



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA STREET, N.W., SUITE 2900
 ATLANTA, GEORGIA 30323-0199

Report No.: 50-261/94-300

Licensee: Carolina Power and Light Company
 P. O. Box 1551
 Raleigh, NC 27602

Docket No.: 50-261

License No.: DPR-23

Facility Name: H. B. Robinson Plant Unit 2

Examination Conducted: July 11-29, 1994

Examiner: *Ronald F. Aiello*
 Ronald F. Aiello

8/24/94
 Date Signed

Accompanying Personnel: P. Steiner, RII
 B. Hemming, INEL

Approved by: *Lawrence L. Lawyer*
 Lawrence L. Lawyer, Chief
 Operator Licensing Section
 Operations Branch
 Division of Reactor Safety

8/24/94
 Date Signed

SUMMARY

Scope:

NRC examiners conducted regular, announced operator licensing initial examinations and associated inspection activities during the weeks of July 11 and July 25, 1994. Examiners administered written and operating examinations under the guidelines of the Examiner Standards (ES), NUREG-1021, Revision 7, to three Senior Reactor Operator (SRO) and two Reactor Operator (RO) candidates.

Results:

Candidate Pass/Fail:

| | SRO | RO | Total | Percent |
|------|-----|----|-------|---------|
| Pass | 2 | 2 | 4 | 80% |
| Fail | 1 | 0 | 1 | 20% |

Examiners identified the candidates' written examination performance as a weakness based on the large number of knowledge deficiencies (paragraph 2.b.1).

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Examiners identified a weakness in the candidates' knowledge of the basis for attempting to prevent a Safety Injection (SI) during the performance of FRP-H.1, "Loss of Heat Sink" (Paragraph 2.b.2).

Examiners identified a lack of identification and availability of breaker operating tools required for completion of Emergency Operating Procedures/Abnormal Operating Procedures. Also, candidates' knowledge of the techniques required to manually operate the breakers was weak (IFI 50-261/94-300-01) (Paragraph 2.b.3.a).

Examiners identified four EOP/AOP procedure deficiencies in the area of equipment operation (IFI 50-261/94-300-02) (Paragraph 2.d).

Examiners identified a non-cited violation (NCV) of 10 CFR 55.59(c)(5)(i) for failure to maintain records of licensed operator and senior operator review of facility procedure and design changes (NCV 50-261/94-300-03) (Paragraph 2.e).

Examiners identified as a violation the failure of the licensee to adhere to 10 CFR 50.54(i), which requires that the facility licensee ensure personnel manipulating the controls of the facility are licensed in accordance with part 55 (VIO 50-261/94-300-04) (Paragraph 2.f).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *J. Allen, Manager - Operator Initial Training
- *H. Carter, Manager - Licensed Operator Requalification Training
- D. Cotes, Operator Training
- *D. Gudger, Site Specialist - Regulatory Programs
- *J. Harrison, Manager - E & RC Support
- *S. Hinnant, Site Vice President
- *K. Jury, Manager - Licensing and Regulatory Programs
- *R. Krich, Manager - Regulatory Affairs
- *R. Moore, Manager - Operations
- R. Shoemaker, Operations Procedures
- *J. Thompson, Manager - Shift Operations (acting)
- *G. Walters, Manager - Support Training
- D. Winters, Manager - Operations Procedures

Other licensee employees contacted included instructors, engineers, technicians, operators, and office personnel.

NRC Personnel

- C. Ogle, Resident Inspector
- W. Orders, Senior Resident Inspector

*Attended exit interview

2. Discussion

a. Summary:

NRC examiners conducted regular, announced operator licensing initial examinations and inspection activities during the period July 11-29, 1994. Examiners administered examinations under the guidelines of the Examiner Standards, NUREG-1021, Revision 7. Two SRO upgrade, one SRO instant, and two RO license applicants received written examinations and operating tests. One of the SRO upgrade candidates failed the written examination. All of the applicants passed the operating examination. The average score on the written examination was 81.7 percent with the highest score 84.8 percent. There were eight questions in which all candidates selected an incorrect answer. Although all candidates passed the operating examinations, the examiners observed several significant deficiencies that are discussed below. The examiners encountered several procedures that led candidates in the wrong direction or lacked strong direction. While validating and administering the walkthrough examinations, it became apparent to the examiners that the candidates lacked familiarity with manual breaker operations required by EOPs and AOPs. The examiners identified a non-cited violation (NCV) of record retention

requirements of the requalification program which are designed to ensure that all licensed operators remain cognizant of facility procedure and design changes. The examiners identified a violation of operator license reactivation requirements during the examination preparation week.

b. Operator Performance

The examiners concluded that applicant performance was satisfactory with the exception of the one written exam failure. Written examination scores were low, and several notable problems were observed during the operating examinations. Specific weaknesses are delineated by examination section as follows:

(1) Written Examination

All candidates incorrectly answered each of eight questions. Additionally, two of three SRO candidates missed each of five other questions which are not summarized. Significant deficiencies included knowledge of:

- (a) The design of reactor trip circuitry which prevents a single failure from blocking a trip signal.
- (b) The blocking function of the AFW pump's "Auto Start Defeat Switch."
- (c) The effect on Train "B" Reactor Safeguards System of losing power to Instrument Bus 3.
- (d) The maximum flow from a single SI pump.
- (e) The duration of a turbine runback upon a loss of control power to a Power Range Nuclear Instrument (PRNI).
- (f) The definition of "Committed Dose Equivalent."
- (g) The caution in DSP-002, "Dedicated Shutdown Procedure," which permits allowing the Steam Generator (SG) code safeties to lift in order to maintain a stable Tcold, if the shift is at minimum manning.
- (h) The reactor protection system's response to two failed PRNIs with one channel's bistables tripped following a subsequent reactor shutdown.

The examiners concluded that applicant performance on the written examination was a weakness based on the low scores and the large number of specific knowledge deficiencies.

(2) Simulator Scenarios

Overall, the performance of applicants during simulator scenarios was satisfactory. Knowledge and communications deficiencies are discussed below:

- (a) An SRO candidate ordered a manual turbine runback when one was not required. Power Range channel NI-44 failed low, generating a turbine runback signal. The Balance of Plant (BOP) operator immediately reported that a turbine runback did not occur. At the same time, the RO reported that there were no dropped rods and that NI-44 had failed low. The SRO directed a manual turbine runback from 100 percent to 70 percent. The SRO failed to respond to the reports from his operators. The SRO placed the primary and secondary systems into an unnecessary transient as a result of his failure to determine that a runback was not necessary. One applicant stated from a follow-up question, that manually running back the turbine was a "conservative action."
- (b) During a failed Reactor Coolant Pump seal scenario, the procedure directed the crew to manually trip the reactor. The reactor operator tripped the reactor. The SRO applicant observed that the "B" reactor trip breaker did not open. All rod bottom lights were lit and nuclear power was decreasing. However, the SRO applicant misdiagnosed that an Anticipated Transient Without Scram (ATWS) condition existed and entered into FRP-S.1. The SRO directed the outside auxiliary operator to manually trip the reactor. After the SRO realized his mistake, he told the auxiliary operator via the PA system "forget it outside, forget it outside," without explaining the situation.
- (c) After completing the scenario involving a loss of heat sink, the examiners questioned the candidates on the basis for attempting to prevent an SI signal from occurring while performing FRP-H.1, "Loss of Heat Sink." Some of the applicants were not aware that this was done to prevent a Feed Water Isolation Signal (FWIS). This is of particular concern because of the safety significance of the actions required by FRP-H.1 and the timeliness with which those actions must be achieved.

(3) Walkthrough Examinations

All candidates passed the walkthrough examinations. Out of a total of 40 Job Performance Measures (JPMs) administered, the examiners graded only one JPM as unsatisfactory. The examiners identified the following deficiencies:

- (a) While the NRC and licensee were performing the validation of AOP-29 Attachment 2, "480 Volt Bus 2B Power Restoration," the licensee training staff realized there was no breaker operating tool for 52/12B, "Tie Breaker Bus 2B and 3 at 480 Volt Bus 2B." The instructor informed his management. Operations personnel were unable to find the tool, so the facility manufactured one. During the walkthroughs, it became clear to the examiners that the applicants were unfamiliar with which tool operates each individual breaker and the operating technique required. The breaker cabinets neither had manual operating instructions posted, nor did they delineate the type of tool required for operation. Also, during the walkthrough examinations the candidates attempted to operate breakers using the OPEN/CLOSE buttons on the cabinet faces. The facility provided no instructions on the breaker cabinets as to the "for testing only" function of these buttons. The examiners identified this as IFI 50-261/94-300-01, instructions for the "for testing only" function on breaker cabinet faces, and identification and availability of breaker operating tools.
- (b) The examiners tasked the candidates to perform FRP-J.1, "Response to High Containment Pressure." All five candidates started the spray pumps with the suction valves shut. In one case, a candidate operated both pumps for one and a half minutes. Operating a centrifugal pump of this size while cavitating will cause severe damage.

c. Simulator Facility

The examiners observed simulation facility operation throughout the simulator and walk-through portions of the examination. The examiners found that the simulation facility performed well in support of the examination.

d. Procedures

The examiners identified several procedure deficiencies during the validation of the walkthrough examinations. The examiners discussed these deficiencies with the facility procedure writers. The facility stated that these deficiencies will be included in the upgrade of EOPs and AOPs that are currently in progress. The examiners identified the following deficiencies as IFI 50-261/94-300-02, FRP-J.1, FRP-H.1, AOP-14, and AOP-10 procedure deficiencies.

- (1) FRP-J.1 - "Response to High Containment Pressure," directed operators to start a spray pump in one step and verify spray valve alignment in the next. All candidates followed the procedure and started the spray pumps with each spray pump's corresponding suction valve shut. In one case, an operator ran the pump for one

and a half minutes while it cavitated. The procedure directed the candidates to verify "Proper Emergency Alignment" of the Containment Spray valves. However, the procedure failed to describe what "Proper Emergency Alignment" was.

- (2) AOP-14, "Loss of Component Cooling Water (CCW)," did not direct operators to isolate letdown upon a loss of CCW to the Non-regenerative Heat Exchanger (NRHX). This is necessary to prevent a warmup of the Volume Control Tank (VCT).
- (3) AOP-10, "Inadequate Feedwater," did not direct operators to runback power to prevent a reactor trip upon loss of a heater drain pump. Also, neither the Immediate or Subsequent action steps of the procedure mentioned a specific maximum operating power level. The procedure mentioned the maximum sustainable power level with one heater drain pump, in the general comments section only.
- (4) FRP-H.1, "Response to Loss of Secondary Heat Sink," directed the operators to perform several time consuming and complicated steps (depressurizing the Reactor Coolant System (RCS) to less than 1950 psig) to prevent an SI signal from generating a FWIS. If a FWIS was generated, it would prevent the condensate system from feeding the steam generators. However, it was impossible to remove the FWIS in the first place with a reactor trip signal present from low Steam Generator level. The entry condition for FRP-H.1 was a red path on Heat Sink. A red path on Heat Sink required all narrow range SG levels to be less than 10 percent. A reactor trip signal was also locked in when all SG levels reached less than 10 percent. The locked-in reactor trip signal prevented the operators from removing the FWIS. The only successful feed path from the condensate system is through the feed regulating bypass valves, which the SRO must direct to be locally opened. With these valves manually opened, the FWIS has no effect. Attempting to prevent an SI became a significant waste of time. If completion of the procedure is delayed, steam generator level will continue to decrease until the heat sink is considered lost and the RCS feed and bleed procedure must be used.

e. Real Time Training Program

Examiners identified an NCV of 10 CFR 55.59(c)(5)(i) for the facility licensee's failure to maintain records documenting the participation of each licensed operator and senior operator in the requalification program. 10 CFR 55.59(c)(3)(iii) requires that each licensed operator and senior operator be cognizant of facility design changes, procedure changes, and facility license changes. Since late May, no licensee program had existed to ensure operator cognizance of these changes. The inspector reviewed draft procedure, OMM-36, "Operations Real Time Training". The licensee developed this required reading procedure to

ensure that licensed operators stay in compliance with 10 CFR 55.59. The facility has scheduled this procedure to be implemented in September 1994. Due to the licensee's efforts to identify and promptly correct this program deficiency, this item meets the criteria specified in Section VII.B of the enforcement policy and was identified as NCV 50-261/94-300-03, "Failure to document required reading."

f. Activation of Part 55 licenses

Examiners identified a violation of the requirement to ensure the personnel operating the controls of the facility are licensed in accordance with part 55. The examiners identified two cases in which a licensed operator failed to make a complete tour of the plant under the direction of an active operator or senior operator before the license was certified "active" by facility management. The examiners reviewed security access records and conducted interviews with the last three operators that reactivated their licenses. This information indicated that:

- (1) Tours were being conducted without the direction of an active operator or senior operator.
- (2) Vital equipment areas such as the Boron Injection Tank room, Auxiliary Feedwater room, 4160V vital electric, control room Heating Ventilation and Air Conditioning system, Service Water, and the Spent Fuel Pool, were not toured by two of three operators.

This item is identified as VIO 50-261/94-300-04, "Failure to ensure operators are properly licensed by part 55 due to improper activation of part 55 licenses."

3. Action on Previous Inspection Items

- (a) (Open) IFI 50-261/94-01-01, "The lack of alternate path JPMs used in evaluations." The inspector (NRC Inspection Report 50-261/94-01) identified that each operator walkthrough examination contained five JPMs. However, none of the proposed examinations for the entire five week requalification evaluation in 1994 contained alternate path JPMs as defined in ES-603. The inspector reviewed the facility's JPM examination bank again during the week of July 7, 1994. The inspector identified nine alternate path JPMs. The licensee planned to develop 30 alternate path JPMs by September 30, 1994. This item remains open.
- (b) (Closed) IFI 50-261/94-01-02, "Inability to effectively track operator license conditions." Previously, the licensee did not have information available in the control room for the Shift Supervisor to determine active license status, requalification failure, or license conditions (e.g., eyeglasses, no solo, etc.). Since the initial

finding, the facility has put a program in place to track operator hours and license status. The inspectors have concluded that the Shift Supervisors had the necessary information available in the control room for them to determine active license status.

- (c) (Closed) URI 50-261/94-01-03, "The use of hours in a position other than those required by Technical Specifications for purposes of maintaining an active license." Technical Specification 6.3.2.c requires only the positions of Shift Foreman and a BOP operator during cold shutdown. The facility was allowing credit for three positions during cold shutdown, the BOP operator, the shift supervisor, and the control room supervisor. A recent discussion with NRC Management has determined this to be acceptable, as long as, the shift supervisor and control room supervisor are actively directing the activities in the control room. The inspectors determined the facilities administrative procedures to be adequate to control the above situations.
- (d) (Open) IFI 50-261/93-301-03, "Ineffective Control of Operator Aids." This item concerned the lack of effectiveness of procedure OMM-016, "Control of Operator Aids." The facility had determined that additional guidance and controls were needed to ensure that the information throughout the plant was accurate and approved by management. The facility had further projected that the investigation of options for defining and controlling Operator Aids, and the revision and approval of affected procedures to insure adequate controls are implemented, will be completed by August 29 and October 10, 1994 respectively. Therefore, this item remains open.
- (e) (Closed) VIO 50-261/94-01-05, "Failure to maintain control of procedures." The inspectors identified five out-of-date and one missing controlled emergency/abnormal procedures in the simulator control booth during NRC Inspection Report 50-261/94-01. During the examination week, examiners conducted a subsequent verification of the procedures in the simulator to verify that revisions were up-to-date. The examiners identified no control related discrepancies.

4. Exit Interview

At the conclusion of the site visit, the examiners met with representatives of the plant staff listed in Paragraph 1 to discuss the results of the examinations and inspection findings. The licensee did not identify as proprietary any material provided to, or reviewed by the examiners. The examiners further discussed in detail the inspection findings listed below. Dissenting comments were not received from the licensee.

| <u>Item Number</u> | <u>Status</u> | <u>Description and Reference</u> |
|----------------------|---------------|--|
| IFI 50-261/94-300-01 | Open | Instructions for the "for testing only" function of OPEN/CLOSE buttons on breaker cabinet faces, and identification and availability of breaker operating tools. (Paragraph 2.b.3.a) |
| IFI 50-261/94-300-02 | Open | FRP-J.1, FRP-H.1, AOP-14 and AOP-10 procedure deficiencies. (Paragraph 2.d) |
| NCV 50-261/94-300-03 | Closed | Failure to document required reading. (Paragraph 2.e) |
| VIO 50-261/94-300-04 | Open | Failure to ensure operators are properly licensed by part 55 due to improper activation of part 55 licenses. (Paragraph 2.f) |

ENCLOSURE 3

FACILITY COMMENTS ON NRC EXAMINATION

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
COMMENTS ON NRC LICENSE EXAMINATION

Senior Reactor Operator (SRO) Question No. 1:

All answer choices can be construed as correct. The requirements of Technical Specifications (TS) and Abnormal Operating Procedure AOP-001, "Malfunction of Reactor Control System," are to perform the following within two hours: realign the rod, or reduce power to less than 70%, or calculate hot channel factors. If the rod is already realigned, as stated in the stem of the question, then any of the choices can be correct.

Recommend deleting this question.

SRO Question No. 30:

There is no one correct answer. The requirements of TS 3.1.5.2 must be evaluated with the requirements of Abnormal Operating Procedure AOP-016, "Excessive Primary Plant Leakage." The TS requires that the unit be placed in the hot shutdown condition within 12 hours because operation with primary system leakage in excess of 10 gpm, identified or unidentified, is prohibited. Notification of upper management and continuing evaluation of the leak would occur with any significant increase in primary system leakage above normal daily values and especially if leakage increased above 1 gpm. Leakage evaluation is for identifying the source of leakage and determining if continued operation is safe. If leakage is identified, less than 10 gpm, and evaluation determines that continued operation is safe, hot shutdown is not required. This question specifies leakage is 13 gpm, which would render the identification and evaluation requirements academic; shutdown is required regardless of identification and evaluation. Choice "c" is incorrect only because it specifies hot shutdown within 24 hours. The actions of choice "d" are partially correct but would be occurring in conjunction with a unit shutdown. Choice "c" is more correct than "d" because shutdown is required and the operator would have at least 12 hours to determine that 24 hours is the incorrect time limit. Choices "a" and "b" are incorrect because leakage does not exceed makeup capability and charging capacity can more than make up for letdown flow plus the 13 gpm leakage.

Recommend deleting this question.

Reactor Operator (RO) Question No. 22 / SRO Question No. 28:

The initial conditions of this question contain symptoms which would require entry into both AOP-016 and Abnormal Operating Procedure AOP-019, "Malfunction of RCS Pressure Control." Without a trend given for pressurizer pressure and level or information concerning as to whether a power operated relief valve has just lifted or may just be leaking by, the examinee cannot distinguish entry into only one abnormal operating procedure. With these conditions, both procedures must be addressed.

Recommend making choices "a" and "c" correct.

RO Question No. 96 / SRO Question No. 94:

For a visitor to enter a Locked High Radiation Area (LHRA) without General Employee Training I and II training, approval by the Manager - Environmental & Radiation Control is required for initial issuance of dosimetry, and only Radiation Control supervision (not considered a member of Plant Management) permission is required to allow entry into a LHRA during "outage" conditions.

During "non-outage" conditions, the above approvals are required and in addition, concurrence is required from the Shift Supervisor who is considered a member of Plant Management (see Administrative Procedure AP-031, "Administrative Controls for Entry Into Locked and Very High Radiation Areas"). Since the question does not specify whether outage conditions or non-outage conditions exist, choice "c" or "d" can be considered correct.

Recommend making choices "c" and "d" correct.

QUESTION: 001 (1.00)

The following plant conditions exist:

- Reactor power - 90%
- Control Bank A - Full out
- Control Bank B - Full out
- Control Bank C - Full out
- Control Bank D - Full out

The reactor operator reports one rod in Control Bank C is out of alignment by 25 steps.

Which ONE of the following describes required actions that applies in this situation within a 2 hour period of time?

Realign the rod:

- a. AND limit power to 70%.
- b. AND calculate hot channel factors.
- c. OR limit power to 70%.
- d. OR calculate QPTR.

QUESTION: 030 (1.00)

Given the following:

- The reactor is at power.
- All systems are aligned for normal at power operation and in automatic where applicable.
- The reactor operator notes that charging flow has increased over the last hour.
- Leakrate calculations indicate a 13 gpm RCS leak has developed.

Which ONE of the following describe the action(s) to be taken in this situation?

- a. Trip the reactor and enter Path-1.
- b. Stop letdown flow.
- c. Commence normal reactor shutdown to Hot Shutdown within 24 hours.
- d. Notify upper management and continue evaluating the leak.

QUESTION: 028 (1.00)

Given the following indications:

- Reactor Power at 100%
- APP-003-B3, PRT HI TEMP in alarm
- APP-003-C3, PRT HI PRESS in alarm
- APP-003-D3, PRT HI/LO LVL in alarm
- APP-003-E6, PZR PORV LN HI TEMP in alarm
- APP-003-F6, PZR SAFETY VLV LINE HI TEMP in alarm
- PZR level 54%
- RCS pressure 2260 psig

Which ONE of the following describes the immediate action(s) to be taken?

- a. Manually close the PZR PORVs.
- b. Drain the PZR relief tank level to 50%.
- c. Start additional charging pumps and reduce letdown flow.
- d. Trip the reactor and follow PATH-1.

QUESTION: 092 (1.00)

Which ONE of the following describes what is used to mark components to be used for a hydrostatic test?

- a. Station Clearance.
- b. Line Clearance.
- c. Red "Men at Work" tags.
- d. Orange "Caution" tags.

QUESTION: 093 (1.00)

Which ONE of the following describes a condition that pertains to a temporary procedure change?

- a. May be used to change the type of QC inspection.
- b. Maximum time limit for change is 21 days.
- c. Can be implemented after approval by a member of Plant Management.
- d. Automatically becomes permanent if no cancelling action taken within 21 days.

QUESTION: 094 (1.00)

Which ONE of the following describes what is necessary for a visitor to enter into a Locked High Radiation Area (LHRA)?

- a. The visitor completes GET level I.
- b. RC Supervisor may waive visitor training requirements to allow entry.
- c. E&RC Manager may waive visitor training requirements to allow entry.
- d. E&RC Manager ~~may waive visitor training requirements~~ to allow entry with verbal concurrence from Plant Management.

ENCLOSURE 4

NRC RESOLUTION OF FACILITY COMMENTS ON WRITTEN EXAMINATION

1. SRO Question #1

Facility comment rejected. Only one answer is correct. The question states "Which ONE of the following describes "REQUIRED" actions... Even though the rod is realigned, the only plausible remaining "REQUIRED" action would be to limit power to 70 percent. The answer remains unchanged.

2. SRO Question #30

Facility comment accepted, the question will be deleted.

3. SRO Question #28, RO Question #22

Facility comment accepted, after review of the provided documentation, both answers "a" and "c" are correct.

4. RO Question #96

Facility comment accepted, answers "c" and "d" are correct.

ENCLOSURE 4

NRC RESOLUTION OF FACILITY COMMENTS ON WRITTEN EXAMINATION

1. SRO Question #1

Facility comment rejected. Only one answer is correct. The question states "Which ONE of the following describes "REQUIRED" actions... Even though the rod is realigned, the only plausible remaining "REQUIRED" action would be to limit power to 70 percent. The answer remains unchanged.

2. SRO Question #30

Facility comment accepted, the question will be deleted.

3. SRO Question #28, RO Question #22

Facility comment accepted, after review of the provided documentation, both answers "a" and "c" are correct.

4. RO Question #96

Facility comment accepted, answers "c" and "d" are correct.

ENCLOSURE 5

SIMULATOR FACILITY REPORT

Facility Licensee: DPR-23

Facility Docket No.: 50-261

Operating Tests Administered On: July 26-July 28, 1994

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

While conducting the simulator portion of the operating tests, no configuration or fidelity items were identified.

U. S. NUCLEAR REGULATORY COMMISSION
 SITE SPECIFIC EXAMINATION
 SENIOR OPERATOR LICENSE
 REGION 2

CANDIDATE'S NAME: SRO MASTER
 FACILITY: H. B. Robinson 2
 REACTOR TYPE: PWR-WEC3
 DATE ADMINISTERED: 94/07/25

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.

| <u>TEST VALUE</u> | <u>CANDIDATE'S SCORE</u> | <u>%</u> | |
|-----------------------------------|--------------------------|--------------|--------|
| <i>N 89/8/94</i> <u>100.00</u> | <u>99.00</u> | | |
| | <u>FINAL GRADE</u> | <u> % </u> | TOTALS |

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 | | | | | | 023 | a | b | c | d | _____ |
|-----------------|---|---|---|---|-------|-----|---|---|---|---|-------|
| 001 | a | b | c | d | _____ | 024 | a | b | c | d | _____ |
| 002 | a | b | c | d | _____ | 025 | a | b | c | d | _____ |
| 003 | a | b | c | d | _____ | 026 | a | b | c | d | _____ |
| 004 | a | b | c | d | _____ | 027 | a | b | c | d | _____ |
| 005 | a | b | c | d | _____ | 028 | a | b | c | d | _____ |
| 006 | a | b | c | d | _____ | 029 | a | b | c | d | _____ |
| 007 | a | b | c | d | _____ | 030 | a | b | c | d | _____ |
| 008 | a | b | c | d | _____ | 031 | a | b | c | d | _____ |
| 009 | a | b | c | d | _____ | 032 | a | b | c | d | _____ |
| 010 | a | b | c | d | _____ | 033 | a | b | c | d | _____ |
| 011 | a | b | c | d | _____ | 034 | a | b | c | d | _____ |
| 012 | a | b | c | d | _____ | 035 | a | b | c | d | _____ |
| 013 | a | b | c | d | _____ | 036 | a | b | c | d | _____ |
| 014 | a | b | c | d | _____ | 037 | a | b | c | d | _____ |
| 015 | a | b | c | d | _____ | 038 | a | b | c | d | _____ |
| 016 | a | b | c | d | _____ | 039 | a | b | c | d | _____ |
| 017 | a | b | c | d | _____ | 040 | a | b | c | d | _____ |
| 018 | a | b | c | d | _____ | 041 | a | b | c | d | _____ |
| 019 | a | b | c | d | _____ | 042 | a | b | c | d | _____ |
| 020 | a | b | c | d | _____ | 043 | a | b | c | d | _____ |
| 021 | a | b | c | d | _____ | 044 | a | b | c | d | _____ |
| 022 | 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 | ___ | 068 | a | b | c | d | ___ |
| MULTIPLE CHOICE | | | | | | 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 | ___ |

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.

091 a b c d _____

MULTIPLE CHOICE

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 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. Before you turn in your examination, consecutively number each answer sheet including any additional pages inserted when writing your answers on the examination question page.
8. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.
9. The point value for each question is indicated in parentheses after the question.
10. Show all calculations, methods, or assumptions used to obtain an answer to any short answer questions.
11. Partial credit may be given except on multiple choice questions. Therefore ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK.
12. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of 1.00 even though you got the four correct answers.
13. If the intent of a question is unclear, ask questions of the examiner only.

14. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.
15. 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.
16. To pass the examination, you must achieve a grade of 80% or greater.
17. There is a time limit of four (4) hours for completion of the examination.
18. 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)

The following plant conditions exist:

- Reactor power - 90%
- Control Bank A - Full out
- Control Bank B - Full out
- Control Bank C - Full out
- Control Bank D - Full out

The reactor operator reports one rod in Control Bank C is out of alignment by 25 steps.

Which ONE of the following describes required actions that applies in this situation within a 2 hour period of time?

Realign the rod:

- a. AND limit power to 70%.
- b. AND calculate hot channel factors.
- c. OR limit power to 70%.
- d. OR calculate QPTR.

QUESTION: 002 (1.00)

Which ONE of the following determines that a rod position indicator is malfunctioning with the rod control cluster known to be aligned correctly?

When the suspect Rod Position Indicator is more than:

- a. 7.5 inches out of alignment with the average of the remaining rod indicators in the bank.
- b. 12 steps out of alignment with any other rod in the bank.
- c. 7.5 inches out of alignment with the associated bank step counter.
- d. 12 steps out of alignment with the average of the bank step counters for the associated rod indicator bank.

QUESTION: 003 (1.00)

Given the following conditions:

- The plant is at 75% power with rod control in automatic.
- Automatic rod motion stops with T_{avg} 5 degrees greater than T_{ref} .
- Annunciator APP-005-E2, ROD CONT SYSTEM URGENT FAILURE, is extinguished.

Which ONE of the following describes the FIRST action to be taken in this situation?

- a. Place rod control to M (manual) and adjust control rods to match T_{avg} to T_{ref} .
- b. Place rod control to M (manual) and adjust boron to match T_{avg} to T_{ref} .
- c. Place rod control to M (manual) and adjust turbine load to match T_{avg} to T_{ref} .
- d. Immediately trip the reactor and implement Path-1.

QUESTION: 004 (1.00)

The following conditions exist:

- Plant power is stable at 58%.
- ONE Control Bank "D" rod has dropped from a fully withdrawn position.

Which ONE of the following describes the actions required prior to recovering the dropped Control Bank "D" rod?

- a. Open the disconnect switch for the affected rod, zero the affected group step counter.
- b. Open the disconnect switch for the affected rod, zero both group step counters in the bank and reset P/A converter.
- c. Open the disconnect switches for the unaffected rods, zero the affected group step counter and reset the P/A converter.
- d. Open the disconnect switches for all unaffected rods, zero the affected group step counter.

QUESTION: 005 (1.00)

The first two steps of procedure EPP-9, "Transfer to Cold Leg Recirculation", state:

1. Perform Steps 1 through 16 without delay.
2. Do NOT Implement Functional Restoration Procedures Prior To Completion Of This Procedure.

Which ONE of the following describes the basis for these first two steps?

- a. Time to accomplish the procedure is limited by RWST level.
- b. Implementing an FRP defeats the actions of EPP-9.
- c. To minimize exposing the switchover process to a loss of offsite power.
- d. To maximize the RWST inventory available after switchover.

QUESTION: 006 (1.00)

Which ONE of the following describes why, during the switchover to cold leg recirculation following a LOCA, the associated SI-880 valves (discharge isolation valves) are closed if a containment spray pump is stopped?

- a. Reduces time required for cold leg recirculation switchover.
- b. Anticipatory action should a flowpath not be established from the sump.
- c. Prevents gas binding of idle pump.
- d. Prevents pump runout when it is returned to service.

QUESTION: 007 (1.00)

Which ONE of the following describes the benefit achieved when EPP-9, "Transfer to Cold Leg Recirculation", directs that SI pump configuration be reduced to 1 SI pump and 1 CV pump running prior to the switchover to cold leg recirculation?

- a. It allows sufficient time to perform RHR valve realignments.
- b. It allows an additional 31 minutes of injection flow from the RWST before reaching 9%.
- c. It allows the sump level to stabilize before RHR suction is switched to it.
- d. It allows RCS temperatures to stabilize before injecting water at a different temperature (PTS concerns).

QUESTION: 008 (1.00)

The following conditions exist:

- The reactor is at power.
- SINGLE LOOP FLOW TRIP BLOCKED status light is dark.
- One charging pump in running with a discharge pressure greater than RCS pressure.
- Annunciator APP-001-A2, SEAL WTR INJ FILTER HI DELTA-P, alarms.
- Local seal water injection flow meters FI-124, 127 and 130 indicate 2, 3 and 2 gpm respectively.

Which ONE of the following describes the actions required under these circumstances?

- a. Check component cooling water flow to the thermal barrier.
- b. Commence a normal plant shutdown and stop all RCPs within 12 hours.
- c. Trip the reactor and stop all RCPs.
- d. Stop the affected RCP and place the unit in hot shutdown.

QUESTION: 009 (1.00)

Which ONE of the following describes the emergency boration path that can have a delay of approximately 10 minutes before the boric acid addition takes effect?

- a. MOV-350, Emergency Boration Valve.
- b. LCV-115B, Emerg. Makeup To Chg. Suction or CVC-358, RWST To Charging Pump Suction (closing LCV-115C, VCT Outlet).
- c. FCV-113A, Boric Acid to Blender, and 113B, Blended Makeup To Charging Pump Suction.
- d. FCV-113A, Boric Acid to Blender, and 114B, Volume Cont. Tk. Makeup.

QUESTION: 010 (1.00)

Which ONE of the following describes the conditions when MOV-350, Emergency Boration Valve, may be used without restriction?

- a. Shutdown the reactor or maintain the reactor shutdown.
- b. Recover shutdown margin if Blended Makeup to Charging Pump Suction [FCV-113B] is stuck open.
- c. Restore rods above the rod insertion limits if [LCV-115C] is stuck open.
- d. Rapidly reduce RCS temperature following a large load reduction.

QUESTION: 011 (1.00)

Using the following list:

1. Emergency borate.
2. Check for and eliminate sources of positive reactivity.
3. Verify subcriticality.
4. Establish Safety Injection flow to RCS.

Which ONE of the following describes the major action categories of FRP-S.1, "Response to Nuclear Power Generation/ATWS"?

- a. 1, 2 only
- b. 1, 2, 3 only
- c. 1, 3, 4 only
- d. 1, 2, 3, 4

QUESTION: 012 (1.00)

Listed below are the first four immediate action steps of FRP-S.1, "Response to Nuclear Power Generation/ATWS".

1. Verify Reactor Trip.
2. Verify Auxiliary Feedwater.
3. Initiate Emergency Boration.
4. Verify Turbine Trip.

Which ONE of the following describes the step that contains the most restrictive time dependency in its basis?

- a. 1
- b. 2
- c. 3
- d. 4

QUESTION: 013 (1.00)

The following conditions exist:

- The plant is tripped and SI actuated.
- SG "A" is faulted.
- While performing Supplement "G", S/G Isolation, the operator discovers the S/G Blowdown and sample valves are open.

Which ONE of the following describes the next required actions under these conditions?

- a. No action is taken under faulted S/G conditions.
- b. Increase the alarm setpoint of blowdown radiation monitor, R-19.
- c. Deactivate the blowdown radiation monitor, R-19A.
- d. Remove power from the S/G blowdown heat exchangers and sample line isolation valves.

QUESTION: 014 (1.00)

The following conditions exist after a large steam line rupture:

- Critical Safety Function Status Trees FRP-P.1, "Response to Imminent Pressurized Thermal Shock Condition" is entered.
- The RCS is depressurized in preparation to "soak" the RCS.
- The SRO reads a caution in the procedure warning the operator not to increase RCS pressure and temperature.

Which ONE of the following describes the reason for the caution and the major component that is affected?

- a. The Reactor Vessel inside wall due to the increased tensile stress resulting from the large temperature drop.
- b. The Reactor Vessel outside wall due to the increased tensile stress resulting from the large pressure decrease.
- c. The Pressurizer inside wall due to increased tensile stress resulting from the large temperature drop.
- d. The Pressurizer outside wall due to increased tensile stress resulting from the large pressure decrease.

QUESTION: 015 (1.00)

Which ONE of the following describes an automatic action that will occur upon a partial loss of condenser vacuum?

- a. The standby vacuum pump will start at 20" Hg. vacuum.
- b. Generator lock out occurs at 175 degrees F.
- c. The turbine will trip at 20" Hg. vacuum.
- d. Turbine exhaust hood spray will start at 225 degrees F.

QUESTION: 016 (1.00)

The following conditions exist:

- the reactor tripped from 100% power due to a complete loss of offsite power.
- diesel generator "A" starts and loads.
- diesel generator "B" fails to start.
- 5 minutes later, diesel generator "A" stops and will not restart.

Which ONE of the following is the procedural path to be followed under these circumstances (beginning with the reactor trip)?

Enter Path-1, enter EPP-4:

- a. then use EPP-1 in parallel with EPP-4.
- b. then exit EPP-4 and enter EPP-1.
- c. then return to Path-1 and enter EPP-1.
- d. then return to Path-1 and use EPP-1 in parallel.

QUESTION: 017 (1.00)

If both emergency busses are deenergized, procedure EPP-1 directs the use of the two subsequent procedures listed below:

- EPP-21 - Energizing Pressurizer Heaters From Emergency Busses.
- EPP-22 - Energizing Plant Equipment Using Dedicated Shutdown Diesel Generator

Which ONE of the following is the basis for the one hour time limit placed on the completion of these two procedures?

- a. Maintain RCP seals
- b. AFW for heat sink
- c. Stabilize natural circulation
- d. Minimize PTS concerns

QUESTION: 018 (1.00)

If both emergency busses are deenergized, procedure EPP-1, "Loss of All AC Power", directs the use of the two subsequent procedures listed below and directs a preference of completion if personnel are limited.

- EPP-21 - Energizing Pressurizer Heaters From Emergency Busses.
- EPP-22 - Energizing Plant Equipment Using Dedicated Shutdown Diesel Generator

Which ONE of the following describes the procedure to be completed FIRST and the basis for this preference?

| Preferred Procedure ----- | Basis for Preference ----- |
|------------------------------|-------------------------------|
| a. EPP-21 | Heat Sink |
| b. EPP-22 | RCP Seals |
| c. EPP-21 | Heat Sink and PTS |
| d. EPP-22 | RCP Seals and PTS |

QUESTION: 019 (1.00)

To minimize deterioration of the plant in a loss of all AC power condition, the intact steam generators are depressurized at a maximum rate to 300 psig or an RCS cold leg temperature of 345 degrees F.

Which ONE of the following describes the condition(s) that will force the operator to suspend the depressurization before either limit is achieved?

- a. S/G level below minimum allowed
- b. Loss of pressurizer level
- c. S/G level below minimum allowed OR loss of pressurizer level
- d. S/G level below minimum allowed OR loss of pressurizer level OR voiding in the reactor head

QUESTION: 020 (1.00)

To minimize deterioration of the plant in a loss of all AC power condition, the intact steam generators are depressurized at a maximum rate to 300 psig or an RCS cold leg temperature of 345 degrees F.

Which ONE of the following is the basis for each of the limits stated in the preceding paragraph?

| 300 psig limit ----- | 345 degrees F limit ----- |
|-------------------------|------------------------------|
| a. PTS concerns | PTS concerns |
| b. nitrogen injection | nitrogen injection |
| c. nitrogen injection | PTS concerns |
| d. PTS concerns | nitrogen injection |

QUESTION: 021 (1.00)

Given the following:

- A plant startup is in progress with reactor power at 8%.
- The turbine is being paralleled to the grid.
- Power is lost to Instrument Bus 2.

Which ONE of the following describes the actions that will occur due to the loss of Instrument Bus 2?

- a. Reactor trip and turbine trip.
- b. Reactor trip without turbine trip.
- c. The first three steam dump valves will fail closed.
- d. Other than deenergized instruments, no immediate consequences will be seen.

QUESTION: 022 (1.00)

Which ONE of the following requires entry into DSP-001, Alternate Shutdown Diagnostic?

- a. A fire in the Main Turbine that has the potential to destroy the generator when the reactor is above 10% power.
- b. A fire in the Containment Volume that has the potential to destroy the pressurizer heater power cables when in hot standby.
- c. A fire in the Control Room that has the potential to destroy vital plant control cables when refueling.
- d. A fire in the Auxiliary Building that has the potential to destroy vital plant controls when in cold shutdown.

QUESTION: 023 (1.00)

Given the following:

- A fire is in progress within the facility.
- DSP-002, "Hot Shutdown Using the Dedicated/Alternate Shutdown System", is implemented.
- The shift is under minimum manning conditions.
- The Shift Supervisor assumes the duties of the electrical operator.

Which ONE of the following describes how Step 13 of Attachment 1, Turbine Building Operator Actions (stated below in part), is accomplished?

"Maintain a stable T-cold in all three loops from the Secondary Control Panel..."

- a. Allow the steam line safety valves to lift.
- b. Use nitrogen from the Steam Dump Nitrogen system to operate the steam line PORVs.
- c. Adjust Steam Driven Auxiliary Feed Water (SDAFW) Pump outlet valve.
- d. Adjust SDAFW Pump steam inlet valve.

QUESTION: 024 (1.00)

Which ONE of the following describes the control room operators immediate actions if the control room becomes uninhabitable due to toxic gas?

- a. Evacuate to the Fire Equipment Building.
- b. All control room operators evacuate to the Fire Equipment Building and all others to the Emergency Switchgear Room/Electrical Equipment Area.
- c. Trip the reactor, verify all rods in, trip the turbine and evacuate to the Fire Equipment Building.
- d. Trip the reactor, trip the turbine, verify auxiliary feedwater flow and evacuate to the Fire Equipment Building.

QUESTION: 025 (1.00)

The following conditions exist:

- A reactor trip and safety injection has occurred.
- Emergency Bus E-1 is NOT energized due to a bus feeder breaker failure and a diesel generator start failure.
- One train of safeguards equipment has actuated as expected.
- The RCS is at saturation conditions.
- S/G pressure is at 900 psig and stable.
- The SRO has entered Path-1.

Which ONE of the following describes the actions required under these conditions?

- a. Stop all reactor coolant pumps.
- b. Transition to EPP-1, Loss of All AC.
- c. Manually isolate feedwater.
- d. Initiate containment spray.

QUESTION: 026 (1.00)

Which ONE of the following describes the basis for maintaining Steam Generator levels between 10% and 50% following a reactor trip?

| Minimum ----- | Maximum ----- |
|------------------|------------------|
| a. RCS Cooldown | Overfeeding |
| b. RCS Cooldown | PTS Concerns |
| c. Heat Sink | Overfeeding |
| d. Heat sink | PTS Concerns |

QUESTION: 027 (1.00)

Given the following conditions:

- Reactor Power at 100%
- Tavg at 575 degrees F
- RCS pressure 2230 psig
- PRT pressure 15 psig

Which ONE of the following describes the temperature that would be indicated on the pressurizer PORV tailpipe temperature indicator if a PORV was leaking significantly? Assume an ideal thermodynamic process.

- a. 280 degrees F
- b. 250 degrees F
- c. 213 degrees F
- d. 193 degrees F

QUESTION: 028 (1.00)

Given the following indications:

- Reactor Power at 100%
- APP-003-B3, PRT HI TEMP in alarm
- APP-003-C3, PRT HI PRESS in alarm
- APP-003-D3, PRT HI/LO LVL in alarm
- APP-003-E6, PZR PORV LN HI TEMP in alarm
- APP-003-F6, PZR SAFETY VLV LINE HI TEMP in alarm
- PZR level 54%
- RCS pressure 2260 psig

Which ONE of the following describes the immediate action(s) to be taken?

- a. Manually close the PZR PORVs.
- b. Drain the PZR relief tank level to 50%.
- c. Start additional charging pumps and reduce letdown flow.
- d. Trip the reactor and follow PATH-1.

QUESTION: 029 (1.00)

The following conditions exist:

- The reactor is at 100% power
- All systems are in their normal at power lineup
- All systems are in automatic
- The reactor operator reports pressurizer level is decreasing

Which ONE of the following describes the immediate action(s) required under these conditions?

- a. Trip the reactor and follow PATH-1.
- b. Trip the reactor and isolate letdown/charging.
- c. Start additional charging pumps and reduce letdown flow.
- d. Determine leakrate and report if leakrate exceeds makeup.

QUESTION: 030 (1.00)

Given the following:

- The reactor is at power.
- All systems are aligned for normal at power operation and in automatic where applicable.
- The reactor operator notes that charging flow has increased over the last hour.
- Leakrate calculations indicate a 13 gpm RCS leak has developed.

Which ONE of the following describe the action(s) to be taken in this situation?

- a. Trip the reactor and enter Path-1.
- b. Stop letdown flow.
- c. Commence normal reactor shutdown to Hot Shutdown within 24 hours.
- d. Notify upper management and continue evaluating the leak.

QUESTION: 031 (1.00)

Given the following:

- The reactor is at power.
- All systems are lined up for normal operation and in automatic where applicable.
- The reactor operator reports that valve LCV-115A, "VCT/HLDP Tank Diversion", remains aligned to the VCT regardless of VCT level.

Which ONE of the following describes the instrument failure that will cause these indications?

- a. VCT level transmitter, LT-112, failed high
- b. VCT level transmitter, LT-112, failed low
- c. VCT level transmitter, LT-115, failed high
- d. VCT level transmitter, LT-115, failed low

QUESTION: 032 (1.00)

The following conditions exist:

- The plant is shutdown on RHR cooling.
- The running RHR pump trips.
- It is noted that RCS level is slowly decreasing.
- AOP-020 is entered and the following valves are closed per the procedure:

RHR-750, Loop 2 Hot Leg To RHR System.

RHR-751, Loop 2 Hot Leg To RHR System.

RHR-744A, RHR Return To Cold Legs.

RHR-744B, RHR Return To Cold Legs.

HCV-142, RHR To Letdown Line.

- After the valves listed above are closed, the reactor operator reports RCS level still slowly decreasing.

Which ONE of the following describes the conclusion that can be made based on the above information?

- a. The leak is in the RCS.
- b. The leak is in the RHR system.
- c. Charging is not operating.
- d. The leak is between the RHR isolation valves.

QUESTION: 033 (1.00)

Given the following conditions:

- The plant is in Refueling.
- A loss of RHR occurs with a loss of RCS inventory.
- Refueling Cavity level has dropped below 2 feet 5 inches below the operating deck.
- The SRO enters AOP-020, "Loss of Residual Heat Removal."

Which ONE of the following describes the preferred order of injection sources available to control the loss of level situation?

- a. Cold leg injection, Hot leg injection, Charging.
- b. Charging, Cold leg injection, Hot leg injection.
- c. Charging, cold leg injection, RWST gravity feed.
- d. Cold leg injection, RWST gravity feed, VCT overpressure.

QUESTION: 034 (1.00)

Given the following conditions:

- The plant is in Refueling with fuel movement is progress.
- A loss of RHR occurs with a loss of RCS inventory.
- The SRO enters AOP-020, "Loss of Residual Heat Removal."

Which ONE of the following evacuations is directed by the AOP under these conditions?

- a. All non-operations personnel from the CV.
- b. All non-operations AND operations personnel from the CV.
- c. All non-operations personnel from the CV and fuel handling building.
- d. All non-operations and operations personnel from the CV and fuel handling building.

QUESTION: 035 (1.00)

Given the following:

- It is necessary to use the Auxiliary Spray valve.
- The operator reports it has stuck open.
- RCS pressure is very slowly decreasing.
- The SRO enters AOP-019, "Malfunction of RCS Pressure Control."

Which ONE of the following describes the action(s) required in this situation?

- a. Trip the reactor and follow Path-1.
- b. Stop all charging pumps.
- c. Stop letdown and close HCV-121.
- d. Stop letdown and commence power reduction to Hot Standby.

QUESTION: 036 (1.00)

Given the following plant conditions:

- Plant startup in progress.
- PRNI Channels indicate: 8%, 8%, 9%, 8% respectively.
- BOTH Intermediate Range (IR) Instruments fail low and the control power fuses are pulled.

Which ONE of the following is required in this situation?

- a. Maintain current power level and restore at least one IR instrument to service.
- b. Initiate OWP-011, "Nuclear Instrumentation" for the IR instruments and continue the startup.
- c. Manually insert all control rods.
- d. Enter Path-1.

QUESTION: 037 (1.00)

Which ONE of the following describes the basis for checking ruptured S/G pressure greater than 250 psig prior to rapidly dumping steam from the intact S/Gs in an effort to stop a tube rupture?

To insure:

- a. the subsequent cooldown will not produce integrity concerns in the RCS.
- b. RCS pressure will be less than the ruptured S/G pressure after the cooldown stopping primary to secondary leakage.
- c. the accumulators will not inject during subsequent cooldown.
- d. a return to criticality during the subsequent rapid RCS cooldown will not occur.

QUESTION: 038 (1.00)

Given the following:

- A steam generator tube rupture has occurred.
- Path-1 and Path-2 have been entered.
- The RCS is depressurized equalizing RCS and S/G pressure stopping the leak.

Which ONE of the following is the preferred path to continue on for the given conditions?

- a. EPP-14, Post-SGTR Cooldown Using Steam Dump.
- b. EPP-13, Post-SGTR Cooldown Using Blowdown.
- c. EPP-12, Post-SGTR Cooldown Using Backfill.
- d. Path-1, entry point C.

QUESTION: 039 (1.00)

Given the following:

- A loss of offsite power occurs.
- The control board operator reports that control board indication for the "B" and "C" Charging Pump is lost.

Which ONE of the ^{following} ~~the~~ indicates power supply(ies) lost in conjunction with the loss of offsite power?

- a. DC Bus "A" only
- b. 480V Bus "3" only
- c. DC Bus "A" and "B"
- d. 480V Bus "3" and "4"

QUESTION: 040 (1.00)

Which ONE of the following describes the control manipulation to be performed as an immediate action if Radiation Monitor R-32A, CV High Range, has just alarmed?

- a. Place and hold the EVACUATION ALARM to LOCAL for 15 seconds.
- b. Press the SAFE-RESET pushbutton.
- c. Press the CHECK SOURCE pushbutton.
- d. Press the ALARM/RESET pushbutton.

QUESTION: 041 (1.00)

Which ONE of the following describes the Technical Specification basis for the high pressurizer water level reactor trip?

- a. Prevents the pressurizer from becoming water solid.
- b. Prevents the pressurizer code safety valves from relieving water.
- c. Prevents the pressurizer code safety valves from lifting.
- d. Accounts for a pressurizer steam space LOCA.

QUESTION: 042 (1.00)

Given the following plant conditions:

- Refueling operations are in progress with a fuel assembly being transferred from the reactor vessel to the transfer basket
- R-2 Containment Area Radiation, Monitor alarms
- R-11 Containment Area and Plant Vent Particulate Radiation Monitor alarms
- R-12 Containment area and plant vent Gaseous Radiation Monitor alarms

Which ONE of the following describes the immediate action required to be performed in the Control Room?

- a. Sound the LOCAL EVACUATION ALARM.
- b. Verify CV purge and relief lineup.
- c. Page personnel to evacuate to the Outside Fuel Handling Building Door.
- d. Page personnel to evacuate to the Fuel Handling Building.

QUESTION: 043 (1.00)

Which ONE of the following is the reason for maintaining a cooldown rate of less than 25 degrees-F/hour during the performance of EPP-5, "Natural Circulation Cooldown"?

- a. To establish conditions to support starting a RCP.
- b. To enhance natural circulation during the cooldown.
- c. To ensure adequate shutdown margin during the cooldown.
- d. To prevent void formation in the head.

QUESTION: 044 (1.00)

Given the following:

- The plant has achieved 100% power operation 1 hour ago.
- Control rod banks A, B, and C are full out.
- Both groups of Control Bank D are at 205 steps as indicated by the group step counters.
- The reactor operator notices that one rod in Control Bank D indicates 194 steps by IRPI indication.
- The average rod height indication for bank D is 196 steps.
- Maintenance reports the lift coil fuse holder is bad and will require 6 hours to repair.

Which ONE of the following, in accordance with Technical Specification action(s) is correct?

- a. Determine adequate shutdown margin within 2 hours.
- b. Determine hot channel factors within 2 hours.
- c. Reduce power to 70 percent of rated power within 4 hours.
- d. No action is required by Technical Specifications.

QUESTION: 045 (1.00)

During a reactor startup:

- The local indication of the rod control system Bank Overlap Unit indicates 256 steps.
- Local cabinet lights indicate Control Bank C begins to move.

Which ONE of the following is the conclusion to this observation?

- a. This motion is correct.
- b. This motion is incorrect, Control Bank B should be starting to move.
- c. This motion is incorrect, Control Bank C should be stopping.
- d. This motion is incorrect, Control Bank D should be starting to move.

QUESTION: 046 (1.00)

Given the following:

- The reactor is shutdown with Tavg at the no-load value.
- Reactor Coolant Pumps A and C are operating and B is stopped.

Which ONE of the following indicates that spray flow is occurring when the spray flow valves are opened with the current plant conditions?

| | Spray Valve 455A ----- | Spray Valve 455B ----- |
|----|---------------------------|---------------------------|
| a. | no | no |
| b. | yes | yes |
| c. | yes | no |
| d. | no | yes |

QUESTION: 047 (1.00)

The following plant conditions exist:

- The plant is at 100% power.
- All systems are in automatic and operating normally.
- An inadvertent Phase "A" ('T' signal) isolation is actuated.

Which ONE of the following describes the maximum number of CVCS valves that will automatically close from the Phase "A" signal? Use the following list to associate noun names with valve numbers.

| | |
|----------------------------------|---------------------|
| Letdown Stop Valves | LCV-460A and B. |
| Letdown Orifice Isolation Valves | CVC-200A, B, and C. |
| Letdown line Isolation Stops | CVC-204A and B. |
| VCT Outlet Isolation Valve | LCV-115C |

- a. Letdown Stop Valves and Letdown Orifice Isolation Valves.
- b. Letdown Stop Valves, Letdown Orifice Isolation Valves, and Letdown Line Isolation Stops.
- c. Letdown Orifice Isolation Valves and Letdown Line Isolation Stops.
- d. Letdown Orifice Isolation Valves, Letdown Line Isolation Stops, and VCT Outlet Isolation Valve.

QUESTION: 048 (1.00)

Given the following:

- The Chemical and Volume Control System is aligned for normal operation.
- Charging and Letdown are balanced with VCT level maintaining at a steady 35 inches.
- A leak develops in the bottom of the VCT causing level to decrease.
- Automatic makeup starts but is unable to completely keep up with the leak and level continues to slowly decrease.

Which ONE of the following describes what will happen to VCT level with no operator action?

VCT level decreases to:

- a. 20 inches then increases to and maintains at 51 inches.
- b. 12 inches then increases to and maintains at 51 inches.
- c. 12 inches, increases to 16 inches, then cycles up and down between 12 and 16 inches.
- d. 20 inches, increases to 24 inches, then cycles up and down between 20 and 24 inches.

QUESTION: 049 (1.00)

Which ONE of the following describes the impact the loss of Instrument Bus 3 has on the automatic operation of the Reactor Safeguards System?

- a. Neither train of the Reactor Safeguards System is affected.
- b. Train "B" of the Reactor Safeguards System is deenergized.
- c. Train "A" of the Reactor Safeguards System is deenergized.
- d. Both trains of the Reactor Safeguards System are deenergized.

QUESTION: 050 (1.00)

Given the following:

- A large LOCA causes a reactor trip and safety injection.
- All required ESF equipment is running normally.
- Containment pressure increases past the HI-HI pressure setpoint but the containment spray system does NOT start.
- The SRO orders the reactor operator to manual actuate containment spray.

Which ONE of the following describes the actions that will occur when the reactor operator manually activates containment spray?

Containment spray actuation,:

- a. and main steam isolation.
- b. main steam isolation, Phase "B" isolation, and containment ventilation isolation.
- c. and Phase "B" isolation only.
- d. Phase "B" isolation and containment ventilation isolation.

QUESTION: 051 (1.00)

Which ONE of the following describes the correlation between the letters indicated on the attachment (Refer to the provided Attachment 7.2, Detector Locations) and the detector represented?

Use the following guide for applicable acronyms.

- PR = Power Range Channel Detector.
- IR = Intermediate Range Channel Detector.
- SR = Source Range Channel Detector.
- RG = RG 1.97 Channel Detector

| | A ----- | B ----- | C ----- | D ----- |
|----|------------|------------|------------|------------|
| a. | SR/IR | RG | SR/IR | IR |
| b. | RG | SR/IR | RG | IR |
| c. | PR | SR/IR | RG | SR |
| d. | RG | PR | SR/IR | SR |

QUESTION: 052 (1.00)

A Design Basis Accident causing containment pressure and temperature to increase has occurred.

Which one of the following is a minimum component combination that will provide sufficient cooling to reduce containment pressure?

- a. THREE fan-cooler units.
- b. TWO fan-cooler units and ONE containment spray pump.
- c. ONE fan-cooler unit and ONE containment spray pump with sodium hydroxide addition.
- d. TWO fan-cooler units, ONE containment spray pump and TWO service water pumps.

QUESTION: 053 (1.00)

Which ONE of the following describes how adding Sodium Hydroxide (NaOH) to containment spray removes Iodine from the containment atmosphere?

- a. It allows Iodine to combine with the free hydrogen becoming a hypoiodite.
- b. It decreases the pH of the spray water allowing Iodine to be trapped by the spraying water molecules.
- c. It breaks the Iodine down into ions that are more soluble in water.
- d. It decreases the pH of the containment sump allowing Iodine to be absorbed into the water.

QUESTION: 054 (1.00)

Which ONE of the following conditions is the cause for Annunciator RTGB APP-007-F4, FW PMP A/B LO FLOW, to alarm?

Main Feedwater Pump:

- a. suction flow is less than 1475 gpm.
- b. suction flow is less than 1150 gpm.
- c. suction flow is less than 1475 AND the recirculating valve is closed.
- d. suction flow is less than 1150 gpm AND the recirculating valve is closed.

QUESTION: 055 (1.00)

Which ONE of the following is the maximum power the plant could operate at if the secondary system is limited to ONE Condensate Pump and ONE Main Feedwater Pump?

- a. 40%
- b. 50%
- c. 60%
- d. 75%

QUESTION: 056 (1.00)

Which ONE of the following describes the failure position and power supply for the three listed Auxiliary Feed Water Flow Control valves.

- 1. Fails open, powered from an Instrument Bus.
- 2. Fails closed, powered from an Instrument Bus.
- 3. Fails open, powered from a Lighting Panel.
- 4. Fails closed, powered from a Lighting Panel.

| | FCV-1424 ("A" MDAFWP) ----- | FCV-1425 ("B" MDAFWP) ----- | FCV-6416 (Steam AFWP) ----- |
|----|-----------------------------------|-----------------------------------|-----------------------------------|
| a. | 2 | 2 | 3 |
| b. | 1 | 1 | 4 |
| c. | 4 | 2 | 3 |
| d. | 2 | 3 | 2 |

QUESTION: 057 (1.00)

Which ONE of the following AFW automatic start signals is defeated when the AFW pump "auto-start defeat switch" is in the "DEFEAT" position?

- a. AMSAC.
- b. Loss of power to 4160V buses 1 and 4.
- c. Safety Injection signal.
- d. Blackout Sequence.

QUESTION: 058 (1.00)

While standing at the "A" Battery Charger, you observe:

- a red light on the face of the charger which is dark.
- a green light on the face of the charger which is illuminated.

Which ONE of the following describes the significance of these lights?

- a. The charger is energized and in service.
- b. AC power is available and the charger is not in service.
- c. AC power is available with a battery charge in progress.
- d. The charger is energized with the battery at full voltage.

QUESTION: 059 (1.00)

Which ONE of the following describes the time and conditions required for the battery charger to recharge the "A" battery to full capacity from a fully discharged condition?

- a. 12 hours with the charger under normal load conditions
- b. 12 hours with the charger under minimal load conditions
- c. 24 hours with the charger under normal load conditions
- d. 24 hours with the charger under minimal load conditions

QUESTION: 060 (1.00)

Which ONE of the following describes the pressure at which the Gas Decay Pressure Controller actuates and, the automatic functions initiated upon actuation?

- a. 110 psig, closes the in-service tank inlet valve, and places standby tank in service.
- b. 110 psig, closes the in-service tank inlet valve, and stops the running waste gas compressor.
- c. 95 psig, stops the running waste gas compressor, and closes the in-service tank inlet valve.
- d. 95 psig, places the standby tank in service, and closes the in-service tank inlet valve.

QUESTION: 061 (1.00)

Which ONE of the following describes the radiation monitor channels that are designated accident channels?

Refer to the list below for channel number and noun names.

| | |
|--------------------------------|------------------------------|
| R-1 - Control Room | R-7 - CV Incore Inst. Room |
| R-2 - CV Low Range Monitor | R-8 - Drumming Station |
| R-3 - Health Physics Work Area | R-9 - Letdown Line Area |
| R-4 - Charging Pump Room | R-32A - CV High Range |
| R-5 - Spent Fuel Building | R-32B - CV High Range |
| R-6 - Sampling Room | R-33 - Monitor Building Area |

- a. R-1 and R-2
- b. R-32A and R-32B.
- c. R-1, R-2, R-32A and R-32B.
- d. R-1, R-2, R-5, R-32A and R-32B.

QUESTION: 062 (1.00)

Given:

- An instrument technician inadvertently pulls ONE control power fuse for NI Channel 42.
- 5 seconds later, he realized the error and replaces the fuse.

Which ONE of the following describes the actions that will occur from the following actions?

- a. No actions will occur providing the other fuse is left in.
- b. A 5 second turbine runback will occur then stop.
- c. A turbine runback will occur until the timer times out.
- d. A turbine runback will occur until the turbine is tripped.

QUESTION: 063 (1.00)

Which ONE of the following contains the components/systems that connect to the loop 3 cold leg?

- a. Pressurizer, SI (high head), CVC charging line.
- b. SI/RHR (high & low head), Pressurizer.
- c. Pressurizer, SI/RHR (high & low head), CVC Letdown Line.
- d. Primary Sampling System, SI (high head), Pressurizer, Excess Letdown.

QUESTION: 064 (1.00)

Which ONE of the following describes the shutoff head and maximum flow for the safety injection pumps if BOTH pumps are running?

| Maximum Flow ----- | Shutoff Head ----- |
|-----------------------|-----------------------|
| a. 375 gpm each | 1500 psig |
| b. 600 gpm each | 1515 psia |
| c. 750 gpm total | 1000 psia |
| d. 1200 gpm total | 1015 psia |

QUESTION: 065 (1.00)

Which ONE of the following describes what occurs when a safety injection valve fails to operate because the bonnet was full of cold water which, when heated up, causes the valve discs to seat too tightly for valve operation?

- a. Stem Thermal Binding.
- b. Disc Thermal Binding.
- c. Liquid Entrapment.
- d. Bonnet Depressurization.

QUESTION: 066 (1.00)

Given the following:

- The plant has been at 100% power for 30 days.
- All systems are in automatic and operating as expected.
- In assuming the morning shift at 0700 AM, the turnover included that the "A" accumulator isolation valve is energized to accommodate maintenance and testing.
- 1 hour into the shift, the RO reports a review of the logs indicates the accumulator isolation valve was initially energized at 0400 AM and has been energized continuously since.

Which ONE of the following describe compliance with Technical Specifications (TS) concerning the report?

- a. The TS limit was violated at 0600 AM.
- b. The TS limit has just now been reached.
- c. The TS limit will not be affected for another 6 hours.
- d. The TS limit will not be affected for another 18 hours.

QUESTION: 067 (1.00)

Given:

- The reactor head is on the vessel.
- The Reactor Coolant System (RCS) IS NOT open for maintenance.
- The RCS is depressurized and the temperature is below 350 degrees F.

Which ONE of the following describes the minimum operability requirements for the RCS pressure relief system without entering a Tech. Spec. LCO?

- a. ONE PORV and ONE code safety valve
- b. ONE PORV and TWO code safety valves
- c. TWO PORVs and ONE code safety valve
- d. TWO PORVs and TWO code safety valves

QUESTION: 068 (1.00)

Given the following conditions on Robinson, Unit 2:

- Reactor Power is 98% and stable.
- All systems are in automatic and operating normally.
- Rod control is in manual
- Pressurizer pressure transmitter PT-444 fails to 2370 psig.

Which ONE of the following describes the system response to this event?

- a. All spray valves open, all pressurizer heaters energize.
- b. All spray valves close, all pressurizer heaters energize.
- c. Power operated relief valve PCV-455C opens, all spray valves open, all pressurizer heaters deenergize.
- d. Power operated relief valves PCV-455C and PCV-456 open, all spray valves open, all pressurizer heaters deenergize.

QUESTION: 069 (1.00)

Which ONE of the following describes the response to the controlling channel of Pressurizer level failing HIGH during full power operation? Assume NO operator action?

- a. Reactor will trip on low pressure.
- b. Charging pump speed increases.
- c. Letdown isolates and remains isolated.
- d. All pressurizer heaters trip and re-energize when level returns above 14.4%.

QUESTION: 070 (1.00)

One channel of four nuclear instrumentation is removed from service for testing and all procedural requirements are satisfied.

Which ONE of the following reactor trip coincidences is correct while this channel is being tested?

- a. 1 out of 3
- b. 1 out of 4
- c. 2 out of 3
- d. 2 out of 4

QUESTION: 071 (1.00)

Which ONE of the following describes the control power supply for Reactor Trip Breaker "A" and Reactor Trip Bypass Breaker "A"?

| Reactor Trip "A" ----- | Reactor Trip Bypass "A" ----- |
|----------------------------|----------------------------------|
| a. "A" 125 VDC Dist. Panel | "A" 125 VDC Dist. Panel |
| b. "A" 125 VDC Dist. Panel | "B" 125 VDC Dist. Panel |
| c. "B" 125 VDC Dist. Panel | "A" 125 VDC Dist. Panel |
| d. "B" 125 VDC Dist. Panel | "B" 125 VDC Dist. Panel |

QUESTION: 072 (1.00)

Which ONE of the following describes how the 2 RTGB Reactor Trip Pushbuttons are electrically arranged in respect to one another?

- a. They are in series to account for a failure.
- b. They are in parallel to account for a failure.
- c. They are in series-parallel to account for a failure.
- d. They are in completely independent circuits to account for a failure.

QUESTION: 073 (1.00)

Referring to OP-922, Post Accident Containment Hydrogen Reduction/Venting System, and given the following conditions:

- Containment Temperature = 140 degrees F.
- Containment Pressure = 2.1 psig
- Heater outlet gas temperature = 845 degrees F
- Reaction Chamber gas temperature = 1325 degrees F
- Gas Return Wall Temperature = 225 degrees F.

Which ONE of the following represents the approximate Hydrogen concentration in the containment following a LOCA?

- a. 2%
- b. 3%
- c. 4%
- d. 5%

QUESTION: 074 (1.00)

Which ONE of the following describes the complete action(s) a Safety Injection signal will have on the Containment Systems?

- a. Close all containment isolation valves, stop CV purge fans, and start HVH units 1 thru 4.
- b. Close all containment isolation valves and start HVH units 1 thru 4.
- c. Close all containment isolation valves and stop CV purge fans.
- d. Stop CV purge fans and start HVH units 1 thru 4.

QUESTION: 075 (1.00)

Given the following:

- A full core discharge is loaded into the spent fuel pit.
- Spent fuel pit temperature is currently 130 degrees F and increasing slowly.

Which ONE of the following describes how often the spent fuel pit temperature must be monitored and at what temperature action must be taken with the fuel in the pit?

- a. Once each hour, 150 degrees F
- b. Once each hour, 175 degrees F
- c. Once each shift, 150 degrees F
- d. Once each shift, 175 degrees F

QUESTION: 076 (1.00)

Which ONE of the following describes a function provided by the Main Steam header pressure transmitters?

- a. Supplies input signals to the AMSAC-ATWS mitigation system.
- b. Supplies input signals for steam dump control.
- c. Supplies input for the high steam flow setpoint.
- d. Supplies input for pressure compensation of the steam flow channels.

QUESTION: 077 (1.00)

The following components have lost power.

- Condensate Pump "B".
- Reactor Coolant Pump "C".
- 4160 Volt Bus #5.

Which ONE of the following describes the bus(es) lost that will cause the loss of power to the above list?

- a. 4160 Volt Bus 2 only
- b. 4160 Volt Bus 4 only
- c. 4160 Volt Bus 2 and 4
- d. 4160 Volt Bus 1, 2 and 4

QUESTION: 078 (1.00)

Which ONE of the following describe the expected response to a loss of Instrument Bus 3, during full power operation?

- a. Reactor trip with no turbine trip.
- b. Load reduction from NIS rod drop signal.
- c. Steam Dump will shift to pressure mode.
- d. Diesel Generators will auto start on undervoltage.

QUESTION: 079 (1.00)

Which ONE of the following describes ONE of the THREE controls on the Emergency Diesel Generator Governor?

- a. Synchronizer - Changes engine load when the engine is in parallel with another unit.
- b. Speed Droop Control - Automatically compensates engine speed as loads start during sequencing to prevent frequency drops.
- c. Load Limit Control - Is set to control the engine speed after initial start to prevent stalling when large loads are placed on an unloaded generator.
- d. Operation Control - Determines whether the governor is controlled locally from the diesel or remotely from the RTGB.

QUESTION: 080 (1.00)

Given the following:

- The plant is in outage conditions.
- The Reactor Coolant System level is required to be maintained below the vessel flange.
- The level is being monitored using Reactor Vessel Level Transmitter LT-403.

Which ONE of the following describes the level, as indicated on LT-403, that the operator can expect cavitation of the Residual Heat Removal pumps to occur?

- a. Less than - 68 inches.
- b. Less than - 82 inches
- c. Less than - 68 %
- d. Less than - 82 %

QUESTION: 081 (1.00)

Given the following:

- The plant has been shutdown for 10 days due to Steam Generator tube maintenance.
- The RCS is being cooled by RHR when the entire RHR system is lost.

Using the attachment RHR-TP-3.5 provided, which one of the following describes the approximate time to core uncover if RHR is not restored?

- a. 30 minutes
- b. 45 minutes
- c. 60 minutes
- d. 90 minutes

QUESTION: 082 (1.00)

Which ONE of the following represents the minimum combination of Component Cooling Water (CCW) pumps and heat exchangers required prior to taking the reactor critical?

- a. ONE pump, ONE heat exchanger.
- b. TWO pumps, ONE heat exchanger.
- c. ONE pump, TWO heat exchangers.
- d. TWO pumps, TWO heat exchangers.

QUESTION: 083 (1.00)

The following plant conditions exist:

- A reactor trip/turbine trip has occurred.
- North Service Water Header pressure is 25 psig.
- South Service Water Header pressure is 35 psig.
- Service Water Header pressures have been at these values for 2 minutes.

The following valve noun names apply:

- V6-16A - North Header supply valve to turbine building.
- V6-16B - South Header supply valve to turbine building.
- V6-16C - Common supply valve for both turbine building headers.

Which ONE of the following describes the response of the Service Water System to these conditions.

- a. Only valve V6-16A will close.
- b. Only valve V6-16C will close.
- c. Valves V6-16A and V6-16C will close.
- d. Valves V6-16A, V6-16B, and V6-16C will close.

QUESTION: 084 (1.00)

Given:

- Annunciator APP-021-B-1, "RAD MONITOR TROUBLE", is in alarm.
- The operator determines actions taken in accordance with the Annunciator Panel Procedure would NOT be effective.

Which ONE of the following describes the action to be taken in this circumstance, in accordance with OMM-001, "Conduct of Operations"?

- a. Initiate a procedure deviation.
- b. Initiate a temporary procedure change.
- c. Log the deviation in the Control Operators Log.
- d. Initiate a work request to repair the failed annunciator.

QUESTION: 085 (1.00)

Which ONE of the following completes the statement concerning watch relief that is being performed in accordance with OMM-008, "Minimum Equipment List and Shift Relief?"

The logs must be reviewed by the oncoming operator back to the last time on watch or back a maximum of:

- a. 3 days.
- b. 7 days.
- c. 10 days.
- d. 14 days.

QUESTION: 086 (1.00)

Given:

- OMM-008, "Minimum Equipment List and Shift Relief, requires in several places for attachments to be completed prior to changing plant status (i.e. prior to exceeding 200 degrees F).
- It is the intent of these portions of the Minimum Equipment List (MEL) to ensure that the minimum required equipment is operable prior to achieving the new plant conditions.

Proceeding beyond the specified transition point with less operable equipment than required by the MEL is:

- a. Not permitted.
- b. Permitted with concurrence from a second SRO only.
- c. Permitted with Plant Manager approval only.
- d. Permitted with concurrence from Plant Nuclear Safety Committee.

QUESTION: 087 (1.00)

Which ONE of the following describes the "Hands-On" method used when verifying a manual valve in the OPEN position?

- a. Valve movement should be checked in the OPEN direction and restored to 1/4 turn off its backseat.
- b. Valve movement should be in the CLOSED direction one turn and restored to 1/4 turn off its backseat.
- c. Local valve position indication should be used, if available, so valve movement is not required.
- d. Note the valve position, move in the CLOSED direction one and 1/2 turns, then restored to the full open position.

QUESTION: 088 (1.00)

Which ONE of the following describes the time limits that apply when performing Operational Surveillance Testing (OST) of pumps?

| | <u>Minimum Time to Take Data</u> | <u>Maximum Time to Run Test</u> |
|----|----------------------------------|---------------------------------|
| a. | 15 minutes | 30 minutes |
| b. | 30 minutes | 30 minutes |
| c. | 15 minutes | 45 minutes |
| d. | 30 minutes | 45 minutes |

QUESTION: 089 (1.00)

Which ONE of the following describes the Control Operators responsibility concerning Operational Surveillance Testing (OST)?

- Logging completed or partial OSTs in the Tracking Book on OMM-015, Attachment 6.4 "Surveillance Test Procedure Information".
- Verifying revision status and obtaining SS permission to perform the OST.
- Completing OMM-015 Attachment 6.2, "OST Discrepancy Log", for any unsatisfactory OST.
- Comparing data derived as a result of the OST with the acceptance criteria.

QUESTION: 090 (1.00)

Which ONE of the following describes the proper sequence for hanging LCTR tags?

- a. For a high energy system, verify each tag independently as it is being hung.
- b. Place tags on component undergoing maintenance last.
- c. Place tags on high energy side prior to low energy side.
- d. Breakers must be tagged before switches/actuator.

QUESTION: 091 (1.00)

Given:

- An LCTR has been cancelled.
- The components have been repositioned and the post maintenance testing completed.

Which ONE of the following describes the responsibility of the Control Operator if the testing is unsatisfactory?

- a. Record date tested, enter the Post Maintenance Testing as unsatisfactory and rehang the LCTR.
- b. Record date tested, enter the Post Maintenance Testing as unsatisfactory and place in LCTRs Awaiting Testing book.
- c. Record date tested and enter a new LCTR, MOD number or new Work Request number in Post Maintenance Testing.
- d. Note Post Maintenance Testing as unsatisfactory, issue orange tags on the component leaving the LCTR active.

QUESTION: 095 (1.00)

Which ONE of the following personnel would normally serve as the Fire Brigade Team Leader in the event of a fire in Unit 2?

- a. Fire Protection Technical Aide.
- b. Off Control Operator.
- c. Unit 1 Shift Supervisor.
- d. RC Fire Support.

QUESTION: 096 (1.00)

Which ONE of the following completes the statement

Derived Air Concentration-hour (DAC-hour) is the product of the concentration of radioactive material in air and the time of exposure to that radionuclide, in hours. _____ DAC-hours represents one ALI, which is a committed dose equivalent of _____ rems.

- a. 1000, 2.
- b. 2000, 5.
- c. 5000, 2.
- d. 5000, 5.

QUESTION: 097 (1.00)

Given the following definition:

The dose equivalent to organs or tissues of reference that will be received from an intake of radioactive material by an individual during the 50 year period following the intake.

Which ONE of the following is described by this definition?

- a. Committed Dose Equivalent (CDE)
- b. Collective Dose
- c. Committed Effective Dose Equivalent (CEDE)
- d. Deep-Dose Equivalent (DDE)

QUESTION: 098 (1.00)

Which one of the following is the immediate operator action in response to receipt of a SEISMIC ALARM?

- a. Verify control rod operability using OST-11.
- b. Observe plant parameters to detect any change in conditions.
- c. Dispatch an operator to inspect area around transducers.
- d. Notify I&C to inspect the seismic recorders using MST-904.

QUESTION: 099 (1.00)

Solid bullets preceding steps in an Emergency Operating Procedure indicate that the steps:

- a. should be performed immediately.
- b. must be performed in the order listed.
- c. may be performed in any order.
- d. are contingency action steps.

QUESTION: 100 (1.00)

Which ONE of the following describes the MAXIMUM permissible work schedule for a Control Operator during fuel movement?

- a. Must have at least 12 hours off after working a 16 hour shift.
- b. No more than 14 consecutive days without 4 consecutive days off.
- c. Less than or equal to 12 hours straight, NOT including turnover.
- d. No more than 72 hours in a 7 day period.

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

ANSWER: 001 (1.00)

c.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, AOP-001, Rev. 6, Section D, page 5. No Facility Objective.
3.5/4.4

000005A203 ..(KA's)

ANSWER: 002 (1.00)

a.

REFERENCE:

HB, AOP-001, Rev. 5, Section E, page 32. No Facility Objective.
3.4/3.4

000005A105 ..(KA's)

ANSWER: 003 (1.00)

a.

REFERENCE:

CHANGED AT FACILITY REQUEST.
HBR, AOP-001, Rev. 5, Section A, page 4. No Facility Objective.
3.9/4.2

000005K306 ..(KA's)

ANSWER: 004 (1.00)

d.

REFERENCE:

HBR, AOP-001, Rev. 6, Section C, page 20. No Facility Objective.

3.8/4.1

000003K304 ..(KA's)

ANSWER: 005 (1.00)

a.

REFERENCE:

HBR, EOP-LP-21, Rev. 2, page 3. Obj. 2.

4.3/4.4

000011K315 ..(KA's)

ANSWER: 006 (1.00)

c.

REFERENCE:

HBR, EOP-LP-21, Rev. 2, page 4. Obj. 2.

3.7/3.9

000011G007 ..(KA's)

ANSWER: 007 (1.00)

a.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, EOP-LP-21, Rev. 2, page 4. Obj 2.

4.0/4.1

000011K305 ..(KA's)

ANSWER: 008 (1.00)

a.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, AOP-018, Section A, page 6-7. RCS-LP-7 Obj. 2.
3.5/3.4

000015A107 ..(KA's)

ANSWER: 009 (1.00)

d.

REFERENCE:

HBR, AOP-002, Rev 4, page 8. No Facility Objective.

3.1/3.2

000024A105 ..(KA's)

ANSWER: 010 (1.00)

a.

REFERENCE:

HBR, AOP-002, Rev. 3, Page 6, Immediate Action Note.
No Facility Objective.

3.9/4.4

000024A202 ..(KA's)

ANSWER: 011 (1.00)

b.

REFERENCE:

HBR, EOP-LP-15, Rev. 4, page 2. Obj. 2

4.4/4.7

000029K312 ..(KA's)

ANSWER: 012 (1.00)

d.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, EOP-LP-15, Rev. 4, page 2. Obj. 3

4.4/4.7

000029K312 ..(KA's)

ANSWER: 013 (1.00)

c.

REFERENCE:

CHANGED AT FACILITY REQUEST.
HBR, Supplement G, Rev. 10, page 32. No Facility Objective.

4.5/4.7

000040K304 ..(KA's)

ANSWER: 014 (1.00)

a.

REFERENCE:

HBR, EOP-LP-18, Steps 16 & 17, p 6 Obj. 3

4.1/4.4

000040K101 ..(KA's)

ANSWER: 015 (1.00)

c.

REFERENCE:

HBR, AOP-012, Rev. 6, page 5. No Facility Objective.

3.9/4.1

000051A202 ..(KA's)

ANSWER: 016 (1.00)

b.

REFERENCE:

HBR, EOP-LP-5, Rev. 6, page 3. Obj. 2.

4.1/4.1

000055G011 ..(KA's)

ANSWER: 017 (1.00)

a.

REFERENCE:

HBR, EOP-LP-5, Rev.. 6. page 8-9... Obj. 5..

3.9/4.7

000055A203 ..(KA's)

ANSWER: 018 (1.00)

b.

REFERENCE:

HBR, EOP-LP-5, Rev. 6, page 9. Obj. 5, 6, and 7.

4.3/4.6

000055K302 ..(KA's)

ANSWER: 019 (1.00)

a.

REFERENCE:

HBR, EPP-1, Rev. 11, page 17. EOP-LP-5, page 14, Obj. 3 and 5.

4.3/4.6

000055K302 ..(KA's)

ANSWER: 020 (1.00)

c.

REFERENCE:

HBR, EOP-LP-5, Rev. 6, page 14. Obj. 3 and 5.

3.3/3.8

000055G003 ..(KA's)

ANSWER: 021 (1.00)

a.

REFERENCE:

HBR, AOP-024, Rev. 5, page 10. No Facility Objective.

4.0/4.3

000057A219 ..(KA's)

ANSWER: 022 (1.00)

b.

REFERENCE:

DSP-001, Rev. 2, p. 3 of 6, Step 2.0, Entry Conditions. ARP-LP-1A, Obj.
1

3.8/4.0

000067G011 ..(KA's)

ANSWER: 023 (1.00)

a.

REFERENCE:

CHANGED AT FACILITY REQUEST

HBR, DSP-002, Rev. 11, Attachment 1, Caution before and Step 13, pg 12.

ARP-LP-2, Obj 3

3.3/4.0

000067A216 ..(KA's)

ANSWER: 024 (1.00)

a.

REFERENCE:

HBR, AOP-004, Rev. 5, page 6. No Facility Objective.

4.1/4.2

000068G010 .. (KA's)

ANSWER: 025 (1.00)

a.

REFERENCE:

HBR, EOP-LP-3, Rev. 7, page 6. Obj. 5.

3.6/3.7

000007A104 .. (KA's)

ANSWER: 026 (1.00)

c.

REFERENCE:

HBR, EOP-LP-3, Rev. 7, page 11. Obj. 5.

3.7/4.1

000007K106 .. (KA's)

ANSWER: 027 (1.00)

b.

REFERENCE:

HBR, Steam Tables. No Facility Objective.

3.2/3.7

000008K101 ..(KA's)

ANSWER: 028 (1.00)

a. *OR C* *A 08/18/94*

REFERENCE:

HBR, AOP-019, Rev. 3, page 9-11. No Facility Objective.
4.1/4.1

000008G010 ..(KA's)

ANSWER: 029 (1.00)

c.

REFERENCE:

HBR, AOP-016, Rev. 7, page 7. No Facility Objective.

4.3/4.3

000009G010 ..(KA's)

ANSWER: 030 (1.00)

~~d.~~ *DELETED* *A 08/18/94*

REFERENCE:

HBR, AOP-016, Rev. 7, page 8. No Facility Objective.

4.2/4.5

000009K321 ..(KA's)

ANSWER: 031 (1.00)

b.

REFERENCE:

HBR, AOP-003, Rev. 3, page 12. No Facility Objective.

3.4/3.3

000022A108 ..(KA's)

ANSWER: 032 (1.00)

a.

REFERENCE:

HBR, AOP-020, Rev. 12, page 8 and 12. No Facility Objective.

3.8/3.9

000025A102 ..(KA's)

ANSWER: 033 (1.00)

b.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, AOP-020, Rev. 13, page 11. No Facility Objective.

3.4/3.3

000025A103 ..(KA's)

ANSWER: 034 (1.00)

a.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, AOP-020, Rev. 13, pages 8 and 9. No Facility Objective.

2.7/3.4

000025G001 ..(KA's)

ANSWER: 035 (1.00)

c.

REFERENCE:

HBR, AOP-019, Rev. 4, page 13. No Facility Objective.

3.6/3.7

000027G011 ..(KA's)

ANSWER: 036 (1.00)

d.

REFERENCE:

HBR, OWP-011, Rev 7, page 16. No Facility Objective.

3.2/3.4

000033G011 ..(KA's)

ANSWER: 037 (1.00)

a.

REFERENCE:

HBR, EOP-LP-4, Rev. 6, page 14. Obj. 3.

4.2/4.5

000038K306 ..(KA's)

ANSWER: 038 (1.00)

c.

REFERENCE:

HBR, EOP-LP-4, Rev. 6, page 24. Obj. 4.

3.8/4.0

000038G012 ..(KA's)

ANSWER: 039 (1.00)

c.

REFERENCE:

HBR, DC-LP-2, Rev. 8, page 21, Obj. 5 Question. Obj 5.

3.5/3.9

000058A203 ..(KA's)

ANSWER: 040 (1.00)

b.

REFERENCE:

HBR, AOP-005, Rev. 10, page 6. No Facility Objective.

3.3/3.3

000061G010 ..(KA's)

ANSWER: 041 (1.00)

b.

REFERENCE:

HBR, Technical Specification, Page 2.3-5. No Facility Objective.

2.4/3.4

000028G004 ..(KA's)

ANSWER: 042 (1.00)

b.

REFERENCE:

HBR, AOP-013, Rev. 4, page 6. No Facility Objective.

3.7/3.8

000036G010 ..(KA's)

ANSWER: 043 (1.00)

d.

REFERENCE:

HBR, EOP-LP-9, Rev. 4, page 6. Obj. 4.

3.1/3.2

000056K104 ..(KA's)

ANSWER: 044 (1.00)

d.

REFERENCE:

HBR T.S. 3.10.1.5, page 3.10-2. No facility objective.

3.7/4.1

001000G005 ..(KA's)

ANSWER: 045 (1.00)

a.

REFERENCE:

HBR, SD-007, page 6. RDCNT-TP-1.1, Obj. 3

3.5/3.8

001000K403 ..(KA's)

ANSWER: 046 (1.00)

d.

REFERENCE:

CHANGED AT FACILITY REQUEST (answer only)

HBR, SD-059, Rev. 8, page 7. RCS-TP-5.1, Obj. 3.

3.7/4.0

003000K301 ..(KA's)

ANSWER: 047 (1.00)

c.

REFERENCE:

HBR, SD-021, Rev 21, page 17-18. CVC-TP-3.1, Obj. 4.

3.4/3.7

004000A207 ..(KA's)

ANSWER: 048 (1.00)

c.

REFERENCE:

HBR, SD-021, Rev. 12, page 22. CVC-LP-1, Obj 2.
3.5/3.7

004000A301 ..(KA's)

ANSWER: 049 (1.00)

b.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, SD-006, Rev. 15, page 4. ESF-TP-5.1, Obj. 4.
3.6/3.8

013000K201 ..(KA's)

ANSWER: 050 (1.00)

d.

REFERENCE:

HBR, SD-006, Rev. 17, page 6 and Logic CP-300-5379-2579. ESF-TP-5.1
Obj. 2.

4.2/4.4

013000K101 ..(KA's)

ANSWER: 051 (1.00)

a.

REFERENCE:

HBR, SD-010, Rev. 4, page 46. NI-TP-1.1,-4.1,-5.1 Obj. 1.

2.9/3.2

015000K601 ..(KA's)

ANSWER: 052 (1.00)

b.

REFERENCE:

HBR, CSS-LP-6, Rev. 11, page 13, Obj. 3.
HBR T.S. 3.3.2.1 basis, page 3.3-13.

2.5/3.6

022000A301 ..(KA's)

ANSWER: 053 (1.00)

c.

REFERENCE:

ESF-LP-4, Rev 9, Para. II.d, page 5. ESF-LP-4, Obj. 1 questions, pg 16.

[3.1/3.6]

026000K402 ..(KA's)

ANSWER: 054 (1.00)

b.

REFERENCE:

FW-LP-2, Rev 14, Step 2.2.9(a), p. 8 and APP-007-F4. Obj. 3.

[3.0/3.1]

059000G008 .. (KA's)

ANSWER: 055 (1.00)

b.

REFERENCE:

HBR, AOP-010, Rev 7, page 10. FW-LP-2 Obj. 4.

[2.7/2.9]

059000A103 .. (KA's)

ANSWER: 056 (1.00)

a.

REFERENCE:

HBR, FW-LP-3, II.A.d, page 8. Obj. 4.

[3.2/3.3]

061000K201 .. (KA's)

ANSWER: 057 (1.00)

a.

REFERENCE:

HBR, FW-LP-3, II.B.4.d, page 19. Obj. 4.

4.5/4.6

061000K402 ..(KA's)

ANSWER: 058 (1.00)

b.

REFERENCE:

HBR, SD-016, Rev. 39, page 15-16. DC-LP-1, Obj. 3.

2.9/3.5

063000K103 ..(KA's)

ANSWER: 059 (1.00)

c.

REFERENCE:

HBR, SD-016, Rev. 40, page 18. DC-LP-1, Obj. 6.

3.0/3.1

063000A403 ..(KA's)

ANSWER: 060 (1.00)

a.

REFERENCE:

HBR, GRW-LP-1, Rev. 5, page 7. Obj. 2 and 3.

2.9/3.4

071000K404 ..(KA's)

ANSWER: 061 (1.00)

b.

REFERENCE:

HBR, SD-019, Rev. 9, page 8. RM-LP-3, Obj. 2.

3.1/3.3

072000G004 ..(KA's)

ANSWER: 062 (1.00)

b.

REFERENCE:

HBR, NI-LP-5, Rev.10, pages 21-22. Obj. 3.

3.9/4.3

015000K301 ..(KA's)

ANSWER: 063 (1.00)

b.

REFERENCE:

HBR, RCS-LP-7, RCS-TP-7.2. RCS-LP-9 Obj. 1

4.5/4.6

002000K108 ..(KA's)

ANSWER: 064 (1.00)

b.

REFERENCE:

HBR, SD-002. page 23. ESF-LP-1, Obj. 1..

3.5/3.9

006000K506 ..(KA's)

ANSWER: 065 (1.00)

c.

REFERENCE:

HBR, ESF-LP-6, Rev. 9, page 7-8. Obj. 5.

4.1/4.1

006000A303 ..(KA's)

ANSWER: 066 (1.00)

d.

REFERENCE:

CHANGED AT FACILITY REQUEST

HBR, TS 3.3.1.2(f), page 3.3-4. ESF-LP-3 Obj 1.

3.5/4.2

006000G005 ..(KA's)

ANSWER: 067 (1.00)

c.

REFERENCE:

HBR SD-059, page 10, T.S. 3.1.1.3 and 3.1.2.1(d). RCS-LP-5, Obj. 1.

3.8/4.1

010000K403 ..(KA's)

ANSWER: 068 (1.00)

c.

REFERENCE:

HBR, SD-059, page 16. RCS-LP-4 Obj. 1.

3.7/3.7

010000A107 ..(KA's)

ANSWER: 069 (1.00)

a.

REFERENCE:

HBR, RCS-LP-5, Rev 9, Step 3.b, p 9, Obj. 2

3.4/3.6

011000A210 ..(KA's)

ANSWER: 070 (1.00)

a.

REFERENCE:

HBR, SD-011, page 7. RPS-LP-2 Obj. 1

3.7/3.7

012000A306 ..(KA's)

ANSWER: 071 (1.00)

b.

REFERENCE:

HBR, SD-011, Rev. 7, page 10. RPS-LP-2 Obj. 1

3.3/3.7

012000K201 ..(KA's)

ANSWER: 072 (1.00)

a.

REFERENCE:

HBR, SD-011, Rev. 2, page 11. RPS-LP-2 Obj. 1

3.1/3.5

012000K603 ..(KA's)

ANSWER: 073 (1.00)

c.

REFERENCE:

HBR, CSS-LP-8, Rev. 6, page 9. Obj. 4
HBR, OP-922, Rev. 7.

3.4/3.8

028000A101 ..(KA's)

ANSWER: 074 (1.00)

b.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, CSS-LP-5, Rev. 8, page 12. Obj. 3.

3.8/4.0

029000A301 ..(KA's)

ANSWER: 075 (1.00)

a.

REFERENCE:

HBR, Technical Specifications, 3.8.3, page 3.8-3a. Obj. 4.

2.4/3.2

033000G005 ..(KA's)

ANSWER: 076 (1.00)

b.

REFERENCE:

HBR, MS-LP-1, Rev. 15, B.1.c, page 10. Obj. 4.

3.1/3.0

039000K106 ..(KA's)

ANSWER: 077 (1.00)

c.

REFERENCE:

HBR, ELEC-LP-21, Rev. 7, ELEC-TP-21.3. Obj. 4.

3.3/3.4

062000K201 ..(KA's)

ANSWER: 078 (1.00)

b.

REFERENCE:

HBR, ELEC-LP-28, Rev 2, page 3, Obj. 1

3.1/3.4

062000A204 ..(KA's)

ANSWER: 079 (1.00)

a.

REFERENCE:

HBR, SD005, Rev. 16, page 21. DG-LP-1 Obj. 3

3.1/3.1

064000A203 ..(KA's)

ANSWER: 080 (1.00)

a.

REFERENCE:

CHANGED AT FACILITY REQUEST

HBR SD-003, page 13. AOP-020, page 18. RHR-LP-3 Obj. 2.
3.3/3.4

005000A102 ..(KA's)

ANSWER: 081 (1.00)

c.

REFERENCE:

CHANGED AT FACILITY REQUEST

HBR, RHR-LP-3, Rev. 5, RHR-TP-3.5 and 3.6. Obj. 3.

3.6/3.9

005000K109 ..(KA's)

ANSWER: 082 (1.00)

d.

REFERENCE:

HBR T.S. 3.3.3.1, page 3.3-7. CCW-LP-2 Obj. 1 and 2.

2.9/3.2

008010A303 ..(KA's)

ANSWER: 083 (1.00)

c.

REFERENCE:

HBR, SD-004, Rev. 22, page 10. SW-LP-1, Rev. 17, pages 8-9. Obj. 3.
2.7/3.1

076000A202 ..(KA's)

ANSWER: 084 (1.00)

c.

REFERENCE:

HBR, OMM-001, Rev. 38, page 21. ADMIN LP-2, Obj. 3d

3.4/3.4

194001A106 ..(KA's)

ANSWER: 085 (1.00)

b.

REFERENCE:

HBR, OMM-008, Rev. 71, page 8.
ADMIN LP-2, Section F.1.b., page 10. Obj. 2

2.5/3.4

194001A103 ..(KA's)

ANSWER: 086 (1.00)

d.

REFERENCE:

HBR, OMM-008, Rev. 71, page 7. ADMIN-LP-2 Obj. 2.

2.5/3.4

194001A103 ..(KA's)

ANSWER: 087 (1.00)

b.

REFERENCE:

OMM-001, Rev. 38, para. 5.9.3.1, page 35. No Facility Objective.

3.6/3.7

194001K101 ..(KA's)

ANSWER: 088 (1.00)

a.

REFERENCE:

HBR, ADMIN-LP-9, Rev. 5, para. 3.c.1, page 6. Obj. 4.

3.1/4.1

194001A112 ..(KA's)

ANSWER: 089 (1.00)

b.

REFERENCE:

HBR, ADMIN-LP-9, Rev. 5, section 2, page 5. Obj. 3b.

3.3/3.4

194001A101 ..(KA's)

ANSWER: 090 (1.00)

c.

REFERENCE:

HBR, AOP-LP-7, Rev. 7, page 16, Obj. 6

3.7/4.1

194001K102 ..(KA's)

ANSWER: 091 (1.00)

c.

REFERENCE:

HBR, AOP-LP-7, page 26, LO 6

3.7/4.1

194001K102 ..(KA's)

ANSWER: 092 (1.00)

d.

REFERENCE:

HBR, AOP-LP-7, Step L.3, page 29. Obj. 8

3.7/4.1

194001K102 ..(KA's)

ANSWER: 093 (1.00)

b.

REFERENCE:

HBR, AOP-LP-3, Step 3.b, page 13, Obj. 1

4.1/3.9

194001A102 ..(KA's)

ANSWER: 094 (1.00)

c.

REFERENCE:

CHANGED AT FACILITY REQUEST

HBR, AP-31, Rev. 18, page 15. No Facility Objective..

2.8/3.4

194001K103 ..(KA's)

ANSWER: 095 (1.00)

b.

REFERENCE:

HBR, OMM-002, Step 4.1.5, page 11. No Facility Objective.

3.5/4.2

194001K116 ..(KA's)

ANSWER: 096 (1.00)

b.

REFERENCE:

HBR, HP-LP-7, page 6. Obj. 2.

2.8/3.4

194001K103 ..(KA's)

ANSWER: 097 (1.00)

a.

REFERENCE:

HBR, HP_LP-7, page 5. Obj. 2.

2.8/3.4

194001K103 ..(KA's)

ANSWER: 098 (1.00)

b.

REFERENCE:

HBR, AOP-021, Rev. 5, page 6.
AOP-LP-9, Rev 5, Step C.a, p 5, Obj 4.

2.8/4.1

194001A111 ..(KA's)

ANSWER: 099 (1.00)

c.

REFERENCE:

HBR, EOP-LP-1, Rev 5, Step 3.b.(4), p 11. Obj. 4

4.1/3.9

194001A102 ..(KA's)

ANSWER: 100 (1.00)

d.

REFERENCE:

AOP-LP-1, Rev 12, AOP-TP-1.3. Obj. 3

2.5/3.4

194001A103 .. (KA's)

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

S R O Exam P W R Reactor
Organized by Question Number

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| 003 | 1.00 | 9000003 |
| 004 | 1.00 | 9000004 |
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| 007 | 1.00 | 9000007 |
| 008 | 1.00 | 9000008 |
| 009 | 1.00 | 9000009 |
| 010 | 1.00 | 9000010 |
| 011 | 1.00 | 9000011 |
| 012 | 1.00 | 9000012 |
| 013 | 1.00 | 9000013 |
| 014 | 1.00 | 9000014 |
| 015 | 1.00 | 9000015 |
| 016 | 1.00 | 9000016 |
| 017 | 1.00 | 9000017 |
| 018 | 1.00 | 9000018 |
| 019 | 1.00 | 9000019 |
| 020 | 1.00 | 9000020 |
| 021 | 1.00 | 9000022 |
| 022 | 1.00 | 9000023 |
| 023 | 1.00 | 9000024 |
| 024 | 1.00 | 9000025 |
| 025 | 1.00 | 9000028 |
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| 027 | 1.00 | 9000030 |
| 028 | 1.00 | 9000031 |
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| 030 | 1.00 | 9000033 |
| 031 | 1.00 | 9000034 |
| 032 | 1.00 | 9000036 |
| 033 | 1.00 | 9000037 |
| 034 | 1.00 | 9000038 |
| 035 | 1.00 | 9000040 |
| 036 | 1.00 | 9000041 |
| 037 | 1.00 | 9000042 |
| 038 | 1.00 | 9000043 |
| 039 | 1.00 | 9000045 |
| 040 | 1.00 | 9000046 |
| 041 | 1.00 | 9000048 |
| 042 | 1.00 | 9000049 |
| 043 | 1.00 | 9000050 |
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S R O Exam P W R Reactor
Organized by Question Number

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| 060 | 1.00 | 9000070 |
| 061 | 1.00 | 9000071 |
| 062 | 1.00 | 9000075 |
| 063 | 1.00 | 9000078 |
| 064 | 1.00 | 9000079 |
| 065 | 1.00 | 9000080 |
| 066 | 1.00 | 9000081 |
| 067 | 1.00 | 9000082 |
| 068 | 1.00 | 9000083 |
| 069 | 1.00 | 9000084 |
| 070 | 1.00 | 9000085 |
| 071 | 1.00 | 9000086 |
| 072 | 1.00 | 9000087 |
| 073 | 1.00 | 9000090 |
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| 093 | 1.00 | 9000118 |
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| 098 | 1.00 | 9000123 |

S R O Exam P W R Reactor
Organized by Question Number

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| | ----- | |
| | 100.00 | |

S R O Exam P W R Reactor
Organized by KA Group

PLANT WIDE GENERICS

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 089 | 1.00 | 194001A101 |
| 093 | 1.00 | 194001A102 |
| 099 | 1.00 | 194001A102 |
| 100 | 1.00 | 194001A103 |
| 086 | 1.00 | 194001A103 |
| 085 | 1.00 | 194001A103 |
| 084 | 1.00 | 194001A106 |
| 098 | 1.00 | 194001A111 |
| 088 | 1.00 | 194001A112 |
| 087 | 1.00 | 194001K101 |
| 090 | 1.00 | 194001K102 |
| 092 | 1.00 | 194001K102 |
| 091 | 1.00 | 194001K102 |
| 094 | 1.00 | 194001K103 |
| 096 | 1.00 | 194001K103 |
| 097 | 1.00 | 194001K103 |
| 095 | 1.00 | 194001K116 |
| ----- | | |
| PWG Total | 17.00 | |

PLANT SYSTEMS

Group I

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 044 | 1.00 | 001000G005 |
| 045 | 1.00 | 001000K403 |
| 046 | 1.00 | 003000K301 |
| 047 | 1.00 | 004000A207 |
| 048 | 1.00 | 004000A301 |
| 050 | 1.00 | 013000K101 |
| 049 | 1.00 | 013000K201 |
| 062 | 1.00 | 015000K301 |
| 051 | 1.00 | 015000K601 |
| 052 | 1.00 | 022000A301 |
| 053 | 1.00 | 026000K402 |
| 055 | 1.00 | 059000A103 |
| 054 | 1.00 | 059000G008 |
| 056 | 1.00 | 061000K201 |
| 057 | 1.00 | 061000K402 |
| 059 | 1.00 | 063000A403 |
| 058 | 1.00 | 063000K103 |
| 060 | 1.00 | 071000K404 |
| 061 | 1.00 | 072000G004 |
| ----- | | |

S R O Exam P W R Reactor
Organized by KA Group

PLANT SYSTEMS

Group I

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|-----------|
| PS-I Total | 19.00 | |

Group II

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 063 | 1.00 | 002000K108 |
| 065 | 1.00 | 006000A303 |
| 066 | 1.00 | 006000G005 |
| 064 | 1.00 | 006000K506 |
| 068 | 1.00 | 010000A107 |
| 067 | 1.00 | 010000K403 |
| 069 | 1.00 | 011000A210 |
| 070 | 1.00 | 012000A306 |
| 071 | 1.00 | 012000K201 |
| 072 | 1.00 | 012000K603 |
| 073 | 1.00 | 028000A101 |
| 074 | 1.00 | 029000A301 |
| 075 | 1.00 | 033000G005 |
| 076 | 1.00 | 039000K106 |
| 078 | 1.00 | 062000A204 |
| 077 | 1.00 | 062000K201 |
| 079 | 1.00 | 064000A203 |
| ----- | | |
| PS-II Total | 17.00 | |

Group III

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 080 | 1.00 | 005000A102 |
| 081 | 1.00 | 005000K109 |
| 082 | 1.00 | 008010A303 |
| 083 | 1.00 | 076000A202 |
| ----- | | |
| PS-III Total | 4.00 | |
| ----- | | |
| ----- | | |
| PS Total | 40.00 | |

EMERGENCY PLANT EVOLUTIONS

Group I

S R O E x a m P 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

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 004 | 1.00 | 000003K304 |
| 002 | 1.00 | 000005A105 |
| 001 | 1.00 | 000005A203 |
| 003 | 1.00 | 000005K306 |
| 006 | 1.00 | 000011G007 |
| 007 | 1.00 | 000011K305 |
| 005 | 1.00 | 000011K315 |
| 008 | 1.00 | 000015A107 |
| 009 | 1.00 | 000024A105 |
| 010 | 1.00 | 000024A202 |
| 012 | 1.00 | 000029K312 |
| 011 | 1.00 | 000029K312 |
| 014 | 1.00 | 000040K101 |
| 013 | 1.00 | 000040K304 |
| 015 | 1.00 | 000051A202 |
| 017 | 1.00 | 000055A203 |
| 020 | 1.00 | 000055G003 |
| 016 | 1.00 | 000055G011 |
| 018 | 1.00 | 000055K302 |
| 019 | 1.00 | 000055K302 |
| 021 | 1.00 | 000057A219 |
| 023 | 1.00 | 000067A216 |
| 022 | 1.00 | 000067G011 |
| 024 | 1.00 | 000068G010 |
| ----- | | |
| EPE-I Total | 24.00 | |

Group II

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 025 | 1.00 | 000007A104 |
| 026 | 1.00 | 000007K106 |
| 028 | 1.00 | 000008G010 |
| 027 | 1.00 | 000008K101 |
| 029 | 1.00 | 000009G010 |
| 030 | 1.00 | 000009K321 |
| 031 | 1.00 | 000022A108 |
| 032 | 1.00 | 000025A102 |
| 033 | 1.00 | 000025A103 |
| 034 | 1.00 | 000025G001 |
| 035 | 1.00 | 000027G011 |
| 036 | 1.00 | 000033G011 |
| 038 | 1.00 | 000038G012 |
| 037 | 1.00 | 000038K306 |

S R O E x a m P 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

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 039 | 1.00 | 000058A203 |
| 040 | 1.00 | 000061G010 |
| | ----- | |
| EPE-II Total | 16.00 | |

Group III

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 041 | 1.00 | 000028G004 |
| 042 | 1.00 | 000036G010 |
| 043 | 1.00 | 000056K104 |
| | ----- | |
| EPE-III Total | 3.00 | |
| | ----- | |
| | ----- | |
| EPE Total | 43.00 | |
| | ----- | |
| | ----- | |
| Test Total | 100.00 | |

U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
REACTOR OPERATOR LICENSE
REGION 2

CANDIDATE'S NAME:

RO MASTER

FACILITY:

H. B. Robinson 2

REACTOR TYPE:

PWR-WEC3

DATE ADMINISTERED:

94/07/25

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.

| <u>TEST VALUE</u> | <u>CANDIDATE'S SCORE</u> | <u>%</u> | |
|-------------------|------------------------------|---------------|--------|
| <u>100.00</u> | <u>FINAL GRADE</u> | <u> </u> % | TOTALS |

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.

046 a b c d _____

MULTIPLE CHOICE

047 a b c d _____

048 a b c d _____

049 a b c d _____

050 a b c d _____

051 a b c d _____

052 a b c d _____

053 a b c d _____

054 a b c d _____

055 a b c d _____

056 a b c d _____

057 a b c d _____

058 a b c d _____

059 a b c d _____

060 a b c d _____

061 a b c d _____

062 a b c d _____

063 a b c d _____

064 a b c d _____

065 a b c d _____

066 a b c d _____

067 a b c d _____

068 a b c d _____

069 a b c d _____

070 a b c d _____

071 a b c d _____

072 a b c d _____

073 a b c d _____

074 a b c d _____

075 a b c d _____

076 a b c d _____

077 a b c d _____

078 a b c d _____

079 a b c d _____

080 a b c d _____

081 a b c d _____

082 a b c d _____

083 a b c d _____

084 a b c d _____

085 a b c d _____

086 a b c d _____

087 a b c d _____

088 a b c d _____

089 a b c d _____

090 a b c d _____

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.

091 a b c d _____

MULTIPLE CHOICE

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 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. Before you turn in your examination, consecutively number each answer sheet, including any additional pages inserted when writing your answers on the examination question page.
8. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.
9. The point value for each question is indicated in parentheses after the question.
10. Show all calculations, methods, or assumptions used to obtain an answer to any short answer questions.
11. Partial credit may be given except on multiple choice questions. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK.
12. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of 1.00 even though you got the four correct answers.
13. If the intent of a question is unclear, ask questions of the examiner only.

14. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.
15. 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.
16. To pass the examination, you must achieve a grade of 80% or greater.
17. There is a time limit of four (4) hours for completion of the examination.
18. 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 ONE of the following determines that a rod position indicator is malfunctioning with the rod control cluster known to be aligned correctly?

When the suspect Rod Position Indicator is more than:

- a. 7.5 inches out of alignment with the average of the remaining rod indicators in the bank.
- b. 12 steps out of alignment with any other rod in the bank.
- c. 7.5 inches out of alignment with the associated bank step counter.
- d. 12 steps out of alignment with the average of the bank step counters for the associated rod indicator bank.

QUESTION: 002 (1.00)

Given the following conditions:

- The plant is at 75% power with rod control in automatic.
- Automatic rod motion stops with T_{avg} 5 degrees greater than T_{ref} .
- Annunciator APP-005-E2, ROD CONT SYSTEM URGENT FAILURE, is extinguished.

Which ONE of the following describes the FIRST action to be taken in this situation?

- a. Place rod control to M (manual) and adjust control rods to match T_{avg} to T_{ref} .
- b. Place rod control to M (manual) and adjust boron to match T_{avg} to T_{ref} .
- c. Place rod control to M (manual) and adjust turbine load to match T_{avg} to T_{ref} .
- d. Immediately trip the reactor and implement Path-1.

QUESTION: 003 (1.00)

Which ONE of the following describes why, during the switchover to cold leg recirculation following a LOCA, the associated SI-880 valves (discharge isolation valves) are closed if a containment spray pump is stopped?

- a. Reduces time required for cold leg recirculation switchover.
- b. Anticipatory action should a flowpath not be established from the sump.
- c. Prevents gas binding of idle pump.
- d. Prevents pump runout when it is returned to service.

QUESTION: 004 (1.00)

The following conditions exist:

- The reactor is at power.
- SINGLE LOOP FLOW TRIP BLOCKED status light is dark.
- One charging pump in running with a discharge pressure greater than RCS pressure.
- Annunciator APP-001-A2, SEAL WTR INJ FILTER HI DELTA-P, alarms.
- Local seal water injection flow meters FI-124, 127 and 130 indicate 2, 3 and 2 gpm respectively.

Which ONE of the following describes the actions required under these circumstances?

- a. Check component cooling water flow to the thermal barrier.
- b. Commence a normal plant shutdown and stop all RCPs within 12 hours.
- c. Trip the reactor and stop all RCPs.
- d. Stop the affected RCP and place the unit in hot shutdown.

QUESTION: 005 (1.00)

Which ONE of the following describes the emergency boration path that can have a delay of approximately 10 minutes before the boric acid addition takes effect?

- a. MOV-350, Emergency Boration Valve.
- b. LCV-115B, Emerg. Makeup To Chg. Suction or CVC-358, RWST To Charging Pump Suction (closing LCV-115C, VCT Outlet).
- c. FCV-113A, Boric Acid to Blender, and 113B, Blended Makeup To Charging Pump Suction.
- d. FCV-113A, Boric Acid to Blender, and 114B, Volume Cont. Tk. Makeup.

QUESTION: 006 (1.00)

Which ONE of the following describes the conditions when MOV-350, Emergency Boration Valve, may be used without restriction?

- a. Shutdown the reactor or maintain the reactor shutdown.
- b. Recover shutdown margin if Blended Makeup to Charging Pump Suction [FCV-113B] is stuck open.
- c. Restore rods above the rod insertion limits if [LCV-115C] is stuck open.
- d. Rapidly reduce RCS temperature following a large load reduction.

QUESTION: 007 (1.00)

Using the following list:

1. Emergency borate.
2. Check for and eliminate sources of positive reactivity.
3. Verify subcriticality.
4. Establish Safety Injection flow to RCS.

Which ONE of the following describes the major action categories of FRP-S.1, "Response to Nuclear Power Generation/ATWS"?

- a. 1, 2 only
- b. 1, 2, 3 only
- c. 1, 3, 4 only
- d. 1, 2, 3, 4

QUESTION: 008 (1.00)

The following conditions exist:

- The plant is tripped and SI actuated.
- SG "A" is faulted.
- While performing Supplement "G", S/G Isolation, the operator discovers the S/G Blowdown and sample valves are open.

Which ONE of the following describes the next required actions under these conditions?

- a. No action is taken under faulted S/G conditions.
- b. Increase the alarm setpoint of blowdown radiation monitor, R-19.
- c. Deactivate the blowdown radiation monitor, R-19A.
- d. Remove power from the S/G blowdown heat exchangers and sample line isolation valves.

QUESTION: 009 (1.00)

The following conditions exist after a large steam line rupture:

- Critical Safety Function Status Trees FRP-P.1, "Response to Imminent Pressurized Thermal Shock Condition" is entered.
- The RCS is depressurized in preparation to "soak" the RCS.
- The SRO reads a caution in the procedure warning the operator not to increase RCS pressure and temperature.

Which ONE of the following describes the reason for the caution and the major component that is affected?

- a. The Reactor Vessel inside wall due to the increased tensile stress resulting from the large temperature drop.
- b. The Reactor Vessel outside wall due to the increased tensile stress resulting from the large pressure decrease.
- c. The Pressurizer inside wall due to increased tensile stress resulting from the large temperature drop.
- d. The Pressurizer outside wall due to increased tensile stress resulting from the large pressure decrease.

QUESTION: 010 (1.00)

Which ONE of the following describes an automatic action that will occur upon a partial loss of condenser vacuum?

- a. The standby vacuum pump will start at 20" Hg. vacuum.
- b. Generator lock out occurs at 175 degrees F.
- c. The turbine will trip at 20" Hg. vacuum.
- d. Turbine exhaust hood spray will start at 225 degrees F.

QUESTION: 011 (1.00)

If both emergency busses are deenergized, procedure EPP-1 directs the use of the two subsequent procedures listed below:

- EPP-21 - Energizing Pressurizer Heaters From Emergency Busses.
- EPP-22 - Energizing Plant Equipment Using Dedicated Shutdown Diesel Generator

Which ONE of the following is the basis for the one hour time limit placed on the completion of these two procedures?

- a. Maintain RCP seals
- b. AFW for heat sink
- c. Stabilize natural circulation
- d. Minimize PTS concerns

QUESTION: 012 (1.00)

The following conditions exist:

- A loss of an instrument bus has occurred.
- The lost instrument bus is ready to be reenergized.

Which ONE of the following describes the sequence of actions that will occur to a deenergized manual/auto controller when power is restored?

- a. AUTO lights blinks for 15-20 seconds then controller shifts to automatic.
- b. AUTO light blinks for 15-20 seconds then goes out and controller shifts to manual.
- c. AUTO lights solid for 15-20 seconds then controller shifts to automatic.
- d. AUTO light solid for 15-20 seconds then goes out and controller shifts to manual.

QUESTION: 013 (1.00)

Given the following:

- A plant startup is in progress with reactor power at 8%.
- The turbine is being paralleled to the grid.
- Power is lost to Instrument Bus 2.

Which ONE of the following describes the actions that will occur due to the loss of Instrument Bus 2?

- a. Reactor trip and turbine trip.
- b. Reactor trip without turbine trip.
- c. The first three steam dump valves will fail closed.
- d. Other than deenergized instruments, no immediate consequences will be seen.

QUESTION: 014 (1.00)

Which ONE of the following requires entry into DSP-001, Alternate Shutdown Diagnostic?

- a. A fire in the Main Turbine that has the potential to destroy the generator when the reactor is above 10% power.
- b. A fire in the Containment Volume that has the potential to destroy the pressurizer heater power cables when in hot standby.
- c. A fire in the Control Room that has the potential to destroy vital plant control cables when refueling.
- d. A fire in the Auxiliary Building that has the potential to destroy vital plant controls when in cold shutdown.

QUESTION: 015 (1.00)

Given the following:

- A fire is in progress within the facility.
- DSP-002, "Hot Shutdown Using the Dedicated/Alternate Shutdown System", is implemented.
- The shift is under minimum manning conditions.
- The Shift Supervisor assumes the duties of the electrical operator.

Which ONE of the following describes how Step 13 of Attachment 1, Turbine Building Operator Actions (stated below in part), is accomplished?

"Maintain a stable T-cold in all three loops from the Secondary Control Panel..."

- a. Allow the steam line safety valves to lift.
- b. Use nitrogen from the Steam Dump Nitrogen system to operate the steam line PORVs.
- c. Adjust Steam Driven Auxiliary Feed Water (SDAFW) Pump outlet valve.
- d. Adjust SDAFW Pump steam inlet valve.

QUESTION: 016 (1.00)

Which ONE of the following describes the control room operators immediate actions if the control room becomes uninhabitable due to toxic gas?

- a. Evacuate to the Fire Equipment Building.
- b. All control room operators evacuate to the Fire Equipment Building and all others to the Emergency Switchgear Room/Electrical Equipment Area.
- c. Trip the reactor, verify all rods in, trip the turbine and evacuate to the Fire Equipment Building.
- d. Trip the reactor, trip the turbine, verify auxiliary feedwater flow and evacuate to the Fire Equipment Building.

QUESTION: 017 (1.00)

Given the following:

- The plant is shutdown with a loss of all offsite power.
- A cooldown is in progress using EPP-6, "Natural Circulation Cooldown With Steam Void in Vessel."

Which ONE of the following describes the method used to enhance upper head cooling when pressurizer level is greater than 90%?

- a. Soak the pressurizer for one hour.
- b. Raise RCS pressure to lower pressurizer level.
- c. Increase containment cooling.
- d. Increase letdown flow.

QUESTION: 018 (1.00)

Which ONE of the following describes why Steam Generators are depressurized at the maximum rate to (ultimately) atmospheric pressure during the execution of FRP-C.1, "Response to Inadequate Core Cooling"?

- a. To reduce RCS pressure to allow the ECCS accumulators and low pressure SI pumps to inject water
- b. To reduce RCS pressure to prevent the formation of voids in the vessel head.
- c. To reduce RCS temperature to increase thermal driving head for natural circulation
- d. To reduce RCS temperature in order to collapse any steam void in the upper part of the reactor vessel

QUESTION: 019 (1.00)

The following conditions exist:

- A reactor trip and safety injection has occurred.
- Emergency Bus E-1 is NOT energized due to a bus feeder breaker failure and a diesel generator start failure.
- One train of safeguards equipment has actuated as expected.
- The RCS is at saturation conditions.
- S/G pressure is at 900 psig and stable.
- The SRO has entered Path-1.

Which ONE of the following describes the actions required under these conditions?

- a. Stop all reactor coolant pumps.
- b. Transition to EPP-1, Loss of All AC.
- c. Manually isolate feedwater.
- d. Initiate containment spray.

QUESTION: 020 (1.00)

Which ONE of the following describes the basis for maintaining Steam Generator levels between 10% and 50% following a reactor trip?

| Minimum ----- | Maximum ----- |
|------------------|------------------|
| a. RCS Cooldown | Overfeeding |
| b. RCS Cooldown | PTS Concerns |
| c. Heat Sink | Overfeeding |
| d. Heat sink | PTS Concerns |

QUESTION: 021 (1.00)

Given the following conditions:

- Reactor Power at 100%
- Tavg at 575 degrees F
- RCS pressure 2230 psig
- PRT pressure 15 psig

Which ONE of the following describes the temperature that would be indicated on the pressurizer PORV tailpipe temperature indicator if a PORV was leaking significantly? Assume an ideal thermodynamic process.

- a. 280 degrees F
- b. 250 degrees F
- c. 213 degrees F
- d. 193 degrees F

QUESTION: 022 (1.00)

Given the following indications:

- Reactor Power at 100%
- APP-003-B3, PRT HI TEMP in alarm
- APP-003-C3, PRT HI PRESS in alarm
- APP-003-D3, PRT HI/LO LVL in alarm
- APP-003-E6, PZR PORV LN HI TEMP in alarm
- APP-003-F6, PZR SAFETY VLV LINE HI TEMP in alarm
- PZR level 54%
- RCS pressure 2260 psig

Which ONE of the following describes the immediate action(s) to be taken?

- a. Manually close the PZR PORVs.
- b. Drain the PZR relief tank level to 50%.
- c. Start additional charging pumps and reduce letdown flow.
- d. Trip the reactor and follow PATH-1.

QUESTION: 023 (1.00)

The following conditions exist:

- The reactor is at 100% power
- All systems are in their normal at power lineup
- All systems are in automatic
- The reactor operator reports pressurizer level is decreasing

Which ONE of the following describes the immediate action(s) required under these conditions?

- a. Trip the reactor and follow PATH-1.
- b. Trip the reactor and isolate letdown/charging.
- c. Start additional charging pumps and reduce letdown flow.
- d. Determine leakrate and report if leakrate exceeds makeup.

QUESTION: 024 (1.00)

Given the following:

- The reactor is at power.
- All systems are lined up for normal operation and in automatic where applicable.
- The reactor operator reports that LCV-115, "VCT/HLDP TK Diversion Valve", is diverted to the HUT and makeup is on continuously.

Which ONE of the following describes the instrument failure that would cause these indications?

- a. VCT level transmitter, LT-112, failed high.
- b. VCT level transmitter, LT-112, failed low.
- c. VCT level transmitter, LT-115, failed high.
- d. VCT level transmitter, LT-115, failed low.

QUESTION: 025 (1.00)

The following conditions exist:

- The plant is shutdown on RHR cooling.
- The running RHR pump trips.
- It is noted that RCS level is slowly decreasing.
- AOP-020 is entered and the following valves are closed per the procedure:

RHR-750, Loop 2 Hot Leg To RHR System.
RHR-751, Loop 2 Hot Leg To RHR System.
RHR-744A, RHR Return To Cold Legs.
RHR-744B, RHR Return To Cold Legs.
HCV-142, RHR To Letdown Line.

- After the valves listed above are closed, the reactor operator reports RCS level still slowly decreasing.

Which ONE of the following describes the conclusion that can be made based on the above information?

- a. The leak is in the RCS.
- b. The leak is in the RHR system.
- c. Charging is not operating.
- d. The leak is between the RHR isolation valves.

QUESTION: 026 (1.00)

Given the following conditions:

- The plant is in Refueling.
- A loss of RHR occurs with a loss of RCS inventory.
- Refueling Cavity level has dropped below 2 feet 5 inches below the operating deck.
- The SRO enters AOP-020, "Loss of Residual Heat Removal."

Which ONE of the following describes the preferred order of injection sources available to control the loss of level situation?

- a. Cold leg injection, Hot leg injection, Charging.
- b. Charging, Cold leg injection, Hot leg injection.
- c. Charging, cold leg injection, RWST gravity feed.
- d. Cold leg injection, RWST gravity feed, VCT overpressure.

QUESTION: 027 (1.00)

Given the following:

- The reactor is at 100% power.
- RCS pressure begins to increase slowly.
- The operating crew diagnoses that PC-444J, Pressurizer Pressure Controller, is failed low.

Which ONE of the following describes the actions required in this situation?

- a. Continue at full power and control pressure manually using heaters and sprays.
- b. Ramp power to less than 50% and control pressure manually using heaters and sprays.
- c. Place the reactor in hot shutdown.
- d. Trip the reactor and follow Path-1.

QUESTION: 028 (1.00)

Given the following plant conditions:

- Plant startup in progress.
- PRNI Channels indicate: 8%, 8%, 9%, 8% respectively.
- BOTH Intermediate Range (IR) Instruments fail low and the control power fuses are pulled.

Which ONE of the following is required in this situation?

- a. Maintain current power level and restore at least one IR instrument to service.
- b. Initiate OWP-011, "Nuclear Instrumentation" for the IR instruments and continue the startup.
- c. Manually insert all control rods.
- d. Enter Path-1.

QUESTION: 029 (1.00)

Which ONE of the following describes the basis for checking ruptured S/G pressure greater than 250 psig prior to rapidly dumping steam from the intact S/Gs in an effort to stop a tube rupture?

To insure:

- a. the subsequent cooldown will not produce integrity concerns in the RCS.
- b. RCS pressure will be less than the ruptured S/G pressure after the cooldown stopping primary to secondary leakage.
- c. the accumulators will not inject during subsequent cooldown.
- d. a return to criticality during the subsequent rapid RCS cooldown will not occur.

QUESTION: 030 (1.00)

Given the following:

- A steam generator tube rupture has occurred.
- Path-1 and Path-2 have been entered.
- The RCS is depressurized equalizing RCS and S/G pressure stopping the leak.

Which ONE of the following is the preferred path to continue on for the given conditions?

- a. EPP-14, Post-SGTR Cooldown Using Steam Dump.
- b. EPP-13, Post-SGTR Cooldown Using Blowdown.
- c. EPP-12, Post-SGTR Cooldown Using Backfill.
- d. Path-1, entry point C.

QUESTION: 031 (1.00)

Which ONE of the following describes the maximum power that can be sustained with the loss of one heater drain pump which cannot be restarted?

- a. 100%
- b. 85%
- c. 60%
- d. 50%

QUESTION: 032 (1.00)

Given the following:

- A loss of offsite power occurs.
- The control board operator reports that control board indication for the "B" and "C" Charging Pump is lost.

Which ONE of the indicates power supply(ies) lost in conjunction with the loss of offsite power?

- a. DC Bus "A" only
- b. 480V Bus "3" only
- c. DC Bus "A" and "B"
- d. 480V Bus "3" and "4"

QUESTION: 033 (1.00)

Which ONE of the following describes the control manipulation to be performed as an immediate action if Radiation Monitor R-32A, CV High Range, has just alarmed?

- a. Place and hold the EVACUATION ALARM to LOCAL for 15 seconds.
- b. Press the SAFE-RESET pushbutton.
- c. Press the CHECK SOURCE pushbutton.
- d. Press the ALARM/RESET pushbutton.

QUESTION: 034 (1.00)

With the Pressurizer Level Control Selector Switch in the "NORMAL" position, a failure causes the following plant events:

(ASSUME events occur in order given with no operator actions.)

1. Charging flow reduced to minimum
2. Letdown secured and heaters off
3. Pressurizer pressure slowly decreases
4. Reactor trips on Overtemperature delta-T

Which ONE of the following failures has occurred?

Pressurizer Level Channel:

- a. LT-459 failed low
- b. LT-460 failed low
- c. LT-459 failed high
- d. LT-460 failed high

QUESTION: 035 (1.00)

Given the following plant conditions:

- Refueling operations are in progress with a fuel assembly being transferred from the reactor vessel to the transfer basket
- R-2 Containment Area Radiation, Monitor alarms
- R-11 Containment Area and Plant Vent Particulate Radiation Monitor alarms
- R-12 Containment area and plant vent Gaseous Radiation Monitor alarms

Which ONE of the following describes the immediate action required to be performed in the Control Room?

- a. Sound the LOCAL EVACUATION ALARM.
- b. Verify CV purge and relief lineup.
- c. Page personnel to evacuate to the Outside Fuel Handling Building Door.
- d. Page personnel to evacuate to the Fuel Handling Building.

QUESTION: 036 (1.00)

Which ONE of the following is the reason for maintaining a cooldown rate of less than 25 degrees-F/hour during the performance of EPP-5, "Natural Circulation Cooldown"?

- a. To establish conditions to support starting a RCP.
- b. To enhance natural circulation during the cooldown.
- c. To ensure adequate shutdown margin during the cooldown.
- d. To prevent void formation in the head.

QUESTION: 037 (1.00)

During a reactor startup:

- The local indication of the rod control system Bank Overlap Unit indicates 256 steps.
- Local cabinet lights indicate Control Bank C begins to move.

Which ONE of the following is the conclusion to this observation?

- a. This motion is correct.
- b. This motion is incorrect, Control Bank B should be starting to move.
- c. This motion is incorrect, Control Bank C should be stopping.
- d. This motion is incorrect, Control Bank D should be starting to move.

QUESTION: 038 (1.00)

Which ONE of the following is the distance the rods will travel in the one minute time interval if a control bank of rods is manually withdrawn without interruption for exactly one minute.

- a. 5 inches
- b. 18 inches
- c. 28 inches
- d. 45 inches

QUESTION: 039 (1.00)

Given the following:

- The reactor is shutdown with T_{avg} at the no-load value.
- Reactor Coolant Pumps A and C are operating and B is stopped.

Which ONE of the following indicates that spray flow is occurring when the spray flow valves are opened with the current plant conditions?

| | Spray Valve 455A ----- | Spray Valve 455B ----- |
|----|---------------------------|---------------------------|
| a. | no | no |
| b. | yes | yes |
| c. | yes | no |
| d. | no | yes |

QUESTION: 040 (1.00)

The following plant conditions exist:

- The plant is at 100% power.
- All systems are in automatic and operating normally.
- An inadvertent Phase "A" ('T' signal) isolation is actuated.

Which ONE of the following describes the maximum number of CVCS valves that will automatically close from the Phase "A" signal? Use the following list to associate noun names with valve numbers.

| | |
|----------------------------------|---------------------|
| Letdown Stop Valves | LCV-460A and B. |
| Letdown Orifice Isolation Valves | CVC-200A, B, and C. |
| Letdown line Isolation Stops | CVC-204A and B. |
| VCT Outlet Isolation Valve | LCV-115C |

- a. Letdown Stop Valves and Letdown Orifice Isolation Valves.
- b. Letdown Stop Valves, Letdown Orifice Isolation Valves, and Letdown Line Isolation Stops.
- c. Letdown Orifice Isolation Valves and Letdown Line Isolation Stops.
- d. Letdown Orifice Isolation Valves, Letdown Line Isolation Stops, and VCT Outlet Isolation Valve.

QUESTION: 041 (1.00)

Given the following:

- The Chemical and Volume Control System is aligned for normal operation.
- Charging and Letdown are balanced with VCT level maintaining at a steady 35 inches.
- A leak develops in the bottom of the VCT causing level to decrease.
- Automatic makeup starts but is unable to completely keep up with the leak and level continues to slowly decrease.

Which ONE of the following describes what will happen to VCT level with no operator action?

VCT level decreases to:

- a. 20 inches then increases to and maintains at 51 inches.
- b. 12 inches then increases to and maintains at 51 inches.
- c. 12 inches, increases to 16 inches, then cycles up and down between 12 and 16 inches.
- d. 20 inches, increases to 24 inches, then cycles up and down between 20 and 24 inches.

QUESTION: 042 (1.00)

Which ONE of the following describes the impact the loss of Instrument Bus 3 has on the automatic operation of the Reactor Safeguards System?

- a. Neither train of the Reactor Safeguards System is affected.
- b. Train "B" of the Reactor Safeguards System is deenergized.
- c. Train "A" of the Reactor Safeguards System is deenergized.
- d. Both trains of the Reactor Safeguards System are deenergized.

QUESTION: 043 (1.00)

Given the following:

- A large LOCA causes a reactor trip and safety injection.
- All required ESF equipment is running normally.
- Containment pressure increases past the HI-HI pressure setpoint but the containment spray system does NOT start.
- The SRO orders the reactor operator to manual actuate containment spray.

Which ONE of the following describes the actions that will occur when the reactor operator manually activates containment spray?

Containment spray actuation, :

- a. and main steam isolation.
- b. main steam isolation, Phase "B" isolation, and containment ventilation isolation.
- c. and Phase "B" isolation only.
- d. Phase "B" isolation and containment ventilation isolation.

QUESTION: 044 (1.00)

Given:

- Reactor Power is 75% for 30 days.
- Xenon is in equilibrium conditions.
- NI Channel N-42 is failed with all bistables tripped.
- During a routine channel check, it is discovered that Power Range Channel N-43 has failed as is.
- The bistables for Channel N-43 ARE NOT tripped.
- The channel cannot be repaired within the allotted time and a down power ramp is commenced to Hot Standby in accordance with Technical Specifications.

Which ONE of the following describes the affect the channel failures have on plant operation during the down power ramp with no operator action?

- a. The failures have no affect on plant operation.
- b. P-7 will fail to block it's associated reactor trips.
- c. The reactor will trip when power decreases below 10% power.
- d. Source Range permissive P-6 will fail to activate.

QUESTION: 045 (1.00)

Which ONE of the following describes the correlation between the letters indicated on the attachment (Refer to the provided Attachment 7.2, Detector Locations) and the detector represented?

Use the following guide for applicable acronyms.

- PR = Power Range Channel Detector.
- IR = Intermediate Range Channel Detector.
- SR = Source Range Channel Detector.
- RG = RG 1.97 Channel Detector

| | A ----- | B ----- | C ----- | D ---- |
|----|------------|------------|------------|-----------|
| a. | SR/IR | RG | SR/IR | IR |
| b. | RG | SR/IR | RG | IR |
| c. | PR | SR/IR | RG | SR |
| d. | RG | PR | SR/IR | SR |

QUESTION: 046 (1.00)

A Design Basis Accident causing containment pressure and temperature to increase has occurred.

Which one of the following is a minimum component combination that will provide sufficient cooling to reduce containment pressure?

- a. THREE fan-cooler units.
- b. TWO fan-cooler units and ONE containment spray pump.
- c. ONE fan-cooler unit and ONE containment spray pump with sodium hydroxide addition.
- d. TWO fan-cooler units, ONE containment spray pump and TWO service water pumps.

QUESTION: 047 (1.00)

Which ONE of the following describes the response of the Containment Air Recirculation System to a Safety Injection Signal?

- a. TWO fan cooling units start and the other TWO fans stop.
- b. The suction dampers and Service Water inlet valves receive an OPEN signal.
- c. The Standby unit receives a start signal and the outlet dampers to the charcoal filters OPEN.
- d. The normal supply dampers to the containment fan coolers CLOSE and the air operated butterfly valves OPEN.

QUESTION: 048 (1.00)

Which ONE of the following describes how adding Sodium Hydroxide (NaOH) to containment spray removes Iodine from the containment atmosphere?

- a. It allows Iodine to combine with the free hydrogen becoming a hypoiodite.
- b. It decreases the pH of the spray water allowing Iodine to be trapped by the spraying water molecules.
- c. It breaks the Iodine down into ions that are more soluble in water.
- d. It decreases the pH of the containment sump allowing Iodine to be absorbed into the water.

QUESTION: 049 (1.00)

Which ONE of the following conditions is the cause for Annunciator RTGB APP-007-F4, FW PMP A/B LO FLOW, to alarm?

Main Feedwater Pump:

- a. suction flow is less than 1475 gpm.
- b. suction flow is less than 1150 gpm.
- c. suction flow is less than 1475 AND the recirculating valve is closed.
- d. suction flow is less than 1150 gpm AND the recirculating valve is closed.

QUESTION: 050 (1.00)

Which ONE of the following is the maximum power the plant could operate at if the secondary system is limited to ONE Condensate Pump and ONE Main Feedwater Pump?

- a. 40%
- b. 50%
- c. 60%
- d. 75%

QUESTION: 051 (1.00)

Which ONE of the following describes the failure position and power supply for the three listed Auxiliary Feed Water Flow Control valves.

1. Fails open, powered from an Instrument Bus.
2. Fails closed, powered from an Instrument Bus.
3. Fails open, powered from a Lighting Panel.
4. Fails closed, powered from a Lighting Panel.

| | FCV-1424 ("A" MDAFWP) ----- | FCV-1425 ("B" MDAFWP) ----- | FCV-6416 (Steam AFWP) ----- |
|----|-----------------------------------|-----------------------------------|-----------------------------------|
| a. | 2 | 2 | 3 |
| b. | 1 | 1 | 4 |
| c. | 4 | 2 | 3 |
| d. | 2 | 3 | 2 |

QUESTION: 052 (1.00)

Which ONE of the following AFW automatic start signals is defeated when the AFW pump "auto-start defeat switch" is in the "DEFEAT" position?

- a. AMSAC.
- b. Loss of power to 4160V buses 1 and 4.
- c. Safety Injection signal.
- d. Blackout Sequence.

QUESTION: 053 (1.00)

While standing at the "A" Battery Charger, you observe:

- a red light on the face of the charger which is dark.
- a green light on the face of the charger which is illuminated.

Which ONE of the following describes the significance of these lights?

- a. The charger is energized and in service.
- b. AC power is available and the charger is not in service.
- c. AC power is available with a battery charge in progress.
- d. The charger is energized with the battery at full voltage.

QUESTION: 054 (1.00)

Which ONE of the following describes the time and conditions required for the battery charger to recharge the "A" battery to full capacity from a fully discharged condition?

- a. 12 hours with the charger under normal load conditions
- b. 12 hours with the charger under minimal load conditions
- c. 24 hours with the charger under normal load conditions
- d. 24 hours with the charger under minimal load conditions

QUESTION: 055 (1.00)

Which ONE of the following describes the pressure at which the Gas Decay Pressure Controller actuates and, the automatic functions initiated upon actuation?

- a. 110 psig, closes the in-service tank inlet valve, and places standby tank in service.
- b. 110 psig, closes the in-service tank inlet valve, and stops the running waste gas compressor.
- c. 95 psig, stops the running waste gas compressor, and closes the in-service tank inlet valve.
- d. 95 psig, places the standby tank in service, and closes the in-service tank inlet valve.

QUESTION: 056 (1.00)

Which ONE of the following describes the radiation monitor channels that are designated accident channels?

Refer to the list below for channel number and noun names.

| | |
|--------------------------------|------------------------------|
| R-1 - Control Room | R-7 - CV Incore Inst. Room |
| R-2 - CV Low Range Monitor | R-8 - Drumming Station |
| R-3 - Health Physics Work Area | R-9 - Letdown Line Area |
| R-4 - Charging Pump Room | R-32A - CV High Range |
| R-5 - Spent Fuel Building | R-32B - CV High Range |
| R-6 - Sampling Room | R-33 - Monitor Building Area |

- a. R-1 and R-2
- b. R-32A and R-32B.
- c. R-1, R-2, R-32A and R-32B.
- d. R-1, R-2, R-5, R-32A and R-32B.

QUESTION: 057 (1.00)

Which ONE of the following describes the radiation monitor channels that have control functions?

Refer to the list below for channel number and noun names.

| | |
|--------------------------------|------------------------------|
| R-1 - Control Room | R-7 - CV Incore Inst. Room |
| R-2 - CV Low Range Monitor | R-8 - Drumming Station |
| R-3 - Health Physics Work Area | R-9 - Letdown Line Area |
| R-4 - Charging Pump Room | R-32A - CV High Range |
| R-5 - Spent Fuel Building | R-32B - CV High Range |
| R-6 - Sampling Room | R-33 - Monitor Building Area |

- a. R-1.
- b. R-1 and R-5.
- c. R-1, R-2, R-5 and R-9.
- d. R-1, R-2, R-5, R-9, and R-32A/B.

QUESTION: 058 (1.00)

Which ONE of the following describes the Reactor Coolant Pump #1 seal leak-off flow path at 100% Reactor Power?

- a. Number 2 seal.
- b. Number 2 seal and standpipe.
- c. VCT and standpipe.
- d. VCT and number 2 seal.

QUESTION: 059 (1.00)

One indication used to diagnose the failure of an RCP #1 seal is a decrease in #1 seal leakoff flow from the intact RCPs.

Which ONE of the following describes the reason #1 seal leakoff decreases on the intact RCPs?

- a. Increased VCT temperature causing increased backpressure.
- b. Increased backpressure from the common seal return header.
- c. Decreased seal injection supply.
- d. Increased backpressure on the seal injection supply.

QUESTION: 060 (1.00)

Given:

- An instrument technician inadvertently pulls ONE control power fuse for NI Channel 42.
- 5 seconds later, he realized the error and replaces the fuse.

Which ONE of the following describes the actions that will occur from the following actions?

- a. No actions will occur providing the other fuse is left in.
- b. A 5 second turbine runback will occur then stop.
- c. A turbine runback will occur until the timer times out.
- d. A turbine runback will occur until the turbine is tripped.

QUESTION: 061 (1.00)

Which ONE of the following describes an automatic action that occurs when the SR HI FLUX AT SHUTDOWN alarm activates?

- a. Reactor trip breakers open if all rods are NOT in.
- b. Initiates Phase "A" isolation.
- c. An alarm sounds in containment.
- d. Prevents motion on the fuel handling machine.

QUESTION: 062 (1.00)

Which ONE of the following describes the action that will occur when Intermediate Range Channel 35 reaches a power of 20% during a plant startup?

- a. Both automatic and manual rod control will be blocked.
- b. Only automatic rod control will be blocked.
- c. Only manual rod control will be blocked.
- d. No action will occur until IR Channel 36 reaches 20%.

QUESTION: 063 (1.00)

Which ONE of the following contains the components/systems that connect to the loop 3 cold leg?

- a. Pressurizer, SI (high head), CVC charging line.
- b. SI/RHR (high & low head), Pressurizer.
- c. Pressurizer, SI/RHR (high & low head), CVC Letdown Line.
- d. Primary Sampling System, SI (high head), Pressurizer, Excess Letdown.

QUESTION: 064 (1.00)

Which ONE of the following describes the shutoff head and maximum flow for the safety injection pumps if BOTH pumps are running?

| <u>Maximum Flow</u> | <u>Shutoff Head</u> |
|---------------------|---------------------|
| a. 375 gpm each | 1500 psig |
| b. 600 gpm each | 1515 psia |
| c. 750 gpm total | 1000 psia |
| d. 1200 gpm total | 1015 psia |

QUESTION: 065 (1.00)

Which ONE of the following describes what occurs when a safety injection valve fails to operate because the bonnet was full of cold water which, when heated up, causes the valve discs to seat too tightly for valve operation?

- a. Stem Thermal Binding.
- b. Disc Thermal Binding.
- c. Liquid Entrapment.
- d. Bonnet Depressurization.

QUESTION: 066 (1.00)

Given:

- The reactor head is on the vessel.
- The Reactor Coolant System (RCS) IS NOT open for maintenance.
- The RCS is depressurized and the temperature is below 350 degrees F.

Which ONE of the following describes the minimum operability requirements for the RCS pressure relief system without entering a Tech. Spec. LCO?

- a. ONE PORV and ONE code safety valve
- b. ONE PORV and TWO code safety valves
- c. TWO PORVs and ONE code safety valve
- d. TWO PORVs and TWO code safety valves

QUESTION: 067 (1.00)

Given the following conditions on Robinson, Unit 2:

- Reactor Power is 98% and stable.
- All systems are in automatic and operating normally.
- Rod control is in manual
- Pressurizer pressure transmitter PT-444 fails to 2370 psig.

Which ONE of the following describes the system response to this event?

- a. All spray valves open, all pressurizer heaters energize.
- b. All spray valves close, all pressurizer heaters energize.
- c. Power operated relief valve PCV-455C opens, all spray valves open, all pressurizer heaters deenergize.
- d. Power operated relief valves PCV-455C and PCV-456 open, all spray valves open, all pressurizer heaters deenergize.

QUESTION: 068 (1.00)

Which ONE of the following describes the response to the controlling channel of Pressurizer level failing HIGH during full power operation? Assume NO operator action?

- a. Reactor will trip on low pressure.
- b. Charging pump speed increases.
- c. Letdown isolates and remains isolated.
- d. All pressurizer heaters trip and re-energize when level returns above 14.4%.

QUESTION: 069 (1.00)

One channel of four nuclear instrumentation is removed from service for testing and all procedural requirements are satisfied.

Which ONE of the following reactor trip coincidences is correct while this channel is being tested?

- a. 1 out of 3
- b. 1 out of 4
- c. 2 out of 3
- d. 2 out of 4

QUESTION: 070 (1.00)

Which ONE of the following describes the control power supply for Reactor Trip Breaker "A" and Reactor Trip Bypass Breaker "A"?

| Reactor Trip "A" ----- | Reactor Trip Bypass "A" ----- |
|----------------------------|----------------------------------|
| a. "A" 125 VDC Dist. Panel | "A" 125 VDC Dist. Panel |
| b. "A" 125 VDC Dist. Panel | "B" 125 VDC Dist. Panel |
| c. "B" 125 VDC Dist. Panel | "A" 125 VDC Dist. Panel |
| d. "B" 125 VDC Dist. Panel | "B" 125 VDC Dist. Panel |

QUESTION: 071 (1.00)

Which ONE of the following describes how the 2 RTGB Reactor Trip Pushbuttons are electrically arranged in respect to one another?

- a. They are in series to account for a failure.
- b. They are in parallel to account for a failure.
- c. They are in series-parallel to account for a failure.
- d. They are in completely independent circuits to account for a failure.

QUESTION: 072 (1.00)

Which ONE of the following permissive circuits is correct in name, coincidence and setpoint?

- a. P-2, 1/2 First Stage Turbine Pressure below 15%.
- b. P-6, 2/4 Power Range Channels below 10%.
- c. P-7, 2/4 Power Range Channels above 10%.
- d. P-8, 3/4 Power Range Channels below 40%.

QUESTION: 073 (1.00)

Which ONE of the following describes the location of a rod when it is inserted far enough to cause the rod bottom light to come on?

The rod is less than:

- a. 7.5 inches from the bottom of the core.
- b. 15 inches from the bottom of the core.
- c. 12.5 steps from the bottom of the core.
- d. 20 steps from the bottom of the core.

QUESTION: 074 (1.00)

Referring to OP-922, Post Accident Containment Hydrogen Reduction/Venting System, and given the following conditions:

- Containment Temperature = 140 degrees F.
- Containment Pressure = 2.1 psig
- Heater outlet gas temperature = 845 degrees F
- Reaction Chamber gas temperature = 1325 degrees F
- Gas Return Wall Temperature = 225 degrees F.

Which ONE of the following represents the approximate Hydrogen concentration in the containment following a LOCA?

- a. 2%
- b. 3%
- c. 4%
- d. 5%

QUESTION: 075 (1.00)

Which ONE of the following describes the complete action(s) a Safety Injection signal will have on the Containment Systems?

- a. Close all containment isolation valves, stop CV purge fans, and start HVH units 1 thru 4.
- b. Close all containment isolation valves and start HVH units 1 thru 4.
- c. Close all containment isolation valves and stop CV purge fans.
- d. Stop CV purge fans and start HVH units 1 thru 4.

QUESTION: 076 (1.00)

Which ONE of the following are the emergency cooling connections to the Spent Fuel Pool Cooling System (SFPC)?

- a. SFPC pump A suction, CCW supply and return to SFPC heat exchanger.
- b. Refueling water purification pump suction, SFPC pump A discharge.
- c. Spent Fuel Pit Demineralizer inlet and CCW supply and return to SFPC heat exchanger.
- d. SFPC HX inlet and SFPC pump B suction.

QUESTION: 077 (1.00)

Which ONE of the following describes a function provided by the Main Steam header pressure transmitters?

- a. Supplies input signals to the AMSAC-ATWS mitigation system.
- b. Supplies input signals for steam dump control.
- c. Supplies input for the high steam flow setpoint.
- d. Supplies input for pressure compensation of the steam flow channels.

QUESTION: 078 (1.00)

The following components have lost power.

- Condensate Pump "B".
- Reactor Coolant Pump "C".
- 4160 Volt Bus #5.

Which ONE of the following describes the bus(es) lost that will cause the loss of power to the above list?

- a. 4160 Volt Bus 2 only
- b. 4160 Volt Bus 4 only
- c. 4160 Volt Bus 2 and 4
- d. 4160 Volt Bus 1, 2 and 4

QUESTION: 079 (1.00)

Which ONE of the following describe the expected response to a loss of Instrument Bus 3, during full power operation?

- a. Reactor trip with no turbine trip.
- b. Load reduction from NIS rod drop signal.
- c. Steam Dump will shift to pressure mode.
- d. Diesel Generators will auto start on undervoltage.

QUESTION: 080 (1.00)

Which ONE of the following describes ONE of the THREE controls on the Emergency Diesel Generator Governor?

- a. Synchronizer - Changes engine load when the engine is in parallel with another unit.
- b. Speed Droop Control - Automatically compensates engine speed as loads start during sequencing to prevent frequency drops.
- c. Load Limit Control - Is set to control the engine speed after initial start to prevent stalling when large loads are placed on an unloaded generator.
- d. Operation Control - Determines whether the governor is controlled locally from the diesel or remotely from the RTGB.

QUESTION: 081 (1.00)

Which ONE of the following describes a potential problem should light vortexing at the RHR pump suction occur with the plant in outage conditions and the Reactor Coolant System operating in mid-loop operation?

- a. Air buildup in the idle pump could damage it on startup.
- b. Vessel level indication could be affected.
- c. Air impingement on the operating pump impeller can cause loss of pump before it is detected.
- d. Small flow oscillations can lead to plant heatup before the problem is detected.

QUESTION: 082 (1.00)

Given the following:

- The plant has been shutdown for 10 days due to Steam Generator tube maintenance.
- The RCS is being cooled by RHR when the entire RHR system is lost.

Using the attachment RHR-TP-3.5 provided, which one of the following describes the approximate time to core uncover if RHR is not restored?

- a. 30 minutes
- b. 45 minutes
- c. 60 minutes
- d. 90 minutes

QUESTION: 083 (1.00)

Which ONE of the following describes the response of the RHR system to a loss of instrument air?

- a. RHR-HCV-758, RHR loop temperature control valve, fails CLOSED.
- b. RHR-FCV-605, RHR loop flow control valve fails OPEN.
- c. RHR-744A and B, RHR discharge to RCS isolation valves, fail OPEN.
- d. SI-860A and B, RHR pump suction from containment sump valves fail CLOSED.

QUESTION: 084 (1.00)

Given:

- The RCS is being cooled down and depressurized.
- Currently RCS temperature is 275 degrees and pressure is 425 psig.
- The operator reports that RHR-750 and RHR-751, RHR Loop Suction Valves, will not open.

Which ONE of the following describes a reason why these valves will not open.

- a. RCS pressure is too high.
- b. The breakers for SI-863A and B, RHR Recirculation Valves, are closed.
- c. The breakers for SI-862A and B, RWST Suction Valves, are closed.
- d. SI-863A and B, RHR Recirculation Valves, are open.

QUESTION: 085 (1.00)

Which ONE of the following describes the response of the Component Cooling Water System when a Safety Injection and Spray signals occur following a loss of off-site power?

- a. Neither B or C CCW pumps start automatically and can NOT be started manually from the control board.
- b. Neither B or C CCW pumps will start automatically but can be started manually from the control board.
- c. Only Pump B will auto start after the Diesel Generator output breaker closes.
- d. Only Pump A will auto start providing the D.S. bus remains energized.

QUESTION: 086 (1.00)

Given:

- A Safety Injection actuation has occurred with suction pressure to the Service Water Booster Pump at 10 psig.

Which ONE of the following describes the response of the booster pump to the SI signal?

- a. The pump will start and run until the SI signal is removed.
- b. The pump will start, run for 10 seconds and then stop.
- c. The pump will not start until suction pressure is greater than 12 psig.
- d. The pump will not start until suction pressure is greater than 30 psig.

QUESTION: 087 (1.00)

Which ONE of the following describes the response of the Instrument Air system to a reactor trip and safety injection with all ESF equipment operating as expected?

- a. Instrument air to Station air (SA-70) closes.
- b. Instrument air to Turbine Building header (IA-62) closes.
- c. Instrument air to containment (PCV-1716) closes.
- d. "B" and "C" air compressors stop.

QUESTION: 088 (1.00)

Given:

- Annunciator APP-021-B-1, "RAD MONITOR TROUBLE", is in alarm.
- The operator determines actions taken in accordance with the Annunciator Panel Procedure would NOT be effective.

Which ONE of the following describes the action to be taken in this circumstance, in accordance with OMM-001, "Conduct of Operations"?

- a. Initiate a procedure deviation.
- b. Initiate a temporary procedure change.
- c. Log the deviation in the Control Operators Log.
- d. Initiate a work request to repair the failed annunciator.

QUESTION: 089 (1.00)

Which ONE of the following completes the statement concerning watch relief that is being performed in accordance with OMM-008, "Minimum Equipment List and Shift Relief?"

The logs must be reviewed by the oncoming operator back to the last time on watch or back a maximum of:

- a. 3 days.
- b. 7 days.
- c. 10 days.
- d. 14 days.

QUESTION: 090 (1.00)

Given:

- An oncoming RTGB Control Operator is preparing to take the shift from the offgoing operator.
- The plant is in cold shutdown.

Which ONE of the following describes the correct procedure for turning over an evolution in progress?

- a. The evolution must always be finished prior to completing turnover.
- b. Turnover may proceed without special considerations when in cold shutdown.
- c. Shift Supervisor approval is necessary to turn over the evolution while still in progress.
- d. Turnover may proceed providing the operators work in parallel on the evolution for a minimum of 10 minutes.

QUESTION: 091 (1.00)

Which ONE of the following describes the "Hands-On" method used when verifying a manual valve in the OPEN position?

- a. Valve movement should be checked in the OPEN direction and restored to 1/4 turn off its backseat.
- b. Valve movement should be in the CLOSED direction one turn and restored to 1/4 turn off its backseat.
- c. Local valve position indication should be used, if available, so valve movement is not required.
- d. Note the valve position, move in the CLOSED direction one and 1/2 turns, then restored to the full open position.

QUESTION: 092 (1.00)

Which ONE of the following describes the time limits that apply when performing Operational Surveillance Testing (OST) of pumps?

| | <u>Minimum Time to Take Data</u> | <u>Maximum Time to Run Test</u> |
|----|----------------------------------|---------------------------------|
| a. | 15 minutes | 30 minutes |
| b. | 30 minutes | 30 minutes |
| c. | 15 minutes | 45 minutes |
| d. | 30 minutes | 45 minutes |

QUESTION: 093 (1.00)

Which ONE of the following describes the Control Operators responsibility concerning Operational Surveillance Testing (OST)?

- a. Logging completed or partial OSTs in the Tracking Book on OMM-015, Attachment 6.4 "Surveillance Test Procedure Information".
- b. Verifying revision status and obtaining SS permission to perform the OST.
- c. Completing OMM-015 Attachment 6.2, "OST Discrepancy Log", for any unsatisfactory OST.
- d. Comparing data derived as a result of the OST with the acceptance criteria.

QUESTION: 094 (1.00)

Which ONE of the following describes the proper sequence for hanging LCTR tags?

- a. For a high energy system, verify each tag independently as it is being hung.
- b. Place tags on component undergoing maintenance last.
- c. Place tags on high energy side prior to low energy side.
- d. Breakers must be tagged before switches/actuator.

QUESTION: 095 (1.00)

Which ONE of the following describes what is used to mark components to be used for a hydrostatic test?

- a. Station Clearance.
- b. Line Clearance.
- c. Red "Men at Work" tags.
- d. Orange "Caution" tags.

QUESTION: 096 (1.00)

Which ONE of the following describes what is necessary for a visitor to enter into a Locked High Radiation Area (LHRA)?

- a. The visitor completes GET level I.
- b. RC Supervisor may waive visitor training requirements to allow entry.
- c. E&RC Manager may waive visitor training requirements to allow entry.
- d. E&RC Manager may waive visitor training requirements to allow entry with verbal concurrence from Plant Management.

QUESTION: 097 (1.00)

Which ONE of the following completes the statement

Derived Air Concentration-hour (DAC-hour) is the product of the concentration of radioactive material in air and the time of exposure to that radionuclide, in hours. _____ DAC-hours represents one ALI, which is a committed dose equivalent of _____ rems.

- a. 1000, 2.
- b. 2000, 5.
- c. 5000, 2.
- d. 5000, 5.

QUESTION: 098 (1.00)

Given the following definition:

The dose equivalent to organs or tissues of reference that will be received from an intake of radioactive material by an individual during the 50 year period following the intake.

Which ONE of the following is described by this definition?

- a. Committed Dose Equivalent (CDE)
- b. Collective Dose
- c. Committed Effective Dose Equivalent (CEDE)
- d. Deep-Dose Equivalent (DDE)

QUESTION: 099 (1.00)

Which one of the following is the immediate operator action in response to receipt of a SEISMIC ALARM?

- a. Verify control rod operability using OST-11.
- b. Observe plant parameters to detect any change in conditions.
- c. Dispatch an operator to inspect area around transducers.
- d. Notify I&C to inspect the seismic recorders using MST-904.

QUESTION: 100 (1.00)

Solid bullets preceding steps in an Emergency Operating Procedure indicate that the steps:

- a. should be performed immediately.
- b. must be performed in the order listed.
- c. may be performed in any order.
- d. are contingency action steps.

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

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, AOP-020, Rev. 13, page 11. No Facility Objective.

3.4/3.3

000025A103 ..(KA's)

ANSWER: 027 (1.00)

a.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, AOP-019, Rev. 3, page 14. No Facility Objective.

4.0/3.9

000027K101 ..(KA's)

ANSWER: 028 (1.00)

d.

REFERENCE:

HBR, OWP-011, Rev 7, page 16...No Facility Objective.

3.2/3.4

000033G011 ..(KA's)

ANSWER: 029 (1.00)

a.

REFERENCE:

HBR, EOP-LP-4, Rev. 6, page 14. Obj. 3.

4.2/4.5

000038K306 ..(KA's)

ANSWER: 030 (1.00)

c.

REFERENCE:

HBR, EOP-LP-4, Rev. 6, page 24. Obj. 4.

3.8/4.0

000038G012 ..(KA's)

ANSWER: 031 (1.00)

b.

REFERENCE:

HBR, AOP-010, Rev. 6, page 10. No Facility Objective.

3.4/3.4

000054G011 ..(KA's)

ANSWER: 032 (1.00)

c.

REFERENCE:

HBR, DC-LP-2, Rev. 8, page 21, Obj. 5 Question. Obj 5.

3.5/3.9

000058A203 ..(KA's)

ANSWER: 033 (1.00)

b.

REFERENCE:

HBR, AOP-005, Rev. 10, page 6. No Facility Objective.

3.3/3.3

000061G010 ..(KA's)

ANSWER: 034 (1.00)

c.

REFERENCE:

CHANGED AT FACILITY REQUEST

HBR, SD-021, Section 4.1, SD-059, Section 3.1.2. RCS-TP-3.1 Obj 4,

3.4/3.8

000028A202 ..(KA's)

ANSWER: 035 (1.00)

b.

REFERENCE:

HBR, AOP-013, Rev. 4, page 6. No Facility Objective.

3.7/3.8

000036G010 ..(KA's)

ANSWER: 036 (1.00)

d.

REFERENCE:

HBR, EOP-LP-9, Rev. 4, page 6. Obj. 4.

3.1/3.2

000056K104 ..(KA's)

ANSWER: 037 (1.00)

a.

REFERENCE:

HBR, SD-007, page 6. RDCNT-TP-1.1, Obj. 3

3.5/3.8

001000K403 ..(KA's)

ANSWER: 038 (1.00)

c.

REFERENCE:

HBR, SD-007, page 5. RDCNT-TP-1.1, Obj. 3

Calculation:

rod movement in inches/minute = rod speed in steps/minute X .63
45 steps/minute X .63 = 28.35 inches/minute

3.1/2.9

001000A401 ..(KA's)

ANSWER: 039 (1.00)

d.

REFERENCE:

CHANGED AT FACILITY REQUEST (answer only)
HBR, SD-059, Rev. 8, page 7. RCS-TP-5.1, Obj. 3.

3.7/4.0

003000K301 ..(KA's)

ANSWER: 040 (1.00)

c.

REFERENCE:

HBR, SD-021, Rev 21, page 17-18. CVC-TP-3.1, Obj. 4.

3.4/3.7

004000A207 ..(KA's)

ANSWER: 001 (1.00)

a.

REFERENCE:

HB, AOP-001, Rev. 5, Section E, page 32. No Facility Objective.

3.4/3.4

000005A105 ..(KA's)

ANSWER: 002 (1.00)

a.

REFERENCE:

CHANGED AT FACILITY REQUEST.

HBR, AOP-001, Rev. 5, Section A, page 4. No Facility Objective.

3.9/4.2

000005K306 ..(KA's)

ANSWER: 003 (1.00)

c.

REFERENCE:

HBR, EOP-LP-21, Rev. 2, page 4. Obj. 2.

3.7/3.9

000011G007 ..(KA's)

ANSWER: 004 (1.00)

a.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, AOP-018, Section A, page 6-7. RCS-LP-7 Obj. 2.
3.5/3.4

000015A107 ..(KA's)

ANSWER: 005 (1.00)

d.

REFERENCE:

HBR, AOP-002, Rev 4, page 8. No Facility Objective.
3.1/3.2

000024A105 ..(KA's)

ANSWER: 006 (1.00)

a.

REFERENCE:

HBR, AOP-002, Rev. 3, Page 6, Immediate Action Note.
No Facility Objective.

3.9/4.4

000024A202 ..(KA's)

ANSWER: 007 (1.00)

b.

REFERENCE:

HBR, EOP-LP-15, Rev. 4, page 2. Obj. 2

4.4/4.7

000029K312 ..(KA's)

ANSWER: 008 (1.00)

c.

REFERENCE:

CHANGED AT FACILITY REQUEST.

HBR, Supplement G, Rev. 10, page 32. No Facility Objective.

4.5/4.7

000040K304 ..(KA's)

ANSWER: 009 (1.00)

a.

REFERENCE:

HBR, EOP-LP-18, Steps 16 & 17, p 6 Obj. 3

4.1/4.4

000040K101 ..(KA's)

ANSWER: 010 (1.00)

c.

REFERENCE:

HBR, AOP-012, Rev. 6, page 5. No Facility Objective.

3.9/4.1

000051A202 ..(KA's)

ANSWER: 011 (1.00)

a.

REFERENCE:

HBR, EOP-LP-5, Rev. 6. page 8-9. Obj. 5.

3.9/4.7

000055A203 ..(KA's)

ANSWER: 012 (1.00)

d.

REFERENCE:

HBR, AOP-024, Rev. 5, page 10. No Facility Objective.

3.1/3.1

000057A218 ..(KA's)

ANSWER: 013 (1.00)

a.

REFERENCE:

HBR, AOP-024, Rev. 5, page 10. No Facility Objective.

4.0/4.3

000057A219 ..(KA's)

ANSWER: 014 (1.00)

b.

REFERENCE:

DSP-001, Rev. 2, p. 3 of 6, Step 2.0, Entry Conditions. ARP-LP-1A, Obj.
1

3.8/4.0

000067G011 ..(KA's)

ANSWER: 015 (1.00)

a.

REFERENCE:

CHANGED AT FACILITY REQUEST

HBR, DSP-002, Rev. 11, Attachment 1, Caution before and Step 13, pg 12.

ARP-LP-2, Obj 3

3.3/4.0

000067A216 ..(KA's)

ANSWER: 016 (1.00)

a.

REFERENCE:

HBR, AOP-004, Rev. 5, page 6. No Facility Objective.

4.1/4.2

000068G010 ..(KA's)

ANSWER: 017 (1.00)

b.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, EPP-6, Rev 4, Note before and Step 31, page 18.
EOP-LP-10, page 12, Obj. 4

4.0/4.6

000074A206 ..(KA's)

ANSWER: 018 (1.00)

a.

REFERENCE:

HBR, EOP-LP-16, Rev. 5, page 3. Obj. 2.

4.0/4.4

000074K311 ..(KA's)

ANSWER: 019 (1.00)

a.

REFERENCE:

HBR, EOP-LP-3, Rev. 7, page 6. Obj. 5.

3.6/3.7

000007A104 ..(KA's)

ANSWER: 020 (1.00)

c.

REFERENCE:

HBR, EOP-LP-3, Rev. 7, page 11. Obj. 5.

3.7/4.1

000007K106 ..(KA's)

ANSWER: 021 (1.00)

b.

REFERENCE:

HBR, Steam Tables. No Facility Objective.

3.2/3.7

000008K101 ..(KA's)

ANSWER: 022 (1.00)

a. § C.

QA 8/24/94

REFERENCE:

HBR, AOP-019, Rev. 3, page 9-11. No Facility Objective.
4.1/4.1

000008G010 ..(KA's)

ANSWER: 023 (1.00)

c.

REFERENCE:

HBR, AOP-016, Rev. 7, page 7. No Facility Objective.

4.3/4.3

000009G010 ..(KA's)

ANSWER: 024 (1.00)

d.

REFERENCE:

HBR, AOP-003, Rev. 3, page 12. No Facility Objective.

3.4/3.3

000022A108 ..(KA's)

ANSWER: 025 (1.00)

a.

REFERENCE:

HBR, AOP-020, Rev. 12, page 8 and 12. No Facility Objective.

3.8/3.9

000025A102 ..(KA's)

ANSWER: 026 (1.00)

b.

ANSWER: 041 (1.00)

c.

REFERENCE:

HBR, SD-021, Rev. 12, page 22. CVC-LP-1, Obj 2.
3.5/3.7

004000A301 ..(KA's)

ANSWER: 042 (1.00)

b.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, SD-006, Rev. 15, page 4. ESF-TP-5.1, Obj. 4.

3.6/3.8

013000K201 ..(KA's)

ANSWER: 043 (1.00)

d.

REFERENCE:

HBR, SD-006, Rev. 17, page 6 and Logic CP-300-5379-2579. ESF-TP-5.1
Obj. 2.

4.2/4.4

013000K101 ..(KA's)

ANSWER: 044 (1.00)

b.

REFERENCE:

HBR, Logic CP-300-5379-2755, Rev. 7. NI-TP-5.1, Obj. 4.
4.1/4.2

015000K101 ..(KA's)

ANSWER: 045 (1.00)

a.

REFERENCE:

HBR, SD-010, Rev. 4, page 46. NI-TP-1.1,-4.1,-5.1 Obj. 1.
2.9/3.2

015000K601 ..(KA's)

ANSWER: 046 (1.00)

b.

REFERENCE:

HBR, CSS-LP-6, Rev. 11, page 13, Obj. 3.
HBR T.S. 3.3.2.1 basis, page 3.3-13.

2.5/3.6

022000A301 ..(KA's)

ANSWER: 047 (1.00)

d.

REFERENCE:

HBR, CSS-LP-6, Rev 11, para. E.3, p 15 Obj. 3.

[3.6/3.6]

022000A401 ..(KA's)

ANSWER: 048 (1.00)

c.

REFERENCE:

ESF-LP-4, Rev 9, Para. II.d, page 5. ESF-LP-4, Obj. 1 questions, pg 16.

[3.1/3.6]

026000K402 ..(KA's)

ANSWER: 049 (1.00)

b.

REFERENCE:

FW-LP-2, Rev 14, Step 2.2.9(a), p. 8 and APP-007-F4. Obj. 3.

[3.0/3.1]

059000G008 ..(KA's)

ANSWER: 050 (1.00)

b.

REFERENCE:

HBR, AOP-010, Rev 7, page 10. FW-LP-2 Obj. 4.

[2.7/2.9]

059000A103 ..(KA's)

ANSWER: 051 (1.00)

a.

REFERENCE:

HBR, FW-LP-3, II.A.d, page 8. Obj. 4.

[3.2/3.3]

061000K201 ..(KA's)

ANSWER: 052 (1.00)

a.

REFERENCE:

HBR, FW-LP-3, II.B.4.d, page 19. Obj. 4.

4.5/4.6

061000K402 ..(KA's)

ANSWER: 053 (1.00)

b.

REFERENCE:

HBR, SD-016, Rev. 39, page 15-16. DC-LP-1, Obj. 3.

2.9/3.5

063000K103 ..(KA's)

ANSWER: 054 (1.00)

c.

REFERENCE:

HBR, SD-016, Rev. 40, page 18. DC-LP-1, Obj. 6.

3.0/3.1

063000A403 ..(KA's)

ANSWER: 055 (1.00)

a.

REFERENCE:

HBR, GRW-LP-1, Rev. 5, page 7. Obj. 2 and 3.

2.9/3.4

071000K404 ..(KA's)

ANSWER: 056 (1.00)

b.

REFERENCE:

HBR, SD-019, Rev. 9, page 8. RM-LP-3, Obj. 2.

3.1/3.3

072000G004 ..(KA's)

ANSWER: 057 (1.00)

a.

REFERENCE:

HBR, SD-019, Rev. 9, page 8. RM-LP-3 Obj. 3.

3.3/3.5

072000K104 ..(KA's)

ANSWER: 058 (1.00)

d.

REFERENCE:

HBR, RCS-LP-6, Rev. 7, pages 5-7. Objs 2 and 4

3.2/3.4

003000K407 ..(KA's)

ANSWER: 059 (1.00)

b.

REFERENCE:

HBR, RCS-LP-6A, Rev. 2, page 23. Obj. 2.

3.5/3.9

003000A201 ..(KA's)

ANSWER: 060 (1.00)

b.

REFERENCE:

HBR, NI-LP-5, Rev.10, pages 21-22. Obj. 3.

3.9/4.3

015000K301 ..(KA's)

ANSWER: 061 (1.00)

c.

REFERENCE:

HBR, NI-LP-2, Rev. 5, NI-TP-2.7. Obj. 3.

3.7/3.9

015000A302 ..(KA's)

ANSWER: 062 (1.00)

a.

REFERENCE:

HBR, SD-007, Rev. 1, pages 12-13. RDCNT-LP-3, Obj. 5

3.8/3.8

001000K402 ..(KA's)

ANSWER: 063 (1.00)

b.

REFERENCE:

HBR, RCS-LP-7, RCS-TP-7.2. RCS-LP-9 Obj. 1

4.5/4.6

002000K108 ..(KA's)

ANSWER: 064 (1.00)

b.

REFERENCE:

HBR, SD-002. page 23. ESF-LP-1, Obj. 1.

3.5/3.9

006000K506 ..(KA's)

ANSWER: 065 (1.00)

c.

REFERENCE:

HBR, ESF-LP-6, Rev. 9, page 7-8. Obj. 5.

4.1/4.1

006000A303 ..(KA's)

ANSWER: 066 (1.00)

c.

REFERENCE:

HBR SD-059, page 10, T.S. 3.1.1.3 and 3.1.2.1(d). RCS-LP-5, Obj. 1.

3.8/4.1

010000K403 ..(KA's)

ANSWER: 067 (1.00)

c.

REFERENCE:

HBR, SD-059, page 16. RCS-LP-4 Obj. 1.

3.7/3.7

010000A107 ..(KA's)

ANSWER: 068 (1.00)

a.

REFERENCE:

HBR, RCS-LP-5, Rev 9, Step 3.b, p 9, Obj. 2

3.4/3.6

011000A210 ..(KA's)

ANSWER: 069 (1.00)

a.

REFERENCE:

HBR, SD-011, page 7. RPS-LP-2 Obj. 1

3.7/3.7

012000A306 ..(KA's)

ANSWER: 070 (1.00)

b.

REFERENCE:

HBR, SD-011, Rev. 7, page 10. RPS-LP-2 Obj. 1
3.3/3.7

012000K201 ..(KA's)

ANSWER: 071 (1.00)

a.

REFERENCE:

HBR, SD-011, Rev. 2, page 11. RPS-LP-2 Obj. 1
3.1/3.5

012000K603 ..(KA's)

ANSWER: 072 (1.00)

d.

REFERENCE:

HBR, SD-011, Rev. 2, page 24. RPS-LP-2 Obj. 4.
3.1/3.5

012000K603 ..(KA's)

ANSWER: 073 (1.00)

d.

REFERENCE:

HBR, RPI-LP-1, Rev.7, Para. B.1.b, page 9. Obj. 2.

3.2/3.4

014000K403 ..(KA's)

ANSWER: 074 (1.00)

c.

REFERENCE:

HBR, CSS-LP-8, Rev. 6, page 9. Obj. 4
HBR, OP-922, Rev. 7.

3.4/3.8

028000A101 ..(KA's)

ANSWER: 075 (1.00)

b.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, CSS-LP-5, Rev. 8, page 12. Obj. 3.

3.8/4.0

029000A301 ..(KA's)

ANSWER: 076 (1.00)

d.

REFERENCE:

SFPC-LP-1, Rev 8, Step II.A.3.b.(5), page 4 and SFPC-TP-1.2 Obj. 2

2.7/3.0

033000A202 ..(KA's)

ANSWER: 077 (1.00)

b.

REFERENCE:

HBR, MS-LP-1, Rev. 15, B.1.c, page 10. Obj. 4.

3.1/3.0

039000K106 ..(KA's)

ANSWER: 078 (1.00)

c.

REFERENCE:

HBR, ELEC-LP-21, Rev. 7, ELEC-TP-21.3. Obj. 4.

3.3/3.4

062000K201 ..(KA's)

ANSWER: 079 (1.00)

b.

REFERENCE:

HBR, ELEC-LP-28, Rev 2, page 3, Obj. 1

3.1/3.4

062000A204 ..(KA's)

ANSWER: 080 (1.00)

a.

REFERENCE:

HBR, SD005, Rev. 16, page 21. DG-LP-1 Obj. 3

3.1/3.1

064000A203 ..(KA's)

ANSWER: 081 (1.00)

b.

REFERENCE:

HBR, RHR-LP-3, Rev. 5, page 19. Obj. 2.

3.6/3.4

005000A401 ..(KA's)

ANSWER: 082 (1.00)

c.

REFERENCE:

CHANGED AT FACILITY REQUEST

HBR, RHR-LP-3, Rev. 5, RHR-TP-3.5 and 3.6. Obj. 3.

3.6/3.9

005000K109 ..(KA's)

ANSWER: 083 (1.00)

a.

REFERENCE:

HBR, RHR-LP-1, Rev 15, pages 8-10. Obj. 2 and 5.

2.9/2.9

005000A204 ..(KA's)

ANSWER: 084 (1.00)

d.

REFERENCE:

HBR, SD-003, Rev. 11, page 12. RHR-LP-1, Obj. 5.

3.6/3.4

005000A401 ..(KA's)

ANSWER: 085 (1.00)

a.

REFERENCE:

CHANGED AT FACILITY REQUEST
HBR, CCW-LP-1, Rev. 8, page 11, Obj. 3.

3.1/3.3

008000K401 ..(KA's)

ANSWER: 086 (1.00)

a.

REFERENCE:

CHANGED AT FACILITY REQUEST (answer only)
HBR, SD-004, Rev. 22, page 14. SW-LP-1, Rev. 17, pages 9-10. Obj. 3.

3.6/3.8

076000K116 ..(KA's)

ANSWER: 087 (1.00)

c.

REFERENCE:

AIR-LP-1, Rev 6, Step B.1.a., page 11, AIR-LP-2 Obj. 2

3.3/3.4

078000K103 ..(KA's)

ANSWER: 088 (1.00)

c.

REFERENCE:

HBR, OMM-001, Rev. 38, page 21. ADMIN LP-2, Obj. 3d

3.4/3.4

194001A106 ..(KA's)

ANSWER: 089 (1.00)

b.

5

REFERENCE:

HBR, OMM-008, Rev. 71, page 8.
ADMIN LP-2, Section F.1.b., page 10. Obj. 2

2.5/3.4

194001A103 ..(KA's)

ANSWER: 090 (1.00)

c.

REFERENCE:

HBR, OMM-008, Rev. 71, page 11. ADMIN LP-2, Obj. 2

2.7/3.9

194001A109 ..(KA's)

ANSWER: 091 (1.00)

b.

REFERENCE:

OMM-001, Rev. 38, para. 5.9.3.1, page 35. No Facility Objective.

3.6/3.7

194001K101 ..(KA's)

ANSWER: 092 (1.00)

a.

REFERENCE:

HBR, ADMIN-LP-9, Rev. 5, para. 3.c.1, page 6. Obj. 4.

3.1/4.1

194001A112 ..(KA's)

ANSWER: 093 (1.00)

b.

REFERENCE:

HBR, ADMIN-LP-9, Rev. 5, section 2, page 5. Obj. 3b.

3.3/3.4

194001A101 ..(KA's)

ANSWER: 094 (1.00)

c.

REFERENCE:

HBR, AOP-LP-7, Rev. 7, page 16, Obj. 6

3.7/4.1

194001K102 ..(KA's)

ANSWER: 095 (1.00)

d.

REFERENCE:

HBR, AOP-LP-7, Step L.3, page 29. Obj. 8

3.7/4.1

194001K102 ..(KA's)

ANSWER: 096 (1.00)

c. i d. *Qd* 8/24/94

REFERENCE:

CHANGED AT FACILITY REQUEST

HBR, AP-31, Rev. 18, page 15. No Facility Objective.

2.8/3.4

194001K103 ..(KA's)

ANSWER: 097 (1.00)

b.

REFERENCE:

HBR, HP-LP-7, page 6. Obj. 2.

2.8/3.4

194001K103 ..(KA's)

ANSWER: 098 (1.00)

a.

REFERENCE:

HBR, HP_LP-7, page 5. Obj. 2.

2.8/3.4

194001K103 ..(KA's)

ANSWER: 099 (1.00)

b.

REFERENCE:

HBR, AOP-021, Rev. 5, page 6.
AOP-LP-9, Rev 5, Step C.a, p 5, Obj 4.

2.8/4.1

194001A111 ..(KA's)

ANSWER: 100 (1.00)

c.

REFERENCE:

HBR, EOP-LP-1, Rev 5, Step 3.b.(4), p 11. Obj. 4

4.1/3.9

194001A102 ..(KA's)

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

R O E x a m P 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

| <u>QUESTION</u> | <u>VALUE</u> | <u>REFERENCE</u> |
|-----------------|--------------|------------------|
| 001 | 1.00 | 9000002 |
| 002 | 1.00 | 9000003 |
| 003 | 1.00 | 9000006 |
| 004 | 1.00 | 9000008 |
| 005 | 1.00 | 9000009 |
| 006 | 1.00 | 9000010 |
| 007 | 1.00 | 9000011 |
| 008 | 1.00 | 9000013 |
| 009 | 1.00 | 9000014 |
| 010 | 1.00 | 9000015 |
| 011 | 1.00 | 9000017 |
| 012 | 1.00 | 9000021 |
| 013 | 1.00 | 9000022 |
| 014 | 1.00 | 9000023 |
| 015 | 1.00 | 9000024 |
| 016 | 1.00 | 9000025 |
| 017 | 1.00 | 9000026 |
| 018 | 1.00 | 9000027 |
| 019 | 1.00 | 9000028 |
| 020 | 1.00 | 9000029 |
| 021 | 1.00 | 9000030 |
| 022 | 1.00 | 9000031 |
| 023 | 1.00 | 9000032 |
| 024 | 1.00 | 9000035 |
| 025 | 1.00 | 9000036 |
| 026 | 1.00 | 9000037 |
| 027 | 1.00 | 9000039 |
| 028 | 1.00 | 9000041 |
| 029 | 1.00 | 9000042 |
| 030 | 1.00 | 9000043 |
| 031 | 1.00 | 9000044 |
| 032 | 1.00 | 9000045 |
| 033 | 1.00 | 9000046 |
| 034 | 1.00 | 9000047 |
| 035 | 1.00 | 9000049 |
| 036 | 1.00 | 9000050 |
| 037 | 1.00 | 9000052 |
| 038 | 1.00 | 9000053 |
| 039 | 1.00 | 9000054 |
| 040 | 1.00 | 9000055 |
| 041 | 1.00 | 9000056 |
| 042 | 1.00 | 9000057 |
| 043 | 1.00 | 9000058 |
| 044 | 1.00 | 9000059 |
| 045 | 1.00 | 9000060 |
| 046 | 1.00 | 9000061 |
| 047 | 1.00 | 9000062 |
| 048 | 1.00 | 9000063 |
| 049 | 1.00 | 9000064 |

R O E x a m P 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

| <u>QUESTION</u> | <u>VALUE</u> | <u>REFERENCE</u> |
|-----------------|--------------|------------------|
| 050 | 1.00 | 9000065 |
| 051 | 1.00 | 9000066 |
| 052 | 1.00 | 9000067 |
| 053 | 1.00 | 9000068 |
| 054 | 1.00 | 9000069 |
| 055 | 1.00 | 9000070 |
| 056 | 1.00 | 9000071 |
| 057 | 1.00 | 9000072 |
| 058 | 1.00 | 9000073 |
| 059 | 1.00 | 9000074 |
| 060 | 1.00 | 9000075 |
| 061 | 1.00 | 9000076 |
| 062 | 1.00 | 9000077 |
| 063 | 1.00 | 9000078 |
| 064 | 1.00 | 9000079 |
| 065 | 1.00 | 9000080 |
| 066 | 1.00 | 9000082 |
| 067 | 1.00 | 9000083 |
| 068 | 1.00 | 9000084 |
| 069 | 1.00 | 9000085 |
| 070 | 1.00 | 9000086 |
| 071 | 1.00 | 9000087 |
| 072 | 1.00 | 9000088 |
| 073 | 1.00 | 9000089 |
| 074 | 1.00 | 9000090 |
| 075 | 1.00 | 9000091 |
| 076 | 1.00 | 9000092 |
| 077 | 1.00 | 9000094 |
| 078 | 1.00 | 9000095 |
| 079 | 1.00 | 9000096 |
| 080 | 1.00 | 9000097 |
| 081 | 1.00 | 9000099 |
| 082 | 1.00 | 9000100 |
| 083 | 1.00 | 9000101 |
| 084 | 1.00 | 9000102 |
| 085 | 1.00 | 9000103 |
| 086 | 1.00 | 9000105 |
| 087 | 1.00 | 9000107 |
| 088 | 1.00 | 9000108 |
| 089 | 1.00 | 9000109 |
| 090 | 1.00 | 9000111 |
| 091 | 1.00 | 9000112 |
| 092 | 1.00 | 9000113 |
| 093 | 1.00 | 9000114 |
| 094 | 1.00 | 9000115 |
| 095 | 1.00 | 9000117 |
| 096 | 1.00 | 9000119 |
| 097 | 1.00 | 9000121 |
| 098 | 1.00 | 9000122 |

R O Exam P W R Reactor
Organized by Question Number

| <u>QUESTION</u> | <u>VALUE</u> | <u>REFERENCE</u> |
|-----------------|--------------|------------------|
| 099 | 1.00 | 9000123 |
| 100 | 1.00 | 9000124 |
| | ----- | |
| | 100.00 | |
| | ----- | |
| | ----- | |
| | 100.00 | |

R O Exam P W R Reactor
Organized by KA Group

PLANT WIDE GENERICS

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 093 | 1.00 | 194001A101 |
| 100 | 1.00 | 194001A102 |
| 089 | 1.00 | 194001A103 |
| 088 | 1.00 | 194001A106 |
| 090 | 1.00 | 194001A109 |
| 099 | 1.00 | 194001A111 |
| 092 | 1.00 | 194001A112 |
| 091 | 1.00 | 194001K101 |
| 094 | 1.00 | 194001K102 |
| 095 | 1.00 | 194001K102 |
| 096 | 1.00 | 194001K103 |
| 097 | 1.00 | 194001K103 |
| 098 | 1.00 | 194001K103 |
| ----- | | |
| PWG Total | 13.00 | |

PLANT SYSTEMS

Group I

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 038 | 1.00 | 001000A401 |
| 062 | 1.00 | 001000K402 |
| 037 | 1.00 | 001000K403 |
| 059 | 1.00 | 003000A201 |
| 039 | 1.00 | 003000K301 |
| 058 | 1.00 | 003000K407 |
| 040 | 1.00 | 004000A207 |
| 041 | 1.00 | 004000A301 |
| 043 | 1.00 | 013000K101 |
| 042 | 1.00 | 013000K201 |
| 061 | 1.00 | 015000A302 |
| 044 | 1.00 | 015000K101 |
| 060 | 1.00 | 015000K301 |
| 045 | 1.00 | 015000K601 |
| 046 | 1.00 | 022000A301 |
| 047 | 1.00 | 022000A401 |
| 050 | 1.00 | 059000A103 |
| 049 | 1.00 | 059000G008 |
| 051 | 1.00 | 061000K201 |
| 052 | 1.00 | 061000K402 |
| 055 | 1.00 | 071000K404 |
| 056 | 1.00 | 072000G004 |
| 057 | 1.00 | 072000K104 |
| ----- | | |

R O E x a m P 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

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|-----------|
| PS-I Total | 23.00 | |

Group II

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 063 | 1.00 | 002000K108 |
| 065 | 1.00 | 006000A303 |
| 064 | 1.00 | 006000K506 |
| 067 | 1.00 | 010000A107 |
| 066 | 1.00 | 010000K403 |
| 068 | 1.00 | 011000A210 |
| 069 | 1.00 | 012000A306 |
| 070 | 1.00 | 012000K201 |
| 071 | 1.00 | 012000K603 |
| 072 | 1.00 | 012000K603 |
| 073 | 1.00 | 014000K403 |
| 048 | 1.00 | 026000K402 |
| 075 | 1.00 | 029000A301 |
| 076 | 1.00 | 033000A202 |
| 077 | 1.00 | 039000K106 |
| 079 | 1.00 | 062000A204 |
| 078 | 1.00 | 062000K201 |
| 054 | 1.00 | 063000A403 |
| 053 | 1.00 | 063000K103 |
| 080 | 1.00 | 064000A203 |
| ----- | | |
| PS-II Total | 20.00 | |

Group III

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 083 | 1.00 | 005000A204 |
| 081 | 1.00 | 005000A401 |
| 084 | 1.00 | 005000A401 |
| 082 | 1.00 | 005000K109 |
| 085 | 1.00 | 008000K401 |
| 074 | 1.00 | 028000A101 |
| 086 | 1.00 | 076000K116 |
| 087 | 1.00 | 078000K103 |
| ----- | | |
| PS-III Total | 8.00 | |
| ----- | | |
| ----- | | |

R O Exam P W R Reactor
Organized by KA Group

PLANT SYSTEMS

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|-----------|
| PS Total | 51.00 | |

EMERGENCY PLANT EVOLUTIONS

Group I

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 001 | 1.00 | 000005A105 |
| 002 | 1.00 | 000005K306 |
| 004 | 1.00 | 000015A107 |
| 005 | 1.00 | 000024A105 |
| 006 | 1.00 | 000024A202 |
| 027 | 1.00 | 000027K101 |
| 009 | 1.00 | 000040K101 |
| 008 | 1.00 | 000040K304 |
| 010 | 1.00 | 000051A202 |
| 011 | 1.00 | 000055A203 |
| 012 | 1.00 | 000057A218 |
| 013 | 1.00 | 000057A219 |
| 015 | 1.00 | 000067A216 |
| 014 | 1.00 | 000067G011 |
| 016 | 1.00 | 000068G010 |
| 017 | 1.00 | 000074A206 |
| 018 | 1.00 | 000074K311 |
| ----- | | |
| EPE-I Total | 17.00 | |

Group II

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 019 | 1.00 | 000007A104 |
| 020 | 1.00 | 000007K106 |
| 022 | 1.00 | 000008G010 |
| 021 | 1.00 | 000008K101 |
| 023 | 1.00 | 000009G010 |
| 003 | 1.00 | 000011G007 |
| 024 | 1.00 | 000022A108 |
| 025 | 1.00 | 000025A102 |
| 026 | 1.00 | 000025A103 |
| 007 | 1.00 | 000029K312 |
| 028 | 1.00 | 000033G011 |
| 030 | 1.00 | 000038G012 |
| 029 | 1.00 | 000038K306 |
| 031 | 1.00 | 000054G011 |

R O Exam P W R Reactor
Organized by KA Group

EMERGENCY PLANT EVOLUTIONS

Group II

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 032 | 1.00 | 000058A203 |
| 033 | 1.00 | 000061G010 |
| | ----- | |
| EPE-II Total | 16.00 | |

Group III

| <u>QUESTION</u> | <u>VALUE</u> | <u>KA</u> |
|-----------------|--------------|------------|
| 034 | 1.00 | 000028A202 |
| 035 | 1.00 | 000036G010 |
| 036 | 1.00 | 000056K104 |
| | ----- | |
| EPE-III Total | 3.00 | |
| | ----- | |
| EPE Total | 36.00 | |
| | ----- | |
| | ----- | |
| Test Total | 100.00 | |