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

Report No.: 50-400/95-300

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

Docket No.: 50-400 License No.: NPF-63

Facility Name: Shearon Harris Nuclear Power Plant Unit 1

Examination Conducted: June 26-30, 1995

Inspector: _____ 7/27/95
D. Charles Payne Date Signed

Accompanying Personnel: Art Lopez, Battelle-PNL
Tom Vehec, Battelle-PNL

Approved by: _____ 7/27/95
Thomas A. Peebles, Acting Chief Date Signed
Operator Licensing Sections
Operations Branch
Division of Reactor Safety

SUMMARY

Scope:

NRC examiners conducted regular, announced operator licensing initial examinations during the period June 26-30, 1995. Examiners administered examinations under the guidelines of the Examiner Standards, NUREG-1021, Revision 7, Supplement 1. One Senior Reactor Operator (SRO) and five Reactor Operator (RO) candidates received written and operating examinations.

Results:

Candidate Pass/Fail:

	SRO	RO	Total	Percent
Pass	1	5	6	100%
Fail	0	0	0	0%

The examiners identified a weakness regarding candidate performance during manual manipulation of the Main Turbine controls on a rapid power reduction (paragraph 2.b).

The examiners identified a programming error in the ERFIS computer software for position indication of two control rods (paragraph 3.a).

No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*J. Collins, Manager Training
*T. Donohue, Plant General Manager
R. Garner, Manager Operator Requalification Training
*W. Killette, Instructor
M. Lewis, Reactor Operator
*J. Pierce, Manager Operator Initial Training
*W. Powell, Manager Operations Training Unit
*W. Robinson, Site Vice President
H. Stroup, Shift Technical Advisor
*W. Sylvestor, Instructor
*T. Walt, Manager Regulatory Affairs
M. Weber, Senior Reactor Operator
*A. Williams, Manager Operations

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

NRC Personnel

*D. Roberts, Resident Inspector

*Attended exit interview

Acronyms and initialisms used in this report are listed in the last paragraph.

2. Discussion

a. Scope

NRC examiners conducted regular, announced operator licensing initial examinations during the period June 26-30, 1995. Examiners administered examinations under the guidelines of the Examiner Standards, NUREG-1021, Revision 7, Supplement 1. One SRO and five RO candidates received written and operating examinations.

b. Results and Candidate Performance

All candidates passed the examination. The examiners noted one generic weakness. During one simulator scenario, the examiners evaluated three of the six candidates as Balance of Plant Operator. Each candidate had to respond to a decreasing condenser vacuum on the Main Turbine. In accordance with Harris procedure AOP-012, "Partial Loss of Condenser Vacuum," Revision 6, the operator's only immediate action was to reduce turbine load as necessary to maintain condenser

vacuum. Attachment 2 to Harris procedure GP-006, "Normal Plant Shutdown from Power Operation to Hot Standby (Mode 1 to Mode 3)," Revision 6, provided direction for rapid shutdown (greater than 5 MW/minute load decrease) of the plant. Step 3 directed the operator to place the Impulse Pressure Feedback and Megawatt Feedback loops in service. None of the three candidates tested, performed this task. As a result, indicated (and reported) generator load was between 80 to 100 MW less than actual. As a result, the RO candidates under-borated the RCS for the power decrease in progress and subsequent automatic rod insertion placed bank "D" rods below the rod insertion limit. During post scenario questioning, the examiners determined that each candidate recognized that generator load was actually indicating 80 to 100 MW low and demonstrated that placing the Impulse Pressure Feedback loop and the Megawatt Feedback loop in service would have corrected the problem. Other than this, the examiners evaluated candidate performance on the simulator as well as familiarity with the plant and associated tasks as good.

3. Plant Observations

The following items detail examiners' observations noted during the conduct of the operating portion of the examination. Of the four items discussed, the examiners evaluated item 3.a as being the most significant.

a. ERFIS Rod Position Indication

On June 29, 1995, a simulator JPM for dropped control rod recovery was conducted. The JPM had been set up with rod C11 fully inserted. One RO candidate elected to call up the control rod position display on the ERFIS computer to verify his initial conditions. However, the control rod indicating fully inserted on ERFIS was M5, not C11 as set up. Other simulator indications and components confirmed that rod C11 was fully inserted and not rod M5. Post examination testing found that an error in the software for the ERFIS system swapped the display labels for M5 and C11; however, the source data inputs to the computer were determined to be correct. Since the simulator used a duplicate of the plant's ERFIS program, the examiners suspected that the plant computer on site possessed the same software error. The facility staff confirmed this was true and also verified that the computer display labels for only rods C11 and M5 were swapped. Additionally, the data base inputs for rod deviation and other display programs were investigated and found to be unaffected by the identified problem. In a memorandum dated July 10, 1995, the facility provided an analysis of their findings and corrective actions taken. Corrective action for the simulator computer files was completed on July 3, 1995, while corrective action for the plant's ERFIS computer was completed on July 7, 1995. This action appeared to be adequate pending direct inspection by the NRC resident inspectors.

b. AFW Flow Indication Range

On June 27, 1995, a simulator scenario was administered which required the license candidates to enter EOP-FRP-S.1, "Response to Nuclear Power Generation/ATWS," Revision 7. Also, because of a later Main Steam Line break, SG steam pressures diverged and AFW flow preferentially filled the SG with the lowest steam pressure. At step 7.a, "Check Intact SG Levels," all SG levels were less than 10 percent [40 percent] and the SRO initiated the Response Not Obtained actions. The alternative action for step 7.a directs the operators to "Verify total feed flow greater than 445 KPPH until level greater than 10 percent [40 percent] in at least one intact SG." The candidates monitored this flow on MCB Panel 1B1 with AFW flow indicators FI-2050-A1 SA, FI-2050-B1 SB, and FI-2050-C1 SA for SGs "A," "B," and "C," respectively. Each indicator has a range of 0-260 KPPH. However, in this situation with only one SG being fed, the candidates had no way to measure whether they had achieved the required flow of 445 KPPH specified in the EOP.

c. Main Condenser Vacuum Indication Nomenclature

On June 27, 1995, a simulator scenario was administered which required the license candidates to respond to a decreasing Main Condenser vacuum indication. The SRO referred to AOP-12, "Partial Loss of Main Condenser Vacuum," and briefed the crew of conditions that will automatically trip the reactor. One condition was if Condenser Zone 1 reached 7.5 inches of Hg with the turbine 1st stage pressure greater than 370 psig (60 percent power). There were no indicators on the MCB labeled Condenser Zone 1 (or Zone 2). The MCB indications available to the operator (PI-1900A and PI-1900B) were labeled "CNDSER A ABS PRESS" and "CNDSER B ABS PRESS." Since a specific instrument indication was not identified in AOP-012, operator confusion could have occured by the difference in nomenclature.

4. Action on Previous Inspection Findings

(Closed) IFI 50-400/94-300-01, "Minimal/inconsistent documentation of exam/remediation results." This item concerned lack of thorough and consistent documentation of candidate performance and subsequent remediation including addressing the root cause of the identified deficiency. During this examination, the Chief Examiner reviewed the new documentation and remediation procedures for content and independently inspected examples of their implementation from the current requalification cycle. The examiner found the procedures to be modeled after documentation guidelines provided in the Examiner Standards, NUREG-1021. The examples of individual requalification deficiencies documented by the facility evaluators were found to be comprehensive but

tracking of these weaknesses, by operator, was still found to be difficult and needs further improvement. However, the examiner considered the licensee's overall corrective action to be adequate, and this Inspector Follow-up Item is closed.

5. Exit Interview

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

Status	Item Number	Description and Reference
Closed	IFI 50-400/94-300-01	Minimal/inconsistent documentation of exam/remediation results (paragraph 4).

6. List of Acronyms and Initialisms

AFW	Auxiliary Feed Water
AOP	Abnormal Operating Procedure
ATWS	Anticipated Transient Without Scram
EOP	Emergency Operating Procedure
ERFIS	Emergency Response Facility Information System
FI	Flow Indicator
FRP	Functional Restoration Procedure
GP	General Procedure
Hg	Mercury
IFI	Inspector Follow-up Item
JPM	Job Performance Measure
KPPH	1000 Pounds Per Hour
MCB	Main Control Board
MW	Megawatt
NRC	Nuclear Regulatory Commission
PI	Pressure Indicator
PSIG	Pounds Per Square Inch
RCS	Reactor Coolant System
RO	Reactor Operator
SG	Steam Generator
SRO	Senior Reactor Operator

SIMULATOR FACILITY REPORT

Facility Licensee: Shearon Harris Nuclear Power Plant Unit 1

Facility Docket No.: 50-400

Operating Tests Administered On: June 27-29, 1995

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

While conducting the simulator portion of the operating tests, the following items were observed (if none, so state):

ITEM	DESCRIPTION
None	

Enclosure 2

CP&L

Carolina Power & Light Company
PO Box 165
New Hill NC 27562

JUN 2 9 1995

Letter Number: HO-950631

William R. Robinson
Vice President
Harris Nuclear Plant

Serial: HNP-95-062

Mr. S. D. Ebneter, Regional Administrator
United States Nuclear Regulatory Commission
101 Marietta Street, NW, Suite 2900
Atlanta, GA 30323

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
COMMENTS ON NRC REACTOR OPERATOR EXAM

Dear Mr. Ebneter:

On June 26, 1995, Shearon Harris Nuclear Power Plant received NRC Reactor Operator (RO) and Senior Reactor Operator (SRO) written examinations. The written exams were reviewed by members of the Harris Operations and Training staffs at the NRC Region II offices in Atlanta the week of June 5, 1995. We would like to take this opportunity to express our appreciation for the assistance provided by Mr. Charles Payne and the NRC examination team during the initial review of the exam. Minor problems were identified and corrected prior to examination administration. During the on-site post-exam review, one examination question was considered to be misleading to the exam candidates. The following is a recommendation concerning resolution of this issue.

> Recommend that for question #93 on the RO examination that answer "c" be accepted in addition to answer "a" due to construction of the question stem.
>
> An ionization type fire detector (choice "a") is designed to detect smoke and products of combustion at an early stage of a fire prior to flames. The stem of the question asks which detector "is designed to detect fire before significant heat and visible smoke are detected?" When interpreted that smoke has yet to be generated and detected, the candidate would be encouraged to exclude choice "a" in favor of choice "c" (ultraviolet detector) as the correct answer, since the ultraviolet detector will detect the presence of flames. (Reference attached: SD-149 Rev. 3, Pages 18 and 19, Paragraphs 4.3.1.1 and 4.3.1.3)

These comments are provided in accordance with Examination Standard (ES-402) paragraph E, and Attachment 3 of NUREG-1021 Rev. 7. If you have any questions or need additional information, please contact Mr. Joe Collins, Manager, Harris Training at (919) 362-3332.

Sincerely,

MV

Attachment
c: Mr. S. A. Elrod
Mr. T. A. Peebles
Mr. D. C. Payne
NRC Document Control Desk

Enclosure 3

bc: T. A. Baxter, Esq.
Mr. R. K. Buckles (LIS)
Mr. W. R. Campbell
Mr. J. W. Donahue
Mr. H. W. Habermeyer, Jr.
Ms. T. A. Head (GLS File)
Mr. M. D. Hill
Mr. G. Honma (BNP)
Mr. R. M. Krich (HBR)
Mr. C. W. Martin (BNP)
Mr. R. D. Martin
Admiral K. R. McKee
Mr. P. M. Odom (HBR)
Mr. W. S. Orser
Mr. G. A. Rolfson
Mr. R. S. Stancil
Mr. T. D. Walt
Nuclear Records
File: HI/A-2D

4.3 General Operations (continued)

e. Operation of water flow detection devices.

f. A common trouble alarm is provided in the Main Control Room for the Main Fire Pumps.

g. All detectors are readily removable to facilitate periodic testing and maintenance. Detectors are designed in a way that in-place testing can be accomplished by means of a portable testing kit or apparatus.

4.3.1 Types of Detectors and Alarms

Fire detection systems (heat, smoke, or flame) are provided in safety-related areas or in areas that present potential fire exposure to safety-related systems or equipment, unless noted, as a deviation in the Safe Shutdown Analysis in Case of Fire. Annunciators and alarms are transmitted to the MFDIC, located in the Communications Room, which in turn, alerts the Control Room.

Selection of detectors was done on the basis of suitability for the postulated fire. Where cables are present and smoldering, insulation was postulated, ionization type smoke detectors, sensitive to products of combustion, are provided. Where charcoal or combustible liquids are present and high heat release was postulated, rate compensated type heat detectors are provided. In areas where flames could be present, ultraviolet fire detectors are provided.

1. Ionization Detection Systems are provided in areas where it is advisable to detect smoke and products of combustion at an early stage of a fire. Ionization detectors are provided on an area basis which is less than the maximums given in NFPA Standard 72E. Not less than two detectors are provided in any single area. Detectors are equipped with an integral signal lamp to indicate alarm condition. Except for loss of sensitivity, detectors are not adversely affected by short-term high radioactivity exposures. Detectors in the Containment Building are capable of operation in a high level radiation environment.

2. Thermal Detection Systems are generally provided in the same areas where automatic sprinkler systems are installed and are used for activation of sprinklers. Thermal detectors are provided on an area spacing basis, which is less than the maximum specified in NFPA Standard 72E, and are of a rate compensated or rate anticipated/fixed temperature type. Each thermal detector has a minimum temperature setting of 30°F above environmental conditions for the location in which they are used. Sensitivity of detectors is not field adjustable.

4.3.1 Types of Detectors and Alarms (continued)

Thermal detectors interfaced with a fire extinguishing system (preaction or multi-cycle automatically reset themselves after an alarm-condition dissipates. This action resets the multi-cycle system automatically after a preset time delay. The preaction sprinkler system is manually reset at the valve. Any electrical circuit associated with the preaction sprinkler system is reset manually from the LFDCP. Loss of supervisory current activates sprinkler control valves allowing water flow into the sprinkler distribution piping. The loss of power for Water Spray Systems (transformers and TB areas) does not activate these systems. They must be manually activated upon loss of power.

Detectors require no replacements after a fire alarm to restore them to normal operation. They are continually supervised and de-energized to alarm. Detectors are not adversely affected by short-term high radioactivity exposures.

Thermal detectors used outdoors (transformer bays) or near equipment in large ceiling areas (reactor coolant pumps) have a heat collecting canopy.

3. Ultraviolet Flame Detection systems are provided in areas where oil is present, for example, Diesel Generator Building and fuel oil pump area.

Flame detectors operate on a principle using a Geiger-Mueller gas-type cathode tube designed to detect flame-radiated rays in the extreme low end of the radiation spectrum. They are of split-architecture construction having NEMA 7, explosion-proof housing. They use a quartz lens, have a built-in checking system for optical integrity, and have the capability to reject high intensity ultraviolet radiation emitted from sources such as lightning by using an internal time-delay circuit. Each has a swivel mounting assembly suitable for vertical or horizontal mounting.

Each flame detector controller is capable of operating up to eight flame detectors and is mounted in the associated LFDCP for the fire detection zone.

4. Manual Fire Alarm Stations are provided throughout plant operating areas, located to be readily accessible for employee use in signaling the existence of an observed fire condition. To the extent feasible, manual fire alarm stations are grouped with fire extinguishers and hose stations. In addition to initiating a fire alert, manual fire alarm stations are used to activate water flow to associated sprinklers or water sprays.

NRC RESOLUTION OF FACILITY COMMENT

RO Question #93:

WHICH ONE (1) of the following detectors is designed to detect fire before significant heat and visible smoke are detected?

a. Ionization detectors

b. Fixed temperature detectors

c. Ultraviolet detectors

d. Rate of rise thermal detectors

RO Answer #93:

a.

FACILITY COMMENT:

Answer "c" is also correct based on supplemental reference provided. Recommend accepting both answer "a" and answer "c".

NRC RESOLUTION:

Comment accepted. Answer key was modified to reflect that both answer "a" and answer "c" were correct responses. It is noted that this comment and its resolution had no impact on the pass/fail determination of any candidate taking this written examination.

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MASTER SRO
HARRIS INITIAL
95-300
6/26 - 30/95

Nuclear Regulatory Commission
Operator Licensing
Examination

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

CANDIDATE'S NAME: _____

FACILITY: Shearon Harris 1

REACTOR TYPE: PWR-WEC3

DATE ADMINISTERED: 95/06/26

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

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

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

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

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

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

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

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

1. Cheating on the examination will result in a denial of your application and could result in more severe penalties.

2. After you complete the examination, 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.

3. To pass the examination, you must achieve a grade of 80 percent or greater.

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

5. There is a time limit of 4 hours for completing the examination.

6. Use only black ink or dark pencil to ensure legible copies.

7. Print your name in the blank provided on the examination cover sheet and the answer sheet.

8. Mark your answers on the answer sheet provided and do not leave any question blank.

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

10. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating.

11. When you complete the examination, assemble a package including the examination questions, examination aids, and answer sheets and give it to the examiner or proctor. Remember to sign the statement on the examination cover sheet.

12. After you have turned in your examination, leave the examination area as defined by the examiner.

QUESTION: 001 (1.00)

Given the following:

-The unit is at 100% power.
-All controls are in automatic.
-Steam dumps are in Tavg Mode.

WHICH ONE (1) of the following events will cause the actuation of the steam dump system?

a. Impulse pressure transmitters PT-446 and PT-447 fail HIGH.

b. Impulse pressure transmitter PT-447 fails LOW coincident with the median Tavg circuit output failing LOW.

c. Impulse pressure transmitter PT-446 fails LOW coincident the median Tavg circuit output failing HIGH.

d. Impulse pressure transmitter PT-447 fails HIGH along with a reactor/turbine trip.

QUESTION: 002 (1.00)

WHICH ONE (1) of the following describes the source and characteristics of the T-ref signal used to calculate rod speed?

	T-ref input source	Rod Control
a.	Only from PT-446	Via lead/lag circuit
b.	Selectable (PT-446 or PT-447)	Instantaneous
c.	Selectable (PT-446 or PT-447)	Via lead/lag circuit
d.	Only from PT-447	Instantaneous

QUESTION: 003 (1.00)

WHICH ONE (1) of the following instrument failures will cause the rods to insert? ASSUME rods in AUTO.

a. Loop 2 cold leg RTD fails HIGH.

b. Selected turbine impulse pressure channel fails LOW.

c. Loop delta T fails HIGH.

d. Power range channel NI-44 fails LOW.

QUESTION: 004 (1.00)

Given the following:

-Unit is at 65% power.
-Rod control is in MANUAL.
-The disconnect switch for the movable grippers at the 1BD power cabinet is open in preparation for fuse replacement.
-The RO attempts to move the Bank D rods.

WHICH ONE (1) of the following describes the rod system response?

a. Rods drop causing a reactor trip; the slave cycler sends a zero current to the stationary grippers.

b. Rods do not move; a non-urgent failure alarm in the logic cabinet sends an inhibit signal to the pulser in the rod control circuit.

c. Rods drop causing a reactor trip; an urgent failure in the power cabinet deenergizes all stationary gripper coils.

d. Rods do not move; an urgent failure alarm in the power cabinet sends an inhibit signal to the pulser in the rod control circuit.

QUESTION: 005 (1.00)

Given the following:

-During a plant cooldown RCS temperature decreased from 350 deg. F to 345 deg. F from 9:00 am to 9:10 am.
-The SCO has directed you to establish a cooldown rate that will result in the MAXIMUM allowable rate per Technical Specifications between 9:00 am and 10:00 am.

WHICH ONE (1) of the following actions will result in reaching the Technical Specification MAXIMUM allowable RCS cooldown limit?

a. Decrease cooldown to 0.3 deg. F/min.

b. Increase cooldown to 0.9 deg. F/min.

c. Increase cooldown to 1.1 deg. F/min.

d. Increase cooldown to 1.9 deg. F/min.

QUESTION: 006 (1.00)

Given the following:

-The plant is operating at 75% power and the latest leak rate data shows:

11.3 GPM - Total RCS leakage rate
1.6 GPM - Leakage into the PRT
2.0 GPM - Leakage into the Reactor Coolant Drain Tank
1.5 GPM - Leakage past check valves from RCS to SI system
1.7 GPM - Leakage into Equipment Drain Tank
0.8 GPM - Total primary to secondary leakage (Assume distributed over all S/Gs)
2.0 GPM - Charging pump leakage

WHICH ONE (1) of the following identifies the RCS leakage that requires the plant to be shutdown?

a. PRESSURE BOUNDARY LEAKAGE

b. UNIDENTIFIED LEAKAGE

c. IDENTIFIED LEAKAGE

d. PRIMARY to SECONDARY LEAKAGE

QUESTION: 007 (1.00)

Given the following:

-The unit is at 30% power.
-RCP 1B trips.
-NO operator action is taken.

WHICH ONE (1) of the following describes the INITIAL unit response to the RCP trip?

a. A reactor trip will NOT occur and 1B steam generator water level will INCREASE.

b. A reactor trip will NOT occur and 1B steam generator water level will DECREASE.

c. A reactor trip WILL occur and 1B steam generator water level will INCREASE.

d. A reactor trip WILL occur and 1B steam generator water level will DECREASE.

QUESTION: 008 (1.00)

WHICH ONE (1) of the following could indicate a 10 gpm letdown leak between 1CS-11 (letdown isolation outside containment) and the containment penetration?

a. Indicated letdown flow (FI-150.1) INCREASING.

b. INCREASED component cooling water flow to the letdown heat exchanger.

c. Letdown pressure control valve CLOSING to maintain pressure at setpoint.

d. Regenerative heat exchanger charging outlet temperature DECREASING.

QUESTION: 009 (1.00)

Given the following:

-The Unit is at 60% power.
-The VCT level control is in AUTO.
-VCT level transmitter LT-115 channel fails HIGH.
-No operator action is taken.

WHICH ONE (1) of the following is the system response?

a. No VCT annunciator will be received.

b. Auto make up will be blocked.

c. VCT low-low level interlock can still be actuated.

d. LT-112 will control VCT level at steady state.

QUESTION: 010 (1.00)

WHICH ONE (1) of the following describes how the RHR pump discharge is delivered to the reactor coolant system (RCS) after the swap from the injection phase to the recirculation phase during a large break LOCA?

a. Only by direct injection to the RCS cold legs.

b. Only by direct injection to the RCS hot legs.

c. By direct injection to the RCS cold legs and via the CSIPs.

d. By direct injection to the RCS hot legs and via the CSIPs.

QUESTION: 011 (1.00)

Given the following:

-An SI and Phase A have actuated.

WHICH ONE (1) of the following indicates an SI System MISALIGNMENT?

a. RCP seal return header valves (1CS-470, 472) CLOSED.

b. CSIP to RCS charging line isolation valves (1CS-235, 238) valves CLOSED.

c. Low head SI to RCS hot leg valve (1SI-359) CLOSED.

d. VCT outlet valves (1CS-115C, E) are OPEN and RWST valves (1CS-115B, D) are OPEN.

QUESTION: 012 (1.00)

Given the following:

-MODE 4, RCS Temp/Press is 210 Deg. F./450 psig.
-An SI Signal is received by the ECCS circuitry.

WHICH ONE (1) of the following describes the response of the ECCS Accumulators, and the reason for that response?

a. The Accumulators will discharge into the RCS, because the outlet valves are interlocked to open on an SI Signal.

b. The Accumulators will discharge into the RCS, because the outlet valves's are open with their power supply locked-out.

c. The Accumulators will not discharge into the RCS, because the outlet valves's are shut with their power supply locked-out.

d. The Accumulators will not discharge into the RCS, because RCS pressure is less than P-11.

QUESTION: 013 (1.00)

Given the following:

-Unit is operating at 100% power.
-PORV PCV-445A has excessive seat leakage and its respective block valve is shut.
-Excessive seat leakage has developed in a second PORV, PCV-444.
-All block valves are operable.

WHICH ONE (1) of the following will satisfy the requirements in Technical Specifications 3.4.4, "Relief Valves"?

a. Either PCV-445A or PCV-444 must be restored to operable status within 1 hour or be in Hot Standby within 6 hours.

b. Both PCV-445A and PCV-444 must be restored to operable status within 1 hour or be in Hot Standby within 6 hours.

c. Close the block valve for PCV-444, maintain power to both block valves. Power operation may continue.

d. Close the block valve for PCV-444, remove power from both block valves. Power operation may continue.

QUESTION: 014 (1.00)

Given the following:

-The pressurizer control heaters are energized.
-The pressurizer backup heater control switches are in the AUTO position.
-The pressurizer level drops to 12%, and is restored to 25%.
-RCS pressure drops to 2000 psig.
-ASSUME no operator action other than refilling the pressurizer.

WHICH ONE (1) of the following describes how the heaters will respond?

a. Control and backup heaters remain off.

b. Control and backup heaters come on AUTOMATICALLY.

c. Backup heaters come on AUTOMATICALLY AND control heaters remain off.

d. Control heaters come on AUTOMATICALLY AND backup heaters remain off.

QUESTION: 015 (1.00)

WHICH ONE (1) of the following describes the effect on OT delta T and OP delta T setpoints if Tavg decreases to 574 degrees F with reactor power at 100%? ASSUME Delta flux and PZR pressure have remained at -2 and 2235 psig respectively.

	OT delta T	OP delta T
a.	Increase	Remain the same
b.	Decrease	Decrease
c.	Increase	Decrease
d.	Remain the same	Increase

QUESTION: 016 (1.00)

Given the following:

-Unit is at 100% power.
-Reactor protection system (RPS) testing is in progress.
-Train "B" reactor trip breaker is OPEN.
-Train "B" bypass breaker is CLOSED.
-Train "A" reactor trip breaker is CLOSED.
-Train "A" bypass breaker is OPEN.

WHICH ONE (1) of the following is the system response following a spurious reactor trip signal and Bypass Breaker Train "B" fails to open?

a. A Main Feedwater Isolation Signal (MFIS) will ONLY be initiated by Train "A".

b. If an SI occurs and the signal is RESET, an automatic reinitiation of SI would NOT be prevented.

c. The Turbine Generator remains on line and must be manually tripped.

d. Steam dumps receive an open signal, but do NOT arm.

QUESTION: 017 (1.00)

WHICH ONE (1) of the following describes the reactor trip breaker trip coil operation when using the manual trip switch?

a. UV coils are energized, the shunt coils are energized.

b. UV coils and shunt coils are all de-energized.

c. UV coils are energized, shunt coils are de-energized.

d. UV coils are de-energized, the shunt coils are energized.

QUESTION: 018 (1.00)

Given the following:

-Unit is at 85% power and being increased to 100%.
-The "Rod Control Startup" switch is inadvertently actuated.

WHICH ONE (1) of the following describes the effect of this action?

a. "Urgent Failure" alarm will actuate.

b. The plant will NOT respond to a dropped rod(s) in control banks B, C, or D.

c. Alarms "Bank Low Insertion Limit" and "Bank Low-Low Insertion Limit" will actuate.

d. Control Bank D outward motion will be stopped by Rod stop interlock C-11 if rods are in automatic.

QUESTION: 019 (1.00)

Given the following:

-The Unit is at 100% power.
-The Digital Rod Position Indicating System (DRPI) has experienced a failure of the "A" Data Cabinet.

WHICH ONE (1) of the following is the actual position of the rods relative to its indicated (DRPI) position?

a. +10 to -4 steps

b. +4 to -10 steps

c. +6 to -6 steps

d. +4 to -4 steps

QUESTION: 020 (1.00)

Given the following:

-A normal reactor shutdown is being performed.
-At 90% power, one Intermediate Range Nuclear Instrument Channel fails full-scale HIGH.
-ASSUME no corrective action is taken.

WHICH ONE (1) of the following describes the effects of this failure?

a. The reactor trips immediately, but the Source Range nuclear instruments do not automatically re-energize.

b. The reactor trips immediately, and the Source Range nuclear instruments automatically re-energize when P-10 clears.

c. The reactor trips when P-10 clears, but the Source Range nuclear instruments do not automatically re-energize.

d. The reactor trips when P-6 clears, and the Source Range nuclear instruments automatically re-energize.

QUESTION: 021 (1.00)

Given the following:

-The reactor is operating at 30% steady state reactor power.
-An I&C technician receives permission to perform a test on Power Range Channel N-41 which requires pulling the control power fuses.
-The I&C technician mistakenly pulls the fuses on N-42; then, realizing his mistake, he reinserts the fuses for N-42 and pulls the fuses for the correct channel, N-41, causing a reactor trip.

WHICH ONE (1) of the following is the cause of the reactor trip?

a. PR neutron flux low setpoint trip.

b. OP Delta T trip.

c. PR neutron flux high setpoint trip.

d. PR rate trip.

QUESTION: 022 (1.00)

WHICH ONE (1) of the following indicates the Technical Specification MINIMUM required number of channels of source, intermediate range and power range nuclear instruments to be OPERABLE prior to entering MODE 2 from MODE 3?

	Source	Intermediate	Power
a.	1	1	3
b.	1	2	3
c.	2	1	4
d.	2	2	3

QUESTION: 023 (1.00)

WHICH ONE (1) of the following inputs is used by the Subcooling Monitor in the subcooling calculation?

a. Average of all thermocouples.

b. Average of five (5) hottest thermocouples.

c. Hottest thermocouple in each core quadrant.

d. Three (3) hottest thermocouples in each core quadrant.

QUESTION: 024 (1.00)

WHICH ONE (1) of the following describes the response of the Containment Fan Coolers (AH-1 thru 4) following a SI actuation?

a. Fans are stripped and resequenced with load block 9.

b. Lead fan starts in fast speed and secondary fan starts in slow speed.

c. Lead fan starts in slow speed as sequenced on by load block 2.

d. Both fans in each fan cooler unit will start in slow speed.

QUESTION: 025 (1.00)

WHICH ONE (1) of the following is NOT one of the basic functions provided for by the steam generator (S/G) flow restrictor?

a. Provide for steam flow measurement.

b. Minimizes the lifting of the S/G safeties.

c. Limits reactor coolant system cooldown rate.

d. Minimizes the mass flow rate that a main steam isolation valve must close against.

QUESTION: 026 (1.00)

WHICH ONE (1) of the following conditions is indicated when the "OPC MONITOR" light on DEH panel "A" is energized?

a. Turbine Overspeed Protection Controller is totally or partially disabled.

b. Turbine is being runback by loss of one Main Feedwater Pump.

c. Turbine Overspeed Protection Controller has actuated.

d. Turbine runback and load drop anticipatory (LDA) are operable.

QUESTION: 027 (1.00)

Given the following:

-Unit is at 7% power.
-Turbine is rolling up to 1800 rpm.
-All operating condensate pumps trip.
-"A" motor driven (MD) AFW pump is OOS.
-ASSUME no operator action is taken.

WHICH ONE (1) of the following describes the system response?

	MFPs	"B" MD AFW Pump	Reactor Trip	Turbine Trip
a.	Immediate trip	Start on MFW pump trip	On SG low low level	On reactor trip
b.	Immediate trip	Start on SG low low level	On turbine trip	On MFW pump trip
c.	Trip after 5 sec. delay	Start on SG low low level	On turbine trip	On MFW pump trip
d.	Trip after 5 sec. delay	Start on MFW pump trip	On SG low low level	On reactor trip

QUESTION: 028 (1.00)

Given the following:

-The feedwater system is being placed in service.
-The preheater permissive has NOT been satisfied.
-The control switch for one of the SG main feed isolation valves (MFIVs) is taken to the OPEN position and then released.

WHICH ONE (1) of the following describes the response of the applicable MFIV?

a. The valve will open and remain open.

b. The valve will not open at all.

c. The valve will travel in the open direction and will stop after the control switch is released.

d. The valve will open until the control switch is released at which time the valve will close.

QUESTION: 029 (1.00)

Given the following:

-Unit is operating normally at 100% power with all control systems in AUTOMATIC.
-A normal load reduction to 90% power is initiated, but the controlling feedwater flow transmitter for the "A" steam generator remains stuck at the 100% value.
-ASSUME no operator action is taken.

WHICH ONE (1) of the following describes the effects of this malfunction?

a. Steam generator level will increase and continue to increase because of the flow error signal.

b. Steam generator level will oscillate around the 66% program setpoint as flow and level errors rise and fall.

c. Steam generator level will stabilize at a level sufficiently LESS than the original level to offset the flow error.

d. Steam generator level will stabilize at a level sufficiently MORE than the original level to offset the flow error.

QUESTION: 030 (1.00)

WHICH ONE (1) of the following conditions would result in an AUTOMATIC AFW isolation to a steam generator if a main steamline isolation signal was present?

	SG-1A	SG-1B	SG-1C
a.	840 psig	730 psig	850 psig
b.	850 psig	790 psig	900 psig
c.	760 psig	880 psig	770 psig
d.	900 psig	810 psig	780 psig

QUESTION: 031 (1.00)

WHICH ONE (1) of the following events results in an AUTOMATIC start of the turbine-driven AFW pump? ASSUME the plant is at 100% power.

a. Loss of power to 1B-SB.

b. Loss of both Main feedwater pumps.

c. AMSAC SG level input signal for SG-1A has failed low.

d. Pressurizer pressure transmitter PT-455 failed low and bistables are tripped. Pressurizer pressure transmitter PT-456 subsequently fails low.

QUESTION: 032 (1.00)

WHICH ONE (1) of the following is the meaning of the blue light on a 480V MCC?

a. Indicates torque overload switches bypassed.

b. Indicates ground current circuit malfunction.

c. Indicates integrity of trip circuit control power fuse.

d. Indicates integrity of standby fuse for ACP control power.

QUESTION: 033 (1.00)

WHICH ONE (1) of the following is a load fed from the 480V safety-related buses?

a. Rod drive MG set 1B.

b. Condenser vacuum pump 1A.

c. Emergency Service Water Booster Pump 1A.

d. Pressurizer Backup Heater Group C.

QUESTION: 034 (1.00)

WHICH ONE (1) of the following conditions must be met in order to MANUALLY actuate the Load Block 9, "Manual Load Permissive"?

a. Load Block 8 must be completed.

b. 50 seconds has elapsed since the sequencer start signal AND containment spray is not required.

c. 150 seconds has elapsed since the sequencer start signal.

d. 150 seconds has elapsed since the sequencer start signal AND Load Block 8 must be completed.

QUESTION: 035 (1.00)

Given the following:

-EDG 1A-SA is paralleled with Aux bus 1D for monthly load testing.
-Breaker 105 (tie breaker) trips open.

WHICH ONE (1) of the following describes the electrical system response?

a. EDG 1A-SA will carry Bus 1A-SA and the generator overcurrent trip will NOT be available.

b. EDG 1A-SA output breaker 106 immediately trips open resulting in a bus undervoltage.

c. EDG 1B-SB starts, but the output breaker does NOT close.

d. Tie breaker 104 will trip open, a load shed will be initiated and EDG 1A-SA will pick up the loads.

QUESTION: 036 (1.00)

Given the following:

-Unit is at 100% power.
-1A-SA RHR Pump was declared INOPERABLE at 0600 hours.
-1B-SB Emergency Diesel Generator and 1B-SB CSIP Pump are declared INOPERABLE at 0800 hours.
-ASSUME all other equipment can be demonstrated to be OPERABLE.

Using the attached excerpts from Technical Specifications, WHICH ONE (1) of the following is the MAXIMUM length of time the reactor has to reach MODE 4 from 0800 hours?

a. 6 hours

b. 10 hours

c. 13 hours

d. 72 hours

QUESTION: 037 (1.00)

WHICH ONE (1) of the following is the system response after receiving a HIGH radiation signal from the Control Room Normal Outside Air Intake radiation monitor?

a. Recirculation dampers will CLOSE.

b. Emergency filtration fan inlet and outlet dampers CLOSE.

c. Purge exhaust damper will OPEN.

d. Emergency filtration discharge damper will OPEN.

QUESTION: 038 (1.00)

Given the following:

-The Rotary Air Compressor (RAC) is running.
-Instrument air compressors A and C are selected to AUTO.
-A valid SI signal is actuated.

WHICH ONE (1) of the following describes the response of the instrument air system?

a. Compressors A and C will lose power.

b. The RAC will shutdown and compressors A and C auto start if header pressure decreases.

c. Compressors A and C will auto-start due to sequencer actuation.

d. The RAC will remain running and ONLY compressor A will auto-start if header pressure decreases.

QUESTION: 039 (1.00)

Given the following:

-Fire header pressure is at 85 psig with all system controls in AUTOMATIC.

WHICH ONE (1) of the following describes the Fire Protection System pump(s) expected to be running at this pressure?

a. ONLY the jockey pump.

b. ONLY the motor-driven pump.

c. BOTH the jockey pump and the motor-driven pump.

d. The jockey pump and BOTH the motor-driven and diesel-driven pumps.

QUESTION: 040 (1.00)

Given the following:

-The plant is in a refueling outage.
-Fuel is being moved inside containment.

WHICH ONE (1) of the following is the MINIMUM required condition for the Personnel Air Lock (PAL) and Emergency Air Lock (EAL) doors per Technical Specifications?

a. Both doors in the EAL must be closed and both doors in the PAL must be closed.

b. Both doors in the EAL must be closed. At least one door in the PAL must be closed.

c. Both doors in the PAL must be closed. At least one door in the EAL must be closed.

d. At least one door is in the EAL and one door in the PAL must be closed.

QUESTION: 041 (1.00)

Given the following:

-Reactor power is at 8% and being increased to 10%.
-Annunciators "TWO OR MORE RODS AT BOTTOM" and "POWER RANGE LOWER DETECTION HIGH FLUX DEVIATION OR AUTO DEFEAT" have just come in.
-Two Rod Bottom Lights are lit.
-Tavg is slowly lowering.

WHICH ONE (1) of the following is the required operator response to this event in accordance with AOP-001, "Malfunction of Rod Control and Indication Systems"?

a. Manually withdraw control rods to match Tavg and Tref.

b. Shutdown the reactor and then recover the rods.

c. Stabilize plant conditions at 8% power and recover the rods.

d. Reduce load and stabilize the plant at 1% to 3% power and then recover the rods.

QUESTION: 042 (1.00)

WHICH ONE (1) of the following is the MAXIMUM allowed power ramp rate when recovering a dropped rod?

a. 0.5% per minute

b. 1% per minute

c. 3% per minute

d. 5% per minute

QUESTION: 043 (1.00)

Given the following:

-Unit is at 92% power.
-The following alarms have just come in:

-ONE ROD AT BOTTOM
-TWO OR MORE RODS AT BOTTOM
-RPI URGENT FAILURE
-RPI NON-URGENT FAILURE
-DRPI Data A & B failure alarms
-DRPI general warning light (GW) flashing

WHICH ONE (1) of the following actions is required by Technical Specifications? Technical Specifications are attached.

a. Apply Technical Specifications 3.0.3.

b. Apply Technical Specifications 3.1.3.1 ACTION b.

c. Immediately trip the reactor and enter EOP-PATH-1.

d. Apply Technical Specifications 3.1.3.2 ACTION a.

QUESTION: 044 (1.00)

Given the following:

-Reactor tripped from 100% power.
-EOP-PATH-1 has been entered.
-The Main Turbine did NOT trip as expected.

WHICH ONE (1) of the following actions should be performed FIRST in order of PREFERENCE to trip/stop the turbine?

a. Place the turbine DEH pumps in Pull-to-Lock.

b. Runback the turbine to no load conditions.

c. Shut the MSIVs and bypass valves.

d. Manually trip the turbine locally at the turbine pedestal.

QUESTION: 045 (1.00)

Given the following:

-The RCS has had a stuck open Pressurizer safety valve.
-The reactor tripped and safety injection initiated.
-The RCS rapidly depressurized to saturation conditions.
-Pressurizer level initially dropped and then began to rise rapidly.

WHICH ONE (1) of the following characterizes the relationship between pressurizer level and RCS inventory under these conditions?

a. Level is NOT an accurate indication of inventory. RCS voiding may result in a rapidly increasing pressurizer level.

b. Level is NOT an accurate indication of inventory. The cold calibrated pressurizer level channels indicate high during high temperature, low pressure conditions.

c. Level is an accurate indication of inventory. Voiding would occur first in the pressurizer steam space due to the high temperature of the pressurizer walls.

d. Level is an accurate indication of inventory. RCP flow would sweep any voids from the RCS to the pressurizer steam space and out the safety.

QUESTION: 046 (1.00)

WHICH ONE (1) of the following is the PREFERRED manual method of determining temperature for subcooling margin if the plant process computer is unavailable?

a. The average of all active loop wide range T-hot temperature indicators.

b. The single highest reading active loop wide range T-hot temperature indication.

c. The average of all available core exit TC readings on the Inadequate Core Cooling Monitor.

d. The single highest reading core exit TC reading on the Inadequate Core Cooling Monitor.

QUESTION: 047 (1.00)

WHICH ONE (1) of the following is the significance of a full range RVLIS reading of 38% with the RCP's not running during a LOCA?

a. The core is completely uncovered, and immediate action must be taken to depressurize all intact SG and inject accumulators.

b. Approximately one foot of the core is uncovered, with the resulting probability of core damage.

c. Approximately 30% of the core is uncovered, and core exit TC temperatures of > 730F should be expected.

d. Less than 3 1/2 feet of the core is covered, and the upper 2/3 of the core will not be adequately cooled by steam.

QUESTION: 048 (1.00)

Given the following:

-Reactor trip due to large break LOCA and partial loss of feedwater.
-The STA reports the critical safety function status as follows:

Subcriticality	-	GREEN
Core Cooling	-	MAGENTA
Heat	-	MAGENTA
Integrity	-	GREEN
Containment	-	YELLOW
Inventory	-	YELLOW

WHICH ONE (1) of the following is the required monitoring frequency that you as the SRO should direct the STA to maintain for CSF's?

a. Monitor continuously.

b. Monitor every 5 minutes.

c. Monitor every 10 minutes.

d. Monitor every 30 minutes.

QUESTION: 049 (1.00)

WHICH ONE (1) of the following conditions would require you to IMMEDIATELY trip the affected RCP in accordance with AOP-018, "Reactor Coolant Pump Abnormal Conditions"?

a. CCW heat exchanger outlet temperature reads 110 degrees F.

b. RCP pump bearing water temperature reads 225 degrees F.

c. RCP frame vibration reads 4 mils.

d. Total RCP #1 seal leakoff flow reads 9 gpm.

QUESTION: 050 (1.00)

WHICH ONE (1) of the following is an indication of the number 2 seal failing on an RCP?

a. #1 seal leakoff DECREASES.

b. #1 seal delta P DECREASING.

c. Lower bearing water temperature INCREASING.

d. Standpipe low level alarm.

QUESTION: 051 (1.00)

Given the following:

-Natural circulation cooldown in progress per EPP-005, "Natural Circulation Cooldown".

WHICH ONE (1) of the following is NOT used to determine if the upper head is cooled below 200 degrees?

a. Level indication on RVLIS.

b. Pressurizer level changes.

c. Number of CRDM fans running.

d. RCS hot leg temperature.

QUESTION: 052 (1.00)

WHICH ONE (1) of the following flowrates is the MINIMUM Charging flow required for Emergency Boration when aligned to the Boric Acid Tank according to AOP-002, "Emergency Boration"?

a. 20 gpm

b. 30 gpm

c. 40 gpm

d. 50 gpm

QUESTION: 053 (1.00)

WHICH ONE (1) of the following requires an emergency boration according to AOP-002, "Emergency Boration"?

a. Criticality is reached below the minimum insertion limit during a reactor startup.

b. Control rods H14 and K10 insert uncontrollably 100 steps while at 98% power.

c. Two SGs become faulted and cannot be isolated while at 549 deg. F after a trip.

d. A steam dump valve briefly opens resulting in an RCS cooldown to 541 degrees F while withdrawing shutdown rods during a reactor startup.

QUESTION: 054 (1.00)

Given the following:

-The unit has been shutdown for eight days following 100 days at 100% power.
-The RCS temperature is 125 degrees F.
-The RCS is at midloop.
-A total loss of RHR occurs.
-No core cooling is re-established.

WHICH ONE (1) of the following is the approximate time within which the RCS will reach boiling?

a. 1 to 2 minutes

b. 10 to 15 minutes

c. 1 to 2 hours

d. 4 to 5 hours

QUESTION: 055 (1.00)

Given the following:

-The plant is in a shutdown condition with the RCS filled, vessel head installed.
-RHR pumps are operating in their normal system lineup for these plant conditions.
-There are indications of RCS leakage; pressurizer level decrease and RCS pressure decrease.
-The makeup system is keeping up with the inventory loss.

WHICH ONE (1) of the following is the IMMEDIATE action that should be taken?

a. Initiate SI and ensure flow is sufficient to maintain the core covered.

b. Increase charging to a rate higher than the inventory loss.

c. Stop the RHR pumps and shut the loop suction valves.

d. Attempt to identify and isolate the leak.

QUESTION: 056 (1.00)

Given the following:

-Unit is at 100% power.
-CCW surge tank High-Low alarm condition is present.
-CCW surge tank level is DECREASING.
-The makeup valve is OPEN.

WHICH ONE (1) of the following is the location of the leak?

a. Letdown heat exchanger

b. Primary sampling cooler

c. Thermal barrier heat exchanger

d. Seal water heat exchanger

QUESTION: 057 (1.00)

Given the following:

-Unit is at 100% power.
-CCW surge tank level low level alarm has come in.
-1DW-15, CCW makeup is open.
-CCW surge tank level is at 3.5% and decreasing.

WHICH ONE (1) of the following is the IMMEDIATE action required for this event?

a. Stop the running CSIP(s).

b. Trip the reactor and enter EOP-PATH-1.

c. Start any additional CCW pumps as needed.

d. Start an additional RMW pump.

QUESTION: 058 (1.00)

Given the following:

-Unit is operating at 100% power.
-A failure of the controlling pressurizer pressure channel caused pressure to decrease to 2223 psig.
-Pressurizer Pressure Master Controller is in MANUAL.

WHICH ONE (1) of the following describes the action required to increase the heat output of the variable heaters to return pressure to 2235 psig?

a. Increase the controller output.

b. Decrease the controller output.

c. Raise the pressure setpoint adjustment.

d. Lower the pressure setpoint adjustment.

QUESTION: 059 (1.00)

Given the following:

-Unit is at 100% power.
-All automatic control systems are in their normal lineup.
-The controlling PZR level transmitter LT-459 fails at the programmed level that corresponds to full plant load.
-ASSUME no operator action is taken.

WHICH ONE (1) of the following describes the effect on charging and PZR level when the plant load is REDUCED to 10% power?

a. Charging flow decreases and actual PZR level decreases. At 17% actual level, letdown will isolate and the PZR heaters will cut off.

b. Charging flow remains constant and actual PZR level remains constant. Pressurizer heaters will energize to compensate for reduced Tavg.

c. Actual PZR level increases and charging flow increases. The backup heaters will energize as level rises due to the apparent in-surge.

d. Actual PZR level decreases and charging flow increases. When actual level increases back to program level, charging flow will back down to maintain level.

QUESTION: 060 (1.00)

WHICH ONE (1) of the following describes the operator response to a loss of all feedwater ATWS and the basis for that action?

a. Trip the main turbine to prevent an uncontrolled cooldown of the RCS.

b. Leave the main turbine on line to provide a heat sink for the RCS.

c. Trip the main turbine to maintain steam generator inventory.

d. Leave the main turbine on line to prevent lifting the steam generator PORVs.

QUESTION: 061 (1.00)

Given the following:

-Reactor power is at 100%.
-All systems are in automatic.
-An Anticipated Transient Without Scram (ATWS) has occurred.
-Both manual and automatic reactor trips have failed.

WHICH ONE (1) of the following is the IMMEDIATE action required for this event per FRP-S.1, "Response to Nuclear Power Generation/ATWS"?

a. Locally trip the reactor trip breakers.

b. Place the rods in MANUAL and drive the rods in.

c. Allow the control rods to AUTOMATICALLY insert until the rod drive MG sets are deenergized.

d. Allow the control rods to AUTOMATICALLY insert while initiating Emergency Boration.

QUESTION: 062 (1.00)

Given the following:

-Refueling operations in progress.
-All nuclear instrumentation is in service.
-Power has just been lost to two power-range nuclear instrumentation channels.

WHICH ONE (1) of the following actions are you required to take?

a. Immediately stop all fuel movement in progress.

b. Continue refueling and contact I&C to troubleshoot/repair the failed channels when conditions permit.

c. Immediately stop all fuel movement in progress and emergency borate per AOP-002, "Emergency Boration".

d. Ensure NR-45 recorder is selected to the source range channels and continue with refueling.

QUESTION: 063 (1.00)

Given the following:

-Reactor power is 1E-6 amps.
-NI-35 Intermediate Range channel has failed LOW.
-A reactor startup is in progress.

WHICH ONE (1) of the following actions is required per Technical Specification 3.3.1, "Reactor Trip System Instrumentation"?

a. Restore inoperable channel prior to exceeding P-6.

b. Initiate action within one hour to shutdown the reactor.

c. Restore inoperable channel prior to exceeding 10% power.

d. Bypass the inoperable channel and continue with reactor startup to 100%.

QUESTION: 064 (1.00)

Given the following:

-A fuel assembly has just been removed from the core.
-Immediately after initiating movement to the upender the refueling cavity level is reported to be a foot below normal and dropping at a visible rate.

WHICH ONE (1) of the following is the preferred course of action?

a. Stop the fuel movement at the current location in transit to the upender.

b. Place the fuel assembly back in the core.

c. Place the fuel assembly in the upender and lower it to the horizontal position.

d. Position the mast over the deepest part of the cavity and lower the assembly to the bottom.

QUESTION: 065 (1.00)

WHICH ONE (1) of the following indications would confirm that a Steam Generator Tube Rupture was occurring?

a. Pressurizer pressure DECREASE with affected SG steam flow LESS than feed flow.

b. Pressurizer level DECREASE with affected SG steam flow EQUAL to feed flow.

c. Pressurizer pressure DECREASE with affected SG steam flow GREATER than feed flow.

d. Pressurizer level DECREASE with affected SG steam flow DECREASING as feed flow DECREASES.

QUESTION: 066 (1.00)

WHICH ONE (1) of the following describes the application of the RCP trip criteria while responding to a SGTR per EOP-PATH-2?

a. RCP's should be tripped ANYTIME during PATH 2 when the RCP trip criteria is met.

b. RCP's should be tripped during PATH 2 ONLY if the criteria is met after the completion of the cooldown and depressurization.

c. RCP's should be tripped during PATH 2 ONLY if the criteria is met and the cooldown and depressurization has been initiated.

d. RCP's should be tripped during PATH 2 ONLY if the criteria is met before initiating the cooldown and depressurization.

QUESTION: 067 (1.00)

WHICH ONE (1) of the following is the basis for controlling feed flow to maintain SG level less than 50% if all SGs are faulted?

a. To prevent repressurization of the RCS.

b. To prevent overfilling the SGs.

c. To minimize the potential of rupturing a SG tube.

d. To ensure SG tubes are covered to minimize fission product release.

QUESTION: 068 (1.00)

WHICH ONE (1) of the following is the reason the RCS is depressurized in FRP-P.1, "Response to Imminent Pressurized Thermal Shock"?

a. To allow the accumulators to inject.

b. To reduce the subcooling margin.

c. To increase pressurizer level.

d. To increase charging flow.

QUESTION: 069 (1.00)

Given the following:

-The unit is at 30% power.
-Megawatt output begins a DECREASING trend.
-Condenser ZONE 1 pressure is 4 in Hg. Absolute and slowly rising.
-Condenser ZONE 2 pressure is 6 in Hg. Absolute and slowly rising.

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

a. Start the second condenser vacuum pump.

b. Trip the reactor and turbine, and enter PATH-1.

c. Reduce turbine load as necessary to maintain condenser vacuum.

d. Verify CONDENSER VAC BREAKERS 1CE-447 and 1CE475 indicate shut.

QUESTION: 070 (1.00)

WHICH ONE (1) of the following parameters are monitored for the immediate use of RCS bleed and feed cooling per FRP-H.1, "Response to Loss of Secondary Heat Sink"?

a. SG narrow range level

b. SG pressure

c. SG wide range level

d. AFW flow

QUESTION: 071 (1.00)

WHICH ONE (1) of the following is the reason why AFW flowrate is procedurally restricted to 50 KPPH when recovering from low level in one steam generator in accordance with FRP-H.5, "Response to Steam Generator Low Level", if the level has fallen below 10% wide range indication?

a. Minimize thermal stress conditions on steam generator components.

b. Minimize RCS cooldown to prevent PTS conditions.

c. Ensure SG pressure transient condition does not occur which could result in an uncontrolled release through a Safety valve.

d. Ensure pressurizer level stays above SI reinitiation criteria.

QUESTION: 072 (1.00)

Given the following:

-A loss of offsite power has occurred.
-EDG 1B-SB failed to start.
-EDG 1A-SA started, tied into the bus and immediately tripped off line. The EDG cannot be restarted.
-The STA reports the status of the CSFs as follows:

Heat Sink	-	RED
Subcriticality	-	GREEN
Containment	-	GREEN
Inventory	-	MAGENTA
Core Cooling	-	RED
Integrity	-	GREEN

WHICH ONE (1) of the following procedures should initially be used to mitigate this event following transition from EOP PATH-1?

a. FRP-H.1, "Response to Loss of Secondary Heat Sink".

b. EPP-001, "Loss of AC Power to 1A-SA and 1B-SB Buses".

c. FRP-C.1, "Response to Inadequate Core Cooling".

d. FRP-I.2, "Response to Low Pressurizer Level".

QUESTION: 073 (1.00)

WHICH ONE (1) of the following is the reason for tripping an Emergency Diesel Generator (EDG) that started, when its respective 6.9KV emergency bus (1A-SA, 1B-SB) did not energize?

a. Minimize potential of overloading the EDG output breaker.

b. Conserve fuel oil in case offsite power is not restored.

c. Minimize lube and fuel oil collection in the exhaust headers.

d. Prevent overheating due to a loss of cooling water flow.

QUESTION: 074 (1.00)

WHICH ONE (1) of the following instrument bus failures requires IMMEDIATE operator action to place the Main Feedwater regulator valves in manual?

a. Bus SI

b. Bus SII

c. Bus SIII

d. Bus SIV

QUESTION: 075 (1.00)

Given the following:

-Unit is at 100% power.
-PT-953, Containment Pressure Channel IV, failed HIGH and was removed from service per the OWP.
-A loss of power to Instrument Bus III has occurred.

WHICH ONE (1) of the following describes the effect to the ESFAS systems? (Logic diagram is attached for reference)

a. Neither SI nor CSAS would occur.

b. SI would not occur but CSAS would occur.

c. Both SI and CSAS would occur.

d. SI would occur but CSAS would not occur.

QUESTION: 076 (1.00)

WHICH ONE (1) of the following describes 480V breaker operation if DC control power is lost to these breakers?

a. Breakers will remain in their "as is" condition and operation would only be possible by local operation.

b. Automatic breaker trips would remain operational but remote operation of breakers would not be possible.

c. Breakers could be operated remotely but automatic trip functions would become inoperable.

d. Breakers would trip open and operation would only be possible by local operation.

QUESTION: 077 (1.00)

WHICH ONE (1) of the following is the MINIMUM time that the safety related 125V DC Battery system is required to carry the vital loads following a loss of the battery charger?

a. 2 hours

b. 4 hours

c. 6 hours

d. 8 hours

QUESTION: 078 (1.00)

WHICH ONE (1) of the following radiation monitors will trip the waste gas decay tank flow control valve on a HIGH alarm?

a. WPB Stack 5A monitor.

b. WPB Stack 5 monitor.

c. Plant Vent Stack monitor.

d. Waste Monitor Tank Discharge monitor.

QUESTION: 079 (1.00)

At WHICH ONE (1) of the following SG levels must the turbine be tripped upon a loss of instrument air per AOP-017, "Loss of Instrument Air"?

a. 60%

b. 54%

c. 48%

d. 44%

QUESTION: 080 (1.00)

WHICH ONE (1) of the following actions can NOT be performed at the Auxiliary Control Panel (ACP)?

a. Manual control of pressurizer heaters C and D.

b. Operation of the B train chilled water pump.

c. Operation of motor driven auxiliary feedwater pumps.

d. Manual control of SG PORVs.

QUESTION: 081 (1.00)

WHICH ONE (1) of the following describes the operation of the turbine driven AFW pump following transfer to the Auxiliary Control Panel (ACP)?

a. The pump will automatically start on low low level in 2 of 3 SGs.

b. The pump is unavailable for operation as the MSIVs are closed.

c. The pump is unavailable for operation due to lack of ACP controls.

d. The pump must be manually started because the automatic start signal is blocked.

QUESTION: 082 (1.00)

WHICH ONE (1) of the following conditions represents a LOSS of Containment Integrity with the unit in refueling?

a. Containment Purge is in progress.

b. An electrical penetration is removed for repair.

c. Equipment Hatch is closed with only four (4) bolts.

d. A safety valve on SG-1B is removed with the secondary side manway on SG-1A removed.

QUESTION: 083 (1.00)

Step 14 of FRP-C.1, "Response To Inadequate Core Cooling" directs the operator to stop all RCPs prior to depressurizing all intact SGs from 90 psig to atmospheric pressure. WHICH ONE (1) of the following is the reason for this action?

a. Remove RCP heat load from RCS.

b. Ensure core exit thermocouple temperature will be reduced.

c. Ensure RCP number 1 seal integrity.

d. Enhance natural circulation cooling of the reactor core.

QUESTION: 084 (1.00)

Given the following:

-The unit is in MODE 1.
-You are on watch in the control room as a Senior Control Operator.
-Shifts are 12 hours long.
-All the shifts are manned to the minimum composition per OMM-001, "Operations - Conduct of Operations".
-Your watch relief is not on site for shift turnover.

WHICH ONE (1) of the following describes the requirements regarding shift composition and required action in this situation per OMM-001, "Operations - Conduct of Operations"?

a. Cannot drop below the minimum due to a relief being absent. Remain on watch until relieved.

b. Cannot drop below the minimum unless an operator will exceed 12 hours on watch. Turnover your watchstation to the oncoming Shift Supervisor and depart.

c. May be one less than the minimum for two hours. Turnover your watchstation to the oncoming Shift Supervisor after it is determined your relief will arrive within 2 hours.

d. May be one less than the minimum while attempting to contact the absent individual. Turnover your watchstation to the oncoming Shift Supervisor and attempt to contact the absent individual.

QUESTION: 085 (1.00)

Given the following:

-A 35 year old male recently started working for the maintenance department at Shearon Harris.
-His lifetime dose is currently 31.5 REM total effective dose equivalent.
-He has received no radiation exposure for the last 2 years.
-No extensions have been approved and no emergencies exist.

WHICH ONE (1) of the following is the TOTAL additional total effective dose equivalent that the individual can receive at CP&L this year?

a. 1 REM

b. 2 REM

c. 3 REM

d. 4 REM

QUESTION: 086 (1.00)

Given the following:

-A Clearance is in effect with multiple Clearance Holders.
-A partial removal of the clearance is required to test equipment for one of the tasks.

WHICH ONE (1) of the following positions may sign to authorize the modification of the clearance in addition to WCC approval?

a. The Clearance Center Operator and only the technicians that completed the work activity on the equipment.

b. The Clearance Holder's Supervisor and only the technicians that completed the work activity on the equipment.

c. The Clearance Holder and all people currently signed on the Clearance.

d. The Shift Supervisor Nuclear and Clearance Holder's supervisor.

QUESTION: 087 (1.00)

WHICH ONE (1) of the following describes the preferred method for independently verifying the position of a locked open throttled valve?

a. Unlock the valve and move slightly in the closed direction, then restore to original position and restore lock.

b. Verify the locking device is intact, and the valve stem is in the correct position.

c. Verify the locking device is intact, and attempt to move the valve slightly in the open and close direction to verify stem position.

d. Unlock the valve and fully shut, then reopen to the observed throttled position.

QUESTION: 088 (1.00)

WHICH ONE (1) of the following is the MINIMUM number of twelve (12) hour shifts per 10CFR55, "Operators' Licenses" that you must actively perform operator functions to maintain a license in an active status?

a. 5 shifts per calendar quarter.

b. 5 shifts per calendar year.

c. 7 shifts per calendar quarter.

d. 7 shifts per calendar year.

QUESTION: 089 (1.00)

WHICH ONE (1) of the following individuals is NOT permitted to operate reactor controls under the instruction or supervision of a licensed operator?

a. An individual enrolled in a current license training course to obtain an instructor certification.

b. A licensed reactor operator who recently failed an NRC administered Senior Reactor Operator upgrade examination.

c. An auxiliary operator enrolled in a current license training course to obtain an operator license.

d. A licensed reactor operator whose license has become inactive per the requirements of 10CFR55.

QUESTION: 090 (1.00)

WHICH ONE (1) of the following describes how the Halon 1301 fire suppression system acts to put out a fire?

a. It removes the oxygen.

b. It eliminates fuel.

c. It removes the heat.

d. It upsets the chemical chain reaction.

QUESTION: 091 (1.00)

WHICH ONE (1) of the following responsibilities may be delegated by the Site Emergency Coordinator (SEC-CR) prior to being relieved by the SEC-TSC per PEP-102, "Site Emergency Coordinator - Control Room"?

a. Declaring the emergency terminated.

b. Authorizing the administration of Potassium Iodine.

c. Decision to notify authorities for off-site emergency measures.

d. Recommendations regarding protective actions for the public.

QUESTION: 092 (1.00)

WHICH ONE (1) of the following is the MAXIMUM time allowed to complete the initial accountability of personnel during a Site Area Emergency?

a. 15 minutes

b. 30 minutes

c. 45 minutes

d. 60 minutes

QUESTION: 093 (1.00)

Given the following:

-The plant is in an emergency condition.
-You have the responsibility of maintaining an emergency log.
-You are to be relieved.

WHICH ONE (1) of the following describes the actions that must be taken?

a. Close out the log, turn the log over to the relief, and have the relief initiate a new log.

b. Do not close out the log, turn the log over to the relief, and have the relief continue with the entries.

c. Close out the log, turn it in to the Sr. Specialist Emergency Preparedness, and have the relief initiate a new log.

d. Do not close out the log, turn the log over to your emergency position supervisor, and have him/her continue with the entries.

QUESTION: 094 (1.00)

WHICH ONE (1) of the following states the significance of lettered EOP action substeps?

a. Steps are "Immediate Action" steps.

b. Steps should be completed in order.

c. Steps may be completed in any order.

d. Steps are "Continuous Action" steps.

QUESTION: 095 (1.00)

WHICH ONE (1) of the following is the proper location for placing clearance tags associated with PULLED fuses per procedure AP-020, "Plant Clearance and Tagging Procedure"?

a. On the fuses.

b. On the supply breaker for the fused equipment.

c. On or near the fuse holder.

d. On the control switch for the fused equipment.

QUESTION: 096 (1.00)

WHICH ONE (1) of the following is the RECOMMENDED sequence for tagging out a CSIP? ASSUME no special requirements exist.

a. Tag isolation valves, open control power knife switch, rack out the breaker, tag the control switch.

b. Tag the control switch, rack out the breaker, open control power knife switch, tag isolation valves.

c. Tag isolation valves, rack out the breaker, open control power knife switch, tag the control switch.

d. Tag the control switch, open control power knife switch, rack out the breaker, tag isolation valves.

QUESTION: 097 (1.00)

Given the following:

-The plant tripped during startup.
-The cause of the trip has been identified.

WHICH ONE (1) of the following is the approval required for reactor restart?

a. Operations Manager

b. Shift Supervisor - Nuclear

c. Plant General Manager

d. Plant Nuclear Safety Committee Chairman

QUESTION: 098 (1.00)

WHICH ONE (1) of the following must grant permission for an unplanned entry into containment due to a safety concern while in MODE 2?

a. Shift Supervisor - Nuclear

b. Manager - Shift Operations

c. Plant General Manager

d. Manager - Radiation Control

QUESTION: 099 (1.00)

WHICH ONE (1) of the following is the primary alternate to act as the Site Emergency Coordinator prior to activating the Technical Support Center, if the Shift Supervisor - Nuclear is unavailable?

a. Shift Supervisor - Nuclear Designee.

b. Manager - Shift Operations

c. Control Room Senior Control Operator

d. Roving Senior Control Operator

QUESTION: 100 (1.00)

Given the following:

-An Operations Surveillance Test (OST) is in progress for system retest.
-The Control Operator determines that performance of the entire procedure is NOT required.

WHICH ONE (1) of the following is an acceptable means to document steps or sections of the test that were not performed?

a. Annotate the applicable portions of the procedure and initial (Control Operator) by the note on each affected page.

b. An NA followed by a vertical line showing which steps are not applicable and initialed by the Shift Supervisor.

c. Obtain the Control Room Senior Control Operator initials for the sections not performed.

d. Enter comments in the remarks section as to why the steps or sections were not applicable and obtain Shift Supervisor initials after completion of test.

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

ANSWER: 001 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan SDCS-LP-3.0, Obj. 7.a & b, p. 30-31.
2. KA 041000G007 (2.8/3.0)
3. Both RO and SRO

041000G007 ..(KA's)

ANSWER: 002 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan RODCS-LP-3.0/5.0, Obj. 3.b, pp. 28-30.
2. KA 001000K543 (3.2/3.4)
3. Both RO and SRO

001000K543 ..(KA's)

ANSWER: 003 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan RODCS-LP-3.0/5.0, Obj. 3.b, pp. 28-29.
2. KA 001000A102 (3.1/3.4)
3. SRO Only

001000A102 ..(KA's)

ANSWER: 004 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan RODCS-LP-3.0/5.0, Obj. 5.a & b, pp. 36 & 61-62.
2. SD-104, "Rod Control System", Table 6.2, p. 24.
3. KA 001000K103 (3.4/3.6)
4. Both RO and SRO

001000K103 ..(KA's)

ANSWER: 005 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan RCS-LP-3.0, Obj. 10.b and T/S 3.4.9.2.
2. KA 002000A103 (3.7/3.9)
3. Both RO and SRO

002000A103 ..(KA's)

ANSWER: 006 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan RCS-LP-3.0, Obj. 10.a & b.
2. Lesson Plan TS-LP-2.0/3.0/5.0, Obj. 1 and T/S 1.0 Definitions, p. 1-3, 1-4, & 1-6 and T/S 3.4.6.2, p. 3/4 4-23.
3. KA 002000G005 (3.6/4.1)
4. Both RO and SRO
   NOTE: Answer 11.3-(1.6+2.0+1.5+1.7+0.8+2.0) = 1.7 gpm unidentified which is > 1.0 gpm unidentified limit.

002000G005 ..(KA's)

ANSWER: 007 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan RPS-LP-3.0/5.0, p. 21.
2. Lesson Plan SGWLC-LP-3.0, Obj. 3, p. 12.
3. SD-126.02, "Steam Generators, SGWLC System", p. 8.
4. KA 003000K304 (3.9/4.2) 003000K302 (3.5/3.8)
5. Both RO and SRO

003000K304 ..(KA's)

ANSWER: 008 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan CVCS-LP-3.0/5.0, Obj. 5.b, p. 49.
2. Exam bank question CVCS-TQ-3.0/5.0-58.
3. KA 004000A203 (3.6/4.2)
4. SRO Only

004000A203 ..(KA's)

ANSWER: 009 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan CVCS-LP-3.0/5.0, Obj. 5.c, pp. 50-51.
2. KA 004000K106 (3.1/3.1)
3. Both RO and SRO

004000K106 ..(KA's)

ANSWER: 010 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan RHRS-LP-3.0, Obj. 4, pp. 22-23.
2. Exam bank question RHRS-TQ-3.0-21
3. KA 005000K106 (3.5/3.6)
4. Both RO and SRO

005000K106 ..(KA's)

ANSWER: 011 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan SIS-LP-3.0/5.0, Obj. 3.a, pp. 20, 33,
2. Lesson Plan CVCS-LP-3.0/5.0, Obj. 8b & c, pp. 28 & 40.
3. KA 006000A303 (4.1/4.1)
4. Both RO and SRO

006000A303 ..(KA's)

ANSWER: 012 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan SIS-LP-3.0/5.0, Obj. 3.a & 5.a, pp. 15, 21 & 46.
2. GP-007, "Normal Plant Cooldown (Mode 3 to Mode 5)", step 33, p. 20.
3. KA 006000K410 (3.6/3.7)
4. Both RO and SRO

006000K410 ..(KA's)

ANSWER: 013 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan PZR 3.0/5.0, Obj. 5 and T/S 3.4.4, p. 3/4 4-11.
2. Lesson Plan PZRPC-LP-3.0, Obj. 11.
3. KA 010000G005 (3.2/3.8)
4. Both RO and SRO

010000G005 ..(KA's)

ANSWER: 014 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan PZRLC-LP-3.0/5.0, Obj. 3 and SD-100.03, "Pressurizer and Controls", pp. 16-17.
2. KA 011000K603 (2.9/3.3)
3. Both RO and SRO
4. 1994/03/28 exam question

011000K603 ..(KA's)

ANSWER: 015 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan RCTEMP-LP-3.0, Obj. 6, pp. 8-9 & 11-12.
2. T/S Table 2.2-1, pp. 2-7 to 2-10.
3. KA 012000K611 (2.9/2.9)
4. SRO Only

012000K611 ..(KA's)

ANSWER: 016 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan RPS-LP-3.0/5.0, Obj. 2 and Logic Diagram 108D831, Sheets 2 & 8.
2. Lesson Plan CFW-LP-3.0/5.0, Obj. AO 6.a & b, p. 49.
3. KA 012000K105 (3.8/3.9)
4. Both RO and SRO

012000K105 ..(KA's)

ANSWER: 017 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan RPS-LP-3.0/5.0, Obj. 3, p. 11 and SD-103, "RPS/ESF Actuation System", p. 15 and Figure 7.8, p. 46.
2. KA 012000K603 (3.1/3.5)
3. Both RO and SRO

012000K603 ..(KA's)

ANSWER: 018 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan RODCS-LP-3.0/5.0, Obj. 7a, p. 68.
2. Lesson Plan RODCS-LP-3.1/5.1, p. 33 & 36.
3. KA 014000A404 (2.7/2.7)
4. Both RO and SRO

014000A404 ..(KA's)

ANSWER: 019 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan RODCS-LP-3.1/5.1, Obj. 1.b, pp. 30-31.
2. KA 014000A102 (3.2/3.6)
3. SRO Only

014000A102 ..(KA's)

ANSWER: 020 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan NIS-LP-3.0, Obj. 6, p. 12.
2. SD-105, "Excore Nuclear Instrumentation", Table 6.2, p. 38.
3. KA 015000K405 (4.3/4.5)
4. Both RO and SRO

015000K405 ..(KA's)

ANSWER: 021 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan NIS-LP-3.0, Obj. 6, p. 16.
2. KA 015000K101 (4.1/4.2)
3. Both RO and SRO

015000K101 ..(KA's)

ANSWER: 022 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan GP-LP-3.4, Obj. 1 and GP-004, "Reactor Startup (Mode3 to Mode 2)", pp. 6-7.
2. Lesson Plan NIS-LP-3.0, Obj. 11 and T/S Table 3.3-1, p. 3/4 3-2.
3. KA 015000G010 (3.3/3.5)
4. SRO Only

015000G010 ..(KA's)

ANSWER: 023 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan ICCM-LP-3.0/5.0, Obj. 6, pp. 15 & 18.
2. KA 017020K401 (3.4/3.7)
3. Both RO and SRO

017020K401 ..(KA's)

ANSWER: 024 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan CCS-LP-3.0, Obj. 5.a, p. 8.
2. KA 022000A301 (4.1/4.3)
3. Both RO and SRO

022000A301 ..(KA's)

ANSWER: 025 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan SG-LP-3.0/5.0, Obj. AO 3, pp. 6-7.
2. KA 035000G007 (3.1/3.4)
3. Both RO and SRO

035000G007 ..(KA's)

ANSWER: 026 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan EHC-LP-3.0/5.0, Obj. 3, p. 44.
2. SD-131.05, "DEH System", p. 17.
3. KA 045000A305 (2.6/2.9)
4. Both RO and SRO

045000A305 ..(KA's)

ANSWER: 027 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan CFW-LP-3.0/5.0, Obj. 1.a and SD-134, "Condensate and Feedwater", Table 6.3, pp. 1-3.
2. Lesson Plan AFS-LP-3.0/5.0, AO Obj. 6, pp. 19 & 34.
3. Lesson Plan MT-LP-3.0/5.0, pp. 26-27.
4. Lesson Plan SGWLC-LP-3.0, Obj. 4, p. 13.
5. 056000A204 (2.6/2.8)
6. Both RO and SRO

056000A204 ..(KA's)

ANSWER: 028 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan CFW-LP-3.0/5.0, Obj. 5.b, p. 63.
2. SD-134, "Condensate and Feedwater", p. 15.
3. KA 059000G007 (3.1/3.2)
4. Both RO and SRO

059000G007 ..(KA's)

ANSWER: 029 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan SGWLC-LP-3.0, Obj. 2, pp. 10-11.
2. SD-126.02, "Steam Generators, SGWLCS", p. 9 and Figure 7.2, p. 15.
3. KA 059000K104 (3.4/3.4)
4. SRO Only

059000K104 ..(KA's)

ANSWER: 030 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan AFS-LP-3.0/5.0, Obj. 3, p. 39.
2. SD-137, "AFW", p. 12.
2. KA 061000K414 (3.5/3.7)
3. Both RO and SRO

061000K414 ..(KA's)

ANSWER: 031 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan AFS-LP-3.0/5.0, Obj. AO 6, p. 34.
2. KA 061000K402 (4.5/4.6)
3. Both RO and SRO

061000K402 ..(KA's)

ANSWER: 032 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan 480V-LP-3.0/5.0, Obj. 1, p. 19.
2. Exam bank question 480V-TQ-3.0/5.0-13, modified.
3. KA 062000G007 (3.0/3.2)
4. Both RO and SRO

062000G007 ..(KA's)

ANSWER: 033 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan 480V-LP-3.0/5.0, Obj. AO 2, pp. 13 & 17-18.
2. KA 062000K201 (3.3/3.4)
3. Both RO and SRO

062000K201 ..(KA's)

ANSWER: 034 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan SEQ-LP-3.0/5.0, Obj. 6, p. 11.
2. SD-155.02, "ESS", section 4.11, pp. 42-43.
3. Exam bank question SEQ-TQ-3.0/5.0-20, modified.
4. KA 064000G007 (3.4/3.6)
5. SRO Only

064000G007 ..(KA's)

ANSWER: 035 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan SACP-LP-3.0, Obj. 5, p. 28.
2. KA 064000K101 (4.1/4.4)
3. Both RO and SRO

064000K101 ..(KA's)

ANSWER: 036 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan SACP-LP-3.0, Obj. 9 and T/S 3.8.1, 3.5.2, and 3.0.3.
2. KA 064000G005 (3.4/3.9)
3. SRO Only

064000G005 ..(KA's)

ANSWER: 037 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan RMS-LP-3.0/5.0, Obj. 1.a, pp. 21-22.
2. KA 072000K104 (3.3/3.5)
3. Both RO and SRO

072000K104 ..(KA's)

ANSWER: 038 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan ISA-LP-3.0/5.0, Obj. 1.a, p. 8.
2. KA 078000G007 (2.9/3.0)
3. Both RO and SRO

078000G007 ..(KA's)

ANSWER: 039 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan FP-LP-3.0/5.0, Obj. AO 9, pp. 8-9.
2. KA 086000K402 (3.0/3.4)
3. Both RO and SRO

086000K402 ..(KA's)

ANSWER: 040 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan CONT-LP-3.0, Obj. 6 and T/S 3.9.4, p. 3/4 9-5.
2. KA 103000G005 (3.3/4.1)
3. Both RO and SRO

103000G005 ..(KA's)

ANSWER: 041 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.1, Obj. 5.b, pp. 9-10.
2. AOP-001, "Malfunction of Rod Control and Indication Systems", section 4.0, p. 13.
3. KA 000003G011 (3.6/3.8)
4. Both RO and SRO

000003G011 ..(KA's)

ANSWER: 042 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.1, Obj. 5.a, p. 9.
2. AOP-001, "Malfunction of Rod Control and Indication Systems", section 4.0, p. 14.
3. KA 000003G007 (3.4/3.6)
4. Both RO and SRO

000003G007 ..(KA's)

ANSWER: 043 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan RODCS-LP-3.1/5.1, Obj. 4, and T/S 3.1.3.1 and 3.1.3.2.
2. KA 000005G008 (3.1/3.8)
3. SRO Only

000005G008 ..(KA's)

ANSWER: 044 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.1, Obj. 2 and PATH-1.
2. EOP-PATH-1, Guide, p. 6.
3. KA 000007A202 (4.3/4.6)
4. Both RO and SRO

000007A202 ..(KA's)

ANSWER: 045 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan BD-LP-3.3, Obj. 1.f, p. 14.
2. KA 000008K301 (3.7.4.4)
3. Both RO and SRO
4. 1994/03/28 exam question

000008K301 ..(KA's)

ANSWER: 046 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.19, Obj. 4.a & s, pp. 20-21 and EOP "Users Guide", section 6.2, pp. 23-24.
2. KA 000009A116 (4.2/4.2)
3. Both RO and SRO
4. 1992/01/27 exam question

000009A116 ..(KA's)

ANSWER: 047 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.10, Obj. 4, p. 12.
2. EOP-FRP-C.1, "Response to Inadequate Core Cooling", Step 6a, p. 9.
3. KA 000011A210 (4.5/4.7)
4. Both RO and SRO
5. 1994/03/28 exam question

000011A210 ..(KA's)

ANSWER: 048 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.19, Obj. 2, p. 14.
2. KA 000011G012 (4.0/4.1)
3. SRO Only

000011G012 ..(KA's)

ANSWER: 049 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.18, Obj. 3, and AOP-18, "Reactor Coolant Pump Abnormal Conditions", p. 4 and Attachment 1, p. 25.
2. KA 000015A210 (3.7/3.7)
3. Both RO and SRO

000015A210 ..(KA's)

ANSWER: 050 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.18, Obj. 1 and AOP-018, "Reactor Coolant Pump Abnormal Conditions", section 3.0, p. 17.
2. Lesson Plan RCS-LP-3.0, p. 18 and SD-100.01, "Reactor Coolant", p. 21 (seal leak off flow paths)
3. KA 000015A122 (4.0/4.2)
4. Both RO and SRO

000015A122 ..(KA's)

ANSWER: 051 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.8, Obj. 2.e, p. 12.
2. KA 000015K101 (4.4/4.6)
3. Both RO and SRO

000015K101 ..(KA's)

ANSWER: 052 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.2, Obj. 2 and AOP-002, "Emergency Boration", p. 4.
2. KA 000024A110 (3.5/3.4)
3. Both RO and SRO

000024A110 ..(KA's)

ANSWER: 053 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.2, Obj. 1 and AOP-002, "Emergency Boration", p. 3.
2. GP-004, "Reactor Startup (Mode 3 to Mode 2)", step 17.a.2, p. 13.
3. KA 000024K301 (4.1/4.4)
4. Both RO and SRO

000024K301 ..(KA's)

ANSWER: 054 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan ADOP-LP-17.5, Obj. 7 and Curve H-X-8 (Time to boiling is approximately 14 minutes.)
2. KA 000025K101 (3.9/4.3)
3. Both RO and SRO
4. 1994/03/28 exam question, modified

000025K101 ..(KA's)

ANSWER: 055 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.20, Obj. 2 and AOP-020, "Loss of RCS Inventory or Residual Heat Removal While Shutdown", section 1.0, p. 5.
2. KA 000025G010 (3.9/3.9)
3. Both RO and SRO

000025G010 ..(KA's)

ANSWER: 056 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.14, Obj. 4 and AOP-014, "Loss of Component Cooling Water", section 2.0, p. 14.
2. Lesson Plan CCWS-LP-3.0/5.0, pp. 22-23.
3. KA 000026A201 (2.9/3.5)
4. Both RO and SRO

000026A201 ..(KA's)

ANSWER: 057 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.14, Obj. 3 and AOP-014, "Loss of Component Cooling Water", section 2.0, p. 13.
2. KA 000026G010 (3.6/3.5)
3. Both RO and SRO

000026G010 ..(KA's)

ANSWER: 058 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan PZRPC-LP-3.0, Obj. 5 & 6, pp. 10 & 18-19.
2. SD-100.03, "Pressurizer and Controls", p. 13.
3. KA 000027A102 (3.1/3.0)
4. Both RO and SRO

000027A102 ..(KA's)

ANSWER: 059 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan PZRLC-LP-3.0, Obj. 3, pp. 10-12.
2. SD-100.03, "Pressurizer and Controls", pp. 19-22.
3. KA 000028A202 (3.4/3.8)
4. Both RO and SRO

000028A202 ..(KA's)

ANSWER: 060 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.15, Obj. 6.c, p. 11.
2. KA 000029K312 (4.4/4.7)
3. SRO Only

000029K312 ..(KA's)

ANSWER: 061 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.15, Obj. 2 and EOP-FRP-S.1, "Response to Nuclear Power Generation/ATWS", p. 4.
2. KA 000029G010 (4.5/4.5)
3. Both RO and SRO

000029G010 ..(KA's)

ANSWER: 062 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan RPS-LP-3.0/5.0, Obj. 6 and Technical Specifications 3.9.2, p. 3/4 9-3.
2. Lesson Plan NIS-LP-3.0, Obj. 6 & 9, p. 12.
3. KA 000032G010 (2.9/3.1) 000032G011 (3.1/3.4)
4. Both RO and SRO

000032G010 ..(KA's)

ANSWER: 063 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan NIS-LP-3.0, Obj. 11 and T/S 3.3.1, Table 3.3-1, Item 5 Action Statement 3, p. 3/4 3-7.
2. KA 000033A208 (3.3/3.4)
3. SRO Only

000033A208 ..(KA's)

ANSWER: 064 (1.00)

b. [+1.0]

REFERENCE:

1. AOP-LP-3.31, Obj. 2 and AOP-31, "Loss of Refueling Cavity Integrity", p. 3.
2. KA 000036G010 (3.7/3.8)
3. Both RO and SRO

000036G010 ..(KA's)

ANSWER: 065 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan BD-LP-3.2, Obj. 1, p. 5.
2. WOG background information for E-3, "SGTR", p. 4.
3. KA 000038A202 (4.5/4.8)
4. Both RO and SRO

000038A202 ..(KA's)

ANSWER: 066 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.2, Obj. 6.a, p. 11.
2. EOP-PATH-2 Guide, Foldout C, p. 4 and step 20, p. 25.
3. KA 000038K308 (4.1/4.2)
4. Both RO and SRO

000038K308 ..(KA's)

ANSWER: 067 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.9, Obj. 7, p. 8.
2. WOG background information for ECA-2.1, "Uncontrolled Depressurization of All Steam Generators", p. 15.
3. KA 000040K304 (4.5/4.7)
4. Both RO and SRO

000040K304 ..(KA's)

ANSWER: 068 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.14, Obj. 2.a & 4.e, p. 14.
2. EOP-FRP-P.1, "Response to Imminent Pressurized Thermal Shock", step 22, p. 27.
3. KA 000040K101 (4.1/4.4)
4. Both RO and SRO

000040K101 ..(KA's)

ANSWER: 069 (1.00)

c. [+1.0]

REFERENCE:

1. AOP-LP-3.6, Obj. 3.
2. AOP-LP-3.12, Obj. 3 and AOP-012 "Partial Loss of Condenser Vacuum", p. 3.
3. KA 000051A202 (3.9/4.1)
4. Both RO and SRO

000051A202 ..(KA's)

ANSWER: 070 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.11, Obj. 5 and EOP-FRP-H.1, "Response to Loss of Secondary Heat Sink", FOLDOUT, p. 5.
2. KA 000054G010 (3.2/3.2)
3. Both RO and SRO

000054G010 ..(KA's)

ANSWER: 071 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.11, Obj. 6.h, p. 18.
2. WOG background information for FR-H.5, "Response to Steam Generator Low Level", p. 14.
3. KA 000054K102 (3.6/4.2)
4. Both RO and SRO

000054K102 ..(KA's)

ANSWER: 072 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.19, Obj. 1.g & 2, pp. 10 & 12.
2. EOP-EPP-001, "Loss of AC Power to 1A-SA and 1B-SB Buses", Caution, p. 4.
3. KA 000055G011 (4.1/4.1)
4. 1994/03/28 exam question, modified
5. SRO Only

000055G011 ..(KA's)

ANSWER: 073 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan SACP-LP-3.0, p. 33.
2. Lesson Plan EOP-LP-3.7, Obj. 8 and WOG background information for ECA-0.0, "Loss of All AC Power", p. 83.
3. EOP-EPP-001, "Loss of AC Power to 1A-SA and 1B-SB Buses", step 6g, p. 6.
4. KA 000056K302 (4.4/4.7)
5. Both RO and SRO

000056K302 ..(KA's)

ANSWER: 074 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.24, Obj. 3 and AOP-024, "Loss of Uninterruptible Power Supply", section 1.0, p. 5.
2. KA 000057A106 (3.5/3.5)
3. SRO Only

000057A106 ..(KA's)

ANSWER: 075 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.24, Obj. 2 and AOP-024, "Loss of Uninterruptible Power Supply", Automatic Actions, p. 5 and Attachment 4, p. 20.
2. Logic Diagram 108D831, Sheet 8.
3. Requal exam bank question A02-079
4. KA 000057A219 (4.0/4.3)
5. SRO Only

000057A219 ..(KA's)

ANSWER: 076 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan 480V-LP-3.0/5.0, Obj. 1, p. 9.
2. AOP-025, "Loss of One Emergency AC Bus (6.9KV) or One Emergency DC Bus (125V), p. 8.
3. KA 000058A203 (3.5/3.9)
4. Both RO and SRO

000058A203 ..(KA's)

ANSWER: 077 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan DCP-LP-3.0/5.0, Obj. AO 1 & 3, p. 11.
2. SD-156, "Plant Electrical Distribution System", p. 6.
3. KA 000058A103 (3.1/3.3)
4. SRO Only

000058A103 ..(KA's)

ANSWER: 078 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan RMS-LP-3.0/5.0, Obj. AO 4, pp. 26-27.
2. KA 000060A205 (3.7/4.2)
3. Both RO and SRO

000060A205 ..(KA's)

ANSWER: 079 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.17, Obj. 3 and AOP-017, "Loss of Instrument Air", p. 3.
2. KA 000065G010 (3.2/3.3)
3. SRO Only

000065G010 ..(KA's)

ANSWER: 080 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.4/5.4, Obj. AO 1.a and AOP-004, "Remote Shutdown", p. 17.
2. Lesson Plan PZRPC-LP-3.0, Obj. 8.b, p. 20.
3. KA 000068K201 (3.9/4.0)
4. Both RO and SRO

000068K201 ..(KA's)

ANSWER: 081 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.4/5.4, Obj. 2, and AOP-004, "Remote Shutdown", Attachment 1, p. 2.
2. KA 000068A121 (3.9/4.1)
3. Both RO and SRO

000068A121 ..(KA's)

ANSWER: 082 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.23, Obj. 2.
2. Lesson Plan CONT-LP-3.0, Obj. 6 and T/S 1.0 Definitions", p. 1-2 and T/S 3.9.4, p. 3/4 9-5.
3. KA 000069A201 (3.7/4.3)
4. Both RO and SRO

000069A201 ..(KA's)

ANSWER: 083 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.10, Obj. 4, pp. 13 & 15 and EOP-FRP-C.1, "Response To Inadequate Core Cooling", step 14, p. 19.
2. KA 000074K308 (3.9/4.2)
3. SRO Only

000074K308 ..(KA's)

ANSWER: 084 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan PP-LP-3.0, Obj. 1 and OMM-001, "Operations - Conduct of Operations", p. 28.
2. KA 194001A103 (2.5/3.4)
3. 1994/03/28 exam question
4. SRO Only

194001A103 ..(KA's)

ANSWER: 085 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan LP-TM6C01G, Obj. 4, p. 9.
2. KA 194001K103 (2.8/3.4)
3. 1994/03/28 exam question, modified
4. SRO Only

194001K103 ..(KA's)

ANSWER: 086 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan PP-LP-3.4, Obj. 3 and AP-020, "Clearance Procedures", Rev 6, pp. 14-15.
2. KA 194001K102 (3.7.4.1)
3. 1994/03/28 exam question, modified
4. SRO Only

194001K102 ..(KA's)

ANSWER: 087 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan PP-LP-3.11, Obj. 8.c and PLP-702, "Independent Verification", p. 12.
2. KA 194001K101 (3.6/3.7)
3. Both RO and SRO

194001K101 ..(KA's)

ANSWER: 088 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan NRC-LP-17.0, Obj. 1.1.9, p. 9 and 10 CFR 55.53.e, p. 80.
2. KA 194001A103 (2.5/3.4)
3. SRO Only

194001A103 ..(KA's)

ANSWER: 089 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan NRC-LP-17.0, Obj. 1.1.2, p. 6 and 10 CFR 55.13[a] [2].
2. KA 194001A109 (2.7/3.9)
3. Both RO and SRO

194001A109 ..(KA's)

ANSWER: 090 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan FP-LP-3.0/5.0, Obj. AO 7, p. 18.
2. KA 194001K116 (3.5/4.2)
3. SRO Only

194001K116 ..(KA's)

ANSWER: 091 (1.00)

b. [+1.0]

REFERENCE:

1. PEP-102, "Site Emergency Coordinator - Control Room", p. 6.
2. KA 194001A116 (3.1/4.4)
3. SRO Only

194001A116 ..(KA's)

ANSWER: 092 (1.00)

b. [+1.0]

REFERENCE:

1. PEP-102, "Site Emergency Coordinator - Control Room", section 9.3, p. 14.
2. PEP-382, "Personnel Accountability", p. 3.
3. KA 194001A116 (3.1/4.4)
4. SRO Only

194001A116 ..(KA's)

ANSWER: 093 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan EPB-LP-001H, Obj. 9.c, pp. 21-22.
2. PEP-405, "Preparation of Activity Logs", p. 6.
3. KA 194001A106 (3.4/3.4)
4. Both RO and SRO

194001A106 ..(KA's)

ANSWER: 094 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.19, Obj. 3.a & b, p. 16 and EOP-User's Guide, p. 17.
2. KA 194001A102 (4.1/3.9)
3. Both RO and SRO

194001A102 ..(KA's)

ANSWER: 095 (1.00)

c. [+1.0]

REFERENCE:

1. OMM-014, "Operation of the Work Control Center", pp. 15-16.
2. KA 194001K102 (3.7/4.1)
3. Both RO and SRO

194001K102 ..(KA's)

ANSWER: 096 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan PP-LP-3.4, Obj. 3 and OMM-014, "section 5.2.1, pp. 15-16.
2. KA 194001K102 (3.7/4.1)
3. SRO Only

194001K102 ..(KA's)

ANSWER: 097 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan PP-LP-3.2, Obj. 3 and OMM-004, "Post-Trip/Safeguards Actuation Review", pp. 5-6.
2. KA 194001A103 (2.5/3.4)
3. SRO Only

194001A103 ..(KA's)

ANSWER: 098 (1.00)

a. [+1.0]

REFERENCE:

1. AP-545, "Containment Entries", p. 11.
2. KA 194001K105 (3.1/3.4)
3. SRO Only

194001K105 ..(KA's)

ANSWER: 099 (1.00)

d. [+1.0]

REFERENCE:

1. PEP-102, "Site Emergency Coordinator - Control Room", p. 5.
2. KA 194001A116 (3.1/4.4)
3. SRO Only

194001A116 ..(KA's)

ANSWER: 100 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan PP-LP-3.3, Obj. 8 and OMM-007, "Operations Surveillance, Periodic and Reliability Tests", pp. 12-13.
2. KA 194001A102 (4.1/3.9)
3. SRO Only

194001A102 ..(KA's)

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

A N S W E R K E Y

MULTIPLE CHOICE

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

A N S W E R K E Y

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

A N S W E R K E Y

092 b

093 a

094 b

095 c

096 d

097 c

098 a

099 d

100 b

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

3/4.0 APPLICABILITY

LIMITING CONDITION FOR OPERATION

3.0.1 Compliance with the Limiting Conditions for Operation contained in the succeeding specifications is required during the OPERATIONAL MODES or other conditions specified therein; except that upon failure to meet the Limiting Conditions for Operation, the associated ACTION requirements shall be met.

3.0.2 Noncompliance with a specification shall exist when the requirements of the Limiting Condition for Operation and associated ACTION requirements are not met within the specified time intervals. If the Limiting Condition for Operation is restored prior to expiration of the specified time intervals, completion of the ACTION requirements is not required unless otherwise noted in the ACTION statement.

3.0.3 When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within 1 hour action shall be initiated to place the unit in a MODE in which the specification does not apply by placing it, as applicable, in:

a. At least HOT STANDBY within the next 6 hours,
b. At least HOT SHUTDOWN within the following 6 hours, and
c. At least COLD SHUTDOWN within the subsequent 24 hours.

Where corrective measures are completed that permit operation under the ACTION requirements, the action may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual specifications.

This specification is not applicable in MODE 5 or 6.

3.0.4 Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the conditions for the Limiting Condition for Operation are met without reliance on provisions contained in the ACTION requirements. This provision shall not prevent passage through or to OPERATIONAL MODES as required to comply with ACTION requirements. Exceptions to these requirements are stated in the individual specifications.

REACTIVITY CONTROL SYSTEMS

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

GROUP HEIGHT

LIMITING CONDITION FOR OPERATION

3.1.3.1 All shutdown and control rods shall be OPERABLE and positioned within ± 12 steps (indicated position) of their group step counter demand position.

APPLICABILITY: MODES 1* and 2*.

ACTION:

a. With one or more rods inoperable due to being immovable as a result of excessive friction or mechanical interference or known to be untrippable, determine that the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied within 1 hour and be in HOT STANDBY within 6 hours.

b. With more than one rod misaligned from the group step counter demand position by more than ± 12 steps (indicated position), be in HOT STANDBY within 6 hours.

c. With more than one rod inoperable, due to a rod control urgent failure alarm or obvious electrical problem in the rod control system existing for greater than 36 hours, be in HOT STANDBY within the following 6 hours.

d. With one rod trippable but inoperable due to causes other than addressed by ACTION a., above, or misaligned from its group step counter demand height by more than ± 12 steps (indicated position), POWER OPERATION may continue provided that within 1 hour:

1. The rod is restored to OPERABLE status within the above alignment requirements, or

2. The rod is declared inoperable and the remainder of the rods in the group with the inoperable rod are aligned to within ± 12 steps of the inoperable rod while maintaining the rod sequence and insertion limits of Specification 3.1.3.6. The THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation, or

3. The rod is declared inoperable and the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied. POWER OPERATION may then continue provided that:

a) A reevaluation of each accident analysis of Table 3.1-1 is performed within 5 days; this reevaluation shall confirm that the previously analyzed results of these accidents

*See Special Test Exceptions Specifications 3.10.2 and 3.10.3.

LIMITING CONDITION FOR OPERATION

ACTION (Continued):

remain valid for the duration of operation under these conditions;

b) The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is determined at least once per 12 hours;

c) A power distribution map is obtained from the movable incore detectors and $F_Q(Z)$ and $F^N_{\Delta H}$ are verified to be within their limits within 72 hours; and

d) The THERMAL POWER level is reduced to less than or equal to 75% of RATED THERMAL POWER within the next hour and within the following 4 hours the High Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The position of each rod shall be determined to be within the group demand limit by verifying the individual rod positions at least once per 12 hours except during time intervals when the rod position deviation monitor is inoperable, then verify the group positions at least once per 4 hours.

4.1.3.~~1.~~2 Each rod not fully inserted in the core shall be determined to be OPERABLE by movement of at least 10 steps in any one direction at least once per 31 days.

REACTIVITY CONTROL SYSTEMS

POSITION INDICATION SYSTEMS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.3.2 The Digital Rod Position Indication System and the Demand Position Indication System shall be OPERABLE and capable of determining the shutdown and control rod positions within ± 12 steps.

APPLICABILITY: MODES 1 and 2.

ACTION:

a. With a maximum of one digital rod position indicator per bank inoperable either:

1. Determine the position of the nonindicating rod(s) indirectly by the movable incore detectors at least once per 8 hours and immediately after any motion of the nonindicating rod which exceeds 24 steps in one direction since the last determination of the rod's position, or

2. Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within 8 hours.

b. With a maximum of one demand position indicator per bank inoperable either:

1. Verify that all digital rod position indicators for the affected bank are OPERABLE and that the most withdrawn rod and the least withdrawn rod of the bank are within a maximum of 12 steps of each other at least once per 8 hours, or

2. Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within 8 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.2 Each digital rod position indicator shall be determined to be OPERABLE by verifying that the Demand Position Indication System and the Digital Rod Position Indication System agree within 12 steps at least once per 12 hours except during time intervals when the rod position deviation monitor is inoperable, then compare the Demand Position Indication System and the Digital Rod Position Indication System at least once per 4 hours.

3/4.8 ELECTRICAL POWER SYSTEMS

Tech. Spec. Interpretation 87-2

Tech. Spec. Interpretation 89-3

Tech. Spec. Interpretation 89-5

3/4.8.1 A.C. SOURCES

OPERATING

Tech. Spec. Interpretation 90-2

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, and

b. Two separate and independent diesel generators, each with:

1. A separate day tank containing a minimum of 1457 gallons of fuel, which is equivalent to a minimum indicated level of 40%**,

2. A separate main fuel oil storage tank containing a minimum of 100,000 gallons of fuel, and

3. A separate fuel oil transfer pump.

c. Automatic Load Sequencers for Train A and Train B.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one offsite circuit of 3.8.1.1.a inoperable:

1. Perform Surveillance Requirement 4.8.1.1.1.a within 1 hour and once per 8 hours thereafter; and

2. Restore the offsite circuit to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; and

3. Verify required feature(s) powered from the OPERABLE offsite A.C. source are OPERABLE. If required feature(s) powered from the OPERABLE offsite circuit are discovered to be inoperable at any time while in this condition, restore the required feature(s) to OPERABLE status within 24 hours from discovery of inoperable required feature(s) or declare the redundant required feature(s) powered from the inoperable A.C. source as inoperable and be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours or within the ACTION time of applicable ACTION statement(s) for the inoperable required feature(s), whichever is more limiting.

**Minimum indicated level with a fuel oil specific gravity of 0.83 and the level instrumentation calibrated to a reference specific gravity of 0.876.

Tech. Spec. Interpretation 87-2

Tech. Spec. Interpretation 90-1

EMERGENCY CORE COOLING SYSTEMS

3/4.5.2 ECCS SUBSYSTEMS - T_{avg} GREATER THAN OR EQUAL TO 350°F

LIMITING CONDITION FOR OPERATION

3.5.2 Two independent Emergency Core Cooling System (ECCS) subsystems shall be OPERABLE with each subsystem comprised of:

a. One OPERABLE Charging/safety injection pump,

b. One OPERABLE RHR heat exchanger,

c. One OPERABLE RHR pump, and

d. An OPERABLE flow path capable of taking suction from the refueling water storage tank on a Safety Injection signal and, upon being manually aligned, transferring suction to the containment sump during the recirculation phase of operation.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected Safety Injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

a. At least once per 12 hours by:

1. Verifying that the following valves are in the indicated positions with the control power disconnect switch in the "OFF" position, and the valve control switch in the "PULL TO LOCK" position:

LIMITING CONDITION FOR OPERATION

ACTION (Continued):

b. With one diesel generator of 3.8.1.1.b inoperable:

1. Perform Surveillance Requirement 4.8.1.1.1.a within 1 hour and once per 8 hours thereafter; and

*2. Within 24 hours, determine the OPERABLE diesel generator is not inoperable due to a common cause failure or perform Surveillance Requirement 4.8.1.1.2.a.4#; and

3. Restore the diesel generator to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; and

4. Verify required feature(s) powered from the OPERABLE diesel generator are OPERABLE. If required feature(s) powered from the OPERABLE diesel generator are discovered to be inoperable at any time while in this condition, restore the required feature(s) to OPERABLE status within 4 hours from discovery of inoperable required feature(s) or declare the redundant required feature(s) powered from the inoperable A.C. source as inoperable and be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours or within the ACTION time of applicable ACTION statement(s) for the inoperable required feature(s), whichever is more limiting.

c. With one offsite circuit and one diesel generator of 3.8.1.1 inoperable:

NOTE: Enter applicable Condition(s) and Required Action(s) of LCO 3/4.8.3, ONSITE POWER DISTRIBUTION - OPERATING, when this condition is entered with no A.C. power to one train.

1. Restore one of the inoperable A.C. sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

2. Following restoration of one A.C. source (offsite circuit or diesel generator), restore the remaining inoperable A.C. source to OPERABLE status pursuant to requirements of either ACTION a or b, based on the time of initial loss of the remaining A.C. source.

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*This ACTION is required to be completed regardless of when the inoperable EDG is restored to OPERABILITY.

#Activities that normally support testing pursuant to 4.8.1.1.2.a.4, which would render the diesel inoperable (e.g., air roll), shall not be performed for testing required by this ACTION statement.

ACTION (Continued):

d. With two of the required offsite A.C. sources inoperable:

1. Restore one offsite circuit to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; and

2. Verify required feature(s) are OPERABLE. If required feature(s) are discovered to be inoperable at any time while in this condition, restore the required feature(s) to OPERABLE status within 12 hours from discovery of inoperable required feature(s) or declare the redundant required feature(s) inoperable and be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours or within the ACTION time of applicable ACTION statement(s) for the inoperable required feature(s), whichever is more limiting.

3. Following restoration of one offsite A.C. source, restore the remaining offsite A.C. source in accordance with the provisions of ACTION a with the time requirement of that ACTION based on the time of initial loss of the remaining inoperable A.C. source.

e. With two of the required diesel generators inoperable:

1. Perform Surveillance Requirement 4.8.1.1.1.a within 1 hour and once per 8 hours thereafter; and

#2. Restore one of the diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

3. Following restoration of one diesel generator, restore the remaining diesel generator in accordance with the provisions of ACTION b with the time requirement of that ACTION based on the time of initial loss of the remaining inoperable diesel generator.

f. With three or more of the required A.C. sources inoperable:

1. Immediately enter Technical Specification 3.0.3.

2. Following restoration of one or more A.C. sources, restore the remaining inoperable A.C. sources in accordance with the provisions of ACTION a,b,c,d and/or e as applicable with the time requirement of that ACTION based on the time of initial loss of the remaining inoperable A.C. sources.

g. With contiguous events of either an offsite or onsite A.C. source becoming inoperable and resulting in failure to meet the LCO:

1. Within 6 days, restore all A.C. sources required by 3.8.1.1 or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#Activities that normally support testing pursuant to 4.8.1.1.2.a.4, which would render the diesel inoperable (e.g., air roll), shall not be performed for testing required by this ACTION statement.

MASTER RO
HARRIS INITIAL
95-300
6/26-30/95

Nuclear Regulatory Commission
Operator Licensing
Examination

This document is removed from
Official Use Only category on
date of examination.

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

CANDIDATE'S NAME: _____

FACILITY: Shearon Harris 1

REACTOR TYPE: PWR-WEC3

DATE ADMINISTERED: 95/06/26

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

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

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

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

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

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

092 a b c d ___

093 a b c d ___

094 a b c d ___

095 a b c d ___

096 a b c d ___

097 a b c d ___

098 a b c d ___

099 a b c d ___

100 a b c d ___

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

1. Cheating on the examination will result in a denial of your application and could result in more severe penalties.

2. After you complete the examination, 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.

3. To pass the examination, you must achieve a grade of 80 percent or greater.

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

5. There is a time limit of 4 hours for completing the examination.

6. Use only black ink or dark pencil to ensure legible copies.

7. Print your name in the blank provided on the examination cover sheet and the answer sheet.

8. Mark your answers on the answer sheet provided and do not leave any question blank.

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

10. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating.

11. When you complete the examination, assemble a package including the examination questions, examination aids, and answer sheets and give it to the examiner or proctor. Remember to sign the statement on the examination cover sheet.

12. After you have turned in your examination, leave the examination area as defined by the examiner.

QUESTION: 001 (1.00)

WHICH ONE (1) of the following describes the source and characteristics of the T-ref signal used to calculate rod speed?

	T-ref input source	Rod Control
a.	Only from PT-446	Via lead/lag circuit
b.	Selectable (PT-446 or PT-447)	Instantaneous
c.	Selectable (PT-446 or PT-447)	Via lead/lag circuit
d.	Only from PT-447	Instantaneous

QUESTION: 002 (1.00)

Given the following:

-Unit is at 65% power.
-Rod control is in MANUAL.
-The disconnect switch for the movable grippers at the 1BD power cabinet is open in preparation for fuse replacement.
-The RO attempts to move the Bank D rods.

WHICH ONE (1) of the following describes the rod system response?

a. Rods drop causing a reactor trip; the slave cycler sends a zero current to the stationary grippers.

b. Rods do not move; a non-urgent failure alarm in the logic cabinet sends an inhibit signal to the pulser in the rod control circuit.

c. Rods drop causing a reactor trip; an urgent failure in the power cabinet deenergizes all stationary gripper coils.

d. Rods do not move; an urgent failure alarm in the power cabinet sends an inhibit signal to the pulser in the rod control circuit.

QUESTION: 003 (1.00)

Given the following:

-Reactor power at 90%.
-Power Range N-44 failed HIGH fifteen (15) minutes ago.
-Control rods are in MANUAL control.
-An operator bypassed the rod stop, but did not defeat the N-44 input to the power mismatch circuit.
-Tavg is greater than Tref by 2.0 degree F.

WHICH ONE (1) of the following describes the response of the rod control system if the Rod Selector Switch is placed in AUTOMATIC?

a. Rods will step out at 8 steps per minute.

b. Rods will step out at 72 steps per minute.

c. Rods will step in at 8 steps per minute.

d. Rods will step in at 72 steps per minute.

QUESTION: 004 (1.00)

WHICH ONE (1) of the following loop indications would be expected if a narrow range cold leg RTD failed LOW during full power operations?

	Tavg	Delta T
a.	Increase	Decrease
b.	Increase	Increase
c.	Decrease	Decrease
d.	Decrease	Increase

QUESTION: 005 (1.00)

Given the following:

-During a plant cooldown RCS temperature decreased from 350 deg. F to 345 deg. F from 9:00 am to 9:10 am.
-The SCO has directed you to establish a cooldown rate that will result in the MAXIMUM allowable rate per Technical Specifications between 9:00 am and 10:00 am.

WHICH ONE (1) of the following actions will result in reaching the Technical Specification MAXIMUM allowable RCS cooldown limit?

a. Decrease cooldown to 0.3 deg. F/min.

b. Increase cooldown to 0.9 deg. F/min.

c. Increase cooldown to 1.1 deg. F/min.

d. Increase cooldown to 1.9 deg. F/min.

QUESTION: 006 (1.00)

Given the following:

-The plant is operating at 75% power and the latest leak rate data shows:

11.3 GPM - Total RCS leakage rate
1.6 GPM - Leakage into the PRT
2.0 GPM - Leakage into the Reactor Coolant Drain Tank
1.5 GPM - Leakage past check valves from RCS to SI system
1.7 GPM - Leakage into Equipment Drain Tank
0.8 GPM - Total primary to secondary leakage (Assume distributed over all S/Gs)
2.0 GPM - Charging pump leakage

WHICH ONE (1) of the following identifies the RCS leakage that requires the plant to be shutdown?

a. PRESSURE BOUNDARY LEAKAGE

b. UNIDENTIFIED LEAKAGE

c. IDENTIFIED LEAKAGE

d. PRIMARY to SECONDARY LEAKAGE

QUESTION: 007 (1.00)

Given the following:

-The unit is at 30% power.
-RCP 1B trips.
-NO operator action is taken.

WHICH ONE (1) of the following describes the INITIAL unit response to the RCP trip?

a. A reactor trip will NOT occur and 1B steam generator water level will INCREASE.

b. A reactor trip will NOT occur and 1B steam generator water level will DECREASE.

c. A reactor trip WILL occur and 1B steam generator water level will INCREASE.

d. A reactor trip WILL occur and 1B steam generator water level will DECREASE.

QUESTION: 008 (1.00)

Given the following:

-Plant cooldown in progress with all three RCPs running.
-The RCP RADIAL BRG TEMP is approaching the alarm limit of 220 degrees.

WHICH ONE (1) of the following conditions would allow the No. 1 Seal Bypass valve to be opened?

a. Seal injection to each RCP is 9 gpm; No. 1 seal leakoff from each RCPs is 0.5 gpm; RCS pressure is 1010 psig.

b. Seal injection to each RCP is 12 gpm; No. 1 seal leakoff on A RCP is 0.9 gpm, B is 1.0 gpm, C is 1.1 gpm; RCS pressure is 940 psig.

c. Seal injection to each RCP is 6 gpm; No. 1 seal leakoff from A RCP is 0.5 gpm, B and C are each 1.1 gpm, RCS pressure is 1130 psig.

d. Seal injection to A RCP is 7 gpm, B and C are each 9 gpm: No. 1 seal leakoff from each RCP is 1.0 gpm: RCS pressure is 835 psig.

QUESTION: 009 (1.00)

Given the following:

-Unit is operating at 50% power.
-The operating charging and safety injection pump (CSIP) has tripped.
-No operator action is taken.

WHICH ONE (1) of the following will occur?

a. Letdown isolation valves will immediately CLOSE.

b. Letdown pressure control valve (PCV-145) will fully OPEN.

c. Letdown heat exchanger outlet temperature control valve (TCV-144) will OPEN.

d. Charging flow control valve (FCV-122) will CLOSE.

QUESTION: 010 (1.00)

Given the following:

-The Unit is at 60% power.
-The VCT level control is in AUTO.
-VCT level transmitter LT-115 channel fails HIGH.
-No operator action is taken.

WHICH ONE (1) of the following is the system response?

a. No VCT annunciator will be received.

b. Auto make up will be blocked.

c. VCT low-low level interlock can still be actuated.

d. LT-112 will control VCT level at steady state.

QUESTION: 011 (1.00)

WHICH ONE (1) of the following describes how the RHR pump discharge is delivered to the reactor coolant system (RCS) after the swap from the injection phase to the recirculation phase during a large break LOCA?

a. Only by direct injection to the RCS cold legs.

b. Only by direct injection to the RCS hot legs.

c. By direct injection to the RCS cold legs and via the CSIPs.

d. By direct injection to the RCS hot legs and via the CSIPs.

QUESTION: 012 (1.00)

Given the following:

-An SI and Phase A have actuated.

WHICH ONE (1) of the following indicates an SI System MISALIGNMENT?

a. RCP seal return header valves (1CS-470, 472) CLOSED.

b. CSIP to RCS charging line isolation valves (1CS-235, 238) valves CLOSED.

c. Low head SI to RCS hot leg valve (1SI-359) CLOSED.

d. VCT outlet valves (1CS-115C, E) are OPEN and RWST valves (1CS-115B, D) are OPEN.

QUESTION: 013 (1.00)

Given the following:

-MODE 4, RCS Temp/Press is 210 Deg. F./450 psig.
-An SI Signal is received by the ECCS circuitry.

WHICH ONE (1) of the following describes the response of the ECCS Accumulators, and the reason for that response?

a. The Accumulators will discharge into the RCS, because the outlet valves are interlocked to open on an SI Signal.

b. The Accumulators will discharge into the RCS, because the outlet valves's are open with their power supply locked-out.

c. The Accumulators will not discharge into the RCS, because the outlet valves's are shut with their power supply locked-out.

d. The Accumulators will not discharge into the RCS, because RCS pressure is less than P-11.

QUESTION: 014 (1.00)

WHICH ONE (1) of the following automatic system responses occur as a result of a LOW CCW surge tank level?

a. CCW drain tank and holdup tank pumps trips.

b. 1CC-304, supply to the gross failed fuel detector, CLOSES.

c. 1CC-176, supply to excess letdown and RCDT heat exchangers, CLOSES.

d. 1CC-252, return from the RCP thermal barriers, CLOSES.

QUESTION: 015 (1.00)

Given the following:

-Unit is operating at 100% power.
-PORV PCV-445A has excessive seat leakage and its respective block valve is shut.
-Excessive seat leakage has developed in a second PORV, PCV-444.
-All block valves are operable.

WHICH ONE (1) of the following will satisfy the requirements in Technical Specifications 3.4.4, "Relief Valves"?

a. Either PCV-445A or PCV-444 must be restored to operable status within 1 hour or be in Hot Standby within 6 hours.

b. Both PCV-445A and PCV-444 must be restored to operable status within 1 hour or be in Hot Standby within 6 hours.

c. Close the block valve for PCV-444, maintain power to both block valves. Power operation may continue.

d. Close the block valve for PCV-444, remove power from both block valves. Power operation may continue.

QUESTION: 016 (1.00)

Given the following:

-Steady state operation at 100% power.
-The PZR pressure Master Controller SETPOINT is inadvertently changed to 2360 psig (step change).
-Pressurizer pressure control is in automatic.

WHICH ONE (1) of the following will be the IMMEDIATE response of the system?

a. Spray valves OPEN if previously closed and variable heaters de-energize.

b. Spray valves CLOSE if previously open and backup heaters energize.

c. Power operated relief valve PCV-444B OPENS, spray valves CLOSE if previously open and variable heaters de-energize.

d. All power operated relief valves OPEN, spray valves OPEN if previously closed and backup heaters energize.

QUESTION: 017 (1.00)

Given the following:

-The pressurizer control heaters are energized.
-The pressurizer backup heater control switches are in the AUTO position.
-The pressurizer level drops to 12%, and is restored to 25%.
-RCS pressure drops to 2000 psig.
-ASSUME no operator action other than refilling the pressurizer.

WHICH ONE (1) of the following describes how the heaters will respond?

a. Control and backup heaters remain off.

b. Control and backup heaters come on AUTOMATICALLY.

c. Backup heaters come on AUTOMATICALLY AND control heaters remain off.

d. Control heaters come on AUTOMATICALLY AND backup heaters remain off.

QUESTION: 018 (1.00)

Given the following:

-Unit is at 100% power.
-Reactor protection system (RPS) testing is in progress.
-Train "B" reactor trip breaker is OPEN.
-Train "B" bypass breaker is CLOSED.
-Train "A" reactor trip breaker is CLOSED.
-Train "A" bypass breaker is OPEN.

WHICH ONE (1) of the following is the system response following a spurious reactor trip signal and Bypass Breaker Train "B" fails to open?

a. A Main Feedwater Isolation Signal (MFIS) will ONLY be initiated by Train "A".

b. If an SI occurs and the signal is RESET, an automatic reinitiation of SI would NOT be prevented.

c. The Turbine Generator remains on line and must be manually tripped.

d. Steam dumps receive an open signal, but do NOT arm.

QUESTION: 019 (1.00)

WHICH ONE (1) of the following describes the reactor trip breaker trip coil operation when using the manual trip switch?

a. UV coils are energized, the shunt coils are energized.

b. UV coils and shunt coils are all de-energized.

c. UV coils are energized, shunt coils are de-energized.

d. UV coils are de-energized, the shunt coils are energized.

QUESTION: 020 (1.00)

Given the following:

-Reactor power is 100%.
-All control and protective systems in their normal full power lineup.
-Equipment failure causes an inadvertent SI.
-A control room operator recognizes that the SI is inadvertent and actuates the SI RESET switches 15 seconds after the SI initiation.
-SI did NOT reset.

WHICH ONE (1) of the following describes the reason SI did NOT reset?

a. The inadvertent SI signal was still present.

b. The Reactor Tripped (P-4) signal has not been reset.

c. The time delay circuit for resetting SI had not timed out yet.

d. The sequencer had not completed its timed sequencing thereby locking in the SI signal.

QUESTION: 021 (1.00)

The ATWS Mitigation System Actuation Circuitry (AMSAC) has two variable time delays built into the system.

WHICH ONE (1) of the following is the PURPOSE of the time delays?

a. To allow for level transients and for the SSPS to actuate first.

b. To allow flow coast down to take effect before initiating auxiliary feedwater flow following an ATWS.

c. Allow operators to block AMSAC from the MCB at any power level in the event it is not needed.

d. To ensure the turbine is tripped before opening the steam dumps to prevent excessive cooldown rate.

QUESTION: 022 (1.00)

Given the following:

-Unit is at 85% power and being increased to 100%.
-The "Rod Control Startup" switch is inadvertently actuated.

WHICH ONE (1) of the following describes the effect of this action?

a. "Urgent Failure" alarm will actuate.

b. The plant will NOT respond to a dropped rod(s) in control banks B, C, or D.

c. Alarms "Bank Low Insertion Limit" and "Bank Low-Low Insertion Limit" will actuate.

d. Control Bank D outward motion will be stopped by Rod stop interlock C-11 if rods are in automatic.

QUESTION: 023 (1.00)

Given the following:

-A normal reactor shutdown is being performed.
-At 90% power, one Intermediate Range Nuclear Instrument Channel fails full-scale HIGH.
-ASSUME no corrective action is taken.

WHICH ONE (1) of the following describes the effects of this failure?

a. The reactor trips immediately, but the Source Range nuclear instruments do not automatically re-energize.

b. The reactor trips immediately, and the Source Range nuclear instruments automatically re-energize when P-10 clears.

c. The reactor trips when P-10 clears, but the Source Range nuclear instruments do not automatically re-energize.

d. The reactor trips when P-6 clears, and the Source Range nuclear instruments automatically re-energize.

QUESTION: 024 (1.00)

Given the following:

-The reactor is operating at 30% steady state reactor power.
-An I&C technician receives permission to perform a test on Power Range Channel N-41 which requires pulling the control power fuses.
-The I&C technician mistakenly pulls the fuses on N-42; then, realizing his mistake, he reinserts the fuses for N-42 and pulls the fuses for the correct channel, N-41, causing a reactor trip.

WHICH ONE (1) of the following is the cause of the reactor trip?

a. PR neutron flux low setpoint trip.

b. OP Delta T trip.

c. PR neutron flux high setpoint trip.

d. PR rate trip.

QUESTION: 025 (1.00)

WHICH ONE (1) of the following is the appropriate lineup of the Nuclear Instrumentation Recorder NR-45 per GP-004, "Reactor Startup (Mode 3 to Mode 2)" when a reactor startup is in progress?

a. Both source range channels are selected.

b. Both intermediate range channels are selected.

c. Either of the indicating source range channels and either of the indicating intermediate range channels are selected.

d. The highest indicating source range channel and highest indicating intermediate range channel are selected.

QUESTION: 026 (1.00)

Given the following:

-The unit is at 100% power.
-All controls are in automatic.
-Steam dumps are in Tavg Mode.

WHICH ONE (1) of the following events will cause the actuation of the steam dump system?

a. Impulse pressure transmitters PT-446 and PT-447 fail HIGH.

b. Impulse pressure transmitter PT-447 fails LOW coincident with the median Tavg circuit output failing LOW.

c. Impulse pressure transmitter PT-446 fails LOW coincident the median Tavg circuit output failing HIGH.

d. Impulse pressure transmitter PT-447 fails HIGH along with a reactor/turbine trip.

QUESTION: 027 (1.00)

WHICH ONE (1) of the following inputs is used by the Subcooling Monitor in the subcooling calculation?

a. Average of all thermocouples.

b. Average of five (5) hottest thermocouples.

c. Hottest thermocouple in each core quadrant.

d. Three (3) hottest thermocouples in each core quadrant.

QUESTION: 028 (1.00)

WHICH ONE (1) of the following will be displayed on the ICCM Thermocouple screen if a thermocouple has failed?

a. A reading of "- - -".

b. A reading of 0 degrees F.

c. A reading of 50 degrees F.

d. A reading of 2300 degrees F.

QUESTION: 029 (1.00)

WHICH ONE (1) of the following describes the response of the Containment Fan Coolers (AH-1 thru 4) following a SI actuation?

a. Fans are stripped and resequenced with load block 9.

b. Lead fan starts in fast speed and secondary fan starts in slow speed.

c. Lead fan starts in slow speed as sequenced on by load block 2.

d. Both fans in each fan cooler unit will start in slow speed.

QUESTION: 030 (1.00)

WHICH ONE (1) of the following describes the response of the Containment Spray System when the RESET switches are actuated after an auto actuation?

a. Both containment spray pumps stop and spray additive tank discharge valves close.

b. Both containment spray pumps continue running and spray additive tank discharge valves close.

c. Both containment spray pumps stop and spray additive tank discharge valves remain open.

d. Both containment spray pumps continue running and spray additive tank discharge valves remain open.

QUESTION: 031 (1.00)

WHICH ONE (1) of the following conditions will allow the Reactor side upender to be raised?

a. The manipulator crane is in the transfer canal with the gripper in any position.

b. Traverse motor must be ON with the transfer car at the extreme end of its travel.

c. The manipulator crane is over the reactor with the gripper in any position.

d. Valve interlock bypass switch must be selected to the bypass position.

QUESTION: 032 (1.00)

Given the following:

-100% reactor power.
-Main Feedwater Regulating valve control is in AUTOMATIC.

WHICH ONE (1) of the following will cause the "B" Steam Generator Feed Flow Demand Signal to DECREASE?

a. Steam Flow transmitter fails HIGH.

b. Feedwater Flow transmitter fails LOW.

c. Level transmitter fails LOW.

d. Pressure transmitter fails LOW.

QUESTION: 033 (1.00)

WHICH ONE (1) of the following is NOT one of the basic functions provided for by the steam generator (S/G) flow restrictor?

a. Provide for steam flow measurement.

b. Minimizes the lifting of the S/G safeties.

c. Limits reactor coolant system cooldown rate.

d. Minimizes the mass flow rate that a main steam isolation valve must close against.

QUESTION: 034. (1.00)

WHICH ONE (1) of the following conditions is indicated when the "OPC MONITOR" light on DEH panel "A" is energized?

a. Turbine Overspeed Protection Controller is totally or partially disabled.

b. Turbine is being runback by loss of one Main Feedwater Pump.

c. Turbine Overspeed Protection Controller has actuated.

d. Turbine runback and load drop anticipatory (LDA) are operable.

QUESTION: 035 (1.00)

Given the following:

-Unit is at 7% power.
-Turbine is rolling up to 1800 rpm.
-All operating condensate pumps trip.
-"A" motor driven (MD) AFW pump is OOS.
-ASSUME no operator action is taken.

WHICH ONE (1) of the following describes the system response?

	MFPs	"B" MD AFW Pump	Reactor Trip	Turbine Trip
a.	Immediate trip	Start on MFW pump trip	On SG low low level	On reactor trip
b.	Immediate trip	Start on SG low low level	On turbine trip	On MFW pump trip
c.	Trip after 5 sec. delay	Start on SG low low level	On turbine trip	On MFW pump trip
d.	Trip after 5 sec. delay	Start on MFW pump trip	On SG low low level	On reactor trip

QUESTION: 036 (1.00)

Given the following:

-The feedwater system is being placed in service.
-The preheater permissive has NOT been satisfied.
-The control switch for one of the SG main feed isolation valves (MFIVs) is taken to the OPEN position and then released.

WHICH ONE (1) of the following describes the response of the applicable MFIV?

a. The valve will open and remain open.

b. The valve will not open at all.

c. The valve will travel in the open direction and will stop after the control switch is released.

d. The valve will open until the control switch is released at which time the valve will close.

QUESTION: 037 (1.00)

WHICH ONE (1) of the following is the reason Power Range Nuclear Instrumentation (N-44) is used as a control input to the Feedwater Bypass Control Valves?

a. Valve control solely on level will cause significant flow oscillations.

b. Feedwater flow at low power levels cannot be measured.

c. Steam flow at low power levels cannot be measured.

d. Nuclear power can best anticipate changes in heat flux to the Steam Generators at low power levels.

QUESTION: 038 (1.00)

WHICH ONE (1) of the following conditions would result in an AUTOMATIC AFW isolation to a steam generator if a main steamline isolation signal was present?

	SG-1A	SG-1B	SG-1C
a.	840 psig	730 psig	850 psig
b.	850 psig	790 psig	900 psig
c.	760 psig	880 psig	770 psig
d.	900 psig	810 psig	780 psig

QUESTION: 039 (1.00)

WHICH ONE (1) of the following events results in an AUTOMATIC start of the turbine-driven AFW pump? ASSUME the plant is at 100% power.

a. Loss of power to 1B-SB.

b. Loss of both Main feedwater pumps.

c. AMSAC SG level input signal for SG-1A has failed low.

d. Pressurizer pressure transmitter PT-455 failed low and bistables are tripped. Pressurizer pressure transmitter PT-456 subsequently fails low.

QUESTION: 040 (1.00)

WHICH ONE (1) of the following is the meaning of the blue light on a 480V MCC?

a. Indicates torque overload switches bypassed.

b. Indicates ground current circuit malfunction.

c. Indicates integrity of trip circuit control power fuse.

d. Indicates integrity of standby fuse for ACP control power.

QUESTION: 041 (1.00)

WHICH ONE (1) of the following is a load fed from the 480V safety-related buses?

a. Rod drive MG set 1B.

b. Condenser vacuum pump 1A.

c. Emergency Service Water Booster Pump 1A.

d. Pressurizer Backup Heater Group C.

QUESTION: 042 (1.00)

Given the following:

-The unit is at 100 percent power.
-The 1A-SA emergency diesel generator is being tested.
-A steam break inside containment occurs.

WHICH ONE (1) of the following events will occur?

a. Sequencer Program A will activate.

b. Sequencer Program B will activate.

c. Sequencer Program C will activate.

d. Sequencer Program A will start and then Program B will take over.

QUESTION: 043 (1.00)

Given the following:

-EDG 1A-SA is operating in parallel with an off-site power source.

WHICH ONE (1) of the following describes how emergency diesel generator reactive load is controlled?

a. By varying generator real load.

b. By varying generator frequency.

c. By varying diesel engine speed.

d. By varying generator excitation voltage.

QUESTION: 044 (1.00)

Given the following:

-EDG 1A-SA is paralleled with Aux bus 1D for monthly load testing.
-Breaker 105 (tie breaker) trips open.

WHICH ONE (1) of the following describes the electrical system response?

a. EDG 1A-SA will carry Bus 1A-SA and the generator overcurrent trip will NOT be available.

b. EDG 1A-SA output breaker 106 immediately trips open resulting in a bus undervoltage.

c. EDG 1B-SB starts, but the output breaker does NOT close.

d. Tie breaker 104 will trip open, a load shed will be initiated and EDG 1A-SA will pick up the loads.

QUESTION: 045 (1.00)

WHICH ONE (1) of the following is the system response after receiving a HIGH radiation signal from the Control Room Normal Outside Air Intake radiation monitor?

a. Recirculation dampers will CLOSE.

b. Emergency filtration fan inlet and outlet dampers CLOSE.

c. Purge exhaust damper will OPEN.

d. Emergency filtration discharge damper will OPEN.

QUESTION: 046 (1.00)

WHICH ONE (1) of the following radiation monitors is directly affected by a containment isolation phase "A" signal?

a. Containment Ventilation Isolation monitor.

b. Containment Atmosphere Leak Detection monitor.

c. High Range Containment Post-LOCA Area monitor.

d. Containment Pre-entry Purge monitor.

QUESTION: 047 (1.00)

Given the following:

-Unit is at 100% power.
-Fuel Handling Building Spent Fuel Pool Area monitor REM-1FR-3564A-SA has lost power.
-The automatic actions have been verified.

WHICH ONE (1) of the following is NOT expected due to the power loss?

a. The spent fuel pool cooling pump area fan unit has tripped.

b. The Fuel Handling Building emergency exhaust fan is running.

c. The operating floor normal supply and exhaust fans have tripped.

d. The Fuel Handling Building operating floor dampers have shut.

QUESTION: 048 (1.00)

WHICH ONE (1) of the following is the reason for supplying the NSW pump discharge valves with power supply that can be fed from Auxiliary Bus 1D or Auxiliary Bus 1E?

a. To ensure the pump trip interlock is maintained.

b. To ensure the discharge valve will close if the running pump trips due to a loss of power.

c. To ensure the discharge valve on the opposite train can still be operated if either bus is lost.

d. To ensure the discharge valve will remain open if the running pump trips due to a loss of power.

QUESTION: 049 (1.00)

Given the following:

-The Rotary Air Compressor (RAC) is running.
-Instrument air compressors A and C are selected to AUTO.
-A valid SI signal is actuated.

WHICH ONE (1) of the following describes the response of the instrument air system?

a. Compressors A and C will lose power.

b. The RAC will shutdown and compressors A and C auto start if header pressure decreases.

c. Compressors A and C will auto-start due to sequencer actuation.

d. The RAC will remain running and ONLY compressor A will auto-start if header pressure decreases.

QUESTION: 050 (1.00)

Given the following:

-Fire header pressure is at 85 psig with all system controls in AUTOMATIC.

WHICH ONE (1) of the following describes the Fire Protection System pump(s) expected to be running at this pressure?

a. ONLY the jockey pump.

b. ONLY the motor-driven pump.

c. BOTH the jockey pump and the motor-driven pump.

d. The jockey pump and BOTH the motor-driven and diesel-driven pumps.

QUESTION: 051 (1.00)

Given the following:

-The plant is in a refueling outage.
-Fuel is being moved inside containment.

WHICH ONE (1) of the following is the MINIMUM required condition for the Personnel Air Lock (PAL) and Emergency Air Lock (EAL) doors per Technical Specifications?

a. Both doors in the EAL must be closed and both doors in the PAL must be closed.

b. Both doors in the EAL must be closed. At least one door in the PAL must be closed.

c. Both doors in the PAL must be closed. At least one door in the EAL must be closed.

d. At least one door is in the EAL and one door in the PAL must be closed.

QUESTION: 052 (1.00)

Given the following:

-Reactor power is at 8% and being increased to 10%.
-Annunciators "TWO OR MORE RODS AT BOTTOM" and "POWER RANGE LOWER DETECTION HIGH FLUX DEVIATION OR AUTO DEFEAT" have just come in.
-Two Rod Bottom Lights are lit.
-Tavg is slowly lowering.

WHICH ONE (1) of the following is the required operator response to this event in accordance with AOP-001, "Malfunction of Rod Control and Indication Systems"?

a. Manually withdraw control rods to match Tavg and Tref.

b. Shutdown the reactor and then recover the rods.

c. Stabilize plant conditions at 8% power and recover the rods.

d. Reduce load and stabilize the plant at 1% to 3% power and then recover the rods.

QUESTION: 053 (1.00)

WHICH ONE (1) of the following is the MAXIMUM allowed power ramp rate when recovering a dropped rod?

a. 0.5% per minute

b. 1% per minute

c. 3% per minute

d. 5% per minute

QUESTION: 054 (1.00)

Given the following:

-Unit is at 75% power.
-Rod control is in AUTOMATIC.
-Boric acid tank is in RECIRCULATION.
-A dilution in progress using ALT DIL mode.
-The RO then observes a continuous rod withdrawal.

WHICH ONE (1) of the following failures would explain this rod movement?

a. Loss of instrument air to 1CS-278, Emergency Boric Acid Addition Valve.

b. Loss of instrument air to 1CS-283, Boric Acid to Boric Acid Blender (FCV-113A).

c. Loss of instrument air to 1CS-563, Boric Acid Filter Outlet Isolation Valve.

d. Loss of instrument air to 1CS-156, Boric Acid Makeup to CSIP Suction Valve (FCV-113B).

QUESTION: 055 (1.00)

Given the following:

-A power reduction from 80% to 60% has just been completed.
-Two (2) Bank D control rods have failed to insert with the rest of the bank.

WHICH ONE (1) of the following rod position differences is the MINIMUM that would require the rods to be considered misaligned per Technical Specifications?

a. 8 steps

b. 10 steps

c. 13 steps

d. 17 steps

QUESTION: 056 (1.00)

Given the following:

-Reactor tripped from 100% power.
-EOP-PATH-1 has been entered.
-The Main Turbine did NOT trip as expected.

WHICH ONE (1) of the following actions should be performed FIRST in order of PREFERENCE to trip/stop the turbine?

a. Place the turbine DEH pumps in Pull-to-Lock.

b. Runback the turbine to no load conditions.

c. Shut the MSIVs and bypass valves.

d. Manually trip the turbine locally at the turbine pedestal.

QUESTION: 057 (1.00)

Given the following:

-The RCS has had a stuck open Pressurizer safety valve.
-The reactor tripped and safety injection initiated.
-The RCS rapidly depressurized to saturation conditions.
-Pressurizer level initially dropped and then began to rise rapidly.

WHICH ONE (1) of the following characterizes the relationship between pressurizer level and RCS inventory under these conditions?

a. Level is NOT an accurate indication of inventory. RCS voiding may result in a rapidly increasing pressurizer level.

b. Level is NOT an accurate indication of inventory. The cold calibrated pressurizer level channels indicate high during high temperature, low pressure conditions.

c. Level is an accurate indication of inventory. Voiding would occur first in the pressurizer steam space due to the high temperature of the pressurizer walls.

d. Level is an accurate indication of inventory. RCP flow would sweep any voids from the RCS to the pressurizer steam space and out the safety.

QUESTION: 058 (1.00)

WHICH ONE (1) of the following is the PREFERRED manual method of determining temperature for subcooling margin if the plant process computer is unavailable?

a. The average of all active loop wide range T-hot temperature indicators.

b. The single highest reading active loop wide range T-hot temperature indication.

c. The average of all available core exit TC readings on the Inadequate Core Cooling Monitor.

d. The single highest reading core exit TC reading on the Inadequate Core Cooling Monitor.

QUESTION: 059 (1.00)

WHICH ONE (1) of the following is the significance of a full range RVLIS reading of 38% with the RCP's not running during a LOCA?

a. The core is completely uncovered, and immediate action must be taken to depressurize all intact SG and inject accumulators.

b. Approximately one foot of the core is uncovered, with the resulting probability of core damage.

c. Approximately 30% of the core is uncovered, and core exit TC temperatures of > 730F should be expected.

d. Less than 3 1/2 feet of the core is covered, and the upper 2/3 of the core will not be adequately cooled by steam.

QUESTION: 060 (1.00)

WHICH ONE (1) of the following conditions would require you to IMMEDIATELY trip the affected RCP in accordance with AOP-018, "Reactor Coolant Pump Abnormal Conditions"?

a. CCW heat exchanger outlet temperature reads 110 degrees F.

b. RCP pump bearing water temperature reads 225 degrees F.

c. RCP frame vibration reads 4 mils.

d. Total RCP #1 seal leakoff flow reads 9 gpm.

QUESTION: 061 (1.00)

WHICH ONE (1) of the following is an indication of the number 2 seal failing on an RCP?

a. #1 seal leakoff DECREASES.

b. #1 seal delta P DECREASING.

c. Lower bearing water temperature INCREASING.

d. Standpipe low level alarm.

QUESTION: 062 (1.00)

Given the following:

-Natural circulation cooldown in progress per EPP-005, "Natural Circulation Cooldown".

WHICH ONE (1) of the following is NOT used to determine if the upper head is cooled below 200 degrees?

a. Level indication on RVLIS.

b. Pressurizer level changes.

c. Number of CRDM fans running.

d. RCS hot leg temperature.

QUESTION: 063 (1.00)

WHICH ONE (1) of the following flowrates is the MINIMUM Charging flow required for Emergency Boration when aligned to the Boric Acid Tank according to AOP-002, "Emergency Boration"?

a. 20 gpm

b. 30 gpm

c. 40 gpm

d. 50 gpm

QUESTION: 064 (1.00)

WHICH ONE (1) of the following requires an emergency boration according to AOP-002, "Emergency Boration"?

a. Criticality is reached below the minimum insertion limit during a reactor startup.

b. Control rods H14 and K10 insert uncontrollably 100 steps while at 98% power.

c. Two SGs become faulted and cannot be isolated while at 549 deg. F after a trip.

d. A steam dump valve briefly opens resulting in an RCS cooldown to 541 degrees F while withdrawing shutdown rods during a reactor startup.

QUESTION: 065 (1.00)

Given the following:

-The unit has been shutdown for eight days following 100 days at 100% power.
-The RCS temperature is 125 degrees F.
-The RCS is at midloop.
-A total loss of RHR occurs.
-No core cooling is re-established.

WHICH ONE (1) of the following is the approximate time within which the RCS will reach boiling?

a. 1 to 2 minutes

b. 10 to 15 minutes

c. 1 to 2 hours

d. 4 to 5 hours

QUESTION: 066 (1.00)

Given the following:

-The plant is in a shutdown condition with the RCS filled, vessel head installed.
-RHR pumps are operating in their normal system lineup for these plant conditions.
-There are indications of RCS leakage; pressurizer level decrease and RCS pressure decrease.
-The makeup system is keeping up with the inventory loss.

WHICH ONE (1) of the following is the IMMEDIATE action that should be taken?

a. Initiate SI and ensure flow is sufficient to maintain the core covered.

b. Increase charging to a rate higher than the inventory loss.

c. Stop the RHR pumps and shut the loop suction valves.

d. Attempt to identify and isolate the leak.

QUESTION: 067 (1.00)

Given the following:

-Unit is at 100% power.
-CCW surge tank High-Low alarm condition is present.
-CCW surge tank level is DECREASING.
-The makeup valve is OPEN.

WHICH ONE (1) of the following is the location of the leak?

a. Letdown heat exchanger

b. Primary sampling cooler

c. Thermal barrier heat exchanger

d. Seal water heat exchanger

QUESTION: 068 (1.00)

Given the following:

-Unit is at 100% power.
-CCW surge tank level low level alarm has come in.
-1DW-15, CCW makeup is open.
-CCW surge tank level is at 3.5% and decreasing.

WHICH ONE (1) of the following is the IMMEDIATE action required for this event?

a. Stop the running CSIP(s).

b. Trip the reactor and enter EOP-PATH-1.

c. Start any additional CCW pumps as needed.

d. Start an additional RMW pump.

QUESTION: 069 (1.00)

Given the following:

-Unit is operating at 100% power.
-A failure of the controlling pressurizer pressure channel caused pressure to decrease to 2223 psig.
-Pressurizer Pressure Master Controller is in MANUAL.

WHICH ONE (1) of the following describes the action required to increase the heat output of the variable heaters to return pressure to 2235 psig?

a. Increase the controller output.

b. Decrease the controller output.

c. Raise the pressure setpoint adjustment.

d. Lower the pressure setpoint adjustment.

QUESTION: 070 (1.00)

Given the following:

-RCS operating with the Pressurizer solid and all systems are configured correctly.
-Charging pump suction supply is from the VCT.
-A malfunction has caused Pressurizer pressure to increase.

WHICH ONE (1) of the following is the cause of the pressure increase?

a. Charging flow control valve (FCV-122) is CLOSING.

b. RHR heat exchanger bypass valve has failed CLOSED.

c. Letdown pressure control valve (PCV-145) is CLOSING.

d. Pressurizer Pressure transmitter (Protection channel) failed HIGH.

QUESTION: 071 (1.00)

Given the following:

-Unit is at 100% power.
-All automatic control systems are in their normal lineup.
-The controlling PZR level transmitter LT-459 fails at the programmed level that corresponds to full plant load.
-ASSUME no operator action is taken.

WHICH ONE (1) of the following describes the effect on charging and PZR level when the plant load is REDUCED to 10% power?

a. Charging flow decreases and actual PZR level decreases. At 17% actual level, letdown will isolate and the PZR heaters will cut off.

b. Charging flow remains constant and actual PZR level remains constant. Pressurizer heaters will energize to compensate for reduced Tavg.

c. Actual PZR level increases and charging flow increases. The backup heaters will energize as level rises due to the apparent in-surge.

d. Actual PZR level decreases and charging flow increases. When actual level increases back to program level, charging flow will back down to maintain level.

QUESTION: 072 (1.00)

Given the following:

-Reactor power is at 100%.
-All systems are in automatic.
-An Anticipated Transient Without Scram (ATWS) has occurred.
-Both manual and automatic reactor trips have failed.

WHICH ONE (1) of the following is the IMMEDIATE action required for this event per FRP-S.1, "Response to Nuclear Power Generation/ATWS"?

a. Locally trip the reactor trip breakers.

b. Place the rods in MANUAL and drive the rods in.

c. Allow the control rods to AUTOMATICALLY insert until the rod drive MG sets are deenergized.

d. Allow the control rods to AUTOMATICALLY insert while initiating Emergency Boration.

QUESTION: 073 (1.00)

Given the following:

-Refueling operations in progress.
-All nuclear instrumentation is in service.
-Power has just been lost to two power-range nuclear instrumentation channels.

WHICH ONE (1) of the following actions are you required to take?

a. Immediately stop all fuel movement in progress.

b. Continue refueling and contact I&C to troubleshoot/repair the failed channels when conditions permit.

c. Immediately stop all fuel movement in progress and emergency borate per AOP-002, "Emergency Boration".

d. Ensure NR-45 recorder is selected to the source range channels and continue with refueling.

QUESTION: 074 (1.00)

Given the following:

-A fuel assembly has just been removed from the core.
-Immediately after initiating movement to the upender the refueling cavity level is reported to be a foot below normal and dropping at a visible rate.

WHICH ONE (1) of the following is the preferred course of action?

a. Stop the fuel movement at the current location in transit to the upender.

b. Place the fuel assembly back in the core.

c. Place the fuel assembly in the upender and lower it to the horizontal position.

d. Position the mast over the deepest part of the cavity and lower the assembly to the bottom.

QUESTION: 075 (1.00)

WHICH ONE (1) of the following indications would confirm that a Steam Generator Tube Rupture was occurring?

a. Pressurizer pressure DECREASE with affected SG steam flow LESS than feed flow.

b. Pressurizer level DECREASE with affected SG steam flow EQUAL to feed flow.

c. Pressurizer pressure DECREASE with affected SG steam flow GREATER than feed flow.

d. Pressurizer level DECREASE with affected SG steam flow DECREASING as feed flow DECREASES.

QUESTION: 076 (1.00)

WHICH ONE (1) of the following describes the application of the RCP trip criteria while responding to a SGTR per EOP-PATH-2?

a. RCP's should be tripped ANYTIME during PATH 2 when the RCP trip criteria is met.

b. RCP's should be tripped during PATH 2 ONLY if the criteria is met after the completion of the cooldown and depressurization.

c. RCP's should be tripped during PATH 2 ONLY if the criteria is met and the cooldown and depressurization has been initiated.

d. RCP's should be tripped during PATH 2 ONLY if the criteria is met before initiating the cooldown and depressurization.

QUESTION: 077 (1.00)

WHICH ONE (1) of the following is the basis for controlling feed flow to maintain SG level less than 50% if all SGs are faulted?

a. To prevent repressurization of the RCS.

b. To prevent overfilling the SGs.

c. To minimize the potential of rupturing a SG tube.

d. To ensure SG tubes are covered to minimize fission product release.

QUESTION: 078 (1.00)

WHICH ONE (1) of the following is the reason the RCS is depressurized in FRP-P.1, "Response to Imminent Pressurized Thermal Shock"?

a. To allow the accumulators to inject.

b. To reduce the subcooling margin.

c. To increase pressurizer level.

d. To increase charging flow.

QUESTION: 079 (1.00)

Given the following:

-The unit is at 30% power.
-Megawatt output begins a DECREASING trend.
-Condenser ZONE 1 pressure is 4 in Hg. Absolute and slowly rising.
-Condenser ZONE 2 pressure is 6 in Hg. Absolute and slowly rising.

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

a. Start the second condenser vacuum pump.

b. Trip the reactor and turbine, and enter PATH-1.

c. Reduce turbine load as necessary to maintain condenser vacuum.

d. Verify CONDENSER VAC BREAKERS 1CE-447 and 1CE475 indicate shut.

QUESTION: 080 (1.00)

WHICH ONE (1) of the following parameters are monitored for the immediate use of RCS bleed and feed cooling per FRP-H.1, "Response to Loss of Secondary Heat Sink"?

a. SG narrow range level

b. SG pressure

c. SG wide range level

d. AFW flow

QUESTION: 081 (1.00)

WHICH ONE (1) of the following is the reason why AFW flowrate is procedurally restricted to 50 KPPH when recovering from low level in one steam generator in accordance with FRP-H.5, "Response to Steam Generator Low Level", if the level has fallen below 10% wide range indication?

a. Minimize thermal stress conditions on steam generator components.

b. Minimize RCS cooldown to prevent PTS conditions.

c. Ensure SG pressure transient condition does not occur which could result in an uncontrolled release through a Safety valve.

d. Ensure pressurizer level stays above SI reinitiation criteria.

QUESTION: 082 (1.00)

WHICH ONE (1) of the following is the reason for tripping an Emergency Diesel Generator (EDG) that started, when its respective 6.9KV emergency bus (1A-SA, 1B-SB) did not energize?

a. Minimize potential of overloading the EDG output breaker.

b. Conserve fuel oil in case offsite power is not restored.

c. Minimize lube and fuel oil collection in the exhaust headers.

d. Prevent overheating due to a loss of cooling water flow.

QUESTION: 083 (1.00)

WHICH ONE (1) of the following describes 480V breaker operation if DC control power is lost to these breakers?

a. Breakers will remain in their "as is" condition and operation would only be possible by local operation.

b. Automatic breaker trips would remain operational but remote operation of breakers would not be possible.

c. Breakers could be operated remotely but automatic trip functions would become inoperable.

d. Breakers would trip open and operation would only be possible by local operation.

QUESTION: 084 (1.00)

WHICH ONE (1) of the following radiation monitors will trip the waste gas decay tank flow control valve on a HIGH alarm?

a. WPB Stack 5A monitor.

b. WPB Stack 5 monitor.

c. Plant Vent Stack monitor.

d. Waste Monitor Tank Discharge monitor.

QUESTION: 085 (1.00)

WHICH ONE (1) of the following actions can NOT be performed at the Auxiliary Control Panel (ACP)?

a. Manual control of pressurizer heaters C and D.

b. Operation of the B train chilled water pump.

c. Operation of motor driven auxiliary feedwater pumps.

d. Manual control of SG PORVs.

QUESTION: 086 (1.00)

WHICH ONE (1) of the following describes the operation of the turbine driven AFW pump following transfer to the Auxiliary Control Panel (ACP)?

a. The pump will automatically start on low low level in 2 of 3 SGs.

b. The pump is unavailable for operation as the MSIVs are closed.

c. The pump is unavailable for operation due to lack of ACP controls.

d. The pump must be manually started because the automatic start signal is blocked.

QUESTION: 087 (1.00)

WHICH ONE (1) of the following conditions represents a LOSS of Containment Integrity with the unit in refueling?

a. Containment Purge is in progress.

b. An electrical penetration is removed for repair.

c. Equipment Hatch is closed with only four (4) bolts.

d. A safety valve on SG-1B is removed with the secondary side manway on SG-1A removed.

QUESTION: 088 (1.00)

Given the following:

-A main control room annunciator is not working properly.
-A work request/deficiency tag has been written.

WHICH ONE (1) of the following is the color code that should be applied to the annunciator?

a. Black

b. Pink

c. Yellow

d. Green

QUESTION: 089 (1.00)

WHICH ONE (1) of the following actions should be taken when an instrument on a control room rounds sheet is out of service?

a. Note "NIS" in the area where the reading is recorded and circle it in red.

b. Note "OOS" in the area where the reading is recorded and make a rounds sheet entry to indicate why normal reading could not be taken.

c. Provide a reading from an alternate instrument and circle it in black if the reading exceeds a maximum or minimum limit.

d. Provide a reading from an alternate instrument if available, and make a rounds sheet entry to indicate what alternate means was used and why normal reading could not be taken.

QUESTION: 090 (1.00)

WHICH ONE (1) of the following describes the preferred method for independently verifying the position of a locked open throttled valve?

a. Unlock the valve and move slightly in the closed direction, then restore to original position and restore lock.

b. Verify the locking device is intact, and the valve stem is in the correct position.

c. Verify the locking device is intact, and attempt to move the valve slightly in the open and close direction to verify stem position.

d. Unlock the valve and fully shut, then reopen to the observed throttled position.

QUESTION: 091 (1.00)

WHICH ONE (1) of the following individuals is NOT permitted to operate reactor controls under the instruction or supervision of a licensed operator?

a. An individual enrolled in a current license training course to obtain an instructor certification.

b. A licensed reactor operator who recently failed an NRC administered Senior Reactor Operator upgrade examination.

c. An auxiliary operator enrolled in a current license training course to obtain an operator license.

d. A licensed reactor operator whose license has become inactive per the requirements of 10CFR55.

QUESTION: 092 (1.00)

Given the following:

-The CO needs to be relieved from 0900 hours to 0945 hours.

WHICH ONE (1) of the following describes the MINIMUM relief requirements?

a. Completion of the shift turnover sheet, information entered in Control Operators Log book, and logs signed over.

b. Completion of the shift turnover sheet and logs signed over ONLY.

c. An oral turnover, completion of "Documentation of Short Term Relief" form, and information entered in Control Operators Log book.

d. An oral turnover and completion of "Documentation of Short Term Relief" form ONLY.

QUESTION: 093 (1.00)

WHICH ONE (1) of the following detectors is designed to detect fire before significant heat and visible smoke are detected?

a. Ionization detectors

b. Fixed temperature detectors

c. Ultraviolet detectors

d. Rate of rise thermal detectors

QUESTION: 094 (1.00)

Given the following:

-A 21 year-old male licensed operator has the following Total Effective Dose Equivalent (TEDE) at the middle of the second quarter:

Current quarterly TEDE - 325 mRem
Current yearly TEDE - 580 mRem

WHICH ONE (1) of the following is the MAXIMUM additional TEDE exposure this operator can receive without exceeding CP&L's annual administrative limit?

a. 1420 mRem

b. 1675 mRem

c. 3420 mRem

d. 3675 mRem

QUESTION: 095 (1.00)

Given the following:

-The plant is in an emergency condition.
-You have the responsibility of maintaining an emergency log.
-You are to be relieved.

WHICH ONE (1) of the following describes the actions that must be taken?

a. Close out the log, turn the log over to the relief, and have the relief initiate a new log.

b. Do not close out the log, turn the log over to the relief, and have the relief continue with the entries.

c. Close out the log, turn it in to the Sr. Specialist Emergency Preparedness, and have the relief initiate a new log.

d. Do not close out the log, turn the log over to your emergency position supervisor, and have him/her continue with the entries.

QUESTION: 096 (1.00)

WHICH ONE (1) of the following states the significance of lettered EOP action substeps?

a. Steps are "Immediate Action" steps.

b. Steps should be completed in order.

c. Steps may be completed in any order.

d. Steps are "Continuous Action" steps.

QUESTION: 097 (1.00)

WHICH ONE (1) of the following is the proper location for placing clearance tags associated with PULLED fuses per procedure AP-020, "Plant Clearance and Tagging Procedure"?

a. On the fuses.

b. On the supply breaker for the fused equipment.

c. On or near the fuse holder.

d. On the control switch for the fused equipment.

QUESTION: 098 (1.00)

WHICH ONE (1) of the following actions should be taken if a valve that is required to be OPEN is found in the CLOSED position while performing independent verification?

a. Note the valve position in the "Remarks" column of the checklist, open the valve, and continue the checklist.

b. Inform the Shift Supervisor and reposition the valve as directed.

c. Reposition the valve and have the other individual perform the independent verification.

d. Leave the valve closed and fill in the "Off Normal" and "Initials" column on the checklist.

QUESTION: 099 (1.00)

Given the following:

-An Operator is performing an approved procedure when he encounters a "Caution" tag giving instructions contradictory to those in the procedure.

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

a. Deviate from the procedure and follow instructions of the CAUTION tag.

b. N/A the step, note the deviation in the "Remarks" section and continue with the procedure.

c. Perform the procedure as written and disregard instructions on the CAUTION tag.

d. Notify Shift Supervisor of the CAUTION tag and await instructions before proceeding.

QUESTION: 100 (1.00)

WHICH ONE (1) of the following is the LOWEST emergency classification that REQUIRES activation of the TSC and OSC?

a. Unusual Event

b. Alert

c. Site Area Emergency

d. General Emergency

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

ANSWER: 001 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan RODCS-LP-3.0/5.0, Obj. 3.b, pp. 28-30.
2. KA 001000K543 (3.2/3.4)
3. Both RO and SRO

001000K543 ..(KA's)

ANSWER: 002 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan RODCS-LP-3.0/5.0, Obj. 5.a & b, pp. 36 & 61-62.
2. SD-104, "Rod Control System", Table 6.2, p. 24.
3. KA 001000K103 (3.4/3.6)
4. Both RO and SRO

001000K103 ..(KA's)

ANSWER: 003 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan RODCS-LP-3.0/5.0, Obj. 1 & 3, pp. 34-35 and SD-104, "Rod Control System", p. 16.
2. KA 001000K105 (4.5/4.4)
3. RO Only

001000K105 ..(KA's)

ANSWER: 004 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan RCTEMP-LP-3.0, Obj. 2, p. 14.
2. KA 002020K509 (3.6/3.9)
3. RO Only

002020K509 ..(KA's)

ANSWER: 005 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan RCS-LP-3.0, Obj. 10.b and T/S 3.4.9.2.
2. KA 002000A103 (3.7/3.9)
3. Both RO and SRO

002000A103 ..(KA's)

ANSWER: 006 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan RCS-LP-3.0, Obj. 10.a & b.
2. Lesson Plan TS-LP-2.0/3.0/5.0, Obj. 1 and T/S 1.0 Definitions, p. 1-3, 1-4, & 1-6 and T/S 3.4.6.2, p. 3/4 4-23.
3. KA 002000G005 (3.6/4.1)
4. Both RO and SRO
   NOTE: Answer 11.3-(1.6+2.0+1.5+1.7+0.8+2.0) = 1.7 gpm unidentified which is > 1.0 gpm unidentified limit.

002000G005 ..(KA's)

ANSWER: 007 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan RPS-LP-3.0/5.0, p. 21.
2. Lesson Plan SGWLC-LP-3.0, Obj. 3, p. 12.
3. SD-126.02, "Steam Generators, SGWLC System", p. 8.
4. KA 003000K304 (3.9/4.2) 003000K302 (3.5/3.8)
5. Both RO and SRO

003000K304 ..(KA's)

ANSWER: 008 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan RCS-LP-3.0, Obj. 8 and OP-100, "Reactor Coolant System", Precautions and Limitations , p. 8 & p. 27.
2. Exam bank question RCS-TQ-3.0-26, modified.
3. KA 003000K103 (3.3/3.6)
4. RO Only

003000K103 ..(KA's)

ANSWER: 009 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan CVCS-LP-3.0/5.0, Obj. 5.a, p. 49.
2. KA 004010A401 (3.6/3.1)
3. RO Only

004010A401 ..(KA's)

ANSWER: 010 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan CVCS-LP-3.0/5.0, Obj. 5.c, pp. 50-51.
2. KA 004000K106 (3.1/3.1)
3. Both RO and SRO

004000K106 ..(KA's)

ANSWER: 011 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan RHRS-LP-3.0, Obj. 4, pp. 22-23.
2. Exam bank question RHRS-TQ-3.0-21
3. KA 005000K106 (3.5/3.6)
4. Both RO and SRO

005000K106 ..(KA's)

ANSWER: 012 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan SIS-LP-3.0/5.0, Obj. 3.a, pp. 20, 33,
2. Lesson Plan CVCS-LP-3.0/5.0, Obj. 8b & c, pp. 28 & 40.
3. KA 006000A303 (4.1/4.1)
4. Both RO and SRO

006000A303 ..(KA's)

ANSWER: 013 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan SIS-LP-3.0/5.0, Obj. 3.a & 5.a, pp. 15, 21 & 46.
2. GP-007, "Normal Plant Cooldown (Mode 3 to Mode 5)", step 33, p. 20.
3. KA 006000K410 (3.6/3.7)
4. Both RO and SRO

006000K410 ..(KA's)

ANSWER: 014 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan CCWS-LP-3.0/5.0, Obj. 2, p. 13.
2. SD-145, "Component Cooling Water System", p. 18.
3. KA 008030A301 (3.0/3.1)
4. RO Only
5. 1994/03/28 exam question, modified

008030A301 ..(KA's)

ANSWER: 015 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan PZR 3.0/5.0, Obj. 5 and T/S 3.4.4, p. 3/4 4-11.
2. Lesson Plan PZRPC-LP-3.0, Obj. 11.
3. KA 010000G005 (3.2/3.8)
4. Both RO and SRO

010000G005 ..(KA's)

ANSWER: 016 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan PZRPC-LP-3.0, Obj. 3, pp. 13-16.
2. SD-100.03, "Pressurizer and Controls", pp. 16-18.
3. KA 010000A107 (3.7/3.7)
4. RO Only

010000A107 ..(KA's)

ANSWER: 017 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan PZRLC-LP-3.0/5.0, Obj. 3 and SD-100.03, "Pressurizer and Controls", pp. 16-17.
2. KA 011000K603 (2.9/3.3)
3. Both RO and SRO
4. 1994/03/28 exam question

011000K603 ..(KA's)

ANSWER: 018 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan RPS-LP-3.0/5.0, Obj. 2 and Logic Diagram 108D831, Sheets 2 & 8.
2. Lesson Plan CFW-LP-3.0/5.0, Obj. AO 6.a & b, p. 49.
3. KA 012000K105 (3.8/3.9)
4. Both RO and SRO

012000K105 ..(KA's)

ANSWER: 019 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan RPS-LP-3.0/5.0, Obj. 3, p. 11 and SD-103, "RPS/ESF Actuation System", p. 15 and Figure 7.8, p. 46.
2. KA 012000K603 (3.1/3.5)
3. Both RO and SRO

012000K603 ..(KA's)

ANSWER: 020 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan ESFAS-LP-3.0, Obj. 3, p. 12.
2. KA 013000K401 (3.9/4.3)
3. RO Only

013000K401 ..(KA's)

ANSWER: 021 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan RPS-LP-3.0/5.0, Obj. AO 7, p. 26.
2. SD-103.1, "AMSAC", p. 5.
3. KA 013000K404 (4.3/4.5)
4. RO Only

013000K404 ..(KA's)

ANSWER: 022 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan RODCS-LP-3.0/5.0, Obj. 7a, p. 68.
2. Lesson Plan RODCS-LP-3.1/5.1, p. 33 & 36.
3. KA 014000A404 (2.7/2.7)
4. Both RO and SRO

014000A404 ..(KA's)

ANSWER: 023 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan NIS-LP-3.0, Obj. 6, p. 12.
2. SD-105, "Excore Nuclear Instrumentation", Table 6.2, p. 38.
3. KA 015000K405 (4.3/4.5)
4. Both RO and SRO

015000K405 ..(KA's)

ANSWER: 024 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan NIS-LP-3.0, Obj. 6, p. 16.
2. KA 015000K101 (4.1/4.2)
3. Both RO and SRO

015000K101 ..(KA's)

ANSWER: 025 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan GP-LP-3.4, Obj. 1 and GP-004, "Reactor Startup (Mode 3 to Mode 2)", step 4, p. 11.
2. KA 015000A402 (3.9/3.9)
3. RO Only

015000A402 ..(KA's)

ANSWER: 026 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan SDCS-LP-3.0, Obj. 7.a & b, p. 30-31.
2. KA 041000G007 (2.8/3.0)
3. Both RO and SRO

041000G007 ..(KA's)

ANSWER: 027 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan ICCM-LP-3.0/5.0, Obj. 6, pp. 15 & 18.
2. KA 017020K401 (3.4/3.7)
3. Both RO and SRO

017020K401 ..(KA's)

ANSWER: 028 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan ICCM-LP-3.0/5.0, Obj. 3.i, p. 12.
2. KA 017020A201 (3.1/3.5)
3. RO Only

017020A201 ..(KA's)

ANSWER: 029 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan CCS-LP-3.0, Obj. 5.a, p. 8.
2. KA 022000A301 (4.1/4.3)
3. Both RO and SRO

022000A301 ..(KA's)

ANSWER: 030 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan CSS-LP-3.0/5.0, Obj. 3, p. 9 and OP-112, "Containment Spray System", p. 8.
2. KA 026020A404 (3.5/3.5)
3. RO Only

026020A404 ..(KA's)

ANSWER: 031 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan FHS-LP-3.0, Obj. 3, pp. 21-22.
2. SD-115, "Fuel Handling System", p. 29.
3. KA 034000K402 (2.5/3.3)
4. RO Only

034000K402 ..(KA's)

ANSWER: 032 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan SGWLC-LP-3.0, Obj. 2, pp. 10-11.
2. SD-126.02, "Steam Generators, SGWLCS", Figure 7.2, p. 15.
3. Simulator Transmitter Override List, Malfunction PT-XXX, LT-XXX & FT-XXX.
4. KA 035010A301 (4.0/3.9)
5. RO Only

035010A301 ..(KA's)

ANSWER: 033 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan SG-LP-3.0/5.0, Obj. AO 3, pp. 6-7.
2. KA 035000G007 (3.1/3.4)
3. Both RO and SRO

035000G007 ..(KA's)

ANSWER: 034 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan EHC-LP-3.0/5.0, Obj. 3, p. 44.
2. SD-131.05, "DEH System", p. 17.
3. KA 045000A305 (2.6/2.9)
4. Both RO and SRO

045000A305 ..(KA's)

ANSWER: 035 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan CFW-LP-3.0/5.0, Obj. 1.a and SD-134, "Condensate and Feedwater", Table 6.3, pp. 1-3.
2. Lesson Plan AFS-LP-3.0/5.0, AO Obj. 6, pp. 19 & 34.
3. Lesson Plan MT-LP-3.0/5.0, pp. 26-27.
4. Lesson Plan SGWLC-LP-3.0, Obj. 4, p. 13.
5. 056000A204 (2.6/2.8)
6. Both RO and SRO

056000A204 ..(KA's)

ANSWER: 036 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan CFW-LP-3.0/5.0, Obj. 5.b, p. 63.
2. SD-134, "Condensate and Feedwater", p. 15.
3. KA 059000G007 (3.1/3.2)
4. Both RO and SRO

059000G007 ..(KA's)

ANSWER: 037 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan SGWLC-LP-3.0, Obj. 1, p. 12.
2. SD-126.02, "Steam Generators, SGWLCS", p. 5.
3. KA 059000K104 (3.4/3.4)
4. RO Only

059000K104 ..(KA's)

ANSWER: 038 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan AFS-LP-3.0/5.0, Obj. 3, p. 39.
2. SD-137, "AFW", p. 12.
2. KA 061000K414 (3.5/3.7)
3. Both RO and SRO

061000K414 ..(KA's)

ANSWER: 039 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan AFS-LP-3.0/5.0, Obj. AO 6, p. 34.
2. KA 061000K402 (4.5/4.6)
3. Both RO and SRO

061000K402 ..(KA's)

ANSWER: 040 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan 480V-LP-3.0/5.0, Obj. 1, p. 19.
2. Exam bank question 480V-TQ-3.0/5.0-13, modified.
3. KA 062000G007 (3.0/3.2)
4. Both RO and SRO

062000G007 ..(KA's)

ANSWER: 041 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan 480V-LP-3.0/5.0, Obj. AO 2, pp. 13 & 17-18.
2. KA 062000K201 (3.3/3.4)
3. Both RO and SRO

062000K201 ..(KA's)

ANSWER: 042 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan SEQ-LP-3.0/5.0, Obj. 1.
2. SD-155.02, "ESS", pp. 8-10.
3. Exam bank question SEQ-TQ-3.0/5.0-9.
4. KA 064000K411 (3.5/4.0)
5. RO Only

064000K411 ..(KA's)

ANSWER: 043 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan DE-LP-3.0/5.0, Obj. 2 and OP-155, "DG Emergency Power System", p. 19.
2. Exam bank question DE-TQ-3.0/5.0-20.
3. KA 064000A402 (3.3/3.4)
4. RO Only

064000A402 ..(KA's)

ANSWER: 044 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan SACP-LP-3.0, Obj. 5, p. 28.
2. KA 064000K101 (4.1/4.4)
3. Both RO and SRO

064000K101 ../(KA's)

ANSWER: 045 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan RMS-LP-3.0/5.0, Obj. 1.a, pp. 21-22.
2. KA 072000K104 (3.3/3.5)
3. Both RO and SRO

072000K104 ..(KA's)

ANSWER: 046 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan RMS-LP-3.0/5.0, Obj. 1.b, pp. 22-27.
2. KA 072000K102 (3.5/3.9)
3. RO Only

072000K102 ..(KA's)

ANSWER: 047 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan RMS-LP-3.0/5.0, Obj. 1.c, pp. 20-21 and SD-118, "Radiation Monitoring System", p. 35.
2. KA 072000A201 (2.7/2.9)
3. RO Only

072000A201 ..(KA's)

ANSWER: 048 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan ESWS-LP-3.0/5.0, Obj. AO 7, p. 12.
2. KA 076000G007 (2.8/3.0)
3. RO Only

076000G007 ..(KA's)

ANSWER: 049 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan ISA-LP-3.0/5.0, Obj. 1.a, p. 8.
2. KA 078000G007 (2.9/3.0)
3. Both RO and SRO

078000G007 ..(KA's)

ANSWER: 050 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan FP-LP-3.0/5.0, Obj. AO 9, pp. 8-9.
2. KA 086000K402 (3.0/3.4)
3. Both RO and SRO

086000K402 ..(KA's)

ANSWER: 051 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan CONT-LP-3.0, Obj. 6 and T/S 3.9.4, p. 3/4 9-5.
2. KA 103000G005 (3.3/4.1)
3. Both RO and SRO

103000G005 ..(KA's)

ANSWER: 052 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.1, Obj. 5.b, pp. 9-10.
2. AOP-001, "Malfunction of Rod Control and Indication Systems", section 4.0, p. 13.
3. KA 000003G011 (3.6/3.8)
4. Both RO and SRO

000003G011 ..(KA's)

ANSWER: 053 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.1, Obj. 5.a, p. 9.
2. AOP-001, "Malfunction of Rod Control and Indication Systems", section 4.0, p. 14.
3. KA 000003G007 (3.4/3.6)
4. Both RO and SRO

000003G007 ..(KA's)

ANSWER: 054 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.1, Obj. 1 and AOP-001, "Malfunction of Rod Control and Indication Systems", section 3.0, p. 9.
2. AOP-003, "Malfunction of Reactor Makeup Control", p. 2.
3. SD-107, "CVCS", p. 29 and Table 6.2, p. 43.
4. Requal exam bank question A01-034, modified
5. KA 000001K106 (4.0/4.2)
6. RO Only

000001K106 ..(KA's)

ANSWER: 055 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.1, Obj. 1 & 4 and AOP-001, "Malfunction of Rod Control and Indication Systems", section 5.0, p. 16.
2. T/S 3.1.3.1, p. 3/4 1-14.
3. KA 000005A105 (3.4/3.4)
4. RO Only

000005A105 ..(KA's)

ANSWER: 056 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.1, Obj. 2 and PATH-1.
2. EOP-PATH-1, Guide, p. 6.
3. KA 000007A202 (4.3/4.6)
4. Both RO and SRO

000007A202 ..(KA's)

ANSWER: 057 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan BD-LP-3.3, Obj. 1.f, p. 14.
2. KA 000008K301 (3.7.4.4)
3. Both RO and SRO
4. 1994/03/28 exam question

000008K301 ..(KA's)

ANSWER: 058 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.19, Obj. 4.a & s, pp. 20-21 and EOP "Users Guide", section 6.2, pp. 23-24.
2. KA 000009A116 (4.2/4.2)
3. Both RO and SRO
4. 1992/01/27 exam question

000009A116 ..(KA's)

ANSWER: 059 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.10, Obj. 4, p. 12.
2. EOP-FRP-C.1, "Response to Inadequate Core Cooling", Step 6a, p. 9.
3. KA 000011A210 (4.5/4.7)
4. Both RO and SRO
5. 1994/03/28 exam question

000011A210 ..(KA's)

ANSWER: 060 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.18, Obj. 3, and AOP-18, "Reactor Coolant Pump Abnormal Conditions", p. 4 and Attachment 1, p. 25.
2. KA 000015A210 (3.7/3.7)
3. Both RO and SRO

000015A210 ..(KA's)

ANSWER: 061 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.18, Obj. 1 and AOP-018, "Reactor Coolant Pump Abnormal Conditions", section 3.0, p. 17.
2. Lesson Plan RCS-LP-3.0, p. 18 and SD-100.01, "Reactor Coolant", p. 21 (seal leak off flow paths)
3. KA 000015A122 (4.0/4.2)
4. Both RO and SRO

000015A122 ..(KA's)

ANSWER: 062 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.8, Obj. 2.e, p. 12.
2. KA 000015K101 (4.4/4.6)
3. Both RO and SRO

000015K101 ..(KA's)

ANSWER: 063 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.2, Obj. 2 and AOP-002, "Emergency Boration", p. 4.
2. KA 000024A110 (3.5/3.4)
3. Both RO and SRO

000024A110 ..(KA's)

ANSWER: 064 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.2, Obj. 1 and AOP-002, "Emergency Boration", p. 3.
2. GP-004, "Reactor Startup (Mode 3 to Mode 2)", step 17.a.2, p. 13.
3. KA 000024K301 (4.1/4.4)
4. Both RO and SRO

000024K301 ..(KA's)

ANSWER: 065 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan ADOP-LP-17.5, Obj. 7 and Curve H-X-8 (Time to boiling is approximately 14 minutes.)
2. KA 000025K101 (3.9/4.3)
3. Both RO and SRO
4. 1994/03/28 exam question, modified

000025K101 ..(KA's)

ANSWER: 066 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.20, Obj. 2 and AOP-020, "Loss of RCS Inventory or Residual Heat Removal While Shutdown", section 1.0, p. 5.
2. KA 000025G010 (3.9/3.9)
3. Both RO and SRO

000025G010 ..(KA's)

ANSWER: 067 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.14, Obj. 4 and AOP-014, "Loss of Component Cooling Water", section 2.0, p. 14.
2. Lesson Plan CCWS-LP-3.0/5.0, pp. 22-23.
3. KA 000026A201 (2.9/3.5)
4. Both RO and SRO

000026A201 ..(KA's)

ANSWER: 068 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.14, Obj. 3 and AOP-014, "Loss of Component Cooling Water", section 2.0, p. 13.
2. KA 000026G010 (3.6/3.5)
3. Both RO and SRO

000026G010 ..(KA's)

ANSWER: 069 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan PZRPC-LP-3.0, Obj. 5 & 6, pp. 10 & 18-19.
2. SD-100.03, "Pressurizer and Controls", p. 13.
3. KA 000027A102 (3.1/3.0)
4. Both RO and SRO

000027A102 ..(KA's)

ANSWER: 070 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.19, Obj. 2 & 4 and AOP-019, "Malfunction of RCS Pressure Control", section 3.0, pp. 10-11.
2. KA 000027A211 (4.0/4.1)
3. RO Only

000027A211 ..(KA's)

ANSWER: 071 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan PZRLC-LP-3.0, Obj. 3, pp. 10-12.
2. SD-100.03, "Pressurizer and Controls", pp. 19-22.
3. KA 000028A202 (3.4/3.8)
4. Both RO and SRO

000028A202 ..(KA's)

ANSWER: 072 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.15, Obj. 2 and EOP-FRP-S.1, "Response to Nuclear Power Generation/ATWS", p. 4.
2. KA 000029G010 (4.5/4.5)
3. Both RO and SRO

000029G010 ..(KA's)

ANSWER: 073 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan RPS-LP-3.0/5.0, Obj. 6 and Technical Specifications 3.9.2, p. 3/4 9-3.
2. Lesson Plan NIS-LP-3.0, Obj. 6 & 9, p. 12.
3. KA 000032G010 (2.9/3.1) 000032G011 (3.1/3.4)
4. Both RO and SRO

000032G010 ..(KA's)

ANSWER: 074 (1.00)

b. [+1.0]

REFERENCE:

1. AOP-LP-3.31, Obj. 2 and AOP-31, "Loss of Refueling Cavity Integrity", p. 3.
2. KA 000036G010 (3.7/3.8)
3. Both RO and SRO

000036G010 ..(KA's)

ANSWER: 075 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan BD-LP-3.2, Obj. 1, p. 5.
2. WOG background information for E-3, "SGTR", p. 4.
3. KA 000038A202 (4.5/4.8)
4. Both RO and SRO

000038A202 ..(KA's)

ANSWER: 076 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.2, Obj. 6.a, p. 11.
2. EOP-PATH-2 Guide, Foldout C, p. 4 and step 20, p. 25.
3. KA 000038K308 (4.1/4.2)
4. Both RO and SRO

000038K308 ..(KA's)

ANSWER: 077 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.9, Obj. 7, p. 8.
2. WOG background information for ECA-2.1, "Uncontrolled Depressurization of All Steam Generators", p. 15.
3. KA 000040K304 (4.5/4.7)
4. Both RO and SRO

000040K304 ..(KA's)

ANSWER: 078 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.14, Obj. 2.a & 4.e, p. 14.
2. EOP-FRP-P.1, "Response to Imminent Pressurized Thermal Shock", step 22, p. 27.
3. KA 000040K101 (4.1/4.4)
4. Both RO and SRO

000040K101 ..(KA's)

ANSWER: 079 (1.00)

c. [+1.0]

REFERENCE:

1. AOP-LP-3.6, Obj. 3.
2. AOP-LP-3.12, Obj. 3 and AOP-012 "Partial Loss of Condenser Vacuum", p. 3.
3. KA 000051A202 (3.9/4.1)
4. Both RO and SRO

000051A202 ..(KA's)

ANSWER: 080 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.11, Obj. 5 and EOP-FRP-H.1, "Response to Loss of Secondary Heat Sink", FOLDOUT, p. 5.
2. KA 000054G010 (3.2/3.2)
3. Both RO and SRO

000054G010 ..(KA's)

ANSWER: 081 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.11, Obj. 6.h, p. 18.
2. WOG background information for FR-H.5, "Response to Steam Generator Low Level", p. 14.
3. KA 000054K102 (3.6/4.2)
4. Both RO and SRO

000054K102 ..(KA's)

ANSWER: 082 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan SACP-LP-3.0, p. 33.
2. Lesson Plan EOP-LP-3.7, Obj. 8 and WOG background information for ECA-0.0, "Loss of All AC Power", p. 83.
3. EOP-EPP-001, "Loss of AC Power to 1A-SA and 1B-SB Buses", step 6g, p. 6.
4. KA 000056K302 (4.4/4.7)
5. Both RO and SRO

000056K302 ..(KA's)

ANSWER: 083 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan 480V-LP-3.0/5.0, Obj. 1, p. 9.
2. AOP-025, "Loss of One Emergency AC Bus (6.9KV) or One Emergency DC Bus (125V), p. 8.
3. KA 000058A203 (3.5/3.9)
4. Both RO and SRO

000058A203 ..(KA's)

ANSWER: 084 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan RMS-LP-3.0/5.0, Obj. AO 4, pp. 26-27.
2. KA 000060A205 (3.7/4.2)
3. Both RO and SRO

000060A205 ..(KA's)

ANSWER: 085 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.4/5.4, Obj. AO 1.a and AOP-004, "Remote Shutdown", p. 17.
2. Lesson Plan PZRPC-LP-3.0, Obj. 8.b, p. 20.
3. KA 000068K201 (3.9/4.0)
4. Both RO and SRO

000068K201 ..(KA's)

ANSWER: 086 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.4/5.4, Obj. 2, and AOP-004, "Remote Shutdown", Attachment 1, p. 2.
2. KA 000068A121 (3.9/4.1)
3. Both RO and SRO

000068A121 ..(KA's)

ANSWER: 087 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan AOP-LP-3.23, Obj. 2.
2. Lesson Plan CONT-LP-3.0, Obj. 6 and T/S 1.0 Definitions", p. 1-2 and T/S 3.9.4, p. 3/4 9-5.
3. KA 000069A201 (3.7/4.3)
4. Both RO and SRO

000069A201 ..(KA's)

ANSWER: 088 (1.00)

c. [+1.0]

REFERENCE:

1. Lesson Plan PP-LP-3.0, Obj. 5.m and OMM-001, "Operations - Conduct of Operations", p. 43 & 48.
2. KA 194001A106 (3.4/3.4)
3. 1994/03/28 exam question
4. RO Only

194001A106 ..(KA's)

ANSWER: 089 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan PP-LP-3.10, Obj. 5 and OMM-016, "Operator Logs", section 5.1, p. 9.
2. KA 194001A106 (3.4/3.4)
3. 1994/03/28 exam question
4. RO Only

*End
194001A106 ..(KA's)

ANSWER: 090 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan PP-LP-3.11, Obj. 8.c and PLP-702, "Independent Verification", p. 12.
2. KA 194001K101 (3.6/3.7)
3. Both RO and SRO

194001K101 ..(KA's)

ANSWER: 091 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan NRC-LP-17.0, Obj. 1.1.2, p. 6 and 10 CFR 55.13[a] [2].
2. KA 194001A109 (2.7/3.9)
3. Both RO and SRO

194001A109 ..(KA's)

ANSWER: 092 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan PP-LP-3.1, Obj. 3 and OMM-002, "Shift Turnover Package", section 5.1, p. 5.
2. KA 194001A103 (2.5/3.4).
3. RO Only

194001A103 ..(KA's)

ANSWER: 093 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan FP-LP-3.0/5.0, Obj. AO 6, p. 19.
2. KA 194001K116 (3.5/4.2)
3. Exam bank question FP-TQ-3.0/5.0-11
4. RO Only

194001K116 ..(KA's)

ANSWER: 094 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan LP-TM6C01G, Obj. 4, p. 8.
2. KA 194001K103 (2.8/3.4)
3. RO Only

194001K103 ..(KA's)

0

ANSWER: 095 (1.00)

a. [+1.0]

REFERENCE:

1. Lesson Plan EPB-LP-001H, Obj. 9.c, pp. 21-22.
2. PEP-405, "Preparation of Activity Logs", p. 6.
3. KA 194001A106 (3.4/3.4)
4. Both RO and SRO

194001A106 ..(KA's)

ANSWER: 096 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan EOP-LP-3.19, Obj. 3.a & b, p. 16 and EOP-User's Guide, p. 17.
2. KA 194001A102 (4.1/3.9)
3. Both RO and SRO

194001A102 ..(KA's)

ANSWER: 097 (1.00)

c. [+1.0]

REFERENCE:

1. OMM-014, "Operation of the Work Control Center", pp. 15-16.
2. KA 194001K102 (3.7/4.1)
3. Both RO and SRO

194001K102 ..(KA's)

ANSWER: 098 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan PP-LP-3.11, Obj. 4 & 8.d and PLP-702, "Independent Verification", p. 7.
2. KA 194001K101 (3.6/3.7)
3. RO Only

194001K101 ..(KA's)

ANSWER: 099 (1.00)

d. [+1.0]

REFERENCE:

1. Lesson Plan PP-LP-3.4, Obj. 3, AP-020, "Plant Clearance and Tagging Procedure", p. 19 and OMM-014, "Operation of the Work Control Center", pp. 23-24.
2. OMM-001, "Operations - Conduct of Operations", p. 57a.
3. KA 194001A102 (4.1/3.9)
4. RO Only

194001A102 ..(KA's)

ANSWER: 100 (1.00)

b. [+1.0]

REFERENCE:

1. Lesson Plan EPB-LP-001H, Obj. 4 & 5, p. 7.
2. KA 194001A116 (3.1/4.2)
3. RO Only

194001A116 ..(KA's)

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

A N S W E R K E Y

MULTIPLE CHOICE

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

A N S W E R K E Y

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

A N S W E R K E Y

092 d

093 a b & d accept

094 a

095 a

096 b

097 c

098 b

099 d

100 b

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