANDIDATE'S POINTS	CANDIDATE'S OVERALL GRADE (%)
100	100.00		

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

Candidate's Signature

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

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 candidate 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.

6. Fill in the date on the cover sheet of the examination (if necessary).

7. You may write your answers on the examination question page or on a separate sheet of paper. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.

8. If you write your answers on the examination question page and you need more space to answer a specific question, use a separate sheet of the paper provided and insert it directly after the specific question. DO NOT WRITE ON THE BACK SIDE OF THE EXAMINATION QUESTION PAGE.

9. Print your name in the upper right-hand corner of the first page of answer sheets whether you use the examination question pages or separate sheets of paper. Initial each of the following answer pages.

10. Before you turn in your examination, consecutively number each answer sheet, including any additional pages inserted when writing your answers on the examination question page.

11. If you are using separate sheets, number each answer and skip at least 3 lines between answers to allow space for grading.

12. Write "Last Page" on the last answer sheet.

13. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.

14. The point value for each question is indicated in parentheses after the question. The amount of blank space on an examination question page is NOT an indication of the depth of answer required.

15. Show all calculations, methods, or assumptions used to obtain an answer.

16. Partial credit may be given. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK. NOTE: partial credit will NOT be given on multiple choice questions.

17. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of 1.00 even though you got the four correct answers.

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

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

20. To pass the examination, you must achieve an overall grade of 80% or greater.

21. There is a time limit of (4 1/2) hours for completion of the examination. (or some other time if less than the full examination is taken.)

22. When you are done and have turned in your examination, leave the examination area as defined by the examiner. 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)

WHICH ONE of the following states the Technical Specification bases for monitoring coolant radioactivity?

a. Monitor for fuel failure

b. Monitor for activated corrosion products

c. Monitor the amount of Tritium being released

d. Monitor the amount of Nitrogen-16 being released

QUESTION: 002 (1.00)

WHICH ONE of the following is determined by Process Computer program OD-3 (Core Thermal Power and APRM Calibration)?

a. Thermal limits

b. Core flow rate

c. Control rod position

d. LPRM chamber calibration constants

QUESTION: 003 (1.00)

An emergency action level (EAL) of Site Area Emergency has been declared and notifications have been made. The conditions of the plant have improved to an EAL of an Alert. WHICH ONE of the following conditions is allowed by the PNPS Emergency Plan to downgrade the EAL to an Alert?

a. The Nuclear Watch Engineer (NWE) while acting as the Emergency Director (ED) downgrades the EAL to an Alert based upon current plant status.

b. The ED downgrades the EAL to an Alert after the emergency response facilities have been activatewd.

c. The ED delegates authority to change EALs to the NWE and the NWE downgrades the EAL to an Alert based upon the current plant status.

d. The ED delegates authority to change EALs to the NWE and the NWE downgrade EAL to an Alert when issuance of off-site protective actions has occurred State officials concur prior to downgrading.

QUESTION: 004 (1.00)

WHICH ONE of the following four steps from PNPS 2.2.84, Reactor Recirculation System, would have a change of intent IF the proposed SRO changes are authorized? NOTE: the original wording appears in parentheses ().

a. VERIFY the Reactor is operating below the 75% (80%) rod line. Step 7.4 [6]

b. START the Recirculation Pump AND VERIFY the speed levels out at about 35% (25%). Step 7.2 [3]

c. IF the alternate recirculation pump is operating, THEN REDUCE the speed to less than 45% (35%) rated. Step 7.4 [8]

d. RECORD data every 10 minutes (15 minutes) until temperature has stabilized for three consecutive readings on Section C of Attachment 5, OPER 19. Step 7.4 [4] (d)

QUESTION: 005 (1.00)

WHICH ONE of the following describes the method for authorizing the use of "R" keys from the control room key cabinet?

a. Routine use of the "R" keys must be authorized by the nuclear watch engineer (NWE).

b. Routine use of the "R" keys must be authorized by the radiation protection supervision.

c. Emergency use of the "R" keys must be authorized by the NWE.

d. Emergency use of the "R" keys must be authorized by the radiation protecti supervisor.

QUESTION: 006 (1.00)

The reactor is at full power. Failure of drywell cooling has resulted in an increase in the drywell temperatures. The drywell pressure is 1 psig and temperatures range from 210 to 230 deg. F. There are no indications of leaks in the drywell. Based upon these conditions and Technical Specifications a reactor shutdown is ordered. WHICH ONE of the following describes the reason for the reactor shutdown requirement?

a. To assure that containment integrity is maintained.

b. To assure that Alternate RPV Depressurization is not required.

c. To assure that RPV level instrument reference legs do not boil.

d. To assure that ECCS trips will occur on or before Technical Specifications values.

QUESTION: 007 (1.00)

WHICH ONE of the following states the minimum design conditions for the emergenc core cooling system (ECCS) performance?

a. Cladding temperatures will reach 2300 deg. F; local metal water reaction will be 18%

b. Cladding temperatures will reach 1900 deg. F; core wide metal water reaction will be 18%

c. Cladding temperatures will reach 2300 deg. F; local metal water reaction will be 0.5%

d. Cladding temperatures will reach 1900 deg. F; core wide metal water reaction will be 0.5%

QUESTION: 008 (1.00)

The reactor pressure is at 700 psig and the reactor coolant temperature is 350 deg. F. WHICH ONE of the following states the Technical Specifications basis for allowing the reactor core isolation cooling (RCIC) subsystem to be inoperable for ten days?

a. RCIC is NOT required for conditions like reactor vessel hydrostatic tests.

b. RCIC can NOT operate with steam pressure less than 150 psig.

c. RCIC can NOT operate with steam at temperatures less than 365 deg. F.

d. RCIC is NOT required during shutdown conditions.

QUESTION: 009 (1.00)

The reactor is in steady state at 100% power. The control room pressure indicator for reactor pressure (PI-640-25A) is out of service and unavailable. During your shift, control room pressure indicator for reactor pressure (PI-640-25B) develops a leak and must be isolated. WHICH ONE of the following is the longest period of time the plant may operate before shutdown procedures have to begin?

a. 1 hour

b. 8 hours

c. 24 hour

d. 7 days

QUESTION: 010 (1.00)

Technical specification for the core and containment cooling systems allows one (1) automatic depressurization system (ADS) valve to be inoperable for up to seven (7) days provided high pressure coolant injection (HPCI) is demonstrated operable. WHICH ONE of the following states the reason why?

a. Safety analysis only takes credit for three valves, therefore it is appropriate to permit one valve to be out of service.

b. Risk assessment for these valves indicates a negligible chance for a second valve failure.

c. Analysis shows that HPCI and ADS plus RCIC provide redundant paths for small breaks.

d. The heat capacity of the suppression chamber is conservatively analyzed to allow continuous operation with one (1) fully opened automatic depressurization valve.

QUESTION: 011 (1.00)

The "A" diesel generator (DG) is being tested. The governor is selected for DROOP and the test switch is in TEST. A loss of coolant accident (LOCA) initiation signal has just come in. WHICH ONE of the following describes the response of the "A" DG?

a. Transfers to isochronous mode; the test switch transfers to NORMAL and the DG continues to run.

b. Transfers to isochronous mode; the test switch remains in TEST and the DG continues to run.

c. Remains in the droop mode; the test switch transfers to NORMAL and the DG continues to run.

d. Remains in the droop mode; the test switch remains in TEST and the DG continues to run.

QUESTION: 012 (1.00)

A reactor start up is in progress with power at 16%. WHICH ONE of the following conditions will cause the rod worth minimizer (RWM) to generate a rod block?

a. Two insert errors exist.

b. One withdrawal error exists.

c. All of the rods in the currently latched group and all lower groups are withdrawn to their group withdrawal limits.

d. One rod is at its alternate withdrawal limit because of a failed reed switch.

QUESTION: 013 (1.00)

The voltage on 4 KV buses "A1" through "A6" are reading 3940 VAC. WHICH ONE of following actions are appropriate?

a. Transfer buses "A1" through "A6" to the start-up transformer.

b. No action is required; the voltage is in the acceptable range.

c. Transfer both "A5" and "A6" to the emergency diesel generators.

d. Start the emergency diesel generators; do not transfer the loads of both "A5" and "A6" until further degradation of voltage occurs.

QUESTION: 014 (1.00)

The reactor operator is increasing power from 80% to 100% using control rods. Channel "A" of the rod block monitor (RBM) is INOP and bypassed. Channel "B" becomes inoperable. WHICH ONE of the following actions would you direct the operator to follow?

a. Place one of the RBM channels in the tripped condition within one hour.

b. Restore one of the inoperable RBM channels to normal status within 48 hours.

c. Verify the reactor is not operating on a limiting control rod pattern.

d. Reduce power with recirculation flow and continue rod withdrawal.

QUESTION: 015 (1.00)

WHICH ONE of the following states the reactor vessel pressure safety limit?

a. 1085 psig

b. 1240 psig

c. 1250 psig

d. 1325 psig

QUESTION: 016 (1.00)

The reactor is operating at 85% power at steady state. While responding to alarms a dispatched operator notifies the control room that one of the condensate demineralizers has an effluent conductivity of 6.0 umho/cm and the condensate demineralizer bank has an effluent conductivity of 0.3 umho/cm. WHICH ONE of the following states the required action and time limit to perform the action?

a. Scram; immediately

b. Scram; within 10 minutes

c. Determine which condensate demineralizer is depleted and isolate it; within 10 minutes

d. Determine which condensate demineralizer has a leak and solate it; 5 hours

QUESTION: 017 (1.00)

Generator excitation controls the megaVAR loading and the power factor for the main generator when it is synchronized to the grid. WHICH ONE of the following describe the megaVAR and power factor IF the main generator were underexcited?

a. Negative megaVARs and a leading power factor

b. Negative megaVARs and a lagging power factor

c. Positive megaVARs and a leading power factor

d. Positive megaVARs and a lagging power factor

QUESTION: 018 (1.00)

WHICH ONE of the following control rod manipulations will cause a rod drift alarm?

a. Emergency insert

b. Continuous insert

c. Continuous withdraw

d. Rod motion past a failed read switch

QUESTION: 019 (1.00)

Reactor clean up inboard isolation valve MO-1201-2 has been left in a throttled position during system startup. WHICH ONE of the following states the basis for the procedural precaution against this condition?

a. High velocity erosion of downstream piping resulting in wall thinning.

b. Binding of the valve disc resulting in failure of the valve to close.

c. Excessive wear of the valve disc resulting in leakage when it is closed.

d. Excessive use of the motor operator resulting in a higher probability of failure to close the valve.

QUESTION: 020 (1.00)

WHICH ONE of the following constitutes the minimum number of pumps required to establish an operable containment cooling sub-system loop as defined by Technical Specifications?

	LPCI	RBCCW	SSW
a.	1	1	1
b.	1	2	2
c.	2	1	1
d.	2	2	2

QUESTION: 021 (1.00)

WHICH ONE of the following describes why reactor pressure vessel (RPV) level is lowered during an anticipated transient without a scram (ATWS)?

a. Lower level inhibits natural circulation and increases void fraction.

b. Lower level prevents temperature stratification and the resulting localized power peaks.

c. The lower head pressure allows more makeup flow from injecting systems.

d. The lower head pressure provides for more heat removal per pound mass of water vaporized increasing the rate of heat removal.

QUESTION: 022 (1.00)

WHICH ONE of the following sets of plant parameters are used to determine the Heat Capacity Level Limit as described in EOP-03, Primary Containment Control?

a. Reactor pressure vessel (RPV) pressure, RPV level

b. Drywell temperature, RPV level

c. Torus water temperature, RPV pressure

d. Torus water temperature, drywell pressure

QUESTION: 023 (1.00)

Emergency Operating Procedure EOP-05, Radioactivity Release Control, directs the operator to isolate certain primary systems, but gives exception to those systems required to shutdown the reactor. WHICH ONE of the following states the basis this exception?

a. Isolating these systems results in inadequate core cooling.

b. Isolating these systems results in no incresase in off-site releases from the discharge of these systems.

c. Isolating these systems results in much larger off-site releases.

d. Isolating these systems results in the thermal degradation of safety systems due to higher energy released into primary and secondary containment .

QUESTION: 024 (1.00)

WHICH ONE of the following states the basis for maintaining a minimum reactor pressure vessel flooding pressure (MARFP)?

a. Adequate core cooling is assured by submergence only if RPV pressure is maintained above the MARFP pressure.

b. Adequate core cooling is assured by steam cooling only if RPV pressure is maintained below the MARFP pressure.

c. Adequate core cooling is maintained by steam cooling and/or core submergence only if RPV pressure is maintained below the MARFP pressure.

d. Adequate core cooling is maintained by steam cooling and/or core submergence only if RPV pressure is maintained above the MARFP pressure.

QUESTION: 025 (1.00)

The reactor is operating at 100% power and automatic depressurization system (ADS) testing is in progress. During the test, torus water temperature increase to 108 deg. F. ADS testing is stopped. All ADS valves indicate closed position WHICH ONE of the following states the required actions?

a. Manually scram the reactor.

b. Be in hot shutdown within the next 12 hours.

c. Manually scram the reactor and depressurize the reactor pressure vessel to less than 200 psig.

d. Place suppression pool cooling in service and reduce torus water temperature to less than 80 deg. F within 24 hours.

QUESTION: 026 (1.00)

WHICH ONE of the following Emergency Classifications is the minimum classification required for failure of plant functions needed to protect the public?

a. General Emergency

b. Site Emergency

c. Alert

d. Unusual Event

QUESTION: 027 (1.00)

During an emergency the Emergency Director may authorize personnel to exceed administrative radiation exposure limits. WHICH ONE of the following is the allowable whole body dose that may be authorized for protective or corrective actions (NOT to save a life)?

a. 5 rem

b. 15 rem

c. 25 rem

d. 35 rem

QUESTION: 028 (1.00)

WHICH ONE of the following describes the approved method to cleanup and dispose of a gallon of spilled sodium pentaborate solution?

a. Mop up the spill and pour down a sanitary drain.

b. Soak up with dry rags and discard the rags in the waste bin.

c. Absorb the liquid into an inert solid and dispose of at an industrial waste facility.

d. Contact a hazardous waste response team for clean up and disposal.

QUESTION: 029 (1.00)

Procedure 2.2.84, Recirculation, establishes a limit on the successive starts of a recirculation motor generator (MG) set. WHICH ONE of the following conditions is the restart limitation designed to prevent?

a. Damage to the pump bearing due to inadequate lube oil being supplied on pump starts by the shaft driven oil pumps.

b. Mechanical and thermal stresses on the drive motor windings due to increased amperage on pump starts.

c. Electrical fire due to overheating of the supply breaker to the MG set.

d. Failure of the fluid drive coupling scoop tubes due to exceeding their design cyclic stress limits.

QUESTION: 030 (1.00)

WHICH ONE of the following states the PNPS whole body dose exposure control limit (ECL) for a visitor who has not obtained an approval to exceed the limit?

a. 10 mRem/day

b. 25 mRem/month

c. 50 mRem/quarter

d. 250 mRem/year

QUESTION: 031 (1.00)

WHICH ONE of the following describes the minimum posting and minimum radiation protection actions required for a room with whole body dose rates of 500 mRem/hr and loose surface contamination 1500 dpm/square-cm in gamma only?

a. radiation area; barricade

b. radiation area; contaminated area; barricade; step off pad; protective clothing removal instructions; location of nearest frisker.

c. high radiation area; contaminated area; barricade or guard when access to area is required; step off pad; protective clothing removal instructions; location of nearest frisker.

d. danger locked high radiation area; two men required for entry; door lockin instructions; double locked when not occupied or guarded when access is required; contaminated area; barricade; step off pad; protective clothing removal instructions; location of nearest frisker.

QUESTION: 032 (1.00)

The plant is at 100% power when the reactor water cleanup (RWCU) system isolates In accordance with Technical Specifications, WHICH ONE of the following is required minimum frequency for sampling the reactor coolant system?

a. Every 4 hours

b. Every 8 hours

c. Every 24 hours

d. Every 48 hours

QUESTION: 033 (1.00)

In accordance with 10 CFR 26 "Fitness for Duty Program," WHICH ONE of the following is the minimum period to abstain from alcohol proceeding any normal scheduled shift?

a. 3 hours

b. 5 hours

c. 8 hours

d. 12 hours

QUESTION: 034 (1.00)

WHICH ONE of the following describes the characteristics of HALON 1301?

a. Low toxicity; lighter than air

b. High toxicity; heavier than air

c. Low toxicity; heavier than air

d. High toxicity; lighter than air

QUESTION: 035 (1.00)

Using the steam tables, and given that the reactor at time +0 is subcritical following a scram and that the reactor pressure is 885 psig, WHICH ONE of the following pressures is the minimum pressure that the reactor may be reduced to after one hour of cool down (at time +1 hour)?

a. 322 psig

b. 336 psig

c. 351 psig

d. 366 psig

QUESTION: 036 (1.00)

A reactor recirculation pump motor generator (MG) set is being restarted after a spurious trip two hours ago. The MG set trips off again ten (10) minutes after being started. WHICH ONE of the following states the maximum number of times that a restart of a recirculation pump MG set may be attempted within a thirty minute period following this latest trip?

a. 0

b. 1

c. 2

d. 3

QUESTION: 037 (1.00)

Some repair work is to be performed on the reactor core isolation cooling (RCIC) system. This work requires that several leads be lifted for a tagout. There are no ALARA concerns. WHICH ONE of the following states the verifications which must be made?

a. After each lead is lifted, a direct and/or indirect verification is made to assure correct status is achieved. An independent verification shall be performed.

b. After each lead is lifted, a direct and/or indirect verification is made to assure that the correct status is achieved. An independent verificatio is waved.

c. Before each lead is lifted a non-independent verification is performed by a second individual at the job of the lead to be lifted. An independent verification of each lead which was lifted is made.

d. Before each lead is lifted a non-independent verification is performed by a second individual at the job of the lead to be lifted. An independent verification is waved.

QUESTION: 038 (1.00)

WHICH ONE of the following is the MINIMUM permissible value for oxygen in percent before personnel may enter the primary containment?

a. 15

b. 17

c. 19

d. 21

QUESTION: 039 (1.00)

The reactor has just scrammed from full power due to low level. Level continues to decrease.

- 10:27 the lo lo level alarm sounds
- 10:35 the drywell pressure reaches 2.6 psig
- 10:50 reactor pressure is 450 psig

Both recirculation pumps are running and no loop break was detected. WHICH ONE of the following describes the status of the LPCI system based upon the current given information?

a. The LPCI pumps are not running AND the "B" loop injection valve is selecte and open.

b. The LPCI pumps are running AND the "B" loop injection valve is selected and closed.

c. The LPCI pumps are running AND the "A" loop injection valve is selected and open.

d. The LPCI pumps are not running AND the "A" loop injection valve is selecte and closed

QUESTION: 040 (1.00)

The reactor is shutdown and shutdown cooling (SDC) is providing core heat removal. An (RCS) leak causes the vessel level to decrease to -60 inches. The riser pressure for the "B" recirculation loop is less than the "A" loop. WHICH ONE of the following describes the status of the LPCI injection valves? Use Attachment # 2, RHR one line diagram.

a. MO-1001-28A and -29A are closed and MO-1001-28B and -29B are open.

b. MO-1001-28A and -29A are open and MO-1001-28B and -29B are closed.

c. MO-1001-28A and -29A and MO-1001-28B are closed and MO-1001-29B is open.

d. MO-1001-28B and MO-1001-29B and -29B are closed and MO-1001-28A is open.

QUESTION: 041 (1.00)

Given the following conditions:

- o The reactor is in an ATWS
- o Vessel level is at -150 inches and decreasing
- o Pressure is being controlled below 1085 psig with SRVs
- o Drywell pressure is 1 psig
- o 15 minutes have elapsed since vessel level was at -49 inches

Based upon EOP-02, Failure to Scram, the decision is made to perform EOP-07, Alternate Depressurization. The direction is given to terminate and prevent injection into the reactor pressure vessel. The core spray pump control switches are placed in the stop position, and the control switches for the inboard injection valves (MO-1400-25A and -25B) and the outboard injection valves (MO-1400-24A and -24B) are placed in the close position.

WHICH ONE of the following describes the status of the core spray pumps and injection valves?

a. The core spray pumps are stopped, the inboard injection valves are closed and the outboard injection valves are open.

b. The core spray pumps are stopped, the inboard and outboard injection valves are closed.

c. The core spray pumps are running, the inboard injection valves are open and the outboard injection valves are closed.

d. The core spray pumps are running, the inboard and outboard injection valves are open.

QUESTION: 042 (1.00)

WHICH ONE of the following is the maximum allowable total reactor coolant system leakage rate over a 24 hour surveillance period with the reactor at 50% power?

a. 5 gpm

b. 15 gpm

c. 25 gpm

d. 35 gpm

QUESTION: 043 (1.00)

The reactor is at 100% power. The reactor feed pump sequential trip circuit is ON. WHICH ONE of the following conditions will cause a recirculation pump runback to 65% speed?

a. Recirculation Pump "A" discharge valve drifts closed.

b. "B" Feedwater Pump trips off and reactor water level decreases to +20 inches.

c. "A" Feedwater flow signal fails low.

d. "C" Condensate Pump trips off and reactor water level decreases to +10 inches.

QUESTION: 044 (1.00)

WHICH ONE of the following describes the normal operation of the high pressure coolant injection (HPCI) minimum flow valve (MO-2301-14) with its control switch in the AUTO position?

a. Normally closed, automatically opens on HPCI initiation and remains open until manually closed from the control room.

b. Normally open, automatically closes after HPCI initiation and system flow is greater than 800 gpm.

c. Normally open and is manually closed from the control room after HPCI initiation.

d. Normally closed, automatically opens on HPCI initiation and closes after system flow is greater than 800 gpm.

QUESTION: 045 (1.00)

WHICH ONE of the following high pressure coolant injection (HPCI) valve isolations does NOT occur automatically as a result of low steam supply pressure?

a. Injection valve, MO-2301-8, closes.

b. Turbine control valve, HO-2301-2, closes.

c. Steam supply valves, MO-2301-4 & -5, close.

d. Suppression pool isolation valves, MO-2301-35 & -36, close.

QUESTION: 046 (1.00)

WHICH ONE of the following meets the Technical Specification operability requirements for the standby liquid control (SLC) system?

a. Boron enrichment (atom %) 51.0
Concentration (% wt) 9.87
Pump flow rate (gpm) 51.2

b. Boron enrichment (atom %) 55.0
Concentration (% wt) 8.16
Pump flow rate (gpm) 48.7

c. Boron enrichment (atom %) 49.0
Concentration (% wt) 8.73
Pump flow rate (gpm) 52.3

d. Boron enrichment (atom %) 56.0
Concentration (% wt) 9.16
Pump flow rate (gpm) 42.5

QUESTION: 047 (1.00)

WHICH ONE of the following describe the function of the standby liquid control (SBLC) pump discharge accumulator?

a. Provides a means of injection during a failure of both SBLC pumps.

b. Provides immediate injection of solution until the SBLC pump comes up to speed.

c. Minimizes pulsations in system discharge pressure.

d. Protects pump if the discharge valve is inadvertently closed.

QUESTION: 048 (1.00)

WHICH ONE of the following conditions will bypass the average power range monitor (APRM) upscale thermal power trip for the reactor protection system (RPS)?

a. Mode switch in Run

b. APRM bypass switch in Bypass

c. Mode switch in Startup

d. IRM range switch on Range 1

QUESTION: 049 (1.00)

WHICH ONE of the following provides the signal for the control valve (CV) fast closure scram?

a. Position limit switches on CVs

b. Rate of position change monitors on CVs

c. Electric pressure regulator servomotor position signal

d. Emergency trip oil pressure to the acceleration relay pilot valve

QUESTION: 050 (1.00)

Reactor pressure is 450 psig and the mode switch is in the STARTUP position. WHICH ONE of the following scram trip signals is ACTIVE?

a. APRM high flux (flow biased)

b. APRM downscale with companion IRM high

c. Low condenser vacuum

d. High main steam line radiation

QUESTION: 051 (1.00)

WHICH ONE of the following events would cause the GEMAC narrow range level indication to fail fully downscale?

a. A break in the variable leg.

b. A rapid reactor depressurization.

c. Containment temperature increases to 300 deg. F.

d. A bellows leak in the differential pressure cell.

QUESTION: 052 (1.00)

The reactor is in start up at the point of adding heat. The excess flow check valve for the LI-640-29A reference leg shuts; there is no line break. WHICH ONE of the following is the response of the INDICATED level as reactor pressure increases?

a. Level increases as the pressure increases on the variable leg.

b. Level decreases as the pressure increases on the reference leg.

c. LI-640-29A will fail low as the pressure is felt equally on both legs.

d. LI-640-29A will fail high as the pressure is felt equally on both legs.

QUESTION: 053 (1.00)

During a transient all initiation signals have been received to start the automatic depressurization system (ADS) 120 second timer. WHICH ONE of the following will reset the 120 second timer?

a. Drywell pressure decreases to 1.5 psig.

b. Reactor water level increases to -45 inches.

c. ADS control switches are placed in the CLOSE position.

d. The operating core spray pump and residual heat removal pumps trip.

QUESTION: 054 (1.00)

The reactor is at full power. WHICH ONE of the following conditions will cause the main steam isolation valves to isolate?

a. Turbine basement exhaust duct is 160 deg. F.

b. Reactor vessel level is +45 inches.

c. Main steam line tunnel exhaust vent is 155 deg. F.

d. Reactor vessel level is -45 inches.

QUESTION: 055 (1.00)

The direction has been given to initiate containment sprays. WHICH ONE of the following describes a line-up which assures that design limits are met for: 1) adequate containment sprays, and 2) residual heat removal (RHR) equipment operation?

a. RHR pump "A" is running, the heat exchanger bypass valve (MO-1001-16A) is closed and the heat exchanger flow is 4850 gpm.

b. RHR pump "A" is running, the heat exchanger bypass valve (MO-1001-16A) is open and the heat exchanger flow is 3350 gpm.

c. RHR pumps "A" and "C" are running, the heat exchanger bypass valve (MO-1001-16A) is closed and the heat exchanger flow is 6150 gpm.

d. RHR pumps "A" and "C" are running, the heat exchanger bypass valve (MO-1001-16A) is open and the heat exchanger flow is 5050 gpm.

QUESTION: 056 (1.00)

GIVEN that the reactor is operating at steady state and that the electric pressure regulator is set at 930 psig and the turbine throttle pressure is 955 psig. WHICH ONE of the following states the current values for reactor pressure (RP) and steam flow (SF)? Use Attachment #1, Pressure-Steam Flow chart.

a. 945 psig RP, 32 % SF

b. 950 psig RP, 40 % SF

c. 956 psig RP, 48 % SF

d. 970 psig RP, 63 % SF

QUESTION: 057 (1.00)

The reactor is at full power conditions and the automatic depressurization system (ADS) is NOT actuated. WHICH ONE of the following describes the meaning of an illuminated green light above each safety relief valve (SRV) remote manual switch (RMS)?

a. The valve control switch is in AUTO position.

b. The valve solenoid open limit switch is energized.

c. There is a normal low temperature downstream of the valve.

d. There is a normal low noise level downstream of the valve.

QUESTION: 058 (1.00)

The reactor is at steady state full power conditions. Annunciator 903L B1 - AUTO BLOWDOWN RELIEF VALVE LEAKING alarms. Observation of tail pipe temperatures on recorder 260-20 indicate that SRV 203-4A is at 418 deg. F and increasing; all others are less than 195 deg. F. WHICH ONE of the following would be a verification that the SRV 203-4A is open?

a. Main steam line "A" flow has increased.

b. Main steam line "A" flow has decreased.

c. Main steam line "C" flow has increased.

d. Main steam line "C" flow has decreased.

QUESTION: 059 (1.00)

WHICH ONE of the following describes the power source to the backup scram valves and their response to a scram initiation condition?

a. The 120 VAC solenoids deenergize to vent the scram pilot valve air header (SPVAH).

b. The 120 VAC solenoids energize to vent the SPVAH.

c. The 125 VDC solenoids deenergize to vent the SPVAH.

d. The 125 VDC solenoids energize to vent the SPVAH.

QUESTION: 060 (1.00)

WHICH ONE of the following control rod drives, which have scram times greater than permitted by Technical Specifications (TS), is NOT counted as an inoperable control rod?

a. a control rod at position 48 which can be moved by normal drive pressure

b. a control rod at position 48 which is electrically isolated

c. a control rod at position 00 which can be moved by normal drive pressure

d. a control rod at position 00 which is electrically isolated

QUESTION: 061 (1.00)

The following hydraulic control unit directional control valve (DCV) actuation sequence is observed: DCV 121 and 123 energize for 0.5 seconds, then deenergize; the DCV 120 and 122 energize for about 1.5 seconds; the DCV 122 deenergizes and the 120 remains energized for an additional 6 seconds , then deenergizes. WHICH ONE of the following control rod movements results from the above sequence?

a. Single notch in

b. Single notch out

c. Continuous insertion

d. Continuous withdrawal

QUESTION: 062 (1.00)

Reactor start up is in progress. Control rod 12-24 is being withdrawn when a rod worth minimizer (RWM) withdraw block alarm is received; the rod settles to position 26. WHICH ONE of the following control rod manipulations is possible?

a. Insert control rod 12-24.

b. Select a control rod in a different group.

c. Select a different rod in this latched group and insert it one notch.

d. Select a different rod in this latched group and withdraw it one notch.

QUESTION: 063 1.00)

WHICH ONE of the following secondary containment parameters (EOP-04) exceeds the entry condition level?

a. High pressure coolant injection (HPCI) room temperature is 101 deg. F.

b. HPCI pump room floor water level is 1/2 inch.

c. HPCI turbine area temperature is 101 deg. F.

d. HPCI compartment H&V cooler temperature is 101 deg. F.

QUESTION: 064 (1.00)

The reactor is operating at full power. A Group 1 (MSIV) isolation occurs and no control rods insert due to blockage of the scram discharge volumes. Reactor pressure iw observed to have reached 1425 psig. WHICH ONE of the following will trip off or not start during this transient?

a. High pressure coolant injection (HPCI)

b. Residual heat removal (RHR) pumps

c. Reactor feed pumps

d. Reactor building closed cooling water pumps

QUESTION: 065 (1.00)

The reactor is operating at full power when the "A" recirculation pump trips. In following procedure 2.4.17, Recirculation Pump(s) Trip, WHICH ONE of the following states the conditions which may result from the trip and if observed would require that the reactor be immediately scrammed? Use Attachment #3, Power Flow Map.

a. The reactor is operating greater than 80% load line with greater than 31.5 Mlbs/hr flow.

b. Average power range monitor oscillations of 5% of rated power from peak to peak.

c. Three local power range monitors upscale annunciators alarm repeatedly.

d. Reactor pressure is oscillating 5 psig.

QUESTION: 066 (1.00)

Which one of the following describes the function of the core shroud?

a. Supports the 12 peripheral fuel bundles vertically and laterally

b. Transfers weight of the central fuel bundles to the bottom head

c. Provides for forced circulation of coolant through the core

d. Separates the upward core flow from the downward annular flow

QUESTION: 067 (1.00)

WHICH ONE of the following describes the expected indications for a plugged number one recirculation pump seal orifice?

a. Number one seal pressure decreases

b. Number one seal pressure increases

c. Number two seal pressure decreases

d. Number two seal pressure increases

QUESTION: 068 (1.00)

Given the following conditions:

- High pressure coolant injection (HPCI) is operating
- The flow test valve is throttled open
- The HPCI flow controller is in MANUAL
- The injection valve is closed
- The minimum flow valve is closed

WHICH ONE of the following states the effect on the pump discharge pressure and pump flow as the reactor pressure decreases from 960 to 150 psig? ASSUME no operator actions are taken.

a. The pressure decreases and the flow increases.

b. The pressure decreases and the flow remains constant.

c. The pressure remains constant and the flow remains constant.

d. The pressure remains constant and the flow decreases.

QUESTION: 069 (1.00)

WHICH ONE of the following describes the method used for determining the efficiency of a condensate demineralizer?

a. Perform a chemical analysis on the demineralizer outlet stream for silicates.

b. Determine the change in conductivity of the demineralizer from the inlet to the outlet streams.

c. Determine the change in chloride concentration for the demineralizer from the inlet to the outlet streams.

d. Determine the pressure drop of the demineralizer from the inlet to the outlet streams.

QUESTION: 070 (1.00)

The vital motor generator (MG) set is to be started. WHICH ONE of the following is the power supply which is used for start up of the vital MG set and which is the alternate power supply to run the MG set if the normal source is removed from service?

a. start - B-6; alternate - D-10

b. start - D-10; alternate - B-6

c. start - B-6; alternate - B-15

d. start - B-15; alternate - D-10

QUESTION: 071 (1.00)

WHICH ONE of the following describes the effect of a mechanical failure of the vital motor generator set?

a. Power to the vital bus loads is lost; manual switching is required to resupply power to the vital bus from bus 15.

b. Power to the vital bus loads is lost; manual switching is required to resupply power to the vital bus from bus 14.

c. Power to the vital bus loads is continuous; automatic switching supplies power to the vital bus from bus 14.

d. Power to the vital bus loads is continuous; automatic switching supplies power to the vital bus from bus 15.

QUESTION: 072 (1.00)

WHICH ONE of the following is a valid initiator for a turbine runback?

a. Stator cooling water inlet temperature is 65 deg. C.

b. Stator cooling water outlet temperature is 89 deg. C.

c. Stator cooling water inlet pressure is 14 psig.

d. Stator cooling water outlet pressure is 11 psig.

QUESTION: 073 (1.00)

A main turbine runback begins at time zero. Examine individually each of the four choices of stator amps and time after the runback started. WHICH ONE would cause a turbine trip? ASSUME no operator actions are taken.

a. Load is reduced to 14,840 amps at +2.0 minutes.

b. Load is reduced to 14,840 amps at +2.5 minutes.

c. Load is reduced to 4,400 amps at +3.0 minutes.

d. Load is reduced to 4,400 amps at +3.5 minutes

QUESTION: 074 (1.00)

The reactor is at full power and steady state. Instrument air pressure is gradually decreasing. WHICH ONE of the following describes the plant response? ASSUME that no operator actions are taken.

a. At 85 psig the scram inlet and outlet valves open due to the spring tension overcomming the air pressure; control rods scram in.

b. At 65 psig the scram pilot valve air header dump valves open to the preset spring tension on its switching valve; control rods scram in.

c. At 85 psig the service air header isolation valve (AO-4350) closes ~~automatically isolating the leak from the instrument air~~; control rods are not affected.

d. At 55 psig the service air header isolation valve (AO-4350) closes ~~automatically isolating the air leak~~; control rods are not affected.

QUESTION: 075 (1.00)

A rupture on an instrument air line results in the instrument air header pressure decreasing to 83 psig. WHICH ONE of the following automatic actions has NOT occurred yet?

a. Stand by reciprocating compressor starts

b. Lag rotary compressor starts

c. Instrument air dryer bypass valve (AO-4310) opens

d. Non-essential instrument air header isolation valve (AO-4365) closes

QUESTION: 076 (1.00)

WHICH ONE of the following radiation monitors is powered by the reactor protection system (RPS) bus?

a. Refuel floor ventillation exhaust

b. Control room ventillation intake

c. Air ejector off-gas

d. Post treatment (off-gas)

QUESTION: 077 (1.00)

The traversing incore probe (TIP) is currently performing an automatic scan. A valid isolation signal for the TIP has just been initiated. WHICH ONE of the following describes the response of the TIP system isolation signal?

a. The TIP sequence continues at fast speed.

b. The TIP sequence is interrupted and the ball valves close.

c. The TIP sequence is interrupted and the shear valve fires.

d. The TIP sequence is interrupted, the probes are retracted and the ball valves close.

QUESTION: 078 (1.00)

WHICH ONE of the following conditions of the augmented off gas (AOG) system requires an immediate scram of the reactor?

a. Off gas radiation levels are two times normal.

b. Off gas recombiner temperature is 1020 deg. F .

c. Hydrogen concentration upstream of the AOG system is decreasing.

d. Off gas flow is decreasing and reactor water conductivity is increasing.

QUESTION: 079 (1.00)

Procedure 5.2.2 High Winds directs you to reduce power to 130 MWe when the wind conditions reach velocities of 75 miles per hour or greater. WHICH ONE of the following states the basis for this action?

a. To limit thermal transients from a scram resulting from a failure of the unit auxilliary transformer.

b. To limit thermal transients from a scram resulting from a failure of the 345KV power lines.

c. To limit the load to the reject capability of the turbine generator system due to pending failure of the 345 KV lines.

d. To limit the load to the reject capability of the turbine generator system due to pending failure of the unit auxillary transformer.

QUESTION: 080 (1.00)

WHICH ONE of the following sets of plant parameters have ALL the designed reacto building isolation trip signals?

a. Reactor building greater than 1/4 inch of water pressure, drywell pressure 2.5 psig, reactor building radiation level is greater than 16 mRem/hour.

b. RPV level +9 inches, drywell pressure 2.5 psig, reactor building vent radiation level greater than 16 mRem/hr.

c. Reactor building greater than 1/4 inch of water pressure, drywell pressure 2.5 psig, RPV level +9 inches.

d. RPV level +9 inches, reactor building vent radiation level greater than 16 mRem/hr, reactor building greater than 1/4 inch of water pressure.

QUESTION: 081 (1.00)

The reactor is at full power. WHICH ONE of the following valve(s) are designed to fail open during a complete loss of instrument air?

a. feedwater reg. valves

b. main stack isolation valve

c main condenser vapor valves

d. feedwater heating system dump valves

QUESTION: 082 (1.00)

The reactor is shut down in hot standby. WHICH ONE of the following valves will fail open during a complete loss of instrument air?

a. RBCCW surge tank level control valve

b. CRD flow control valve

c. RWCU "let-down" valve (PCV-1239)

d. TBCCW temperature control valve

QUESTION: 083 (1.00)

The plant is at 100% power. WHICH ONE of the follow describes the effects of a total loss of 125 VDC power on the main steam isolation valves?

a. Loss of control and position indicating lights for all MSIVs

b. Loss of control to the inboard MSIVs

c. loss of control to the outboard MSIVs

d. loss of MSIV position indicating lights

QUESTION: 084 (1.00)

The plant was at 100% power. A small steam leak occurs which causes drywell pressure to increase to 3.0 psig. The reactor scrammed. During the resulting transient, reactor water level decreased to +5 inches before being restored to the normal band. WHICH ONE of the following lists the primary containment isolation system (PCIS) isolations that should have occurred?

a. Group 1 (MSIV) and Group 2 (primary containment)

b. Group 2 (primary containment) and Group 6 (reactor water cleanup)

c. Group 4 (high pressure coolant injection) and Group 5 (reactor core isolation cooling)

d. Group 3 (shutdown cooling) and Group 4 (high pressure coolant injection)

QUESTION: 085 (1.00)

WHICH ONE of the following states the basis for Tech. Spec. limits on recirculation pump speed mismatches?

a. APRM flow bias scram setpoint will be inaccurate

b. LPCI loop select circuit errors following a LOCA

c. Error limiting network locks in recirc. pump speed

d. Prevent temperature stratifications within the RPV

QUESTION: 086 (1.00)

The following plant conditions exist:

- core thermal power is 800 MWt
- core flow is 35 MLB/HR.
- RPV level normal
- RPV pressure normal

WHICH ONE of he following states the immediate operator action taken upon receipt of a valid off gas high radiation level alarm? Use Attachment # 3, Power flow Map.

a. Place the mode switch to SHUTDOWN position.

b. Insert control rods in reverse order of the pull sheet as necessary to reduce activity.

c. Reduce recirc. pump speed until the increase in activity is terminated OR the pumps reach minimum speed.

d. Reduce recirc. pump speed, maintaining core flow above 31.5 MLB/HR, until the increase in activity is terminated.

QUESTION: 087 (1.00)

WHICH ONE of the following actions should NOT be taken if Region "C" of the power to flow map is unintentionally entered? Use Attachment # 3, Power Flow Map.

a. Insert control rods to below the 80% load line.

b. Increase total core flow to greater than 33 MLB/HR.

c. Monitor for APRM oscillations.

d. Start the idle recirculation pump.

QUESTION: 088 (1.00)

The reactor is shutdown with the residual heat removal (RHR) shutdown cooling (SDC) mode providing core heat removal. The RHR experiences a system isolation. WHICH ONE of the following conditions caused the isolation?

a. Reactor water level is +46 inches.

b. Drywell temperature is 137 deg F.

c. Drywell pressure is 2.25 psig.

d. Reactor pressure is 105 psig.

QUESTION: 089 (1.00)

WHICH ONE of the following conditions would be a safety limit violation?

a. While operating at full power the HPCI and ADS systems are declared inoperable.

b. While operating at 70% power, the main turbine and reactor feed pumps have tripped on high level; the reactor scrams on main turbine trip

c. While operating at 22% power and the MHC pressure regulators fail. The reactor pressure drops to 830 psig before the MSIVs close and the reactor scrams.

d. While refueling the reactor, RPV level decreases to a low point of -118 inches before it is restored to -15 inches.

QUESTION: 090 (1.00)

The following conditions exist in the containment:

- Hydrogen concentration is unknown
- Oxygen concentration is 3%
- Torus water level is 290 inches

Proc. 5.4.6-1 Primary Containment Vent And Purge, directs the operators to vent the torus and purge containment with nitrogen. WHICH ONE of the following describes the basis for this action?

a. To reduce the containment pressure.

b. To reduce the containment temperature.

c. To prevent a deflagration in containment.

d. To comply with the limiting condition for operation for oxygen.

QUESTION: 091 (1.00)

Current conditions of the reactor require that boron be injected into the vessel per EOP-02, Failure To Scram. WHICH ONE of the following describes the basis for inhibiting ADS immediately before boron injection?

a. To prevent a loss of boron from the vessel resulting in a reactivity increase.

b. To prevent a rapid injection of cold, unborated water resulting in a rapid increase in power.

c. To prevent rapid cooldown during depressurization resulting in a reactivity excursion.

d. To prevent an increase in natural circulation resulting in decreased voiding and an increase in power.

QUESTION: 092 (1.00)

While a primary system is discharging into the reactor building, EOP-04, Secondary Containment Control, directs the operator to enter and perform EOP-01, RPV Control, concurrently before the temperature in the secondary containment reaches maximum safe operating value in any area. EOP-01 directs a scram. WHICH ONE of the following states the basis for this scram?

a. Prevents failure of the secondary containment structure due to high pressure.

b. Reduces the energy that the RPV may be discharging into secondary containment to decay heat levels.

c. Allows personnel access to the reactor building before the temperature becomes too high.

d. Avoids the need for an emergency depressurization.

QUESTION: 093 (1.00)

WHICH ONE of the following is the basis for the action in EOP-01, RPV Control, which directs that reactor pressure vessel pressure be controlled below 1085 psig with safety relief valves (SRVs) IF any SRVs are cycling?

a. Controls RPV pressure to within the capability of high pressure injection systems to inject.

b. Controls RPV pressure below the lowest SRV lift pressure.

c. Prevents RPV damage due to cyclic loading.

d. Prevents SRV seat damage from cycling.

QUESTION: 094 (1.00)

The reactor is at full power. These observations were noted during the daily jet pump operability check:

- Recirculation pump speeds are missmatched 4%.
- FLow difference between the two recirculation loops is 18%.

WHICH ONE of the following describes the jet pump delta pressure which verifies a failed jet pump nozzle or body?

a. 7% higher than the established jet pump delta pressure

a. 9% lower than the established jet pump delta pressure

c. 11% higher than the established jet pump delta pressure

d. 12% lower than the established jet pump delta pressure

QUESTION: 095 (1.00)

WHICH ONE of the following is the operators action for a control rod drifting out from notch 24 while the plant is at 67% power?

a. Perform an individual rod scram.

b. Insert the rod full in using the EMERG IN switch.

c. Withdraw the control rod full out and do a coupling check.

d. Apply a drive signal to attempt to relatch the control rod drive.

QUESTION: 096 (1.00)

WHICH ONE of the following is a basis for allowing operators to initiate drywell sprays regardless of whether adequate core cooling is assured?

a. To maintain torus water level below the vacuum breakers.

b. To prevent excessive drywell-to-torus differential pressure.

c. To maintain drywell pressure below the Drywell Spray Initiation Limit.

d. To reduce the consequences of a deflagration of hydrogen and oxygen in containment.

QUESTION: 097 (1.00)

The reactor is operating at 95% power. The main condenser vacuum is at 26.5 inches Hg AND slowly decreasing. WHICH ONE of the following is an immediate operator action?

a. Manually scram the reactor.

b. Start the idle seawater pump.

c. Runback recirculation pumps to minimum.

d. Insert control rods in reverse order of pull sheet.

QUESTION: 098 (1.00)

The reactor core isolation cooling (RCIC) system is running as a result of a valid initiation signal and has operated for 15 minutes. The following conditions now exist:

- RCIC Steam Line Flow 175%
- RCIC Area Temperature 145 deg. F
- Reactor Pressure 125 psig
- Reactor Level +49 inches

WHICH ONE of the following is the RCIC system response?

a. Steam Line Isolation Valves, MO-1301-16 and -17, close.

b. Minimum Flow Valve, MO-1301-60, opens.

c. Governor valve, closes

d. Steam to turbine supply Valve, MO-1301-61, closes.

QUESTION: 099 (1.00)

The nuclear watch engineer (NWE) has just ordered an evacuation of the main control room. WHICH ONE of the following is NOT an immediate operator action?

a. Trip the recirculation pumps

b. Place mode switch in SHUTDOWN

c. Trip the main turbine

d. Trip the reactor feed pumps

QUESTION: 100 (1.00)

The reactor is in a hot shutdown condition. Reactor recirculation pump "A" is shut down. The pump suction and discharge valves are closed. WHICH ONE of the following describes the results from maintaining the seal purge flow to the pump seals?

a. Thermal damage to the seal elastomeres.

b. Overpressurization of the pump casing.

c. Erosion corosion of the seals while they are not rotating.

d. Damage to control rod drive stub tubes from the cool purge water in the loop as the pump is restarted.

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

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

001	a	b	c	d	_____
002	a	b	c	d	_____
003	a	b	c	d	_____
004	a	b	c	d	_____
005	a	b	c	d	_____
006	a	b	c	d	_____
007	a	b	c	d	_____
008	a	b	c	d	_____
009	a	b	c	d	_____
010	a	b	c	d	_____
011	a	b	c	d	_____
012	a	b	c	d	_____
013	a	b	c	d	_____
014	a	b	c	d	_____
015	a	b	c	d	_____
016	a	b	c	d	_____
017	a	b	c	d	_____
018	a	b	c	d	_____
019	a	b	c	d	_____
020	a	b	c	d	_____
021	a	b	c	d	_____
022	a	b	c	d	_____
023	a	b	c	d	_____
024	a	b	c	d	_____
025	a	b	c	d	_____

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

07	a	b	c	d	_____
027	a	b	c	d	_____
028	a	b	c	d	_____
029	a	b	c	d	_____
030	a	b	c	d	_____
031	a	b	c	d	_____
032	a	b	c	d	_____
033	a	b	c	d	_____
034	a	b	c	d	_____
035	a	b	c	d	_____
036	a	b	c	d	_____
037	a	b	c	d	_____
038	a	b	c	d	_____
039	a	b	c	d	_____
040	a	b	c	d	_____
041		b	c	d	_____
042	a	b	c	d	_____
043	a	b	c	d	_____
044	a	b	c	d	_____
045	a	b	c	d	_____
046	a	b	c	d	_____
047	a	b	c	d	_____
048	a	b	c	d	_____
049	a	b	c	d	_____
050	a	b	c	d	_____

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

051	a	b	c	d	_____
052	a	b	c	d	_____
053	a	b	c	d	_____
054	a	b	c	d	_____
055	a	b	c	d	_____
056	a	b	c	d	_____
057	a	b	c	d	_____
058	a	b	c	d	_____
059	a	b	c	d	_____
060	a	b	c	d	_____
061	a	b	c	d	_____
062	a	b	c	d	_____
063	a	b	c	d	_____
064	a	b	c	d	_____
065	a	b	c	d	_____
066	a	b	c	d	_____
067	a	b	c	d	_____
068	a	b	c	d	_____
069	a	b	c	d	_____
070	a	b	c	d	_____
071	a	b	c	d	_____
072	a	b	c	d	_____
073	a	b	c	d	_____
074	a	b	c	d	_____
075	a	b	c	d	_____

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

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

076	a	b	c	d	_____
077	a	b	c	d	_____
078	a	b	c	d	_____
079	a	b	c	d	_____
080	a	b	c	d	_____
081	a	b	c	d	_____
082	a	b	c	d	_____
083	a	b	c	d	_____
084	a	b	c	d	_____
085	a	b	c	d	_____
086	a	b	c	d	_____
087	a	b	c	d	_____
088	a	b	c	d	_____
089	a	b	c	d	_____
090	a	b	c	d	_____
091	a	b	c	d	_____
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 **********)

ANSWER: 001 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: TS 3.6.B Coolant Chemistry Bases, Rev. 0, p. 140.
2. 294001A114 (2.9/3.4), p. 2-2.

294001A114 ..(KA's)

ANSWER: 002 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.91 Process Computer Op. Proc., Rev. 5, p. 10.
2. 294001A115 (3.2/3.4), p. 2-2.

294001A115 ..(KA's)

ANSWER: 003 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: LP T-ER-01-01-30 Em. Resp. Trng. Prog., Rev. 4, p. 1561T/21.
2. 294001A116 (2.9/4.7), p. 2-2.

294001A116 ..(KA's)

ANSWER: 004 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.84 Reactor Recirc., Rev. 32, pp. 29 & 31.
2. PNPS: O-RO-06-01-04 LCO, p. IG-17, ELO-9.
3. PNPS: Proc. 1.3.4 Procedures, Rev. 41, pp. 13 & 31.
4. 294001A102 (4.2/4.2), p. 2-2.

294001A102 ..(KA's)

ANSWER: 005 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 1.3.10 Key Control, Rev. 20, p. 6.
2. 294001K105 (3.2/3.7), p. 2-1.

294001K105 ..(KA's)

ANSWER: 006 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Technical Specifications 3.2 Bases, page 73b, Rev. 109.
2. PNPS: LP, O-RO-02-08-04, Primary Containment Cooling, IG-6-8/89, ELO 2 & 13.
3. 295011G004 (3.1/4.1), p. 4.2-36.

295011G004 ..(KA's)

ANSWER: 007 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: TS Bases 3.5.A Core Spray and LPCI Subsystems, Rev. 112, p. 113.
2. PNPS: LP O-RO-06-01-03, Limiting Conditions for Operation, p. IG-24, ELO 4.
3. 295031G004 (3.0/4.3), p. 4.1-22.

295031G004 ..(KA's)

ANSWER: 008 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: TS 3.5.D.1 & Bases 3.5.D, RCIC System, pp. 108 & 117.
2. 217000G005 (3.3/4.3), p. 3.2-28.

217000G005 ..(KA's)

ANSWER: 009 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.80 Reactor Vessel Level, Temperature and Pressure Instr., Rev. 10, p. 6.1.
2. PNPS: TS 3.2.F, Amend. 89, pp. 44, 54 & 55.
3. 216000G011 (3.2/4.2), p. 3.7-15.

216000G011 ..(KA's)

ANSWER: 010 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: TS Bases 3.5.C & 3.5.E, Rev. 112/Amend. 15, pp. 116 & 118.
2. 218000G006 (3.3/4.2), p. 3.3-3.

218000G006 ..(KA's)

ANSWER: 011 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.8 Standby AC Pwr. Sys., Rev. 23, p. 14.
2. 295003G006 (3.8/4.0), p. 4.2-10.

295003G006 ..(KA's)

ANSWER: 012 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Facility Question, 53760/58.
2. PNPS: LP O-RO-02-06-03 CRDS, p. IG-29-8/89, ELO-32.
3. 201006K402 (3.5/3.5), p. 3.7-35.

201006K402 ..(KA's)

ANSWER: 013 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.6 4160 AC, Rev. 14, p. 10, Prerequisites.
2. PNPS: TS 3.9.B.6 Operation With Inop Equip., Rev 136, p.197.
3. 262001A209 (3.1/3.4), p. 3.6-3.

262001A209 ..(KA's)

ANSWER: 014 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: TS 3.2.C.1 Instr. for Initiation of Rod Blocks, Rev. 139, p. 54.
2. 215002G011 (3.5/4.3), p. 3.7-25.

215002G011 ..(KA's)

ANSWER: 015 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: TS 1.2 Bases, Amend. 73, p. 23.
2. 290002G010 (3.2/3.4), p. 3.5-16.

290002G010 ..(KA's)

ANSWER: 016 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.4.33 Cond. Chloride Intrusion, Rev. 4, pp. 3 & 6.
2. 295006G010 (4.1/4.2), p. 4.2-20.

295006G010 ..(KA's)

ANSWER: 017 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: Facility Question, 50140/10.
2. PNPS: Proc. 2.2.102 Gen. Gas Control, Rev. 20, Est. Capability Curves, p.58.
3. 245000A414 (2.5/2.5), p. 3.4-10.

245000A414 ..(KA's)

ANSWER: 018 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: Facility Question 52170/42.
2. PNPS: SRT 4850/12 RMC/RPIS, Book 2, p. RMC-10-5/89.
3. 201002K403 (3.6/3.6), p. 3.1-11.

201002K403 ..(KA's)

ANSWER: 019 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.83 RWCU, Rev. 28, p. 12.
2. 204000G010 (3.2/3.2), p. 3.2-41.

204000G010 ..(KA's)

ANSWER: 020 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: SRO Aug Course LP O-RO-066-01-03, IG-26.
2. 295024G008 (3.6/4.4), p. 4.1-3.

295024G008 ..(KA's)

ANSWER: 021 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: Sim. LP IM EOP 2 Failure to Scram, p.IG-8-5/89
2. 295037K303 (4.1/4.5), p. 4.1-37.

295037K303 ..(KA's)

ANSWER: 022 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: EOP-03 Primary Containment Control, Fig. 3.6.
2. 295026G007 (3.4/3.8), p. 4.1-10.

295026G007 ..(KA's)

ANSWER: 023 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: EOP-05.
2. PNPS: SIM LP EOP-05 Radioactivity Release Control, ELO-02.
2. 295017K301 (3.6/3.9), 4.2-51.

295017K301 ..(KA's)

ANSWER: 024 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Sim. LP EOP-02 Failure To Scram, p. IG-15-5/89.
2. 295031K302 (4.4/4.7), 295031K304 (4.0/4.3), p. 4.1-21.

295031K304 295031K302 ..(KA's)

ANSWER: 025 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: EOP-03 Primary Containment Control.
2. PNPS: TS 3.7.A.1.e and 3.7.A.1.f.
3. 295013G003 (3.3/4.2), p. 4.2-40.

295013G003 ..(KA's)

ANSWER: 026 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: T-ER-01-01-30 Em. Resp. Trng. Prgm., Rev. 4, p. 1561T/11.
2. 294001A116 (2.9/4.7), p.

294001A116 ..(KA's)

ANSWER: 027 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: LP T-ER-01-01-11 E Plan Trng. for ROs and STAs, Rev. 2, 1550T/42.
2. 294001A116 (2.9/4.7)

294001A116 ..(KA's)

ANSWER: 028 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 1.4.9 Storage Handling, and Disposal of Sodium Pentaborate, Rev. 7, p. 8.
2. 294001K110 (3.1/3.4), p.2-1.

294001K110 ..(KA's)

ANSWER: 029 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.84 Rx. Recirculation, Rev. 32, p. 19.
2. 294001K106 (3.2/3.4), p. 2-1.

294001K106 ..(KA's)

ANSWER: 030 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 6.1-212 Exposure Control, Rev. 2, p. 7.
2. 294001K104 (3.3/3.6), p. 2-1.

294001K104 ..(KA's)

ANSWER: 031 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 6.1-024 Radiological Posting, Rev. 16, p.16 & 17.
2. 294001K103 (3.3/3.8), p. 2-1.

294001K103 ..(KA's)

ANSWER: 032 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: TS 4.6.B.3.b. Coolant Chemistry, Amend. 42, p. 125.
2. 294001A114 (2.9/3.4), p. 2-2.

294001A114 ..(KA's)

ANSWER: 033 (1.00)

b. [+1.0]

REFERENCE:

1. 10 CFR 26.
2. PNPS Proc. 1.3.61-1 Fitness For Duty (Unscheduled Work), Rev. 1, p. 4.
3. 294001A103 (2.7/3.7), p. 2-2.

294001A103 ..(KA's)

ANSWER: 034 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: SRT 41940 Halon Fire Protection System, pp. 18 &19.
2. PNPS: O-RO-02-10-01 Fire Protection System, p. 5-6/89, ELO 3 & 17.
3. 294001K116 (3.5/3.8), p. 2-1.

294001K116 ..(KA's)

ANSWER: 035 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: TS 3.6 Primary System Boundary, p. 122, Amend. 62.
2. PNPS: LP O-RO-02-06-01 Non Nuclear Inst., p. IG-23-4/89, ELO 18.
3. PNPS: Proc. 2.1.6 Reactor Scram, Rev. 28, p. 8.
4. 294001A108 (3.1/3.6), p. 2-2.

294001A108 ..(KA's)

ANSWER: 036 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.84 Rx. Recirculation Sys., Rev. 32, p. 19, [4].
2. 294001K106 (3.2/3.4), p. 2-1.

294001K106 ..(KA's)

ANSWER: 037 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 1.3.34 Conduct of Operations, Rev. 28, p. 24, 6.5.[6].(a).
2. 294001K102 (3.9/4.5), p. 2-1.

294001K102 ..(KA's)

ANSWER: 038 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-08-01, Primary Containment System, ELO 21, p. IG-50-9/89.
2. 294001K114 (3.2/3.4), p. 2-4.

294001K114 ..(KA's)

ANSWER: 039 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Systems Ref. Text book 5, RHR system 1001, RHR pp. 30 & 31.
2. PNPS: LP O-RO-02-09-01, p. 5-7/89, ELO 9 & 11.
3. 295031K205 (4.2/4.3), p. 4.1-21.

295031K205 ..(KA's)

ANSWER: 040 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Systems Ref. Text book 5, p. RHR-31.
2. PNPS: LP O-RO-02-09-01, LPCI & RHR, p. IG-16-7/89, ELO 9.
3. PNPS: LP O-RO-02-08-01, Primary Containment, IG-61-9-89, ELO 34.
4. 203000A301 (3.8/3.7), p. 3.2-52.

203000A301 ..(KA's)

ANSWER: 041 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-09-02, pp. IG-4-3/89 & IG-6-8/89, ELO 4 & 5.
2. K/A# 209001A301 (3.6/3.6), 209001A302 (3.8/3.7), p. 3.2-15.

209001A302 209001A301 ..(KA's)

ANSWER: 042 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: TS 3.6.C. Coolant Leakage, Amend. 42, p.125.
2. PNPS: O-RO-06-01-03 LLO, p. IG-33, ELO-3.
3. 223001G005 (3.3/4.1), p. 3.5-5.

223001G005 ..(KA's)

ANSWER: 043 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: SRT Book 3, Feedwater Control System, FWCS-29-5/89.
2. PNPS: O-RO-02-06-02 Recirculation System, p. IG-10-5/90, ELO-34c.
3. K/A 202002K402 (3.0/3.0), p.3.1-16.

202002K402 ..(KA's)

ANSWER: 044 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: O-RO-02-09-03 HPCI, p. IG-9-7/89 & IG-10-7/89, ELO 5 & 16.
2. K/A 206000K418 (3.2/3.3). p. 3.2-2.

206000K418 ..(KA's)

ANSWER: 045 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP HPCI, P. IG-26-7/89 & [illegible]-7/89, ELO-10.
2. PNPS: LP Prim. Cont., p. IG-26-9/89, ELO-34.
3. K/A 206000A309 (4.2/4.1), p.3.2-4.

206000A309 ..(KA's)

ANSWER: 046 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: TS SLC, 3.4.C & 4.4.A.2.b, Rev. 106, pp. 95 & 97.
2. PNPS: O-RO-02-06-06 SLC, p. IG-3-6/89, ELO-9.
3. 211000G006 (3.1/4.2), p. 3.1-34.

211000G006 ..(KA's)

ANSWER: 047 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: O-RO-02-06-06 SLC, p. IG-5-6/89.
2. 211000G004 (4.1/4.1), p. 3.1-34.

211000G004 ..(KA's)

ANSWER: 048 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-07-01 NMS, p. IG-28-6/89, ELO-67.
2. 215005A405 (3.4/3.4), p. 3.7-4.

215005A405 ..(KA's)

ANSWER: 049 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-05-01 Main Turbine, p. IG-22-5/89, ELO-73.
2. 212000A215 (3.7/3.8), p. 3.7-20.

212000A215 ..(KA's)

ANSWER: 050 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-07-02 RPS, p. IG-12-6/89, ELO-14.
2. 212000K412 (3.9/4.1), p. 3.7-18.

212000K412 ..(KA's)

ANSWER: 051 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-06-01 Non-nuclear Instr., p. IG-18-4/89, ELO-2.
2. 216000K501 (3.1/3.2), p. 3.7-13.

216000K501 ..(KA's)

ANSWER: 052 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.80 Reactor Vessel Level, Temperature and Pressure Instr., Rev. 10, p. 6.
2. 216000K510 (3.1/3.3), p. 3.7-13.

216000K510 ..(KA's)

ANSWER: 053 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-09005 ADS, p. IG-5-7/89, ELO-12 &-14.
2. 218000A405 (4.2/4.2), p.3.3-3.

218000A405 ..(KA's)

ANSWER: 054 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-04-01 Main Steam, p. IG-7-4/89, ELO-14.
2. 223002K101 (3.8/3.9), 3.5-7.

223002K101 ..(KA's)

ANSWER: 055 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.19 Residual Heat Removal, Rev. 35, p.18, Precautions [6] & [7].
2. 226001G010 (3.2/3.4), p. 3.5-27.

226001G010 ..(KA's)

ANSWER: 056 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-05-01 Main Turbine Sys., Fig. 1, Rev. 1.
2. PNPS: LP O-RO-02-05-01 Main Turbine Sys., p. IG-16-5/89, ELO-58.
3. 241000A101 (3.9/3.8), 241000A105 (3.5/3.6), p. 3.3-15.

241000A105 241000A101 ..(KA's)

ANSWER: 057 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: SRT ADS, Rev. 6-90, bk. 5, p. ADS-9.
2. PNPS: O-RO-02-04-01 Main Steam, pp. IG-5-4/89 & IG-22-4/89, ELO-7 & -8.
3. 239002A407 (3.6/3.6), 3.3-21.

239002A407 ..(KA's)

ANSWER: 058 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-04-01 Main Steam, pp. IG-3-4/89, IG-22-4/89 & IG-4-4/89, ELO-25.
2. PNPS: Proc. 2.4.29 Stuck Open S/RV, Rev. 12,p. 2.
3. 239002A203 (4.1/4.2), p. 3.3-21.

239002A203 ..(KA's)

ANSWER: 059 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: SRT 4860/42 RPS, p. RPS-8-5/89.
2. pnps: lp O-RO-02-07-02 RPS/ATWS, p. IG-6-6/89, ELO-6.
3. 201001K203 (3.5/3.6), p. 3.1-1.

201001K203 ..(KA's)

ANSWER: 060 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.87 CRDS, Rev. 38, p. 17.
2. PNPS: TS 3.3.A Reactivity control, Rev. 129, p. 81.
3. 295006G003 (3.8/4.4), p. 4.2-20.

295006G003 ..(KA's)

ANSWER: 061 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: SRT 4850/9 RPIS, Book 2, p. RMC-7.
2. 201001K410 (3.1/3.0)

201001K410 ..(KA's)

ANSWER: 062 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-06-03 CRD, p. IG-29-8/89, ELO-29.
2. 201006K510 (3.2/3.3), p. 3.7-36.

201006K510 ..(KA's)

ANSWER: 063 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Facility Question, 48530/19, (altered).
2. PNPS: EOP-04, Rev. 0.
3. 295032G011 (4.1/4.2), p. 4.1-26.

295032G011 ..(KA's)

ANSWER: 064 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Facility Question 48530/17.
2. PNPS: LP O-RO-02-04-02 Cond./Feedwater, p. TP-25-8/89.
3. 295025K106 (3.5/3.6), p. 4.1-5.

295025K106 ..(KA's)

ANSWER: 065 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Facility Question 49300/39.
2. PNPS: Proc. 2.4.17 Recirc. Pump(s) Trip, Rev 12, p.4.
3. PNPS: Annunciator 905R I3, LPRM HIGH, Rev. 4.
4. 295001K304 (3.4/3.6), p. 4.2-1.

295001K304 ..(KA's)

ANSWER: 066 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Facility Question, 493000/48.
2. PNPS: LP O-RO-02-06-01 Non-nuclear Instr., p. IG-7-4/89, ELO-16.
3. 290002G004 (3.2/3.3), p. 3.5-15.

290002G004 ..(KA's)

ANSWER: 067 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-06-02 Recirc., Fig. 9, ELO-13.
2. 202001G007 (3.8/3.8), p. 3.1-24.

202001G007 ..(KA's)

ANSWER: 068 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: LP HPCI, p. IG-16-7/89 through IG-19-7/89, ELO-16.
2. 295008A104 (3.5/3.5), p. 4.2-26.

295008K305 ..(KA's)

ANSWER: 069 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.5.2.127 Cond. & Demineralizer Operations. (facility question).
2. PNPS: Proc. 2.4.33 Condenser Chloride Intrusion, Rev. 4, p. 3.
3. 256000G007 (3.4/3.4), p. 3.2-23.

256000G007 ..(KA's)

ANSWER: 070 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-01-02 AC Elec. Distr., p. IG-16-9/89, ELO-34.
2. 262002K601 (2.7/2.9), p. 3.6-16.

262002K601 ..(KA's)

ANSWER: 071 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-01-02 AC Elec. Distr., p. IG-16-9/89, ELO-37b.
2. 262002K401 (3.1/3.4), p. 3.6-16.

262002K401 ..(KA's)

ANSWER: 072 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Facility Question 52170/58
2. PNPS: SRT 1400/25 Main Turbine, Book 4, p. MT-23-4/89.
3. 245000K605 (2.9/2.9), p. 3.4-9.

245000K605 ..(KA's)

ANSWER: 073 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: SRT 1400/25 Main Turbine, Book 4, p. MT-23-4/89.
2. PNPS: LP Main Turbine, p. IG-34-5/89, ELO-21.
3. 245000K405 (2.9/3.0), p. 3.4-8.

245000K405 ..(KA's)

ANSWER: 074 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Facility Question 52170/50.
2. PNPS: LP O-RO-02-07-02 RPS/ATWS, p. IG-4-6/89, ELO-10.
3. PNPS: P&ID M220.
4. 295019K201 (3.8/3.9), p. 4.2-59.

295019K201 ..(KA's)

ANSWER: 075 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP O-RO-02-02-04 Instr. & HP Air, p. all, ELO-7.
2. 295019K303 (3.2/3.2), p. 4.2-59.

295019K303 ..(KA's)

ANSWER: 076 (1.00)

a. [+1.0]
also accept c. 2P

REFERENCE:

1. PNPS: LP O-RO-02-03-02 PRM, p. TP-8, ELO-3k.
2. 272000K603 (2.8/3.0), p. 3.9-15.

272000K603 ..(KA's)

ANSWER: 077 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: SRT TIP, p. TIP-19-5/89.
2. 215001K401 (3.4/3.5), p. 3.7-43.

215001K401 ..(KA's)

ANSWER: 078 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Proc, 2.4.141 Abnormal Recombiner Operation, Rev. 10, p. 2.
2. 295006G010 (4.1/4.2), p. 4.2-20.

295006G010 ..(KA's)

ANSWER: 079 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 5.2.2 High Winds, Rev. 14, p. 2.
2. 295003G007 (3.8/4.1), p. 4.2-20.

295003G007 ..(KA's)

ANSWER: 080 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Facility Question
2. PNPS: SRT 40990/18 RB HVAC, p. RBV-15-5/89.
3. 295034K204 (3.9/3.9), p. 4.1-31.

295034K204 ..(KA's)

ANSWER: 081 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: SRT I&HP Air, Book 3, p. AIR-21-4/89.
2. 295019K2031 (3.?/3.3), p. 4.2-59.

295019K203 ..(KA's)

ANSWER: 082 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: SRT I&HP Air, Book 3, p. AIR-21-4/89.
2. 295019K202 (?.9/3.0), p. 4.2-59.

295019K202 ..(KA's)

ANSWER: 083 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP Main Steam, p. IG-18-4/89, ELO-21.
2. PNPS: LP Main Steam, p. IG-9-4/89 & TP-11.
3. 295004A204 (3.2/3.3), p. 4.2-13.

295004A204 ..(KA's)

ANSWER: 084 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: SRT PCIS, Book 1, Fig. 2 & 6.
2. 295024K207 (3.9/3.9), p. 4.1-1.

295024K207 ..(KA's)

ANSWER: 085 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: LO JPM-39.
2. PNPS: TS
2. 295009G004 (3.3/4.2), p. 4.2-30.

295009G004 ..(KA's)

ANSWER: 086 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.4.40 Rapid Inc. in OG Activity, Rev. 10, p. 2.
2. 295038G010 (3.8/3.6), p. 4.1-42.

295038G010 ..(KA's)

ANSWER: 087 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.84 Reactor Recirc. Sys., Rev.32, p. 21.
2. 295001A101 (3.5/3.6), p. 4.2-1.

295001A101 ..(KA's)

ANSWER: 088 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: SRT RHR, Book 1, p. PCIS-15 3/89.
2. 295021A206 (3.2/3.3), p. 4.2-68.

295021A206 ..(KA's)

ANSWER: 089 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: TS 1.1.D Safety Limits.
2. 295009G003 (3.3/4.2), p. 4.2-30.

295009G003 ..(KA's)

ANSWER: 090 (1.00)

c. [+1.0]

REFERENCE:

1. PNPS: Proc. 5.4.6 Pri. Cont. Vent & Purge, Rev. 22, p.4.
2. 295010A105 (3.1/3.4), p. 4.2-31.

295010A105 ..(KA's)

ANSWER: 091 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Sim. LP EOP-02 Failure to Scram, p. IG-35-5/89.
2. 295014A203 (4.0/4.3), p.4.2-42.

295014A203 ..(KA's)

ANSWER: 092 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: EOP-04.
2. PNPS: Sim. LP EOP-04 Sec. Cont. Control, p. SG-8-5/89.
32. 295032K302 (3.6/3.8), p. 4.1-25.

295032K302 ..(KA's)

ANSWER: 093 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Sim. LP EOP-01 RPV Control, p. IG-23-5/89.
2. PNPS: EOP-01.
3. 295007K304 (4.0/4.1), p.4.2-23.

295007K304 ..(KA's)

ANSWER: 094 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: TS & Bases 3.6.E, pp. 127, 147 & 147a.
2. 295001G008 (3.5/4.2), p. 4.2-2.

295001G008 ..(KA's)

ANSWER: 095 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.4.11 CRD Malfunctions, Rev. 5, p. 7.
2. 295014A103 (3.5/3.5) (I/I)

295014A103 ..(KA's)

ANSWER: 096 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Sim. LP EOP-3 Prim. Cont. Control, p. IG-21-5/89.
2. 295024A117 (3.9/3.9), p. 4.1-2.

295024A117 ..(KA's)

ANSWER: 097 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.4.36 Decr. Cond. Vacuum, Rev. 10, p. 2.
2. 295002K309 (3.2/3.2), p. 4.2-5.

295002K309 ..(KA's)

ANSWER: 098 (1.00)

d. [+1.0]

REFERENCE:

1. PNPS: LP RCIC, p. IG-4-7/89, ELO-12.
2. 295008K206 (3.4/3.6), p. 4.2-25.

295008K206 ..(KA's)

ANSWER: 099 (1.00)

a. [+1.0]

REFERENCE:

1. PNPS: 2.4.143 Shutdown From Outside the CR, Rev. 9, pp. 3 & 4.
2. 295016G010 (3.8/3.6), p. 4.2-50.

295016G010 ..(KA's)

ANSWER: 100 (1.00)

b. [+1.0]

REFERENCE:

1. PNPS: Proc. 2.2.84 Reactor Recirc., Rev. 32, pp. 12 & 31.
2. 295018G007 (3.2/3.4), p. 4.2-56.
   295018G007 ..(KA's)

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

A N S W E R K E Y

001	a
002	b
003	b
004	c
005	c
006	d
007	d
008	a
009	d
010	c
011	b
012	b
013	c
014	a
015	d
016	a
017	a
018	a
019	c
020	b
021	a
022	c
023	c
024	d
025	d

ANSWER KEY

026	b
027	c
028	c
029	b
030	c
031	c
032	c
033	b
034	c
035	b
036	a
037	d
038	c
039	b
040	d
041	a
042	c
043	d
044	d
045	a
046	d
047	c
048	b
049	d
050	d

ANSWER KEY

051 a

052 a

053 b

054 a

055 d

056 d

057 a

058 b

059 d

060 d

061 b

062 a

063 d

064 c

065 c

066 d

067 c

068 c

069 b

070 a

071 d

072 b

073 b

074 c

075 d

ANSWER KEY

076	a also accept c 2R3
077	d
078	b
079	c
080	b
081	d
082	a
083	d
084	b
085	b
086	c
087	d
088	d
089	d
090	c
091	b
092	b
093	b
094	d
095	d
096	d
097	d
098	d
099	a
100	b

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

QUESTION	VALUE	REFERENCE
001	1.00	8000001
002	1.00	8000002
003	1.00	8000003
004	1.00	8000004
005	1.00	8000005
006	1.00	8000006
007	1.00	8000007
008	1.00	8000008
009	1.00	8000009
010	1.00	8000010
011	1.00	8000011
012	1.00	8000012
013	1.00	8000013
014	1.00	8000014
015	1.00	8000015
016	1.00	8000016
017	1.00	8000017
018	1.00	8000018
019	1.00	8000019
020	1.00	8000020
021	1.00	8000021
022	1.00	8000022
023	1.00	8000023
024	1.00	8000024
025	1.00	8000025
026	1.00	8000051
027	1.00	8000052
028	1.00	8000053
029	1.00	8000054
030	1.00	8000055
031	1.00	8000056
032	1.00	8000057
033	1.00	8000058
034	1.00	8000059
035	1.00	8000060
036	1.00	8000061
037	1.00	8000062
038	1.00	8000063
039	1.00	8000064
040	1.00	8000065
041	1.00	8000066
042	1.00	8000067
043	1.00	8000068
044	1.00	8000069
045	1.00	8000070
046	1.00	8000071
047	1.00	8000072
048	1.00	8000073
049	1.00	8000074
050	1.00	8000075
051	1.00	8000076
052	1.00	8000077
053	1.00	8000078
054	1.00	8000079

QUESTION	VALUE	REFERENCE
055	1.00	8000080
056	1.00	8000081
057	1.00	8000082
058	1.00	8000083
059	1.00	8000084
060	1.00	8000085
061	1.00	8000086
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063	1.00	8000088
064	1.00	8000089
065	1.00	8000090
066	1.00	8000091
067	1.00	8000092
068	1.00	8000093
069	1.00	8000094
070	1.00	8000095
071	1.00	8000096
072	1.00	8000097
073	1.00	8000098
074	1.00	8000099
075	1.00	8000100
076	1.00	8000101
077	1.00	8000102
078	1.00	8000103
079	1.00	8000104
080	1.00	8000105
081	1.00	8000106
082	1.00	8000107
083	1.00	8000108
084	1.00	8000109
085	1.00	8000110
086	1.00	8000111
087	1.00	8000112
088	1.00	8000113
089	1.00	8000114
090	1.00	8000115
091	1.00	8000116
092	1.00	8000117
093	1.00	8000118
094	1.00	8000119
095	1.00	8000120
096	1.00	8000121
097	1.00	8000122
098	1.00	8000123
099	1.00	8000124
100	1.00	8000125
	100.00	
	100.00	

ATTACHMENT 3

QUESTION 8.0: (1.00 Points)

A loss of coolant (LOCA) has occurred in conjunction with a failure of offsite power. WHICH ONE of the following states the sequence of equipment automatically started after both emergency diesel generators start?

a. The first two residual heat removal (RHR) pumps, then the core spray pumps, then the turbine building closed cooling water (TBCCW) pump "A", then the second two RHR pumps, then the salt service water (SSW) pump "A"

b. The first two RHR pumps, then the second two RHR pumps, then the core spray pumps, then the TBCCW pump "A" and the SSW "A" pump

c. Core spray pumps, then the first two RHR pumps, then the second two RHR pumps, then the TBCCW pump "A" and the SSW "D" pump

d. Core spray pumps, then the first two RHR pumps, then the SSW "A" pump, then the second two RHR pumps, then the TBCCW pump "A"

ANSWER:

b.

COMMENTS:

8. We recommend that answer (c) be accepted as the correct answer. The answer key appears to be a typo, as (c) is the only correct answer.

REFERENCE:

PNPS Reference Text EACBOD, page EACBOD-17-9/89.
PNPS Procedure 2.4.16, Distribution Alignment Electrical System Malfunctions, Attachment 4, Sheet 1.

QUESTION 76.0: (1.00 Points)

WHICH ONE of the following radiation monitors is powered by the reactor protection system (RPS) bus?

a. Refuel floor ventillation exhaust

b. Control room ventillation intake

c. Air ejector off-gas

d. Post treatment (off-gas)

ANSWER:

a.

COMMENTS:

76. We recommend that answer (c) also be accepted as correct. Both the Refuel Floor ventillation exhaust and the Air Ejector off-gas PRMs are powered from RPS.

REFERENCE:

PNPS PRM Reference Text, page PRM-32-5/89.
PNPS LP O-RO-02-03-02 PRM, page TP-5.
PNPS Procedure 2.2.79, Reactor Protection System, Attachment 2, Sheet 2 of 2

QUESTION 94.0: (1.00 Points)

The reactor is at full power. These observations were noted during the daily jet pump operability check:

- Recirculation pump speeds are mismatched 4%
- Flow difference between the two recirculation loops is 18%

WHICH ONE of the following describes the jet pump delta pressure which verifies a failed jet pump nozzle or body?

a. 7% higher than the established jet pump delta pressure

b. 9% lower than the established jet pump delta pressure

c. 11% higher than the established jet pump delta pressure

d. 12% lower than the established jet pump delta pressure

ANSWER:

d.

COMMENTS:

94. We recommend that this question be deleted for the RO license candidates for the following reasons:

a. The BWR K/A catalog concerning Partial or Complete Loss of Forced Core Flow Circulation states that the RO must have the "ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications". (K/A 295001G008)

The daily jet pump operability test, for the conditions given in the question, would prompt the RO to notify the NWE that PNPS 8.6.5.1 must be performed (see Daily Log Test #6 of 2.1.15, Attachment 2, step 2.A.2.b).

Per 8.6.5.1, it is then the responsibility of the Reactor Engineer to evaluate the jet pump flow data and the core flow data to determine jet pump operability (see 8.6.5.1, steps 6-8 and section 10.0). The RE will then discuss required actions with the senior control room supervisors (NOS and NWE).

Therefore, the RO will recognize the potential technical specification entry due to the 18% flow mismatch, but must rely upon Reactor Engineering for the determination of jet pump operability.

b. The RO license candidates were not provided with technical specification LCO bases.

REFERENCES:

BWR K/A catalog, APE: 295001.
PNPS Procedure 2.1.15, Daily Surveillance Log, Attachment 2, #6.
PNPS Procedure 8.6.5.1, Jet Pump Operability Check, pages 8 & 9.
PNPS Technical Specifications, Section 3.6.E and bases.

QUESTION: 76.0: (1.00 Points)

WHICH ONE of the following radiation monitors is powered by the reactor protection system (RPS) bus?

a. Refuel floor ventilation exhaust

b. Control room ventilation intake

c. Air ejector off-gas

d. Post treatment (off-gas)

ANSWER:

a.

COMMENTS:

76. We recommend that answer (c) also be accepted as correct. Both the Refuel Floor ventillation exhaust and the Air Ejector off-gas PRMs are powered from RPS.

REFERENCES

PNPS PRM reference text, page PRM-32-5/89
PNPS LP 0-RO-02-03-02 PRM, page TP-5
PNPS Proc. 2.2.79, Reactor Protection System, Att 2

ATTACHMENT 4

PILGRIM WRITTEN EXAM -- 11-26-90
FACILITY COMMENT RESOLUTION

REACTOR OPERATOR EXAM:

QUESTION # 8.0 : Comment states: We recommend that answer (c) be accepted as the correct answer. The answer key appears to be a typo, as (c) is the only correct answer.

RESPONSE: This comment is accepted and the answer key is changed to accept c. as the only correct answer.

QUESTION # 76.0: Comment states: We recommend that answer (c) also be accepted as correct. Both the Refuel Floor ventilation exhaust and the Air Ejector off-gas PRMs are powered from RPS.

RESPONSE: This comment is accepted and the answer key is changed to accept both a. and c. as correct answers.

QUESTION # 94.0: Comment states: We recommend that this question be deleted for the RO license candidates for the following reasons:

a. The BWR K/A catalog concerning Partial or Complete Loss of Forced Core Circulation states that the RO must have the "ability to recognize indications for system operating parameters which are entry level indications for technical specifications". (K/A 295001G008)

   The daily jet pump operability test, for the conditions given in the question, would prompt the RO to notify the NWE that PNPS 8.6.5.1 must be performed (see Daily Log Test #6 of 2.1.15, Attachment 2, step 2.A.2.b).

   Per 8.6.5.1, it is then the responsibility of the Reactor Engineer to evaluate the jet pump flow data and the core flow data to determine jet pump operability (see 8.6.5.1, steps 6-8 and section 10.0). The RE will then discuss required actions with the senior control room supervisors (NOS and NWE).

   Therefore, the RO will recognize the potential technical specification entry due to the 18% flow mismatch, but must rely upon Reactor Engineering for the determination of jet pump operability.

b. The RO license candidates were not provided with technical specification LCO bases.

RESPONSE: This comment is rejected. This question is merely an application of the Technical Specifications 3.6.E surveillance requirements to the given conditions. All of the RO and SRO license candidates were provided a copy of Technical Specifications including the

Surveillance Requirements which determines jet pump operability for the entry into the LCO.

SENIOR REACTOR OPERATOR EXAM:

QUESTION # 76.0: We recommend that answer (c) also be accepted as correct. Both the Refuel Floor ventilation and Air Ejector off-gas PRMs are powered from RPS.

RESPONSE: The comment is accepted and the answer key has been changed to accept both a. and c. as correct answers.

ATTACHMENT 5

SIMULATION FACILITY REPORT

Facility Licensee: Boston Edison Company

Facility Docket No.: 50-293

During the conduct of the simulator portion of the operating tests, the following items were observed:

ITEM	DESCRIPTION
--- NONE ---	