U. S. NUCLEAR REGULATORY COMMISSION

REGION I

DOCKET NO: 50-354

REPORT NO: 50-354/93-29 (OL)

LICENSE NO: NPF-57

LICENSEE: Public Service Electric and Gas Company
P.O. Box 236
Hancocks Bridge, New Jersey 08038

FACILITY: Hope Creek Nuclear Generating Station

DATES: December 13-16, 1993

EXAMINERS: J. Caruso, Operations Engineer - Examiner In Training
R. Conte, Chief, BWR Section
D. Florek, Senior Operations Engineer
C. Tyner, NRC Contractor
S. Willoughby, NRC Contractor - Certification Examination

CHIEF EXAMINER: D. Florek 1/11/94

D. Florek, Senior Operations Engineer Date
BWR Section
Division of Reactor Safety

APPROVED BY: Richard J Conte 1/14/94

Richard J. Conte, Chief Date
BWR Section
Division of Reactor Safety

**Examination Summary:** Examination conducted December 13-16, 1993 (Examination Report 50-354/93-29 (OL))

Initial examinations were administered to five senior reactor operator applicants and three reactor operator applicants. All applicants passed the examination. The applicants were well prepared for the examination.

A summary of the strengths and weaknesses noted during examination was provided to aid in upgrading the Hope Creek training program and plant procedures. A number of technical discrepancies with procedures and training were noted during the course of the examination (Section 3.4).

## DETAILS

### 1.0 INTRODUCTION

The NRC examiners administered initial examinations to four Senior Reactor Operator (SRO) upgrade, one SRO instant, and three Reactor Operator (RO) applicants. The examinations were administered in accordance with NUREG-1021, "Operator Licensing Examiner Standards," Revision 7. The results of the examination are summarized below:

| | SRO Pass/Fail | RO Pass/Fail |
|---|---|---|
| Written | 5/0 | 3/0 |
| Operating | 5/0 | 3/0 |
| Overall | 5/0 | 3/0 |

### 2.0 PREEXAMINATION ACTIVITIES

The facility reviewed the written examinations during the examination preparation visit on December 1-3, 1993. The facility review team included members from training and operations. The simulator scenarios and JPMs were validated on the facility's simulator and in the plant as appropriate. The facility staff involved with these reviews and validations signed security agreements to ensure that the examination was not compromised.

### 3.0 EXAMINATION FINDINGS AND OBSERVATIONS

A summary of the strengths and weaknesses noted during examination administration is given in the following sections. This information is being provided to aid in upgrading the training program and plant procedures.

#### 3.1 Written

Generic weaknesses were identified in the following areas, based upon the criteria that at least half of the SRO applicants, RO applicants or both answered incorrectly on the question. The examination question number is identified in the parentheses.

- Knowledge of the recirculation pump motor start sequence jogging circuit. (SRO-3)
- Ability to apply recirculation pump motor restart limits. (SRO-19)
- Knowledge of the minimum exposure for completion of the ALARA Program Pre-Job Review. (RO-21)

- Knowledge of the conditions requiring the control room ventilation system to be operated in the outside air mode. (SRO-61, RO-79)

- Knowledge of the basis for the RPV level band identified in the RPV Control Emergency Operating Procedure. (SRO-64)

- Knowledge of the conditions that permit opening of the MSIVs to assist in depressurization to prevent severe core damage. (SRO-67)

- Knowledge of the valve response during a transfer of RPS "A" power supplies. (SRO-81)

- Knowledge of the system response during a failure to complete valve manipulations during a manual transfer between chilled water and RACS. (SRO-91, RO-97)

- Knowledge of the effects of loss of 125 VDC control power on the main turbine. (SRO-94)

### 3.2 Walk-through

No specific strengths or weaknesses were noted.

### 3.3 Simulator

**Strengths**

- The applicants demonstrated effective communication, in particular, on the excellent use of formal repeat backs.

**Weaknesses**

These weaknesses were based on repetitive observations in at least two operating tests.

- The applicants did not recognize or diagnose that HPCI did not start when level transmitters LT-N091C and LT-N091G failed downscale.

- The applicants did not attempt to start feedwater pump "B" when feedwater pumps "A" and "C" tripped due to loss of 125 VDC bus 10D470.

- The applicants rapidly injected water into the core during ATWS conditions when the emergency operating procedures direct that water be injected slowly to prevent power excursions. Due to the specific simulator conditions at the time of the rapid injection, no actual power excursions occurred. Power was not being monitored by the

applicants during the rapid injection.

### 3.4 Other Observations

Access into the plant and through the radiological control areas was smooth. The control room atmosphere was conducive to the conduct of the examinations.

The examiners observed that the operators in the control room did not use the same formal communication techniques as the applicants did in the simulator.

The following additional discrepancies were noted and are detailed below:

- Radiological conditions on the refuel floor.
- Inability to locate ladders for procedure implementation.
- Single point control parameter in CRD procedure.
- Heat spray flowrate meter scale too large for control parameter range.
- No clear training guidance for vessel injection rates during an ATWS.

Two potentially-adverse radiological conditions were noted on the refueling floor. A pair of used outer booties, normally used for entry into contaminated areas, was found by one of the applicants in the middle of an uncontaminated area of the refueling floor. The applicant immediately contacted radiation protection. The same applicant inadvertently entered a contaminated area in the refueling floor, without protective clothing. One of the rope barriers that marked the contaminated area had fallen off its support and was laying on the floor. The applicant immediately recognized his error, remained in place in the contaminated area, and requested the examiner to contact radiation protection for assistance to exit the contaminated area. Radiation protection responded to the refueling floor, used controlled and deliberate methods to enable the applicant to exit the contaminated area, which included a survey of the applicant who was not contaminated, and reattached the rope barrier.

The applicants had some difficulty locating ladders to operate service water valves in accordance with HC.OP-EO.ZZ-0319, "Restoring Instrument Air In An Emergency." The procedure did not direct operators to ladder locations nor was a ladder located near the valves.

During the performance of the JPM to operate the CRD system, the applicants did not follow the procedure exactly as written. In accordance with HC.OP-SO.BF-0001, "CRD Hydraulic System Operation," step 5.2.6.D required the adjustment of the drive water pressure control valve or drive water flow setpoint to obtain the following parameters: Drive water pressure 250 psid, cooling water pressure 30 psid, cooling water flow 37 to 63 gpm. All of the

applicants adjusted CRD differently in the simulator, but none of the applicants obtained all the three parameters as stated in the procedure. As observed in the plant, CRD drive water pressure was 265 psid, CRD cooling water pressure was 7 psid and CRD cooling water flow was 60.7 gpm, which also was different than that specified in the procedure.

The examiner questioned the facility licensee representatives as to the policy for controlling parameters to a specific number (for example is 250 psid really $\pm$ 10 percent.) since, as observed in the simulator and in the plant, the procedure step was not followed. The facility licensee indicated that they did not have a policy but indicated that a procedure change had been developed to fix the CRD procedure to provide an appropriate operating band. The facility licensee also indicated that they would review other plant procedures to assure that a single point control would have appropriate permissible operating bands. The examiner had no additional comments.

The procedure to place head spray in service requires the operator to initially establish a head spray flowrate of 50-100 gpm. The instrument meter scale is such that it is very difficult to read 50-100 gpm. One applicant misread the instrument meter scale and sprayed at a rate of 500 gpm rather than 50 gpm. The facility operations representatives acknowledged that the instrument meter scale to determine head spray flow is not human factored and have requested a change to the instrument meter scale. The facility licensee is also evaluating the desirability of operation in the head spray mode and may be eliminating this feature.

The facility licensee does not have clear documented training instructions on the implementation of the emergency operating procedure direction to "slowly inject during ATWS conditions." The lack of clear documented training instructions may be a contributor to the applicants observed simulator weakness documented above.

## 4.0 LICENSEE ACTION ON PREVIOUS INSPECTION FINDINGS

(CLOSED) Unresolved Item (354/90/18-01) Technical adequacy of deviation for entry into RPV level control emergency operating procedure at a reactor level of +12.5 inches.

The licensee has since revised the emergency operating procedures to be consistent with the BWR Owners Group Emergency Procedure Guidelines. Thus, the licensee no longer has any deviation in this area. This item is closed

## 5.0 EXIT MEETING

An exit meeting was conducted on December 16, 1993, following the administration of the examinations. Exit meeting attendees are listed below. The NRC exam team discussed generic findings regarding the applicants performance and training program strengths. The facility licensee representatives indicated that they had no comments to submit on the written examination.

**Licensee Personnel**

W. Gott, Principal Training Supervisor Hope Creek
G. Mecchi, Principal Trainer Operations Training
W. O'Malley, Operations Manager Hope Creek
A. Orticelle, Manager Nuclear Training

**NRC Personnel**

J. Caruso, Operations Engineer
R. Conte, Section Chief, BWR Section
D. Florek, Sr, Operations Engineer
S. Willoughby, NRC Contractor

ATTACHMENT 1

RO EXAMINATION AND ANSWER KEY

NRC MASTER

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

**CANDIDATE'S NAME:** _____

**FACILITY:** Hope Creek

**REACTOR TYPE:** BWR-GE4

**DATE ADMINISTERED:** December 13, 1993

**INSTRUCTIONS TO CANDIDATE:**

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

| TEST VALUE | CANDIDATE'S SCORE | |
|---|---|---|
| 100.00 | _____ | **FINAL GRADE** _____ % |

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

_____
Candidate's Signature

# 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.

MULTIPLE CHOICE

| | | | | | |
|---|---|---|---|---|---|
| 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 | ___ |
| 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 | ___ |

# 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.

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

# 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.

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

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

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

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

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

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

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

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

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

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

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

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

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

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

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

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

Page 6

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QUESTION: 001 (1.00)

A Licensed Reactor Operator has worked the following schedule during a refueling outage:

- Thursday scheduled day Off
- Friday 7 am to 7 pm
- Saturday 7 am to 7 pm
- Sunday 7 am to 3 pm
- Monday 7 am to 3 pm
- Tuesday 7 am to 9 pm
- Wednesday 7 am to 3 pm

Which of the following work schedules for the following Thursday is the maximum allowed without additional authorization.

a. 7 am to 5 pm

b. 7 am to 6 pm

c. 7 am to 7 pm

d. 7 am to 9 pm

QUESTION: 002 (1.00)

Which of the following describes the operation/configuration of the backup scram valves?

a. Two valves in series normally energized, one valve will deenergize, as each RPS channel is deenergized.

b. Two valves in parallel, normally deenergized, one controlled from each RPS channel, both valves must energize to vent the scram air header.

c. Two valves in parallel, each requires both RPS channels deenergized or one ARI logic channel deenergized to actuate.

d. Two valves in series, normally de-energized, both RPS channel must deenergize to energize either valve.

QUESTION: 003 (1.00)

SELECT the Suppression Pool level that would require entry into the Primary Containment Control EOP.

a. 75 inches

b. 77 inches

c. 78 inches

d. 79 inches

QUESTION: 004 (1.00)

While at 60% power during a valid withdrawal of control rod 42-23, control rod 38-15 drifts into the core.

In addition to a rod drift alarm, SELECT the response of the reactor manual control system.

a. NO data fault alarm and NO rod block alarm.

b. A data fault alarm but NO rod block alarm.

c. A rod block alarm but NO data fault alarm.

d. An activity control disagree alarm.

QUESTION: 005 (1.00)

During a loss of all feedwater, the operator MANUALLY armed and depressed the HPCI initiation pushbutton.

SELECT the effect of the operator actions on the HPCI system.

HPCI will:

a. automatically trip at +54 inches and will automatically reinitiate at -38 inches.

b. automatically trip at +54 inches and require operator action to restart.

c. require a manual trip at +54 inches and will automatically reinitiate at -38 inches.

d. require a manual trip at +54 inches and will require operator action to restart.

QUESTION: 006 (1.00)

IRM "A" is reading 81 on range 4 during a plant startup. The operator places the IRM "A" Range Switch to Range 3.

SELECT the system response.

a. IRM "A" will indicate 8.1 on Range 3.

b. IRM "A" will indicate 2.7 on Range 3.

c. A rod block, but no reactor 1/2 scram signal, will be generated.

d. A rod block and a reactor 1/2 scram signal will be generated.

QUESTION: 007 (1.00)

Which of the following is the responsibility of the Nuclear Control Operator during the implementation of the Safety Tagging program?

a. Complete the Tagging Request and Work Request/Order Log.

b. Verify that work on equipment under the jurisdiction of the Electric System Operator (ESO) has been cleared with the ESO.

c. Verify that the number of tags applied is in agreement with the Tagging request and Worksheet.

d. Position the electrical and mechanical components in the field in accordance with the Tagging request.

QUESTION: 008 (1.00)

While at rated temperature and pressure conditions in the reactor vessel, drywell temperature increases.

SELECT the response of the narrow range level instrument.

a. Decreased reference leg density will cause an increase in indicated level.

b. Increased reference leg density will cause a decrease in indicated level.

c. Because both reference and variable leg densities increase, there will be no change in indicated level.

d. Because narrow range level instruments are density compensated there is no change in indicated level.

QUESTION: 009 (1.00)

A normally locked-open, manual valve has been positioned from the shut position to the open position during the completion of a valve lineup.

Which of the following is the REQUIRED action for signing a SECOND verification that the valve is in its normal locked-open position?

a. Observe the initial positioner opening the valve and installing the locking device.

b. Receive a verbal report from the initial positioner that the valve has been opened, then install the locking device.

c. Physically move the valve in the closed direction enough to ensure that the valve is open, then install the locking device.

d. Physically move the valve in the closed position without removing the locking device, only enough to verify movement.

QUESTION: 010 (1.00)

If a power increase due to a dropped control rod occurs, which of the following is the required IMMEDIATE operator action?

a. Allow power to stabilize, then override the RSCS and RWM rod blocks and insert the dropped control rod.

b. Raise the drive water to reactor pressure to 300 psig and then fully insert the dropped control rod.

c. Insert control rods, in sequence, as necessary to terminate the power increase.

d. Insert control rods, in sequence, only as necessary to avoid exceeding a scram setpoint.

QUESTION: 011 (1.00)

Which of the following conditions requires an immediate MANUAL trip of the main turbine?

a. Vessel low level 3 with no rod motion

b. Low ETS hydraulic fluid pressure downstream of the Master Trip Solenoid valve

c. "UNIT PROT LOCKOUT RELAY TRIP" annunciator [E1-A5] is received

d. Turbine journal bearing vibration increasing past 12 mils at rated power

QUESTION: 012 (1.00)

The Reactor Vessel Control EOP requires the operator to inhibit ADS immediately after manually initiating Boron injection.

ADS is inhibited to prevent:

a. lowering RPV level below the top of active fuel (TAF).

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

c. power oscillations due a rapid decrease in reactor pressure.

d. an increase in core flow resulting in decreased voiding and an increase in power.

QUESTION: 013 (1.00)

A manual scram has been inserted on both RPS channels and the rods have failed to insert. All individual blue lights for each control rod on the Full Core Display are illuminated.

Which of the following can cause this failure to scram?

a. Hydraulic lock in the scram discharge volume

b. Failure of the scram valves to open

c. Air lock in the scram air header caused by blockage

d. Failure of one RPS scram trip system

QUESTION: 014 (1.00)

Which of the following describes the effect of defeating the RPS interlocks in accordance with HC.OP-EO.ZZ-0320 "Defeating ARI and RPS Interlocks," while executing the Reactor Pressure Vessel Control EOP?

They defeat:

a. all RPS scram signals.

b. only the non-nuclear RPS scram signals.

c. only the RPS nuclear instrument scram signals.

d. all RPS scram signals except the manual scram signal.

QUESTION: 015 (1.00)

The Reactor Building Control EOP directs the operator to initiate a manual reactor scram before any area temperature reaches its Maximum Safe Operating Temperature.

Which of the following is the reason that the Reactor Building Control EOP directs scramming the reactor?

a. To reduce the energy discharged through an unisolable primary leak to decay heat levels.

b. To reduce the discharge rate through a primary system rupture to within the removal capacities of the sump pumps and Reactor Building Ventilation System.

c. To ensure that the reactor can be made subcritical by the insertion of all control rods.

d. To ensure the reactor is shutdown prior to initiating a rapid reactor depressurization.

QUESTION: 016 (1.00)

Prior to a plant startup the local operator has been directed to charge the Control Rod Drive (CRD) system Hydraulic Control Unit (HCU) accumulators with nitrogen.

SELECT the plant parameter the operator must use to determine the final HCU nitrogen pressure.

a. Reactor temperature prior to the startup.

b. Reactor pressure expected at 100% power.

c. Reactor Building ambient temperature.

d. CRD system pressure with one pump running.

QUESTION: 017 (1.00)

Following insertion of control rod 34-19 one notch, a rod drift alarm occurs. Rod 34-19 is slowly moving inward.

Which of the following is a possible cause?

a. Insert pushbutton short in the depressed position.

b. Cooling water pressure set too high.

c. Failure of collet fingers to engage on rod.

d. Drive water pressure control valve failed closed

QUESTION: 018 (1.00)

SELECT the RCIC design feature which minimizes the possibility of a RCIC turbine overspeed trip following an automatic initiation signal.

a. An orifice in the control oil system limits the rate of governor valve opening.

b. A time delay in the opening of the steam supply isolation valve, HV-F045 stops valve movement for a short interval, 10 seconds after the initiation signal.

c. A bypass valve around the steam supply isolation valve, HV-F045 opens first to start the turbine rolling and establish control oil pressure.

d. The ramp generator in the flow control circuit is biased to limit the rate of speed increase until the turbine speed reaches 2200 rpm.

QUESTION: 019 (1.00)

A reactor scram occurred from rated pressure.

Select the statement below that describes the method that control rods will be inserted.

a. Reactor pressure assists in inserting the control rod only if the accumulator becomes fully depressurized.

b. Both the accumulator and the reactor supply pressure to insert the rod as soon as the scram outlet valve begins to open.

c. Accumulator pressure causes the rod to move inward until the under piston area pressure becomes less than reactor pressure at which time reactor pressure assists in inserting the rod.

d. Reactor pressure causes the rod to move inward until the under piston area pressure becomes less than accumulator pressure at which time the accumulator assists in inserting the rod.

QUESTION: 020 (1.00)

Which of the following systems is designed to inject ONLY outside the reactor vessel shroud?

a. High Pressure Coolant Injection System

b. Core Spray System

c. Reactor Feedwater System

d. Low Pressure Coolant Injection System

QUESTION: 021 (1.00)

SELECT the plant condition that will PREVENT the Main Steam Isolation Valve (MSIV) Sealing System from being placed in service.

a. Seal gas flow peaked at 850 scfm for 4 seconds.

b. Seal gas pressure has reached 10 psid in 8 seconds.

c. The Inboard and Outboard MSIVs are closed.

d. Main steam line pressure is 45 psig and decreasing.

QUESTION: 022 (1.00)

With the plant operating at 75% power, the operator has just placed the Channel "A" Rod Block Monitor (RBM) meter function switch to the "Block" position.

Which of the following describes the effect on the Rod Block Monitor?

Placing the switch to "Block" will:

a. display the current backup high RBM trip setpoint on the panel meter.

b. send an immediate RBM control rod block signal to the Reactor Manual Control System.

c. remove all existing RBM rod block signals bein, sent to the Reactor Manual Control System.

d. display the currently enforced RBM trip setpoint on the panel meter.

QUESTION: 023 (1.00)

The "A" Loop of Residual Heat Removal (RHR) is in Suppression Pool Cooling.

SELECT the plant condition that will result in a LOSS of Suppression Pool Cooling. (Assume no operator actions taken.)

a. Drywell pressure is 1.85 psig increasing.

b. Reactor water level is 10.0 inches decreasing.

c. Reactor pressure is 155 psig increasing.

d. Reactor Building Exhaust Radiation level is 2.5 E-3 uci/cc increasing.

QUESTION: 024 (1.00)

Given the following conditions:

-- A rupture in the fire header has decreased header pressure to 90 psig
-- All expected automatic actions have occurred
-- The rupture was isolated within 10 minutes
-- Fire header pressure has increased to 132 psig
-- No additional operator actions have been taken

SELECT the expected status of the fire protection system.

The following fire protection system pumps are running:

a. Diesel Driven Fire Pump
Motor Driven Fire Pump

b. Jockey Pump
Diesel Driven Fire Pump
Motor Driven Fire Pump

c. Motor Driven Fire Pump
Jockey pump

d. Diesel Driven Fire Pump
Jockey Pump

QUESTION: 025 (1.00)

The Normal/Emergency switch for a 4.16KV breaker is in the "Normal" position.

SELECT the breaker operations possible for this condition.

This breaker can be:

a. electrically closed locally only if there are no faults on the bus.

b. locally placed in "Pull-To-Lock".

c. operated from the Remote Shutdown Panel.

d. electrically opened locally only if the bus is deenergized.

QUESTION: 026 (1.00)

The plant 20 KVA Uninterruptible Power Supplies (UPS) each have a Normal AC power supply, an alternate DC power supply and a Backup Power supply.

What is the SOURCE of power to this Backup Power supply.

a. 480 VAC through a voltage regulating transformer.

b. 480 VAC through a rectifier.

c. 250 VDC from the station battery.

d. 125 VDC from the station battery.

QUESTION: 027 (1.00)

SELECT the plant conditions for which the Main Steam Isolation Valve (MSIV) closure on low main condenser vacuum is bypassed.

a. Reactor Mode Switch is out of "Run" and reactor pressure is 700 psig.

b. Reactor pressure is 700 psig and the vacuum bypass keylock switches are in "Bypass".

c. Main turbine is tripped and the Reactor Mode Switch is out of "Run".

d. Main turbine is tripped and the vacuum bypass keylock switches are in "Bypass".

QUESTION: 028 (1.00)

The Primary Containment Control Emergency Operating Procedure requires specific action based on the ability of the Suppression Pool to accept the heat due to RPV depressurization.

What three (3) plant parameters determine this ability?

a. -- Suppression pool temperature
-- RPV pressure
-- Suppression pool level

b. -- Suppression pool temperature
-- Drywell pressure
-- Suppression pool level

c. -- Drywell temperature
-- RPV pressure
-- Suppression pool level

d. -- Suppression pool temperature
-- RPV pressure
-- Drywell pressure

QUESTION: 029 (1.00)

The SRV Tail Pipe Level Limit as indicated by Curve SLP-L-2 is limited by suppression pool level. What other parameter is monitored for the SRV Tail Pipe Level Limit curve?

a. Reactor pressure

b. Drywell pressure

c. Suppression Chamber temperature

d. Suppression Pool temperature

QUESTION: 030 (1.00)

The Primary Containment Control EOP directs the operator to maintain suppression pool level below 125 inches. Following this direction will ensure that:

a. RPCI operation will NOT cause containment overpressurization.

b. emergency depressurization will NOT cause containment overpressurization.

c. initiating drywell sprays will NOT cause containment failure.

d. initiating suppression pool sprays will NOT cause containment failure.

QUESTION: 031 (1.00)

Drywell spray has been initiated in accordance with the Primary Pressure Control EOP in order to reduce Drywell Temperature.

Drywell sprays are REQUIRED to be secured when drywell:

a. pressure is below the Drywell Spray Initiation Limit.

b. temperature is below saturation temperature.

c. temperature can be maintained below 340 F.

d. pressure decreases to below 1.68 psig.

QUESTION: 032 (1.00)

The Reactor Scram EOP requires that the turbine be tripped at ZERO Megawatts.

The turbine is tripped at ZERO Megawatts in order to prevent:

a. a turbine overspeed trip.

b. overheating the low pressure turbine blades.

c. MSIV closure due to low main steam line pressure.

d. cycling of the Turbine Control Valves due to low steam flow.

QUESTION: 033 (1.00)

The reactor is in cold shutdown with loop "A" of RHR in Shutdown Cooling (SDC) and Loop "B" of RHR inoperable. A leak results in reactor water level decreasing to -140 inches.

IDENTIFY the operator actions which would be REQUIRED to align loop "A" RHR valves to the LPCI injection mode.

a. Close the RHR pump SDC suction valve, F006A and RHR SDC return isolation valve F015B, open the RHR pump Torus suction valve, F004A.

b. Close the RHR pump SDC suction valve, F006A open the RHR pump Torus suction valve, F004A and open the RHR LPCI injection valve F017A.

c. Arm and depress both LPCI initiation pushbuttons.

d. Close the RHR pump SDC suction valve F006A and open the RHR pump Torus suction valve, F004A.

QUESTION: 034 (1.00)

During a Recirculation Pump motor start sequence the jogging circuit opened the Recirculation Pump Discharge Valve HV-F031 to the full open position in 90 seconds.

SELECT the expected response of the Recirculation Pump drive system.

a. Drive motor breaker will open.

b. Only the field breaker will open.

c. Pump speed will be reduced to 30%.

d. Recirculation Pump will remain running.

QUESTION: 035 (1.00)

SELECT the method that will IMMEDIATELY start the "A" Standby Liquid Control System pump.

a. Place the "TEST SWITCH PUMP A" to the test position at panel 10C011.

b. Place the key lock switch to the "ON" position on the "A" Pump control bezel on panel 10C651.

c. Depress the "AP208 START" (red) backlit pushbutton on the "A" Pump control bezel on panel 10C651.

d. Depress the "MANUAL INITIATION PERMISSIVE" and "MANUAL INITIATION" pushbuttons for both logic trains.

QUESTION: 036 (1.00)

A room is posted as an airborne contaminated area at a level of 2 MPC (Maximum Permissible Concentration).

SELECT the MAXIMUM amount of time an individual can spend in the room during a calendar quarter.

a. 1 hour

b. 40 hours

c. 260 hours

d. 520 hours

QUESTION: 037 (1.00)

IDENTIFY the sample location of the radiation monitor that provides backup monitoring capability for main steam line rad monitors to detect a fuel element failure.

The radiation monitor for the:

a. line between the air ejector discharge and the feed gas recombiner.

b. system piping between the first and second stage steam jet air ejectors.

c. system piping downstream of the gaseous radwaste HEPA filters.

d. system flow through the gaseous radwaste holdup pipe.

QUESTION: 038 (1.00)

During a non refueling outage, an isolable leak has occurred during shutdown cooling operations causing RHR to isolate. Level cannot be recovered to above Level 2.

SELECT the alternate method of decay heat removal that WILL be effective with these conditions.

a. RWCU maximizing RACS to the non-regenerative heat exchangers.

b. Condensate transfer system via the ECCS injection lines maximizing flow to the RPV.

c. Vessel head spray maximizing mixing of RPV water.

d. Maximizing fuel pool cooling.

QUESTION: 039 (1.00)

Which of the following will cause the APRM "A" "UPSC TR OR INOP" (red) status light to illuminate?

a. APRM "A" bypassed

b. APRM power less than 4 percent

c. Less than 14 LPRM inputs to APRM "A"

d. Less than 2 LPRM inputs for level "C" to APRM "A"

QUESTION: 040 (1.00)

What will occur to the Recirculation System if reactor water level decreases to -45 inches? (Assume normal 100% power operation prior to the level decrease.)

a. The scoop tube positioner will runback to 30 percent and then the positioner will lock.

b. Both the generator drive motor breaker and the recirculation pump power supply breaker (RPT) will open.

c. Both the generator field breaker and the recirculation pump power supply breaker (RPT) will open.

d. The scoop tube positioner will runback to 45 percent and then the generator drive motor breaker will open.

QUESTION: 041 (1.00)

Given the following conditions:

-- A Recirculation Pump multiple seal failure has occurred.
-- The affected pump is required to be tripped and isolated.

While performing the isolation why should the pump suction valve be closed before the discharge valve?

The suction valve should be closed first to:

a. prevent water hammer in the Jet Pumps.

b. ensure that the leak can be fully isolated.

c. prevent a reactor water level transient.

d. ensure continued reactor water cleanup system operation.

QUESTION: 042 (1.00)

The Reactor has scrammed and the following conditions exist:

-- 18 rods are NOT fully inserted (rods are between notch "04" and "36").
-- Reactor power is approximately 4%.
-- The MSIVs are open; the main turbine is tripped.
-- Reactor pressure is being maintained at 920 psig by turbine bypass valves.
-- Reactor water level is +46 inches.

Which of the following will cause reactor power to INCREASE?

a. Lowering reactor water level to +36 inches.

b. Adjusting the pressure regulator setpoint to 850 psig.

c. Inserting control rods to notch "00".

d. Shutting the MSIVs.

QUESTION: 043 (1.00)

While at rated power, the cont~olling Electro-Hydraulic Control (EHC) pressure regulator fails causing the main turbine bypass valves to open.

SELECT the REQUIRED action that will result in closing the bypass valves.

a. Place the non-affected pressure regulator in service and remove the affected regulator.

b. Depress the "Decrease" switch on the Pressure Setpoint Selector.

c. Place the bypass valves in control of the jack and select "Decrease".

d. Take the Maximum Combined Flow Limit potentiometer to the "Decrease" direction.

QUESTION: 044 (1.00)

A recirculation pump trip occurred at 0900 and the pump was restarted at 0905. The pump tripped again at 0925.

Which of the following describes the pump restart requirements?

a. An immediate restart is allowed

b. 15 minute wait is required

c. 45 minute wait is required

d. Winding temperature must decrease to 167 degrees C before restart

QUESTION: 045 (1.00)

A Nuclear Equipment Operator (NEO) performing a tagout on a core spray pump finds that the motor breaker is closed while attempting to hang the tag on the breaker.

The NEO should:

a. open the breaker locally.

b. call the Nuclear Control Operator and have the breaker opened.

c. contact the Nuclear Shift Supervisor and report the discrepancy.

d. continue with the rest of the tagout until the Control Room opens the breaker.

QUESTION: 046 (1.00)

Which of the following describes the MINIMUM staffing REQUIRED by the Hope Creek Technical Specifications during a power ascension from 35% to 100%?

a. -- One licensed Senior Reactor Operator in the Control Room.
-- Two licensed Reactor Operators, one in the Control Room, one on site.
-- Two unlicensed operators on site.

b. -- Two licensed Senior Reactor Operators, one in the Control Room, one on site.
-- Two licensed Reactor Operators, one in the Control Room, one on site.
-- Two unlicensed operators on site.

c. -- Two licensed Senior Reactor Operators both in the Control Room.
-- Two licensed Reactor Operators both in the Control Room.
-- Three unlicensed operators on site.

d. -- One licensed Senior Reactor Operator on site.
-- Two licensed Reactor Operators, one in the Control Room, one on site.
-- Two unlicensed operators on site.

QUESTION: 047 (1.00)

To maintain an "active" NRC license, the operator must perform the functions of a Reactor Operator or Senior Reactor Operator, as appropriate, on a MINIMUM of:

a. one 12-hour shift per calendar month.

b. two 12-hour shifts per calendar quarter.

c. four 12-hour shifts per calendar quarter.

d. five 12-hour shifts per calendar quarter.

QUESTION: 048 (1.00)

SELECT the method used to seat a leaking manual operated valve.

a. Use a leverage device to provide extra closing torque.

b. Open the valve one turn and rapidly close it.

c. Open the valve one turn, bring the disk to seat gently, repeat several times.

d. Close the valve while NOT allowing cooldown to seat the valve tightly.

QUESTION: 049 (1.00)

Which of the following is prohibited per department operating practices?

a. Exceeding rated licensed power limit by 1% for 30 minutes.

b. Exceeding rated licensed power limit by 2% for 15 minutes.

c. Exceeding rated licensed power limit by 3% for 2 minutes.

d. Exceeding rated licensed power limit by 0.5% for 1 hour.

QUESTION: 050 (1.00)

An operator enters an area which contains radiation levels at the maximum allowable for an unlocked high radiation level. How long may the operator remain in this area without exceeding 250 mrem?

a. 2.5 minutes

b. 15 minutes

c. 25 minutes

d. 150 minutes

QUESTION: 051 (1.00)

Which of the following is REQUIRED to be completed prior to oncoming shift personnel assuming the shift?

a. Oncoming shift personnel will verify that all keylock keys are affixed to the control room panels with magnetic strips.

b. The Senior Nuclear Shift Supervisor will ensure that the shift relief checklists are completed.

c. The Senior Nuclear Shift Supervisor or Nuclear Shift Supervisor will conduct a briefing for shift operations personnel.

d. Oncoming shift personnel will review applicable logs since the previous time on shift or previous 72 hours, whichever is shorter.

QUESTION: 052 (1.00)

A WHITE color that is displayed on a Control Room Integrated Display System (CRIDS) monitor indicates:

a. an alarm condition.

b. points not in alarm.

c. a bad CRIDS point.

d. a gas system.

QUESTION: 053 (1.00)

The plant is operating at 100% power when a transient causes feedwater flow to drop to 15%. After a time delay, the recirculation MG sets will runback.

SELECT the runback speed with the corresponding reason.

a. 30% speed in order to limit axial thrust on the recirculation pump.

b. 45% speed in order to limit axial thrust on the recirculation pump.

c. 30% speed in order to prevent cavitation of the recirculation pumps and jet pumps.

d. 45% speed in order to prevent cavitation of the recirculation pumps and jet pumps.

QUESTION: 054 (1.00)

A test of the "A" RHR pump is being conducted with flow of 2000 GPM established through the full flow test valve (F024A). The "A" RHR Pump is then stopped.

The "A" RHR Pump Minimum Flow Valve (F007A) will:

a. automatically close which is its normal standby position.

b. automatically open which is its normal standby position.

c. require closing using the control switch in order to establish the normal standby lineup.

d. require opening using the control switch in order to establish the normal standby lineup.

QUESTION: 055 (1.00)

Given the following conditions:

-- High Pressure Coolant Injection (HPCI) is injecting water to the RPV with suction from the Condensate Storage Tank (CST).
-- Torus water level is 78.5 inches and increasing.

The HPCI Booster Pump Suction Valve from CST (HV-F004) will:

a. remain open.

b. close causing the HPCI Suction Valve from Suppression Pool (HV-F0042) to open.

c. close after the HPCI Suction Valve from Suppression Pool (HV-F0042) opens.

d. close resulting in a trip of HPCI on low suction pressure.

QUESTION: 056 (1.00)

With a normal electrical lineup, an operator inadvertently arms and depresses the "A" Core Spray System logic channel initiation control pushbutton.

Which of the following is an expected automatic action?

a. EDG "A" will start but its output breaker will remain open.

b. EDG "A" will start and its output breaker will close.

c. All Core Spray Pumps start 6 seconds after the pushbutton is depressed.

d. "A" Loop Core Spray Pumps start 6 seconds after the pushbutton is depressed.

QUESTION: 057 (1.00)

Which of the following will cause an RPS half scram with the Mode Switch in "Run"?

a. The "A" inboard and "D" outboard MSIVs go 5% closed.

b. The "A" inboard and "C" outboard MSIVs go 5% closed.

c. The "B" outboard and "C" inboard MSIVs go 10% closed.

d. The "B" outboard and "D" inboard MSIVs go 10% closed.

QUESTION: 058 (1.00)

Given the following plant conditions:

-- The Automatic Depressurization System (ADS) manual initiation pushbuttons S6B and S6F pushbuttons have been armed and depressed.
-- No low pressure ECCS pumps are running.

SELECT the expected response of the ADS system.

a. ADS valves will open immediately .

b. ADS valves will open after a 105 second time delay.

c. ADS valves will open after a 5 minute time delay.

d. ADS valve will remain closed unless a low pressure ECCS pump is started.

QUESTION: 059 (1.00)

Following a reactor scram on low RPV level, the Reactor Water Level Control System lowers level setpoint in order to prevent:

a. tripping Reactor Feed Pump turbines on overspeed.

b. tripping Reactor Feed Pump turbines at Level 8.

c. injection of a large amount of cold water which could cause excessive cooldown rates.

d. injection of a large amount of cold feedwater which could cause a second low RPV level scram.

QUESTION: 060 (1.00)

Which of the following will bypass ALL SRM Rod Blocks?

a. All IRMs on Range 3.

b. Reactor Mode Switch in "Run".

c. All SRM detectors fully withdrawn.

d. More than one SRM function switch NOT in "Operate".

QUESTION: 061 (1.00)

The power supplies to the Backup Scram Valves are:

a. 120 VAC Class 1E distribution panels 1AJ481 and AJ4C2.

b. RPS Bus "A" and RPS Bus "B".

c. 125 VDC Class 1E distribution panels 1AD417 and 1BD417.

d. 250 VDC Class 1E distribution panels 10D251 and 10D261.

QUESTION: 062 (1.00)

Following an automatic actuation of the Core Spray System an electrical fault closes the "A" Core Spray Pump suction valve, F001A.

SELECT the expected response of the Core Spray System to this event.

a. The "A" Core Spray Pump will continue to run without a suction flowpath until damage occurs.

b. The "A" Core Spray Pump will trip on low Suction Pressure.

c. The "A" Core Spray Pump will trip on low suction pressure, the "C" Core Spray Pump will trip on motor overload.

d. The Core Spray Pump suction valve from the Condensate Storage Tank will open when F001A leaves the open position.

QUESTION: 063 (1.00)

Subsequent to a Loss of Offsite Power, the following plant conditions exist:

-- Drywell pressure 1.7 psig
-- Reactor Vessel Level -45 inches
-- Reactor Vessel Pressure 860 psig
-- All Emergency Diesels have started.

When the Emergency Diesel Generator output breakers close, Core Spray pumps will:

a. NOT start because the actuation setpoint has NOT been reached.

b. start immediately but their injection valves will NOT open.

c. start after a time delay of 6 seconds.

d. start after a time delay of 10 seconds.

QUESTION: 064 (1.00)

Following an automatic initiation of the Reactor Core Isolation Cooling system (RCIC), reactor water level is -20 inches and slowly increasing.

SELECT the response of the RCIC system if the RCIC "Isolation "B" Trip" pushbutton is depressed and then released.

a. RCIC Outboard Steam Supply Isolation valve, HV-F008 closes and HV-4282, Turbine Trip Throttle Valve Trips.

b. RCIC Inboard Steam Supply Isolation valve HV-F007 and Outboard Steam Supply Isolation valve, HV-F008 close and HV-4282, Turbine Trip Throttle Valve Trips.

c. The "Isolation "B" Trip" pushbutton has no effect on RCIC because the automatic initiation signal is sealed in.

b. RCIC Outboard Steam Supply Isolation valve, HV-F008 closes but will reopen when the pushbutton is released.

QUESTION: 065 (1.00)

An electrical fault results in the loss of Class 1E 125 VDC bus 1DD417.

SELECT the affect on the Automatic Depressurization System (ADS).

a. The "B" ADS solenoids will fail open.

b. The "B" ADS solenoids will fail closed.

c. All of the ADS Valves will only operate in the safety relief mode.

d. One half of the ADS valves will NOT be operable with the control room hand switch.

QUESTION: 066 (1.00)

Shortly following a small Loss Of Coolant Accident the following conditions exist:

-- Drywell pressure is 1.5 psig
-- Reactor water level is -125 inches and decreasing
-- RHR and Core Spray Pumps are running
-- ADS is NOT inhibited

When reactor water level reaches -129 inches, the ADS valves will open:

a. immediately.

b. in 105 seconds.

c. in 300 seconds.

d. in 405 seconds.

QUESTION: 067 (1.00)

The Emergency Diesel Generator (EDG) "NORMAL/EMERGENCY TAKEOVER" Switch is positioned to "EMERGENCY TAKEOVER" at the remote Generator Control Panel.

With the switch in this position the EDG will:

a. auto start in response to a LOCA, but will NOT respond to a Loss of Offsite Power (LOP).

b. auto start in response to a LOP but, NOT respond to a LOCA.

c. NOT respond to a LOCA or a Loss of Offsite Power (LOP).

d. auto start in response to both a LOCA and a LOP.

QUESTION: 068 (1.00)

The following conditions exist:

-- The "A" Emergency Diesel Generator (EDG) is running in test, paralleled with an offsite source.
-- The remaining Diesel Generators are all operable.
-- A valid LOCA signal is present.

SELECT the AUTOMATIC response of all EDGs to this event.

a. "A" EDG will continue to run paralleled to offsite, the remaining EDGs will start but NOT close onto their respective Class 1E busses

b. "A" EDG will continue to run paralleled to offsite, the remaining EDGs will start and close onto their respective Class 1E busses

c. "A" EDG output breaker will trip open, the remaining EDGs will start and close onto their respective Class 1E busses

d. "A" EDG output breaker will trip open, the remaining EDGs will start but NOT close onto their respective Class 1E busses

QUESTION: 069 (1.00)

Given the following conditions:

-- A Traversing In-core Probe TIP trace is in progress.
-- A loss of coolant accident in the drywell has just occurred.

Which automatic response will occur to ensure that Primary Containment Integrity is maintained?

a. The shear valve is fired cutting the TIP detector cable.

b. The ball valve is closed cutting the TIP detector cable.

c. The TIP detector is withdrawn and then the shear valve is fired.

d. The TIP detector is withdrawn and then the ball valve is closed.

QUESTION: 070 (1.00)

In the event of a loss of Primary Condensate pumps, the CRD Pumps will receive water from:

a. Condensate Storage Tank.

b. turbine exhaust hood spray line.

c. discharge of reactor feed water pumps.

d. discharge of the Secondary Condensate Pumps.

QUESTION: 071 (1.00)

With the maximum heat load on the spent fuel pool, what is the specific CONCERN as Spent Fuel Pool temperatures increase while the core is unloaded and stored in the pool?

a. Excessive heat load on the Residual Heat Removal (RHR) system while in augmented fuel pool cooling.

b. Increasing radiation doses as fission product gases begin to come out of solution.

c. Excessive system flows and temperatures causing demineralizer resin breakdown.

d. Increasing value for Keff above the Technical Specification limit of 0.95.

QUESTION: 072 (1.00)

SELECT the Reactor Water Cleanup System (RWCU) system feature that will prevent draining the system when isolated.

a. Blowdown Flow Control Valve (HV-F033) automatic closure on high downstream pressure.

b. RWCU Return to the Main Condenser (HV-F034) automatic closure on high downstream pressure.

c. Blowdown Flow Control Valve (HV-F033) automatic closure on low upstream pressure.

d. RWCU Return to the Main Condenser (HV-F034) automatic closure on low upstream pressure.

QUESTION: 073 (1.00)

Given the following conditions:

-- The plant is at 100% power.
-- The main turbine front standard trip lever has been actuated.

SELECT the valve group that, if closed, will OPEN in response to the turbine trip.

a. Main Turbine intercept valves

b. Main Turbine intermediate stop valves

c. Extraction steam supply line drain valves

d. Feedwater heater extraction non-return (bleeder trip) valves

QUESTION: 074 (1.00)

The Rod Worth Minimizer (RWM) has applied a control rod withdrawal block due to an incorrect rod movement.

What control rod motion is available for the above condition?

a. The rod causing the block may only be inserted.

b. The rod causing the block may only be withdrawn.

c. Any control rod in the same group as the rod causing the block may be inserted.

d. No control rod motion is possible until the RWM is placed in "Bypass."

QUESTION: 075 (1.00)

Given the following conditions:

-- Control rod withdrawals are in progress for a reactor startup.
-- The current Rod Worth Minimizer rod group has insert and withdrawal limits of Notch 18 and Notch 24.

SELECT the control rod alternate limits ALLOWED by the Rod Worth Minimizer for the above conditions.

a. 16 and 22

b. 16 and 26

c. 20 and 22

d. 20 and 26

QUESTION: 076 (1.00)

Given the following conditions:

-- The plant is at 55% power.
-- APRM "C" fails "Downscale".
-- No operator actions have been taken.

SELECT the expected AUTOMATIC response of the Rod Block Monitor (RBM) system? (Do not consider the response of any other plant system.)

a. RBM channel "B" automatically shifts to APRM "E".

b. RBM channel "A" output trip functions are bypassed.

c. RBM channel "B" generates a channel "Downscale" trip.

d. RBM channel "A" generates a channel "Inoperative" trip.

QUESTION: 077 (1.00)

Given the following conditions:

-- The plant is shutdown making preparations for Shutdown Cooling (SDC) using the "B" Loop of Residual Heat Removal (RHR) system.
-- Both Recirculation Pumps are shutdown with their discharge valves closed.

How is the RHR Pump that is initially being started for SDC protected from damage due to no-flow? (Assume the system is being started in accordance with the procedure.)

a. The pump minimum flow valve will open to provide flow until the SDC valves are opened.

b. The pump will automatically trip on low suction pressure if flow is less than 3000 gpm.

c. The operator will open the minimum flow valve until SDC flow is greater than 1270 gpm.

d. The operator is required to establish pump flow to the reactor vessel immediately after starting.

QUESTION: 078 (1.00)

Due to throttling closed the RHR Loop "A" Full Flow Test Valve, HV-F024A, flow through the "A" RHR pump is decreasing. At what point will the RHR "A" Minimum Flow Valve, HV-F007A come open?

a. When RHR "A" flow drops below 1250 GPM for five seconds.

b. When RHR "A" flow drops below 1250 GPM for ten seconds.

c. When RHR "A" flow drops below 1450 GPM for five seconds.

d. When RHR "A" flow drops below 1450 GPM for ten seconds.

QUESTION: 079 (1.00)

SELECT the plant condition REQUIRING the Control Area Ventilation system to be operated in the Outside Air (OA) Mode.

a. Smoke has been detected in the Control Room air supply.

b. Chlorine gas concentration of 2.5 ppm has been detected in the Control Room air supply.

c. Control Room air intake radiation levels are 4.3 E-4 uci/cc.

d. Control Room positive pressure cannot be maintained in the Normal Mode.

QUESTION: 080 (1.00)

While operating at 100% power, a trip of one Reactor Recirculation Pump occurs.

Which of the following conditions REQUIRE an immediate manual reactor scram?

a. Power on APRM recorders is varying between 55% and 70%.

b. Power on LPRM indicators is varying between 55 watts/cm and 70 watts/cm.

c. Three LPRM upscale alarms occur on the full core display.

d. An LPRM upscale alarm and LPRM downscale alarm on the full core display occur simultaneously within the same string.

QUESTION: 081 (1.00)

An evaluation of plant conditions during a transient indicates that a significant loss of feedwater heating has occurred.

Which of the following is a REQUIRED immediate action?

a. Insert a manual reactor scram.

b. Run back recirculation pumps by at least 20% pump speed.

c. Run back recirculation pumps to reduce thermal power by at least 20%

d. Reduce recirculation flow to restore thermal power to the pre-transient value.

QUESTION: 082 (1.00)

A fire in the control room panels has forced all personnel to abandon the Control Room. A reactor scram has been initiated from outside the Control Room.

SELECT the method by which the reactor scram must be verified.

a. Verify that backup scram valves are deenergized.

b. Verify all Hydraulic Control Unit nitrogen pressures are less than 800 psig.

c. Verify that all scram discharge volume vent and drain valves are closed.

d. Verify all individual scram inlet and scram outlet valves are open.

QUESTION: 083 (1.00)

Which of the following will cause a reactor feedwater runback to 70% with two Reactor Feed Pumps initially running?

a. Feedwater flow = 80%
Two Primary Condensate Pumps initially running
A trip of a Reactor Feedwater Pump occurs

b. Feedwater flow = 80%
Three Primary Condensate Pumps initially running
A trip of a Secondary Condensate Pump occurs.

c. Feedwater flow = 90%
Three Primary Condensate Pumps initially running
A trip of a Primary Condensate Pump occurs

d. Feedwater flow = 90%
Three Secondary Condensate Pumps initially running
A trip of a Secondary Condensate Pump occurs

QUESTION: 084 (1.00)

The Nuclear Control Operator is directed to place the "B" Loop of RHR in Suppression Pool Cooling while a LPCI initiation signal is in.

SELECT the action that will allow opening the RHR Loop "B" Return Valve, HVF024B.

a. AUTO OP OVRD on LPCI Injection Valve, HVF017B is depressed.

b. AUTO CL OVRD on RHR Loop "B" Return Valve, HVF024B is depressed.

c. AUTO OP OVRD on LPCI Injection Valve, HVF017B and AUTO CL OVRD on RHR Loop "B" Return Valve, HVF024B are both depressed.

d. LPCI Injection Valve, HVF017B is closed and AUTO CL OVRD on RHR Loop "B" Return Valve, HVF024B is depressed.

QUESTION: 085 (1.00)

A Safety Relief Valve (SRV) has stuck open while at power. At what point must the Mode Switch be taken to "Shutdown"?

a. When suppression pool temperature reaches 95 degrees F

b. When suppression pool temperature reaches 105 degrees F

c. When the SRV has been stuck open for 2 minutes

d. When the SRV has been stuck open for 5 minutes

QUESTION: 086 (1.00)

Due to a leak, the Skimmer Surge Tank level is lowering.

Which of the following is an expected AUTOMATIC action at 49" in the Skimmer Surge Tank?

a. Skimmer Surge Tank Makeup Valve opens.

b. Fuel Pool Cooling Pumps trip.

c. Fuel Pool Filter Demin isolates.

d. RBVS isolates and FRVS starts.

QUESTION: 087 (1.00)

Which of the following is the reason for taking the Reactor Mode Switch to "Shutdown" early in the transient following a reactor scram?

a. To reduce the APRMs fixed scram setpoint.

b. To activate the IRM scram function.

c. To provide a redundant RPS actuation.

d. To allow opening the scram discharge volume vent and drain valves.

QUESTION: 088 (1.00)

While carrying out the required actions for a station blackout, the operator acknowledges the flashing TRIP pushbuttons on the infeeds for the 4.16KV Vital 1E busses.

This action will:

a. prevent the Emergency Diesel Generators from loading.

b. bypass all electrical Emergency Diesel Generator trips.

c. prevent reclosing the 4.16 KV Vital 1E infeeds.

d. bypass all 4.16 KV Vital 1E infeed trips.

QUESTION: 089 (1.00)

A trip of a Reactor Recirculation Pump has occurred.

Which of the following is an acceptable method for exiting the identified region of the power-to-flow map?

(NOTE: Refer to the attached Power To Flow Map)

a. Region III by increasing Recirculation Pump speed on the operating pump.

b. Region II by restarting the Recirculation Pump.

c. Region I by increasing Recirculation Pump speed.

d. Region II by increasing Recirculation Pump speed.

QUESTION: 090 (1.00)

The selected detector in the Reactor Water Level Control System has failed high. Which of the following would result from this failure?

(NOTE: Assume no operator action)

a. The reactor will scram on low reactor water level.

b. The reactor feed pumps will trip on high reactor water level.

c. Reactor water level will decrease and stabilize at +20 inches.

d. The narrow range indicators on the Master Level Controller will continuously decrease.

QUESTION: 091 (1.00)

A loss of a Recirculation Pump has occurred. The operating pump speed is 50% and drive flow is 26,000 gpm.

Core flow indication will be determined by which of the following?

a. Adding the idle loop jet pump flow and the operating loop jet pump flow.

b. Subtracting the idle loop flow from the operating loop jet pump flow.

c. Direct observation of the core flow recorder.

d. Adding the idle loop recirculation loop flow and operating loop recirculation loop flow.

QUESTION: 092 (1.00)

Reactor power is 62% when sealing steam is lost to the main turbine shaft gland seals. The operators are aware that the sealing steam will NOT be recovered.

SELECT the action to be taken by the operator.

a. Immediately trip the turbine.

b. Reduce reactor power as necessary to increase the self sealing steam supply.

c. Immediately run recirculation pumps back to minimum then trip the turbine.

d. Reduce reactor power as necessary to avoid exceeding 5.0" HG A. condenser pressure.

QUESTION: 093 (1.00)

Which one of the following would occur due to a malfunction in the 125 VDC system?

a. Inability to operate RCIC components.

b. Turbine Generator EBOP trip/trouble.

c. Reactor recirculation MG set emergency lube oil pump trip/trouble.

d. Inability to operate electrical breakers.

QUESTION: 094 (1.00)

The plant is shutdown with "B" RHR providing shutdown cooling. The "A" RHR system is out of service for maintenance on the heat exchanger. Both Recirculation Pumps are tagged out.

An unisolable leak occurs in the "B" RHR piping causing an isolation.

SELECT the REQUIRED action.

a. Raise level to +118 inches to initiate alternate shutdown cooling.

b. Raise level to +15 inches in order to reset the shutdown cooling isolation.

c. Raise level to +80 inches on the Upset Range to establish natural circulation.

d. Raise level to +80 inches on the Shutdown Range to establish natural circulation.

QUESTION: 095 (1.00)

Reactor is operating at 65% with the "A" CRD pump tagged out for maintenance. The "B" CRD pump trips.

Which condition would REQUIRE the operator to insert a reactor scram?

a. One rod accumulator alarm.

b. One rod drift alarm.

c. Two rod accumulator alarms.

d. Charging water header pressure NOT restored after 20 minutes.

QUESTION: 096 (1.00)

HV-2553, Reactor Recirc Pump RACS Cooling Isolation Outboard Supply, is closed during testing. The valve will NOT reopen from the Control Room.

SELECT the REQUIRED action.

a. Immediately trip the "A" Reactor Recirculation Pump.

b. Immediately trip both Reactor Recirculation Pumps.

c. Continued operation is permitted until seal damage is apparent then trip the Reactor Recirculation Pump that has indications of damage.

d. 10 minutes after the valve closure place the Mode switch to SHUTDOWN and trip the Reactor Recirculation Pumps.

QUESTION: 097 (1.00)

During manual transfer between Chilled Water and Reactor Auxiliary Cooling System (RACS) the operator is required to close HV9532-1 CHW ISLN RTN VLV and HV9532-2 CHW SUP ISLN VLV.

What would be the effect of NOT performing this action?

a. An expansion tank low level would occur in the Chilled Water System.

b. A RACS pump trip on RACS expansion tank low level would occur.

c. Cooling to the Reactor Recirculation Pumps would be isolated.

d. RACS Pumps would run out causing an overcurrent trip.

QUESTION: 098 (1.00)

Operation in the safe region of the SRV Tail Pipe Level Limit Curve (SLP-L-2) will assure which of th following conditions?

a. SRV's will NOT be opened with the suppression pool level below the level of the tail pipe discharges.

b. The suppression chamber will NOT be overpressurized due to rapid reactor depressurization.

c. Hydrodynamic loading of SRV tailpipe components will NOT be exceeded if an SRV is operated.

d. The vacuum breakers for the SRV tail pipes will be covered.

QUESTION: 099 (1.00)

Reactor power is 92%.

Which of the following describes the effect of losing 125 V DC control power to the main turbine?

a. The turbine will trip.

b. If a trip conditions occurs, an operator MUST trip the turbine from the front standard.

c. Reactor pressure following a turbine trip will be higher due to slow response of the bypass valves.

d. An automatic reactor scram from a turbine trip will NOT occur.

QUESTION: 100 (1.00)

A loss of instrument air has occurred.

Which of the following conditions REQUIRES the operator to insert a manual scram?

a. Instrument Air Header "A" pressure decreases to 65 psig.

b. Instrument Air Header "B" pressure decreases to 60 psig.

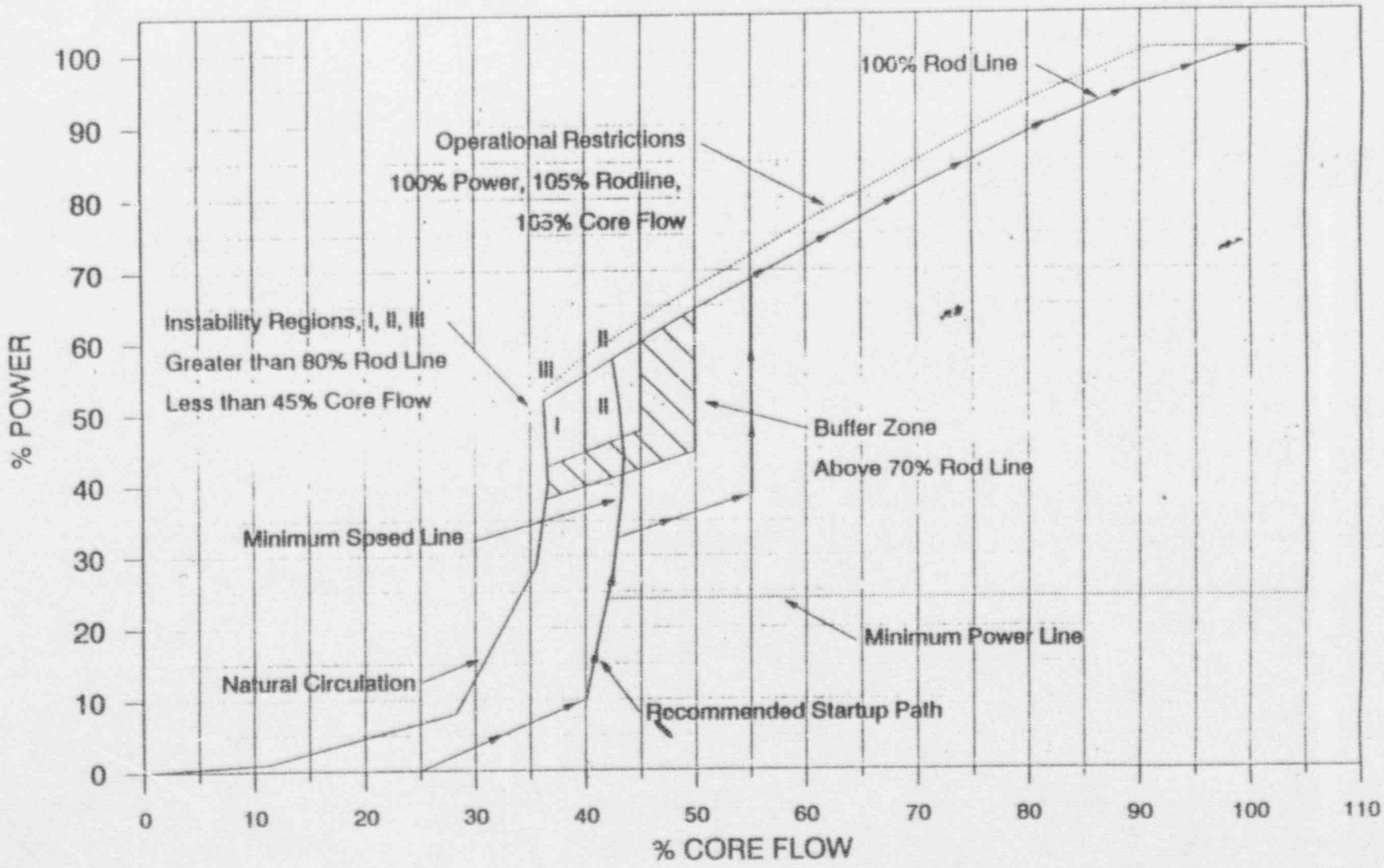
c. A Blue light is observed for one control rod.

d. Two control rod drift alarms are received.

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

# POWER TO FLOW MAP

## HOPE CREEK



ANSWER: 001 (1.00)

a.

REFERENCE:

NC.NA-AP.ZZ-0005(Q), "Station Operating Practices" page 15

[2.7/3.7]

294001A103 ..(KA's)

ANSWER: 002 (1.00)

d.

REFERENCE:

LP 302H-000.00H-000006-10 page 34 section 14.b

[3.6/3.6]

201001K404 ..(KA's)

ANSWER: 003 (1.00)

d.

REFERENCE:

Hope Creek Technical Specifications 3.6.2.1.a

[3.4/4.4]

295029G008 ..(KA's)

ANSWER: 004 (1.00)

a.

REFERENCE:

Lesson plan 302H-000.002-000007-06 RMCS pg 28
Learning Objective 8

[3.2/3.3]

201002A202 ..(KA's)

ANSWER: 005 (1.00)

a.

REFERENCE:

Lesson Plan 302H-000.00H-000026-12 HPCI pg 62
Learning Objective 5

[4.3/4.3]

206000K407 ..(KA's)

ANSWER: 006 (1.00)

d.

REFERENCE:

Lesson plan 302H-000.00H-000014-06 Page 16 and Table 2
Learning objective 5

[3.3/3.5]

215003A205 ..(KA's)

ANSWER: 007 (1.00)

c.

REFERENCE:

NC.NA-AP.ZZ-0015 pg 21

[3.9/4.5]

294001K102 ..(KA's)

ANSWER: 008 (1.00)

a.

REFERENCE:

Lesson plan 302H-000.00H-000002-10 page 39
Learning objective 7

[3.2/3.4]

216000A208 ..(KA's)

ANSWER: 009 (1.00)

d.

REFERENCE:

NC.NA-AP.ZZ-0005(Q) Appendix 10 page 3 section 2.5.2
302H-000.00H-00113C-04 ELO-3.b

[3.7/3.7]

294001K101 ..(KA's)

ANSWER: 010 (1.00)

c

REFERENCE:

HC.OP-AB.ZZ-0102, Revision 2, page 1
Previous Hope Creek Exam

[4.0/3.9]

295014G010 ..(KA's)

ANSWER: 011 (1.00)

d.

REFERENCE:

HC.OP-SO.AC-0001(Q), Revision 16, page 7

[3.8/3.6]

295005G010 ..(KA's)

ANSWER: 012 (1.00)

b.

REFERENCE:

Lesson Plan 302H-000.0H-00124B-07, Revision 0, page 31
[4.0/4.1]

295014A107 ..(KA's)

ANSWER: 013 (1.00)

a.

REFERENCE:

Lesson Plan 302H-000.00H-000007-07, Revision 0, Page 28

295015K201 ..(KA's)

ANSWER: 014 (1.00)

d.

REFERENCE:

HC.OP-EO.ZZ-0320(Q), Revision 1, Page 5

[3.7/4.4]

295015G012 ..(KA's)

ANSWER: 015 (1.00)

a.

REFERENCE:

302H-000.00H-000127-09, Revision 1, Page 15
[3.6/3.8]

295032K302 ..(KA's)

ANSWER: 016 (1.00)

c.

REFERENCE:

L.P. 000005.09 "Control Rod & Control Rod Drive Mechanism," Rev. 8, page 34, L.O. -7a.

[3.4/3.4]

201001A106 ..(KA's)

ANSWER: 017 (1.00)

b.

REFERENCE:

LP 302H-000.00H-000006-09 Table 2 Objective R6.

[3.6/3.6]

201002K403 ..(KA's)

ANSWER: 018 (1.00)

b.

REFERENCE:

LP 302H-000.00H-000030-13 page 37 ELO 10

[3.5/3.5]

217000A301 ..(KA's)

ANSWER: 019 (1.00)

c.

REFERENCE:

302H-000.00H-000005-09, Revision 1, page 26

[3.6/3.6]

201003G007 ..(KA's)

ANSWER: 020 (1.00)

c.

REFERENCE:

L.P. 000001-08, "Reactor Vessel and Internals", Pages 26 & 27, L.O. - 4.r & 5.c

[3.2/3.2]

290002K103 ..(KA's)

ANSWER: 021 (1.00)

d.

REFERENCE:

SO.KP-0001(Q), "MSIV Sealing System Operation", Rev. 1, Page 2

L.P. 000047.05, "MSIV Sealing System", Page 18, L.O. - 6.a

[3.1/3.3]

239003K406 ..(KA's)

ANSWER: 022 (1.00)

d.

REFERENCE:

L.P. 000017-06, "Rod Block Monitor System", Page 40, L.O. - R3.c

[3.8/3.4]

215002G009 ..(KA's)

ANSWER: 023 (1.00)

a.

REFERENCE:

L.P. 000028.11, "Residual Heat Removal", Pages 41 & 42 L.O. - R9.e

[4.1/4.3]

219000A214 ..(KA's)

ANSWER: 024 (1.00)

a.

REFERENCE:

L.P. 000094-05, "Fire Protection System", Pages 20-22, L.O. - 4.a, .b & .c

[3.1/3.2]

286000A302 ..(KA's)

ANSWER: 025 (1.00)

b.

REFERENCE:

L.P. 000066-16, "1E AC Power Distribution", Pages 17-19, L.O. - 4.a & R8

[3.2/3.4]

262001A403 ..(KA's)

ANSWER: 026 (1.00)

a.

REFERENCE:

L.P. 000066-16, "1E AC Power Distribution", Pages B2-B5, L.O. - 5

[3.1/3.4]

262002K401 ..(KA's)

ANSWER: 027 (1.00)

d.

REFERENCE:

L.P. 000046-11, "Main Steam System", Page 28, L.O. - R10.e

[3.6/3.6]

239001A208 ..(KA's)

ANSWER: 028 (1.00)

a.

REFERENCE:

HC.OP-EO.ZZ-0102A(Q), Revision 5, SPL-L-1 and SPT-T-1

[3.8/3.9]

295026A202 ..(KA's)

ANSWER: 029 (1.00)

a.

REFERENCE:

HC.OP-EO.ZZ-0102(Q)-FC, Primary Containment Control, Curve SPL-L-2.

[3.5/3.6]

295029A201 ..(KA's)

ANSWER: 030 (1.00)

c.

REFERENCE:

HC.OP-EO.ZZ-0102(Q)-FC, Primary Containment Control
302H-000.00H-00125B-09, Revision 1, page 29

[3.6/4.4]

295029G012 ..(KA's)

ANSWER: 031 (1.00)

REFERENCE:

HC.OP-EO.ZZ-0102, Primary Pressure Control, step PCC-1.

[3.8*/4.3*]

295028G012 ..(KA's)

ANSWER: 032 (1.00)

a.

REFERENCE:

Lesson Plan 302H-000.00h-000123-07, page 11, Revision 1

[3.5/4.2]

295005G012 ..(KA's)

ANSWER: 033 (1.00)

d.

REFERENCE:

LP 302H-000.00H-000028-11 pages 35 and 49

[4.4/4.5]

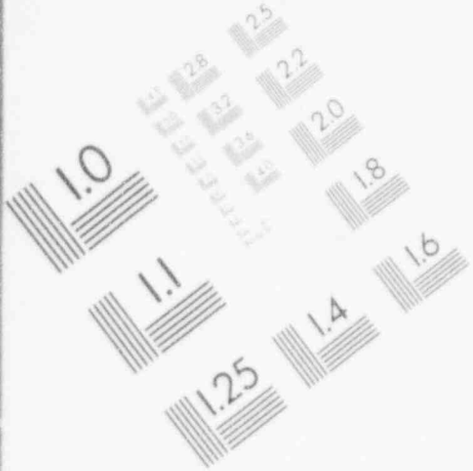
203000A216 ..(KA's)

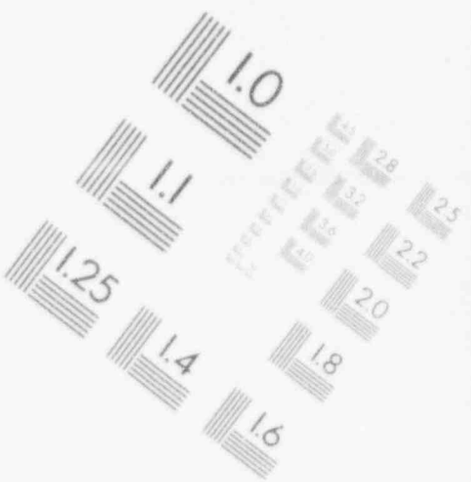
ANSWER: 034 (1.00)

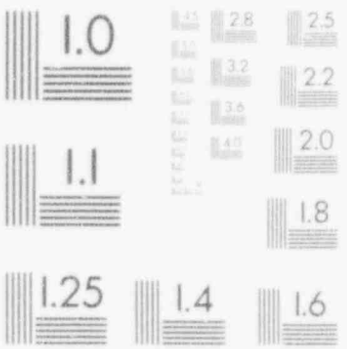
a.

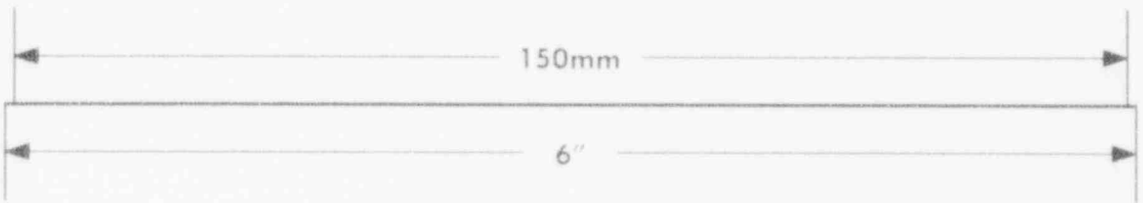
# 2

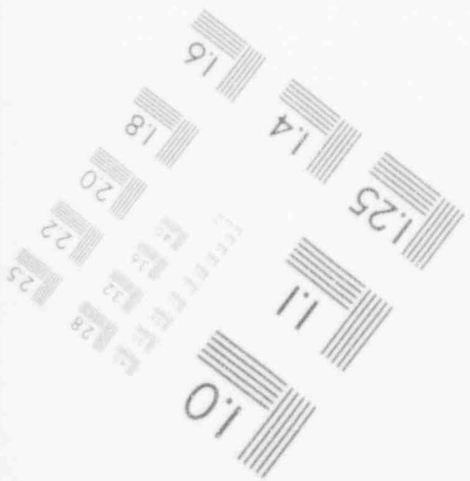
## IMAGE EVALUATION TEST TARGET (MT-3)

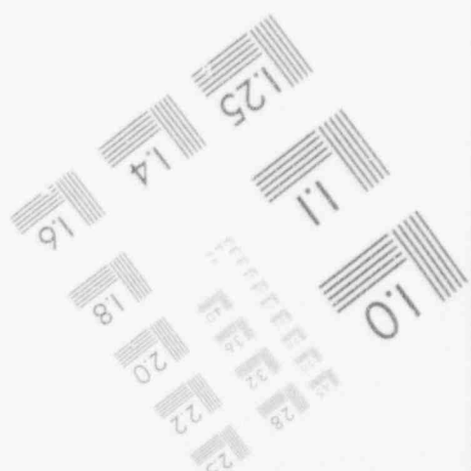
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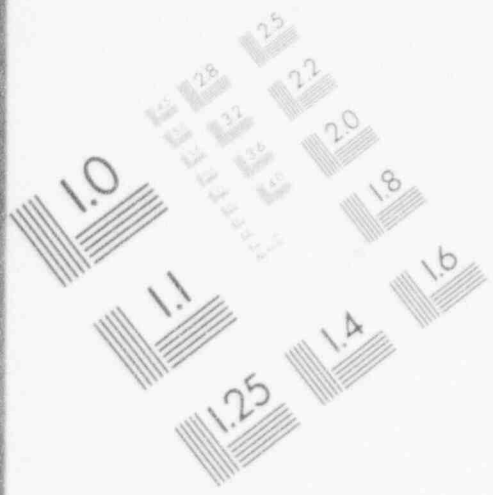
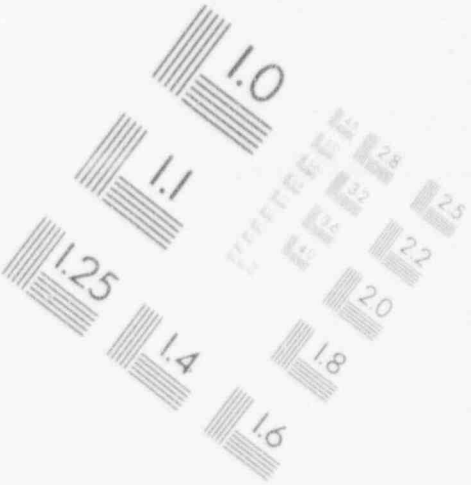
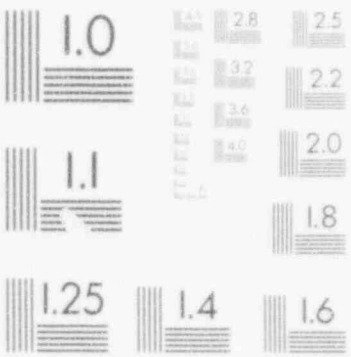
(716) 265-1600

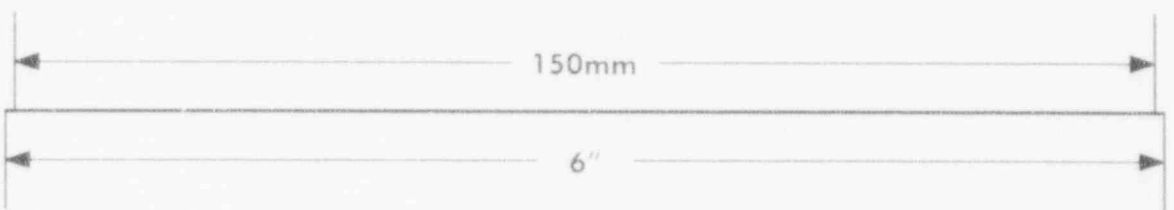
# 2

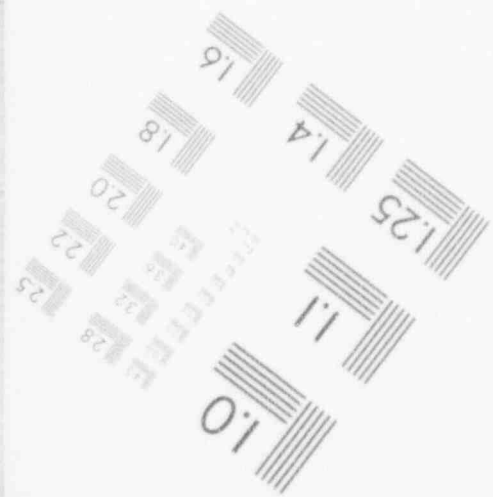
## IMAGE EVALUATION TEST TARGET (MT-3)

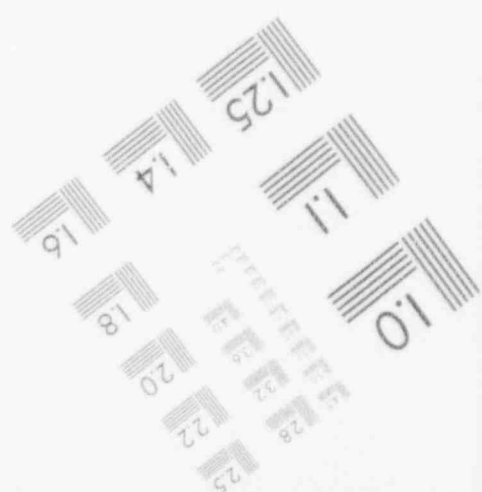
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REFERENCE:

Lesson plan 302H-000.00H-000020-10 Recirc Flow Control System pg 42
Learning Objective 10

[3.0/3.0]

202002K402 ..(KA's)

ANSWER: 035 (1.00)

a.

REFERENCE:

Lesson plan 302H-000.00H-000023-08 pg 20-21 31-32
Learning objective 12

[4.2/4.0]

211000G009 ..(KA's)

ANSWER: 036 (1.00)

c.

REFERENCE:

NC.NA-AP.ZZ-0024 Radiation Protection page 14
302H-000.00H-00113I-02 ELO 1.f
[3.3/3.8]

294001K103 ..(KA's)

ANSWER: 037 (1.00)

d.

REFERENCE:

L.P. 000054-09, "Gaseous Radwaste System", Pages 24 & 25, L.O. - 11.h

[3.1/3.3]

271000K102 ..(KA's)

ANSWER: 038 (1.00)

b.

REFERENCE:

HC.OP-AB.ZZ-142(Q), Loss of Shutdown Cooling, pg 2

[3.3/3.4]

295021K302 ..(KA's)

ANSWER: 039 (1.00)

c.

REFERENCE:

302H.000-00H-000016-07,ELO-2.b

[3.3/3.2]

215005A105 ..(KA's)

ANSWER: 040 (1.00)

b.

REFERENCE:

L.P. 000019-13, "Reactor Recirculation System", Pages 60 & 61, L.O. - 12. b & R16

[3.6/3.7]

202001K506 ..(KA's)

ANSWER: 041 (1.00)

b.

REFERENCE:

SO.BB-0002(Q), "Reactor Recirculation System Operation", Rev. 20, Page 6

L.P. 000019-13, "Reactor Recirculation System", L.O. - 3.a

[3.5/3.9]

202001A210 ..(KA's)

ANSWER: 042 (1.00)

d.

REFERENCE:

RPV Control EOP

295015K103 ..(KA's)

ANSWER: 043 (1.00)

d.

REFERENCE:

AB.ZZ-120 pg 2 Immediate Actions

[3.7/3.8]

295007A105 ..(KA's)

ANSWER: 044 (1.00)

a.

REFERENCE:

OP-AP.ZZ-109(Q) ATTACHMENT 1 PG 3

[3.3/3.6]

294001K107 ..(KA's)

ANSWER: 045 (1.00)

c.

REFERENCE:

NC.NA-AP.ZZ-0015(Q) page 20

[3.9/4.5]

294001K102 ..(KA's)

ANSWER: 046 (1.00)

b.

REFERENCE:

Tech. Spec. Table 6.2.2-1

[2.7/3.7]

294001A103 ..(KA's)

ANSWER: 047 (1.00)

d.

REFERENCE:

NC.NA-AP.ZZ-0005(Q) page 11

[2.7/3.7]

294001A103 ..(KA's)

ANSWER: 048 (1.00)

c.

REFERENCE:

NC.NA-AP.ZZ-0005(Q) Attachment 7 page 2

[3.7/3.7]

294001K101 ..(KA's)

ANSWER: 049 (1.00)

c.

REFERENCE:

HC.OP-AP.ZZ-0005(Q), page 15, Revision 2

[4.2/4.2]

294001A102 ..(KA's)

ANSWER: 050 (1.00)

b.

REFERENCE:

NC.NA-AP.ZZ-0024(Q)

[3.3/3.8]

294001K103 ..(KA's)

ANSWER: 051 (1.00)

d.

REFERENCE:

HC.OP-AP.ZZ-107(Q), Revision 9, page 5 section 5.3.1

[2.7/3.7]

294001A103 ..(KA's)

ANSWER: 052 (1.00)

c.

REFERENCE:

302H-000.00H-000108-01 page 15

[3.2/3.4]

294001A115 ..(KA's)

ANSWER: 053 (1.00)

c.

REFERENCE:

Reactor Recirculation Flow Control System Lesson Plan, page 35, section C.2.b.2, (no facility learning objective identified)

[3.5/3.3]

202002G012 ..(KA's)

ANSWER: 054 (1.00)

d.

REFERENCE:

RHR System Lesson Plan, page 38, section VI.A.5.b.2, TLO 2.0

[3.2/3.3]

203000K403 ..(KA's)

ANSWER: 055 (1.00)

c.

REFERENCE:

HPCI Lesson Plan, page 48, section III.B.4.b, ELO 16.b

[3.7/3.7]

206000K106 ..(KA's)

ANSWER: 056 (1.00)

a.

REFERENCE:

Core Spray System Lesson Plan, page 40, section IV.C.2.b.2, ELO 7.m

[3.9/3.7]

209001G009 ..(KA's)

ANSWER: 057 (1.00)

d.

REFERENCE:

Reactor Protection System Lesson Plan, page 32, section IV.C.3.e.2.c, ELO R4

[4.0/4.1]

212000A211 ..(KA's)

ANSWER: 058 (1.00)

a.

REFERENCE:

ADS Lesson Plan, page 32, section VII.A.3.d., TLO 2.0

[3.8/4.0]

218000K402 ..(KA's)

ANSWER: 059 (1.00)

b.

REFERENCE:

Reactor Water Level Control System Lesson Plan, page 46, section VII.A.3, ELO R4

[3.0/3.0]

259002A306 ..(KA's)

ANSWER: 060 (1.00)

b.

REFERENCE:

SRM Lesson Plan, pages 25-26, section IV.C.3., ELO R6

[3.7/3.7]

215004K401 ..(KA's)

ANSWER: 061 (1.00)

c.

REFERENCE:

LP 302H-000.00H-000022-12 page 36 section 6.b. No facility ELO identified.

[3.6/3.7]

201001K202 ..(KA's)

ANSWER: 062 (1.00)

a.

REFERENCE:

302H-000.00H-000027 -12 page 30 section IV.C.1.4

[3.4/3.4]

209001K601 ..(KA's)

ANSWER: 063 (1.00)

c.

REFERENCE:

LP 302H-000.00H-000027-12 page 31 section 4.a & b. ELO 4

[3.8/3.7]

209001A302 ..(KA's)

ANSWER: 064 (1.00)

a.

REFERENCE:

LP 302H-000.00H-000030-13 page 78 Section E.3.a. ELO 18.b.

[3.6/3.6]

217000A404 ..(KA's)

ANSWER: 065 (1.00)

b.

REFERENCE:

LP 302H-000.00H-000029-13 page 13

[3.4/3.6]

218000K606 ..(KA's)

ANSWER: 066 (1.00)

d.

REFERENCE:

LP 302H-000.00H-000029-13 page 29 ELO 4

[3.4/3.5]

218000K607 ..(KA's)

ANSWER: 067 (1.00)

b.

REFERENCE:

LP 320H-000.00H000068-15 pages 62 and 63. ELO 3 and 8.c

[3.6/3.8]

264000G007 ..(KA's)

ANSWER: 068 (1.00)

d.

REFERENCE:

LP 302-000.00H-000068-15 page 65 ELO 7

[3.8/3.7]

264000K408 ..(KA's)

ANSWER: 069 (1.00)

d.

REFERENCE:

Hope Creek Tech Spec 3/4 6.3, "Primary Containment Isolation Valves", Pages 3/4 6-17 and 6-28

L.P. 000018.08, "Traversing In-Core Probe System", Page 15, L.O. - 7.d & R2.c

[3.3/3.4]

215001K105 ..(KA's)

ANSWER: 070 (1.00)

a.

REFERENCE:

L.P. 000052-13, "Condensate System", Pages 40 & 41, L.O. - 14.d

[2.9/2.9]

256000K402 ..(KA's)

ANSWER: 071 (1.00)

b.

REFERENCE:

L.P. 000043-08, "Fuel Pool Cooling and Cleanup", Page 12, L.O. - R2.c

[2.9/3.2]

233000K306 ..(KA's)

ANSWER: 072 (1.00)

c.

REFERENCE:

L.P. 000021-09, "Reactor Water Cleanup", Pages 28 & 29, L.O. - R10

[3.4/3.5]

204000A304 ..(KA's)

ANSWER: 073 (1.00)

c.

REFERENCE:

L.P. 000048-12, "Main Turbine Construction and Components", Page 48, L.O. - 9

[3.7/3.9]

245000A201 ..(KA's)

ANSWER: 074 (1.00)

a.

REFERENCE:

L.P. 000009-08, "Rod Worth Minimizer", Pages 19 & 20, L.O. - 5

[3.5/3.5]

201006K512 ..(KA's)

ANSWER: 075 (1.00)

a.

REFERENCE:

L.P. 000009-08, "Rod Worth Minimizer", Pages 10-12, L.O. - 8

[3.0/3.0]

201006K514 ..(KA's)

ANSWER: 076 (1.00)

b.

REFERENCE:

L.P. 000017-06, "Rod Block Monitor System", Page 42 & Figure 2, L.O. - 8.b

[3.1/3.3]

215002A203 ..(KA's)

ANSWER: 077 (1.00)

d.

REFERENCE:

SO.BC-0001(Q), "Residual Heat Removal System Operation", Rev. 14, Page 23

L.P. 000028.11, "Residual Heat Removal", L.O. - R4

[3.3/3.2]

205000A102 ..(KA's)

ANSWER: 078 (1.00)

b.

REFERENCE:

302H-000.00H-000028-11, Revision 1, page 38

[3.0/3.2]

219000K405 ..(KA's)

ANSWER: 079 (1.00)

c.

REFERENCE:

AB.ZZ-0129(Q),"High Radiation, Smoke or Toxic Gases in the Control Room Air Supply", Rev. 2, Page 1

L.P. 000096-04, "Control Area Ventilation", Pages 29 & 30, L.O. - R4.b

[3.2/3.5]

290003K501 ..(KA's)

ANSWER: 080 (1.00)

a.

REFERENCE:

HC.OP-AB.ZZ-0300(Q), Revision 5, page 1

[4.0/4.1]

295014A101 ..(KA's)

ANSWER: 081 (1.00)

c.

REFERENCE:

HC.OP-AB.ZZ-0118(Q), Revision 7, page 2

[4.0/4.1]

295014A107 ..(KA's)

ANSWER: 082 (1.00)

b.

REFERENCE:

HC.OP-IO.ZZ-0008(Q), Revision 7, page 8

[3.8/3.9]

295016A101 ..(KA's)

ANSWER: 083 (1.00)

c.

REFERENCE:

HC.OP-AB.ZZ-0200(Q), Revision 3, page 3

[3.9/3.9]

1
295009A101 ..(KA's)

ANSWER: 084 (1.00)

d.

REFERENCE:

HC.OP-SO.BC-0001(Q)

[3.9/3.9]

295013A101 ..(KA's)

ANSWER: 085 (1.00)

c.

REFERENCE:

HC.OP-AB.ZZ-0121(Q), Revision 4, page 2

[3.9/3.9]

295013A102 ..(KA's)

ANSWER: 086 (1.00)

a.

REFERENCE:

HC.OP-AB.ZZ-0144(Q), Revision 7, Page 1

[2.9/3.1]

295023A102 ..(KA's)

ANSWER: 087 (1.00)

c.

REFERENCE:

Lesson Plan 302H-000.00H-000123-07, Revision 1, page 9

[4.3/4.4]

295006K201 ..(KA's)

ANSWER: 088 (1.00)

a.

REFERENCE:

HC.OP-AB.ZZ-0135(Q), Revision 11, page 2

[3.2/3.6]

295003G007 ..(KA's)

ANSWER: 089 (1.00)

d.

REFERENCE:

HC.OP-AB.ZZ-0300(Q), Reactor Power Oscillations, page 1, Rev. 5.

[3.5/3.6]

295001K101 ..(KA's)

ANSWER: 090 (1.00)

a.

REFERENCE:

302H-000.00H-000059-08, Revision 1, page 23

[3.9/3.9]

295009K202 ..(KA's)

ANSWER: 091 (1.00)

c.

REFERENCE:

HC.OP.AB.ZZ-0300 (Q), Reactor Power Oscillations, Note 4.0.

[3.3/3.3]

295001A203 ..(KA's)

ANSWER: 092 (1.00)

d.

REFERENCE:

OP-AB.ZZ-208(Q), Main Condenser Low Vacuum,
Abnormal Operating Procedures Lesson Plan, ELO 1.

[3.8*/3.7*]

295002G010 ..(KA's)

ANSWER: 093 (1.00)

d.

REFERENCE:

HC.OP-AB.ZZ-0150(Q), 125VDC System Malfunction

[3.3/3.6]

295004K106 ..(KA's)

ANSWER: 094 (1.00)

d.

REFERENCE:

HC.OP-AB.ZZ-0142, Loss of Shutdown Cooling,

[3.3/3.4]

295021K301 ..(KA's)

ANSWER: 095 (1.00)

d.

REFERENCE:

OP-AB.ZZ-105(Q), Loss of CRD Regulating Function

[3.7*/3.5*]

295022G010 ..(KA's)

ANSWER: 096 (1.00)

d.

REFERENCE:

HC.OP-AB.ZZ-123(Q), Loss of Reactor Auxiliary Cooling, page 2.

[3.2/3.4]

295018G007 ..(KA's)

ANSWER: 097 (1.00)

b.

REFERENCE:

OP-AB.ZZ-201(Q) Drywell High Pressure/Loss of Drywell Cooling, page 3.

[3.3/3.4]

295018A101 ..(KA's)

ANSWER: 098 (1.00)

c.

REFERENCE:

Lesson Plan 302H-000.00H-00125B-09, HC.OP-EO.ZZ-102 Primary Containment Control - Suppression Pool Level page 24.

[3.6/3.9]

295029G007 ..(KA's)

ANSWER: 099 (1.00)

c.

REFERENCE:

HC.OP-AB.ZZ-0150(Q), 125 VDC System Malfunction, page 3.

[3.3/3.3]

295004K203 ..(KA's)

ANSWER: 100 (1.00)

d.

REFERENCE:

HC.OP-AB.ZZ-0131, Loss of Instrument Air and/or Service Air, step 3.2.

295019G010 [3.7*/3.4*]

295019G010 ..(KA's)

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

# A N S W E R  K E Y

MULTIPLE CHOICE

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

# A N S W E R K E Y

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

A N S W E R  K E Y

092 d

093 d

094 d

095 d

096 d

097 b

098 c

099 c

100 d

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

R O E x a m B W R R e a c t o r

O r g a n i z e d b y Q u e s t i o n N u m b e r

| QUESTION | VALUE | REFERENCE |
|---|---|---|
| 001 | 1.00 | 16708 |
| 002 | 1.00 | 16725 |
| 003 | 1.00 | 16808 |
| 004 | 1.00 | 18230 |
| 005 | 1.00 | 18235 |
| 006 | 1.00 | 18240 |
| 007 | 1.00 | 18245 |
| 008 | 1.00 | 18253 |
| 009 | 1.00 | 188[illegible] |
| 010 | 1.00 | 18905 |
| 011 | 1.00 | 18911 |
| 012 | 1.00 | 20073 |
| 013 | 1.00 | 21108 |
| 014 | 1.00 | 21116 |
| 015 | 1.00 | 22885 |
| 016 | 1.00 | 9000023 |
| 017 | 1.00 | 9000025 |
| 018 | 1.00 | 9000029 |
| 019 | 1.00 | 9000035 |
| 020 | 1.00 | 9000039 |
| 021 | 1.00 | 9000040 |
| 022 | 1.00 | 9000049 |
| 023 | 1.00 | 9000052 |
| 024 | 1.00 | 9000053 |
| 025 | 1.00 | 9000056 |
| 026 | 1.00 | 9000057 |
| 027 | 1.00 | 9000058 |
| 028 | 1.00 | 9000063 |
| 029 | 1.00 | 9000091 |
| 030 | 1.00 | 9000093 |
| 031 | 1.00 | 9000094 |
| 032 | 1.00 | 9000099 |
| 033 | 1.00 | 16762 |
| 034 | 1.00 | 18232 |
| 035 | 1.00 | 18236 |
| 036 | 1.00 | 18244 |
| 037 | 1.00 | 18280 |
| 038 | 1.00 | 18310 |
| 039 | 1.00 | 18863 |
| 040 | 1.00 | 18885 |
| 041 | 1.00 | 18886 |
| 042 | 1.00 | 23469 |
| 043 | 1.00 | 23619 |
| 044 | 1.00 | 9000001 |
| 045 | 1.00 | 9000002 |
| 046 | 1.00 | 9000005 |
| 047 | 1.00 | 9000007 |
| 048 | 1.00 | 9000009 |
| 049 | 1.00 | 9000011 |

RO Exam BWR Reactor

Organized by Question Number

| QUESTION | VALUE | REFERENCE |
|---|---|---|
| 050 | 1.00 | 9000012 |
| 051 | 1.00 | 9000013 |
| 052 | 1.00 | 9000014 |
| 053 | 1.00 | 9000015 |
| 054 | 1.00 | 9000016 |
| 055 | 1.00 | 9000017 |
| 056 | 1.00 | 9000018 |
| 057 | 1.00 | 9000019 |
| 058 | 1.00 | 9000020 |
| 059 | 1.00 | 9000021 |
| 060 | 1.00 | 9000022 |
| 061 | 1.00 | 9000024 |
| 062 | 1.00 | 9000026 |
| 063 | 1.00 | 9000027 |
| 064 | 1.00 | 9000028 |
| 065 | 1.00 | 9000030 |
| 066 | 1.00 | 9000031 |
| 067 | 1.00 | 9000032 |
| 068 | 1.00 | 9000033 |
| 069 | 1.00 | 9000036 |
| 070 | 1.00 | 9000037 |
| 071 | 1.00 | 9000038 |
| 072 | 1.00 | 9000043 |
| 073 | 1.00 | 9000044 |
| 074 | 1.00 | 9000046 |
| 075 | 1.00 | 9000047 |
| 076 | 1.00 | 9000048 |
| 077 | 1.00 | 9000050 |
| 078 | 1.00 | 9000051 |
| 079 | 1.00 | 9000055 |
| 080 | 1.00 | 9000068 |
| 081 | 1.00 | 9000069 |
| 082 | 1.00 | 9000070 |
| 083 | 1.00 | 9000071 |
| 084 | 1.00 | 9000072 |
| 085 | 1.00 | 9000073 |
| 086 | 1.00 | 9000075 |
| 087 | 1.00 | 9000076 |
| 088 | 1.00 | 9000081 |
| 089 | 1.00 | 9000082 |
| 090 | 1.00 | 9000083 |
| 091 | 1.00 | 9000084 |
| 092 | 1.00 | 9000085 |
| 093 | 1.00 | 9000086 |
| 094 | 1.00 | 9000087 |
| 095 | 1.00 | 9000088 |
| 096 | 1.00 | 9000089 |
| 097 | 1.00 | 9000090 |
| 098 | 1.00 | 9000092 |

R O E x a m B W R R e a c t o r

O r g a n i z e d b y Q u e s t i o n N u m b e r

| QUESTION | VALUE | REFERENCE |
|---|---|---|
| 099 | 1.00 | 9000096 |
| 100 | 1.00 | 9000098 |
| | 100.00 | |
| | 100.00 | |

RO Exam BWR Reactor

Organized by KA Group

PLANT WIDE GENERICS

| QUESTION | VALUE | KA |
|---|---|---|
| 049 | 1.00 | 294001A102 |
| 047 | 1.00 | 294001A103 |
| 051 | 1.00 | 294001A103 |
| 001 | 1.00 | 294001A103 |
| 046 | 1.00 | 294001A103 |
| 052 | 1.00 | 294001A115 |
| 048 | 1.00 | 294001K101 |
| 009 | 1.00 | 294001K101 |
| 007 | 1.00 | 294001K102 |
| 045 | 1.00 | 294001K102 |
| 050 | 1.00 | 294001K103 |
| 036 | 1.00 | 294001K103 |
| 044 | 1.00 | 294001K107 |
| PWG Total | 13.00 | |

PLANT SYSTEMS

Group I

| QUESTION | VALUE | KA |
|---|---|---|
| 016 | 1.00 | 201001A106 |
| 061 | 1.00 | 201001K202 |
| 002 | 1.00 | 201001K404 |
| 004 | 1.00 | 201002A202 |
| 017 | 1.00 | 201002K403 |
| 053 | 1.00 | 202002G012 |
| 034 | 1.00 | 202002K402 |
| 033 | 1.00 | 203000A216 |
| 054 | 1.00 | 203000K403 |
| 055 | 1.00 | 206000K106 |
| 005 | 1.00 | 206000K407 |
| 063 | 1.00 | 209001A302 |
| 056 | 1.00 | 209001G009 |
| 062 | 1.00 | 209001K601 |
| 035 | 1.00 | 211000G009 |
| 057 | 1.00 | 212000A211 |
| 006 | 1.00 | 215003A205 |
| 060 | 1.00 | 215004K401 |
| 039 | 1.00 | 215005A105 |
| 008 | 1.00 | 216000A208 |
| 018 | 1.00 | 217000A301 |
| 064 | 1.00 | 217000A404 |
| 058 | 1.00 | 218000K402 |
| 065 | 1.00 | 218000K606 |

RO Exam BWR Reactor

Organized by KA Group

PLANT SYSTEMS

Group I

| QUESTION | VALUE | KA |
|---|---|---|
| 066 | 1.00 | 218000K607 |
| 059 | 1.00 | 259002A306 |
| 067 | 1.00 | 264000G007 |
| 068 | 1.00 | 264000K408 |
| PS-I Total | 28.00 | |

Group II

| QUESTION | VALUE | KA |
|---|---|---|
| 019 | 1.00 | 201003G007 |
| 074 | 1.00 | 201006K512 |
| 075 | 1.00 | 201006K514 |
| 041 | 1.00 | 202001A210 |
| 040 | 1.00 | 202001K506 |
| 072 | 1.00 | 204000A304 |
| 077 | 1.00 | 205000A102 |
| 076 | 1.00 | 215002A203 |
| 022 | 1.00 | 215002G009 |
| 023 | 1.00 | 219000A214 |
| 078 | 1.00 | 219000K405 |
| 027 | 1.00 | 239001A208 |
| 073 | 1.00 | 245000A201 |
| 070 | 1.00 | 256000K402 |
| 025 | 1.00 | 262001A403 |
| 026 | 1.00 | 262002K401 |
| 037 | 1.00 | 271000K102 |
| 024 | 1.00 | 286000A302 |
| 079 | 1.00 | 290003K501 |
| PS-II T . . | 19.00 | |

Group III

| QUESTION | VALUE | KA |
|---|---|---|
| 069 | 1.00 | 215001K105 |
| 071 | 1.00 | 233000K306 |
| 021 | 1.00 | 239003K406 |
| 020 | 1.00 | 290002K103 |
| PS-III Total | 4.00 | |

RO Exam BWR Reactor

Organized by KA Group

PLANT [illegible]S

| QUESTION | VALUE | KA | | |
|---|---|---|---|---|
| [illegible]S Total | 51.00 | | | |

EMERGENCY PLANT EVOLUTIONS

Group I

| QUESTION | VALUE | KA | | |
|---|---|---|---|---|
| 011 | 1.00 | 295005G010 | | |
| 032 | 1.00 | 295005G012 | | |
| 087 | 1.00 | 295006K201 | | |
| 043 | 1.00 | 295007A105 | | |
| 083 | 1.00 | 295009A101 | | |
| 090 | 1.00 | 295009K202 | | |
| 080 | 1.00 | 295014A101 | | |
| 012 | 1.00 | 295014A107 | | |
| 081 | 1.00 | 295014A107 | | |
| 010 | 1.00 | 295014G010 | | |
| 014 | 1.00 | 295015G012 | | |
| 042 | 1.00 | 295015K103 | | |
| 013 | 1.00 | 295015K201 | | |
| EPE-I Total | 13.00 | | | |

Group II

| QUESTION | VALUE | KA | | |
|---|---|---|---|---|
| 091 | 1.00 | 295001A203 | | |
| 089 | 1.00 | 295001K101 | | |
| 092 | 1.00 | 295002G010 | | |
| 088 | 1.00 | 295003G007 | | |
| 093 | 1.00 | 295004K106 | | |
| 099 | 1.00 | 295004K203 | | |
| 084 | 1.00 | 295013A101 | | |
| 085 | 1.00 | 295013A102 | | |
| 082 | 1.00 | 295016A101 | | |
| 097 | 1.00 | 295018A101 | | |
| 096 | 1.00 | 295018G007 | | |
| 100 | 1.00 | 295019G010 | | |
| 095 | 1.00 | 295022G010 | | |
| 028 | 1.00 | 295026A202 | | |
| 031 | 1.00 | 295028G012 | | |
| 029 | 1.00 | 295029A201 | | |
| 098 | 1.00 | 295029G007 | | |
| 003 | 1.00 | 295029G008 | | |

R O E x a m B W R R e a c t o r

O r g a n i z e d b y K A G r o u p

EMERGENCY PLANT EVOLUTIONS

Group II

| QUESTION | VALUE | KA |
|---|---|---|
| 030 | 1.00 | 295029G012 |
| EPE-II Total | 19.00 | |

Group III

| QUESTION | VALUE | KA |
|---|---|---|
| 094 | 1.00 | 295021K301 |
| 038 | 1.00 | 295021K302 |
| 086 | 1.00 | 295023A102 |
| 015 | 1.00 | 295032K302 |
| EPE-III Total | 4.00 | |
| EPE Total | 36.00 | |
| Test Total | 100.00 | |

ATTACHMENT 2

SRO EXAMINATION AND ANSWER KEY

NRC MASTER

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

**CANDIDATE'S NAME:** _____

**FACILITY:** Hope Creek

**REACTOR TYPE:** BWR-GE4

**DATE ADMINISTERED:** December 13, 1993

**INSTRUCTIONS TO CANDIDATE:**

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

| TEST VALUE | CANDIDATE'S SCORE | |
|---|---|---|
| 100.00 | _____ | **FINAL GRADE** _____ % |

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

_____
Candidate's Signature

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.

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

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.

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

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.

| | | | | | |
|---|---|---|---|---|---|
| 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 **********)

Page 6

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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 applicant at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.

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

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

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

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

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

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

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

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

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

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

QUESTION: 001 (1.00)

Which of the following describes the basis which allows the Technical Specification chloride limit to increase from 0.2 ppm during Operational Condition 1 to 0.5 ppm during Operational Condition 4?

a. The temperature necessary for stress cracking to occur in stainless steel is NOT present.

b. Oxidation of carbon steel components decreases as temperature decreases and chlorides increase.

c. The oxygen content of the reactor coolant is below that required for stress cracking to occur in stainless steel.

d. The stress necessary for stress cracking to occur in stainless steel is NOT present in a depressurized system.

QUESTION: 002 (1.00)

The reactor is in cold shutdown with loop "A" of RHR in Shutdown Cooling (SDC) and Loop "B" of RHR inoperable. A leak results in reactor water level decreasing to -140 inches.

IDENTIFY the operator actions which would be REQUIRED to align loop "A" RHR valves to the LPCI injection mode.

a. Close the RHR pump SDC suction valve, F006A and RHR SDC return isolation valve F015B, open the RHR pump Torus suction valve, F004A.

b. Close the RHR pump SDC suction valve, F006A open the RHR pump Torus suction valve, F004A and open the RHR LPCI injection valve F017A.

c. Arm and depress both LPCI initiation pushbuttons.

d. Close the RHR pump SDC suction valve F006A and open the RHR pump Torus suction valve, F004A.

QUESTION: 003 (1.00)

During a Recirculation Pump motor start sequence the jogging circuit opened the Recirculation Pump Discharge Valve HV-F031 to the full open position in 90 seconds.

SELECT the expected response of the Recirculation Pump drive system.

a. Drive motor breaker will open.

b. Only the field breaker will open.

c. Pump speed will be reduced to 30%.

d. Recirculation Pump will remain running.

QUESTION: 004 (1.00)

SELECT the method that will IMMEDIATELY start the "A" Standby Liquid Control System pump.

a. Place the "TEST SWITCH PUMP A" to the test position at panel 10C011.

b. Place the key lock switch to the "ON" position on the "A" Pump control bezel on panel 10C651.

c. Depress the "AP208 START" (red) backlit pushbutton on the "A" Pump control bezel on panel 10C651.

d. Depress the "MANUAL INITIATION PERMISSIVE" and "MANUAL INITIATION" pushbuttons for both logic trains.

QUESTION: 005 (1.00)

A room is posted as an airborne contaminated area at a level of 2 MPC (Maximum Permissible Concentration).

SELECT the MAXIMUM amount of time an individual can spend in the room during a calendar quarter.

a. 1 hour

b. 40 hours

c. 260 hours

d. 520 hours

QUESTION: 006 (1.00)

Subsequent to an automatic RCIC initiation, the following conditions exist:

-- RCIC speed is "zero".
-- The RCIC turbine trip throttle valve (4282) is open.
-- The RCIC steam supply valve (F045) is closed.

SELECT the cause of these RCIC conditions.

a. High reactor water level

b. RCIC Pump suction low pressure

c. Low reactor pressure and high drywell pressure

d. Low reactor pressure without high drywell pressure

QUESTION: 007 (1.00)

An "On-the-Spot Change" would be acceptable for which of the following?

a. A change to the purpose of the procedure.

b. An addition of new acceptance criteria to the procedure.

c. To correct the wrong channel mentioned in a channelized procedure.

d. Removal of a QA hold point at the request of the QA supervisor.

QUESTION: 008 (1.00)

IDENTIFY the sample location of the radiation monitor that provides backup monitoring capability for main steam line rad monitors to detect a fuel element failure.

The radiation monitor for the:

a. line between the air ejector discharge and the feed gas recombiner.

b. system piping between the first and second stage steam jet air ejectors.

c. system piping downstream of the gaseous radwaste HEPA filters.

d. system flow through the gaseous radwaste holdup pipe.

QUESTION: 009 (1.00)

During a non refueling outage, an isolable leak has occurred during shutdown cooling operations causing RHR to isolate. Level cannot be recovered to above Level 2.

SELECT the alternate method of decay heat removal that WILL be effective with these conditions.

a. RWCU maximizing RACS to the non-regenerative heat exchangers.

b. Condensate transfer system via the ECCS injection lines maximizing flow to the RPV.

c. Vessel head spray maximizing mixing of RPV water.

d. Maximizing fuel pool cooling.

QUESTION: 010 (1.00)

Which of the following REQUIRES implementation of NC.NA-AP.ZZ-0013 "Control of Temporary Modifications", including a 10CFR50.59 Safety Review, prior to implementation?

a. Connection of a sample tube to a sampling connection to obtain a condensate sample

b. Blank flange used within established tagging boundaries installed and removed as part of the work package.

c. Installation of a pressure gauge on an instrument tap during the conduct of a system pressure test

d. Portable ventilation exhaust blower providing cooling to an ECCS pump room to maintain system operability.

QUESTION: 011 (1.00)

The following plant conditions exist:

-- Drywell pressure is 3.0 psig.
-- High reactor water level caused the HPCI turbine to trip.
-- Reactor water level has decreased to below the turbine trip reset point.

Which of the following will cause HPCI to inject?

a. Level 8 seal-in pushbutton is depressed.

b. Reactor vessel water level decreases to -30 inches.

c. Reactor vessel water level decreases to 12.5 inches.

d. Suppression pool water level increases to 78.5 inches.

QUESTION: 012 (1.00)

The plant is in operational condition 4. The input power supply breaker to 24 VDC battery charger [1AD304] for SRM Channel "A" and "C" Electronic Circuits is opened.

Which of the following describes the LONG-TERM effect?

a. SRM Channels "A" and "C" will continue to operate as long as the second battery charger remains in service.

b. The SRMs will dissipate the battery power and over time, SRM Channels "A" and "C" will drift downscale.

c. The SRMs will dissipate the battery power and over time, SRM Channels "A" and "C" will drift upscale.

d. SRM Channels "A" and "C" will continue to operate, but the SRM drive motors will NOT have power to drive the detectors.

QUESTION: 013 (1.00)

Which of the following will cause the APRM "A" "UPSC TR OR INOP" (red) status light to illuminate?

a. APRM "A" bypassed

b. APRM power less than 4 percent

c. Less than 14 LPRM inputs to APRM "A"

d. Less than 2 LPRM inputs for level "C" to APRM "A"

QUESTION: 014 (1.00)

What will occur to the Recirculation System if reactor water level decreases to -45 inches? (Assume normal 100% power operation prior to the level decrease.)

a. The scoop tube positioner will runback to 30 percent and then the positioner will lock.

b. Both the generator drive motor breaker and the recirculation pump power supply breaker (RPT) will open.

c. Both the generator field breaker and the recirculation pump power supply breaker (RPT) will open.

d. The scoop tube positioner will runback to 45 percent and then the generator drive motor breaker will open.

QUESTION: 015 (1.00)

Given the following conditions:

-- A Recirculation Pump multiple seal failure has occurred.
-- The affected pump is required to be tripped and isolated.

While performing the isolation why should the pump suction valve be closed before the discharge valve?

The suction valve should be closed first to:

a. prevent water hammer in the Jet Pumps.

b. ensure that the leak can be fully isolated.

c. prevent a reactor water level transient.

d. ensure continued reactor water cleanup system operation.

QUESTION: 016 (1.00)

Which of the following will cause an automatic start of the Secondary Containment Filtration, Recirculation, and Ventilation System?

a. 1.50 psig in the drywell.

b. LOCA sequencer actuation.

c. Low Reactor Building differential pressure at 0.1 inches of water.

d. Reactor Building vent exhaust Hi-Hi radiation at 2.0 E-4 uCi/cc.

QUESTION: 017 (1.00)

The Reactor has scrammed and the following conditions exist:

-- 18 rods are NOT fully inserted (rods are between notch "04" and "36").
-- Reactor power is approximately 4%.
-- The MSIVs are open; the main turbine is tripped.
-- Reactor pressure is being maintained at 920 psig by turbine bypass valves.
-- Reactor water level is +46 inches.

Which of the following will cause reactor power to INCREASE?

a. Lowering reactor water level to +36 inches.

b. Adjusting the pressure regulator setpoint to 850 psig.

c. Inserting control rods to notch "00".

d. Shutting the MSIVs.

QUESTION: 018 (1.00)

While at rated power, the controlling Electro-Hydraulic Control (EHC) pressure regulator fails causing the main turbine bypass valves to open.

SELECT the REQUIRED action that will result in closing the bypass valves.

a. Place the non-affected pressure regulator in service and remove the affected regulator.

b. Depress the "Decrease" switch on the Pressure Setpoint Selector.

c. Place the bypass valves in control of the jack and select "Decrease".

d. Take the Maximum Combined Flow Limit potentiometer to the "Decrease" direction.

QUESTION: 019 (1.00)

A recirculation pump trip occurred at 0900 and the pump was restarted at 0905. The pump tripped again at 0925.

Which of the following describes the pump restart requirements?

a. An immediate restart is allowed

b. 15 minute wait is required

c. 45 minute wait is required

d. Winding temperature must decrease to 167 degrees C before restart

QUESTION: 020 (1.00)

A Nuclear Equipment Operator (NEO) performing a tagout on a core spray pump finds that the motor breaker is closed while attempting to hang the tag on the breaker.

The NEO should:

a. open the breaker locally.

b. call the Nuclear Control Operator and have the breaker opened.

c. contact the Nuclear Shift Supervisor and report the discrepancy.

d. continue with the rest of the tagout until the Control Room opens the breaker.

QUESTION: 021 (1.00)

The Radiation Protection Department, with assistance from the Job Planner, must complete an ALARA Program Pre-Job Review and submit the work to the Station ALARA Committee for review.

The MINIMUM exposure at which this action is REQUIRED is:

a. 0.75 rem individual dose.

b. 1.25 rem individual dose.

c. 10 person-rem.

d. 25 person-rem.

QUESTION: 022 (1.00)

The following plant conditions exists;

-- A fire is discovered in the Control Room at 0645.
-- The Control Room is evacuated at 0650.
-- At 0702 the assigned operator arrives at the remote shutdown panel and immediately takes control of shutdown systems.

Select the appropriate event classification:

a. Unusual Event

b. Alert

c. Site Area Emergency

d. General Emergency

QUESTION: 023 (1.00)

Which of the following describes the MINIMUM staffing REQUIRED by the Hope Creek Technical Specifications during a power ascension from 35% to 100%?

a. -- One licensed Senior Reactor Operator in the Control Room.
-- Two licensed Reactor Operators, one in the Control Room, one on site.
-- Two unlicensed operators on site.

b. -- Two licensed Senior Reactor Operators, one in the Control Room, one on site.
-- Two licensed Reactor Operators, one in the Control Room, one on site.
-- Two unlicensed operators on site.

c. -- Two licensed Senior Reactor Operators both in the Control Room.
-- Two licensed Reactor Operators both in the Control Room.
-- Three unlicensed operators on site.

d. -- One licensed Senior Reactor Operator on site.
-- Two licensed Reactor Operators, one in the Control Room, one on site.
-- Two unlicensed operators on site.

QUESTION: 024 (1.00)

During Mode 5 operation the Senior Nuclear Shift Supervisor (SNSS) has been asked to attend a meeting outside the Control Room.

SELECT how the Control Room Command Function is maintained in the absence of the SNSS.

a. If the SSNS is able to return to the control room within 10 minutes he maintains the command function.

b. The SSNS may turnover the command function to the Operations Manager.

c. A non NRC licensed STA with a Professional Engineers license may be designated to assume the command function.

d. An individual with a Reactor Operator license may be designated to assume the command function.

QUESTION: 025 (1.00)

To maintain an "active" NRC license, the operator must perform the functions of a Reactor Operator or Senior Reactor Operator, as appropriate, on a MINIMUM of:

a. one 12-hour shift per calendar month.

b. two 12-hour shifts per calendar quarter.

c. four 12-hour shifts per calendar quarter.

d. five 12-hour shifts per calendar quarter.

QUESTION: 026 (1.00)

Given the following plant conditions:

-- The reactor is at 100% power.
-- RPS MG Set "B" has one inoperable electric power monitoring channel.
-- RPS Trip Bus "B" has been shifted to its alternate power supply.

Subsequently, one electric power monitoring channel for the alternate power supply becomes inoperable.

Select the actions REQUIRED by Technical Specifications.

a. Restore the alternate supply electric power monitoring channel to operable status within 30 minutes or remove the alternate power supply from service.

b. Restore either electric power monitoring channel to operable status within 72 hours or deenergize RPS Trip Bus "B".

c. Restore either electric power monitoring channel to operable status within 1 hour or be in hot shutdown within the following 6 hours.

d. Restore RPS MG Set "B" electric power monitoring channel to operable status within 8 hours or be in at least hot shutdown within 12 hours.

QUESTION: 027 (1.00)

SELECT the method used to seat a leaking manual operated valve.

a. Use a leverage device to provide extra closing torque.

b. Open the valve one turn and rapidly close it.

c. Open the valve one turn, bring the disk to seat gently, repeat several times.

d. Close the valve while NOT allowing cooldown to seat the valve tightly.

QUESTION: 028 (1.00)

An unisolable steam leak in the turbine building has occurred. The noble gas release rate is 1.5E+5 microcuries per second. Which of the following conditions will require emergency depressurizaion?

a. Field team dose measurements at 1 mile indicate a whole body dose rate of 1.5 Rem per hour.

b. Field team dose measurements at 1 mile indicate a thyroid dose rate of 1.5 Rem per hour.

c. Field team measurements are NOT available within one hour of the transient.

d. Neither whole body nor thyroid dose calculations have been performed within one hour of the transient.

QUESTION: 029 (1.00)

Which of the following is prohibited per department operating practices?

a. Exceeding rated licensed power limit by 1% for 30 minutes.

b. Exceeding rated licensed power limit by 2% for 15 minutes.

c. Exceeding rated licensed power limit by 3% for 2 minutes.

d. Exceeding rated licensed power limit by 0.5% for 1 hour.

QUESTION: 030 (1.00)

An operator enters an area which contains radiation levels at the maximum allowable for an unlocked high radiation level. How long may the operator remain in this area without exceeding 250 mrem?

a. 2.5 minutes

b. 15 minutes

c. 25 minutes

d. 150 minutes

QUESTION: 031 (1.00)

Which of the following is REQUIRED to be completed prior to oncoming shift personnel assuming the shift?

a. Oncoming shift personnel will verify that all keylock keys are affixed to the control room panels with magnetic strips.

b. The Senior Nuclear Shift Supervisor will ensure that the shift relief checklists are completed.

c. The Senior Nuclear Shift Supervisor or Nuclear Shift Supervisor will conduct a briefing for shift operations personnel.

d. Oncoming shift personnel will review applicable logs since the previous time on shift or previous 72 hours, whichever is shorter.

QUESTION: 032 (1.00)

A WHITE color that is displayed on a Control Room Integrated Display System (CRIDS) monitor indicates:

a. an alarm condition.

b. points NOT in alarm.

c. a bad CRIDS point.

d. a gas system.

QUESTION: 033 (1.00)

The plant is operating at 100% power when a transient causes feedwater flow to drop to 15%. After a time delay, the recirculation MG sets will runback.

SELECT the runback speed with the corresponding reason.

a. 30% speed in order to limit axial thrust on the recirculation pump.

b. 45% speed in order to limit axial thrust on the recirculation pump.

c. 30% speed in order to prevent cavitation of the recirculation pumps and jet pumps.

d. 45% speed in order to prevent cavitation of the recirculation pumps and jet pumps.

QUESTION: 034 (1.00)

A test of the "A" RHR pump is being conducted with flow of 2000 GPM established through the full flow test valve (F024A). The "A" RHR Pump is then stopped.

The "A" RHR Pump Minimum Flow Valve (F007A) will:

a. automatically close which is its normal standby position.

b. automatically open which is its normal standby position.

c. require closing using the control switch in order to establish the normal standby lineup.

d. require opening using the control switch in order to establish the normal standby lineup.

QUESTION: 035 (1.00)

Given the following conditions:

-- High Pressure Coolant Injection (HPCI) is injecting water to the RPV with suction from the Condensate Storage Tank (CST).
-- Torus water level is 78.5 inches and increasing.

The HPCI Booster Pump Suction Valve from CST (HV-F004) will:

a. remain open.

b. close causing the HPCI Suction Valve from Suppression Pool (HV-F0042) to open.

c. close after the HPCI Suction Valve from Suppression Pool (HV-F0042) opens.

d. close resulting in a trip of HPCI on low suction pressure.

QUESTION: 036 (1.00)

With a normal electrical lineup, an operator inadvertently arms and depresses the "A" Core Spray System logic channel initiation control pushbutton.

Which of the following is an expected automatic action?

a. EDG "A" will start but its output breaker will remain open.

b. EDG "A" will start and its output breaker will close.

c. All Core Spray Pumps start 6 seconds after the pushbutton is depressed.

d. "A" Loop Core Spray Pumps start 6 seconds after the pushbutton is depressed.

QUESTION: 037 (1.00)

Which of the following will cause an RPS half scram with the Mode Switch in "Run"?

a. The "A" inboard and "D" outboard MSIVs go 5% closed.

b. The "A" inboard and "C" outboard MSIVs go 5% closed.

c. The "B" outboard and "C" inboard MSIVs go 10% closed.

d. The "B" outboard and "D" inboard MSIVs go 10% closed.

QUESTION: 038 (1.00)

Given the following plant conditions:

-- The Automatic Depressurization System (ADS) manual initiation pushbuttons S6B and S6F pushbuttons have been armed and depressed.
-- No low pressure ECCS pumps are running.

SELECT the expected response of the ADS system.

a. ADS valves will open immediately .

b. ADS valves will open after a 105 second time delay.

c. ADS valves will open after a 5 minute time delay.

d. ADS valve will remain closed unless a low pressure ECCS pump is started.

QUESTION: 039 (1.00)

Following a reactor scram on low RPV level, the Reactor Water Level Control System lowers level setpoint in order to prevent:

a. tripping Reactor Feed Pump turbines on overspeed.

b. tripping Reactor Feed Pump turbines at Level 8.

c. injection of a large amount of cold water which could cause excessive cooldown rates.

d. injection of a large amount of cold feedwater which could cause a second low RPV level scram.

QUESTION: 040 (1.00)

Which of the following will bypass ALL SRM Rod Blocks?

a. All IRMs on Range 3.

b. Reactor Mode Switch in "Run".

c. All SRM detectors fully withdrawn.

d. More than one SRM function switch NOT in "Operate".

QUESTION: 041 (1.00)

The power supplies to the Backup Scram Valves are:

a. 120 VAC Class 1E distribution panels 1AJ481 and AJ482.

b. RPS Bus "A" and RPS Bus "B".

c. 125 VDC Class 1E distribution panels 1AD417 and 1BD417.

d. 250 VDC Class 1E distribution panels 10D251 and 10D261.

QUESTION: 042 (1.00)

Following an automatic actuation of the Core Spray System an electrical fault closes the "A" Core Spray Pump suction valve, F001A.

SELECT the expected response of the Core Spray System to this event.

a. The "A" Core Spray Pump will continue to run without a suction flowpath until damage occurs.

b. The "A" Core Spray Pump will trip on low Suction Pressure.

c. The "A" Core Spray Pump will trip on low suction pressure, the "C" Core Spray Pump will trip on motor overload.

d. The Core Spray Pump suction valve from the Condensate Storage Tank will open when F001A leaves the open position.

QUESTION: 043 (1.00)

Subsequent to a Loss of Offsite Power, the following plant conditions exist:

-- Drywell pressure 1.7 psig
-- Reactor Vessel Level -45 inches
-- Reactor Vessel Pressure 860 psig
-- All Emergency Diesels have started.

When the Emergency Diesel Generator output breakers close, Core Spray pumps will:

a. NOT start because the actuation setpoint has not been reached.

b. start immediately but their injection valves will NOT open.

c. start after a time delay of 6 seconds.

d. start after a time delay of 10 seconds.

QUESTION: 044 (1.00)

Following an automatic initiation of the Reactor Core Isolation Cooling system (RCIC), reactor water level is -20 inches and slowly increasing.

SELECT the response of the RCIC system if the RCIC "Isolation "B" Trip" pushbutton is depressed and then released.

a. RCIC Outboard Steam Supply Isolation valve, HV-F008 closes and HV-4282, Turbine Trip Throttle Valve Trips.

b. RCIC Inboard Steam Supply Isolation valve HV-F007 and Outboard Steam Supply Isolation valve, HV-F008 close and HV-4282, Turbine Trip Throttle Valve Trips.

c. The "Isolation "B" Trip" pushbutton has no effect on RCIC because the automatic initiation signal is sealed in.

b. RCIC Outboard Steam Supply Isolation valve, HV-F008 closes but will reopen when the pushbutton is released.

QUESTION: 045 (1.00)

An electrical fault results in the loss of Class 1E 125 VDC bus 1DD417.

SELECT the affect on the Automatic Depressurization System (ADS).

a. The "B" ADS solenoids will fail open.

b. The "B" ADS solenoids will fail closed.

c. All of the ADS Valves will only operate in the safety relief mode.

d. One half of the ADS valves will NOT be operable with the control room hand switch.

QUESTION: 046 (1.00)

Shortly following a small Loss Of Coolant Accident the following conditions exist:

-- Drywell pressure is 1.5 psig
-- Reactor water level is -125 inches and decreasing
-- RHR and Core Spray Pumps are running
-- ADS is NOT inhibited

When reactor water level reaches -129 inches, the ADS valves will open:

a. immediately.

b. in 105 seconds.

c. in 300 seconds.

d. in 405 seconds.

QUESTION: 047 (1.00)

The Emergency Diesel Generator (EDG) "NORMAL/EMERGENCY TAKEOVER" Switch is positioned to "EMERGENCY TAKEOVER" at the remote Generator Control Panel.

With the switch in this position the EDG will:

a. auto start in response to a LOCA, but will NOT respond to a Loss of Offsite Power (LOP).

b. auto start in response to a LOP but, NOT respond to a LOCA.

c. NOT respond to a LOCA or a Loss of Offsite Power (LOP).

d. auto start in response to both a LOCA and a LOP.

QUESTION: 048 (1.00)

The following conditions exist:

-- The "A" Emergency Diesel Generator (EDG) is running in test, paralleled with an offsite source.
-- The remaining Diesel Generators are all operable.
-- A valid LOCA signal is present.

SELECT the AUTOMATIC response of all EDGs to this event.

a. "A" EDG will continue to run paralleled to offsite, the remaining EDGs will start but NOT close onto their respective Class 1E busses

b. "A" EDG will continue to run paralleled to offsite, the remaining EDGs will start and close onto their respective Class 1E busses

c. "A" EDG output breaker will trip open, the remaining EDGs will start and close onto their respective Class 1E busses

d. "A" EDG output breaker will trip open, the remaining EDGs will start but NOT close onto their respective Class 1E busses

QUESTION: 049 (1.00)

Which of the following conditions can result in CRD high temperatures?

a. Leaking scram discharge valve

b. Low drive water pressure

c. High drive water pressure

d. High differential pressure across the CRD pump suction filters.

QUESTION: 050 (1.00)

Given the following conditions:

-- A Traversing In-core Probe TIP trace is in progress.
-- A loss of coolant accident in the drywell has just occurred.

Which automatic response will occur to ensure that Primary Containment Integrity is maintained?

a. The shear valve is fired cutting the TIP detector cable.

b. The ball valve is closed cutting the TIP detector cable.

c. The TIP detector is withdrawn and then the shear valve is fired.

d. The TIP detector is withdrawn and then the ball valve is closed.

QUESTION: 051 (1.00)

In the event of a loss of Primary Condensate pumps, the CRD Pumps will receive water from:

a. Condensate Storage Tank.

b. turbine exhaust hood spray line.

c. discharge of reactor feed water pumps.

d. discharge of the Secondary Condensate Pumps.

QUESTION: 052 (1.00)

With the maximum heat load on the spent fuel pool, what is the specific CONCERN as Spent Fuel Pool temperatures increase while the core is unloaded and stored in the pool?

a. Excessive heat load on the Residual Heat Removal (RHR) system while in augmented fuel pool cooling.

b. Increasing radiation doses as fission product gases begin to come out of solution.

c. Excessive system flows and temperatures causing demineralizer resin breakdown.

d. Increasing value for Keff above the Technical Specification limit of 0.95.

QUESTION: 053 (1.00)

SELECT the Reactor Water Cleanup System (RWCU) system feature that will prevent draining the system when isolated.

a. Blowdown Flow Control Valve (HV-F033) automatic closure on high downstream pressure.

b. RWCU Return to the Main Condenser (HV-F034) automatic closure on high downstream pressure.

c. Blowdown Flow Control Valve (HV-F033) automatic closure on low upstream pressure.

d. RWCU Return to the Main Condenser (HV-F034) automatic closure on low upstream pressure.

QUESTION: 054 (1.00)

Given the following conditions:

-- The plant is at 100% power.
-- The main turbine front standard trip lever has been actuated.

SELECT the valve group that, if closed, will OPEN in response to the turbine trip.

a. Main Turbine intercept valves

b. Main Turbine intermediate stop valves

c. Extraction steam supply line drain valves

d. Feedwater heater extraction non-return (bleeder trip) valves

QUESTION: 055 (1.00)

The Rod Worth Minimizer (RWM) has applied a control rod withdrawal block due to an incorrect rod movement.

What control rod motion is available for the above condition?

a. The rod causing the block may only be inserted.

b. The rod causing the block may only be withdrawn.

c. Any control rod in the same group as the rod causing the block may be inserted.

d. No control rod motion is possible until the RWM is placed in "Bypass."

QUESTION: 056 (1.00)

Given the following conditions:

-- Control rod withdrawals are in progress for a reactor startup.
-- The current Rod Worth Minimizer rod group has insert and withdrawal limits of Notch 18 and Notch 24.

SELECT the control rod alternate limits ALLOWED by the Rod Worth Minimizer for the above conditions.

a. 16 and 22

b. 16 and 26

c. 20 and 22

d. 20 and 26

QUESTION: 057 (1.00)

Given the following conditions:

-- The plant is at 55% power.
-- APRM "C" fails "Downscale".
-- No operator actions have been taken.

SELECT the expected AUTOMATIC response of the Rod Block Monitor (RBM) system? (Do not consider the response of any other plant system.)

a. RBM channel "B" automatically shifts to APRM "E"

b. RBM channel "A" output trip functions are bypassed.

c. RBM channel "B" generates a channel "Downscale" trip.

d. RBM channel "A" generates a channel "Inoperative" trip.

QUESTION: 058 (1.00)

Given the following conditions:

-- The plant is shutdown making preparations for Shutdown Cooling (SDC) using the "B" Loop of Residual Heat Removal (RHR) system.
-- Both Recirculation Pumps are shutdown with their discharge valves closed.

How is the RHR Pump that is initially being started for SDC protected from damage due to no-flow? (Assume the system is being started in accordance with the procedure.)

a. The pump minimum flow valve will open to provide flow until the SDC valves are opened.

b. The pump will automatically trip on low suction pressure if flow is less than 3000 gpm.

c. The operator will open the minimum flow valve until SDC flow is greater than 1270 gpm.

d. The operator is required to establish pump flow to the reactor vessel immediately after starting.

QUESTION: 059 (1.00)

Due to throttling closed the RHR Loop "A" Full Flow Test Valve, HV-F024A, flow through the "A" RHR pump is decreasing. At what point will the RHR "A" Minimum Flow Valve, HV-F007A come open?

a. When RHR "A" flow drops below 1250 GPM for five seconds.

b. When RHR "A" flow drops below 1250 GPM for ten seconds.

c. When RHR "A" flow drops below 1450 GPM for five seconds.

d. When RHR "A" flow drops below 1450 GPM for ten seconds.

QUESTION: 060 (1.00)

Due to a loss of both Hope Creek Fire Water Storage Tanks, the Hope Creek and Salem Fire Protection Systems are to be cross-connected.

IDENTIFY the Salem facility person that must approve this cross-connected operation.

a. General Manager - Salem Operations

b. Manager - Site Protection

c. Salem Station Operations Manager

d. Salem Senior Nuclear Shift Supervisor

QUESTION: 061 (1.00)

SELECT the plant condition REQUIRING the Control Area Ventilation system to be operated in the Outside Air (OA) Mode.

a. Smoke has been detected in the Control Room air supply.

b. Chlorine gas concentration of 2.5 ppm has been detected in the Control Room air supply.

c. Control Room air intake radiation levels are 4.3 E-4 uci/cc.

d. Control Room positive pressure cannot be maintained in the Normal Mode.

QUESTION: 062 (1.00)

Given the following plant conditions:

-- A reactor scram condition occurred from 100% power.
-- Power remained above 4%.
-- Turbine bypass valves are being used to control reactor pressure.

Which of the following actions will result in motive force being applied to scram the control rods without regard to the cause of failure?

a. Deenergize scram solenoids.

b. Isolate and vent the scram air header.

c. Vent Control Rod Drive overpiston area.

d. Reset the scram, drain the scram discharge volume, and initiate a manual reactor scram.

QUESTION: 063 (1.00)

Which of the following states the basis for NOT isolating systems required to provide adequate core cooling and shutdown the reactor when executing the Radioactivity Release Control Emergency Operating Procedure?

Isolating these systems results in:

a. an unmonitored ground level release due to increased pressure in secondary containment.

b. no increase of off-site releases from the discharge of these systems.

c. potentially higher radioactivity release rates.

d. less degradation of safety systems due to reduced energy released into primary and secondary containment.

QUESTION: 064 (1.00)

While executing the RPV Water Level Control section of the RPV Control Emergency Operating Procedure, the operator is directed to maintain level between +12.5" and +54".

This band is selected in order to:

a. prevent flooding the main steam lines.

b. allow use of steam turbines for pressure control.

c. provide sufficient margin above the HPCI and RCIC initiation setpoints.

d. maintain inventory such that if the size of a LOCA increases in severity, the accident analysis will remain valid.

QUESTION: 065 (1.00)

Given the following actions:

-- Suppression pool level is 70 inches.
-- Reactor water level is -170 inches and decreasing.
-- All available systems and injection subsystems are injecting.
-- Reactor pressure is 50 psig.

The operator is REQUIRED to:

a. exit Primary Containment Control and perform Containment Flooding.

b. exit only Torus Level Control section of Primary Containment Control and perform Containment Flooding.

c. monitor Torus Level Control section of Primary Containment Control and perform Containment Flooding.

d. perform all sections of Primary Containment Control and Containment Flooding concurrently.

QUESTION: 066 (1.00)

A reactor scram from full power occurred due to an isolation of all Main Steam Isolation Valves. Reactor pressure peaked at 1400 psig during the transient.

Which of the following is the correct course of action?

a. Notify the NRC within twenty four hours.

b. Do NOT restart the unit until authorized by the NRC.

c. Be in Hot Shutdown within 1 hour.

d. Be in Cold Shutdown within 24 hours.

QUESTION: 067 (1.00)

While performing emergency depressurization from rated pressure in accordance with Emergency Operating Procedures, only three (3) SRVs can be opened.

Which of the following governs opening of the MSIVs to assist in depressurization to prevent severe core damage or containment failure?

a. The MSIVs should NOT be opened if a main steam line break is suspected.

b. The MSIVs should NOT be opened if the RPV cooldown rate limits will be exceeded.

c. The MSIVs may be opened only if the Main Steam Line Radiation Monitors are operable.

d. The MSIVs may be opened irrespective of suspected fuel failure or steam line break.

QUESTION: 068 (1.00)

Given the following plant conditions:

-- Following a reactor scram, reactor power remains at 30% with multiple control rods remaining at position 48.
-- Reactor pressure is being controlled between 900 - 1000 psig
-- Suppression pool temperature is 105 degrees F.
-- Reactor water level has dropped to -195 inches.

Select the required action:

a. Flood the containment.

b. Flood the reactor pressure vessel.

c. Perform emergency depressurization.

d. Continue lowering reactor water level until reactor power is less than 4%.

QUESTION: 069 (1.00)

While operating at 100% power, a trip of one Reactor Recirculation Pump occurs.

Which of the following conditions REQUIRE an immediate manual reactor scram?

a. Power on APRM recorders is varying between 55% and 70%.

b. Power on LPRM indicators is varying between 55 watts/cm and 70 watts/cm.

c. Three LPRM upscale alarms occur on the full core display.

d. An LPRM upscale alarm and LPRM downscale alarm on the full core display occur simultaneously within the same string.

QUESTION: 070 (1.00)

An evaluation of plant conditions during a transient indicates that a significant loss of feedwater heating has occurred.

Which of the following is a REQUIRED immediate action?

a. Insert a manual reactor scram.

b. Run back recirculation pumps by at least 20% pump speed.

c. Run back recirculation pumps to reduce thermal power by at least 20%

d. Reduce recirculation flow to restore thermal power to the pre-transient value.

QUESTION: 071 (1.00)

A fire in the control room panels has forced all personnel to abandon the Control Room. A reactor scram has been initiated from outside the Control Room.

SELECT the method by which the reactor scram must be verified.

a. Verify that backup scram valves are deenergized.

b. Verify all Hydraulic Control Unit nitrogen pressures are less than 800 psig.

c. Verify that all scram discharge volume vent and drain valves are closed.

d. Verify all individual scram inlet and scram outlet valves are open.

QUESTION: 072 (1.00)

Which of the following will cause a reactor feedwater runback to 70% with two Reactor Feed Pumps initially running?

a. Feedwater flow = 80%
Two Primary Condensate Pumps initially running
A trip of a Reactor Feedwater Pump occurs

b. Feedwater flow = 80%
Three Primary Condensate Pumps initially running
A trip of a Secondary Condensate Pump occurs.

c. Feedwater flow = 90%
Three Primary Condensate Pumps initially running
A trip of a Primary Condensate Pump occurs

d. Feedwater flow = 90%
Three Secondary Condensat Pumps initially running
A trip of a Secondary Condensate Pump occurs

QUESTION: 073 (1.00)

The Nuclear Control Operator is directed to place the "B" Loop of RHR in Suppression Pool Cooling while a LPCI initiation signal is in.

SELECT the action that will allow opening the RHR Loop "B" Return Valve, HVF024B.

a. AUTO OP OVRD on LPCI Injection Valve, HVF017B is depressed.

b. AUTO CL OVRD on RHR Loop "B" Return Valve, HVF024B is depressed.

c. AUTO OP OVRD on LPCI Injection Valve, HVF017B and AUTO CL OVRD on RHR Loop "B" Return Valve, HVF024B are both depressed.

d. LPCI Injection Valve, HVF017B is closed and AUTO CL OVRD on RHR Loop "B" Return Valve, HVF024B is depressed.

QUESTION: 074 (1.00)

A Safety Relief Valve (SRV) has stuck open while at power. At what point must the Mode Switch be taken to "Shutdown"?

a. When suppression pool temperature reaches 95 degrees F

b. When suppression pool temperature reaches 105 degrees F

c. When the SRV has been stuck open for 2 minutes

d. When the SRV has been stuck open for 5 minutes

QUESTION: 075 (1.00)

During a core load, an irradiated fuel bundle is damaged while being moved through the "cattle chute". Radiation levels on the refuel floor are normal.

The fuel bundle should be:

a. set down in the fuel pool storage area.

b. set down in its designated in core position.

c. set down in the nearest in core position.

d. left in the "cattle chute" until reactor engineering has analyzed the condition.

QUESTION: 076 (1.00)

Due to a leak, the Skimmer Surge Tank level is lowering.

Which of the following is an expected AUTOMATIC action at 49" in the Skimmer Surge Tank?

a. Skimmer Surge Tank Makeup Valve opens.

b. Fuel Pool Cooling Pumps trip.

c. Fuel Pool Filter Demin isolates.

d. RBVS isolates and FRVS starts.

QUESTION: 077 (1.00)

Which of the following is the reason for taking the Reactor Mode Switch to "Shutdown" early in the transient following a reactor scram?

a. To reduce the APRMs fixed scram setpoint.

b. To activate the IRM scram function.

c. To provide a redundant RPS actuation.

d. To allow opening the scram discharge volume vent and drain valves.

QUESTION: 078 (1.00)

Given the following plant conditions:

-- Reactor power remained at rated following a manual reactor scram.
-- Suppression pool temperature is 110 degrees with an upward trend.
-- All blue scram lights remained EXTINGUISHED following the scram.
-- Reactor recirculation pumps have been run back to minimum and tripped.
-- ARI has been initiated but resulted in no rod motion.
-- ADS has been inhibited.
-- SLC has NOT automatically initiated.

Select the required action:

a. Initiate SLC concurrently with isolating and venting the scram air header.

b. Initiate SLC then isolate and vent the scram air header if necessary.

c. Isolate and vent the scram air header then initiate SLC if suppression pool temperature continues to rise.

d. Initiate SLC concurrently with resetting the scram, draining the scram discharge volume and initiating a manual scram.

QUESTION: 079 (1.00)

Given the following conditions:

-- Suppression Pool temperature 125 degrees F
-- Reactor water level -170 inches
-- Reactor pressure 50 psig

SELECT the statement that describes the REQUIRED mode of operation for the "A" and "B" RHR Pumps.

a. "A" Pump in Suppression Pool Cooling
"B" Pump in Suppression Pool Cooling

b. "A" Pump in Suppression Pool Cooling
"B" Pump in LPCI mode

c. "A" Pump in LPCI mode
"B" Pump in Suppression Pool Cooling

d. "A" Pump in LPCI mode
"B" Pump in LPCI mode

QUESTION: 080 (1.00)

The emergency operating procedures caution the operator against operating the HPCI turbine below 2150 RPM.

Operating the HPCI turbine below 2150 RPM will cause:

a. interruptions in exhaust flow due to the stop valve being operated very close to its seat.

b. turbine damage due to turbine operation at critical speeds.

c. inadequate cooling flow to the lube oil cooler.

d. inadequate cooling flow to the barometric condenser.

QUESTION: 081 (1.00)

RPS Bus "A" is being switched from the NORMAL to ALTERNATE supply. Which of the following valves, if open, would be expected to close?

a. Reactor Head Spray Valve, HV-F023

b. Shutdown Cooling Suction Valve, HV-F009

c. RHR Shutdown Cooling Injection Valve, HV-F015A

d. RHR Shutdown Cooling Injection Valve, HV-F015B

QUESTION: 082 (1.00)

While carrying out the required actions for a station blackout, the operator acknowledges the flashing TRIP pushbuttons on the infeeds for the 4.16KV Vital 1E busses.

This action will:

a. prevent the Emergency Diesel Generators from loading.

b. bypass all electrical Emergency Diesel Generator trips.

c. prevent reclosing the 4.16 KV Vital 1E infeeds.

d. bypass all 4.16 KV Vital 1E infeed trips.

QUESTION: 083 (1.00)

A trip of a Reactor Recirculation Pump has occurred.

Which of the following is an acceptable method for exiting the identified region of the power-to-flow map?

(NOTE: Refer to the attached Power To Flow Map)

a. Region III by increasing Recirculation Pump speed on the operating pump.

b. Region II by restarting the Recirculation Pump.

c. Region I by increasing Recirculation Pump speed.

d. Region II by increasing Recirculation Pump speed.

QUESTION: 084 (1.00)

The selected detector in the Reactor Water Level Control System has failed high. Which of the following would result from this failure?

(NOTE: Assume no operator action)

a. The reactor will scram on low reactor water level.

b. The reactor feed pumps will trip on high reactor water level.

c. Reactor water level will decrease and stabilize at +20 inches.

d. The narrow range indicators on the Master Level Controller will continuously decrease.

QUESTION: 085 (1.00)

A loss of a Recirculation Pump has occurred. The operating pump speed is 50% and drive flow is 26,000 gpm.

Core flow indication will be determined by which of the following?

a. Adding the idle loop jet pump flow and the operating loop jet pump flow.

b. Subtracting the idle loop flow from the operating loop jet pump flow.

c. Direct observation of the core flow recorder.

d. Adding the idle loop recirculation loop flow and operating loop recirculation loop flow.

QUESTION: 086 (1.00)

Reactor power is 62% when sealing steam is lost to the main turbine shaft gland seals. The operators are aware that the sealing steam will NOT be recovered.

SELECT the action to be taken by the operator.

a. Immediately trip the turbine.

b. Reduce reactor power as necessary to increase the self sealing steam supply.

c. Immediately run recirculation pumps back to minimum then trip the turbine.

d. Reduce reactor power as necessary to avoid exceeding 5.0" HG A. condenser pressure.

QUESTION: 087 (1.00)

Which one of the following would occur due to a malfunction in the 125 VDC system?

a. Inability to operate RCIC components.

b. Turbine Generator EBOP trip/trouble.

c. Reactor recirculation MG set emergency lube oil pump trip/trouble.

d. Inability to operate electrical breakers.

QUESTION: 088 (1.00)

The plant is shutdown with "B" RHR providing shutdown cooling. The "A" RHR system is out of service for maintenance on the heat exchanger. Both Recirculation Pumps are tagged out.

An unisolable leak occurs in the "B" RHR piping causing an isolation.

SELECT the REQUIRED action.

a. Raise level to +118 inches to initiate alternate shutdown cooling.

b. Raise level to +15 inches in order to reset the shutdown cooling isolation.

c. Raise level to +80 inches on the Upset Range to establish natural circulation.

d. Raise level to +80 inches on the Shutdown Range to establish natural circulation.

QUESTION: 089 (1.00)

Reactor is operating at 65% with the "A" CRD pump tagged out for maintenance. The "B" CRD pump trips.

Which condition would REQUIRE the operator to insert a reactor scram?

a. One rod accumulator alarm.

b. One rod drift alarm.

c. Two rod accumulator alarms.

d. Charging water header pressure NOT restored after 20 minutes.

QUESTION: 090 (1.00)

HV-2553, Reactor Recirc Pump RACS Cooling Isolation Outboard Supply, is closed during testing. The valve will NOT reopen from the Control Room.

SELECT the REQUIRED action.

a. Immediately trip the "A" Reactor Recirculation Pump.

b. Immediately trip both Reactor Recirculation Pumps.

c. Continued operation is permitted until seal damage is apparent then trip the Reactor Recirculation Pump that has indications of damage.

d. 10 minutes after the valve closure place the Mode switch to SHUTDOWN and trip the Reactor Recirculation Pumps.

QUESTION: 091 (1.00)

During manual transfer between Chilled Water and Reactor Auxiliary Cooling System (RACS) the operator is required to close HV9532-1 CHW ISLN RTN VLV and HV9532-2 CHW SUP ISLN VLV.

What would be the effect of NOT performing this action?

a. An expansion tank low level would occur in the Chilled Water System.

b. A RACS pump trip on RACS expansion tank low level would occur.

c. Cooling to the Reactor Recirculation Pumps would be isolated.

d. RACS Pumps would run out causing an overcurrent trip.

QUESTION: 092 (1.00)

Operation in the safe region of the SRV Tail Pipe Level Limit Curve (SLP-L-2) will assure which of the following conditions?

a. SRV's will NOT be opened with the suppression pool level below the level of the tail pipe discharges.

b. The suppression chamber will NOT be overpressurized due to rapid reactor depressurization.

c. Hydrodynamic loading of SRV tailpipe components will NOT be exceeded if an SRV is operated.

d. The vacuum breakers for the SRV tail pipes will be covered.

QUESTION: 093 (1.00)

Given the following plant conditions:

-- Drywell pressure is 2.25 psig
-- HPCI pump suction pressure is 11 psig

Select the range below that contains the actual containment level.

a. 20 to 21 feet

b. 21.1 to 22 feet

c. 22.1 to 23 feet

d. 23.1 to 24 feet

QUESTION: 094 (1.00)

Reactor power is 92%.

Which of the following describes the effect of losing 125 V DC control power to the main turbine?

a. The turbine will trip.

b. If a trip conditions occurs, an operator MUST trip the [illegible]rbine from the front standard.

c. Reactor pressure following a turbine trip will be high[illegible] due to slow response of the bypass valves.

d. An automatic reactor scram from a turbine trip will NOT occur.

QUESTION: 095 (1.00)

A reactor high level condition has occurred.

Select the action below that should be taken IMMEDIATELY.

a. Depress the lower setpoint on the Master Level Controller to lower water level to between level 3 and level 7.

b. Depress the lower setpoint on the Master Level Controller to lower water level to between level 4 and level 7.

c. Transfer the level controller or RFP turbine controller to manual and lower water level to between level 3 and level 7.

d. Transfer the level controller or RFP turbine controller to manual and lower water level to between level 4 and level 7.

QUESTION: 096 (1.00)

A loss of instrument air has occurred.

Which of the following conditions REQUIRES the operator to insert a manual scram?

a. Instrument Air Header "A" pressure decreases to 65 psig.

b. Instrument Air Header "B" pressure decreases to 60 psig.

c. A Blue light is observed for one control rod.

d. Two control rod drift alarms are received.

QUESTION: 097 (1.00)

Given the following plant conditions:

-- The reactor is operating ar rated power.
-- The "B" Core Spray suction valve failed closed.
-- Two days later the "A" Core Spray pump motor becomes grounded due to water spraying on the windings.

Assuming neither can be repaired, select the REQUIRED action.

a. The plant must be in hot shutdown within 12 hours of the "A" Core Spray pump being grounded and a 1 hour report completed.

b. The plant must be in hot shutdown within 7 days of the "A" Core Spray pump being grounded and a 1 hour report completed.

c. The plant must be in cold shutdown within 12 hours of the "A" Core Spray pump being grounded and an Unusual Event declared.

d. The plant must be in cold shutdown within 7 days of the "A" Core Spray pump being grounded and an Unusual Event declared.

QUESTION: 098 (1.00)

Given the following plant conditions:

-- The plant is in cold shutdown.
-- Emergency Diesel Generators (EDG) "A" and "C" are disassembled for maintenance.
-- A total loss of off-site power occurs.
-- Emergency Diesel Generator "B" trips.
-- Emergency Diesel Generator "D" is supplying only its 4KV Vital Bus.

Select the REQUIRED action:

a. An alert must be declared if the "B" EDG cannot be restarted within 15 minutes of this transient.

b. A site area emergency must be declared if the "B" EDG cannot be restarted within 15 minutes of this transient.

c. An alert must be declared if the "B" EDG cannot be restarted within 30 minutes of this transient.

d. A site area emergency must be declared if the "B" EDG cannot be restarted within 30 minutes of this transient.

QUESTION: 099 (1.00)

A transient occurs which causes Reactor Water level to drop to -175 inches. The SNSS directs that a reactor coolant sample be taken and analyzed. The results indicate that the dose equivalent I-131 is 950 microcuries per gram.

Select the appropriate event classification.

a. Unusual Event

b. Alert

c. Site Area Emergency

d. General Emergency

QUESTION: 100 (1.00)

The plant is operating with a Limiting Control Rod Pattern and reactor power at 98% when Rod Block Monitor Channel "A" is found to be inoperable.

Select the action REQUIRED by Technical Specifications.

a. Restore Rod Block Monitor "A" to operable status or place Rod Block Monitor "A" in tripped conditions within 24 hours.

b. Restore Rod Block Monitor "A" to operable status or place Rod Block Monitor "A" in tripped conditions within 1 hour.

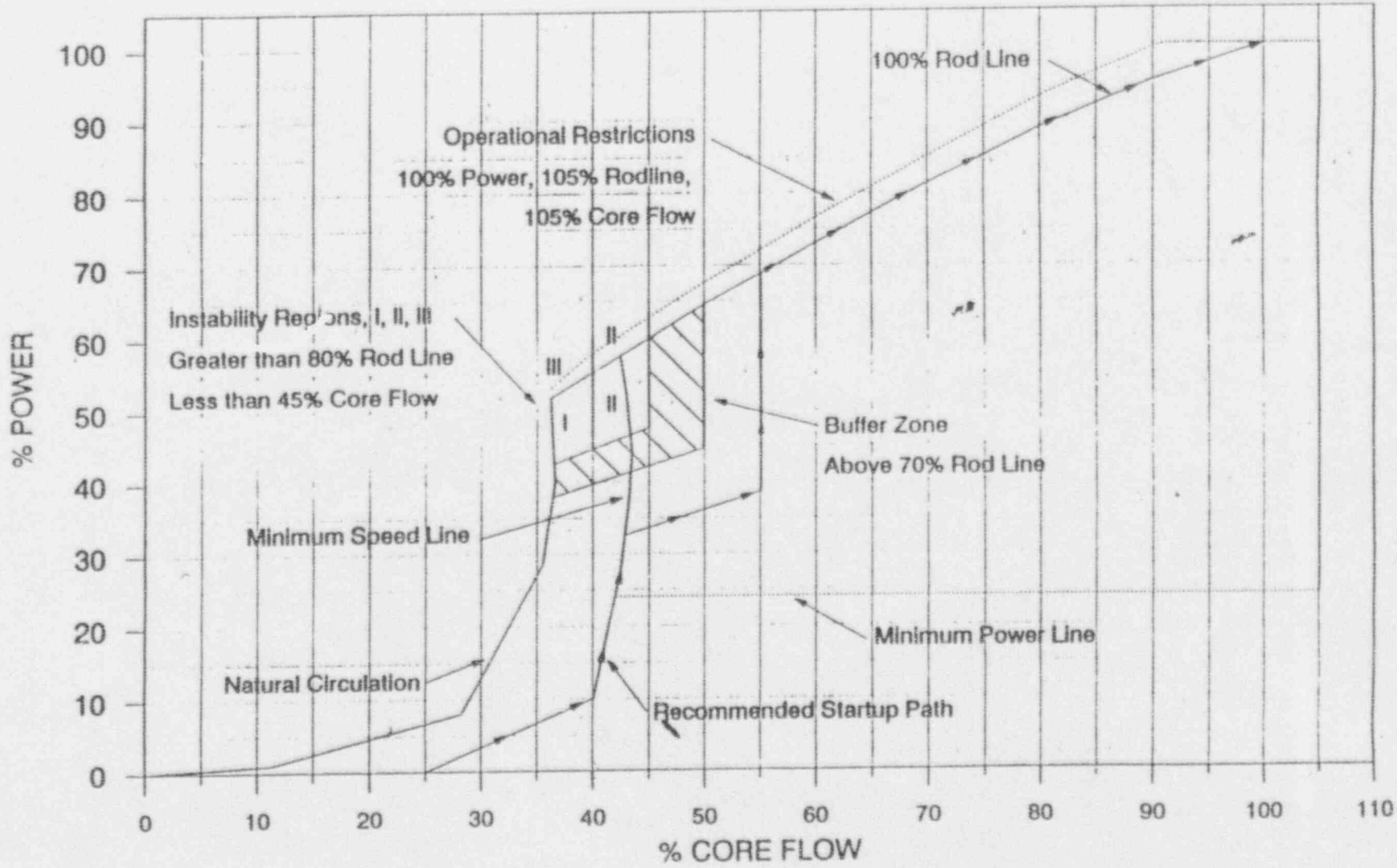
c. Select a peripheral control rod within 1 hour.

d. Select a peripheral control rod within 24 hours.

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

# POWER TO FLOW MAP

## HOPE CREEK



ANSWER: 001 (1.00)

a.

REFERENCE:

Technical Specification Bases 3/4.4.4

[2.9/3.4]

294001A114 ..(KA's)

ANSWER: 002 (1.00)

d.

REFERENCE:

LP 302H-000.00H-000028-11 pages 35 and 49

[4.4/4.5]

203000A216 ..(KA's)

ANSWER: 003 (1.00)

a.

REFERENCE:

Lesson plan 302H-000.00H-000020-10 Recirc Flow Control System pg 42
Learning Objective 10

[3.0/3.0]

202002K402 ..(KA's)

ANSWER: 004 (1.00)

a.

REFERENCE:

Lesson plan 302H-000.00H-000023-08 pg 20-21 31-32
Learning objective 12

[4.2/4.0]

211000G009 ..(KA's)

ANSWER: 005 (1.00)

c.

REFERENCE:

NC.NA-AP.ZZ-0024 Radiation Protection page 14
302H-000.00H-00113I-02 ELO 1.f
[3.3/3.8]

294001K103 ..(KA's)

ANSWER: 006 (1.00)

a.

REFERENCE:

Lesson plan 302H-000.00H-000030-11 RCIC pg 79
Learning objective 5

[3.3/3.3]

217000K402 ..(KA's)

ANSWER: 007 (1.00)

c.

REFERENCE:

NC.NA-AP.ZZ-0032-2 Pg 4 of OTSC traveler

[2.7/3.7]

294001A103 ..(KA's)

ANSWER: 008 (1.00)

d.

REFERENCE:

L.P. 000054-09, "Gaseous Radwaste System", Pages 24 & 25, L.O. - 11.h

[3.1/3.3]

271000K102 ..(KA's)

ANSWER: 009 (1.00)

b.

REFERENCE:

HC.OP-AB.ZZ-142(Q), Loss of Shutdown Cooling, pg 2

[3.3/3.4]

295021K302 ..(KA's)

ANSWER: 010 (1.00)

d.

REFERENCE:

NC.NA-AP.ZZ-0013 Section 5.1

[3.6/4.2]

294001A110 ..(KA's)

ANSWER: 011 (1.00)

a.

REFERENCE:

302H-000.00H-000026-13,p 106,ELO-R5

[4.2/4.1]

206000A309 ..(KA's)

ANSWER: 012 (1.00)

b.

REFERENCE:

302H-000.00H-000013-09,VII.C.1, ELO-R13

[3.1/3.3]

215004K602 ..(KA's)

ANSWER: 013 (1.00)

c.

REFERENCE:

302H.000-00H-000016-07,ELO-2.b

[3.3/3.2]

215005A105 ..(KA's)

ANSWER: 014 (1.00)

b.

REFERENCE:

L.P. 000019-13, "Reactor Recirculation System", Pages 60 & 61, L.O. - 12. b & R16

[3.6/3.7]

202001K506 ..(KA's)

ANSWER: 015 (1.00)

b.

REFERENCE:

SO.BB-0002(Q), "Reactor Recirculation System Operation", Rev. 20, Page 6

L.P. 000019-13, "Reactor Recirculation System", L.O. - 3.a

[3.5/3.9]

202001A210 ..(KA's)

ANSWER: 016 (1.00)

b.

REFERENCE:

302H-000.00H-000042-07,p.38,ELO-7

[3.2/3.4]

261000K109 ..(KA's)

ANSWER: 017 (1.00)

d.

REFERENCE:

RPV Control EOP

295015K103 ..(KA's)

ANSWER: 018 (1.00)

d.

REFERENCE:

AB.ZZ-120 pg 2 Immediate Actions

[3.7/3.8]

295007A105 ..(KA's)

ANSWER: 019 (1.00)

a.

REFERENCE:

OP-AP.ZZ-109(Q) ATTACHMENT 1 PG 3

[3.3/3.6]

294001K107 ..(KA's)

ANSWER: 020 (1.00)

c.

REFERENCE:

NC.NA-AP.ZZ-0015(Q) page 20

[3.9/4.5]

294001K102 ..(KA's)

ANSWER: 021 (1.00)

d.

REFERENCE:

NC.NA-AP.ZZ-0007(Q) page 5

[3.3/3.6]

294001K104 ..(KA's)

ANSWER: 022 (1.00)

b.

REFERENCE:

Event Classification Guide, Section 11, Page 1, Revision 0

[2.9/4.7]

294001A116 ..(KA's)

ANSWER: 023 (1.00)

b.

REFERENCE:

Tech. Spec. Table 6.2.2-1

[2.7/3.7]

294001A103 ..(KA's)

ANSWER: 024 (1.00)

d.

REFERENCE:

Tech. Spec Table 6.2.2-1 Table Notation

[2.7/3.7]

294001A103 ..(KA's)

ANSWER: 025 (1.00)

d.

REFERENCE:

NC.NA-AP.ZZ-0005(Q) page 11

[2.7/3.7]

294001A103 ..(KA's)

ANSWER: 026 (1.00)

b.

REFERENCE:

Technical Specifications 3.8.4.4

[3.3/4.3]

294001A111 ..(KA's)

ANSWER: 027 (1.00)

c.

REFERENCE:

NC.NA-AP.ZZ-0005(Q) Attachment 7 page 2

[3.7/3.7]

294001K101 ..(KA's)

ANSWER: 028 (1.00)

a.

REFERENCE:

Radioactivity Release Control Emergency Operating Procedure, Revision 5
Event Classification Guide, Section 7, Page 3, Revision 3

[3.9/4.5]

295038G012 ..(KA's)

ANSWER: 029 (1.00)

c.

REFERENCE:

HC.OP-AP.ZZ-0005(Q), page 15, Revision 2

[4.2/4.2]

294001A102 ..(KA's)

ANSWER: 030 (1.00)

b.

REFERENCE:

NC.NA-AP.ZZ-0024(Q)

[3.3/3.8]

294001K103 ..(KA's)

ANSWER: 031 (1.00)

d.

REFERENCE:

HC.OP-AP.ZZ-107(Q), Revision 9, page 5 section 5.3.1

[2.7/3.7]

294001A103 ..(KA's)

ANSWER: 032 (1.00)

c.

REFERENCE:

302H-000.00H-000108-01 page 15

[3.2/3.4]

294001A115 ..(KA's)

ANSWER: 033 (1.00)

c.

REFERENCE:

Reactor Recirculation Flow Control System Lesson Plan, page 35, section C.2.b.2, (no facility learning objective identified)

[3.5/3.3]

202002G012 ..(KA's)

ANSWER: 034 (1.00)

d.

REFERENCE:

RHR System Lesson Plan, page 38, section VI.A.5.b.2, TLO 2.0

[3.2/3.3]

203000K403 ..(KA's)

ANSWER: 035 (1.00)

c.

REFERENCE:

HPCI Lesson Plan, page 48, section III.B.4.b, ELO 16.b

[3.7/3.7]

206000K106 ..(KA's)

ANSWER: 036 (1.00)

a.

REFERENCE:

Core Spray System Lesson Plan, page 40, section IV.C.2.b.2, ELO 7.m

[3.9/3.7]

209001G009 ..(KA's)

ANSWER: 037 (1.00)

d.

REFERENCE:

Reactor Protection System Lesson Plan, page 32, section IV.C.3.e.2.c, ELO R4

[4.0/4.1]

212000A211 ..(KA's)

ANSWER: 038 (1.00)

a.

REFERENCE:

ADS Lesson Plan, page 32, section VII.A.3.d., TLO 2.0

[3.8/4.0]

218000K402 ..(KA's)

ANSWER: 039 (1.00)

b.

REFERENCE:

Reactor Water Level Control System Lesson Plan, page 46, section VII.A.3, ELO R4

[3.0/3.0]

259002A306 ..(KA's)

ANSWER: 040 (1.00)

b.

REFERENCE:

SRM Lesson Plan, pages 25-26, section IV.C.3., ELO R6

[3.7/3.7]

215004K401 ..(KA's)

ANSWER: 041 (1.00)

c.

REFERENCE:

LP 302H-000.00H-000022-12 page 36 section 6.b. No facility ELO identified.

[3.6/3.7]

201001K202 ..(KA's)

ANSWER: 042 (1.00)

a.

REFERENCE:

302H-000.00H-000027 -12 page 30 section IV.C.1.4

[3.4/3.4]

209001K601 ..(KA's)

ANSWER: 043 (1.00)

c.

REFERENCE:

LP 302H-000.00H-000027-12 page 31 section 4.a & b. ELO 4

[3.8/3.7]

209001A302 ..(KA's)

ANSWER: 044 (1.00)

a.

REFERENCE:

LP 302H-000.00H-000030-13 page 78 Section E.3.a. ELO 18.b.

[3.6/3.6]

217000A404 ..(KA's)

ANSWER: 045 (1.00)

b.

REFERENCE:

LP 302H-000.00H-000029-13 page 13

[3.4/3.6]

218000K606 ..(KA's)

ANSWER: 046 (1.00)

d.

REFERENCE:

LP 302H-000.00H-000029-13 page 29 ELO 4

[3.4/3.5]

218000K607 ..(KA's)

ANSWER: 047 (1.00)

b.

REFERENCE:

LP 320H-000.00H000068-15 pages 62 and 63. ELO 3 and 8.c

[3.6/3.8]

264000G007 ..(KA's)

ANSWER: 048 (1.00)

d.

REFERENCE:

LP 302-000.00H-000068-15 page 65 ELO 7

[3.8/3.7]

264000K408 ..(KA's)

ANSWER: 049 (1.00)

a.

REFERENCE:

OP-AB.ZZ-0105(Q), page 2, Revision 1

[3.3/3.3]

201003K601 ..(KA's)

ANSWER: 050 (1.00)

d.

REFERENCE:

Hope Creek Tech Spec 3/4 6.3, "Primary Containment Isolation Valves", Pages 3/4 6-17 and 6-28

L.P. 000018.08, "Traversing In-Core Probe System", Page 15, L.O. - 7.d & R2.c

[3.3/3.4]

215001K105 ..(KA's)

ANSWER: 051 (1.00)

a.

REFERENCE:

L.P. 000052-13, "Condensate System", Pages 40 & 41, L.O. - 14.d

[2.9/2.9]

256000K402 ..(KA's)

ANSWER: 052 (1.00)

b.

REFERENCE:

L.P. 000043-08, "Fuel Pool Cooling and Cleanup", Page 12, L.O. - R2.c

[2.9/3.2]

233000K306 ..(KA's)

ANSWER: 053 (1.00)

c.

REFERENCE:

L.P. 000021-09, "Reactor Water Cleanup", Pages 28 & 29, L.O. - R10

[3.4/3.5]

204000A304 ..(KA's)

ANSWER: 054 (1.00)

c.

REFERENCE:

L.P. 000048-12, "Main Turbine Construction and Components", Page 48, L.O. - 3

[3.7/3.9]

245000A201 ..(KA's)

ANSWER: 055 (1.00)

a.

REFERENCE:

L.P. 000009-08, "Rod Worth Minimizer", Pages 19 & 20, L.O. - 5

[3.5/3.5]

201006K512 ..(KA's)

ANSWER: 056 (1.00)

a.

REFERENCE:

L.P. 000009-08, "Rod Worth Minimizer", Pages 10-12, L.O. - 8

[3.0/3.0]

201006K514 ..(KA's)

ANSWER: 057 (1.00)

b.

REFERENCE:

L.P. 000017-06, "Rod Block Monitor System", Page 42 & Figure 2, L.O. - 8.b

[3.1/3.3]

215002A203 ..(KA's)

ANSWER: 058 (1.00)

d.

REFERENCE:

SO.BC-0001(Q), "Residual Heat Removal System Operation", Rev. 14, Page 23

L.P. 000028.11, "Residual Heat Removal", L.O. - R4

[3.3/3.2]

205000A102 ..(KA's)

ANSWER: 059 (1.00)

b.

REFERENCE:

302H-000.00H-000028-11, Revision 1, page 38

[3.0/3.2]

219000K405 ..(KA's)

ANSWER: 060 (1.00)

d.

REFERENCE:

SO.KC-0001(F), "Fire Water System Operation", Rev. 1, Page 3

L.P. 000094.05, "Fire Protection System", L.O. - 3.c

[3.8/4.0]

286000G001 ..(KA's)

ANSWER: 061 (1.00)

c.

REFERENCE:

AB.ZZ-0129(Q),"High Radiation, Smoke or Toxic Gases in the Control Room Air Supply", Rev. 2, Page 1

L.P. 000096-04, "Control Area Ventilation", Pages 29 & 30, L.O. - R4.b

[3.2/3.5]

290003K501 ..(KA's)

ANSWER: 062 (1.00)

c.

REFERENCE:

OP-EO.ZZ-101 RPV Power Control Section, Revision 5
302H-000.0H-00124B-07, Revision 0, Page 27

[3.9/4.0]

295037A105 ..(KA's)

ANSWER: 063 (1.00)

c.

REFERENCE:

HC.OP-EO.ZZ-0104(Q), Revision 5
302H-000.00H-000128-17, Revision 1, page 9

[3.9/4/2]

295038K302 ..(KA's)

ANSWER: 064 (1.00)

b.

REFERENCE:

HC.OP-EO.ZZ-0101(Q), Revision 5
302HC-000.00H-00124A-07, page 23, ELO 6

[3.7/4.0]

295031G007 ..(KA's)

ANSWER: 065 (1.00)

b.

REFERENCE:

HC.OP-EO.ZZ-0102A(Q)-FC, Revision 5
HC.OP-EO.ZZ-0201(Q)-FC, Revision 5
HC.OP-EO.ZZ-0101(Q)-FC, Revision 5

[3.6/3.9]

295030G007 ..(KA's)

ANSWER: 066 (1.00)

b.

REFERENCE:

T.S. 2.1.3 and 6.7.1

[4.4/4.7]

295025K105 ..(KA's)

ANSWER: 067 (1.00)

d.

REFERENCE:

HC.OP-EO.ZZ-0202(Q)-FC, Revision 4

[3.9/4.5]

295025G012 ..(KA's)

ANSWER: 068 (1.00)

c.

REFERENCE:

RPV Control and Level/Power Control EOPs

[3.9/4.6]

295037G012 ..(KA's)

ANSWER: 069 (1.00)

a.

REFERENCE:

HC.OP-AB.ZZ-0300(Q), Revision 5, page 1

[4.0/4.1]

295014A101 ..(KA's)

ANSWER: 070 (1.00)

c.

REFERENCE:

HC.OP-AB.ZZ-0118(Q), Revision 7, page 2

[4.0/4.1]

295014A107 ..(KA's)

ANSWER: 071 (1.00)

b.

REFERENCE:

HC.OP-IO.ZZ-0008(Q), Revision 7, page 8

[3.8/3.9]

295016A101 ..(KA's)

ANSWER: 072 (1.00)

c.

REFERENCE:

HC.OP-AB.ZZ-0200(Q), Revision 3, page 3

[3.9/3.9]

1

295009A101 ..(KA's)

ANSWER: 073 (1.00)

d.

REFERENCE:

HC.OP-SO.BC-0001(Q)

[3.9/3.9]

295013A101 ..(KA's)

ANSWER: 074 (1.00)

c.

REFERENCE:

HC.OP-AB.ZZ-0121(Q), Revision 4, page 2

[3.9/3.9]

295013A102 ..(KA's)

ANSWER: 075 (1.00)

a.

REFERENCE:

HC.OP-AB.ZZ-0101(Q), Revision 2, page 2

[3.8/3.9]

295023G010 ..(KA's)

ANSWER: 076 (1.00)

a.

REFERENCE:

HC.OP-AB.ZZ-0144(Q), Revision 7, Page 1

[2.9/3.1]

295023A102 ..(KA's)

ANSWER: 077 (1.00)

c.

REFERENCE:

Lesson Plan 302H-000.00H-000123-07, Revision 1, page 9

[4.3/4.4]

295006K201 ..(KA's)

ANSWER: 078 (1.00)

a.

REFERENCE:

RPV Control EOP, Revision 5

[3.8/4.4]

295006G012 ..(KA's)

ANSWER: 079 (1.00)

d.

REFERENCE:

RPV Control EOP, Revision 5
Primary Containment Control EOP, Revision 5
Alternate Level Control EOP, Revision 3

[3.6/4.2]

295013G012 ..(KA's)

ANSWER: 080 (1.00)

a b.

REFERENCE:

Lesson Plan 302HC-000.00H-00124A-07, Revision 0, page 26

[3.3/3.4]

295009G007 ..(KA's)

ANSWER: 081 (1.00)

b.

REFERENCE:

HC.OP-AB.ZZ-0110(Q), Revision 3, page 3

[3.7/3.8]

295003A101 ..(KA's)

ANSWER: 082 (1.00)

a.

REFERENCE:

HC.OP-AB.ZZ-0135(Q), Revision 11, page 2

[3.2/3.6]

295003G007 ..(KA's)

ANSWER: 083 (1.00)

d.

REFERENCE:

HC.OP-AB.ZZ-0300(Q), Reactor Power Oscillations, page 1, Rev. 5.

[3.5/3.6]

295001K101 ..(KA's)

ANSWER: 084 (1.00)

a.

REFERENCE:

302H-000.00H-000059-08, Revision 1, page 23

[3.9/3.9]

295009K202 ..(KA's)

ANSWER: 085 (1.00)

c.

REFERENCE:

HC.OP.AB.ZZ-0300 (Q), Reactor Power Oscillations, Note 4.0.

[3.3/3.3]

295001A203 ..(KA's)

ANSWER: 086 (1.00)

d.

REFERENCE:

OP-AB.ZZ-208(Q), Main Condenser Low Vacuum,
Abnormal Operating Procedures Lesson Plan, ELO 1.

[3.8*/3.7*]

295002G010 ..(KA's)

ANSWER: 087 (1.00)

d.

REFERENCE:

HC.OP-AB.ZZ-0150(Q), 125VDC System Malfunction

[3.3/3.6]

295004K106 ..(KA's)

ANSWER: 088 (1.00)

d.

REFERENCE:

HC.OP-AB.ZZ-0142, Loss of Shutdown Cooling,

[3.3/3.4]

295021K301 ..(KA's)

ANSWER: 089 (1.00)

d.

REFERENCE:

OP-AB.ZZ-105(Q), Loss of CRD Regulating Function

[3.7*/3.5*]

295022G010 ..(KA's)

ANSWER: 090 (1.00)

d.

REFERENCE:

HC.OP-AB.ZZ-123(Q), Loss of Reactor Auxiliary Cooling, page 2.

[3.2/3.4]

295018G007 ..(KA's)

ANSWER: 091 (1.00)

b.

REFERENCE:

OP-AB.ZZ-201(Q) Drywell High Pr[illegible]ure/Loss of Drywell Cooling, page 3.

[3.3/3.4]

295018A101 ..(KA's)

ANSWER: 092 (1.00)

c.

REFERENCE:

Lesson Plan 302H-000.00H-00125B-09, HC.OP-EO.ZZ-102 Primary Containment Control - Suppression Pool Level page 24.

[3.6/3.9]

295029G007 ..(KA's)

ANSWER: 093 (1.00)

c.

REFERENCE:

HC.OP-EO.ZZ-0120(Q)-FC, Primary Containment Control, step SP/L-30.

[3.1/3.2]

295029K207 ..(KA's)

ANSWER: 094 (1.00)

c.

REFERENCE:

HC.OP-AB.ZZ-0150(Q), 125 VDC System Malfunction, page 3.

[3.3/3.3]

295004K203 ..(KA's)

ANSWER: 095 (1 00)

d.

REFERENCE:

HC.OP-AB.ZZ-0117(Q), Revision 1, page 1
[3.8/3.6]

295008G010 ..(KA's)

ANSWER: 096 (1.00)

d.

REFERENCE:

HC.OP-AB.ZZ-0131, Loss of Instrument Air and/or Service Air, step 3.2.

295019G010 [3.7*/3.4*]

295019G010 ..(KA's)

ANSWER: 097 (1.00)

a.

REFERENCE:

Technical Specification 3.5.1
ECG Section 18 and Attachment 12

[3.1/4.6]

295031G002 ..(KA's)

ANSWER: 098 (1.00)

b.

REFERENCE:

ECG Section 9, page 1, Revision 2

[3.0/4.5]

295003G002 ..(KA's)

ANSWER: 099 (1.00)

d.

REFERENCE:

Event Classification Guide, Section 6, page 1, Revision 4

[3.1/4.6]

295009G002 ..(KA's)

ANSWER: 100 (1.00)

b.

REFERENCE:

Technical Specifications Table 3.3.6-1 and 3.1.4.3

[3.8/4.3]

295014G008 ..(KA's)

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

# A N S W E R K E Y

MULTIPLE CHOICE

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

# A N S W E R  K E Y

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

A N S W E R K E Y

092 c

093 c

094 c

095 d

096 d

097 a

098 b

099 d

100 b

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

S R O E x a m B W R R e a c t o r

O r g a n i z e d b y Q u e s t i o n N u m b e r

| QUESTION | VALUE | REFERENCE |
|---|---|---|
| 001 | 1.00 | 16702 |
| 002 | 1.00 | 16762 |
| 003 | 1.00 | 18232 |
| 004 | 1.00 | 18236 |
| 005 | 1.00 | 18244 |
| 006 | 1.00 | 18254 |
| 007 | 1.00 | 18256 |
| 008 | 1.00 | 18280 |
| 009 | 1.00 | 18310 |
| 010 | 1.00 | 18854 |
| 011 | 1.00 | 18856 |
| 012 | 1.00 | 18862 |
| 013 | 1.00 | 18863 |
| 014 | 1.00 | 18885 |
| 015 | 1.00 | 18886 |
| 016 | 1.00 | 18918 |
| 017 | 1.00 | 23469 |
| 018 | 1.00 | 23619 |
| 019 | 1.00 | 9000001 |
| 020 | 1.00 | 9000002 |
| 021 | 1.00 | 9000003 |
| 022 | 1.00 | 9000004 |
| 023 | 1.00 | 9000005 |
| 024 | 1.00 | 9000006 |
| 025 | 1.00 | 9000007 |
| 026 | 1.00 | 9000008 |
| 027 | 1.00 | 9000009 |
| 028 | 1.00 | 9000010 |
| 029 | 1.00 | 9000011 |
| 030 | 1.00 | 9000012 |
| 031 | 1.00 | 9000013 |
| 032 | 1.00 | 9000014 |
| 033 | 1.00 | 9000015 |
| 034 | 1.00 | 9000016 |
| 035 | 1.00 | 9000017 |
| 036 | 1.00 | 9000018 |
| 037 | 1.00 | 9000019 |
| 038 | 1.00 | 9000020 |
| 039 | 1.00 | 9000021 |
| 040 | 1.00 | 9000022 |
| 041 | 1.00 | 9000024 |
| 042 | 1.00 | 9000026 |
| 043 | 1.00 | 9000027 |
| 044 | 1.00 | 9000028 |
| 045 | 1.00 | 9000030 |
| 046 | 1.00 | 9000031 |
| 047 | 1.00 | 9000032 |
| 048 | 1.00 | 9000033 |
| 049 | 1.00 | 9000034 |

S R O E x a m B W R R e a c t o r

O r g a n i z e d b y Q u e s t i o n N u m b e r

| QUESTION | VALUE | REFERENCE |
|---|---|---|
| 050 | 1.00 | 9000036 |
| 051 | 1.00 | 9000037 |
| 052 | 1.00 | 9000038 |
| 053 | 1.00 | 9000043 |
| 054 | 1.00 | 9000044 |
| 055 | 1.00 | 9000046 |
| 056 | 1.00 | 9000047 |
| 057 | 1.00 | 9000048 |
| 058 | 1.00 | 9000050 |
| 059 | 1.00 | 9000051 |
| 060 | 1.00 | 9000054 |
| 061 | 1.00 | 9000055 |
| 062 | 1.00 | 9000059 |
| 063 | 1.00 | 9000060 |
| 064 | 1.00 | 9000061 |
| 065 | 1.00 | 9000062 |
| 066 | 1.00 | 9000064 |
| 067 | 1.00 | 9000065 |
| 068 | 1.00 | 9000066 |
| 069 | 1.00 | 9000068 |
| 070 | 1.00 | 9000069 |
| 071 | 1.00 | 9000070 |
| 072 | 1.00 | 9000071 |
| 073 | 1.00 | 9000072 |
| 074 | 1.00 | 9000073 |
| 075 | 1.00 | 9000074 |
| 076 | 1.00 | 9000075 |
| 077 | 1.00 | 9000076 |
| 078 | 1.00 | 9000077 |
| 079 | 1.00 | 9000078 |
| 080 | 1.00 | 9000079 |
| 081 | 1.00 | 9000080 |
| 082 | 1.00 | 9000081 |
| 083 | 1.00 | 9000082 |
| 084 | 1.00 | 9000083 |
| 085 | 1.00 | 9000084 |
| 086 | 1.00 | 9000085 |
| 087 | 1.00 | 9000086 |
| 088 | 1.00 | 9000087 |
| 089 | 1.00 | 9000088 |
| 090 | 1.00 | 9000089 |
| 091 | 1.00 | 9000090 |
| 092 | 1.00 | 9000092 |
| 093 | 1.00 | 9000095 |
| 094 | 1.00 | 9000096 |
| 095 | 1.00 | 9000097 |
| 096 | 1.00 | 9000098 |
| 097 | 1.00 | 9000100 |
| 098 | 1.00 | 9000101 |

S R O E x a m B W R R e a c t o r

O r g a n i z e d ł y Q u e s t i o n N u m b e r

| QUESTION | VALUE | REFERENCE |
|---|---|---|
| 099 | 1.00 | 9000102 |
| 100 | 1.00 | 9000103 |
| | 100.00 | |
| | 100.00 | |

S R O E x a m B W R R e a c t o r

O r g a n i z e d b y K A G r o u p

PLANT WIDE GENERICS

| QUESTION | VALUE | KA |
|---|---|---|
| 029 | 1.00 | 294001A102 |
| 025 | 1.00 | 294001A103 |
| 031 | 1.00 | 294001A103 |
| 024 | 1.00 | 294001A103 |
| 023 | 1.00 | 294001A103 |
| 007 | 1.00 | 294001A103 |
| 010 | 1.00 | 294001A110 |
| 026 | 1.00 | 294001A111 |
| 001 | 1.00 | 294001A114 |
| 032 | 1.00 | 294001A115 |
| 022 | 1.00 | 294001A116 |
| 027 | 1.00 | 294001K101 |
| 020 | 1.00 | 294001K102 |
| 005 | 1.00 | 294001K103 |
| 030 | 1.00 | 294001K103 |
| 021 | 1.00 | 294001K104 |
| 019 | 1.00 | 294001K107 |
| PWG Total | 17.00 | |

PLANT SYSTEMS

Group I

| QUESTION | VALUE | KA |
|---|---|---|
| 033 | 1.00 | 202002G012 |
| 003 | 1.00 | 202002K402 |
| 002 | 1.00 | 203000A216 |
| 034 | 1.00 | 203000K403 |
| 011 | 1.00 | 206000A309 |
| 035 | 1.00 | 206000K106 |
| 043 | 1.00 | 209001A302 |
| 036 | 1.00 | 209001G009 |
| 042 | 1.00 | 209001K601 |
| 004 | 1.00 | 211000G009 |
| 037 | 1.00 | 212000A211 |
| 040 | 1.00 | 215004K401 |
| 012 | 1.00 | 215004K602 |
| 013 | 1.00 | 215005A105 |
| 044 | 1.00 | 217000A404 |
| 006 | 1.00 | 217000K402 |
| 038 | 1.00 | 218000K402 |
| 045 | 1.00 | 218000K606 |
| 046 | 1.00 | 218000K607 |
| 039 | 1.00 | 259002A306 |

S R O E x a m B W R R e a c t o r

O r g a n i z e d b y K A G r o u p

PLANT SYSTEMS

Group I

| QUESTION | VALUE | KA | | |
|---|---|---|---|---|
| 016 | 1.00 | 261000K109 | | |
| 047 | 1.00 | 264000G007 | | |
| 048 | 1.00 | 264000K408 | | |
| PS-I Total | 23.00 | | | |

Group II

| QUESTION | VALUE | KA | | | |
|---|---|---|---|---|---|
| 041 | 1.00 | 201001K202 | | | |
| 055 | 1.00 | 201006K512 | | | |
| 056 | 1.00 | 201006K514 | | | |
| 015 | 1.00 | 202001A210 | | | |
| 014 | 1.00 | 202001K506 | | | |
| 053 | 1.00 | 204000A304 | | | |
| 058 | 1.00 | 205000A102 | | | |
| 057 | 1.00 | 215002A203 | | | |
| 059 | 1.00 | 219000K405 | | | |
| 054 | 1.00 | 245000A201 | | | |
| 008 | 1.00 | 271000K102 | | | |
| 060 | 1.00 | 286000G001 | | | |
| 061 | 1.00 | 290003K501 | | | |
| PS-II Total | 13.00 | | | | |

Group III

| QUESTION | VALUE | KA | | |
|---|---|---|---|---|
| 049 | 1.00 | 201003K601 | | |
| 050 | 1.00 | 215001K105 | | |
| 052 | 1.00 | 233000K306 | | |
| 051 | 1.00 | 256000K402 | | |
| PS-III Total | 4.00 | | | |
| PS Total | 40.00 | | | |

EMERGENCY PLANT EVOLUTIONS

Group I

S R O E x a m B W R R e a c t o r

O r g a n i z e d b y K A G r o u p

EMERGENCY PLANT EVOLUTIONS

Group I

| QUESTION | VALUE | KA |
|---|---|---|
| 081 | 1.00 | 295003A101 |
| 098 | 1.00 | 295003G002 |
| 082 | 1.00 | 295003G007 |
| 078 | 1.00 | 295006G012 |
| 077 | 1.00 | 295006K201 |
| 018 | 1.00 | 295007A105 |
| 072 | 1.00 | 295009A101 |
| 099 | 1.00 | 295009G002 |
| 080 | 1.00 | 295009G007 |
| 084 | 1.00 | 295009K202 |
| 073 | 1.00 | 295013A101 |
| 074 | 1.00 | 295013A102 |
| 079 | 1.00 | 295013G012 |
| 069 | 1.00 | 295014A101 |
| 070 | 1.00 | 295014A107 |
| 100 | 1.00 | 295014G008 |
| 017 | 1.00 | 295015K103 |
| 071 | 1.00 | 295016A101 |
| 076 | 1.00 | 295023A102 |
| 075 | 1.00 | 295023G010 |
| 067 | 1.00 | 295025G012 |
| 066 | 1.00 | 295025K105 |
| 065 | 1.00 | 295030G007 |
| 097 | 1.00 | 295031G002 |
| 064 | 1.00 | 295031G007 |
| 062 | 1.00 | 295037A105 |
| 068 | 1.00 | 295037G012 |
| 028 | 1.00 | 295038G012 |
| 063 | 1.00 | 295038K302 |
| EPE-I Total | 29.00 | |

Group II

| QUESTION | VALUE | KA |
|---|---|---|
| 085 | 1.00 | 295001A203 |
| 083 | 1.00 | 295001K101 |
| 086 | 1.00 | 295002G010 |
| 087 | 1.00 | 295004K106 |
| 094 | 1.00 | 295004K203 |
| 095 | 1.00 | 295008G010 |
| 091 | 1.00 | 295018A101 |
| 090 | 1.00 | 295018G007 |
| 096 | 1.00 | 295019G010 |

S R O E x a m B W R R e a c t o r

O r g a n i z e d b y K A G r o u p

EMERGENCY PLANT EVOLUTIONS

Group II

| QUESTION | VALUE | KA |
|---|---|---|
| 088 | 1.00 | 295021K301 |
| 009 | 1.00 | 295021K302 |
| 089 | 1.00 | 295022G010 |
| 092 | 1.00 | 295029G007 |
| 093 | 1.00 | 295029K207 |
| EPE-II Total | 14.00 | |
| EPE Total | 43.00 | |
| Test Total | 100.00 | |

## ATTACHMENT 3

## SIMULATION FACILITY REPORT

Facility License: NFP-57

Facility Docket No: 50-354

Operating Test Preparation and Administered from: December 14-16, 1993

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

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

| ITEM | DESCRIPTION |
|---|---|
| General | During one scenario, the facility licensee attempted to use the simulator history recording feature in parallel with the performance of the simulator scenario. This resulted in unexpected simulator performance such as delay in obtaining information on control rod and relief valve position and inability of HPCI to respond in manual control. The licensee subsequently determined that the use of the history recording feature overloaded the computer. When the scenario was repeated in a different examination without using the history recording feature, the simulator behaved as expected. |