U.S. NUCLEAR REGULATORY COMMISSION
OPERATOR LICENSING EXAMINATION REPORT

Examination Report No.:	92-18 (OL)
Facility Docket No.:	50-333
Facility License No.:	DRP-59
Licensee:	New York Power Authority James A. FitzPatrick Nuclear Power Plant Post Office Box 41 Lycoming, New York 13093
Facilities:	J. A. Fitzpatrick
Examination Dates:	October 26 - November 6, 1992
Examiners:	A. Burritt, Operations Engineer T. Fish, Senior Operations Engineer D. Prawdzik, Examiner, EG&G M. Parrish, Examiner, EG&G

Chief Examiner: _____ 12-31-92
A. Burritt, Operations Engineer — Date

Approved by: _____ 12-31-92
Richard J. Conte, Chief — Date
BWR Section
Operations Branch, DRS

EXAMINATION SUMMARY

Initial examinations were administered to one senior reactor operator (SRO) upgrade, five SRO instant and five reactor operator (RO) candidates. Four of six SRO and four of five RO applicants passed both portions of the examinations. Two SRO instants did not pass the operating examination and one RO did not pass the written examination.

In general, the applicants were well prepared for the examinations. The applicants' effective communications and teamwork during the simulator portion of the examination were a noted strength. RO performance on the written portion of the examination appeared to be notably weaker than that of the SROs. The RO scores averaged over five points lower than the SRO scores. The RO weaknesses appear to be focused on selected areas as indicated by section 3.1 of this report. The facility staff readily cooperated with the NRC Examiners during the examination preparation and administration and strengths and weaknesses were identified as feedback to the licensee's training program. .

While conducting the operating portion of the tests, the examiners noted deficiencies in the areas of Emergency Operating Procedure (EOP) locker control, procedure adequacy, and identification of Emergency Response Planning Areas (ERPAs). To summarize, EOP lockers had either missing or faulty locks and inadequate inventories; four procedures, in particular OP-22, "Diesel Generator Emergency Power," lacked consistent guidance with respect to emergency load limits; and the method used to identify ERPAs is susceptible to non-conservative errors. The facility agreed to review these observations and take appropriate corrective actions. Section 4.0 of this report has the details.

DETAILS

1.0 INTRODUCTION

The NRC examiners administered initial examinations to one Senior Reactor Operator (SRO) upgrade, five SRO instant, and five Reactor Operator (RO) applicants. The examinations were administered in accordance with NUREG-1021, Examiner Standards, Revision 6. The results of the examination are summarized below:

	SRO Pass/Fail	RO Pass/Fail
Written	6/0	4/1
Operating	4/2	5/0
Overall	4/2	4/1

2.0 PREEXAMINATION ACTIVITIES

The facility reviewed the written examinations in the facility training center from October 13 - 16, 1992. The review team included the Operations Training Supervisor, the License Operator Replacement Program Administrator, one licensed Senior Reactor Operator, and two licensed Reactor Operators from the operations group. The simulator scenarios and JPMs were validated October 13 - 15, 1992, on the facility simulator. The facility staff who were involved with these reviews signed security agreements to ensure that the examination was not compromised.

3.0 EXAMINATION FINDINGS AND OBSERVATIONS

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

3.1 Written Section

The following subjects were missed by at least three of the six SRO candidates, indicating a weak performance in these areas:

- Knowledge of the requirements to have a Senior Reactor Operator on the refuel floor during core alterations with no other concurrent responsibilities;
- Knowledge of which activities require an instruction or a procedure;
- Knowledge of the hydrogen concentrations (percent volume in air) that will result in an explosive mixture;

- Knowledge of the number of safety/relief valve (SRV) operations provided by the accumulator following loss of pneumatic supply to the SRV;
- Knowledge of the challenge to containment from a failure to scram transient with a full main steam isolation valve closure;
- Knowledge of the initial effect of a sustained loss of shutdown cooling during refueling;

The following subjects were missed by at least three of the five RO candidates, indicating a weak performance in these areas:

- Knowledge of overtime requirements;
- Knowledge of the hydrogen concentrations (percent volume in air) that will result in an explosive mixture;
- Knowledge of conditions when concurrent dual verification is permitted in lieu of independent verification;
- Knowledge of why the rod worth minimizer is not required to be operable when power is greater than the low power setpoint;
- Knowledge of the system/plant response to a recirculation flow unit failed downscale;
- Knowledge of the plant response to a turbine trip on low vacuum with one turbine stop valve failing to shut;
- Knowledge of the challenge to containment from a failure to scram transient with a full main steam isolation valve closure;
- Knowledge of what method of rod insertion will result in the largest differential pressure across a control rod drive piston;
- Knowledge of the initial effect of a sustained loss of shutdown cooling during refueling;
- Knowledge of the plant response to loss of both divisions of 24 volt DC power;
- Knowledge of the reason for the RPV level band (177" to 222.5") identified in procedure EOP-2, "RPV Control";

- Knowledge of the effect from a small leak into the drywell on RPV level instruments at the control room panel 9-5;

3.2 Walk-through Section

The following assessments were based on observations of at least 4 candidates

Strengths

- Use of operator aids: During performance of in-plant JPMs candidates traced through P&IDs posted as operator aids, prior to task performance. This tracing was performed to review system flowpaths and the potential effects of task implementation on the system/plant.

- Use of electrical prints: The candidates routinely demonstrated effective use of electrical prints while verifying answers to JPM follow-up questions concerning interlocks, logic and system response.

Weaknesses

- SROs inconsistent use of Emergency Plan Implementing Procedures for protective action recommendations: When determining emergency response planning areas (ERPAs) requiring shelter and/or evacuation, candidates used procedure EAP-18, "Protective Action Recommendations," figure 18.6 in some cases and EAP-7.1, "Emergency Out-Of-Plant and Downwind Surveys," figure 7.1.6 in others. The cause appears to be procedural deficiencies that are discussed in section 4.3 of this report.

3.3 Simulator Section

The following assessments were based on observations of at least two different crews

Strengths,

- Effective communications, particularly excellent use of formal repeat backs and three way communication techniques.

- Methodical approach to operation and procedure compliance: When RO candidates were distracted during performance of an evolution, they kept the SRO informed of task status and always got back and completed the task when time permitted.

- Effective teamwork practices as follows:

  RO candidates told the SRO when they were overloaded with tasks to perform;

  RO candidates asked for a priority when given multiple tasks;

  RO candidates told the SRO when they were available to perform additional tasks;

Weaknesses

- Ineffective monitoring of key reactor parameters (Reactor power, water level, and pressure) as indicated by the following observations:

  Several minutes passed between reports of key parameters during rapid transients;

  Key parameter values associated with EOP milestones and transition points (i.e., top of active fuel and -43" reactor water level) not consistently announced;

  The candidates did not consistently provide trends with parameter information;

- Ineffective monitoring and control of emergency diesel generator (EDG) loading during a loss of site power with only one EDG available: Both crews examined with this scenario did not reduce EDG loading to less than or equal to 2600 KW as required by procedure OP-22, "Diesel Generator Emergency Power" step G.1.5.a. When low pressure injection flow was increased, the examiners noted EDG loads as high as 3600 KW. Procedural deficiencies are discussed in section 4.2 of this report.

3.4 Examination Process Observations

The facility training staff was highly sensitive to the need for examination security. They provided a well thought out and comprehensive plan to avoid any appearance of compromise. In particular were the measures taken during the simulator portion of the examination. These measures included the use of multiple rooms for group separation, escorts, prescripted transit routes, and separate restroom facilities for each group.

The simulator operator effectively sequenced and coordinated job performance measure (JPM) implementation on the simulator. This effort allowed two candidates to be examined on the simulator simultaneously, yet prevented overlap and minimized examination delays.

4.0 OTHER EXAMINATION-RELATED FINDINGS

4.1 In-Plant Observations

The examiners noted that access into the plant and through the radiological control areas was smooth.

While performing in-plant JPMs three EOP/AOP lockers were accessed. In each of the three cases locker control and inventory were inadequate. The examiner and candidate opened both control rod drive (CRD) vent rig cabinets; neither cabinet was locked and they were both missing required equipment. These cabinets were missing a copy of AOP-38 along with a large wrench to connect and secure the CRD vent rig hose. The relay room cabinet was also entered and in this case a break-away type lock was removed without damage. Operations personnel determined the lock was faulty and replaced it. The locker did not contain fuse pullers required for deenergizing a stuck open safety relief valve in accordance with AOP-36, "Stuck Open Relief Valve(s). The inventory list did not include fuse pullers, however this would be the most appropriate place to store fuse pullers for prompt task implementation by an operator in the field. The unit was shut down at the time of the findings.

During the exit meeting, New York Power Authority representatives committed to promptly review the EOP locker status and correct any deficiencies immediately. Prior to restart of the unit, the NRC reviewed the licensee control of EOP equipment in inspection report 50-333/92-14 and no deficiencies were identified. This issue is considered closed.

4.2 Procedure Changes

During the operating portion of the examination, the examiners identified the following procedures as potentially requiring changes. The examiners discussed their observations with the Licensed Operator Replacement Program Administrator.

1. Procedure OP-22, "Diesel Generator Emergency Power," does not provide consistent guidance for emergency diesel generator (EDG) loading for the condition when only one EDG is available for each emergency bus. For example, the operating sections of the procedure direct operators to limit EDG loading to 2600 KW. However, the system description section of the procedure mentions additional load limits; up to 3050 KW under certain conditions.

   It appears that the limit (2600 KW) imposed by the operating section unnecessarily prohibits EDG operation above this point, even when additional loading may be required for event/accident mitigation. The extended EDG load limits described in the system description section would allow operation above 2600 KW, but yet remain within the EDG capability. This additional load flexibility would enhance the operators capability to combat degraded plant conditions.

2. Indications of thermal hydraulic instability contained in AOP-8, "Loss of Reactor Coolant Flow," and AOP-62, "Loss of Feedwater Heating," are not consistent with RAP-7.3.16, "Plant Power Changes." During the operating examination, one candidate was noted to have incorrectly assessed indications of thermal hydraulic instability when using reference RAP-7.3.1.

3. Procedure OP-19, "Reactor Core Isolation Cooling System," section/step E.1.3 does not provide clear guidance on which RCIC system valves should be closed when RCIC is in a standby lineup. This step describes control positions and valves required to be open and then simply states, "all other valves - closed." This methodology does not provide a concise list of closed valves that operators could use during system alignment verifications.

4. Procedure ST-11, "Off-Gas Rad Monitor Instrument Functional Test," does not contain a precaution or a note to alert operators that in the trip test mode, if the test setpoint is left static for 3 minutes the monitor will shift to the Inop mode causing a channel trip. Also, the procedure does not provide remedial guidance if this inadvertent channel trip occurs.

New York Power Authority representatives acknowledged these four findings and committed to review the procedures and make appropriate changes. The NRC will review these items in a future inspection and the issues are unresolved (50-333/92-18-01).

4.3 Protective Action Recommendation Methods

The emergency plan implementing procedure EAP-18, "Protective Action Recommendations," does not appear to provide sufficient guidance for the operators to determine emergency response planning areas (ERPAs). Shelter and/or evacuation recommendations for these areas is mandatory for General Emergency (GE) declarations. During rapidly degrading plant conditions the Shift Supervisor (SS) may have to make the GE declaration and subsequent protective action recommendations (PARS) without assistance from the Technical Support Center. Procedure EAP-18, "Protective Action Recommendations," does not provide a method for determining the affected sectors, or establish the size of the downwind sector to be considered for the case described above. Figure EAP 18.6, "Protective Action Map ERPA's," illustrates the ERPAs, but does not provide compass reference marks for accurate application of wind direction. EAP-18 section/step 4.2.3.1.G.2 identifies the downwind area as 22.5 degrees on either side of the indicated wind direction. This guidance appears appropriate; however, it is not in the procedure path taken during the initial PAR required for the scenario above. The candidates made shelter/evacuate recommendations by folding a piece of paper to make a 45 degree sector and then attempted to center this sector along the estimated wind vector they had applied to figure EAP-18.6. ERPAs were then identified based on the areas enclosed by the 45 degree sector. Facility training personnel stated this is an acceptable method and is discussed in Emergency Plan training.

Because figure 18.6 has no compass markings, the SS is forced to estimate where on the figure he should apply the wind vector. Applying major directions, such as N, S, E, or W would be straightforward. However, applying almost any other vector, for example one of 117 degrees, would be difficult; an estimate would have to do. Any such estimate would likely be made more inaccurate by the crude, paper-folding method of determining 22.5 degrees on either side of the wind vector. The net effect of these rough calculations could be an incorrect ERPA determination, resulting in ERPAs requiring shelter or evacuation not included in the PAR that is developed.

New York Power Authority representatives stated that they would review the procedure in question and make changes as appropriate. This matter is unresolved (333/92-018-02) pending a review of the corrective actions to ensure proper ERPA determination.

4.4 Summary

The examiners noted 1) instances of EOP lockers which had either missing or faulty locks and inadequate inventories; 2) examples of procedures, in particular OP-22, which lacked clear guidance, and 3) the method for making PARs is susceptible to non-conservative errors. The facility agreed to review these observations and take appropriate corrective actions.

5.0 UNRESOLVED ITEMS

Unresolved items are matters about which more information is required in order to determine whether they are acceptable, an item of non-compliance or a deviation. Unresolved items disclosed during the inspection are discussed in Section 4.2 and 4.3.

6.0 EXIT MEETING

An exit meeting was conducted November 6, 1992, following the administration of the examinations. Exit attendees are listed in Attachment 5. The facility presented their comments on the written examinations (Attachment 3). The NRC exam team discussed generic findings regarding the applicants performance and training program strengths.

ATTACHMENT 1

Nuclear Regulatory Commission
Operator Licensing
Examination

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Official Use Only category on
date of examination.

NRC Official Use Only

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

CANDIDATE'S NAME: _____

FACILITY: Fitzpatrick

REACTOR TYPE: BWR-GE4

DATE ADMINISTERED: 92/10/26

INSTRUCTIONS TO CANDIDATE:

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

TEST VALUE	CANDIDATE'S SCORE	%	
100.00	_____	___ %	TOTALS

FINAL GRADE

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

_____
Candidate's Signature

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

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

MULTIPLE CHOICE

001	a	b	c	d	___
002	a	b	c	d	___
003	a	b	c	d	___
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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

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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 ___

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099 a b c d ___

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(********** 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)

Given the following conditions:

Today's date is October 26, 1992.
A fully trained, male radiation worker is 25 years old today.
He has a current NRC Form 4 on record.
His previous lifetime whole body exposure is 31 Rem.
He has no radiation exposure this year to date.

What is the MAXIMUM whole body radiation exposure for 1992 available for use by this individual in accordance with 10 CFR 20 without invoking limits for emergency and accidental exposure?

a. 1000 mrem

b. 2000 mrem

c. 3000 mrem

d. 4000 mrem

QUESTION: 002 (1.00)

Which of the following describes the minimum watchstanding requirements in order to maintain an "Active" license?

a. Two 8 hour shifts each calendar month.

b. Six 8 hour shifts per calendar quarter.

c. Seven 8 hour shifts during any three month period.

d. Seven 8 hour shifts each calendar quarter.

QUESTION: 003 (1.00)

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

Monday	--	Scheduled day Off
Tuesday	--	7 am to 7 pm
Wednesday	--	7 am to 5 pm
Thursday	--	7 am to 3 pm
Friday	--	7 am to 3 pm
Saturday	--	7 am to 3 pm
Sunday	--	7 am to 9 pm

CHOOSE the work schedule for the following Monday that is the MAXIMUM allowed without written authorization by the Resident Manager or Superintendent of Power.

a. 5 am to 5 pm

b. 7 am to 3 pm

c. 7 am to 5 pm

d. 7 am to 7 pm

QUESTION: 004 (1.00)

Which of the following describes the requirements on physical location of licensed personnel in the control room?

a. The NCO may be temporarily absent from the "At the Controls Area" in order to respond to alarms at the back panels.

b. The NCO may leave the "At the Controls Area" provided that the SNO or ASS is in the control room.

c. When there is fuel in the reactor, a senior licensed operator must remain in the control room at all times.

d. At least two licensed Senior Reactor Operators shall be present in the control room during startup or planned shutdown.

QUESTION: 005 (1.00)

Which of the following would constitute a "Radiation Area"?

a. An accessible area where a person could accumulate a whole body dose greater than 100 mrem in 5 consecutive days.

b. An accessible area where a person could receive a whole body dose greater than .5 mrem in one hour.

c. Any area where measurable neutron radiation is detected.

d. Any area designated as a Contaminated Area.

QUESTION: 006 (1.00)

In order to protect the health and safety of the public, an action which departs from Technical Specifications is required to be immediately performed by a licensed reactor operator.

Which of the following describes the course of action this operator is permitted to take?

a. Immediately take whatever action is required without further direction.

b. Notify the Senior Nuclear Operator then perform the required action.

c. Perform the required action then notify the Senior Nuclear Operator or Shift Supervisor of his action.

d. Obtain approval from the Shift Supervisor and then perform the action.

QUESTION: 007 (1.00)

Which of the following describes the method used for independently verifying a locked throttled valve?

a. Remove the locking device, carefully close the valve counting the turns then reopen it the same number of turns, reapply the locking device to the valve, record the as left position.

b. Independent verification of this valve cannot be performed, place an "NA" in the signature space for this valve.

c. Since it is already locked, the valve may be assumed to be throttled in the correct position. The verification may be signed off as complete.

d. Independent verification may be accomplished by observing the action of the person initially setting the valve with the independent verifier in attendance.

QUESTION: 008 (1.00)

Which of the following describes the required actions if during a valve lineup independent verification, you find a valve to be mispositioned open?

a. Contact the person performing the initial valve lineup. Have him properly position the valve before verification.

b. Leave the valve as found and inform the Shift Supervisor of the unexpected valve position.

c. Inform the person performing the initial lineup that a mistake was made. Close the valve as required by the lineup.

d. Inform the Senior Nuclear Operator of the mispositioned valve. Close the valve as required by the lineup.

QUESTION: 009 (1.00)

During accident conditions, which of the following Hydrogen concentrations (percent volume in air) will result in an explosive mixture?

a. 5%

b. 30%

c. 80%

d. 90%

QUESTION: 010 (1.00)

Which of the following is the MINIMUM time an operator must abstain from consumption of alcohol prior to reporting for any scheduled shift?

a. 8 hours

b. 6 hours

c. 5 hours

d. 3 hours

QUESTION: 011 (1.00)

While returning RBCLC pump "A" to service following maintenance, which of the following is the correct sequence for removing tags and valving in the pump?

a. Open the discharge valve, then open the suction valve, close the vent or drain valve, remove the tag(s) on the motor controls,.

b. Close the vent or drain valve, open the suction valve, open the discharge valve, remove the tag(s) on the motor controls.

c. Remove the tag(s) on the motor controls, open the suction valve, open the discharge valve, close the vent or drain valve

d. Remove the tag(s) on the motor controls, close the vent or drain valve, open the discharge valve, open the suction valve, .

QUESTION: 012 (1.00)

While closing the reactor water cleanup outboard isolation valve (12MOV-18), the following indications occur:

Both valve position indicating lights above the switch extinguish.
The annunciator for "Valve Overload or Power Loss" is received.
The valve indicates mid position on the 09-4 graphic display.

Which of the following could account for the present status of 12MOV-18?

a. Tripped thermal overload

b. Tripped supply breaker

c. Tripped torque switch

d. Closing relay (42C) burned out

QUESTION: 013 (1.00)

Which of the following would permit "concurrent dual verification" in lieu of independent verification of an approved jumper/lifted lead to a plant system?

a. The installation is in a radiation area of 100 mr/hr.

b. The installation is in a confined space.

c. Immediate system response is expected.

d. Immediate installation is necessary to prevent a scram.

QUESTION: 014 (1.00)

Which of the following is indication that a Safety Relief Valve (SRV) vacuum breaker has failed in the open position during SRV operation?

a. Direct pressurization of the suppression chamber air space each time the SRV is opened.

b. Steam bypassing the relief valve T-quenchers with a direct discharge path into the suppression pool.

c. An increase in drywell to torus differential pressure.

d. Suppression pool water being drawn up into the SRV discharge line after the SRV is closed.

QUESTION: 015 (1.00)

The following plant conditions exist:

Automatic Depressurization System	- actuated
Reactor water level	- 50 inches
All RHR pumps	- running
Both Core Spray (CS) pumps	- running
120 second timer	- timed out
7 ADS SRVs	- open
Reactor pressure	- 150 psig and decreasing

WHICH of the following will cause the Automatic Depressurization System SRV's to close and remain closed without further operator action?

a. One ADS Normal/Override switch is placed in "OVERRIDE".

b. Water level is raised above 59.5 inches.

c. Water level is raised above 177 inches.

d. All RHR and CS pumps are stopped.

QUESTION: 016 (1.00)

The following plant conditions exist:

Reactor power is 100%.
RCIC Pump and Valve Operability Test is in progress with the RCIC turbine running. (ST-24A)
Torus temperature is 85 degrees F and increasing 3 degrees F every 15 minutes.
All other plant parameters are normal.

Select the MAXIMUM amount of time the test can continue assuming the current trend continues.

a. 120 minutes

b. 100 minutes

c. 80 minutes

d. 50 minutes

QUESTION: 017 (1.00)

An ATWS has occurred and the following conditions exist:

Reactor power	- 20% on APRMs.
Reactor water level	- 200 inches
Drywell pressure	- 1.1 psig.
All scram valves	- open
SDV vent and drain valves	- shut.
Mode switch	- in SHUTDOWN

Which of the following describes resetting of the scram to allow draining of the Scram Discharge Volume?

a. The scram can be reset by placing the mode switch in STARTUP and placing the CRD Discharge Volume Bypass switch in "BYPASS".

b. The scram cannot reset because the mode switch is in SHUTDOWN.

c. The scram can be reset by placing the CRD Discharge Volume Bypass switch in "BYPASS".

d. The scram cannot be reset because a scram signal exists.

QUESTION: 018 (1.00)

Which of the following scrams is always required for all modes of operation?

a. Turbine control valve fast closure

b. APRM Inoperative

c. APRM Flow Referenced Neutron Flux

d. APRM fixed High Neutron Flux (120%)

QUESTION: 019 (1.00)

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

a. Normally energized, one valve will de-energize with each RPS channel to vent air header.

b. One valve powered from each RPS trip channel, either valve must energize to vent the scram air header.

c. Both RPS channels must trip to deenergize either valve, both valves must deenergize to vent the air header.

d. Both RPS channels must trip to energize either valve, one valve must energize to vent the air header.

QUESTION: 020 (1.00)

Which of the following describes a properly orientated standard fuel bundle?

a. Orientation lugs (boss) on the bail handle points away from the center of the control rod of the four bundle array.

b. The channel spacer buttons face the control rod of the four bundle array.

c. Serial number on the bail handle is readable from the outside edge of the fuel cell.

d. Channel fastener is located on the outside edge of the four bundle array.

QUESTION: 021 (1.00)

Once the Standby Liquid Control system has been initiated, boron injection may be terminated when:

a. suppression pool temperature decreases below 110 F.

b. SLC tank is empty.

c. All control rods are inserted to or beyond position 02.

d. Reactor power decreases to less than 2.5%.

QUESTION: 022 (1.00)

Which of the following describes the response of the Scram Discharge Volume (SDV) valves following a half scram signal?

a. SDV vent and drain solenoid valves do not change position.
All SDV Vent and drain valves remain open.

b. One SDV vent and drain solenoid valve repositions.
All SDV Vent and drain valves remain open.

c. One SDV vent and drain solenoid valve repositions.
One set of SDV vent and drain valves close.

d. One SDV vent and drain solenoid valve repositions.
All SDV vent and drain valves close.

QUESTION: 023 (1.00)

Which of the following Reactor Protection System automatic scrams is bypassed when the mode switch is taken from "RUN" to "STARTUP"?

a. Turbine Stop Valve Closure

b. Main Steam Line Isolation Valve Closure

c. Scram Discharge Instrument Volume Hi Level

d. Main Steam Line Radiation Hi-Hi Rad

QUESTION: 024 (1.00)

Which of the following is a Safety Limit violation?

a. With the Reactor shutdown, water level drops to +5 inches and is then recovered.

b. MCPR momentarily reaches 1.18 during a loss of feedwater transient.

c. Reactor power is increased to 21% with pressure less than 785 psig.

d. A core performance daily surveillance shows CMFLPD equal to 1.03.

QUESTION: 025 (1.00)

The following conditions exist during a major plant transient:

Drywell Temperature	250 deg F
Torus water level	15 feet
Torus water temperature	95 deg F and constant
Drywell pressure	25 psig and increasing
Torus air temperature	165 deg F
Reactor water level	50 inches and slowly increasing
Reactor pressure	385 psig

Which of the following operator actions must be performed to initiate drywell sprays?

a. Place drywell spray control in NORMAL and then throttle open DW SPRAY INBOARD VALVE 10MOV-31A/B.

b. Place drywell spray control in MANUAL, open DW SPRAY OUTBOARD VALVE MOV-26A/B and throttle DW SPRAY INBOARD VALVE 10MOV-31A/B.

c. Place drywell spray control in MANUAL and then throttle open DW SPRAY OUTBOARD VALVE MOV-26A/B

d. Place drywell spray control in NORMAL, open DW SPRAY INBOARD VALVE MOV-31A/B and throttle DW SPRAY OUTBOARD VALVE 10MOV-26A/B.

QUESTION: 026 (1.00)

Which of the following describes why the charging water header to the Hydraulic Control Unit (HCU) Accumulator should NOT exceed a MAXIMUM of 1670 psig?

a. Ensure control rod insertion speeds are not excessive during a scram.

b. Minimize leakage and resultant damage to the scram valves.

c. Prevent damage to the CRD mechanism during a scram.

d. Prevent damage to the accumulator during a scram from high differential pressure.

QUESTION: 027 (1.00)

During a scram from 100% power, which of the following describes a control rods' response if it's CRD Hydraulic Control Unit accumulator piston does NOT move?

NOTE: (Assume the accumulator is mechanically bound up.)

a. The control rod will fully insert using charging water pressure.

b. The control rod will insert until reactor and CRD pressures equalize.

c. The control rod will insert until the CRD flow control valve opens.

d. The control rod will fully insert using reactor pressure.

QUESTION: 028 (1.00)

Which of the following condition(s) for the Reactor Building Ventilation Exhaust Monitoring System is the MINIMUM which must occur in order to start the Standby Gas Treatment System?

a. One Downscale trip

b. One Downscale trip and one HI trip

c. One HI-HI trip

d. One Inop trip

QUESTION: 029 (1.00)

The main condenser low vacuum MSIV isolation signal will be automatically bypassed by:

a. turbine Stop Valves closed OR the Mode switch out of the RUN position.

b. turbine Bypass Valves closed OR the Mode switch out of the RUN position.

c. turbine Stop Valves closed AND the Mode switch out of the RUN position.

d. reactor pressure greater than 825 psig.

QUESTION: 030 (1.00)

The following conditions exist:

An ATWS is in progress
Standby Liquid Control Pump "A" is running and injecting to RPV.

Select the reason that the Boron injection rate should not be increased by local operation of SLC Pump "B".

a. The "B" system squib valves will not fire.

b. The relief for SLC pump "B" will lift making it ineffective.

c. Excess discharge pressure will lift both pump reliefs reducing Boron injection flow.

d. Excessive injection rate could result in power chugging.

QUESTION: 031 (1.00)

A single control rod scram will ALWAYS result in each of the following EXCEPT:

a. Control Rod Block Annunciator.

b. HCU TROUBLE Annunciator.

c. Control Rod Drift Annunciator.

d. Blue SCRAM light on full core display.

QUESTION: 032 (1.00)

RWCU system blowdown to the Main Condenser is in progress.

Which of the following is the adverse effect of opening RWCU 12MOV-56, BLOWDOWN TO CNDSR and RWCU MOV-57, BLCWDOWN TO RADW at the same time?

a. Formation of a void space could occur causing excessive water hammer downstream of the Blowdown Flow Control Valve 12FCV-55.

b. Any vacuum in the condenser could be lost via radwaste.

c. Excessive blowdown flow could cause a RWCU isolation due to pump cavitation.

d. Excessive blowdown flow could place excessive heat load on the regenerative heat exchanger.

QUESTION: 033 (1.00)

Which of the following rod motion sequences does NOT open the "settle" valve (directional control valve 120)?

a. Withdrawal (One Notch)

b. Emergency Rod Insertion

c. Continuous Rod Insertion

d. Withdrawal (Notch Override)

QUESTION: 034 (1.00)

Which of the following is indication of an uncoupled control rod when fully withdrawing a control rod?

a. Rod position indication will momentarily go blank and the ROD DRIFT annunciator alarms.

b. Rod position indication goes blank and ROD OVERTRAVEL annunciator alarms.

c. Red FULL OUT lights illuminate and ROD OVERTRAVEL annunciator alarms.

d. Red FULL OUT lights extinguish and rod position indication will momentarily go blank.

QUESTION: 035 (1.00)

Which of the following will generace a rod block with the Reactor Mode Switch in "Refuel"?

a. The refuel platform is over the fuel pool and is moving a fuel bundle.

b. The refuel platform is over the core, and one control rod is withdrawn to position 24.

c. The refuel platform is over the core and the fuel grapple is not full up.

d. The refuel platform is over the fuel pool and the trolley mounted hoist is loaded.

QUESTION: 036 (1.00)

If no automatic initiation condition is present, which of the following will by itself trip the RCIC turbine AND cause RCIC to isolate?

a. Manual isolation pushbutton

b. Manual turbine trip

c. Turbine exhaust pressure high

d. Steam supply pressure low

QUESTION: 037 (1.00)

The High Pressure Coolant Injection (HPCI) pump is operating when an electrical malfunction closes CST suction isolation valve 23MOV-17. Which of the following is the expected system response?

a. The pump will trip on interlock with 23MOV-17.

b. The pump will trip on low suction pressure.

c. The system will automatically switch suction sources, pump continues to run.

d. The system will automatically switch suction sources, pump will trip during swapover.

QUESTION: 038 (1.00)

The following conditions exist:

The HPCI turbine was in operation but has tripped.
An auto-initiation condition is still present.
The turbine trip signal has cleared.

Select the turbine trip signal that MUST have operator action in order to restart the turbine.

a. Overspeed.

b. Low Steam Supply Pressure.

c. High Turbine Exhaust Pressure.

d. High HPCI Area Temperature

QUESTION: 039 (1.00)

The following plant conditions exist:

Level has decreased to less than 59 inches
ADS timer has actuated, but has not timed out
All RHR and CS pumps are running

Prior to any SRV's opening, level is increased to 100 inches.

Which of the following describes automatic ADS system response?

a. Timer sequence resets to zero when level increased above 59.5 inches, if level again goes below 59.5 inches, blowdown will occur in 120 seconds.

b. Timer sequence will stop and blowdown will only occur if level goes below 59.5 inches long enough to finish 120 second timer.

c. Timer will time out but blowdown will be inhibited unless level again goes below 59.5 inches, then immediate blowdown will occur.

d. Timer will continue and blowdown will occur on completion of 120 second timer countdown unless level goes above 177 inches.

QUESTION: 040 (1.00)

Why is the Rod Worth Minimizer NOT required to be operable when power is greater than the Low Power Setpoint?

a. The requirement to have each control rod manipulation second checked by another person ensures the correct sequence is maintained.

b. Above this power level, a power excursion from the worst possible single rod withdrawal error can not result in fuel damage.

c. Above this power level, a power excursion from the reactivity added during a single rod drop accident will not result in rapid fuel dispersal.

d. Above this power level, the established rod sequence provides enough control rod withdrawal limitations to keep fuel within the design LHGR Limits.

QUESTION: 041 (1.00)

While at power which of the following systems will initiate an automatic isolation of main condenser air ejector discharge flow to the stack?

a. Main Steam Line radiation Monitor

b. Off-Gas Radiation Monitor

c. Off-Gas Vent Pipe (stack) Radiation Monitor

d. Main Stack Radiation Monitor

QUESTION: 042 (1.00)

Which of the following is designed to ensure adequate net positive suction head for the reactor recirculation pumps?

a. Speed runback to 44% upon a RPV low level alarm.

b. Rate of speed increase limited to 2.5% per second

c. Master controller maximum output limit of 102.5%.

d. Speed limited to 26% if feed flow is less than 20%.

QUESTION: 043 (1.00)

Which of the following meets ALL requirements to withdraw rods for reactor startup?

a. 3 SRMs at 3.0 counts per second, 1 SRM at 2.0 counts per second.
All SRM detectors fully inserted.

b. 3 SRMs inserted far enough to provide 3.0 counts per second.
1 SRM channel in bypass.

c. 2 SRMs fully inserted at 3.0 counts per second.
2 SRMs inserted far enough to provide 3.0 counts per second.

d. 2 SRMs at 3.0 counts per second.
3 SRM detectors fully inserted

QUESTION: 044 (1.00)

The Nuclear Control Operator records the following integrator data four hours after the previous data was taken:

Floor drain sump leakage since last reading	- 576 gallons
Equipment drain sump leakage since last reading	- 2856 gallons
Floor drain base value leakage	- 2.2 gpm

Select the Reactor Coolant System Unidentified Leakage rate.

a. 2.4 gpm.

b. 4.6 gpm.

c. 11.9 gpm.

d. 14.3 gpm.

QUESTION: 045 (1.00)

Which of the following signals will NOT isolate the Drywell and Torus vent and purge valves?

a. Reactor Water Level	165 inches
b. Reactor Building Differential Pressure	+2"wg
c. Radiation Refuel Floor Ventilation	11,000 CPM
d. Drywell Pressure	2.9 psig

QUESTION: 046 (1.00)

Recirculation Flow Unit "A" has failed low downscale.

Select the expected response to bypassing this flow unit from panel 09-5.

a. The half scram and all control rod blocks will clear.

b. The RBM control rod block will clear.

c. The "FLOW REF OFF NORMAL" alarm will clear.

d. The "FLOW REF OFF NORMAL" alarm and all control rod blocks will clear.

QUESTION: 047 (1.00)

Reactor water level has decreased to 150 inches.

If level continues to decrease, which of the following automatic actions will occur next?

a. Group I isolation.

b. ARI initiation

c. Group II isolation

d. SBGT auto start

QUESTION: 048 (1.00)

Which of the following describes the automatic response of the primary containment isolation system to a valid high steam flow signal in the "A" main steam line?

a. Only the "A" steam line inboard and outboard MSIV will close.

b. Only channel A1 of the containment isolation logic will de-energize.

c. One solenoid on each MSIV will de-energize but no valve actuation will occur.

d. A Group 1 containment isolation signal will result.

QUESTION: 049 (1.00)

Which of the following would be an indication of a safety relief valve being open?

a. SRV tailpipe temperature rapid rise to 525 degrees.

b. SRV tailpipe temperature constant at 310 degrees F.

c. Increase in total steam flow wit' a decrease in reactor level.

d. Increase in total steam flow with constant generator output.

QUESTION: 050 (1.00)

Which of the following detrimental effects could occur if a Diesel Generator was continuously operated at 2000 KW?

a. Inadequate turbocharger cooling.

b. Turbocharger clutch problems.

c. Unburned fuel buildup in the air box.

d. Unburned fuel buildup in the exhaust manifold.

QUESTION: 051 (1.00)

Select the expected plant response to the loss of one feedwater pump while operating at full power with both Reactor Water Recirculation M/A transfer stations in manual?

a. Reactor recirculation pumps run back to 44% speed.

b. Reactor recirculation pumps run back when the RPV low level alarm is received until the alarm is clear.

c. Reactor recirculation pumps run back to 44% when the RPV low level alarm is received.

d. Reactor will scram on low RPV level if no operator action is taken.

QUESTION: 052 (1.00)

Which of the following describes the FIRST signal causing a control rod drift alarm when a scram occurs?

a. Rods other than the one selected are moving through odd numbered positions.

b. No insert signal is sent to the selected rod.

c. A non selected rod moves off its latched even numbered position.

d. When fully inserted the rods are not in a latched position.

QUESTION: 053 (1.00)

IF the drywell pneumatic supply system to the Safety/Relief Valves (SRV) is lost, select the SRV capability provided by the accumulator and check valve arrangement.

a. Five valve operations or hold valve open for 30 minutes

b. Remain capable of depressurizing the reactor under any condition

c. Operable for 100 days if no valve cycling is performed

d. Five valve operations for ADS valves only

QUESTION: 054 (1.00)

While operating in single loop, the following plant conditions exist:

Loop "A" jet pump flow	- 55 million lbm/hr
Loop "B" jet pump flow	- 5 million lbm/hr
"A" recirculation pump speed	- 1665 RPM
"B" recirculation pump speed	- 0 RPM
"B" recirculation pump discharge valve	- open
Reactor power	- 65%

Select the actual total core flow and the indicated total core flow from the core flow measurement system.

	ACTUAL	INDICATED
a.	50 million lbm/hr	- 60 million lbm/hr
b.	50 million lbm/hr	- 50 million lbm/hr
c.	60 million lbm/hr	- 50 million lbm/hr
d.	60 million lbm/hr	- 60 million lbm/hr

QUESTION: 055 (1.00)

The rod worth minimizer Low Power Setpoint (LPSP) is determined by:

a. The lowest APRM.

b. The lower of total feed or total steam flow.

c. Total feed flow.

d. Total steam flow.

QUESTION: 056 (1.00)

Which of the following will always result in an APRM INOP trip?

a. Less than two LPRMs per level input to the APRM.

b. Less than 14 LPRMs total input to the APRM.

c. Less than 55% output from the APRM count circuit.

d. More than three LPRMs bypassed for the APRM.

QUESTION: 057 (1.00)

The following running sequence has occurred for Recirculation Pump A:

Idle for greater than one hour
Started and run for 5 minutes then tripped
Idle for 20 minutes
Started and run for 5 minutes then tripped

Select the condition that must be met in order to start the pump again.

NOTE: Partial page 18 of OP-27 is provided.

a. Must be deenergized for 45 minutes.

b. Must be deenergized for 25 minutes.

c. Must be deenergized for 15 minutes.

d. May be restarted immediately.

QUESTION: 058 (1.00)

While performing a plant startup with reactor power at 5%, main condenser vacuum decreases to 22" Hg vacuum.

Which of the following automatic action(s) will occur?

a. Main turbine trip and reactor scram.

b. Group I isolation, reactor scram.

c. Main turbine trip only.

d. Reactor feed pump turbine trip.

QUESTION: 059 (1.00)

Which of the following will initiate Fire Protection Water Spray in Emergency Diesel Generator Room "A"?

a. One ionization smoke detector AND one flame detector in the protected area activated.

b. One ionization smoke detector OR one flame detector in the protected area activated and one fused sprinkler head activated.

c. Protected area high temperature switch actuation and loss of air pressure in the piping.

d. Protected area high temperature switch actuation and fused sprinkler head heat activation.

QUESTION: 060 (1.00)

Select the expected MAXIMUM increase in leak rate to the drywell if both seals on ONE reactor water recirculation pump should fail.

a. 3 to 5 gpm

b. 25 to 30 gpm

c. 60 to 70 gpm

d. 90 to 100 gpm

QUESTION: 061 (1.00)

The following conditions exist:

SDC isolation interlocks are clear
Both recirculation pumps are secured
RHR pump "A" has just been started in the SDC mode

Why must LPCI Outboard valve 10MOV-27 be opened to full system flow rate without delay?

a. Prevent draining reactor water to the torus through the minimum flow line.

b. Provide sufficient flow for adequate pump cooling.

c. Provide sufficient core flow to prevent stratification.

d. Ensure RHR piping remains full while keep full is secured.

QUESTION: 062 (1.00)

The following conditions exist:

The main condenser is experiencing excessive air in leakage
Reactor power is 45% and being decreased
The main turbine just tripped due to loss of vacuum
One turbine stop valve fails to close
All other turbine valves respond as expected

Which of the following describes the result of this failure?

a. Automatic fast transfer will be delayed until a unit lockout occurs on reverse power.

b. A reactor scram will occur on high reactor pressure or high neutron flux.

c. The MSIVs will need to be closed to limit reactor vessel cooldown rate.

d. Automatic transfer to reserve power for buses 10300 & 10400 will be delayed until voltage drops to 25% of normal.

QUESTION: 063 (1.00)

If DC control power is lost to a 4KV AC breaker, which of the following operations may be performed at the breaker?

a. Tripped open only.

b. Closed only (if open).

c. Closed (if open) and tripped open.

d. Closed (if open) then opened then closed.

QUESTION: 064 (1.00)

During power operation, region B of the power to flow map is unintentionally entered following the trip of one recirculation pump.

Which of the following actions should be taken immediately?

NOTE: Modified Power to Flow map (fig 1 of AOP-8) is provided.

a. Scram the reactor.

b. Restart the tripped recirculation pump to exit region B.

c. Raise the operating recirculation pump speed to exit region B.

d. Contact the Reactor Analyst Group for instructions.

QUESTION: 065 (1.00)

A reactor startup near peak Xenon conditions is in progress.

Select the range of control rod positions where unusually large control rod worths could be experienced.

a. 04 through 26

b. 04 through 32

c. 08 through 32

d. 08 through 40

QUESTION: 066 (1.00)

On increasing suppression pool temperature, a manual Scram is required prior to exceeding what temperature?

a. 95 deg F

b. 105 deg F

c. 110 deg F

d. 120 deg F

QUESTION: 067 (1.00)

Identify the reason that reactor power goes down when reactor water level is deliberately lowered during a failure to scram (ATWS) event.

a. Lowering RPV water level will result in further concentration of boron thus lowering the reactor power level.

b. Lowering RPV water level will increase reactor water temperature, adding negative reactivity due to reduced moderator density thereby reducing reactor power.

c. Lowering RPV water level will reduce natural circulation driving head and core flow, increasing voiding and thereby reducing reactor power.

d. Lowering RPV level reduces power by decreasing the subcooling of the water entering the core.

QUESTION: 068 (1.00)

A loss of RPS Bus "A" has occurred due to actuation of an Electrical Protection Assembly (EPA). Upon restoration of power to RPS Bus "A" only three (3) of the WHITE Scram solenoid indicating lights for RPS Bus "A" reenergize. All "B" side Scram indicating lights are energized.

Which of the following actions is appropriate?

a. Assume 1/4 of the control rods should have scrammed, depress both reactor scram push buttons.

b. Assume 1/4 of the control rods have received a 1/2 scram signal, continue operations and investigate.

c. Momentarily insert then clear an "A" side half scram to pick up the relay and energize the light.

d. Slightly raise the output voltage of the "A" RPS MG Set to energize the light.

QUESTION: 069 (1.00)

Select the REQUIRED action for a sustained reactor period of less than 30 seconds during reactor startup?

a. Manually scram the reactor.

b. Insert control rods until period is greater than 30 seconds.

c. Stop control rod movement until period decays to greater than 30 seconds.

d. Insert the selected control rod to its previous position.

QUESTION: 070 (1.00)

The following conditions exist:

An ATWS is in progress
Reactor power - 22%.
Reactor water level - 170 to 180 inches.
Reactor pressure - 960 psig

Which of the following is severely challenged if a full MSIV closure should occur?

a. Fuel integrity

b. CST Makeup availability

c. Containment integrity

d. Injection system operability

QUESTION: 071 (1.00)

Which of the following methods will result in the largest overall differential pressure across the Control Rod Drive piston for inserting control rods?

a. Open individual scram test switches.

b. Maximize CRD cooling water differential pressure.

c. Drive control rods using maximum drive pressure.

d. Vent the scram air header.

QUESTION: 072 (1.00)

While at full power, one MSIV has gone closed for an unknown reason resulting in expected Safety Relief Valve operation.
The following post transient plant conditions are noted:

Reactor pressure	- 1010 psig and stable.
Reactor Water Level	- 198 inches trending to normal.
Reactor power	- 99%.
Generator output	- dropped 30 Mwe.
SRV 02RV-71K	- lifted and has NOT reseated
SRV 02RV-71L	- lifted and reseated
Reactor Protection System	- No actuations have occurred.

Which of the following is the required action?

a. Continue operation and attempt to shut the SRV-71K by cycling the control switch and establish suppression pool cooling.

b. Establish suppression pool cooling, commence a reactor shutdown, cooldown to remain below the Heat Capacity Temperature Limit.

c. Scram, establish suppression pool cooling and enter EOP-2.

d. Reduce reactor power to less than 90% then enter abnormal procedure for Relief Valve Stuck Open (AOP-36'.

QUESTION: 073 (1.00)

Instrument air pressure is decreasing due to a pipe break in the reactor building. Loss of Instrument Air AOP-12 has been entered.

Which of the following requires a manual scram?

a. The "Scram Air Header Pressure Low" alarm is received.

b. Instrument air pressure has reached 65 psig.

c. The "Rod Drift" annunciator is in for control rod 40-17, NO other rods have moved.

d. Scram discharge volume vent and drain valves drift shut.

QUESTION: 074 (1.00)

Which of the following is the initial concern should a sustained loss of shutdown cooling occur when refueling is in progress?

a. Airborne release on the refueling floor.

b. Excessive radiation levels inside the upper drywell.

c. Fuel clad degradation.

d. Reduced core shutdown margin.

QUESTION: 075 (1.00)

Select the condition that requires entry into EOP-6, Radioactivity Release Control.

a. A primary system is discharging outside the primary and secondary containments.

b. Offsite radioactivity release rate is above the Emergency Plan "Alert" level.

c. Turbine building ventilation is isolated due to high radiation.

d. Loss of 2 of 3 fission product barriers with potential loss of the 3rd barrier.

QUESTION: 076 (1.00)

Why must the scram discharge volume vent and drain valves be verified closed after a scram has occurred?

a. To ensure there is no primary to reactor building leak.

b. To ensure that the CRD discharge path has sufficient back pressure.

c. To initiate the timer that allows scram reset after 10 seconds.

d. To maximize the CRD water going to the RPV.

QUESTION: 077 (1.00)

Which of the following states the effect of losing both divisions of the 24V DC power system while at power?

a. A reactor scram signal occurs if the mode switch is in STARTUP.

b. Loss of all SRM's and IRM's administratively prohibits a shutdown.

c. The main stack cannot be sampled for particulates and Iodine.

d. Reactor recirculation MG speed control will lock up.

QUESTION: 078 (1.00)

Which of the following requires an immediate reactor scram in response to a partial loss of coolant flow?

NOTE: Modified Power to Flow map (fig 1 of AOP-8) is provided.

a. APRM upscale alarm on two channels.

b. Core thermal power - 41%, Core flow - 33%

c. Core thermal power - 63%, Core flow - 44%

d. Core thermal power - 56%, Core flow - 34%

QUESTION: 079 (1.00)

When operating within the guidelines of [illegible] RPV/L, the prefered level range is between 177 inches and 222.5 inches.

Which of the following is a reason for this level band?

a. Preserves use of the condenser as a heat sink.

b. Feed and condensate systems may be used to maintain level.

c. This is the range of the automatic RPV level controller.

d. Preserves the availability of steam driven equipment.

QUESTION: 080 (1.00)

The following conditions exist:

Refueling is in progress
RHR loop A pumps are tagged out.
Maintenance on a leaking SRV is in progress in the drywell.
Both RHR loop B pumps have tripped and cannot be restarted.
Within 30 minutes of the RHR trip, coolant temperature has increased from 140 deg F to 200 deg F.

Which of the following actions MUST be taken in preference to the others?

a. Increase any running recirculation pump speed to maximum.

b. Maximize heat removal with the Reactor Water Clean Up system.

c. Establish secondary containment integrity.

d. Increase RHR heat exchanger cooling flow.

QUESTION: 081 (1.00)

With the plant initially at 100% power, the following has occurred:

One RBCLC pump tripped and the standby pump did not start.
One RBCLC pump is still running.
RBCLC pressure dropped to less than 40 psig and ESW started.
ESW is supplying RBCLC and pressure has increased to 75 psig.
No RBCLC loads have reached temperature limits.

Select the appropriate operator response:

a. Manually start the standby RBCLC pump and secure ESW.

b. Manually scram and enter both AOP-11(Loss of RBCLC) and AOP-1.

c. Determine and correct the cause of low pressure then secure ESW.

d. Investigate the cause and if temperatures increase then scram and enter AOP-11.

QUESTION: 082 (1.00)

Which of the following conditions REQUIRES entry into EOP-3 "Failure to Scram" after a Reactor Protection System Scram has been initiated?

Note: NO Reactor Analyst is available.

a. Reactor period is infinite.

b. Reactor power is 1%.

c. One center control rod stuck at position 48.

d. One control rod at position 02 and one control rod position is unknown.

QUESTION: 083 (1.00)

Which of the following will result from the loss of 125 VDC System "A"?

a. Loss of the backup scram function.

b. Alternate Rod Insertion System "A" will initiate.

c. Main Turbine trip.

d. Reactor Feed Pump "A" trip.

QUESTION: 084 (1.00)

Which of the following describes how the reactor building is protected from excess differential pressure?

a. The SBGT is not capable of achieving a negative pressure sufficient to damage the reactor building.

b. The reactor building door seals will leak sufficient to prevent excess differential pressure.

c. Only operator action is available to maintain the safe reactor building differential pressure.

d. A vacuum relief will lift greater than -5" water pressure in the reactor building.

QUESTION: 085 (1.00)

The following conditions exist:

A reactor startup is in progress
The mode switch is STARTUP
The main turbine is tripped
A valid Group I isolation has occurred
The reactor did not scram

Select the signal that generated the Group I isolation:

a. Main steam line tunnel temperature

b. Reactor water level

c. Main steam line radiation

d. Main steam line pressure

QUESTION: 086 (1.00)

There is a small leak into the drywell from the recirculation system. The leak does not depressurize the reactor but drywell temperature is rising.

Which of the following is the effect on panel 9-5 level instruments?

a. Indicated level may read below actual level.

b. Indicated level may read above actual level.

c. Reference leg flashing may occur causing erratic level indication.

d. Indicated level will be correct unless drywell temperature exceeds 212 deg F.

QUESTION: 087 (1.00)

The Emergency Diesel Generators (EDG) were automatically started by "Degraded" bus voltage conditions.

The EDG output breakers will automatically close 0.8 secs after meeting which of the following interlock conditions?

a. One double ended tie breaker open and EDG voltage 90%.

b. Both double ended tie breakers open and EDG bus loads tripped.

c. One double ended tie breaker open and EDG bus loads tripped.

d. EDG bus loads tripped and EDG voltage 90%.

QUESTION: 088 (1.00)

Which of following requires entry into EOP-5, "Secondary Containment Control"?

a. Water level of 1 inch in one crescent area.

b. Reactor building ventilation exhaust radiation level of 300 CPM.

c. Reactor building differential pressure of -3"wg.

d. Reactor building floor drain sump pump, 20-P-6B operating and maintaining sump level 1 inch below the high setpoint.

QUESTION: 089 (1.00)

With the plant initially at 100% power, a turbine trip has occurred. The following post trip conditions exist:

All control rods are at the pre turbine trip position
Reactor power is 50%
Scram lights for all HCU's are on
All RPS group lights are extinguished

Which pair of actions should BOTH be successful in causing control rod insertion?

a. Deenergize the scram solenoids
Perform manual scrams

b. Vent the scram air header
Insert rods with individual drive signals

c. Insert rods with individual drive signals
Vent the individual control rod overpiston volumes

d. Vent the scram air header
Vent the individual control rod overpiston volumes

QUESTION: 090 (1.00)

Which of the following describes plant response to a load rejection with the plant initially at 45% power?

a. A TCV fast closuro will occur on power to load imbalance and the reactor will scram on TCV fast closure.

b. A TCV fast closure will occur on power to load imbalance and the reactor will continue to operate using bypass valve and SRV's for pressure control.

c. The turbine will trip on reverse power interlock and the reactor will scram on high pressure or high flux.

d. The turbine will trip on power to load imbalance and the reactor will scram on turbine stop valve closure.

QUESTION: 091 (1.00)

While operating at full power, a turbine trip occurs and all automatic electrical systems function as designed.

Select the resultant power supply to 4160 volt emergency bus 10500.

a. Transformer T4 via bus 10300.

b. Transformer T3 via bus 10300

c. Transformer T2 via tie breakers 10402 and 10302.

d. Emergency Diesel generators "A" and "C".

QUESTION: 092 (1.00)

Which of the following is a load which is automatically supplied by Emergency Service Water (ESW) upon a loss of Reactor Building Closed Loop Cooling (RBCLC)?

a. RHR pump motor coolers.

b. Recirculation MG Fluid Drive coolers.

c. CRD pump bearing cooling.

d. Drywell equipment sump cooler.

QUESTION: 093 (1.00)

Five control rods failed to fully insert after a low RPV level reactor scram.
Which of the following is REQUIRED to insert the rods manually using RMCS system?

a. Use Emergency Rod Insertion to bypass all control rod blocks.

b. Reset and block ARI then use Emergency Rod Insertion or Continuous In movement.

c. Bypass the RWM and use Emergency Rod Insertion or Continuous In movement.

d. Shut 03CRD-56 (Chg Wtr Sup Hdr Isol Vlv) and use Emergency Rod Insertion or Continuous In movement.

QUESTION: 094 (1.00)

The reactor operator detects that one control rod has drifted out 6 notches and power is trending up. The rod can be driven inward.

Which of the following actions is required?

a. Negate the power increase by manually inserting the rod to its proper position.

b. Fully insert the control rod.

c. If a Rod Block Monitor out block does not stop the rod then manually scram the rod.

d. If more than one APRM HI alarm is received then manually scram the reactor.

QUESTION: 095 (1.00)

The following conditions exist:

The reactor has scrammed but not all rods fully inserted
SLC pump "A" is injecting boron into the RPV
CRD pump "A" is operating

A total loss of off site power occurs followed by both Emergency Diesel Generator systems automatically reenergizing their respective buses.

Select the AUTOMATIC pump response when the buses are reenergized.

a. CRD pump "A" only restarts

b. SLC pump "A" only restarts

c. CRD "A" and SLC "A" pumps restart

d. Neither pump restarts

QUESTION: 096 (1.00)

While operating at 100% power a total loss of instrument air occurs.

Select the subsequent system response.

a. Condenser vacuum breaker will fail open

b. Outboard MSIVs will drift closed.

c. Inboard MSIVs will drift closed.

d. Off Gas Disch to Stack valve (01-107AOV-100) will fail closed.

QUESTION: 097 (1.00)

Complete the following sentence.

When starting the second recirculation pump, the discharge valve is not opened unless the other pump speed is less than 50%, in order to:

a. limit pump thermal transient to less than 100 deg F/hr.

b. avoid excessive vibration of the jet pump risers.

c. reduce the reactor power transient from increasing flow.

d. limit the differential pressure across the discharge valve.

QUESTION: 098 (1.00)

Following a feedwater level control transient resulting in a reactor level of 225 inches, which of the following must be manually reset after level is restored to normal in order to have HPCI and RCIC in a standby lineup?

a. RCIC isolation, no action required for HPCI

b. HPCI isolation, no action required for RCIC

c. RCIC turbine trip, no action required for HPCI

d. HPCI turbine trip, no action required for RCIC

QUESTION: 099 (1.00)

During testing of HPCI, the Suppression Pool temperature increased to 104 deg F.

Which of the following describes the requirements for entry/implementation of EOP-4 "Primary containment Control"?

a. The actions of EOP-4 are required to be performed when suppression pool temperature is above 95 deg F.

b. EOP-4 actions may be deferred for 24 hours while suppression pool temperature is reduced below 95 deg F.

c. All HPCI test procedures allow 4 hours to reduce suppression pool temperature below 95 deg F prior to entering EOP-4.

d. Technical Specifications change the EOP limit to 105 deg F for 24 hours after completion of any testing which adds heat.

QUESTION: 100 (1.00)

Which of the following describes the effect of losing 125 VDC system "A" power to the ADS system with a valid initiation signal present?

a. ADS logic "B" will still initiate ADS
Only 4 ADS valves will open

b. ADS logic "A" will receive backup power from 125 VDC system "B"
All ADS valves will open

c. ADS logic "B" will still initiate ADS
All ADS valves will open

d. ADS logic "A" will receive backup power from 125 VDC system "B"
Only 4 ADS valves will open

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

An RPV water level instrument may not be used if either of the following conditions exists:

- An instrument run temperature is at or above the RPV Saturation Temperature (Fig 4.7)
- The instrument reads at or below its Minimum Usable Indicating Level (Fig 4.8)

FIGURE 4.7
RPV SATURATION TEMPERATURE

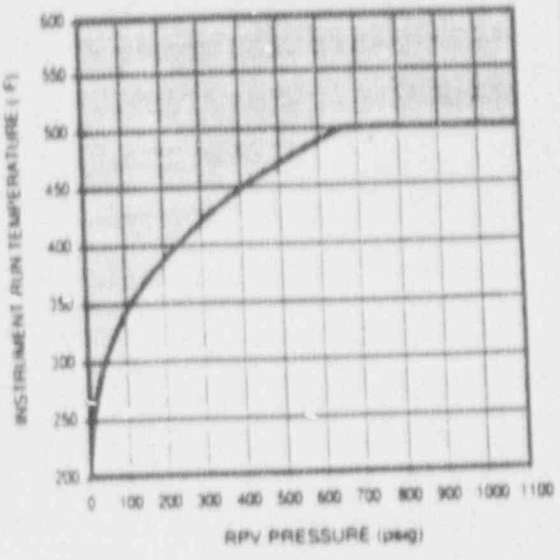
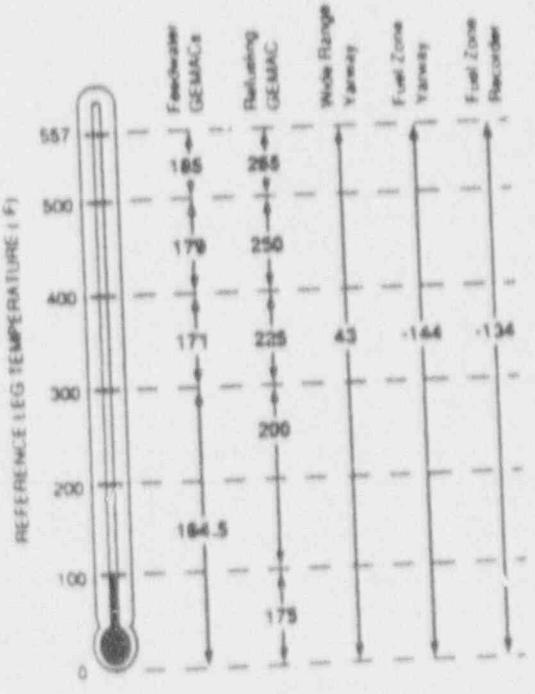


FIGURE 4.8
RPV WATER LEVEL INSTRUMENT
MINIMUM USABLE INDICATING LEVELS



D.33

D.34

CAUTIONS

- The following limitations are applicable to starting a tripped RWR pump:
  - Two starts from cold are permitted:

    A pump motor is considered cold if the motor has been deenergized for 45 minutes **OR** if the motor was started after being deenergized for 45 minutes and ran for **LESS THAN** 15 minutes before tripping.

    IF the motor trips after the second cold start, **THEN** the motor shall be deenergized for at least 45 minutes before restart.

  - One start from hot is permitted:

    A pump motor is considered hot if the motor has been energized for **GREATER THAN** 15 minutes. This hot start shall not be in addition to the second cold start.

- .

- Technical Specification maximum allowable RWR loop heat-up **OR** cool-down rate is 100°F per hour.

D.35

D.36

TITLE: LOSS OF REACTOR COOLANT FLOW* NO. F-AOP-8

FIGURE 1

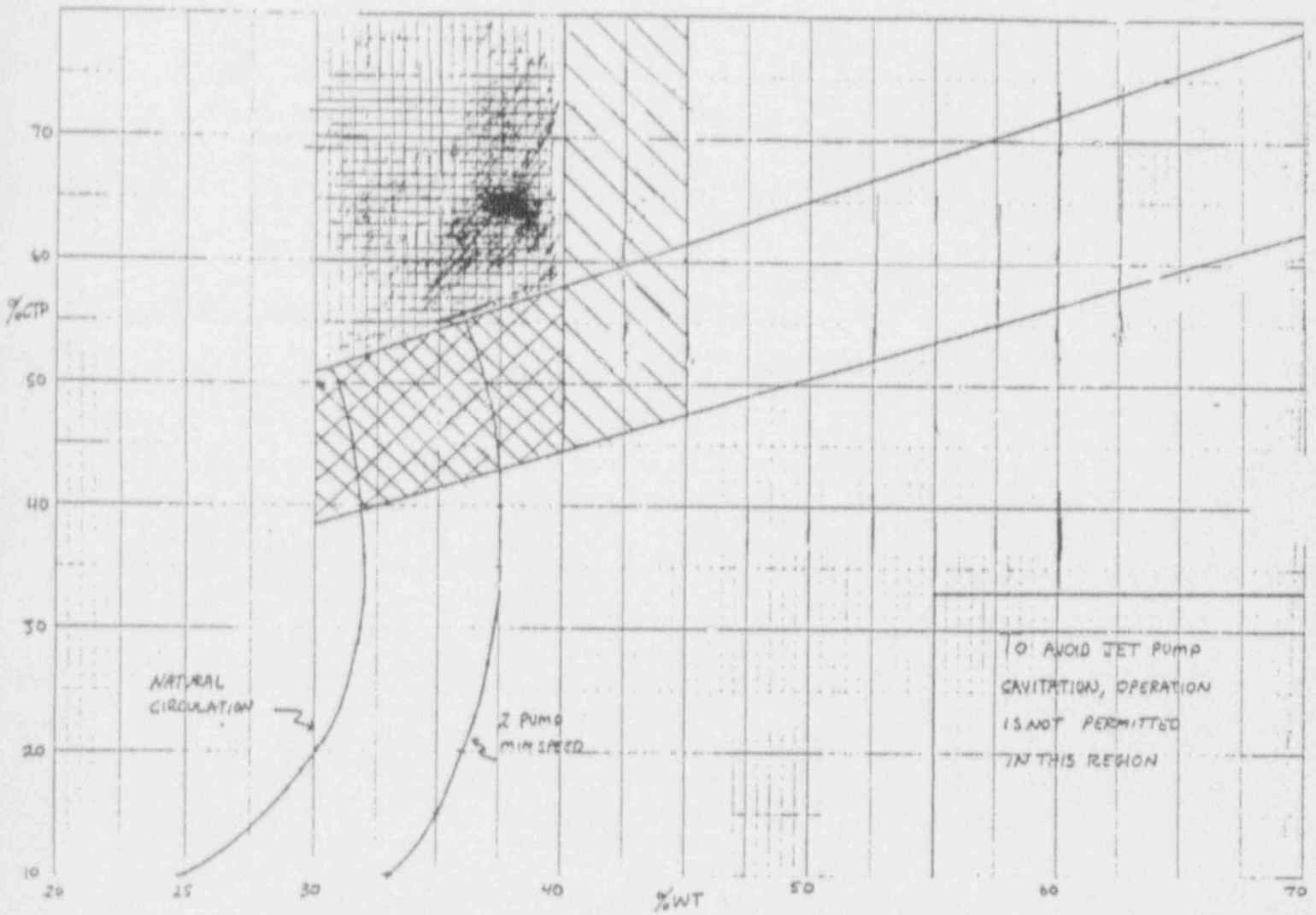


TABLE 5-1

REACTOR BUILDING AREA TEMPERATURES

AREA	INSTRUMENT	MAXIMUM NORMAL	MAXIMUM SAFE
Reactor Building 369 ft elevation 66RTD-106 66RTD-108	66TI-106 Panel 09-75 66TI-108 Panel 09-75	104 F	112 F
Outside A - LPCI Battery Enclosure 66RTD-115	EPIC only	104 F	113 F
Below Refuel Floor Exhaust 66RTD-105	66TI-105 Panel 09-75	104 F	113 F
Outside B - LPCI Battery Enclosure 66RTD-116	EPIC only	104 F	113 F
SLC Pump Area 66RTD-114	EPIC only (1)	104 F	133 F
Fuel Pool Cooling Pump Room 66RTD-113	EPIC only	104 F	133 F
Reactor Building 300 ft elevation northeast 66RTD-112	EPIC only (1)	104 F	156 F
RWCU Heat Exchanger Room 12TE-117E 12TE-117F	Panel 09-21 Panel 09-21	104 F	203 F
B - RWCU Pump Room 12TE-117C 12TE-117D	Panel 09-21 Panel 09-21	119 F	225 F
A - RWCU Pump Room 12TE-117A 12TE-117B	Panel 09-21 Panel 09-21	119 F	225 F
Reactor Building 300 ft elevation southwest 66RTD-111	EPIC only (1)	104 F	173 F
B - RHR Heat Exchanger Room 23RTD-02A 23RTD-02B	23-203A Panel 09-95 23-203B Panel 09-96	125 F	242 F

AREA	INSTRUMENT	MAXIMUM NORMAL	MAXIMUM SAFE
Reactor Building 272 ft elevation southeast 23RTD-02C 23RTD-02D	23-204A Panel 09-95 23-204B Panel 09-96	104 F	153 F
HPCI Drywell Entrance 13RTD-102C 13RTD-102D	13-202C Panel 09-95 13-202D Panel 09-96	115 F	251 F
RCIC Drywell Entrance 13RTD-102A 13RTD-107B	13-202A Panel 09-95 13-207B Panel 09-96	115 F	218 F
Reactor Building 272 ft elevation southwest 23RTD-01C 23RTD-01D	23-202A Panel 09-95 23-202B Panel 09-96	104 F	196 F
A - RHR Heat Exchanger Room 23RTD-01A 23RTD-01B	23-201A Panel 09-95 23-201B Panel 09-96	125 F	242 F
Torus Room - South HPCI Steamline 13RTD-107C 13RTD-107D	13-207C Panel 09-95 13-207D Panel 09-96	120 F	280 F
Torus Room - Southwest RCIC Steamline 13RTD-102B 13RTD-107A	13-202B Panel 09-96 13-207A Panel 09-95	120 F	280 F
East Crescent 66RTD-109B	66TI-109B Panel 09-75	104 F	137 F
HPCI Room 23RTD-94A 23RTD-94B 23RTD-117A 23RTD-117B	23-294A Panel 09-95 23-294B Panel 09-96 23-217A Panel 09-95 23-217B Panel 09-96	104 F	137 F
RCIC Room 13RTD-89A 13RTD-89B	13-289A Panel 09-95 13-289B Panel 09-96	104 F	137 F
West Crescent 13RTD-76A 13RTD-76B	13-276A Panel 09-95 13-276B Panel 09-96	104 F	137 F

ANSWER KEY FITZ EXAM 92

MULTIPLE CHOICE

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

ANSWER KEY

R6

046 c

MULTIPLE CHOICE

047 b

048 d

049 b

050 b

051 c

052 c

053 a

054 b

055 d

056 c

057 a

058 c

059 d

060

061 b

062 a

063 c

064 c

065 a

066 c

067 c

068 b

069 d or b

070 c

071 a

072 c

073 c

074 a

075 b

076 a

077 a

078 d

079 d

080 c or b

081 b

082 d

083 c

084 d

085 a

086 b

087 a

088 a

089 c

090 a

A N S W E R K E Y

120

091 b

MULTIPLE CHOICE

092 c

093 ~~a~~ c ~~f~~

094 b

095 c

096 b

097 b

098 d

099 a

100 c

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

ANSWER: 001 (1.00)

c.

REFERENCE:

JAFNPP Radiation Protection Manual Ch 6, 6.8.4, 6.9.5, 6.9.6, 6.9.7

[3.3/3.8]

294001K103 ..(KA's)

ANSWER: 002 (1.00)

d.

REFERENCE:

JAFNPP NRC License Maintenance ODSO-30 rev 1, sect 7.1

[2.7/3.7]

294001K103 ..(KA's)

ANSWER: 003 (1.00)

c.

REFERENCE:

JAFNPP PSO-26 rev 6, sect 7.2
T/S, pg 247a, item 6b

[2.7/3.7]

294001A103 ..(KA's)

ANSWER: 004 (1.00)

a.

REFERENCE:

JAFNPP ODSO-1 rev 16, sect 6.8.4, pg 16
T/S table 6.2-1, Minimum Shift Manning Requirements, pg 260a

[3.3/4.2] 5

294001A109 ..(KA's)

ANSWER: 005 (1.00)

a.

REFERENCE:

JAFNPP Radiation Protection Manual rev 8, Ch 6, 6.3.3.

[3.3/3.8]

294001K103 ..(KA's)

ANSWER: 006 (1.00)

d.

REFERENCE:

10 CFR 50.54(x)(y), pg 579, primary ref
JAFNPP ODSO-2 rev 02, sect 6.1

[4.2/4.4] 7

294001A102 ..(KA's)

ANSWER: 007 (1.00)

d.

REFERENCE:

JAFNPP ODSO-18 rev 9, sect 7.6.1.3

[3.7/3.7]

294001K101 ..(KA's)

ANSWER: 008 (1.00)

b.

REFERENCE:

JAFNPP ODSO-18 rev 10, sect 7.6.2.4.

[3.7/3.7]

294001K101 ..(KA's)

ANSWER: 009 (1.00)

b.

REFERENCE:

SDLP-94F, PG 5, LOR 1.07, 1.08
SNLP-94F, pg 10, II.B.3.a.1
Fac bank 20004242B01S rev 0

[3.4/3.8] 13

294001K115 ..(KA's)

ANSWER: 010 (1.00)

c.

REFERENCE:

JAFNPP WACP 10.1.26 rev 4, pg 18, sect 7.1.1

[2.7/2.7]

294001A103 ..(KA's)

ANSWER: 011 (1.00)

b.

REFERENCE:

JAFNPP WACP 10.1.2, rev 22, pg 23, sect 6.2.5.

[3.9/4.5] 15

294001K102 ..(KA's)

ANSWER: 012 (1.00)

b.

REFERENCE:

Fac Bank 20004250FJC01 rev 0

[3.3/3.6]

294001K107 ..(KA's)

ANSWER: 013 (1.00)

c.

REFERENCE:

JAFNPP WACP 10.1.3 rev 14, pg 4, sect 2.2.4

[4.2/4.2]

294001A102 ..(KA's)

ANSWER: 014 (1.00)

c.

REFERENCE:

SDLP-02J, rev 7, pg18, D.4.b
LOR 1.04d

[3.0/3.3]

239002A201 ..(KA's)

ANSWER: 015 (1.00)

d.

REFERENCE:

SDLP-02J REV 7, pgs 10 and 16
LOR 1.04a

[4.2/4.3]

218000K301 ..(KA's)

ANSWER: 016 (1.00)

b.

REFERENCE:

RCIC OP-19 rev 24, pg 12, sect C.2.a
LOR 1.07, 105 degree F limit

[3.5/3.6] 22

21 .00A219 ..(KA's)

ANSWER: 017 (1.00)

d.

REFERENCE:

SDLP-05 rev 8, pgs 69&70, Table VII, Scram Signals
LOR 1.08

[3.9/3.9] 23

212000A404 ..(KA's)

ANSWER: 018 (1.00)

b.

REFERENCE:

Tech/Specs table 3.1-1, pgs 41,41a,41b.
T/S Definitions, pg 5, item 1.0, Reactor Power Operation

[4.0/4.1] 24

212000A212 ..(KA's)

ANSWER: 019 (1.00)

d.

REFERENCE:

SDLP-05 rev 8, pgs 18 and 19
LOR 1.04

[3.5/3.6]

201001K203 ..(KA's)

ANSWER: 020 (1.00)

b.

REFERENCE:

SDLP-02G rev 5, pg 33, 2a. through 2d
LOR 1.19
Fac task for RO 508B.302, move fuel
RAP-71.3. sect 5.2.1, Bridge operator responsibilities

[3.0/3.7] 26

234000K505 ..(KA's)

ANSWER: 021 (1.00)

b.

REFERENCE:

EOP-3 sect Rx/Q

[4.0/4.2] 27

211000G001 ..(KA's)

ANSWER: 022 (1.00)

b.

REFERENCE:

SDLP-03C rev 6, pgs 25 and 26, sect 13.c.1)
LOR 1.04

[3.5/3.4] 28

201001A105 ..(KA's)

ANSWER: 023 (1.00)

b.

REFERENCE:

SDLP-05 rev 8, pg 69, Table VII, Scram signals
LOR 1.03c

[3.7/4.5] 29

212000G011 ..(KA's)

ANSWER: 024 (1.00)

a.

REFERENCE:

T/S sect 1.1 and 1.2, pgs 7,8,9,

[3.8/4.5]

212000G005 ..(KA's)

ANSWER: 025 (1.00)

b.

REFERENCE:

FAC bank 20505005B01C rev 1
OP-13

[3.5/3.4] 31

226001A403 ..(KA's)

ANSWER: 026 (1.00)

c.

REFERENCE:

SDLP-03C rev 6, pg 31, sect F.1.a
LOR 1.07

[3.2/3.3]

201001G010 ..(KA's)

ANSWER: 027 (1.00)

d.

REFERENCE:

SDLP-03A rev 4, pg 13, sect 3.b.2.a, pg 16, sect F.1.a.5.a
LOR 1.04

[3.6/3.7] 33

201003K404 ..(KA's)

ANSWER: 028 (1.00)

c.

REFERENCE:

SDLP-17/18 rev 4, pg 38, sect 3.g. and pg 102 table VII
LOR 1.08, 1.10, 1.11

[3.7/4.1].

272000K402 ..(KA's)

ANSWER: 029 (1.00)

c.

REFERENCE:

SDLP-05 rev 8, pgs 35 & 36, sect d.6.b

[4.2/4.1]

239001A301 ..(KA's)

ANSWER: 030 (1.00)

d.

REFERENCE:

SDLP-11 rev 7, pg 19, sect 5.a
LOR 1.04e

[4.2/4.2] 36

211000A408 ..(KA's)

ANSWER: 031 (1.00)

a.

REFERENCE:

SDLP-03D rev 4, SDLP-03G rev 4,

[3.5/3.3] 37

214000G008 ..(KA's)

ANSWER: 032 (1.00)

b.

REFERENCE:

OP-28 rev 37, pg 47, G.9 Cautions
LOR 1.07

[3.2/3.2] 38

204000G010 ..(KA's)

ANSWER: 033 (1.00)

b.

REFERENCE:

SDLP-03F rev 5, pg 24, item 5 Note
OP-26, OP-65
LOR 1.04, 1.07

[3.2/3.2]

201002K408 ..(KA's)

ANSWER: 034 (1.00)

b.

REFERENCE:

OP-26 rev 6, pg 12

[3.8/3.9] 42

201003K402 ..(KA's)

ANSWER: 035 (1.00)

c.

REFERENCE:

SDLP-08B rev 2, Figure 8B-7, Rod Blocks
LOR 1.03

[3.1/3.7]

234000A302 ..(KA's)

ANSWER: 036 (1.00)

d.

REFERENCE:

OP-19 rev 24, pgs 6 & 7, Trips and Isolations
LOR 1.04

[3.8/3.7]

217000A202 ..(KA's)

ANSWER: 037 (1.00)

b.

REFERENCE:

OP-15 rev 34, pg 11
LOR 1.04

[3.7/3.8] 46

206000K419 ..(KA's)

ANSWER: 038 (1.00)

d.

REFERENCE:

SDLP-23 rev 7, pg 40, item c.1.a, c.1.b, c.2.
OP-15 rev 34, pg 7
LOR-1.08

[4.0/4.1] 47

206000A201 ..(KA's)

ANSWER: 039 (1.00)

a.

REFERENCE:

SDLP-02J rev 7, pgs 16 through 20
LOR 1.03 and 1.13

[3.8/3.8]

218000K501 ..(KA's)

ANSWER: 040 (1.00)

c.

REFERENCE:

SDLP-03D rev 4, pg9
T/S pg 100, sect 4.3, RWM bases

[3.3/3.7]

201006K501 ..(KA's)

ANSWER: 041 (1.00)

b.

REFERENCE:

SDLP-17/18 rev 4, pgs 10 through 27
LOR 1.04

[3.1/3.3]

271000K102 ..(KA's)

ANSWER: 042 (1.00)

d.

REFERENCE:

SDLP-02I rev 6, pg 12, item 4.2.b,
LOR 1.04d

[3.3/3.3]

202001K607 ..(KA's)

ANSWER: 043 (1.00)

a.

REFERENCE:

SU/SD Procedure OP-65 (3 channels >3cps, detectors fully inserted)
Tech Spec 3.3.B.4. (2 channels > 3cps)
T/Specs table 3.2-3 note 4 (only one SRM channel may be bypassed)
SDLP-07B, table VII, pg 69, (SRM full in interlock)

[3.4/3.6] 52

215004A407 ..(KA's)

ANSWER: 044 (1.00)

a.

REFERENCE:

OP-50 pg 13, and ST-40D
SDLP-20 pg 20, LOR 1.05c.
Tech. Spec. Sect 3.6.D, pg 141.

[3.4/3.6] 53

268000A401 ..(KA's)

ANSWER: 045 (1.00)

b.

REFERENCE:

SDLP-16C rev 5, pg 42, Table VII, Isolations
LOR 1.08

[3.8/3.8] 54

288000A301 ..(KA's)

ANSWER: 046 (1.00)

c.

REFERENCE:

SDLP-02E rev 6, pg 18, and Table I Annunciators
SDLP-07C Table I, FLOW REF OFF NORMAL annunciator
LOR 1.11d

[3.4/3.5] 55

202001K123 ..(KA's)

ANSWER: 047 (1.00)

b.

REFERENCE:

SDLP-02B rev 8, pg 43, Table VII
LOR 1.11

[3.8/3.9]

216000K119 ..(KA's)

ANSWER: 048 (1.00)

d.

REFERENCE:

SDLP-16C, Fig 16C-7
LOR 1.08

[3.5/3.5]

223002A302 ..(KA's)

ANSWER: 049 (1.00)

b.

REFERENCE:

AOP-36 pg 4
Steam Tables Mollier Diagram

[3.3/3.5] 59

239002K504 ..(KA's)

ANSWER: 050 (1.00)

b.

REFERENCE:

OP-22 rev 24, pg 17,
SDLP-93, pg 27, item 6,
LOR 1.04t
Fac bank 26401004EDGC01 rev 1 modified

[3.7/4.2]

264000G001 ..(KA's)

ANSWER: 051 (1.00)

c.

REFERENCE:

SDLP-02I rev 6, pg 12
SDLP-02I fig 021-2
LOR 1.04e

[3.5/3.5]

259001K411 ..(KA's)

ANSWER: 052 (1.00)

c.

REFERENCE:

SDLP-03G rev4, pg 15 and 16
LOR 1.08

[3.2/3.2]

201002A303 ..(KA's)

ANSWER: 053 (1.00)

a.

REFERENCE:

SDLP-29, pg 19, item 12.f,
LOR 1.10c & 1.10d. NLO 1.08d & 1.08e

[3.4/3.5]

239002K602 ..(KA's)

ANSWER: 054 (1.00)

b.

REFERENCE:

SDLP-02E rev 6, pg 20 and figs 11a & 11B
LOR 1.10

[3.5/3.5]

202002K301 ..(KA's)

ANSWER: 055 (1.00)

d.

REFERENCE:

SDLP-03D rev 4, pg 12,
LOR 1.04

[2.9/3.0]

201006K502 ..(KA's)

ANSWER: 056 (1.00)

c.

REFERENCE:

SDLP-07C rev 6, pgs 22, 25, 26, APRM inputs and trips
LOR 1.08

[3.2/3.2]

215005A303 ..(KA's)

ANSWER: 057 (1.00)

a.

REFERENCE:

OP-27 rev 33, pg 18, CAUTIONS

[3.7/3.7]

202001A401 ..(KA's)

ANSWER: 058 (1.00)

c.

REFERENCE:

SDLP-05 Table VII
SDLP-16C Table 16C
LOR 1.04

[3.6/3.7]

245000K307 ..(KA's)

ANSWER: 059 (1.00)

d.

REFERENCE:

SDLP-76 rev 5, pgs 25 and 26
LOR 1.04

[3.3/3.5]

286000K402 ..(KA's)

ANSWER: 060 (1.00)

c.

REFERENCE:

SDLP-02H, pg 16, item 4.g
OP-27, pg 5. bottom paragraph
LOR 1.04c, 1.08,

[3.3/3.3]

202001A109 ..(KA's)

ANSWER: 061 (1.00)

b.

REFERENCE:

FAC bank 20501017B03C rev1
OP-13

[3.7/3.7]

205000A401 ..(KA's)

ANSWER: 062 (1.00)

a.

REFERENCE:

FAC bank
OP-46A

[3.222/3.3]

262001A302 ..(KA's)

ANSWER: 063 (1.00)

c.

REFERENCE:

SDLP-71B rev 3, pg 17, item d. CAUTION
LOR 1.10

[3.5/3.8]

263000K302 ..(KA's)

ANSWER: 064 (1.00)

c.

REFERENCE:

FAC bank 20004202B09C rev 0

[4.0/4.0]

202002K302 ..(KA's)

ANSWER: 065 (1.00)

a.

REFERENCE:

OP-65 rev 6, pg 13, sect D.7.6. CAUTION
SDLP-03B, LOR 1.07

[3.4/3.6]

295014K209 ..(KA's)

ANSWER: 066 (1.00)

c.

REFERENCE:

Tech/Spec pg 165, sect 3.7.A.1.c.3

[3.8/3.6].

295013G010 ..(KA's)

ANSWER: 067 (1.00)

c.

REFERENCE:

MIT 301.11D(EOP-3) pg 24 bottom
EO 3.07

[4.1/4.5]

295037K303 ..(KA's)

ANSWER: 068 (1.00)

b.

REFERENCE:

SDLP-05 rev 8, fig 05-5A
LOR 1.04

[4.0/4.2]

295015A102 ..(KA's)

ANSWER: 069 (1.00)

d.

REFERENCE:

OP-65 rev 56, pg 13, step c.2.

[4.0/3.9]

295014G010 ..(KA's)

ANSWER: 070 (1.00)

c.

REFERENCE:

MIT 301.11 (EOP-3), pg 24, item g.1.
EO 3.07

[3.7/3.9]

295020K101 ..(KA's)

ANSWER: 071 (1.00)

a.

REFERENCE:

SDLP-03C rev 6, pgs 25 & 26, SDV vents and drain
LOR 1.04 and 1.15c

[4.2/4.3]

295037K307 ..(KA's)

ANSWER: 072 (1.00)

c.

REFERENCE:

SDLP-05C, reactor scram at 1045 psig
SDLP-29 SRV 71 k setpoint 1090 psig
EOP-2 (Should have TCV fast closure scram)

[4.1/4.1]

295025K201 ..(KA's)

ANSWER: 073 (1.00)

c.

REFERENCE:

AOP-12, Loss of instrument air, rev 10, pg 5, sect 3.a

[3.7/3.4]

295019G010 ..(KA's)

ANSWER: 074 (1.00)

a.

REFERENCE:

AOP-30 sect C.2.3.d., pg 7

[3.6/3.7]

295021A201 ..(KA's)

ANSWER: 075 (1.00)

b.

REFERENCE:

EOP-6

[4.2/4.5]

295038G011 ..(KA's)

ANSWER: 076 (1.00)

a.

REFERENCE:

AOP-1 pg 8, rev 18, sect C.2.3, CAUTION

[3.7/3.8]

295006K203 ..(KA's)

ANSWER: 077 (1.00)

a.

REFERENCE:

SDLP-07B, table I, pg 61, Ann 9-5-2-52 & 53
SDLP-17/18 table VII, pg 97 Stack gas PRM
OP-43B fig 1, 24VDC one line

[3.1/3.5]

295004K303 ..(KA's)

ANSWER: 078 (1.00)

d.

REFERENCE:

AOP-8, pg 3, item C.4.

[3.8/3.7]

295001G011 ..(KA's)

ANSWER: 079 (1.00)

d.

REFERENCE:

MIT 301.11C (EOP-2), pg 19, sect c.1 & C.2
EO 2.07

[3.2/3.3]

295008G007 ..(KA's)

ANSWER: 080 (1.00)

c.

REFERENCE:

AOP-30, pg 6, sect c.2.2.d.1 and pg 7, sect C.2.3.d.1

[3.2/3.9]

295021G008 ..(KA's)

ANSWER: 081 (1.00)

b.

REFERENCE:

ARP 09-6-2-32 RBC LO-LO press
AOP-11 pg 5, sect C.1

[3.5/3.6]

295018K101 ..(KA's)

ANSWER: 082 (1.00)

d.

REFERENCE:

ODSO-28 sect 6.16 (one rod out statement) and 6.17
EOP-2 and EOP-3 entry statements

[4.1/4.2]

295015A202 ..(KA's)

ANSWER: 083 (1.00)

c.

REFERENCE:

AOP-22 Table I, Effect of isolation
SDLP-71B

[3.3/3.3]

295004A203 ..(KA's)

ANSWER: 084 (1.00)

d.

REFERENCE:

SDLP-01B, pg 14, item 5.a
SDLP-16A, pg 5, LOR 1.02

[3.9/4.2]

295035K101 ..(KA's)

ANSWER: 085 (1.00)

a.

REFERENCE:

SDLP-16C rev 5, pg 39, Table VII, Isolations
LOR 1.04
SDLP 05, pg 69, table VII, MSIV scram bypassed out of RUN

[3.6/3.6]

295020A101 ..(KA's)

ANSWER: 086 (1.00)

b.

REFERENCE:

SDLP-02B rev 8, pgs 17 through 20, sect F.3.
LOR 1.10e

[3.7/3.9]

295028A203 ..(KA's)

ANSWER: 087 (1.00)

a.

REFERENCE:

SDLP-93 rev 6, pg 40 sect d.2, pg 41 sect c.2.

[4.1/4.2]

295003K202 ..(KA's)

ANSWER: 088 (1.00)

a.

REFERENCE:

EOP-5 Entry Conditions. MIT 301.11F
EO 5.02

[3.8/4.1]

295036G011 ..(KA's)

ANSWER: 089 (1.00)

c.

REFERENCE:

Fac bank 20004213B01C rev 1
AOP-34

[4.2/4.3]

295037K307 ..(KA's)

ANSWER: 090 (1.00)

a.

REFERENCE:

Fac bank 34403009FJC01 rev 0
ARP 09-5-1-51

[3.6/3.6]

295005A102 ..(KA's)

ANSWER: 091 (1.00)

b.

REFERENCE:

SDLP-71A pg 118, Electrical Distribution figure
EO 1.10 & 1.11

[3.2/3.3]

295005K208 ..(KA's)

ANSWER: 092 (1.00)

c.

REFERENCE:

SDLP-46B pg21, sect 4.
LOR 1.04

[3.3/3.4]

295018A101 ..(KA's)

ANSWER: 093 (1.00)

d. c

REFERENCE:

FAC bank 20004208B02C
AOP-34 pg 12, sect c.7

[3.6/3.8]

295015A103 ..(KA's)

ANSWER: 094 (1.00)

b.

REFERENCE:

AOP-27
ARP 09-5-2-3, action 5

[4.0/4.3]

295014A203 ..(KA's)

ANSWER: 095 (1.00)

c.

REFERENCE:

FAC bank 20004215B02C
AOP-18 and AOP-19

[3.4/3.5]

295003K204 ..(KA's)

ANSWER: 096 (1.00)

b.

REFERENCE:

FAC bank 20004224B03C modified
AOP-12, pg 3, NOTE

[3.4/3.4]

295019K205 ..(KA's)

ANSWER: 097 (1.00)

b.

REFERENCE:

FAC bank 20201004B01S
T/S bases

[3.4/3.4]

295001K207 ..(KA's)

ANSWER: 098 (1.00)

d.

REFERENCE:

OP-15, pg 7, bottom para
SDLP-13, pg 40, item F.5,.
SDLP-23, pg 59 , Table I

[3.5/3.5]

295008A104 ..(KA's)

ANSWER: 099 (1.00)

a.

REFERENCE:

MIT 301.11A, pg 13, Procedure use, items E.1.a and E.1.e
Tech Specs, pg 166, item A.1.c.2.

[3.3/3.5]

295013G007 ..(KA's)

ANSWER: 100 (1.00)

c.

. REFERENCE:

OP-68, rev 10, pg 4,
ARP 09-4-1-8, rev 2, pg 1

[3.2/3.4]

295004K102 ..(KA's)

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

ATTACHMENT 2

CPD 0516
NRC

Nuclear Regulatory Commission
Operator Licensing
Examination

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date of examination.

NRC Official Use Only

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

CANDIDATE'S NAME: _____

FACILITY: Fitzpatrick

REACTOR TYPE: BWR-GE4

DATE ADMINISTERED: 92/10/26

INSTRUCTIONS TO CANDIDATE:

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

TEST VALUE	CANDIDATE'S SCORE	%	
100.00	_____	___ %	TOTALS
	FINAL GRADE		

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

_____
Candidate's Signature

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

MULTIPLE CHOICE

001	a	b	c	d	___
002	a	b	c	d	___
003	a	b	c	d	___
004	a	b	c	d	___
005	a	b	c	d	___
006	a	b	c	d	___
007	a	b	c	d	___
008	a	b	c	d	___
009	a	b	c	d	___
010	a	b	c	d	___
011	a	b	c	d	___
012	a	b	c	d	___
013	a	b	c	d	___
014	a	b	c	d	___
015	a	b	c	d	___
016	a	b	c	d	___
017	a	b	c	d	___
018	a	b	c	d	___
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024	a	b	c	d	___
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041	a	b	c	d	___
042	a	b	c	d	___
043	a	b	c	d	___
044	a	b	c	d	___
045	a	b	c	d	___

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

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

046 a b c d ___

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 ___

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057 a b c d ___

058 a b c d ___

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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)

Given the following conditions:

Today's date is October 26, 1992.
A fully trained, male radiation worker is 25 years old today.
He has a current NRC Form 4 on record.
His previous lifetime whole body exposure is 31 Rem.
He has no radiation exposure this year to date.

What is the MAXIMUM whole body radiation exposure for 1992 available for use by this individual in accordance with 10 CFR 20 without invoking limits for emergency and accidental exposure?

a. 1000 mrem

b. 2000 mrem

c. 3000 mrem

d. 4000 mrem

QUESTION: 002 (1.00)

Which of the following describes the minimum watchstanding requirements in order to maintain an "Active" license?

a. Two 8 hour shifts each calendar month.

b. Six 8 hour shifts per calendar quarter.

c. Seven 8 hour shifts during any three month period.

d. Seven 8 hour shifts each calendar quarter.

QUESTION: 003 (1.00)

Which of the following describes the required emergency notifications in response to an emergency declaration?

a. State, local agencies, and the NRC must be notified immediately after declaration of an event not to exceed 15 minutes except for an Unusual Event which may not exceed 4 hours.

b. The NRC must by notified within 15 minutes after declaration of an emergency. State and local agencies must be notified immediately thereafter not to exceed one hour.

c. State and local agencies must be notified within 15 minutes and the NRC must be notified within 4 hours after declaration of the event.

d. State and local agencies must be notified within 15 minutes after declaration of an emergency and the NRC notified immediately thereafter not to exceed one hour.

QUESTION: 004 (1.00)

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

Monday	--	Scheduled day Off
Tuesday	--	7 am to 7 pm
Wednesday	--	7 am to 5 pm
Thursday	--	7 am to 3 pm
Friday	--	7 am to 3 pm
Saturday	--	7 am to 3 pm
Sunday	--	7 am to 9 pm

CHOOSE the work schedule for the following Monday that is the MAXIMUM allowed without written authorization by the Resident Manager or Superintendent of Power.

a. 5 am to 5 pm

b. 7 am to 3 pm

c. 7 am to 5 pm

d. 7 am to 7 pm

QUESTION: 005 (1.00)

Which of the following describes the requirements on physical location of licensed personnel in the control room?

a. The NCO may be temporarily absent from the "At the Controls Area" in order to respond to alarms at the back panels.

b. The NCO may leave the "At the Controls Area" provided that the SNO or ASS is in the control room.

c. When there is fuel in the reactor, a senior licensed operator must remain in the control room at all times.

d. At least two licensed Senior Reactor Operators shall be present in the control room during startup or planned shutdown.

QUESTION: 006 (1.00)

Which of the following would constitute a "Radiation Area"?

a. An accessible area where a person could accumulate a whole body dose greater than 100 mrem in 5 consecutive days.

b. An accessible area where a person could receive a whole body dose greater than .5 mrem in one hour.

c. Any area where measurable neutron radiation is detected.

d. Any area designated as a Contaminated Area.

QUESTION: 007 (1.00)

In order to protect the health and safety of the public, an action which departs from Technical Specifications is required to be immediately performed by a licensed reactor operator.

Which of the following describes the course of action this operator is permitted to take?

a. Immediately take whatever action is required without further direction.

b. Notify the Senior Nuclear Operator then perform the required action.

c. Perform the required action then notify the Senior Nuclear Operator or Shift Supervisor of his action.

d. Obtain approval from the Shift Supervisor and then perform the action.

QUESTION: 008 (1.00)

Which of the following describes the method used for independently verifying a locked throttled valve?

a. Remove the locking device, carefully close the valve counting the turns then reopen it the same number of turns, reapply the locking device to the valve, record the as left position.

b. Independent verification of this valve cannot be performed, place an "NA" in the signature space for this valve.

c. Since it is already locked, the valve may be assumed to be throttled in the correct position. The verification may be signed off as complete.

d. Independent verification may be accomplished by observing the action of the person initially setting the valve with the independent verifier in attendance.

QUESTION: 009 (1.00)

You are the SRO assigned to observe and supervise core alterations during fuel offload from the reactor vessel. You are notified to go to the nurses' office in the administration building for a random drug screen sample. The only other SRO on shift is the Shift Supervisor.

Which of the following is permitted?

a. If the bridge operator has moved the fuel out of the core then he may continue to move fuel to the fuel pool without your presence but may not pick up another bundle until you return.

b. Since the plant is in refueling, an individual with a valid reactor operator license may be stationed in the control room and the Shift Supervisor may temporarily assume your function.

c. If qualified, you may exchange shift positions with the Shift Supervisor and after turnover requirements are met, fuel movement may continue.

d. An individual with a valid reactor operator license may be designated to assume the supervision of the remaining fuel movement provided that the bundle is not in the core.

QUESTION: 010 (1.00)

A mandatory operations department task must be completed in a high radiation area. Which of the following REQUIRES an ALARA review?

a. Initial radiation exposure estimates exceed one man-rem.

b. The whole body dose rate at the task location is greater than 100 mr/hr.

c. Any individual at the task location may receive greater than a 100 mr dose.

d. There is airborne radioactivity at the task location.

QUESTION: 011 (1.00)

Which of the following activities requires an instruction or a procedure?

a. Filling skimmer surge tanks.

b. Call out of personnel

c. Checking a relay energized or de-energized.

d. Removal of caps on drain lines for system draining.

QUESTION: 012 (1.00)

During accident conditions, which of the following Hydrogen concentrations (percent volume in air) will result in an explosive mixture?

a. 5%

b. 30%

c. 80%

d. 90%

QUESTION: 013 (1.00)

While returning RBCLC pump "A" to service following maintenance, which of the following is the correct sequence for removing tags and valving in the pump?

a. Open the discharge valve, then open the suction valve, close the vent or drain valve, remove the tag(s) on the motor controls,.

b. Close the vent or drain valve, open the suction valve, open the discharge valve, remove the tag(s) on the motor controls.

c. Remove the tag(s) on the motor controls, open the suction valve, open the discharge valve, close the vent or drain valve

d. Remove the tag(s) on the motor controls, close the vent or drain valve, open the discharge valve, open the suction valve, .

QUESTION: 014 (1.00)

While closing the reactor water cleanup outboard isolation valve (12MOV-18), the following indications occur:

Both valve position indicating lights above the switch extinguish.
The annunciator for "Valve Overload or Power Loss" is received.
The valve indicates mid position on the 09-4 graphic display.

Which of the following could account for the present status of 12MOV-18?

a. Tripped thermal overload

b. Tripped supply breaker

c. Tripped torque switch

d. Closing relay (42C) burned out

QUESTION: 015 (1.00)

Which of the following is sufficient justification for NOT tagging the handwheel of an motor operated valve being used for system isolation?

a. No increased level of protection is realized.

b. Double valve protection is unnecessary.

c. The MOV power supply breaker is racked out.

d. MOV supply voltage is less than 4 KV.

QUESTION: 016 (1.00)

Which of the following would permit "concurrent dual verification" in lieu of independent verification of an approved jumper/lifted lead to a plant system?

a. The installation is in a radiation area of 100 mr/hr.

b. The installation is in a confined space.

c. Immediate system response is expected.

d. Immediate installation is necessary to prevent a scram.

QUESTION: 017 (1.00)

Which of the following is an action that would justify "For-Cause" Drug and Alcohol Testing?

a. An individual is observed in a private vehicle on his way to work with persons considered to be drug users.

b. Open beer cans are reported by a roving security guard to be visible inside an employee's car in the plant parking lot.

c. The STA observed the on shift NCO exiting a bar on his way to work.

d. An Auxiliary Operator states that his relief has the smell of alcohol on his breath.

QUESTION: 018 (1.00)

Which of the following is indication that a Safety Relief Valve (SRV) vacuum breaker has failed in the open position during SRV operation?

a. Direct pressurization of the suppression chamber air space each time the SRV is opened.

b. Steam bypassing the relief valve T-quenchers with a direct discharge path into the suppression pool.

c. An increase in drywell to torus differential pressure.

d. Suppression pool water being drawn up into the SRV discharge line after the SRV is closed.

QUESTION: 019 (1.00)

The following plant conditions exist:

Automatic Depressurization System	- actuated
Reactor water level	- 50 inches
All RHR pumps	- running
Both Core Spray (CS) pumps	- running
120 second timer	- timed out
7 ADS SRVs	- open
Reactor pressure	- 150 psig and decreasing

WHICH of the following will cause the Automatic Depressurization System SRV's to close and remain closed without further operator action?

a. One ADS Normal/Override switch is placed in "OVERRIDE".

b. Water level is raised above 59.5 inches.

c. Water level is raised above 177 inches.

d. All RHR and CS pumps are stopped.

QUESTION: 020 (1.00)

The following plant conditions exist:

Reactor power is 100%.
RCIC Pump and Valve Operability Test is in progress with the RCIC turbine running. (ST-24A)
Torus temperature is 85 degrees F and increasing 3 degrees F every 15 minutes.
All other plant parameters are normal.

Select the MAXIMUM amount of time the test can continue assuming the current trend continues.

a. 120 minutes

b. 100 minutes

c. 80 minutes

d. 50 minutes

QUESTION: 021 (1.00)

An RWS has occurred and the following conditions exist:

Reactor power	- 20% on APRMs.
Reactor water level	- 200 inches
Drywell pressure	- 1.1 psig.
All scram valves	- open
SDV vent and drain valves	- shut.
Mode switch	- in SHUTDOWN

Which of the following describes resetting of the scram to allow draining of the Scram Discharge Volume?

a. The scram can be reset by placing the mode switch in STARTUP and placing the CRD Discharge Volume Bypass switch in "BYPASS".

b. The scram cannot reset because the mode switch is in SHUTDOWN.

c. The scram can be reset by placing the CRD Discharge Volume Bypass switch in "BYPASS".

d. The scram cannot be reset because a scram signal exists.

QUESTION: 022 (1.00)

Which of the following scrams is always required for all modes of operation?

a. Turbine control valve fast closure

b. APRM Inoperative

c. APRM Flow Referenced Neutron Flux

d. APRM fixed High Neutron Flux (120%)

QUESTION: 023 (1.00)

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

a. Normally energized, one valve will de-energize with each RPS channel to vent air header.

b. One valve powered from each RPS trip channel, either valve must energize to vent the scram air header.

c. Both RPS channels must trip to deenergize either valve, both valves must deenergize to vent the air header.

d. Both RPS channels must trip to energize either valve, one valve must energize to vent the air header.

QUESTION: 024 (1.00)

Which of the following describes a properly orientated standard fuel bundle?

a. Orientation lugs (boss) on the bail handle points away from the center of the control rod of the four bundle array.

b. The channel spacer buttons face the control rod of the four bundle array.

c. Serial number on the bail handle is readable from the outside edge of the fuel cell.

d. Channel fastener is located on the outside edge of the four bundle array.

QUESTION: 025 (1.00)

Once the Standby Liquid Control system has been initiated, boron injection may be terminated when:

a. suppression pool temperature decreases below 110 F.

b. SLC tank is empty.

c. All control rods are inserted to or beyond position 02.

d. Reactor power decreases to less than 2.5%.

QUESTION: 026 (1.00)

Which of the following describes the response of the Scram Discharge Volume (SDV) valves following a half scram signal?

a. SDV vent and drain solenoid valves do not change position.
   All SDV Vent and drain valves remain open.

b. One SDV vent and drain solenoid valve repositions.
   All SDV Vent and drain valves remain open.

c. One SDV vent and drain solenoid valve repositions.
   One set of SDV vent and drain valves close.

d. One SDV vent and drain solenoid valve repositions.
   All SDV vent and drain valves close.

QUESTION: 027 (1.00)

Which of the following Reactor Protection System automatic scrams is bypassed when the mode switch is taken from "RUN" to "STARTUP"?

a. Turbine Stop Valve Closure

b. Main Steam Line Isolation Valve Closure

c. Scram Discharge Instrument Volume Hi Level

d. Main Steam Line Radiation Hi-Hi Rad

QUESTION: 028 (1.00)

Which of the following is a Safety Limit violation?

a. With the Reactor shutdown, water level drops to +5 inches and is then recovered.

b. MCPR momentarily reaches 1.18 during a loss of feedwater transient.

c. Reactor power is increased to 21% with pressure less than 785 psig.

d. A core performance daily surveillance shows CMFLPD equal to 1.03.

QUESTION: 029 (1.00)

Which of the following condition(s) for the Reactor Building Ventilation Exhaust Monitoring System is the MINIMUM which must occur in order to start the Standby Gas Treatment System?

a. One Downscale trip

b. One Downscale trip and one HI trip

c. One HI-HI trip

d. One Inop trip

QUESTION: 030 (1.00)

The main condenser low vacuum MSIV isolation signal will be automatically bypassed by:

a. turbine Stop Valves closed OR the Mode switch out of the RUN position.

b. turbine Bypass Valves closed OR the Mode switch out of the RUN position.

c. turbine Stop Valves closed AND the Mode switch out of the RUN position.

d. reactor pressure greater than 825 psig.

QUESTION: 031 (1.00)

The following conditions exist:

An ATWS is in progress
Standby Liquid Control Pump "A" is running and injecting to RPV.

Select the reason that the Boron injection rate should not be increased by local operation of SLC Pump "B".

a. The "B" system squib valves will not fire.

b. The relief for SLC pump "B" will lift making it ineffective.

c. Excess discharge pressure will lift both pump reliefs reducing Boron injection flow.

d. Excessive injection rate could result in power chugging.

QUESTION: 032 (1.00)

A single control rod scram will ALWAYS result in each of the following EXCEPT:

a. Control Rod Block Annunciator.

b. HCU TROUBLE Annunciator.

c. Control Rod Drift Annunciator.

d. Blue SCRAM light on full core display.

QUESTION: 033 (1.00)

In order to prevent significant damage to the drive mechanism, which of the following actions is specifically PROHIBITED as part of the attempts to free a stuck control rod?

a. Driving the rod full in.

b. Driving the rod full out.

c. Increasing Drive pressure.

d. Manually scramming the rod.

QUESTION: 034 (1.00)

Which of the following states the concern with operating Standby Gas Filter Trains at flow rates greater than 6000 scfm?

a. Reduced Iodine removal efficiency

b. Adsorbent bed thinning

c. Warpage of the adsorbent screens

d. Deformation of the charcoal filters

QUESTION: 035 (1.00)

Which of the following rod motion sequences does NOT open the "settle" valve (directional control valve 120)?

a. Withdrawal (One Notch)

b. Emergency Rod Insertion

c. Continuous Rod Insertion

d. Withdrawal (Notch Override)

QUESTION: 036 (1.00)

Which of the following is indication of an uncoupled control rod when fully withdrawing a control rod?

a. Rod position indication will momentarily go blank and the ROD DRIFT annunciator alarms.

b. Rod position indication goes blank and ROD OVERTRAVEL annunciator alarms.

c. Red FULL OUT lights illuminate and ROD OVERTRAVEL annunciator alarms.

d. Red FULL OUT lights extinguish and rod position indication will momentarily go blank.

QUESTION: 037 (1.00)

Which of the following will generate a rod block with the Reactor Mode Switch in "Refuel"?

a. The refuel platform is over the fuel pool and is moving a fuel bundle.

b. The refuel platform is over the core, and one control rod is withdrawn to position 24.

c. The refuel platform is over the core and the fuel grapple is not full up.

d. The refuel platform is over the fuel pool and the trolley mounted hoist is loaded.

QUESTION: 038 (1.00)

If no automatic initiation condition is present, which of the following will by itself trip the RCIC turbine AND cause RCIC to isolate?

a. Manual isolation pushbutton

b. Manual turbine trip

c. Turbine exhaust pressure high

d. Steam supply pressure low

QUESTION: 039 (1.00)

When must APRM calibration be performed?

a. Prior to taking an APRM out if BYPASS.

b. When any APRM differs by 2% or more from the average APRM power.

c. When FRP is greater than MFLPD.

d. When an APRM gain adjustment factor (AGAF) is greater than 1.0.

QUESTION: 040 (1.00)

The High Pressure Coolant Injection (HPCI) pump is operating when an electrical malfunction closes CST suction isolation valve 23MOV-17. Which of the following is the expected system response?

a. The pump will trip on interlock with 23MOV-17.

b. The pump will trip on low suction pressure.

c. The system will automatically switch suction sources, pump continues to run.

d. The system will automatically switch suction sources, pump will trip during swapover.

QUESTION: 041 (1.00)

The following conditions exist:

The HPCI turbine was in operation but has tripped.
An auto-initiation condition is still present.
The turbine trip signal has cleared.

Select the turbine trip signal that MUST have operator action in order to restart the turbine.

a. Overspeed.

b. Low Steam Supply Pressure.

c. High Turbine Exhaust Pressure.

d. High HPCI Area Temperature

QUESTION: 042 (1.00)

The following plant conditions exist:

Level has decreased to less than 59 inches
ADS timer has actuated, but has not timed out
All RHR and CS pumps are running

Prior to any SRV's opening, level is increased to 100 inches.

Which of the following describes automatic ADS system response?

a. Timer sequence resets to zero when level increased above 59.5 inches, if level again goes below 59.5 inches, blowdown will occur in 120 seconds.

b. Timer sequence will stop and blowdown will only occur if level goes below 59.5 inches long enough to finish 120 second timer.

c. Timer will time out but blowdown will be inhibited unless level again goes below 59.5 inches, then immediate blowdown will occur.

d. Timer will continue and blowdown will occur at completion of 120 second timer countdown unless level goes above 177 inches.

QUESTION: 043 (1.00)

Why is the Rod Worth Minimizer NOT required to be operable when power is greater than the Low Power Setpoint?

a. The requirement to have each control rod manipulation second checked by another person ensures the correct sequence is maintained.

b. Above this power level, a power excursion from the worst possible single rod withdrawal error can not result in fuel damage.

c. Above this power level, a power excursion from the reactivity added during a single rod drop accident will not result in rapid fuel dispersal.

d. Above this power level, the established rod sequence provides enough control rod withdrawal limitations to keep fuel within the design LHGR Limits.

QUESTION: 044 (1.00)

While at power which of the following systems will initiate an automatic isolation of main condenser air ejector discharge flow to the stack?

a. Main Steam Line radiation Monitor

b. Off-Gas Radiation Monitor

c. Off-Gas Vent Pipe (stack) Radiation Monitor

d. Main Stack Radiation Monitor

QUESTION: 045 (1.00)

Which of the following is designed to ensure adequate net positive suction head for the reactor recirculation pumps?

a. Speed runback to 44% upon a RPV low level alarm.

b. Rate of speed increase limited to 2.5% per second

c. Master controller maximum output limit of 102.5%.

d. Speed limited to 26% if feed flow is less than 20%.

QUESTION: 046 (1.00)

Which of the following meets ALL requirements to withdraw rods for reactor startup?

a. 3 SRMs at 3.0 counts per second, 1 SRM at 2.0 counts per second.
All SRM detectors fully inserted.

b. 3 SRMs inserted far enough to provide 3.0 counts per second.
1 SRM channel in bypass.

c. 2 SRMs fully inserted at 3.0 counts per second.
2 SRMs inserted far enough to provide 3.0 counts per second.

d. 2 SRMs at 3.0 counts per second.
3 SRM detectors fully inserted

QUESTION: 047 (1.00)

Recirculation Flow Unit "A" has failed low downscale.

Select the expected response to bypassing this flow unit from panel 09-5.

a. The half scram and all control rod blocks will clear.

b. The RBM control rod block will clear.

c. The "FLOW REF OFF NORMAL" alarm will clear.

d. The "FLOW REF OFF NORMAL" alarm and all control rod blocks will clear.

QUESTION: 048 (1.00)

Reactor water level has decreased to 150 inches.

If level continues to decrease, which of the following automatic actions will occur next?

a. Group I isolation.

b. ARI initiation

c. Group II isolation

d. SBGT auto start

QUESTION: 049 (1.00)

Which of the following describes the automatic response of the primary containment isolation system to a valid high steam flow signal in the "A" main steam line?

a. Only the "A" steam line inboard and outboard MSIV will close.

b. Only channel A1 of the containment isolation logic will de-energize.

c. One solenoid on each MSIV will de-energize but no valve actuation will occur.

d. A Group 1 containment isolation signal will result.

QUESTION: 050 (1.00)

Which of the following would be an indication of a safety relief valve being open?

a. SRV tailpipe temperature rapid rise to 525 degrees.

b. SRV tailpipe temperature constant at 310 degrees F.

c. Increase in total steam flow with a decrease in reactor level.

d. Increase in total steam flow with constant generator output.

QUESTION: 051 (1.00)

Which of the following detrimental effects could occur if a Diesel Generator was continuously operated at 2000 KW?

a. Inadequate turbocharger cooling.

b. Turbocharger clutch problems.

c. Unburned fuel buildup in the air box.

d. Unburned fuel buildup in the exhaust manifold.

QUESTION: 052 (1.00)

Select the expected plant response to the loss of one feedwater pump while operating at full power with both Reactor Water Recirculation M/A transfer stations in manual?

a. Reactor recirculation pumps run back to 44% speed.

b. Reactor recirculation pumps run back when the RPV low level alarm is received until the alarm is clear.

c. Reactor recirculation pumps run back to 44% when the RPV low level alarm is received.

d. Reactor will scram on low RPV level if no operator action is taken.

QUESTION: 053 (1.00)

IF the drywell pneumatic supply system to the Safety/Relief Valves (SRV) is lost, select the SRV capability provided by the accumulator and check valve arrangement.

a. Five valve operations or hold valve open for 30 minutes

b. Remain capable of depressurizing the reactor under any condition

c. Operable for 100 days if no valve cycling is performed

d. Five valve operations for ADS valves only

QUESTION: 054 (1.00)

Which of the following will always result in an APRM INOP trip?

a. Less than two LPRMs per level input to the APRM.

b. Less than 14 LPRMs total input to the APRM.

c. Less than 55% output from the APRM count circuit.

d. More than three LPRMs bypassed for the APRM.

QUESTION: 055 (1.00)

The following conditions exist:

The main condenser is experiencing excessive air in leakage
Reactor power is 45% and being decreased
The main turbine just tripped due to loss of vacuum
One turbine stop valve fails to close
All other turbine valves respond as expected

Which of the following describes the result of this failure?

a. Automatic fast transfer will be delayed until a unit lockout occurs on reverse power.

b. A reactor scram will occur on high reactor pressure or high neutron flux.

c. The MSIVs will need to be closed to limit reactor vessel cooldown rate.

d. Automatic transfer to reserve power for buses 10300 & 10400 will be delayed until voltage drops to 25% of normal.

QUESTION: 056 (1.00)

If DC control power is lost to a 4KV AC breaker, which of the following operations may be performed at the breaker?

a. Tripped open only.

b. Closed only (if open).

c. Closed (if open) and tripped open.

d. Closed (if open) then opened then closed.

QUESTION: 057 (1.00)

During power operation, region B of the power to flow map is unintentionally entered following the trip of one recirculation pump.

Which of the following actions should be taken immediately?

NOTE: Modified Power to Flow map (fig 1 of AOP-8) is provided.

a. Scram the reactor.

b. Restart the tripped recirculation pump to exit region B.

c. Raise the operating recirculation pump speed to exit region B.

d. Contact the Reactor Analyst Group for instructions.

QUESTION: 058 (1.00)

Select the meaning of a black highlighted circled number "1" appearing in the EOP's.

Note: Table 5-1 of EOP-5 is provided as an example.

a. Identifies areas requiring manual initiation of fire suppression equipment.

b. Identifies areas requiring manual fire suppression by personnel.

c. Identifies a potential problem with RPV level instrumentation accuracy.

d. Only "1" temperature above Maximum Safe value is sufficient to require RPV depressurization.

QUESTION: 059 (1.00)

Identify the reason that reactor power goes down when reactor water level is deliberately lowered during a failure to scram (ATWS) event.

a. Lowering RPV water level will result in further concentration of boron thus lowering the reactor power level.

b. Lowering RPV water level will increase reactor water temperature, adding negative reactivity due to reduced moderator density thereby reducing reactor power.

c. Lowering RPV water level will reduce natural circulation driving head and core flow, increasing voiding and thereby reducing reactor power.

d. Lowering RPV level reduces power by decreasing the subcooling of the water entering the core.

QUESTION: 060 (1.00)

The reactor was scrammed due to suppression pool water temperature being greater than the Technical Specification Limit.

Which of the following describes the MINIMUM conditions required to resume power operation?

a. Suppression Pool Temperature is less than 105 degrees F and must be less than 95 degrees F within 24 hours.

b. Reactor start up may commence if Suppression Pool temperature is less than 105 degrees F provided temperature is below 95 degrees F before placing the mode switch in RUN.

c. Suppression Pool Temperature must be less than 95 degrees F prior to placing the Mode Switch in STARTUP.

d. Suppression Pool temperature must be less than 95 degrees F prior to exceeding 1% power.

QUESTION: 061 (1.00)

A loss of RPS Bus "A" has occurred due to actuation of an Electrical Protection Assembly (EPA). Upon restoration of power to RPS Bus "A" only three (3) of the WHITE Scram solenoid indicating lights for RPS Bus "A" reenergize. All "B" side Scram indicating lights are energized.

Which of the following actions is appropriate?

a. Assume 1/4 of the control rods should have scrammed, depress both reactor scram push buttons.

b. Assume 1/4 of the control rods have received a 1/2 scram signal, continue operations and investigate.

c. Momentarily insert then clear an "A" side half scram to pick up the relay and energize the light.

d. Slightly raise the output voltage of the "A" RPS MG Set to energize the light.

QUESTION: 062 (1.00)

Select the REQUIRED action for a sustained reactor period of less than 30 seconds during reactor startup?

a. Manually scram the reactor.

b. Insert control rods until period is greater than 30 seconds.

c. Stop control rod movement until period decays to greater than 30 seconds.

d. Insert the selected control rod to its previous position.

QUESTION: 063 (1.00)

Which of the following is the required action when Minimum Critical Power Ratio (MCPR) is reduced to 1.05 during a transient?

a. Immediate action must be initiated to restore MCPR to acceptable values and the reactor must be shutdown within the next 2 hours.

b. Power must be reduced to less than 25% within two hours and be in cold snutdown within 24 hours.

c. The reactor must be scramed immediately and be in cold shutdown within 24 hours.

d. The reactor must be shutdown and not restarted until Nuclear Regulatory Commission review.

QUESTION: 064 (1.00)

The following conditions exist:

An ATWS is in progress
Reactor power - 22%.
Reactor water level - 170 to 180 inches.
Reactor pressure - 960 psig

Which of the following is severely challenged if a full MSIV closure should occur?

a. Fuel integrity

b. CST Makeup availability

c. Containment integrity

d. Injection system operability

QUESTION: 065 (1.00)

Which of the following methods will result in the largest overall differential pressure across the Control Rod Drive piston for inserting control rods?

a. Open individual scram test switches.

b. Maximize CRD cooling water differential pressure.

c. Drive control rods using maximum drive pressure.

d. Vent the scram air header.

QUESTION: 066 (1.00)

Following a loss of coolant accident at 100% power, the following conditions exist:

EPIC is out of service	
Average drywell temperature of 16TI-107 & 108	256 deg F
Drywell pressure on panel 09-3	40 psig
RPV water level on panel 09-5 Wide Range	40 inches
RPV water level Fuel Zone on panel 09-3	-130 inches

Which of the following describes use of the level instruments?

Note: Figure 4.7 and 4.8 of EOP-2 is provided.

a. No Fuel Zone or Wide Range instruments may be used.

b. Both Fuel Zone Yarway and Recorder may be used, Wide Range may be used for level trend only.

c. Both Fuel Zone Yarway and Recorder may be used for level and level trend, Wide Range may not be used.

d. Wide Range may be used for level and level trend, Fuel Zone instruments may not be used.

QUESTION: 067 (1.00)

While at full power, one MSIV has gone closed for an unknown reason resulting in expected Safety Relief Valve operation.
The following post transient plant conditions are noted:

Reactor pressure	- 1010 psig and stable.
Reactor Water Level	- 198 inches trending to normal.
Reactor power	- 99%.
Generator output	- dropped 30 Mwe.
SRV 02RV-71K	- lifted and has NOT reseated
SRV 02RV-71L	- lifted and reseated
Reactor Protection System	- No actuations have occurred.

Which of the following is the required action?

a. Continue operation and attempt to shut the SRV-71K by cycling the control switch and establish suppression pool cooling.

b. Establish suppression pool cooling, commence a reactor shutdown, cooldown to remain below the Heat Capacity Temperature Limit.

c. Scram, establish suppression pool cooling and enter EOP-2.

d. Reduce reactor power to less than 90% then enter abnormal procedure for Relief Valve Stuck Open (AOP-36).

QUESTION: 068 (1.00)

Which of the following describes why the ADS valves must be opened, in accordance with EOP-9, when Reactor Water Level reaches -43 inches?

a. This level was selected to be consistent with the level that requires RPV depressurization in accordance with EOP-3.

b. Steam Cooling is not effective in removing decay heat when RPV level is above -43 inches.

c. If the ADS valves are opened below this level adequate core cooling cannot be assured.

d. This level is at two thirds core coverage which is the basis for steam cooling.

QUESTION: 069 (1.00)

Which of the following constitutes "Adequate Core Cooling"?

a. All rods are full in, only LPCI is injecting, RPV pressure is 200 psig, RPV level is -25 inches and decreasing.

b. ATWS in progress, RPV injection is maintaining level at -35 inches.

c. All rods are full in, no injection source, RPV pressure is 50 psig, all 7 ADS valves open, RPV level at -48 inches.

d. All rods are full in, only one Core Spray system is injecting, RPV pressure is 100 psig, RPV water level is -25 inches and increasing.

QUESTION: 070 (1.00)

Which of the following is the basis for inhibiting the Automatic Depressurization System during an ATWS to prevent depressurization?

a. A considerable amount of energy will be put into the Suppression Pool well before it is necessary or required.

b. It would drive plant conditions above the RPV Saturation Temperature curve making RPV water level readings unreliable.

c. Under ATWS conditions it would cause a large loss of RPV inventory and impose a severe thermal transient on the fuel.

d. Once below the shutoff head of the low pressure ECCS systems, the injection water might cause a large power excursion.

QUESTION: 071 (1.00)

Instrument air pressure is decreasing due to a pipe break in the reactor building. Loss of Instrument Air AOP-12 has been entered.

Which of the following requires a manual scram?

a. The "Scram Air Header Pressure Low" alarm is received.

b. Instrument air pressure has reached 65 psig.

c. The "Rod Drift" annunciator is in for control rod 40-17, NO other rods have moved.

d. Scram discharge volume vent and drain valves drift shut.

QUESTION: 072 (1.00)

Which of the following describes the action to be taken by persons on the refuel floor during core reload in response alarms of the Refuel Bridge ARM, the Spent Fuel Pool ARM and the New Fuel Vault ARM?

a. Check dosimetry and those individuals with higher than expected readings must evacuate.

b. If possible, reverse the action causing the alarms then evacuate to the 357 ft elevation of the reactor building.

c. Immediately attempt to reduce radiation levels by moving the component being handled.

d. Stop work in the area and immediately evacuate to the step off pad pending evaluation by Radiation Protection personnel.

QUESTION: 073 (1.00)

Which of the following is the initial concern should a sustained loss of shutdown cooling occur when refueling is in progress?

a. Airborne release on the refueling floor.

b. Excessive radiation levels inside the upper drywell.

c. Fuel clad degradation.

d. Reduced core shutdown margin.

QUESTION: 074 (1.00)

The Emergency RPV Depressurization flowchart (EOP 8) directs the operator to use alternate depressurization systems if suppression pool level is below 5.5 feet.

SELECT the reason for this action.

a. The bottom of the downcomers is uncovered.

b. The design pressure of the torus may be exceeded.

c. Ensures ECCS pump NPSH and vortex limits are not exceeded.

d. The HPCI exhaust line is uncovered.

QUESTION: 075 (1.00)

Should it become necessary to lower reactor level during an ATWS condition, only the following systems are specified for use to maintain level:

Condensate/feedwater
CRD
RCIC
HPCI
LPCI

Select the reason why only these systems are to be used?

a. These systems provide the cleanest source of water for injection into the reactor.

b. At this point in the ATWS, reactor pressure precludes use of other systems.

c. Their point of injection ensures mixing of the cold injection water to reduce the potential reactivity transient.

d. These systems either start or operate automatically so the operator need only verify lineups when this step is reached.

QUESTION: 076 (1.00)

Select the condition that requires entry into EOP-6, Radioactivity Release Control.

a. A primary system is discharging outside the primary and secondary containments.

b. Offsite radioactivity release rate is above the Emergency Plan "Alert" level.

c. Turbine building ventilation is isolated due to high radiation.

d. Loss of 2 of 3 fission product barriers with potential loss of the 3rd barrier.

QUESTION: 077 (1.00)

Why must the scram discharge volume vent and drain valves be verified closed after a scram has occurred?

a. To ensure there is no primary to reactor building leak.

b. To ensure that the CRD discharge path has sufficient back pressure.

c. To initiate the timer that allows scram reset after 10 seconds.

d. To maximize the CRD water going to the RPV.

QUESTION: 078 (1.00)

Which of the following requires an immediate reactor scram in response to a partial loss of coolant flow?

NOTE: Modified Power to Flow map (fig 1 of AOP-8) is provided.

a. APRM upscale alarm on two channels.

b. Core thermal power - 41%, Core flow - 33%

c. Core thermal power - 63%, Core flow - 44%

d. Core thermal power - 56%, Core flow - 34%

QUESTION: 079 (1.00)

When operating within the guidelines of EOP-2, Section RPV/L, the prefered level range is between 177 inches and 222.5 inches.

Which of the following is a reason for this level band?

a. Preserves use of the condenser as a heat sink.

b. Feed and condensate systems may be used to maintain level.

c. This is the range of the automatic RPV level controller.

d. Preserves the availability of steam driven equipment.

QUESTION: 080 (1.00)

The following conditions exist:

Refueling is in progress
RHR loop A pumps are tagged out.
Maintenance on a leaking SRV is in progress in the drywell.
Both RHR loop B pumps have tripped and cannot be restarted.
Within 30 minutes of the RHR trip, coolant temperature has increased from 140 deg F to 200 deg F.

Which of the following actions MUST be taken in preference to the others?

a. Increase any running recirculation pump speed to maximum.

b. Maximize heat removal with the Reactor Water Clean Up system.

c. Establish secondary containment integrity.

d. Increase RHR heat exchanger cooling flow.

QUESTION: 081 (1.00)

With the plant initially at 100% power, the following has occurred:

One RBCLC pump tripped and the standby pump did not start.
One RBCLC pump is still running.
RBCLC pressure dropped to less than 40 psig and ESW started.
ESW is supplying RBCLC and pressure has increased to 75 psig.
No RBCLC loads have reached temperature limits.

Select the appropriate operator response:

a. Manually start the standby RBCLC pump and secure ESW.

b. Manually scram and enter both AOP-11(Loss of RBCLC) and AOP-1.

c. Determine and correct the cause of low pressure then secure ESW.

d. Investigate the cause and if temperatures increase then scram and enter AOP-11.

QUESTION: 082 (1.00)

Which of the following conditions REQUIRES entry into EOP-3 "Failure to Scram" after a Reactor Protection System Scram has been initiated?

Note: NO Reactor Analyst is available.

a. Reactor period is infinite.

b. Reactor power is 1%.

c. One center control rod stuck at position 48.

d. One control rod at position 02 and one control rod position is unknown.

QUESTION: 083 (1.00)

Which of the following will result from the loss of 125 VDC System "A"?

a. Loss of the backup scram function.

b. Alternate Rod Insertion System "A" will initiate.

c. Main Turbine trip.

d. Reactor Feed Pump "A" trip.

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Note: NO Reactor Analyst is available.

a. Reactor period is infinite.

b. Reactor power is 1%.

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d. One control rod at position 02 and one control rod position is unknown.

QUESTION: 083 (1.00)

Which of the following will result from the loss of 125 VDC System "A"?

a. Loss of the backup scram function.

b. Alternate Rod Insertion System "A" will initiate.

c. Main Turbine trip.

d. Reactor Feed Pump "A" trip.

QUESTION: 084 (1.00)

Which of the following describes how the reactor building is protected from excess differential pressure?

a. The SBGT is not capable of achieving a negative pressure sufficient to damage the reactor building.

b. The reactor building door seals will leak sufficient to prevent excess differential pressure.

c. Only operator action is available to maintain the safe reactor building differential pressure.

d. A vacuum relief will lift greater than -5" water pressure in the reactor building.

QUESTION: 085 (1.00)

The following conditions exist:

A reactor startup is in progress
The mode switch is STARTUP
The main turbine is tripped
A valid Group I isolation has occurred
The reactor did not scram

Select the signal that generated the Group I isolation:

a. Main steam line tunnel temperature

b. Reactor water level

c. Main steam line radiation

d. Main steam line pressure

QUESTION: 086 (1.00)

There is a small leak into the drywell from the recirculation system. The leak does not depressurize the reactor but drywell temperature is rising.

Which of the following is the effect on panel 9-5 level instruments?

a. Indicated level may read below actual level.

b. Indicated level may read above actual level.

c. Reference leg flashing may occur causing erratic level indication.

d. Indicated level will be correct unless drywell temperature exceeds 212 deg F.

QUESTION: 087 (1.00)

The Emergency Diesel Generators (EDG) were automatically started by "Degraded" bus voltage conditions.

The EDG output breakers will automatically close 0.8 secs after meeting which of the following interlock conditions?

a. One double ended tie breaker open and EDG voltage 90%.

b. Both double ended tie breakers open and EDG bus loads tripped.

c. One double ended tie breaker open and EDG bus loads tripped.

d. EDG bus loads tripped and EDG voltage 90%.

QUESTION: 088 (1.00)

Which of following requires entry into EOP-5, "Secondary Containment Control"?

a. Water level of 1 inch in one crescent area.

b. Reactor building ventilation exhaust radiation level of 300 CPM.

c. Reactor building differential pressure of -3"wg.

d. Reactor building floor drain sump pump, 20-P-6B operating and maintaining sump level 1 inch below the high setpoint.

QUESTION: 089 (1.00)

With the plant initially at 100% power, a turbine trip has occurred. The following post trip conditions exist:

All control rods are at the pre turbine trip position
Reactor power is 50%
Scram lights for all HCU's are on
All RPS group lights are extinguished

Which pair of actions should BOTH be successful in causing control rod insertion?

a. Deenergize the scram solenoids
Perform manual scrams

b. Vent the scram air header
Insert rods with individual drive signals

c. Insert rods with individual drive signals
Vent the individual control rod overpiston volumes

d. Vent the scram air header
Vent the individual control rod overpiston volumes

QUESTION: 090 (1.00)

Which of the following describes plant response to a load rejection with the plant initially at 45% power?

a. A TCV fast closure will occur on power to load imbalance and the reactor will scram on TCV fast closure.

b. A TCV fast closure will occur on power to load imbalance and the reactor will continue to operate using bypass valve and SRV's for pressure control.

c. The turbine will trip on reverse power interlock and the reactor will scram on high pressure or high flux.

d. The turbine will trip on power to load imbalance and the reactor will scram on turbine stop valve closure.

QUESTION: 091 (1.00)

While operating at full power, a turbine trip occurs and all automatic electrical systems function as designed.

Select the resultant power supply to 4160 volt emergency bus 10500.

a. Transformer T4 via bus 10300.

b. Transformer T3 via bus 10300

c. Transformer T2 via tie breakers 10402 and 10302.

d. Emergency Diesel generators "A" and "C".

QUESTION: 092 (1.00)

The following conditions exist:

A scram has occurred and plant response is normal except:
The Green FULL IN lights for 3 rods are not on
Full core rod scan shows these rods at (-99)
Four rod display is inoperable

Select the action for determining that all rods are full in:

a. The full core rod scan is sufficient to verify all rods in.

b. Check the Blue scram valves open lights for these rods.

c. The position of these rods is unknown without technical help.

d. If the white refuel permissive light is on, all rods are in.

QUESTION: 093 (1.00)

The following conditions exist:

The reactor has been scrammed
There is a Main Steam Line Drain leak into the turbine bldg
Emergency RPV depressurization is anticipated
ALL main turbine bypass valves have been fully opened

Conditions degrade and require immediate emergency RPV Depressurization per EOP-8. Select the REQUIRED action.

a. Continue Depressurization using only the bypass valves.

b. Open 7 ADS valves.

c. Open 4 ADS/SRV valves.

d. Close the bypass valves and open 7 ADS valves.

QUESTION: 094 (1.00)

Drywell pressure is maintained 1.7 psig greater than torus pressure in order to:

a. Prevent actuation of the drywell to torus vacuum breakers.

b. Reduce the water slug forces on the torus during a LOCA.

c. Increase the nitrogen concentration in the drywell.

d. Ensure torus level is at the high end of its band.

QUESTION: 095 (1.00)

The "Shorting Links" to the neutron monitoring protective logic are removed.

Which of the following describes the MINIMUM channel trips required to cause a scram?

a. Any two SRMs

b. One SRM and one IRM

c. Two IRMs or two APRMs

d. One SRM or one IRM or one APRM

QUESTION: 096 (1.00)

The following conditions exist:

The reactor is at 100% power.
RPS MG SET "B" has one inoperable Electrical Protection Assembly.
RPS Division "B" has been shifted to its' alternate source.
"A" RPS MG set is overheating.
RPS Division "A" and MUST be shifted to its alternate source.

Select the required action after RPS Division "A" is shifted to its alternate source:

a. Reduce power within 30 minutes and be in cold shutdown within the subsequent 24 hours.

b. Insert a half Scram on either RPS division until one RPS MG Set supply can be restored to service.

c. Restore either RPS MG Set supply to operation within 7 days or be in COLD SHUTDOWN within 8 days.

d. Return RPS division "B" supply to RPS MG Set "B" and continue full power operation for 72 hours.

QUESTION: 097 (1.00)

With the reactor operating at 100% power, a turbine trip has occurred followed by a reactor scram. A Safety Limit violation did NOT occur.

Which of the following signals must have initiated the scram?

a. MSIV Closure

b. Turbine Stop Valve Closure

c. Reactor Vessel Pressure High

d. APRM HI-HI

QUESTION: 098 (1.00)

Five control rods failed to fully insert after a low RPV level reactor scram.
Which of the following is REQUIRED to insert the rods manually using RMCS system?

a. Use Emergency Rod Insertion to bypass all control rod blocks.

b. Reset and block ARI then use Emergency Rod Insertion or Continuous In movement.

c. Bypass the RWM and use Emergency Rod Insertion or Continuous In movement.

d. Shut 03CRD-56 (Chg Wtr Sup Hdr Isol Vlv) and use Emergency Rod Insertion or Continuous In movement.

QUESTION: 099 (1.00)

During testing of HPCI, the Suppression Pool temperature increased to 104 deg F.

Which of the following describes the requirements for entry/implementation of EOP-4 "Primary containment Control"?

a. The actions of EOP-4 are required to be performed when suppression pool temperature is above 95 deg F.

b. EOP-4 actions may be deferred for 24 hours while suppression pool temperature is reduced below 95 deg F.

c. All HPCI test procedures allow 4 hours to reduce suppression pool temperature below 95 deg F prior to entering EOP-4.

d. Technical Specifications change the EOP limit to 105 deg F for 24 hours after completion of any testing which adds heat.

QUESTION: 100 (1.00)

Which of the following describes the effect of losing 125 VDC system "A" power to the ADS system with a valid initiation signal present?

a. ADS logic "B" will still initiate ADS
   Only 4 ADS valves will open

b. ADS logic "A" will receive backup power from 125 VDC system "B"
   All ADS valves will open

c. ADS logic "B" will still initiate ADS
   All ADS valves will open

d. ADS logic "A" will receive backup power from 125 VDC system "B"
   Only 4 ADS valves will open

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

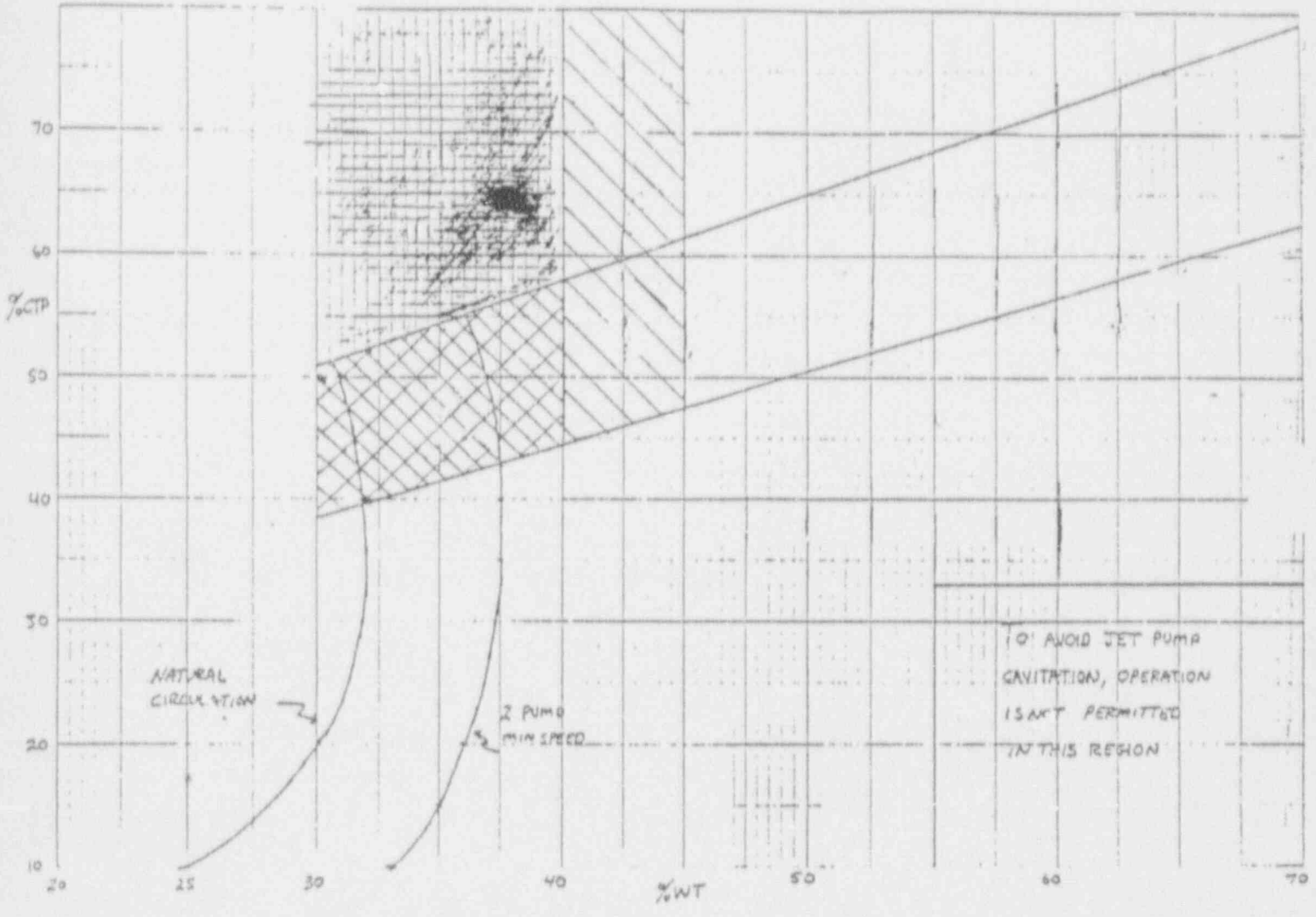
TABLE 5-1

REACTOR BUILDING AREA TEMPERATURES

AREA	INSTRUMENT	MAXIMUM NORMAL	MAXIMUM SAFE
Reactor Building 369 ft elevation 66RTD-106 66RTD-108	66TI-106 Panel 09-75 66TI-108 Panel 09-75	104 F	112 F
Outside A - LPCI Battery Enclosure 66RTD-115	EPIC only	104 F	113 F
Below Refuel Floor Exhaust 66RTD-105	66TI-105 Panel 09-75	104 F	113 F
Outside B - LPCI Battery Enclosure 66RTD-116	EPIC only	104 F	113 F
SLC Pump Area 66RTD-114	EPIC only ❶	104 F	133 F
Fuel Pool Cooling Pump Room 66RTD-113	EPIC only	104 F	133 F
Reactor Building 300 ft elevation northeast 66RTD-112	EPIC only ❶	104 F	158 F
RWCU Heat Exchanger Room 12TE-117E 12TE-117F	Panel 09-21 Panel 09-21	104 F	203 F
B - RWCU Pump Room 12TE-117C 12TE-117D	Panel 09-21 Panel 09-21	119 F	225 F
A - RWCU Pump Room 12TE-117A 12TE-117B	Panel 09-21 Panel 09-21	119 F	225 F
Reactor Building 300 ft elevation southwest 66RTD-111	EPIC only ❶	104 F	173 F
B - RHR Heat Exchanger Room 23RTD-02A 23RTD-02B	23-203A Panel 09-95 23-203B Panel 09-96	125 F	242 F
Reactor Building 272 ft elevation southeast 23RTD-02C 23RTD-02D	23-204A Panel 09-95 23-204B Panel 09-96	104 F	153 F
HPCI Drywell Entrance 13RTD-102C 13RTD-102D	13-202C Panel 09-95 13-202D Panel 09-96	115 F	251 F
RCIC Drywell Entrance 13RTD-102A 13RTD-107B	13-202A Panel 09-95 13-207B Panel 09-96	115 F	218 F
Reactor Building 272 ft elevation southwest 23RTD-01C 23RTD-01D	23-202A Panel 09-95 23-202B Panel 09-96	104 F	196 F
A - RHR Heat Exchanger Room 23RTD-01A 23RTD-01B	23-201A Panel 09-95 23-201B Panel 09-96	125 F	242 F
Torus Room - South HPCI Steamline 13RTD-107C 13RTD-107D	13-207C Panel 09-95 13-207D Panel 09-96	120 F	280 F
Torus Room - Southwest RCIC Steamline 13RTD-102B 13RTD-107A	13-202B Panel 09-96 13-207A Panel 09-95	120 F	280 F
East Crescent 66RTD-109B	66TI-109B Panel 09-75	104 F	137 F
HPCI Room 23RTD-94A 23RTD-94B 23RTD-117A 23RTD-117B	23-294A Panel 09-95 23-294B Panel 09-96 23-217A Panel 09-95 23-217B Panel 09-96	104 F	137 F
RCIC Room 13RTD-89A 13RTD-89B	13-289A Panel 09-95 13-289B Panel 09-96	104 F	137 F
West Crescent 13RTD-76A 13RTD-76B	13-276A Panel 09-95 13-276B Panel 09-96	104 F	137 F

TITLE: LOSS OF REACTOR COOLANT FLOW* NO. F-AOP-8

FIGURE 1



D.33

D.34

CAUTIONS

- The following limitations are applicable to starting a tripped RWR pump:
  - Two starts from cold are permitted:

    A pump motor is considered cold if the motor has been deenergized for 45 minutes **OR** if the motor was started after being deenergized for 45 minutes and ran for **LESS THAN** 15 minutes before tripping.

    IF the motor trips after the second cold start, **THEN** the motor shall be deenergized for at least 45 minutes before restart.

  - One start from hot is permitted:

    A pump motor is considered hot if the motor has been energized for **GREATER THAN** 15 minutes. This hot start shall not be in addition to the second cold start.

- .

- Technical Specification maximum allowable RWR loop heat-up **OR** cool-down rate is 100°F per hour.

D.35

D.36

An RPV water level instrument may not be used if either of the following conditions exists:

- An instrument run temperature is at or above the RPV Saturation Temperature (Fig 4.7)
- The instrument reads at or below its Minimum Usable Indicating Level (Fig 4.8)

FIGURE 4.7
RPV SATURATION TEMPERATURE

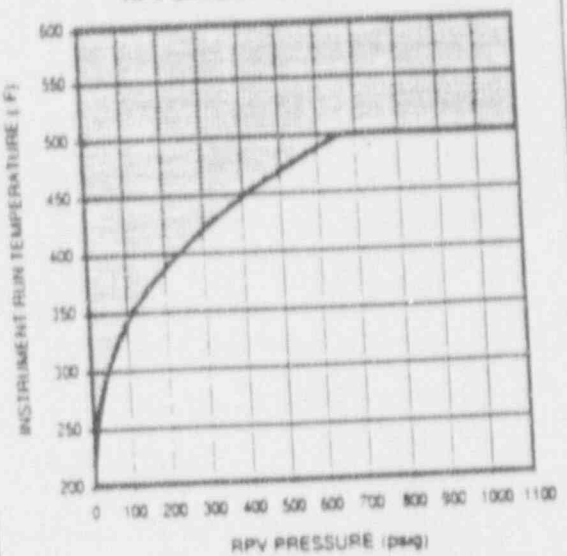
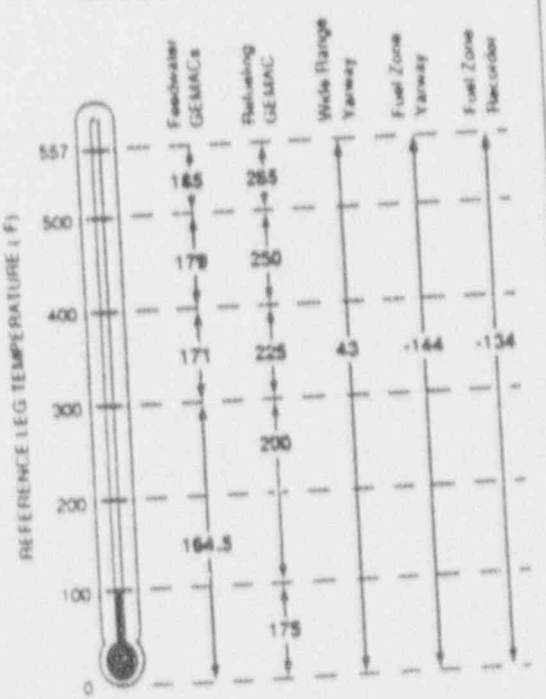


FIGURE 4.8
RPV WATER LEVEL INSTRUMENT
MINIMUM USABLE INDICATING LEVELS



ANSWER KEY FITZ EXAM 92 SRO 1 of 1

MULTIPLE CHOICE

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

ANSWER KEY

S10

046 a

MULTIPLE CHOICE

047 c

048 b

049 d

050 b

051 b

052 c

053 a

054 c

055 a

056 c

057 c

058 c

059 c

060 d

061 b

062 d or b

063 d

064 c

065 a

066 c

067 c

068 c

069 a

070 d

071 c

072 b

073 a

074 b

075 c

076 b

077 a

078 d

079 d

080 c or b

081 b

082 d

083 c

084 d

085 a

086 b

087 a

088 a

089 c

090 a

ANSWER KEY

SRO

091 b

MULTIPLE CHOICE

092 a

093 b

094 b

095 d

096 c

097 b

098 ~~d~~ c

099 a

100 c

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

SRO
1 of 1

ANSWER: 001 (1.00)

c.

REFERENCE:

JAFNPP Radiation Protection Manual Ch 6, 6.8.4, 6.9.5, 6.9.6, 6.9.7

[3.3/3.8]

294001K103 ..(KA's)

ANSWER: 002 (1.00)

d.

REFERENCE:

JAFNPP NRC License Maintenance ODSO-30 rev 1, sect 7.1

[2.7/3.7]

294001K103 ..(KA's)

ANSWER: 003 (1.00)

d.

REFERENCE:

JAFNPP EAP-1.1 rev 23, sect 4.4 AND
10CFR50.72(a)(ii)(3) of Jan 1, 1990, pg 597

[2.9/4.7]

294001A116 ..(KA's)

ANSWER: 004 (1.00)

c.

REFERENCE:

JAFNPP PSO-26 rev 6, sect 7.2
T/S, pg 247a, item 6b

[2.7/3.7]

294001A103 ..(KA's)

ANSWER: 005 (1.00)

a.

REFERENCE:

JAFNPP ODSO-1 rev 16, sect 6.8.4, pg 16
T/S table 6.2-1, Minimum Shift Manning Requirements, pg 260a

[3.3/4.2] 5

294001A109 ..(KA's)

ANSWER: 006 (1.00)

a.

REFERENCE:

JAFNPP Radiation Protection Manual rev 8, Ch 6, 6.3.3.

[3.3/3.8]

294001K103 ..(KA's)

ANSWER: 007 (1.00)

d.

REFERENCE:

10 CFR 50.54(x)(y), pg 579, primary ref
JAFNPP ODSO-2 rev 02, sect 6.1

[4.2/4.2] 7

294001A102 ..(KA's)

ANSWER: 008 (1.00)

d.

REFERENCE:

JAFNPP ODSO-18 rev 9, sect 7.6.1.3

[3.7/3.7]

294001K101 ..(KA's)

ANSWER: 009 (1.00)

c.

REFERENCE:

TS, Definitions pg 1, sect 1.0.B, pg 247a sect 6.2.2.2
JAFNPP RAP-7.1.3 rev15, sect 4.1
JAFNPP ODSO-1 rev 16, sect 6.25.2

[3.5/4.2] 9

294001A112 ..(KA's)

ANSWER: 010 (1.00)

a.

REFERENCE:

JAFNPP Radiation Protection Manual, Ch 9, sect 9.6

[3.3/3.6]

294001K104 ..(KA's)

ANSWER: 011 (1.00)

b.

REFERENCE:

JAFNPP AP 1.13 rev 0, sect 7.1.3, exhibit 9.2.A.11, exhibit 9.1.E
JAFNPP ODSO-17 rev 22, pg 34 of 112, skimmer surge tank level
Reactor Operator Qual Std, ODSO-22

[2.7/3.7] 11

294001A103 ..(KA's)

ANSWER: 012 (1.00)

b.

REFERENCE:

SDLP-94F, PG 5, LOR 1.07, 1.08
SNLP-94F, pg 10, II.B.3.a.1
Fac bank 20004242B01S rev 0

[3.4/3.8] 13

294001K115 ..(KA's)

ANSWER: 013 (1.00)

b.

REFERENCE:

JAFNPP WACP 10.1.2, rev 22, pg 23, sect 6.2.5.

[3.9/4.5] 15

294001K102 ..(KA's)

ANSWER: 014 (1.00)

b.

REFERENCE:

Fac Bank 20004250FJC01 rev 0

[3.3/3.6]

294001K107 ..(KA's)

ANSWER: 015 (1.00)

a.

REFERENCE:

JAFNPP WACP 10.1.2 rev 22, pg 17, sect 6.1.12

[3.9/4.5] 17

294001K102 ..(KA's)

ANSWER: 016 (1.00)

c.

REFERENCE:

JAFNPP WACP 10.1.3 rev 14, pg 4, sect 2.2.4

[4.2/4.2]

294001A102 ..(KA's)

ANSWER: 017 (1.00)

d.

REFERENCE:

JAFNPP WACP 10.1.26 rev 4, specifically pg 21,sect 7.4.1.

[2.7/3.7] 19

294001A103 ..(KA's)

ANSWER: 018 (1.00)

c.

REFERENCE:

SDLP-02J, rev 7, pg18, D.4.b
LOR 1.04d

[3.0/3.3]

239002A201 ..(KA's)

ANSWER: 019 (1.00)

d.

REFERENCE:

SDLP-02J REV 7, pgs 10 and 16
LOR 1.04a

[4.2/4.3]

218000K301 ..(KA's)

ANSWER: 020 (1.00)

b.

REFERENCE:

RCIC OP-19 rev 24, pg 12, sect C.2.a
LOR 1.07, 105 degree F limit

[3.5/3.6] 22

217000A219 ..(KA's)

ANSWER: 021 (1.00)

d.

REFERENCE:

SDLP-05 rev 8, pgs 69&70, Table VII, Scram Signals
LOR 1.08

[3.9/3.9] 23

212000A404 ..(KA's)

ANSWER: 022 (1.00)

b.

REFERENCE:

Tech/Specs table 3.1-1, pgs 41,41a,41b.
T/S Definitions, pg 5, item 1.0, Reactor Power Operation

[4.0/4.1] 24

212000A212 ..(KA's)

ANSWER: 023 (1.00)

d.

REFERENCE:

SDLP-05 rev 8, pgs 18 and 19
LOR 1.04

[3.5/3.6]

201001K203 ..(KA's)

ANSWER: 024 (1.00)

b.

REFERENCE:

SDLP-02G rev 5, pg 33, 2a. through 2d
LOR 1.19
Fac task for RO 508B.302, move fuel
RAP-71.3. sect 5.2.1, Bridge operator responsibilities

[3.0/3.7] 26

234000K505 ..(KA's)

ANSWER: 025 (1.00)

b.

REFERENCE:

EOP-3 sect Rx/Q

[4.0/4.2] 27

211000G001 ..(KA's)

ANSWER: 026 (1.00)

b.

REFERENCE:

SDLP-03C rev 6, pgs 25 and 26, sect 13.c.1)
LOR 1.04

[3.5/3.4] 28

201001A105 ..(KA's)

ANSWER: 027 (1.00)

b.

REFERENCE:

SDLP-05 rev 8, pg 69, Table VII, Scram signals
LOR 1.03c

[3.7/4.5] 29

212000G011 ..(KA's)

ANSWER: 028 (1.00)

a.

REFERENCE:

T/S sect 1.1 and 1.2, pgs 7,8,9,

[3.8/4.5]

2120C0G005 ..(KA's)

ANSWER: 029 (1.00)

c.

REFERENCE:

SDLP-17/18 rev 4, pg 38, sect 3.g. and pg 102 table VII
LOR 1.08, 1.10, 1.11

[3.7/4.1].

272000K402 ..(KA's)

ANSWER: 030 (1.00)

c.

REFERENCE:

SDLP-05 rev 8, pgs 35 & 36, sect d.6.b

[4.2/4.1]

239001A301 ..(KA's)

ANSWER: 031 (1.00)

d.

REFERENCE:

SDLP-11 rev 7, pg 19, sect 5.a
LOR 1.04e

[4.2/4.2] 36

211000A408 ..(KA's)

ANSWER: 032 (1.00)

a.

REFERENCE:

SDLP-03D rev 4, SDLP-03G rev 4,

[3.5/3.3] 37

214000G008 ..(KA's)

ANSWER: 033 (1.00)

d.

REFERENCE:

AOP-24 rev 1, pg2, sect C, first CAUTION
SDLP-03A, LOR 1.11a

[3.7/3.8]

201003A202 ..(KA's)

ANSWER: 034 (1.00)

a.

REFERENCE:

SDLP-01B rev 5, pg 32 & 33, item I.2.a,b,c,
LOR 1.07
JSEM-91-019

[3.2/3.8]

261000A103 ..(KA's)

ANSWER: 035 (1.00)

b.

REFERENCE:

SDLP-03F rev 5, pg 24, item 5 Note
OP-26, OP-65
LOR 1.04, 1.07

[3.2/3.2]

201002K408 ..(KA's)

ANSWER: 036 (1.00)

b.

REFERENCE:

OP-26 rev 6, pg 12

[3.8/3.9] 42

201003K402 ..(KA's)

ANSWER: 037 (1.00)

c.

REFERENCE:

SDLP-08B rev 2, Figure 8B-7, Rod Blocks
LOR 1.03

[3.1/3.7]

234000A302 ..(KA's)

ANSWER: 038 (1.00)

d.

REFERENCE:

OP-19 rev 24, pgs 6 & 7, Trips and Isolations
LOR 1.04

[3.8/3.7]

217000A202 ..(KA's)

ANSWER: 039 (1.00)

d.

REFERENCE:

SDLP-07C rev 5, pg 71, item 4.d.2).b)
T/S table 4.1-2
RAP-7.3.1 pg 3, item 6.1
LOR 1.07

[3.0/3.4] 45

215005A107 ..(KA's)

ANSWER: 040 (1.00)

b.

REFERENCE:

OP-15 rev 34, pg 11
LOR 1.04

[3.7/3.8] 46

206000K419 ..(KA's)

ANSWER: 041 (1.00)

d.

REFERENCE:

SDLP-23 rev 7, pg 40, item c.1.a, c.1.b, c.2.
OP-15 rev 34, pg 7
LOR-1.08

[4.0/4.0] 47

206000A201 ..(KA's)

ANSWER: 042 (1.00)

a.

REFERENCE:

SDLP-02J rev 7, pgs 16 through 20
LOR 1.03 and 1.13

[3.8/3.8]

218000K501 ..(KA's)

ANSWER: 043 (1.00)

c.

REFERENCE:

SDLP-03D rev 4, pg9
T/S pg 100, sect 4.3, RWM bases

[3.3/3.7]

201006K501 ..(KA's)

ANSWER: 044 (1.00)

b.

REFERENCE:

SDLP-17/18 rev 4, pgs 10 through 27
LOR 1.04

[3.1/3.3]

271000K102 ..(KA's)

ANSWER: 045 (1.00)

d.

REFERENCE:

SDLP-02I rev 6, pg 12, item 4.2.b,
LOR 1.04d

[3.3/3.3]

202001K607 ..(KA's)

ANSWER: 046 (1.00)

a.

REFERENCE:

SU/SD Procedure OP-65 (3 channels >3cps, detectors fully inserted)
Tech Spec 3.3.B.4. (2 channels > 3cps)
T/Specs table 3.2-3 note 4 (only one SRM channel may be bypassed)
SDLP-07B, table VII, pg 69, (SRM full in interlock)

[3.4/3.6] 52

215004A407 ..(KA's)

ANSWER: 047 (1.00)

c.

REFERENCE:

SDLP-02E rev 6, pg 18, and Table I Annunciators
SDLP-07C Table I, FLOW REF OFF NORMAL annunciator
LOR 1.11d

[3.4/3.5] 55

202001K123 ..(KA's)

ANSWER: 048 (1.00)

b.

REFERENCE:

SDLP-02B rev 8, pg 43, Table VII
LOR 1.11

[3.8/3.9]

216000K119 ..(KA's)

ANSWER: 049 (1.00)

d.

REFERENCE:

SDLP-16C, Fig 16C-7
LOR 1.08

[3.5/3.5]

223002A302 ..(KA's)

ANSWER: 050 (1.00)

b.

REFERENCE:

AOP-36 pg 4
Steam Tables Mollier Diagram

[3.3/3.5] 59

239002K504 ..(KA's)

ANSWER: 051 (1.00)

b.

REFERENCE:

OP-22 rev 24, pg 17,
SDLP-93, pg 27, item 6,
LOR 1.04t
Fac bank 26401004EDGC01 rev 1 modified

[3.7/4.2]

264000G001 ..(KA's)

ANSWER: 052 (1.00)

c.

REFERENCE:

SDLP-02I rev 6, pg 12
SDLP-02I fig 021-2
LOR 1.04e

[3.5/3.5]

259001K411 ..(KA's)

ANSWER: 053 (1.00)

a.

REFERENCE:

SDLP-29, pg 19, item 12.f,
LOR 1.10c & 1.10d. NLO 1.08d & 1.08e

[3.4/3.5]

239002K602 ..(KA's)

ANSWER: 054 (1.00)

c.

REFERENCE:

SDLP-07C rev 6, pgs 22, 25, 26, APRM inputs and trips
LOR 1.08

[3.2/3.2]

215005A303 ..(KA's)

ANSWER: 055 (1.00)

a.

REFERENCE:

FAC bank
OP-46A

[3.222/3.3]

262001A302 ..(KA's)

ANSWER: 056 (1.00)

c.

REFERENCE:

SDLP-71B rev 3, pg 17, item d. CAUTION
LOR 1.10

[3.5/3.8]

263000K302 ..(KA's)

ANSWER: 057 (1.00)

c.

REFERENCE:

FAC bank 20004202B09C rev 0

[4.0/4.0]

202002K302 ..(KA's)

ANSWER: 058 (1.00)

c.

REFERENCE:

MIT 301.11A, pg 12, item k.1
EOP-5
EO 1.03j

[3.6/4.4]

295032G012 ..(KA's)

ANSWER: 059 (1.00)

c.

REFERENCE:

MIT 301.11D(EOP-3) pg 24 bottom
EO 1.07

[4.1/4.5]

295037K303 ..(KA's)

ANSWER: 060 (1.00)

d.

REFERENCE:

Technical Specifications pg 166, sect 3.7.A.1.c.3,
T/S (definitions) pg 5, item O.

[3.2/4.3]

295026G003 ..(KA's)

ANSWER: 061 (1.00)

b.

REFERENCE:

SDLP-05 rev 8, fig 05-5A
LOR 1.04

[4.0/4.2]

295015A102 ..(KA's)

ANSWER: 062 (1.00)

d.

REFERENCE:

OP-65 rev 56, pg 13, step c.2.

[4.0/3.9]

295014G010 ..(KA's)

ANSWER: 063 (1.00)

d.

REFERENCE:

Tech Spec Safety Limits pg 253, sect 6.7

[3.8/4.3]

295014G008 ..(KA's)

ANSWER: 064 (1.00)

c.

REFERENCE:

MIT 301.11 (EOP-3), pg 24, item g.1.
EO 3.07

[3.7/3.9]

295020K101 ..(KA's)

ANSWER: 065 (1.00)

a.

REFERENCE:

SDLP-03C rev 6, pgs 25 & 26, SDV vents and drain
LOR 1.04 and 1.15c

[4.2/4.3]

295037K307 ..(KA's)

ANSWER: 066 (1.00)

c.

REFERENCE:

MIT 301.11 (EOP-2)
Fac bank 20005204B05C rev 1

[3.8/4.3]

295028G012 ..(KA's)

ANSWER: 067 (1.00)

c.

REFERENCE:

SDLP-05C, reactor scram at 1045 psig
SDLP-29 SRV 71 k setpoint 1090 psig
EOP-2 (Should have TCV fast closure scram)

[4.1/4.1]

295025K201 ..(KA's)

ANSWER: 068 (1.00)

c.

REFERENCE:

MIT 301.11J (EOP-9) pg 7 item 4.e.
EO 9.04

[4.0/4.3]

295031K304 ..(KA's)

ANSWER: 069 (1.00)

a.

REFERENCE:

MIT 301.11A,
EO 1.04

[4.6/4.7]

295031K101 ..(KA's)

ANSWER: 070 (1.00)

d.

REFERENCE:

MIT 301.11D (EOP-3), pg 10, item h.1 & h.2
EO 3.07

[3.8/3.9]

295015K103 ..(KA's)

ANSWER: 071 (1.00)

c.

REFERENCE:

AOP-12, Loss of instrument air, rev 10, pg 5, sect 3.a

[3.7/3.4]

295019G010 ..(KA's)

ANSWER: 072 (1.00)

b.

REFERENCE:

RAP-7.1.3 pg 24, sect 6.3.1.10.
ARP-09-3-1-20, (not complete info)
LER 87-002, pg 69 of SDLP-17/18

[3.4/3.6]

295023G005 ..(KA's)

ANSWER: 073 (1.00)

a.

REFERENCE:

AOP-30 sect C.2.3.d., pg 7

[3.6/3.7]

295021A201 ..(KA's)

ANSWER: 074 (1.00)

b.

REFERENCE:

MIT 301.11I (EOP-8) pg 7, item 2,b,
EO 1.04

[3.5/3.8]

295030K208 ..(KA's)

ANSWER: 075 (1.00)

c.

REFERENCE:

MIT 301.11D (EOP-3) pg 26, para h.3, pg 29, para J.6.
EO 3.07

[4.0/4.2]

295037K106 ..(KA's)

ANSWER: 076 (1.00)

b.

REFERENCE:

EOP-6

[4.2/4.5]

295038G011 ..(KA's)

ANSWER: 077 (1.00)

a.

REFERENCE:

AOP-1 pg 8, rev 18, sect C.2.3, CAUTION

[3.7/3.8]

295006K203 ..(KA's)

ANSWER: 078 (1.00)

d.

REFERENCE:

AOP-8, pg 3, item C.4.

[3.8/3.7]

295001G011 ..(KA's)

ANSWER: 079 (1.00)

d.

REFERENCE:

MIT 301.11C (EOP-2), pg 19, sect c.1 & C.2
EO 2.07

[3.2/3.3]

295008G007 ..(KA's)

ANSWER: 080 (1.00)

c.

REFERENCE:

AOP-30, pg 6, sect c.2.2.d.1 and pg 7, sect C.2.3.d.1

[3.2/3.9]

295021G008 ..(KA's)

ANSWER: 081 (1.00)

b.

REFERENCE:

ARP 09-6-2-32 RBC LO-LO press
AOP-11 pg 5, sect C.1

[3.5/3.6]

295018K101 ..(KA's)

ANSWER: 082 (1.00)

d.

REFERENCE:

ODSO-28 sect 6.16 (one rod out statement) and 6.17
EOP-2 and EOP-3 entry statements

[4.1/4.2]

295015A202 ..(KA's)

ANSWER: 083 (1.00)

c.

REFERENCE:

AOP-22 Table I, Effect of isolation
SDLP-718

[3.3/3.3]

295004A203 ..(KA's)

ANSWER: 084 (1.00)

d.

REFERENCE:

SDLP-01B, pg 14, item 5.a
SDLP-16A, pg 5, LOR 1.02

[3.9/4.2]

295035K101 ..(KA's)

ANSWER: 085 (1.00)

a.

REFERENCE:

SDLP-16C rev 5, pg 39, Table VII, Isolations
LOR 1.04
SDLP 05, pg 69, table VII, MSIV scram bypassed out of RUN

[3.6/3.6]

295020A101 ..(KA's)

ANSWER: 086 (1.00)

b.

REFERENCE:

SDLP-02B rev 8, pgs 17 through 20, sect F.3.
LOR 1.10e

[3.7/3.9]

295028A203 ..(KA's)

ANSWER: 087 (1.00)

a.

REFERENCE:

SDLP-93 rev 6, pg 40 sect d.2, pg 41 sect c.2.

[4.1/4.2]

295003K202 ..(KA's)

ANSWER: 088 (1.00)

a.

REFERENCE:

EOP-5 Entry Conditions. MIT 301.11F
EO 5.02

[3.8/4.1]

295036G011 ..(KA's)

ANSWER: 089 (1.00)

c.

REFERENCE:

Fac bank 20004213B01C rev 1
AOP-34

[4.2/4.3]

295037K307 ..(KA's)

ANSWER: 090 (1.00)

a.

REFERENCE:

Fac bank 34403009FJC01 rev 0
ARP 09-5-1-51

[3.6/3.6]

295005A102 ..(KA's)

ANSWER: 091 (1.00)

b.

REFERENCE:

SDLP-71A pg 118, Electrical Distribution figure
EO 1.10 & 1.11

[3.2/3.3]

295005K208 ..(KA's)

ANSWER: 092 (1.00)

a.

REFERENCE:

AOP-1 pg 5, Immediate operator actions
SDLP-03G, Table VII
LOR 1.04

[4.1/4.1]

295006A107 ..(KA's)

ANSWER: 093 (1.00)

b.

REFERENCE:

MIT 301.11A (use and format) pg 13, item E.2.c
EOP-02, RPV/P then EOP-8

[3.8/4.5]

295017G012 ..(KA's)

ANSWER: 094 (1.00)

b.

REFERENCE:

SDLP-16B pg 35, item 6.a
LOR 1.07

[3.0/3.4]

295010K101 ..(KA's)

ANSWER: 095 (1.00)

d.

REFERENCE:

SDLP-05 pg 39 item 6.a
LOR 1.03

[3.3/3.4]

295023A106 ..(KA's)

ANSWER: 096 (1.00)

c.

REFERENCE:

T/S pg 222c and 222d, sect 3.9.g.3

[3.2/4.1]

295003G003 ..(KA's)

ANSWER: 097 (1.00)

b.

REFERENCE:

T/S pg 8, Sect 1.1.C
SDLP-05, Table VII
SDLP-94B pg 23, item F.2
LOR 1.0[illegible]

[3.8/4.0]

295006K305 ..(KA's)

ANSWER: 098 (1.00)

~~d.~~ c.

REFERENCE:

FAC bank 20004208B02C
AOP-34 pg 12, sect c.7

[3.6/3.8]

295015A103 ..(KA's)

ANSWER: 099 (1.00)

a.

REFERENCE:

MIT 301.11A, pg 13, Procedure use, items E.1.a and E.1.e
Tech Specs, pg 166, item A.1.c.2.

[3.3/3.5]

295013G007 ..(KA's)

ANSWER: 100 (1.00)

c.

REFERENCE:

OP-68, rev 10, pg 4,
ARP 09-4-1-8, rev 2, pg 1

[3.2/3.4]

295004K102 ..(KA's)

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

ATTACHMENT 3

FACILITY COMMENTS AND NRC RESOLUTION

SRO QUESTION 62/RO QUESTION #69

Select the REQUIRED action for a sustained reactor period of less than 30 seconds during reactor startup?

a. Manually scram the reactor.

b. Insert control rods until period is greater than 30 seconds.

c. Stop control rod movement until period decays to greater than 30 seconds.

d. Insert the selected control rod to its previous position.

ANSWER:
d.

FACILITY COMMENT:

Accept either "b" or "d" as a correct answer.

The question does not clearly state that the short period was caused by the movement of a selected rod. If the candidate assumes that this is the case, then the correct answer is "d", which is the key answer. The annunciator response procedure for a short period alarm, however, does not presuppose movement of a selected rod and simply directs insertion of control rods to lengthen the period, which is answer "b". Answer "b" encompasses answer "d" so one of the two options should have been replaced with another distractor. This was on the initial review.

NRC RESOLUTION:

Comment accepted.

SRO AND RO QUESTION #80

The following conditions exist:

Refueling is in progress
RHR loop A pumps are tagged out.
Maintenance on a leaking SRV is in progress in the drywell.
Both RHR loop B pumps have tripped and cannot be restarted.
Within 30 minutes of the RHR trip, coolant temperature has increased from 140 deg F to 200 deg F.

Which of the following actions MUST be taken in preference to the others?

a. Increase any running recirculation pump speed to maximum.

b. Maximize heat removal with the Reactor Water Clean Up system.

c. Establish secondary containment integrity.

d. Increase RHR heat exchanger cooling flow.

ANSWER:

c.

FACILITY COMMENT:

Accept either "b" or "c" as a correct answer.

The question stem states that refueling is in progress. It is expected that if irradiated fuel movement is in progress, the candidates may assume that secondary containment is set, which would cause them to eliminate option "c" and select option "b" to establish a cooling mechanism. On the other hand, it would be prudent to ensure that secondary containment was established, leaving option "C" as a viable answer. AOP-30, "Loss of Shutdown Cooling lists both "b" and "c" as tasks to be accomplished, with no preference stated or inferred.

NRC RESOLUTION:

Comment accepted.

ATTACHMENT 4

SIMULATION FACILITY REPORT

Facility License: DRP-39

Facility Docket No.: 50-333

Operating Test Preparation and Administered from: October 13, to November 5, 1992

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

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

ITEM	DESCRIPTION
Core	The power to flow response on downpower maneuvers does not track expected plant response. When decreasing power in IC-14 reactor power trends significantly below the 100% rod line. This adverse response made it necessary to adjust average power range monitor (APRM) gains to simulate actual plant conditions. These adjustments resulted in delays of up to 30 minutes in simulator setup.
Process computer	Thermal limit monitoring program (P-1) used in the simulator is not consistent with the program (3D-Monicore) used in the plant.
Communication	The simulator communication headsets did not function. This head set failure made communication between the simulator console operator and the lead examiner difficult.
Condensate	While operating at steady state at full power (IC-14), condenser hotwell and condensate storage tank level both increased continually. This contradictory information indicates the simulator was creating water inventory.
Turbine Bldg Sumps	Turbine building sump high level and turbine building floor drain tank (TB33B) low level alarms occurred during all conditions for no apparent reason

SRM	SRM period swings from +100 to -80 occurred and would not stabilize when power was reduced to approximately 75%.
Radiation Monitoring	During the conduct of ST-11, Off-Gas Process Rad Monitor Instrument Functional Test, 17RM-150A would not change units and subsequently stopped working altogether.
Radiation Monitoring	During the conduct of ST-11, Off-Gas Process Rad Monitor Instrument Functional Test, an off-gas isolation (closure of AOV-100) did not occur within the 15 minutes as required.

ATTACHMENT 5

Licensee Personnel

J. Romanowski	Simulator Supervisor
D. Topley	Training Manager
M. Coulomb	General Manager, Support Services
H. Salmon, Jr.	Resident Manager
R. Post	Quality Assurance Engineer
G. Tasick	Quality Assurance Manager
F. Catella	Operations Training Supervisor
J. Morris	Licensed Operator Replacement Program Administrator
R. Locy	Operations Manager
R. Barrett	General Manager, Operations

NRC Personnel

A. Burritt	Operations Engineer, Chief Examiner
T. Fish	Senior Operations Engineer