ENCLOSURE 1

EXAMINATION REPORT

50-344/OL-92-01

Examination Report No.: 50-344/OL-92-01

Facility: Trojan Nuclear Power Plant

Facility Licensee: Portland General Electric Company
121 S. W. Salmon Street
Portland, Oregon 97204

Facility Docket No.: 50-344

Facility License No.: NPF-1

Initial licensed operator examinations administered at Trojan Nuclear Power Plant, Rainier, Oregon

Examiners: D. B. Pereira, Chief Examiner
T. B. Sundsmo, Operator Licensing Examiner
K. Parkinson, Sonalyst Contractor
T. Guilfoil, Sonalyst Contractor

Approved by: D. F. Kirsch for L. F. Miller, Jr., Chief, Reactor Safety Branch — 8/6/92 Date Signed

Summary:

Examinations on July 6 through 9, 1992 (Report No. 50-344/OL-92-01)

Examinations were administered to five Reactor Operator (RO) and two Senior Reactor Operator (SRO) applicants. Four RO candidates passed the written and operating portions of the examinations. One RO candidate failed the written portion of the examination. All SRO candidates passed the written and the operating examinations.

All of the candidates that passed were issued a letter informing them that they had passed the examination and would receive an NRC license.

Since the last initial examination, the examiners noted an improvement in the simulator performance. In addition, the licensee's training, support, and operating staffs provided excellent technical support in the validation of the examination test materials. They were particularly helpful during the validation reviews of the written examinations and simulator scenarios. The licensee's support in providing examination reference materials and other logistical assistance was excellent.

Safety Significant Issues:

No safety significant issues were identified.

REPORT DETAILS

1. Examiners

   D. Pereira, RV Chief Examiner
   T. Sundsmo, RV Examiner
   K. Parkinson, Sonalyst Contractor
   T. Guilfoil, Sonalyst Contractor
   J. Munro, LOLB Examiner (Conducting Audits)
   M. Royack, RV Examiner (Conducting Audits)

2. Persons attending the Exit Meeting

   NRC Personnel:

   D. Pereira, Chief Examiner
   T. Sundsmo, RV Examiner
   K. Parkinson, Sonalyst Contractor
   T. Guilfoil, Sonalyst Contractor

   Trojan Personnel:

   D. Poole, Acting Vice President, Nuclear
   A. Ankrum, Manager, Nuclear Training
   G. Ellis, Manager, Operations Training
   W. Robinson, General Manager, Trojan Plant
   W. Nicholson, Manager, Operations
   H. Chernoff, Manager, Licensing
   D. Hicks, General Manager, Plant Support
   R. Susee, Acting General Manager, Nuclear Oversite
   G. Enterline, Assistant Manager, Operations
   M. Peterson, Supervisor, Operations Training
   S. Frantz, License Training Administrator
   K. Oberloh, Shift Supervisor
   M. Megehee, Compliance Engineer
   J. Pedro, Compliance Specialist

3. Written Examination

   The licensee reviewed the RO and SRO written examinations at the Trojan Nuclear Power Plant site June 22 through June 24, 1992. The licensee review team consisted of a licensed SRO, a simulator operator, and a certified SRO instructor.

   The written examinations were administered on July 6, 1992 to five RO candidates and two SRO upgrade candidates at the site. The examination's administrative arrangements were satisfactory.

At the conclusion of the written examinations, the facility training staff was given copies of the examinations as administered. The facility had no further comments or changes to the as administered examinations.

One of the RO candidates failed the written portion of the examination. Both Senior Reactor Operator candidates and four Reactor Operator candidates passed the written examination. These passing candidates were issued a letter informing them th they had passed their examinations and would be issued a license.

Although these candidates passed their examinations, some of them exhibited knowledge deficiencies. The examiners conducted a post-examination comparison of the SRO test its and found that both of the SRO candidates did not know the act to be performed when a Pressurizer Relief or Safety Valve Actuation or leakage occurs. There were no other common SRO knowledge deficiencies discovered in the written examination review.

The examiners conducted a post-examination comparison of the RO test results and found that sixty percent or more of the RO candidates did not know: situations where an operator is permitted to deviate from technical specification requirements (10CFR 50.54x); what occurs when a Reactor Coolant Pump has excessive upward thrust; requirements for Reactor Coolant Pump operation with a cold leg temperature of approximately 160 F; effects on the Regenerative Heat Exchanger when the letdown orifice isolation valve is open with the letdown isolation valves shut; the actions that occur for an interlock condition for the Containment Sump Isolation Valve (CV-4181); the reasons for shifting to hot leg recirculation following a large cold leg break; and the actions to be performed when a Pressurizer Relief or Safety Valve Actuation or leakage occurs, a knowledge deficiency common to the SRO candidates

It appears that an assessment of the depth of training program coverage of these knowledge deficient areas is advisable.

4. Operating Examination Administration and Results

During the period of July 7 through 9, the NRC administered initial licensing operating examinations to five Reactor Operator (RO) and two Senior Reactor Operator (SRO) candidates on site. This examination consisted of both a plant walkthrough test and an evaluation in the licensee's simulation facility. The simulator's performance was excellent, with no apparent fidelity problems.

Simulator Examinations

The simulator examinations were conducted on July 7, 1992. All of the candidates passed the simulator examinations. The two SRO upgrade candidates communicated well and directed the activities of the RO candidates extremely well.

Job Performance Measures/Walkthrough Examination

The Job Performance Measures (JPMs) Examinations were conducted on July 8 and 9, 1992. All five Reactor Operator candidates and both Senior Reactor Operators passed the JPM portion of the operating examination.

5. Exit Meeting

An exit meeting was held by the NRC examiners with representatives of the licensee's staff on July 9, 1992 to discuss the NRC findings. Several positive comments were presented concerning the licensee's training and operating staffs which provided excellent technical support in the validation of the examination test materials. Simulator operations were very competent and timely. Security and entrance processing were pleasant and helpful.

ENCLOSURE 3

FACILITY COMMENTS AND NRC RESOLUTION OF FACILITY COMMENTS

RO AND SRO EXAMINATIONS:

NO COMMENTS SUBMITTED BY THE FACILITY.

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FACILITY COMMENTS AND NRC RESOLUTION OF
FACILITY COMMENTS

RO AND SRO EXAMINATIONS:

NO COMMENTS SUBMITTED BY THE FACILITY.

ENCLOSURE 4

SIMULATION FACILITY REPORT

Facility Licensee: Trojan

Facility Docket No.: 50-344

Operating tests administered on July 7, 1992.

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

ITEM	DESCRIPTION

NONE - Simulator performed extremely well during performance of the operating examinations. No lost time nor incorrect responses noted during simulator examinations. Simulator operators were proficient in ensuring examination process was trouble free.

A N S W E R K E Y

MULTIPLE CHOICE

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

MASTER

ANSWER KEY

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

ANSWER KEY

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

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

MASTER

TEST CROSS REFERENCE

R O Exam PWR Reactor

Organized by Question Number

18 c 38 d
c c
b c
c d
c

QUESTION	VALUE	REFERENCE	
001	1.00	9000261	
002	1.00	9000262	
003	1.00	9000263	
004	1.00	9000264	
005	1.00	9000266	
006	1.00	9000269	
007	1.00	9000270	
008	1.00	9000271	
009	1.00	9000272	
010	1.00	9000274	
011	1.00	9000275	
012	1.00	9000277	
013	1.00	9000280	
014	1.00	9000281	
015	1.00	9000282	
016	1.00	9000283	
017	1.00	9000285	+1 SRO
018	1.00	9000286	
019	1.00	9000287	
020	1.00	9000288	
021	1.00	9000289	
022	1.00	9000290	
023	1.00	9000291	
024	1.00	9000292	
025	1.00	9000293	
026	1.00	9000294	+1 SRO
027	1.00	9000295	— 1 SRO
028	1.00	9000296	
029	1.00	9000297	
030	1.00	9000298	
031	1.00	9000299	
032	1.00	9000300	
033	1.00	9000301	
034	1.00	9000302	
035	1.00	9000303	
036	1.00	9000304	
037	1.00	9000305	
038	1.00	9000306	
039	1.00	9000308	+1 SRO
040	1.00	9000309	
041	1.00	9000310	
042	1.00	9000311	
043	1.00	9000313	
044	1.00	9000315	
045	1.00	9000316	
046	1.00	9000317	
047	1.00	9000318	
048	1.00	9000319	
049	1.00	9000320	

R O Exam PWR Reactor

Organized by Question Number

69 b 90 b
b d
b d
b d
b d
b
b

QUESTION	VALUE	REFERENCE
050	1.00	9000322
051	1.00	9000323
052	1.00	9000324 || +1 SRO
053	1.00	9000325
054	1.00	9000326
055	1.00	9000327 |
056	1.00	9000328 |
057	1.00	9000329
058	1.00	9000330 |
059	1.00	9000331 ||
060	1.00	9000332
061	1.00	9000333
062	1.00	9000334
063	1.00	9000335 ||
064	1.00	9000336 ||
065	1.00	9000337 ||
066	1.00	9000338 ||
067	1.00	9000339
068	1.00	9000344
069	1.00	9000345 |||||
070	1.00	9000346
071	1.00	9000348 |
072	1.00	9000350
073	1.00	9000351 1 SRO
074	1.00	9000352 |
075	1.00	9000353 |
076	1.00	9000354
077	1.00	9000355
078	1.00	9000357 |
079	1.00	9000358
080	1.00	9000359
081	1.00	9000360
082	1.00	9000362
083	1.00	9000363 ||
084	1.00	9000364
085	1.00	9000365
086	1.00	9000367
087	1.00	9000368
088	1.00	9000369
089	1.00	9000370
090	1.00	9000371 ||||| +2 SRO
091	1.00	9000372
092	1.00	9000373
093	1.00	9000374
094	1.00	9000375 |||
095	1.00	9000378
096	1.00	9000379 |
097	1.00	9000380
098	1.00	9000383

R O Exam P W R Reactor

Organized by Question Number

QUESTION	VALUE	REFERENCE
099	1.00	9000385
100	1.00	9000387 (SRO

	100.00	

	100.00	

U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
REACTOR OPERATOR LICENSE
REGION 5

CANDIDATE'S NAME: ______________________

FACILITY: Trojan

REACTOR TYPE: PWR-WEC4

DATE ADMINISTERED: 92/07/06

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

MASTER

A N S W E R   S H E E T

Multiple Choice (Circle or X your choice)

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

MULTIPLE CHOICE

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

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

046 a b c d ____
047 a b c d ____
048 a b c d ____
049 a b c d ____
050 a b c d ____
051 a b c d ____
052 a b c d ____
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081 a b c d ____
082 a b c d ____
083 a b c d ____
084 a b c d ____
085 a b c d ____
086 a b c d ____
087 a b c d ____
088 a b c d ____
089 a b c d ____
090 a b c d ____
091 a b c d ____

MASTER

ANSWER SHEET

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 **********)

MASTER

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

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

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

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

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

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

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

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

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

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

10. Show all calculations, methods, or assumptions used to obtain an answer to any short answer questions.

11. Partial credit may be given except on multiple choice questions. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK.

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

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

MASTER

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

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

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

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

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

MASTER

QUESTION: 001 (1.00)

An independent verifier found a valve, required to be closed, that was fully open (tight on the backseat). The independent verifier closed the valve after notifying the Shift Manager. Which ONE [1] of the following actions should be taken?

a. Initiate a double verification check of the entire redundant system.

b. Reposition the valve back to the initial position.

c. Perform another independent verification of valve position.

d. Direct the independent verifier to reverify the position of the valve.

MASTER

QUESTION: 002 (1.00)

Which ONE [1] of the following persons, by position, may authorize repositioning a locked valve?

a. Control Operator.

b. Shift Supervisor.

c. Shift Technical Advisor.

d. Operations Branch Manager.

MASTER

QUESTION: 003 (1.00)

During a clearance, if the normal boundary valve fails and an air-to-close valve is used as a boundary valve, which ONE [1] of the following actions must be taken?

a. Close the valve; then danger tag the air supply valve shut.

b. Danger tag the closing air supply shut and danger tag the opening vent valve open.

c Install a temporary air supply to insure closing air will be available.

d. Lock the valve closed with a blocking device and danger tag the device.

QUESTION: 004 (1.00)

Which ONE [1] of the following radiation levels in an accessible area requires designation as a High Radiation Exclusion Area?

a. 750 mrem/hr.

b. 1500 mrem/hr.

c. 20 rem/hr.

d. 30 rem/hr.

QUESTION: 005 (1.00)

When entering a High Radiation Exclusion Area, which ONE [1] of the following is responsible for ensuring all procedures and safeguards are followed?

a. Individual requesting access.

b. Control Operator.

c. Shift Manager.

d. Plant General Manager.

QUESTION: 006 (1.00)

If it is not possible to drain and depressurize a system having fluid at 180 degrees F and 80 psi, which ONE [1] of the following describes the action required before work begins?

a. Shift Manager approval must be obtained because the system is pressurized greater than 50 psi.

b. Shift Manager approval must be obtained because the fluid temperature is greater than 135 degrees F.

c. Plant General Manager approval is required because the system is pressurized greater than 75 psi.

d. Duty Plant General Manager approval is required because the fluid temperature is greater than 150 degrees F.

MASTER

QUESTION: 007 (1.00)

Before a confined space is entered, which ONE [1] of the following describes the requirements for oxygen concentration testing as specified in PS 3-10, Confined Space Entry?

a. Radiation Protection technician assures concentration is 18.0% to 21.5% by volume.

b. Chemistry technician assures concentration is 19.5% to 22.0% by volume.

c. Work group supervisor assures concentration is 18.5% to 20.5% by volume.

d. Fire Protection Department assures concentration is 19.0% to 22.5% by volume.

QUESTION: 008 (1.00)

Which ONE [1] of the following persons is responsible for maintaining a copy of active Confined Area Entry Permits [CAEPs]?

a. Assistant Control Operator.

b. Shift Manager.

c. Shift Technical Advisor.

d. Planning Supervisor.

QUESTION: 009 (1.00)

Which ONE [1] of the following classes of fire are the Wheeled Dry Chemical extinguisher units primarily designed to extinguish?

a. Class A.

b. Class B.

c. Class C.

d. Class D.

MASTER

QUESTION: 010 (1.00)

When perfc.ming operations in accordance with Emergency Operating Procedures, which ONE [1] of the following describes how to determine if the action sequence is important?

a. If the sequence is important, the expected response will be capitalized.

b. If the sequence is important, the action will be in italics.

c. If the sequence is NOT important, the expected response will be designated by numbers.

d. If the sequence is NOT important, subtasks are designated by bullets.

MASTER

QUESTION: 011 (1.00)

Which ONE [1] of the following statements describe a situation where a licensed operator is permitted to deviate from Technical Specifications?

a. Following a Reactor Trip when the Shift Manager judges the deviation is more conservative and following an instrument failure with a subsequent trip when the Shift Manager judges the deviation will minimize equipment damage.

b. Following a Reactor Trip when the Shift Manager judges the EOPs are inadequate and following an instrument failure when the Shift Manager judges the deviation is necessary to maintain the plant at power.

c. Following a Reactor Trip when the Shift Manager judges the deviation is more conservative.

d. Following a Reactor Trip when the Shift Manager judges the EOPs are inadequate.

MASTER

QUESTION: 012 (1.00)

If an injury has occurred in a Radiologically Controlled Area, which ONE [1] of the following is called to request an ambulance?

a. Security Watch Supervisor and Load Dispatch.

b. Radiation protection and Shift Technical Advisor.

c. Radiation protection and chemistry personnel.

d. Shift Manager and Duty Operations Manager.

MASTER

QUESTION: 013 (1.00)

Operations are being conducted in accordance with the Radiological Emergency Response Plan. Process Radiation Monitor PRM-2C alarms on its high setting.

Which ONE [1] of the following positions normally runs the Initial Offsite Dose Estimations [FRSTDOSE]?

a. On-Shift Radiation Protection Supervisor.

b. Shift Technical Advisor.

c. Auxiliary Operator.

d. Shift Manager.

MASTER

QUESTION: 014 (1.00)

Which ONE [1] of the following descriptions explains why a 125 Vdc and a 70 Vdc power supplies are used in the DC Hold Cabinet?

a. The 70 Vdc is used to latch the grippers and the 125 Vdc is used to hold the grippers.

b. The grippers are latched by adding the 125 Vdc and 70 Vdc then the 125 Vdc is used to hold the grippers.

c. 125 Vdc is used to latch the grippers and 70 Vdc is used to hold the grippers.

d. 125 Vdc is used to latch the grippers and 70 Vdc is used to hold the grippers when raising or lowering the control rods.

QUESTION: 015 (1.00)

Which ONE [1] of the following statements describes a feature of the "Intermediate Range High Flux Rod Stop"?

a. Can be manually blocked when below P-10.

b. Affects only automatic withdrawal.

c. Setpoint is the current equivalent to 20% power.

d. Prevents automatic rod withdrawal when less than 15% power.

MASTER

QUESTION: 016 (1.00)

Which ONE [1] of the following responses describes the Reactor Control System Response to turbine impulse chamber pressure transmitter, PT-505, failing high? [Assume rod control is in automatic; and power level is 86%]

a. Rods drive out until some corrective action is taken.

b. Rods drive out, Tave stabilizes at 584.7 degrees F.

c. Rods drive in until temperature mismatch is larger than power mismatch; C-2 prevents outward rod motion.

d. Rods drive in until temperature mismatch is larger than power mismatch; C-5 prevents automatic outward rod motion.

MASTER

QUESTION: 017 (1.00)

Which ONE [1] of the following reasons explains why a Reactor Coolant Pump #1 seal bypass valve should NEVER be opened during normal operation?

a. May have high leakoff from the #1 seal due to pressure transients on the #2 seal leakoff line.

b. Excessive delta P will exist across the #2 seal due to flow oscillations in the #2 seal leakoff line.

c. Thermal shocking the pump shaft and seals due to the limited capacity of the thermal barrier heat exchanger.

d. Increased flow in the seal leakoff line will cause excessive backpressure on the #2 seal.

MASTER

QUESTION: 018 (1.00)

If a Reactor Coolant Pump [RCP] experiences excessive upward thrust causing the upper thrust bearing to wipe, which ONE [1] of the following occurs?

a. All seals will wipe when the shaft lifts.

b. The #1 seal delta-P decreases to about 400 psig.

c. Seal leakoff flow will decrease.

d. The #2 seal forces most of the #1 seal flow to the #1 seal leakoff pipe.

MASTER

QUESTION: 019 (1.00)

Which ONE [1] of the following statements explains why a Reactor Coolant Pump [RCP] should be running when any RCS cold leg is equal to or greater than 160 degrees F?

a. Ensures the assumptions made in the low temperature over pressure safety analysis are met.

b. Ensures seal packages will not experience thermal shock when the pump is started.

c. Ensures pressurizer spray flow will prevent thermal shock in the pressurizer spray line.

d. Ensures boron concentration in the pressurizer and the Reactor Coolant System will be equalized with pressurizer spray flow.

MASTER

QUESTION: 020 (1.00)

At BOL the plant is operating at 100% power with all systems operable when Control Rod Bank "D" starts stepping in slowly but at a noticeable rate. Which ONE [1] of the following events will cause this response?

a. RCP seal water return is lined up to the CCP suction and not the VCT.

b. The boron concentration in the blended makeup to the VCT is greater than the RCS concentration.

c. The mixed bed demineralizer is becoming exhausted.

d. A leak has developed in the tube bundle of the Seal Water Heat Exchanger.

QUESTION: 021 (1.00)

If Motor Control Center bus B25 is destroyed by fire, which ONE [1] of the following components will be lost?

a. Primary Makeup Water Pump P-219A.

b. Battery Charger #4.

c. Pressurizer Heaters, Backup Group A.

d. Boric Acid Transfer Pump B Decouple Switch.

MASTER

QUESTION: 022 (1.00)

Which ONE [1] of the following statements explains the effect on the Regenerative Heat Exchanger if the letdown orifice isolation valve [CV-8149A] stuck open when letdown isolation valves [LCV-459 and 460] were closed?

a. Cavitation would occur on the tube side of the Regenerative Heat Exchanger.

b. The tube side of the Regenerative Heat Exchanger would depressurize to VCT pressure.

c. A pressure spike would occur on the shell side of the Regenerative Heat Exchanger due to flashing to steam.

d. The Regenerative Heat Exchanger would be subjected to pressurized thermal shock [PTS].

QUESTION: 023 (1.00)

Which ONE [1] of the following statements describes the operation of the DBA Sequencers for the 4.16 KV vital buses [A-1 and A-2]?

a. They initiate timing functions to start the diesel generators and sequentially load the A-1 and A-2 buses.

b. They initiate their timing functions when the Train A and Train B sequencer slave relays energize.

c. They sequentially start the turbine driven and diesel driven auxiliary feedwater pumps at time zero and then start the Centrifugal Charging Pumps 2.0 seconds later.

d. They initiate containment isolation and start the Containment Spray Pumps [if hi-hi pressure signal is present].

MASTER

QUESTION: 024 (1.00)

Which ONE [1] of the following statements describes the actions that will cause the red "SI Actuated" window to clear?

a. Both SI reset buttons are pushed either individually or simultaneously.

b. P-4 signal reset and at least one SI reset button MUST be pushed.

c. Going to block on the SI block permissive switches.

d. P-4 signal reset and going to block on SI block permissive switches either individually or simultaneously.

MASTER

QUESTION: 025 (1.00)

The reactor is operating at 8% power when Intermediate Range Nuclear Instrument Channel N-35 fails LOW. Which ONE [1] of the following responses will occur?

a. "REACTOR TRIP FROM POWER RANGE LO SETPOINT" Alarms.

b. "IR COMP VOLTAGE FAILURE" Alarms.

c. Source range audible count rate increases.

d. P-6 for N-35 bistable status light goes out.

MASTER

QUESTION: 026 (1.00)

The following readings were noted on the Power Range and Intermediate Range Channels

N-35 @ 5 x 10E-5
N-36 @ 8 x 10E-6
N-41 @ 8.5%
N-42 @ 9%
N-43 @ 8.5%
N-44 @ 9%

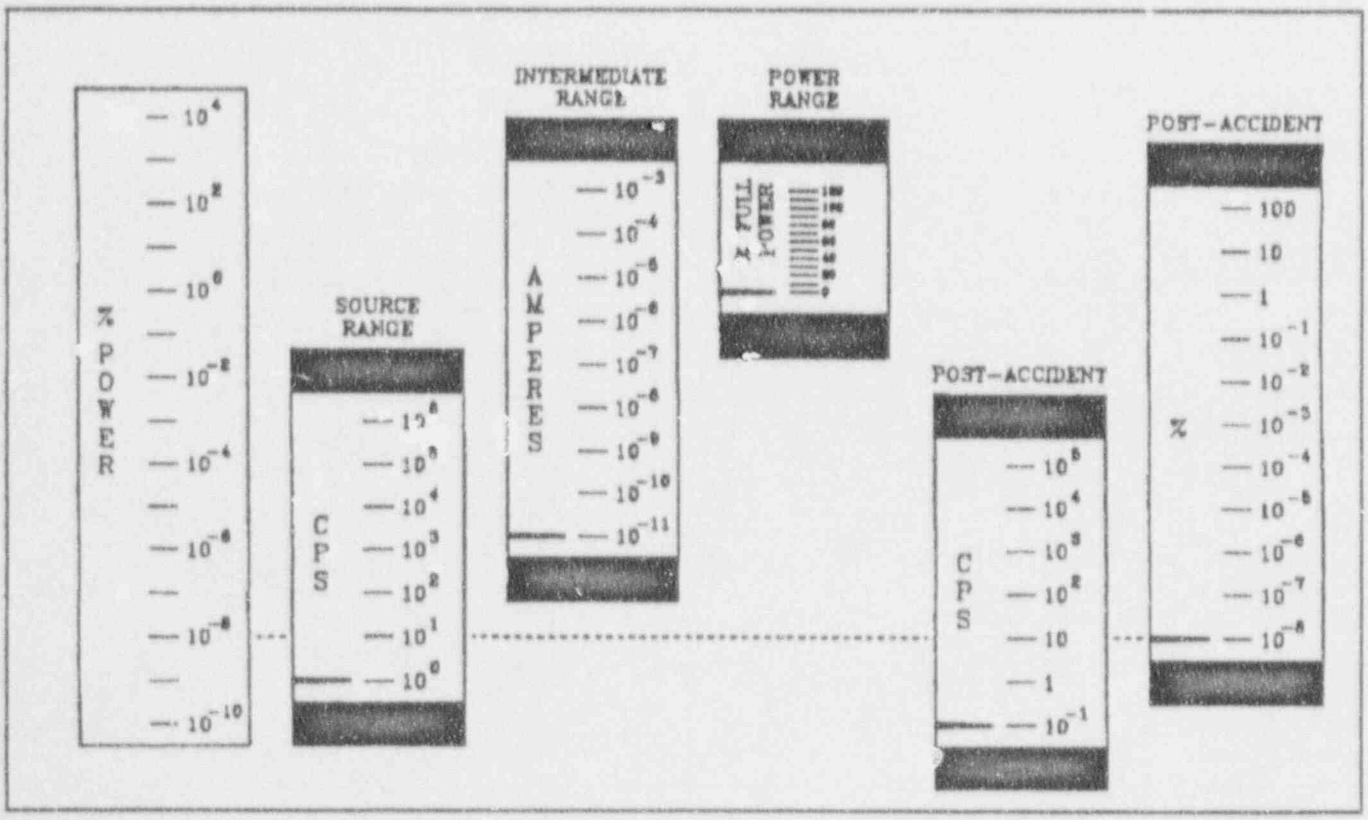
Which ONE [1] of the following describes the problem indicated by these readings? [See figure below]

a. N-35 reading high for current conditions.

b. N-36 reading low for current conditions.

c. N-41 and N-43 adjusted improperly during last calorimetric.

d. N-42 and N-44 adjusted improperly during last calorimetric.



QUESTION: 027 (1.00)

The reactor is operating at 100% power when digital rod position indication is lost.

Which ONE [1] of the following combinations of methods [listed below] would be used to verify the position of an individual rod?

1. Thermocouples
2. Excore detectors
3. Rod deviation alarm
4. Moveable incore detectors
5. P-250 Plant Computer

Select ONE [1] combination.

a. 1, 2, 4.

b. 1, 3, 4.

c. 2, 3, 5.

d. 2, 4, 5.

QUESTION: 028 (1.00)

During a plant shutdown the control rods were being inserted when the operator noted N-35 reading 3x10E-9 amps and N-36 reading 2x10E-11 amps. The operator immediately went to RESET on the manual switches for the source ranges. Which ONE [1] of the following conditions would cause a SR HIGH FLUX reactor trip to occur?

a. N-35 being properly compensated and N-36 being overcompensated.

b. N-35 being overcompensated and N-36 being properly compensated.

c. N-35 being properly compensated and N-36 being undercompensated.

d. N-35 being undercompensated and N-36 being properly compensated.

MASTER

QUESTION: 029 (1.00)

If the incore thermocouples are out of service, which ONE [1] of the following sets of plant parameters indicates that natural circulation cooling has been established?

a. Wide range Th 540 degrees F with a T-cold of 550 degrees F.

b. Wide range Th 575 degrees F with an RCS pressure of 1400 psig.

c. Wide range Th 590 degrees F with a T-cold of 530 degrees F.

d. Wide range Th 630 degrees F with a steam generator pressure of 1100 psig.

MASTER

QUESTION: 030 (1.00)

Which ONE [1] of the following statements describes how containment spray is realigned during a Post-LOCA swapover from the initial phase of containment spray [CS] to the recirculation phase?

a. The CS pumps trip on lo-lo RWST level, and the CS pump suction valves are remotely realigned.

b. The CS pumps automatically swapover to the containment sump upon a lo-lo RWST level signal.

c. The CS pump suction valves automatically realign with remote operation of the RHR suction valves.

d. The CS pumps trip on lo-lo RWST level, and the CS suction valves automatically realign with remote operation of the RHR suction valves.

MASTER

QUESTION: 031 (1.00)

A reactor startup is in progress with reactor powe· ·· 10,000 counts per second. If the containment spray additive tank level is 2900 gallons, which ONE [1] of the following actions is required to be taken?

a. T.. the reactor and enter E-0, Reactor Trip or Safety Injection.

b. Stabilize reactor power at 8% - 9% and immediately restore spray additive tank level to greater than 3100 gallons.

c. Continue the reactor startup but verify that the spray additive tank has a minimum of 3000 gallons prior to exceeding 5% power.

d. Discontinue the startup and immediately reduce spray additive tank level to less than 2500 gallons.

MASTER

QUESTION: 032 (1.00)

The plant has just tripped from full power because of a large break LOCA. Safety Injection and Containment Isolation [CIS] Phases A and B have actuated. All systems are operable.

Which ONE [1] of the following responses describes the changes that occur in the Containment Air Cooler System [CACS]?

a. CACS fans in AUTO are started by the DBA sequencer, and the cooling water flow increases as the orifice bypass valves open.

b. Phase B CIS trips the CACS fans and isolates the cooling water supply.

c. CACS fans in AUTO or PTL are automatically started, and cooling water flow increases as additional cooling pumps are started.

d. CACS fans in AUTO are automatically started, and Phase A CIS isolates CACS cooling water.

MASTER

QUESTION: 033 (1.00)

If the isolation dampers for CS-2 [Purge Exhaust and Refueling Cavity Supply and Exhaust System] AUTOMATICALLY ISOLATE, which ONE [1] of the following sets of fans will TRIP?

a. Purge Exhaust and Refueling Cavity Supply fans.

b. Purge Exhaust and Refueling Cavity Exhaust fans.

c. Refueling Cavity Supply and Refueling Cavity Exhaust fans.

d. Purge Exhaust, Refueling Cavity Supply, and Refueling Cavity Exhaust fans.

MASTER

QUESTION: 034 (1.00)

The RED and the BLUE indicating lights on C-04 by the control switches for the "A" Main Feedwater Pump [MFP] normal [P-137A] and standby [P-138A] lube oil pump are ILLUMINATED [ON]. Which ONE [1] of the following previous conditions OCCURRED?

a. Control oil pressure decreased to 120 psig.

b. Lube oil pressure decreased to 120 psig.

c. Either control oil pressure decreased to 90 psig or lube oil pressure decreased to 20 psig.

d. Either control oil pressure decreased to 70 psig or lube oil pressure decreased to 15 psig.

MASTER

QUESTION: 035 (1.00)

Which ONE [1] of the following statements describes the reason for supplying 426 gpm total AFW flow within 60 seconds of the accident initiation?

a. Provide a heat sink in the event of a design basis loss of coolant accident.

b. Prevent uncovering of the steam generator tubes following a loss of Main Feedwater coincident with a loss of offsite power.

c. Prevent excessive temperature rise and resultant core damage in the event of a loss of offsite power.

d. Prevent overpressurization of the reactor coolant system during a coincident and total loss of normal and preferred power.

MASTER

QUESTION: 036 (1.00)

If an Auxiliary Feedwater auto start signal is present, which ONE [1] of the following statements describes how the Terry turbine stop valve can be closed?

a. Placing the control room AFW Control Switch [C-05] in PTL, or placing the stop valve pushbutton switch on C-160 in CLOSE.

b. Placing the west AFW control switch, P102 A/CS, on C-05, in the PTL position.

c. Taking local control of the stop valve, MO-3170, at the Remote Shutdown System Operator Interface Unit or C-160.

d. Reset SI and shut MO-3170 using the control switch in the control room.

MASTER

QUESTION: 037 (1.00)

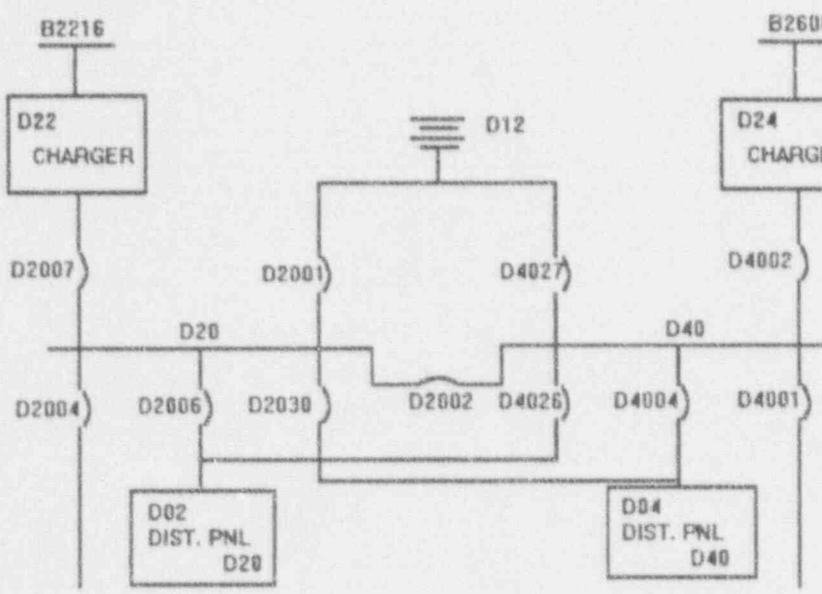
If the Ground Current Recorder on 125 Vdc Control Center D20/D40 indicates -100 V with the D22 charger in service, which ONE [1] of the following statements describes how the location of the ground is determined? [See drawing below]

a. Open the battery breaker associated with the D24 charger; if the ground goes away the ground is on battery D12.

b. Open the battery breaker associated with the D24 charger; if the ground goes away the ground is on the D20 bus or the battery D12.

c. Open the battery breaker associated with the D22 charger; if the ground goes away the ground is on the D20 bus.

d. Open the battery breaker associated with the D22 charger; if the ground goes away the ground is on the D40 bus or the battery D12.



MASTER

QUESTION: 038 (1.00)

Which ONE [1] of the following statements describes an interlock condition of Containment Sump Isolation Valve [CV-4181]?

a. CV-4181 automatically closes on a high level in Auxiliary Building Sump A.

b. The control room switch must be taken to close to regain auto operation after CV-4181 is opened manually.

c. The control switch must be taken to close to reset interlock circuit following an interlock closure.

d. CV-4181 automatically closes on a high level in the Dirty Waste Monitor tank

MASTER

QUESTION: 039 (1.00)

If Radiation Element PERM-14 is operating erratically, which ONE [1] of the following actions must be performed immediately?

a. Close Containment Isolation Valve MO-4180 and start the North Containment Sump Pump at C-19.

b. Place both Containment Sump Pumps in off at C-19.

c. Close both Containment Isolation Valves [MO-4180 and CV-4181] at C-19 and place both Containment Sump Pumps in PTL at C-151.

d. Close both Containment Isolation Valves [MO-4180 and CV-4181] at C-151 and place both Containment Sump Pumps in PTL at C-19.

MASTER

QUESTION: 040 (1.00)

Which ONE [1] of the following statements describes the type of release that occurs when the Waste Gas Surge Tank outlet pressure relief valve [PSV-4302] lifts?

a. CONTROLLED and MONITORED because the gas is released to the in-service Waste Gas Decay Tank where it is contained.

b. CONTROLLED and MONITORED because the gas is released to a point upstream of both the discharge line isolation valve and the PERM.

c. UNCONTROLLED and UNMONITORED because the gas is released to a point downstream of both the discharge isolation valve and the PERM.

d. UNCONTROLLED and MONITORED because the gas is released to a point downstream of the discharge line isolation valve but upstream of the PERM.

MASTER

QUESTION: 041 (1.00)

Which ONE [1] of the following statements describes why in-core thermocouples are monitored during natural circulation?

a. Differential pressure across the reactor core is excessive causing inadequate bypass RTD manifold flow.

b. Differential pressure across the reactor core is inadequate causing inadequate RTD bypass manifold flow.

c. Differential pressure across the reactor core is excessive causing excessive bypass RTD manifold flow.

d. Differential pressure across the reactor core is inadequate causing excessive RTD bypass manifold flow.

QUESTION: 042 (1.00)

The plant is in Mode 3. Four reactor coolant loops are in operation. All shutdown banks are withdrawn. Which ONE [1] of the following actions is required if one reactor coolant pump breaker is inadvertently tripped?

a. No operations are permitted that would cause dilution of the reactor coolant system boron concentration.

b. Core outlet temperature is maintained at least 10F below saturation temperature.

c. Immediately deenergize all CRDMs.

d. Restart the pump within ONE [1] hour.

QUESTION: 043 (1.00)

Which ONE [1] of the following interlocks must be satisfied before MO-8804A [RHR to CCP/SIP suction cross connect] can be opened?

a. SI miniflow recirculation valve [MO-8813 or MO-8814] must be closed.

b. Containment recirculation sump to RHR suction valve [MO-8811A] must be closed.

c. RHR suction from RCS Loop 4 hot leg valve [MO-8702] must be open.

d. RHR to CCP/SIP suction cross connect valve [MO-8804B] must be closed.

MASTER

QUESTION: 044 (1.00)

Which ONE [1] of the following statements explains the BASIS for OI-5-2, Safety Injection, precaution "When in Modes 3, 2, 1; make level adjustments to one accumulator at a time"?

a. Prevent potential overpressurization of the Reactor Coolant System [RCS].

b. Prevent a single failure affecting the operability of more than one accumulator.

c. Could potentially place the plant in Technical Specification 3.0.3 statement.

d. Technical Specifications bases does not allow filling more than one accumulator at a time.

MASTER

QUESTION: 045 (1.00)

Which ONE [1] of the following statements describes the typical power source lineup for Pressurizer Heaters?

a. B09 supplies backup Group A and B10 supplies Group C.

b. B09 supplies Group C and B10 supplies backup Groups B and D.

c. Heater Group A has a LOCAL-REMOTE-DECOUPLE selector switch at B10 and Heater Group C has a LOCAL-REMOTE-DECOUPLE selector switch at both B09 and B10.

d. Heater Group B has a LOCAL-REMOTE-DECOUPLE selector switch at B09 and Heater Group A has a LOCAL-REMOTE-DECOUPLE selector switch at both B09 and B10.

MASTER

QUESTION: 046 (1.00)

Which ONE [1] of the following interlock conditions must be satisfied for Pressurizer Power Operated Relief Valve [PCV-455A] to OPEN in automatic?

a. Arming signal from CH 456.

b. Arming signal from CH 457.

c. Arming signal from CH 458.

d. Arming signal from PCV-455A block valve in OPEN position.

QUESTION: 047 (1.00)

The following plant conditions exist:

- The reactor is at 100% power.
- Pressurizer level system is in automatic with Channel 459 selected for control.
- Pressurizer level Channel 459 fails LOW.

Which ONE [1] of the following describes the plant response without operator intervention?

a. Charging flow decreases.

b. Charging flow remains the same.

c. Reactor trips on high pressurizer level.

d. Reactor trips on low pressurizer pressure.

QUESTION: 048 (1.00)

Which ONE [1] of the following statements describes the consequence of a failure of 120 VAC preferred instrument bus Y24?

a. Only Bus II [Y22] will be lost in Train A.

b. Only Bus III [Y13] will be lost in Train B.

c. A reactor trip will occur if the Train A slave relay power is lost.

d. A reactor trip will occur when the Train B Slave relay opens.

MASTER

QUESTION: 049 (1.00)

The plant is at 100% power with all control systems in automatic. The selected controlling SGWLC channels for A S/G are as follows:

FT-510 Feed Flow
FT-512 Steam Flow
LT-519 Actual Level
PT-505 Program Level

Flow-mismatch and level-deviation alarms are received for A S/G. The feed-regulating valve for A S/G is opening, and water level in the A S/G is increasing.

Which ONE [1] of the following failures has occurred?

a. FT-510 failed low.

b. FT-512 failed low.

c. LT-519 failed high.

d. PT-505 failed low.

MASTER

QUESTION: 050 (1.00)

Which ONE [1] of the following percentages describes the maximum containment hydrogen concentration allowed during Hydrogen Recombiner operation?

a. 3.5%.

b. 4.0%.

c. 4.5%.

d. 5.0%.

MASTER

QUESTION: 051 (1.00)

Which ONE [1] of the following signals will automatically isolate the Containment Purge System during functional testing?

a. Manual containment spray signal, containment spray actuation signal, and Phase A containment isolation signal.

b. Manual containment spray signal, containment spray actuation signal, and containment ventilation isolation signal.

c. Manual containment spray signal, Phase A containment isolation signal, and containment ventilation isolation signal.

d. Containment spray actuation signal, Phase A containment isolation signal, and containment ventilation isolation signal.

QUESTION: 052 (1.00)

Which ONE [1] of the following statements describes why the Residual Heat Removal System [RHRS] is connected to the Spent Fuel Pool Cooling System [SFPCS]?

a. Supplement SFPC heat removal capacity if an entire core were unloaded into the pool during refueling.

b. The RHRS provides the normal flow path for the SFPC pumps to take a suction on the Refueling Water Storage Tank.

c. In the event that a failed fuel element is placed in the spent fuel pool, the RHRS provides increased purification flow through the purification filter and demineralizer.

d. The RHRS satisfies the single failure criteria for the SFPCS so that a redundant system did not have to be installed.

MASTER

QUESTION: 053 (1.00)

Which ONE [1] of the following sets of indications can be used to diagnose a loss of water level in the refueling canal?

a. Containment sump level decreasing and visual level indication.

b. Reduced frequency of sump pump starts and increasing radiation levels.

c. Low level alarms [Control Room] for the SFP and Reactor Cavity.

d. High level alarm in the SFP and increasing radiation levels.

QUESTION: 054 (1.00)

When operating in accordance with OI 8-9, "Steam Generator Cold Layup", which ONE [1] of the following precautions is taken prior to draining a steam generator to less than 78% Wide Range/15% Narrow Range?

a. After chemicals are added, draining must be delayed for at least 1 hour to allow for complete mixing.

b. Reactor Coolant System temperature must be 160 degrees F to 180 degrees F.

c. Reactor Engineering concurrence must be obtained and documented in the Shift Supervisor Log.

d. The Auxiliary Feedwater pump auto start block switches shall be placed in the "Block" position.

MASTER

QUESTION: 055 (1.00)

The following plant conditions exist:

- Plant at 90% power
- End of core life
- All systems are in auto
- A Steam Generator safety valve fails open

Which ONE [1] of the following statements describes the final result of the steam generator safety valve failing open?

a. Rods will step out. Negative reactivity is added by power defect.

b. Rods will step out. Positive reactivity is added by power defect.

c. Rods will step in. Negative reactivity is added by power defect.

d. Rods will step in. Positive reactivity is added by power defect.

MASTER

QUESTION: 056 (1.00)

If an Emergency Diesel Generator [EDG] trips after starting in response to an automatic start signal, which ONE [1] of the following statements explains why the EDG will not restart after resetting even though there may still be a demand to start?

a. As long as the auto start circuit is energized, the automatic start R3 relay cannot reset and further start commands cannot occur.

b. The automatic start R3 relay is not enabled until 15 seconds after the EDG trip; consequently the auto start circuit will be bypassed after resetting.

c. The automatic start R3 relay will initiate a start sequence, but since it is disabled by the 15 second timer, the fail to start relay will be actuated due to speed being less than 200 rpm.

d. The emergency shutdown relay and engine lockout relay were reset before the trip device limit switch was reset.

MASTER

QUESTION: 057 (1.00)

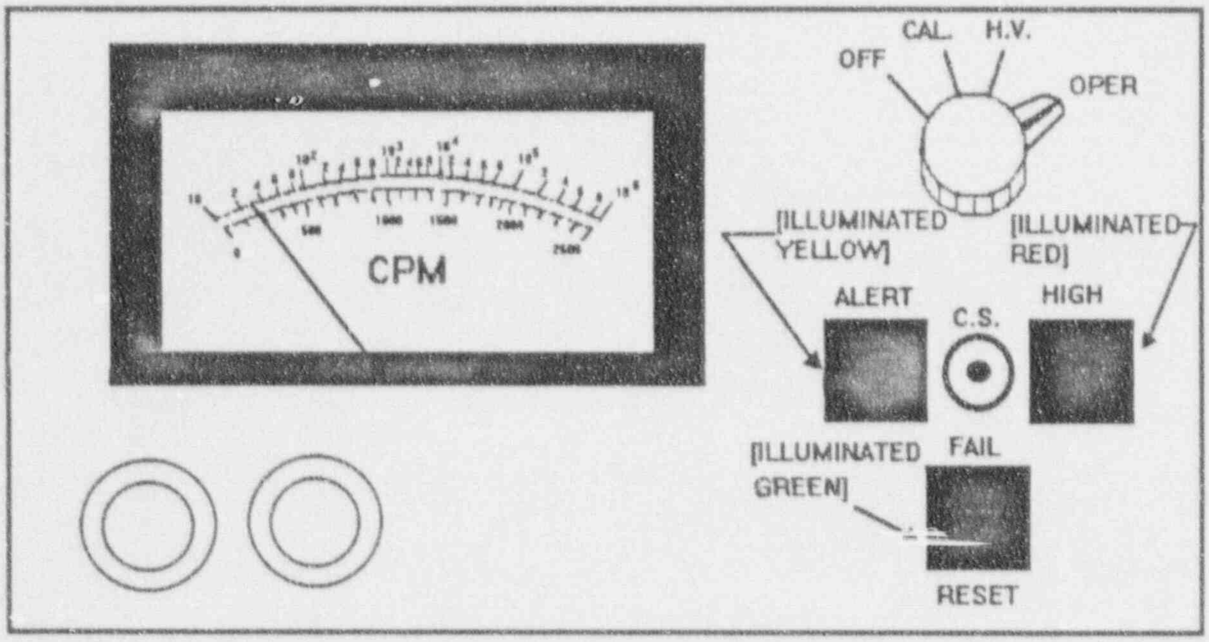
Refer to the PERMS LOG RATEMETER MODULE figure below. Which ONE [1] of the following statements explains the indications shown in the figure of the PERMS LOG RATEMETER?

a. A HIGH alarm has come in after the ALERT was acknowledged by depressing the ALERT light.

b. A HIGH alarm has come in after the ALERT was acknowledged by depressing the RESET light.

c. A fail condition exists.

d. The ALERT and HIGH setpoints were exceeded but have not been reset.



MASTER

QUESTION: 058 (1.00)

Which ONE [1] of the following explanations describes the mechanism for actuation of a photoelectric type smoke detector used in the Fire Protection and Alarm System?

a. A photocell is used to detect infrared radiation from light scattered by smoke particles.

b. A photocell is used to detect ultraviolet light scattered by smoke particles.

c. An LED and a photocell are arranged so that light scattered by smoke particles is detected.

d. Detected combustion products are processed by photoelectric multiplication to actuate an alarm or system if a threshold photon level is exceeded.

QUESTION: 059 (1.00)

Which ONE [1] of the following statements explain [I] why RHR flow at 2,000 gpm should be avoided and [II] why RHR flows greater than 2,000 gpm are recommended whenever possible?

a. [I] Due to peak motor thrust bearing loads at this flow.
   [II] Minimize wear on the pumps.

b. [I] Due to maximum wear on the pumps at this flow.
   [II] Minimize motor thrust bearing loads.

c. [I] Minimize water hammer due to resonant frequency at this flow.
   [II] Heat exchanger vibrations may occur below 2,000 gpm flow.

d. [I] Due to heater bypass valve vibrations [strumming] concerns
   [II] Due to Residual Heat Removal Miniflow line limits.

MASTER

QUESTION: 060 (1.00)

While performing a plant startup just prior to synchronizing the main generator, steam header pressure sensor PT-507 fails LOW. Which ONE [1] of the following statements describes the plant response provided NO operator actions are taken?

a. Main Feedwater Pump speed INCREASES for the pump in automatic.

b. Main Feedwater Pump trips due to sensed excessive delta P.

c. Steam dump valves close if in automatic because pressure mode is selected.

d. Steam dump valves are NOT affected in automatic because TAVG mode is selected.

QUESTION: 001 (1.00)

Which ONE [1] of the following actions will result from a trip of the main turbine?

a. Startup transformer is unloaded.

b. Output breakers to the EDGs will open.

c. Generator exciter current will increase.

d. Cooling group 2 fans for the main transformers will start.

QUESTION: 062 (1.00)

Which ONE [1] of the following system combinations receive emergency makeup from the Service Water System?

a. Chilled Water System and CCW System.

b. Spent Fuel Pool System and CCW System.

c. CCW System and Fire Protection System.

d. Fire Protection System and Auxiliary Feedwater System.

QUESTION: 063 (1.00)

Which ONE [1] of the following statements explains the reason why the "A" Service Water Booster Pump [SWBP] control switch must be IMMEDIATELY placed in Pull-To-Lock if the pump is unavailable?

a. Prevent standby booster pump runout.

b. Prevent runout on the running service water pump.

c. Enable automatic restart of a running standby pump following a service water pump sequenced auto start.

d. Enable automatic start of the standby pump if the "B" pump is manually stopped.

MASTER

QUESTION: 064 (1.00)

In the event of a loss of instrument air, which ONE [1] of the following describes how FCV-121, CCP Flow Control Valve, and HCV-182, Charging Header Flow Control Valve, respond?

a. FCV-121 fails open and HCV-182 fails open.

b. FCV-121 fails shut and HCV-182 fails open.

c. FCV-121 fails open and HCV-182 fails shut.

d. FCV-121 fails shut and HCV-182 fails shut.

MASTER

QUESTION: 065 (1.00)

Which ONE [1] of the following conditions will cause control rods to step out if the control rod mode selector switch is selected to automatic?

a. T-avg auctioneering circuit fails high.

b. Turbine First Stage Pressure Transmitter [PT-505] fails high.

c. Main Steam Bypass Header Pressure Transmitter [PT-507] fails low.

d. Loop 4 RCS Wide Range Temperature Element [TE-443A] fails high.

MASTER

QUESTION: 066 (1.00)

The following plant conditions exist:

- The Reactor is at 30% power with all systems operating normally.
- Control Bank D is at 126 steps.
- One [1] control bank D rod bottom LED is lit on DRPI.
- Another control bank D rod indicates 102 steps on DRPI.
- One [1] power range NI negative rate bistable picks up.
- The control rods begin stepping out.
- The Reactor does not trip.

Which ONE [1] of the following actions should be taken in response to these indications?

a. Trip the Reactor; a valid trip signal has failed to trip the Reactor.

b. Trip the Reactor; too many rods are excessively misaligned with control bank D.

c. Switch rod control to manual; adjust the control rods to match Tavg with Tref.

d. Switch rod control to manual; adjust turbine load to match Tavg with Tref.

MASTER

QUESTION: 067 (1.00)

The following plant conditions exist:

- Rod Position urgent failure alarm lighted.
- General Warning LED for rod F-6 lighted.
- Rod Bottom LED for rod F-6 lighted.
- Rod control in Manual.

Which ONE [1] of the following indications confirms the existence of a dropped rod?

a. The Tave chart recorder shows an increasing trend from 584 degrees F.

b. The Tave chart recorder shows a decreasing trend from 584 degrees F.

c. The power range NIs increased from 99% to 101% power.

d. The QPTR is 1.004 as compared to the last calculation of 1.005.

MASTER

QUESTION: 068 (1.00)

The following plant indications exist:

- Reactor Power at 62%
- Tave is 570 degrees F
- Tref is 574 degrees F
- Demand position indicator for Bank D group 1 and Bank D group 2 failed to move
- DRPI indicates control bank D outward motion

Which ONE [1] of the following describes the action to be taken?
[Technical Specifiction 3.1.3.2.b is attached]

a. Verify all digital rod position indicators are operable.

b. Verify all digital rod position indicators are operable and that the highest and lowest indicating rods in the affected bank are within 12 steps of each other.

c. Place the reactor in Hot Standby per the requirements of Trojan Technical Specification 3.0.3.

d. Reduce power to less than 50%.

MASTER

QUESTION: 069 (1.00)

Which ONE [1] of the following statements describes the basis for shifting to hot leg recirculation following a large cold leg break?

a. To terminate core boiling and prevent boron precipitation in the core.

b. To prevent boron plate out in the core and resultant flow blockage in the upper head.

c. To equalize temperature in the reactor vessel in order to minimize thermal stress.

d. To reduce the need for heat removal by other means as long as RHR flow is available.

QUESTION: 070 (1.00)

The following conditions exist while in EI-0, Reactor Trip, Safety Injection, and Diagnosis:

- RCS subcooling 37F and increasing slowly.
- RCS pressure 1360 psig and increasing slowly.
- Pressurizer level 6% and increasing slowly due to ECCS injection flow.
- RWST level 75% and decreasing slowly.
- SG levels all about 10% and increasing slowly.
- CST level 50% and decreasing slowly.
- Containment pressure 3.0 psig and decreasing slowly.

Which ONE [1] of the following actions should be performed?

a. Transition to EI-1, Loss of Reactor or Secondary Coolant, Step 1.

b. Transition to FR-H.1, Response to Loss of Heat Sink, Step 1.

c. Switch to an alternate AFW supply.

d. Trip all RCPs.

QUESTION: 071 (1.00)

The following plant conditions exist:

- Reactor Power at 100%.
- RCS pressure 2235 psig.
- Tavg is 584 degrees F.
- Thermal bearing cooling water inlet temperature is 104 degrees F.
- Seal Injection flow is lost.

Which ONE [1] of the following describes a condition which would require tripping a RCP?

a. #1 seal leakoff rate 5.5 gpm.

b. #1 seal outlet temperature 239 degrees F.

c. RCP radial bearing temperature 220 degrees F.

d. #2 seal delta-P of 35 psig.

MASTER

QUESTION: 072 (1.00)

When emergency boration valve MO-8104 is open, which ONE [1] of the following describes how to determine actual emergency boration flow?

a. Actual emergency boration flow is indicated directly on FI-183A [Emergency Boration Flow Indicator].

b. Subtract FI-183A reading from FI-121A [Charging Flow Indicator] reading.

c. Subtract total RCP seal injection flow from FI-121A reading.

d. Use ONI-10 "Emergency Boration" FT-183 correction curve.

QUESTION: 073 (1.00)

Which ONE [1] of the following conditions require emergency boration in accordance with ONI-10 "Emergency Boration"?

a. "ROD LIMIT Lo-Lo" alarm.

b. "RC LOOPS Tave Lo-Lo" alarm while at power.

c. "ROD LIMIT Lo" alarm.

d. Unexplained or uncontrolled increase in RCS temperature due to rod insertion.

QUESTION: 074 (1.00)

Which ONE [1] of the following statements describes the conditions at which the CCW surge tank must be maintained?

a. Equal to or greater than 105 psig when RCPs are running.

b. Equal to or greater than 100 psig when Reactor Power is greater than 5%.

c. Equal to or greater than 75 psig when control rod drive mechanisms are energized.

d. Equal to or greater than 60 psig when refueling is in progress.

MASTER

QUESTION: 075 (1.00)

Which ONE [1] of the following statements explains why subcriticality is the highest priority critical safety function?

a. The safeguard systems which protect the plant are designed assuming that only decay heat and pump heat are being added to the RCS.

b. If the reactor is not expeditiously made subcritical during accident conditions, the loss of mass from the Reactor Coolant System will result in core damage.

c. If the reactor is not expeditiously made subcritical during accident conditions the Pressurizer will become solid and RCS overpressurization will occur and lead to a LOCA.

d. The Emergency Core Cooling Systems are designed to protect against restart conditions but not ATWS conditions; consequently, subcriticality has been given highest priority for consistency considerations.

MASTER

QUESTION: 076 (1.00)

If a reactor trip and safety injection have occurred due to a steamline rupture inside containment, which of the following parameters are used to determine that safety injection may be terminated?

1. RCS subcooling.
2. RCS pressure.
3. RCS flow.
4. Secondary heat sink.
5. Pressurizer level.
6. Safety Injection flow.
7. Containment pressure.

Select ONE [1] combination.

a. 1, 2, 3, and 4.

b. 1, 2, 4, and 5.

c. 3, 4, , and 6.

d. 4, 5, 6, and 7.

QUESTION: 077 (1.00)

The plant is operating at 100% power. Which ONE [1] of the following describes an automatic action which will occ during a partial loss of condenser vacuum?

a. At 5.1" Hg. back pressure the reactor trips.

b. At 7.6" Hg. back pressure the main turbine trips on low vacuum.

c. At 10.0" Hg. back pressure the C-9 condenser available permissive is blocked.

d. At 15.0" Hg. back pressure the main feed pumps trip.

MASTER

QUESTION: 078 (1.00)

The plant has experienced a loss of all AC power. Efforts to restore AC power are unsuccessful.

If the operators are unable to restore AC power and natural circulation stops, which ONE [1] of the following statements describes the RCS cooling mechanism?

a. Reflux cooling will not occur if steam voids have formed in the S/G U-tubes. All means of decay heat removal will be lost.

b. Reflux cooling will provide adequate decay heat removal indefinitely.

c. Reflux cooling will remove decay heat until enough inventory is lost to prevent decay heat removal. Then inadequate core cooling may occur.

d. Reflux cooling will occur only if the secondary system is depressurized. Extensive core damage will occur soon after natural circulation stops.

QUESTION: 079 (1.00)

A note preceding Step 17 of ECA-0.0, Loss of All AC Power, directs the operator to depressurize the steam generators at the maximum rate. Which ONE [1] of the following statements explains the basis for depressurizing steam generators at maximum rate?

a. Minimize potential for pressurized thermal shock.

b. Minimize reactor vessel upper head voiding.

c. Minimize steam generator secondary inventory loss.

d. Minimize RCS inventory loss through the RCP seals.

MASTER

QUESTION: 080 (1.00)

If Bus Y11 is inadvertently deenergized, which ONE [1] of the following operator actions must be performed IMMEDIATELY?

a. Place rod control in manual control.

b. Shut PZR PORV block valves.

c. Take PZR master pressure and spray valve controller PK-455 A/B/C to manual control.

d. Take steam dump pressure controller PK-507 to manual control.

QUESTION: 081 (1.00)

In the event of a fire which requires outside assistance, which ONE [1] of the following statements identifies the position making the notification to outside agencies and the outside agencies notified?

a. Control Operator, notifies the Rainier Fire Department and the NRC resident.

b. Control Operator, notifies the NRC.

c. Shift Technical Advisor, notifies the Rainier Fire Department and the NRC.

d. Shift Manager, notifies the NRC.

MASTER

QUESTION: 082 (1.00)

Which ONE [1] of the following describes the method for shutting down the reactor if the control room is evacuated per ONI-17 "Control Room Inaccessibility"?

a. Emergency boration.

b. Open the reactor trip breakers.

c. Manually drive rods IN at the Remote Shutdown Station.

d. Open the power supply breakers to the rod drive MG sets from the Remote Shutdown Station.

MASTER

QUESTION: 083 (1.00)

The control room operators are performing ECA-1.1, Loss of Emergency Coolant Recirculation, when a red path is identified on the containment status tree. The operators enter FR-Z.1, Response to High Containment Pressure, and verify containment isolation. The operators find that the directions to operate the containment spray pumps conflict with those actions just performed in ECA-1.1

For the conditions given above, which ONE [1] of the following procedures and bases should be followed?

a. ECA-1.1. This ensures that maximum heat removal capacity is used to reduce containment pressure.

b. ECA-1.1. Containment spray flow is restricted in order to conserve the available RWST water.

c. FR-Z.1. Functional Restoration Procedures taka priority over all non-Functional Restoration Procedures.

d. FR-Z.1. FR-Z.1 provides a more rapid means of verifying actuation of the containment spray system.

MASTER

QUESTION: 084 (1.00)

The following plant conditions exist:

- , OCA has occurred.
- All core exit thermocouple indications reading greater than 1200 degrees F.

Which ONE [1] of the following methods will be used to restore the critical safety function associated with the above conditions?

a. Establish feed flow from a main feedpump.

b. Reduce RCS pressure by opening the pressurize PORV.

c. Start all RCPs to establish forced flow.

d. Establish high pressure SI flow.

QUESTION: 085 (1.00)

Control room operators are responding to a red path on the heat sink Critical Safety Function Status Tree [CSFST]. FR-H.1, Response to Loss of Secondary Heat Sink, is being implemented. Subsequently a red path on core cooling CSFST is identified.

Which ONE [1] of the following actions must be taken and what is the basis for the action?

a. Continue with FR-H.1, because the heat sink CSF has a higher priority than the core cooling CSF.

b. Continue with FR-H.1, because transitions to other procedures are not allowed during any red path procedure that is not complete.

c. Transfer to FR-C.1, Response to Inadequate Core Cooling, because the core cooling CSF has a higher priority than the heat sink CSF.

d. Transfer to FR-C.1, Response to Inadequate Core Cooling, because FR-C.1 encompasses actions necessary to restore loss of secondary heat sink.

MASTER

QUESTION: 086 (1.00)

The following plant conditions exist:

- The reactor is operating at 100% power.
- A pressurizer PORV is leaking to the PRT at a rate of 1 gpm.

Which ONE [1] of the following describes the RCS Operational Leakage Technical Specification requirement in this situation?

a. IDENTIFIED leakage that requires shutdown.

b. UNIDENTIFIED leakage that required shutdown.

c. IDENTIFIED leakage that does NOT require shutdown.

d. UNIDENTIFIED leakage that does NOT require shutdown.

MASTER

QUESTION: 087 (1.00)

A small break LOCA has occurred. All emergency core cooling system [ECCS] pumps are operating as designed. Twenty [20] minutes after the initial transient the following plant conditions exist:

- No reactor coolant pumps are running.
- Core exit TCs indicate 580 degrees F.
- Pressurizer level indicates 0%.
- Reactor coolant system [RCS] pressure indicates 1310 psig.
- The control room operators begin to withdraw more steam from the steam generators and increase the auxiliary feedwater flow rate to maintain steam generator levels.

Which ONE [1] following statements describes how ECCS flow will respond?

a. Increase. As the RCS cools down, RCS pressure decreases due to the contraction of the RCS.

b. Increase. As the RCS cools down, Safety Injection Pump net positive suction head will increase.

c. Decrease. The cooldown will increase natural circulation flow causing an apparent increase in discharge head as seen by the ECCS pumps.

d. Decrease. Reflux cooling by the steam generators keeps the break covered and prevents RCS depressurization.

QUESTION: 088 (1.00)

Which ONE [1] of the following values is the volume control tank level setpoint at which refueling water storage tank to charging pump header valves [MO-112D and E] open and volume control tank outlet valves [MO-112B and C] close?

a. 19.0%.

b. 17.0%.

c. 4.4%.

d. 1.4%.

MASTER

QUESTION: 089 (1.00)

The following plant conditions exist:

- Plant is shutdown and being cooled down using the RHR system.
- RCS pressure is 325 psig.
- RCS temperature is 150 F.
- Reactor Coolant Pumps are tagged out.
- Pressurizer is solid.

Which ONE [1] of the following provides the alternate cooling path if the operating RHR pump is lost and the standby RHR pump fails to start?

a. Initiate SI accumulator injection.

b. Feed and bleed using SI pumps.

c. Start containment air coolers.

d. Line up for spent fuel pool cooling.

QUESTION: 090 (1.00)

The following plant conditions exist:

- "PZR SAFETY VLV HI LEAKAGE" alarm.
- "PZR RELIEF TEMP HI" alarm.
- Pressurizer spray valves closed.
- Pressurizer backup heaters on.
- Pressurizer level - 51% and decreasing slowly.
- Pressurizer pressure 2212 psig and decreasing slowly.
- Reactor Power 83% and steady.
- Rod Control in Automatic.

In accordance with ONI-36 "Pressurizer Relief or Safety Valve Actuation or Leakage", which ONE [1] of the following immediate actions should be performed?

a. If pressure cannot be controlled, start reducing power to less than 10% per GOI-5.

b. Trip the reactor and enter EI-0, Reactor Trip, Safety Injection, and Diagnosis, Step 1.

c. Shut the pressurizer PORV block valves.

d. Isolate letdown and increase charging.

QUESTION: 091 (1.00)

The following plant conditions exist:

- Plant is in Mode 2.
- Reactor start-up in progress.
- Power below P-6.
- A Source Range Nuclear Instrument power supply fails.

Which ONE [1] of the following statements describe the action required to be taken by Technical Specifications?

a. Verify that the operable Source Range channel is selected to the audio count rate channel.

b. Place the level trip switch for the inoperable channel to the BYPASS position.

c. Suspend all operations involving positive reactivity changes.

d. Verify that NR-45 is not recording the defective channel.

QUESTION: 092 (1.00)

The following plant conditions exist:

- Reactor plant in MODE 3.
- Source range N32 fails low.
- Reactor trip breakers are closed.
- CRDMG sets are in operation.
- All preparations have been made for commencing a reactor start-up.

Which ONE [1] of the following statements describes the action to be taken? [Technical Specification 3.3.1 is attached]

a. Restore the N32 to operable within 48 hours or open the reactor trip breakers within 1 hour.

b. Within 1 hour determine that the shutdown margin as calculated by OI-11-8, Shutdown Margin, meets the requirements of the Technical Specifications.

c. Suspend all operations involving positive reactivity changes.

d. Place N32 in trip condition within 6 hours.

MASTER

QUESTION: 093 (1.00)

If intermediate range channel N35 is UNDERCOMPENSATED, the indicated power level for N35 will read ____[1]____ than the actual power level and the Source Range Nuclear Instruments ____[2]____ automatically energize when the LOWEST reading INRI reaches its setpoint.

Which ONE [1] of the following completes the above statement correctly?

a. [1] Higher; [2] will.

b. [1] Higher; [2] will NOT.

c. [1] Lower; [2] will.

d. [1] Lower; [2] will NOT.

QUESTION: 094 (1.00)

The following plant conditions exist:

- Reactor Power at 100%.
- Intermediate Range channel N36 is removed for repair.
- Intermediate Range channel N35 fails.

Which ONE [1] of the following statements describe the action to be taken if the estimated time to repair N36 is 12 hours?

a. Verify that power is above the P-10 setpoint and trip the N35 bistables. Power level will not be restricted.

b. Place the N35 IR channel LEVEL TRIP switch in the BYPASS position and continue power operation.

c. Do not change plant power level until at least one IR channel is restored to operable status.

d. Proceed to a hot standby condition within the next 6 hours. The reactor must be shut down.

MASTER

QUESTION: 095 (1.00)

The following plant conditions exist:

- Reactor Power at 80%.
- One of two operating MFPs trip.
- Turbine runback is automatically initiated.
- Power level is ordered to be stabilized below 60%.

Which ONE [1] of the following statements describe the basis for stabilizing power at less than 60%?

a. The S/G blowdown tank flash steam may still be lined up to 3B FW heater.

b. The loss of the other MFP will not directly cause a reactor trip.

c. The remaining MFP can adequately maintain S/G water levels.

d. The running MFP will not trip on overspeed.

MASTER

QUESTION: 096 (1.00)

The following plant conditions exist:

- Reactor trip and SI have been initiated due to a steam line break downstream of the MSIVs.
- The Diesel Auxiliary Feedwater Pump will not start.
- The maximum achievable AFW flow rate is 400 gpm.
- The level in S/G A, B, and D is off scale low [Narrow Range]
- The level in S/G C is 8% [Narrow Range]

Which ONE [1] of the following statements describe the condition of the secondary heat sink and the basis for that condition?

a. Inadequate because AFW flow is insufficient.

b. Inadequate because S/G level is insufficient.

c. Adequate because AFW flow is sufficient.

d. Adequate because S/G level is sufficient.

MASTER

QUESTION: 097 (1.00)

Which ONE [1] of the following reasons explains why DC power is used to control the EDGs?

a. DC power is the most reliable.

b. DC power causes no signal interference.

c. Loss of DC power results in an EDG startup.

d. Drops in DC voltage due to loading are easily controlled.

QUESTION: 098 (1.00)

In the event of a loss of instrument air which of the following will occur in the CVCS?

1. Loss of normal letdown.
2. Loss of excess letdown (if in operation).
3. Loss of charging capability.
4. Loss of VCT venting capability.
5. Loss of emergency boration capability.
6. Loss of seal water injection capability.
7. Loss of VCT gas sampling capability.

Select ONE [1] combination.

a. 1, 2, 3, and 5.

b. 1, 2, 4, and 7.

c. 2, 4, 5, and 7.

d. 4, 5, 6, and 7.

MASTER

QUESTION: 099 (1.00)

If the controlling pressurizer level channel fails low, which ONE [1] of the following actions are IMMEDIATE ACTIONS required by ONI 2-6 "Instrument Failure"?

a. Verify which channel has failed by performing a channel check and restore letdown.

b. Verify which channel has failed by performing a channel check and place LK-459, PZR level master controller, in "MAN" position and reduce charging flow.

c. Place LK-459, PZR level master controller, in "MAN" position and reduce charging flow; restore letdown and pressurizer heaters.

d. Place LK-459, in "MAN" and defeat the failed channel's input to level control.

MASTER

QUESTION: 100 (1.00)

If the "UNIT AUX XFRMR SUDN PRESS" alarm actuates, which ONE [1] of the following explains why the unit Auxiliary Transformer 12.47-kV feeders H-101 and H-201 open?

a. Operation of the generator OCB V-838 sudden pressure alarm.

b. Operation of the generator primary or backup lockout relay.

c. Operation of the Unit Aux transformer ground overcurrent relay.

d. Operation of the Unit Aux transformer phase overcurrent relay.

MASTER

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

ANSWER: 001 (1.00)

c.

REFERENCE:

02-K-01-H03, Revision 8, Page 9, Para. 0.4
02-K-01-LP, Revision 8, Objective 2.2.f.19
AO 3-26, Revision 5, Page 10, Para 4.7

KA 194001K101 [3.6/3.7]

Both RO and SRO

194001K101 ..(KA's)

ANSWER: 002 (1.00)

b.

REFERENCE:

02-L-01-H03, Revision 8, Page 8, Para. K.2
02-K-01-LP, Revision 8, Objective 2.2.f.18

KA 194001K101 [3.6/3.7]

Both RO and SRO

194001K101 ..(KA's)

ANSWER: 003 (1.00)

d.

REFERENCE:

02-K-01-H02, Revision 8, Page 15, Para. HH.1
02-K-01-LP, Revision 8, Objective 2.2.f.16
TPP 13-17, Revision 0, Attachment 9, Pages 48 - 50, Para 3.11

KA 194001K102 [3.7/4.1]

Both RO and SRO

194001K102 ..(KA's)

ANSWER: 004 (1.00)

d.

REFERENCE:

02-K-01-H03, Revision 8, Page 14, Para. DD.1
02-K-01-LP, Revision 8, Objective 2.2.t
RPM, Revision 71, Page 2-17

KA 194001K103 [2.8/3.4]

RO only

194001K103 ..(KA's)

ANSWER: 005 (1.00)

a.

REFERENCE:

02-K-01-H03, Revision 8, Page 14, Para. DD.3
02-L-01-LP, Revision 8, Objective 2.2.t

KA 194001K104 [3.3/3.5]

Both RO and SRO

194001K104 ..(KA's)

ANSWER: 006 (1.00)

d.

REFERENCE:

PS-3-2, Revision 4, pages 1 and 3

KA 194001K108 [3.5/3.4]

Both RO and SRO

194001K108 ..(KA's)

ANSWER: 007 (1.00)

b.

REFERENCE:

PS 3-10, Revision 12, Page 11, Para. 6.35

KA 194001K113 [3.3/3.6]

RO only

194001K113 ..(KA's)

ANSWER: 008 (1.00)

b.

MASTER

REFERENCE:

PS 3-10, Revision 12, Page 5, Para. 5.2.1

KA 194001K114 [3.3/3.6]

Both RO and SRO

194001K114 ..(KA's)

ANSWER: 009 (1.00)

b.

REFERENCE:

02-J-04-SD, Fire Protection System, Revision 7, Page 13 and 16

KA 194001K116 [3.5/4.2]

Both RO and SRO

194001K116 ..(KA's)

ANSWER: 010 (1.00)

d.

REFERENCE:

02-K-04-LP, Revision 4, Page 25, Para. j
02-K-04-LP, Revision 4, Objective m

KA 194001A102 [4.1/3.9]

Both RO and SRO

194001A102 ..(KA's)

MASTER

ANSWER: 011 (1.00)

d.

REFERENCE:

10 CFR 50.54(x)

KA 194001A102 [4.1/3.9]

Both RO and SRO

194001A102 ..(KA's)

ANSWER: 012 (1.00)

a.

REFERENCE:

AO 10-4, Emergency Treatment, Revision 21, page 9

KA 194001A110 [2.9/3.9]

Both RO and SRO

194001A110 ..(KA's)

ANSWER: 013 (1.00)

c.

MASTER

REFERENCE:

EP-100, Revision 7, Page 33, Para. 5.1.1

KA 194001A116 [3.1/3.4]

RO only

194001A116 ..(KA's)

ANSWER: 014 (1.00)

c.

REFERENCE:

02-B-09-LP, Revision 5, Rod Control System, Objective I.B.2.b.2.e
02-B-09-SD, Revision 7, Rod Control System, Page 29

KA 001000K103 [3.4/3.6]

Both RO and SRO

001000K103 ..(KA's)

ANSWER: 015 (1.00)

c.

REFERENCE:

02-B-09-LP, Revision 5, Objective I.B.2.e.2
02-B-09-LP, Revision 5, Page 27, Para. D.2.a.

KA 001000K407 [3.7/3.8]

RO only

001000K407 ..(KA's)

MASTER

ANSWER: 016 (1.00)

b.

REFERENCE:

02-B-09-LP, Revision 5, Objective I.B.2.g.4
02-B-09-HO, Revision 2, Page 19, Para. G.6

KA 001000A101 [3.8/4.2]

RO only

001000A101 ..(KA's)

ANSWER: 017 (1.00)

c.

REFERENCE:

02-A-02-LP, Revision 7, Pages 41 and 42
02-A-02-LP, Revision 7, Objective I.B.2.b.5

KA 003000K103 [3.3/3.6]

Both RO and SRO

003000K103 ..(KA's)

ANSWER: 018 (1.00)

a.

MASTER

REFERENCE:

02-A-02-LP, Revision 7, page 18
02-A-02-LP, Revision 7, Objective I.B.2.b.9

KA 003000A201 [3.5/3.9]

RO only

003000A201 ..(KA's)

ANSWER: 019 (1.00)

a.

REFERENCE:

02-A-02-SD, Revision 3, page 21
02-A-02-LP, Revision 7, Objective I.B.2.i.1

KA 003000G010 [3.3/3.6]

Both RO and SRO

003000G010 ..(KA's)

ANSWER: 020 (1.00)

d.

REFERENCE:

02-A-06-LP, Revision 7, Objective I.B.2.i.14
02-A-06-SD, Revision 6, page 22

KA 004000K118 [2.9/3.2]

Both RO and SRO

004000K118 ..(KA's)

REFERENCE:

02-B-03-SD2, Revision 3, Pages 57 and 58 / Incorrect All
02-B-03-LP1, Revision 3, Objective I.B.2.g.12

KA 013000K411 [3.2/3.8]

Both RO and SRO

013000K411 ..(KA's)

ANSWER: 024 (1.00)

a.

REFERENCE:

02-B-03-SD, Revision 4, Pages 59 and 60
02-B-03-LP, Revision 3, Objective I.B.2.e.8

KA 013000A402 [4.3/4.4]

RO only

013000A402 ..(KA's)

ANSWER: 025 (1.00)

d.

REFERENCE:

02-B07-LP, T.O. # 00.00, E.O. #18, EQ#1
02-B-07, LP1, Revision 4, Objective I.B.2.c.9
02-B-07-SD, Revision 4, Page 21

KA 015000K604 [3.1/3.2]

Both RO and SRO

015000K604 ..(KA's)

ANSWER: 021 (1.00)

a.

REFERENCE:

02-A-06-LP, Revision 7, Objective I.B.2.e.5
02-A-06-LP, Revision 7, page 38
02-A-06-SD, Page 32

KA 004000K202 [2.9/3.1]

Both RO and SRO

004000K202 ..(KA's)

ANSWER: 022 (1.00)

c.

REFERENCE:

02-A-06-SD, Revision 6, Page 6
02-A-06-LP, Revision 7, Objective I.B.2.d.3

KA 004000A207 [3.4/3.7]

RO only

004000A207 ..(KA's)

ANSWER: 023 (1.00)

b.

RO Exam PWR Reactor

Organized by Question Number

QUESTION	VALUE	REFERENCE
001	1.00	9000261
002	1.00	9000262
003	1.00	9000263
004	[illegible].00	9000264
005	1.00	9000266
006	1.00	9000269
007	1.00	9000270
008	1.00	9000271
009	1.00	9000272
010	1.00	9000274
011	1.00	9000275
012	1.00	9000277
013	1.00	9000280
014	1.00	900028[illegible]
015	1.00	9000282
016	1.00	9000283
017	1.00	9000285
018	1.00	9000286
019	1.00	9000287
020	1.00	9000288
021	1.00	9000289
022	1.00	9000290
023	1.00	9000291
024	1.00	9000292
025	1.00	9000293
026	1.00	9000294
027	1.00	9000295
028	1.00	9000296
029	1.00	9000297
030	1.00	9000298
031	1.00	9000299
032	1.00	9000300
033	1.00	9000301
034	1.00	9000302
035	1.00	9000303
036	1.00	9000304
037	1.00	9000305
038	1.00	9000306
039	1.00	9000308
040	1.00	9000309
041	1.00	9000310
042	1.00	9000311
043	1.00	9000313
044	1.00	9000315
045	1.00	9000316
046	1.00	9000317
047	1.00	9000318
048	1.00	9000319
049	1.00	9000320

MASTER

RO Exam PWR Reactor

Organized by Question Number

QUESTION	VALUE	REFERENCE
050	1.00	9000322
051	1.00	9000323
052	1.00	9000324
053	1.00	9000325
054	1.00	9000326
055	1.00	9000327
056	1.00	9000328
057	1.00	9000329
058	1.00	9000330
059	1.00	9000331
060	1.00	9000332
061	1.00	9000333
062	1.00	9000334
063	1.00	9000335
064	1.00	9000336
065	1.00	9000337
066	1.00	9000338
067	1.00	9000339
068	1.00	9000344
069	1.00	9000345
070	1.00	9000346
071	1.00	9000348
072	1.00	9000350
073	1.00	9000351
074	1.00	9000352
075	1.00	9000353
076	1.00	9000354
077	1.00	9000355
078	1.00	9000357
07[illegible]	1.00	9000358
080	1.00	9000359
081	1.00	9000360
082	1.00	9000362
083	1.00	9000363
084	1.00	9000364
085	1.00	9000365
086	1.00	9000367
087	1.00	9000368
088	1.00	9000369
089	1.00	9000370
090	1.00	9000371
091	1.00	9000372
092	1.00	9000373
093	1.00	9000374
094	1.00	9000375
095	1.00	9000378
096	1.00	9000379
097	1.00	9000380
098	1.00	9000383

R O Exam PWR Reactor

Organized by Question Number

QUESTION	VALUE	REFERENCE
099	1.00	9000385
100	1.00	9000387

	100.00	

	100.00	

MASTER

R O Exam PWR Reactor

Organized by KA Group

PLANT WIDE GENERICS

QUESTION	VALUE	KA
010	1.00	194001A102
011	1.00	194001A102
012	1.00	194001A110
013	1.00	194001A116
002	1.00	194001K101
001	1.00	194001K101
003	1.00	194001K102
004	1.00	194001K103
005	1.00	194001K104
006	1.00	194001K108
007	1.00	194001K113
008	1.00	194001K114
009	1.00	194001K116
PWG Total	13.00	

PLANT SYSTEMS

Group I

QUESTION	VALUE	KA
016	1.00	001000A101
014	1.00	001000K103
015	1.00	001000K407
018	1.00	003000A201
019	1.00	003000G010
017	1.00	003000K103
022	1.00	004000A207
020	1.00	004000K118
021	1.00	004000K202
024	1.00	013000A402
023	1.00	013000K411
026	1.00	015000A103
028	1.00	015000A202
025	1.00	015000K604
029	1.00	017020K301
032	1.00	022000A301
033	1.00	022000A401
034	1.00	059000G008
036	1.00	061000G009
035	1.00	061000K501
038	1.00	068000A302
039	1.00	068000G014
040	1.00	071000K106

R O Exam PWR Reactor
Organized by KA Group

PLANT SYSTEMS

Group I

QUESTION	VALUE	KA
PS-I Total	23.00	

Group II

QUESTION	VALUE	KA
042	1.00	002000G005
041	1.00	002000K517
044	1.00	006000G010
043	1.00	006000K406
045	1.00	010000K201
046	1.00	010000K403
047	1.00	011000A211
048	1.00	012000K201
027	1.00	014000A202
049	1.00	016000K304
030	1.00	026000A301
031	1.00	026000G005
051	1.00	029000K403
052	1.00	033000K102
054	1.00	035000G010
055	1.00	039000A105
037	1.00	063000A201
056	1.00	064000A306
057	1.00	073000A402
058	1.00	086000K604

PS-II Total	20.00	

Group III

QUESTION	VALUE	KA
059	1.00	005000G010
050	1.00	028000K601
053	1.00	034000A102
060	1.00	041020A102
061	1.00	045000A304
062	1.00	076000K101
063	1.00	076000K402
064	1.00	078000K302

PS-III Total	8.00	

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R O Exam PWR Reactor

Organized by KA Group

PLANT SYSTEMS

QUESTION	VALUE	KA
PS Total	51.00	

EMERGENCY PLANT EVOLUTIONS

Group I

QUESTION	VALUE	KA
068	1.00	000005G008
071	1.00	000015A210
072	1.00	000024A117
073	1.00	000024G011
074	1.00	000026G007
090	1.00	000027A206
076	1.00	000040K304
077	1.00	000051A202
078	1.00	000055K102
079	1.00	000055K302
080	1.00	000057G010
081	1.00	000067G002
082	1.00	000068K202
083	1.00	000069K301
085	1.00	000074G011
084	1.00	000074K305
EPE-I Total	16.00	

Group II

QUESTION	VALUE	KA
065	1.00	000001A205
067	1.00	000003A203
066	1.00	000003K103
086	1.00	000008G008
087	1.00	000009K101
070	1.00	000011A103
069	1.00	000011K313
088	1.00	000022G009
089	1.00	000025K101
075	1.00	000029K312
091	1.00	000032G008
092	1.00	000032G010
093	1.00	000033A202
094	1.00	000033A210
096	1.00	000054G011

R O Exam PWR Reactor

Organized by KA Group

EMERGENCY PLANT EVOLUTIONS

Group II

QUESTION	VALUE	KA
095	1.00	000054K304
097	1.00	000058K301
EPE-II Total	17.00	

Group III

QUESTION	VALUE	KA
099	1.00	000028G010
100	1.00	000056K302
098	1.00	000065K303
EPE-III Total	3.00	
EPE Total	36.00	
Test Total	100.00	

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

GROUP HEIGHT

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: MODES 1* and 2*

ACTION:

The ACTION to be taken is based on the cause of inoperability of the control rods as follows:

CAUSE OF INOPERABILITY	ACTION One Rod	ACTION More Than One Rod
a) Immovable as a result of excessive friction or mechanical interference or known to be untrippable.	(1)	(1)
b) Misaligned from its group step counter demand height or from any other rod in its group by more than ± 12 steps (indicated position).	(4)	(2)
c) Inoperable due to a rod control urgent failure alarm or other electrical problem in the rod control system, but trippable.	(3)	(3)

ACTION 1 - 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.

ACTION 2 - Be in HOT STANDBY within 6 hours.

ACTION 3 - Restore the inoperable rods to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours.

* See Special Exceptions 3.10.2 and 3.10.4.

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LIMITING CONDITION FOR OPERATION

ACTION 4 - POWER OPERATION may continue provided that within 1 hour either:

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

2. 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) An analysis of the potential ejected rod worth is performed within 3 days and the rod worth is determined to be ≤ ~~0.90%~~ 0.90 Δk at zero power and ≤ 0.21% Δk at RATED THERMAL POWER for the remainder of the fuel cycle, and

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

   c) The THERMAL POWER level is reduced to ≤ 75% of RATED THERMAL POWER WITHIN one hour and within the next 4 hours the high neutron flux trip setpoint is reduced to ≤ 85% of RATED THERMAL POWER, or

   d) The remainder of the rods in the group with the inoperable rod are aligned to within ± 12 steps of the inoperable rod within one hour while maintaining the rod sequence and insertion limits of Figures 3.1-1 and 3.1-2; the THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.5 during subsequent operation.

LDI 92-04

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. 115

4.1.3.1.2 Each rod not fully inserted shall be determined to be OPERABLE by movement of at least 10 steps in any one direction at least once per 31 days. 115

MASTER

POSITION INDICATOR CHANNELS

LIMITING CONDITION FOR OPERATION

3.1.3.2 Control rod position indication system for control and shutdown rods and the demand position indication system shall be OPERABLE and capable of determining the control rod positions with ±12 steps. 114

APPLICABILITY: MODES 1 and 2.

ACTION:

a. With a maximum of one rod position indicator per group inoperable either: 114

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

2. Reduce THERMAL POWER TO < 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 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 < 50% of RATED THERMAL POWER within 8 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.2 Each rod position indicator shall be determined to be OPERABLE by verifying the demand position indication system and the rod position indication system agree within 10 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 rod position indication system at least once per 4 hours. 114 114

MASTER

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the reactor trip system instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE with RESPONSE TIMES as shown in Table 3.3-2.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each reactor trip system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the modes and at the frequencies shown in Table 4.3-1.

4.3.1.2 The logic for the interlocks shall be demonstrated OPERABLE during the at power CHANNEL FUNCTIONAL TEST of channels affected by interlock operation. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation.

4.3.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.

TABLE 3.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. Manual Reactor Trip	2	1	2	1, 2	11
	2	1	2	3*, 4*, 5*	10
2. Power Range, Neutron Flux					
A. High Setpoint	4	2	3	1, 2	2#
B. Low Setpoint	4	2	3	1###, 2	2#
3. Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2	2#
4. Power Range, Neutron Flux, High Negative Rate	4	2	3	1, 2	2#
5. Intermediate Range, Neutron Flux	2	1	2	1###, 2	3
6. Source Range, Neutron Flux					
A. Startup	2	1	2	2##	4
B. Shutdown	2	1	2	3*, 4*, 5*	10
C. Shutdown	2	0	1	3, 4, 5	5
7. Overtemperature ΔT					
Four Loop Operation	4	2	3	1, 2	6#
Three Loop Operation	4	1**	3	1, 2	8
8. Overpower ΔT					
Four Loop Operation	4	2	3	1, 2	6#
Three Loop Operation	4	1**	3	1, 2	8
9. Pressurizer Pressure - Low	4	2	3	1#	6#
10. Pressurizer Pressure - High	4	2	3	1, 2	6#
11. Pressurizer Water Level - High	3	2	2	1#	6#

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TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
12. Loss of Flow - Single Loop (Above P-8)	3/loop	2/loop in any operating loop	2/loop in each oper- at[illegible] loop	1	6# 131
13. Loss of Flow - Two loops (Above P-7 and below P-8)	3/loop	2/loop in two operating loo[illegible]	[illegible] oop	1	6# 131
14. Steam Generator Water Level - Low-Low	3/loop	2/loop in any operating loop	[illegible] in each oper- [illegible] loop	1, 2	6#(1) 131
15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	2/loop-level and 2/loop-flow mismatch	1/loop-level coincident with 1/loop-flow mismatch in same loop	1/loop-level and 2/loop-flow mismatch or 2/loop-level and 1/loop-flow mismatch	1, 2	6# 131
16. Undervoltage - Reactor Coolant Pumps	4-2/bus	1/bus for each bus	3	1*	6# 131
17. Underfrequency - Reactor Coolant Pumps	4-2/bus	1/bus for each bus	3	1*	6# 131

MASTER

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
18. Turbine Trip					
A. Low Hydraulic Control Oil Pressure	3	2	2	1*	6#
B. Turbine Stop Valve Closure	4-1/valve	4-1/valve	4-1/valve	1*	7#
19. Auto Safety Injection Input	2	1	2	1, 2	1
20. Reactor Coolant Pump Breaker Position Trip	4-1/breaker	2	1/breaker per operating loop	1*	9#
21. Reactor Trip Breakers	2	1	2	1, 2	1, 12
	2	1	2	3*, 4*, 5*	10, 12
22. Automatic Trip Logic	2	1	2	1, 2	1
	2	1	2	3*, 4*, 5*	10

137

MASTER

TABLE 3.3-1 (Continued)

TABLE NOTATION

* With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal.

** The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped condition.

\# The provisions of Specification 3.0.4 are not applicable.

\#\# When below the P-6 setpoint.

\#\#\# When below the P-10 setpoint.

ψ When above the P-7 setpoint.

(1) The applicable MODES and ACTION statement for these channels noted in Table 3.3-3 are more restrictive and, therefore, applicable.

ACTION STATEMENTS

ACTION 1 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours. One channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1 provided the other channel is OPERABLE.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided all of the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.

c. Either THERMAL POWER is restricted to ≤75% of RATED THERMAL POWER and the Power Range Neutron Flux trip setpoint is reduced to ≤85% of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours, per Specification 4.2.4.c.

TABLE 3.3-1 (Continued)

ACTION 3 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 setpoint.

b. Above P-6 but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWFR above 5% of RATED THERMAL POWER.

c. Above 5% of RATED THERMAL POWER, power operation may continue.

ACTION 4 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, suspend all operations involving positive reactivity changes.

ACTION 5 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 (MODE 3) or Specification 3.1.1.2 (MODES 4 and 5) within 1 hour and at least once per 12 hours thereafter. 172

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided both of the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.

MASTER

ACTION 7 - With the number of OPERABLE channels less than the Total Number of Channels, place the inoperable channel in the tripped condition within 6 hours. Operation may continue until performance of the next required CHANNEL FUNCTIONAL TEST.

ACTION 8 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours. One channel associated with an operating loop may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1.

TABLE 3.3-1 (Continued)

ACTION 9 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 6 hours.

ACTION 10 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within 1 hour.

ACTION 11 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.

ACTION 12 - With one of the diverse trip features (undervoltage or shunt trip attachment) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply ACTION 1. The breaker shall not be bypassed while one of the diverse trip features is inoperable except for the time required for performing maintenance to restore the breaker to OPERABLE status. 137

MASTER

REACTOR TRIP SYSTEM INTERLOCKS

DESIGNATION	CONDITION AND SETPOINT	FUNCTION
P-6	With 2 of 2 Intermediate Range Neutron Flux Channels $<6\times10^{-11}$ amps.	Prevents or defeats the manual block of source range reactor trip.
P-7	With 2 of 4 Power Range Neutron Flux Channels $\geq$11% of RATED THERMAL POWER or 1 of 2 Turbine impulse chamber pressure channels $\geq$66 psia.	Prevents or defeats the automatic block of reactor trip on: Low flow in more than one primary coolant loop, reactor coolant pump under-voltage and under-frequency, turbine trip, pressurizer low pressure, and pressurizer high level.
P-8	With 2 of 4 Power Range Neutron Flux Channels $\geq$39% of RATED THERMAL POWER.	Prevents or defeats the automatic block of reactor trip on low coolant flow in a single loop.

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INTERLOCKS

DESIGNATION	CONDITION AND SETPOINT	FUNCTION
P-10	With 3 of 4 Power Range Neutron Flux Channels <9% of RATED THERMAL POWER.	Prevents or defeats the manual block of: Power range low setpoint reactor trip, intermediate range reactor trip, and intermediate range rod stops. Provides input to P-7.
P-13	With 2 of 2 Turbine Impulse Chamber Pressure Channels <66 psia.	Provides input to P-7.

REFERENCE:

02-F-01-LP, Revision 2, Objective I.B.2.b.2.b
02-F-01-SD1, Revision 3, Page 15

KA 022000A401 [3.6/3.6]

RO only

022000A401 ..(KA's)

ANSWER: 034 (1.00)

d.

REFERENCE:

02-E-13-LP, Revision 4, Objective I.B.2.C.4
02-E-13-SD, Revision 3, page 47

KA 059000G008 [3.0/3.1]

RO only

059000G008 ..(KA's)

ANSWER: 035 (1.00)

d.

REFERENCE:

02-A-12-SD, Revision 6, page 4
02-A-12-LP, Revision 4, Objective I.B.2.a

KA 061000K501 [3.6/3.9]

Both RO and SRO

061000K501 ..(KA's)

MASTER

ANSWER: 036 (1.00)

c.

REFERENCE:

02-A12-LP T.O.#00.00, E.O. #12, EQ #1
02-A12-LP, Revision 4, Objective I.B.3.k
02-A12-SD, Revision 6, Pages 37-39

KA 061000G009 [3.8/3.9]

RO only

061000G009 ..(KA's)

ANSWER: 037 (1.00)

d.

REFERENCE:

02-C-07-SD, Revision 5, Page 30
02-C-07-LP, Revision 3, Objective I.B.2.C.3

KA 063000A201 [2.5/3.2]
Both RO and SRO
063000A201 ..(KA's)

ANSWER: 038 (1.00)

b.

MASTER

REFERENCE:

02-G-02-LP, Revision 2, Objective I.B.2.e.3
02-G-02-LP, Revision 2, Page 8

KA 068000A302 [3.6/3.6]

RO only

068000A302 ..(KA's)

ANSWER: 039 (1.00)

c.

REFERENCE:

02-G-02-LP, Revision 2, Page 15
02-G-02-LP, Revision 2, Objective I.B.2.j.1.a

KA 068000G014 [2.6/2.8]

Both RO and SRO

068000G014 ..(KA's)

ANSWER: 040 (1.00)

d.

REFERENCE:

02-G04-LP, T.O. #00.00, E.O. #4, EQ#1
02-G04-LP, Revision 3, Objective I.B.2.b.1
02-G04-SD, Gaseous Radioactive Waste System Figure 3

KA 071000K106 [3.1/3.1]

RO only

071000K106 ..(KA's)

MASTER

ANSWER: 041 (1.00)

b.

REFERENCE:

02-A-01-SD, Revision 3, Page 22
02-A-01-LP, Revision 4, Objective I.B.2.a.3.i

KA 002000K517 [3.8/4.1]

Both RO and SRO

002000K517 ..(KA's)

ANSWER: 042 (1.00)

c.

REFERENCE:

Technical Specification 3.4.1.2, Action a.

KA 002000G005 [3.6/4.1]

RO only

002000G005 ..(KA's)

ANSWER: 043 (1.00)

a.

MASTER

REFERENCE:

02-A07-LP, T.O. #00.00, E.O. #27, EQ #1
02-A-07-LP, Revision 8, Objective I.B.2.g.3
02-A-07-SD2, Revision 8, Page 43

KA 006000K406 [3.9/4.2]

Both RO and SRO

006000K406 ..(KA's)

ANSWER: 044 (1.00)

c.

REFERENCE:

02-A07-LP, T.O. #00.00, E.O # 40, EQ #1
02-A07-LP, Revision 8, Objective I.B.2.j
OI-5-2, Step 2.2.5

KA 006000G010 [3.4/3.7]

Both RO and SRO

006000G010 ..(KA's)

ANSWER: 045 (1.00)

b.

REFERENCE:

02-B-04-SD, Revision 2, Page 13
02-B-04-LP, Revision 2, Objective I.B.2.d.2.a

KA 010000K201 [3.0/3.4]

Both RO and SRO

010000K201 ..(KA's)

MASTER

ANSWER: 046 (1.00)

c.

REFERENCE:

02-B-02-SD2, Revision 2, Page 37

KA 010000K403 [3.8/4.1]

Both RO and SRO

010000K403 ..(KA's)

ANSWER: 047 (1.00)

c.

REFERENCE:

02-B-04-SD Page 27
02-B-04-LP, Objective I.B.2.c

KA 011000A211 [3.4/3.6]

Both RO and SRO

011000A211 ..(KA's)

ANSWER: 048 (1.00)

c.

REFERENCE:

02-B-03-SD1, Revision 3, Page 29
02-B-03-LP1, Revision 3, Objective I.B.2.d

KA 012000K201 [3.3/3.7]

Both RO and SRO

012000K201 ..(KA's)

ANSWER: 049 (1.00)

a.

REFERENCE:

02-B05-LP, T.O. #00.00, E.O. #-8, EQ #1
02-B-05-LP1, Revision 4, Objective I.B.2.g.9

KA 016000K304 [2.6/2.7]

RO only

016000K304 ..(KA's)

ANSWER: 050 (1.00)

b.

REFERENCE:

02-F-01-SD2, Revision 3, Pages 45 and 46
02-F-01-LP, Revision 2, Objective I.B.2.b.2.n

KA 028000K601 [2.6/3.1]

Both RO and SRO

.8000K601 ..(KA's)

MASTER

ANSWER: 051 (1.00)

c.

REFERENCE:

02-F-01-SD1, Revision 3, Page 10
02-F-01-LP, Revision 2, Objective I.B.2.f.14

KA 029000K403 [3.2/3.5]

Both RO and SRO

029000K403 ..(KA's)

ANSWER: 052 (1.00)

a.

REFERENCE:

02-D-LP, Revision 2, Objective I.B.2.a
02-D-08-SD, Revision 5, Page 16

KA 033000K102 [2.5/2.7]

Both RO and SRO

033000K102 ..(KA's)

ANSWER: 053 (1.00)

c.

MASTER

REFERENCE:

02-A-14-SD, Revision 5, Page 53
02-A-14-LP, Revision 4, Objective I.B.2.c.2

KA 034000A102 [2.9/3.7]

Both RO and SRO

034000A102 ..(KA's)

ANSWER: 054 (1.00)

d.

REFERENCE:

OI 8-9, Revision 9, Page 4, Para. 4.0
02-A-04-LP, Revision 2, Objective 1.2.2.I.1

KA 035000G010 [3.2/3.4]

Both RO and SRO

035000G010 ..(KA's)

ANSWER: 055 (1.00)

a.

REFERENCE:

02-E01-LP, T.O. #00.00, E.O. # 8, EQ #1
02-E-01-LP, Revision 3, Objective I.B.2.d.2

KA 039000A105 [3.2/3.3]

RO only

039000A105 ..(KA's)

MASTER

ANSWER: 056 (1.00)

a.

REFERENCE:

02-A-13-SD, Revision 5, Page 44
02-A-13-LP, Revision 4, Objective I.B.2.b.16

KA 064000A306 [3.3/3.4]

Both RO and SRO

064000A306 ..(KA's)

ANSWER: 057 (1.00)

d.

REFERENCE:

02-J-09-SD, Revision 3, Page 14
02-J-09-LP, Revision 4, Objective I.B.2.C.3

KA 073000A402 [3.7/3.7]

Both RO and SRO

073000A402 ..(KA's)

ANSWER: 058 (1.00)

c.

MASTER

REFERENCE:

02-I-04-SD, Revision 7, Page 21
02-I-04-LP1, Revision 5, Objective I.B.2.b.2.h

KA 086000K604 [2.6/2.9]

RO only

086000K604 ..(KA's)

ANSWER: 059 (1.00)

a.

REFERENCE:

02-A-08-LP, Revision 5, Objective I.B.2.k.1
OI 4-1, Revision 32, Page 3, para. 2.4.1.a. and 2.4.1.b.

KA 005000G010 [3.3/3.5]

Both RO and SRO

005000G010 ..(KA's)

ANSWER: 060 (1.00)

c.

REFERENCE:

02-B06-LP, T.O. # 00.00, E.O. # 36, EQ #1
02-B-06-LP1, Revision 4, Objective I.B.2.c.5

KA 041020A102 [3.1/3.2]

Both RO and SRO

041020A102 ..(KA's)

MASTER

ANSWER: 061 (1.00)

b.

REFERENCE:

02-A-13-SD, Revision 5, Page 43
02-C-01-LP, Revision 2, Objective I.B.2.i.1

KA 045000A304 [3.4/3.6]

Both RO and SRO

045000A304 ..(KA's)

ANSWER: 062 (1.00)

b.

REFERENCE:

02-A10-LP, T.O. #00.00, E.O. #35, EQ #2
02-A-10-LP, Revision 6, Objective I.B.2.g.1, I.B.2.g.13

KA 076000K101 [3.4/3.3]

RO only

076000K101 ..(KA's)

ANSWER: 063 (1.00)

c.

MASTER

REFERENCE:

OI 4-3, Revision 32, Page 4, Para. 2.17.3
02-A-10-LP, Revision 6, Objective I.B.2.i.1

KA 076000K402 [2.9/3.2]

RO only

076000K402 ..(KA's)

ANSWER: 064 (1.00)

a.

REFERENCE:

02-A-06-LP, Revision 7, Objective I.B.2.i.10
02-A-06-SD, Revision 7, Page 19
ONI-51, Revision 6, Page 4, Para 5.1

KA 078000K302 [3.4/3.6]

Both RO and SRO

078000K302 ..(KA's)

ANSWER: 065 (1.00)

b.

REFERENCE:

ONI , Revision 5, Page 37, Step 15.1.1

KA 000001A205 [4.4/4.6]

Both RO and SRO

000001A205 ..(KA's)

MASTER

ANSWER: 066 (1.00)

d.

REFERENCE:

02-B-09-LP, Objective I.B.2.i.1
ONI 2-4, Revision 7, Page 6, Para 4.2.3.a

KA 000003K103 [3.5/3.8]

Both RO and SRO

000003K103 ..(KA's)

ANSWER: 067 (1.00)

b.

REFERENCE:

02-B-09-SD, Page 48
02-B-09-LP, Page 32, Objective I.B.2.i.1

KA 000003A203 [3.6/3.8]

Both RO and SRO

000003A203 ..(KA's)

ANSWER: 068 (1.00)

c.

MASTER

REFERENCE:

ONI 2-4, pg. 15
02-B-10-SD, Revision 2, page 24
02-B-10-LP, Revision 2, page 6, Objective 2.j.1
Technical Specification 3.1.3.2.b

KA 000005G008 [3.1/3.8]

RO only

000005G008 ..(KA's)

ANSWER: 069 (1.00)

a.

REFERENCE:

02-K-13-LP, Revision 3, Objective I.B.2.d.1 and 3
02-K-13-LP, Revision 3, Page 44

KA 000011K313 [3.8/4.2]

Both RO and SRO

000011K313 ..(KA's)

ANSWER: 070 (1.00)

d.

REFERENCE:

Reference Page for EI-0 Series Procedures

KA 000011A103 [4.0/4.0]

Both RO and SRO

000011A103 ..(KA's)

ANSWER: 071 (1.00)

b.

REFERENCE:

02-A-02-LP, Objective I.B.2.4.5
ONI 3-4, Revision 1, Page 20, Para. 14.2.1.a.

KA 000015A210 [3.7/3.7]

Both RO and SRO

000015A210 ..(KA's)

ANSWER: 072 (1.00)

d.

REFERENCE:

ONI-10, Revision 6, Page 2, Step D.3

KA 000024A117 [3.9/3.9]

Both RO and SRO

000024A117 ..(KA's)

ANSWER: 073 (1.00)

a.

MASTER

REFERENCE:

ONI-10, Revision 6, Page 1, Step A.2.c.

KA 000024G011 [3.8/3.9]

Both RO and SRO

000024G011 ..(KA's)

ANSWER: 074 (1.00)

d.

REFERENCE:

02-A-11-LP, Objective I.B.2.j.1
ONI 4-2, Revision 3, Page 13, Note 6.2.1

KA 000026G007 [3.1/3.2]

Both RO and SRO

000026G007 ..(KA's)

ANSWER: 075 (1.00)

a.

REFERENCE:

02-K-16-LP, Revision 5, Page 3
02-K-16-LP, Revision 5, Objective I.B.2.a

KA 000029K312 [4.4/4.7]

Both RO and SRO

000029K312 ..(KA's)

ANSWER: 076 (1.00)

b.

REFERENCE:

EI-1 Background, Page 10

KA 000040K304 [4.5/4.7]

RO only

000040K304 ..(KA's)

ANSWER: 077 (1.00)

b.

REFERENCE:

ONI-26, Revision 7, Page 2, Para. 3.3

KA 000051A202 [3.9/4.1]

RO only

000051A202 ..(KA's)

ANSWER: 078 (1.00)

c.

REFERENCE:

RTEXAM6A, Page 17, ID Number 000-055-004

KA 000055K102 [4.1/4.4]

RO only

000055K102 ..(KA's)

ANSWER: 079 (1.00)

d.

REFERENCE:

02-K-22-LP, Revision 2, Objective I.B.2
ECA-0.0 Background, Page 32

KA 000055K302 [4.3/4.5]

RO only

000055K302 ..(KA's)

ANSWER: 080 (1.00)

a.

REFERENCE:

ONI 1-7, Revision 0, Page 6, Para. 3.2.1

KA 000057G010 [3.6/3.7]

Both RO and SRO

000057G010 ..(KA's)

MASTER

ANSWER: 081 (1.00)

d.

REFERENCE:

02-K-09-HO, Revision 2, Figure 4
02-K-09-LP, Objective I.B.2.a.2
EFP-0, Revision 15, Page 2

KA 000067G002 [3.2/4.1]

Both RO and SRO

000067G002 ..(KA's)

ANSWER: 082 (1.00)

b.

REFERENCE:

ONI 17, Revision 15, Page 7, Para. 10.a

KA 000068K202 [3.7/3.9]

Both RO and SRO

000068K202 ..(KA's)

ANSWER: 083 (1.00)

b.

REFERENCE:

02-K-20-LP, Revision 1, Objective I.B.2.e
FR-Z.1 Background, Page 4

KA 000069K301 [3.8/4.2]

Both RO and SRO

000069K301 ..(KA's)

ANSWER: 084 (1.00)

d.

REFERENCE:

FR-C.1, Response to Inadequate Core Cooling, Steps 1 and 2
02-K-17-LP, Objective I.B.2.h

KA 000074K305 [4.2/4.5]

Both RO and SRO

000074K305 ..(KA's)

ANSWER: 085 (1.00)

c.

REFERENCE:

Functional Restoration Instruction, FR-0, CSFST, Page 3, Para 8
02-K-04-LP, Objective I.B.2.g

KA 000074G011 [4.5/4.6]

Both RO and SRO

000074G011 ..(KA's)

ANSWER: 086 (1.00)

c.

REFERENCE:

Technical Specification 3.4.6.2

KA 000008G008 [3.1/3.5]

Both RO and SRO

000008G008 ..(KA's)

ANSWER: 087 (1.00)

a.

REFERENCE:

02-K-13-LP, Revision 3, Objective I.B.2.a.3.4
02-K-13-LP, Revision 3, Pages 12 and 13

KA 000009K101 [4.2/4.7]

Both RO and SRO

000009K101 ..(KA's)

ANSWER: 088 (1.00)

d.

MASTER

REFERENCE:

ONI-11, Revision 6, Page 5, Para. C.2.0

KA 000022G009 [3.2/3.2]

RO only

000022G009 ..(KA's)

ANSWER: 089 (1.00)

b.

REFERENCE:

Trojan ONI 4-1, Revision 6, Pages 18 through 24

KA 000025K101 [3.9/4.3]

Both RO and SRO

000025K101 ..(KA's)

ANSWER: 090 (1.00)

a.

REFERENCE:

ONI-36, Revision 16, Page 8, Para. 4.2.2

KA 000027A206 [3.5/3.9]

Both RO and SRO

000027A206 ..(KA's)

MASTER

ANSWER: 091 (1.00)

c.

REFERENCE:

Technical Specification 3.3.1

KA 000032G008 [2.8/3.3]

Both RO and SRO

000032G008 ..(KA's)

ANSWER: 092 (1.00)

a.

REFERENCE:

02-B-07-LP1, Revision 4, Objective I.B.2.5.1
ONI-16, Revision 9, Page 3, Para. 3.4.3.3

KA 000032G010 [2.9/3.1]

Both RO and SRO

000032G010 ..(KA's)

ANSWER: 093 (1.00)

b.

MASTER

REFERENCE:

02-B-07-LP1, Revision 4, Objective I.B.2.f.2
02-B-07-SD2, Revision 4, Figure 8

KA 000033A202 [3.3/3.6]

Both RO and SRO

000033A202 ..(KA's)

ANSWER: 094 (1.00)

b.

REFERENCE:

02-B-07-LP1, Revision 4, Objective I.B.2.j.1
ONI-16, Revision 9, Page 4, Para. 4.4.1.1.1

KA 000033A210 [3.1/3.8]

Both RO and SRO

000033A210 ..(KA's)

ANSWER: 095 (1.00)

c.

REFERENCE:

02-E-12-LP, Objective I.B.2.j.1.b
ONI-23, Loss of One Feedwater Pumps, Step D

KA 000054K304 [4.4/4.6]

Both RO and SRO

000054K304 ..(KA's)

MASTER

ANSWER: 096 (1.00)

d.

REFERENCE:

02-K-18-LP, Objective I.B.2.a.3
FR-0 Background Information, Pages 21 & 22

KA 000054G011 [3.4/3.3]

Both RO and SRO

000054G011 ..(KA's)

ANSWER: 097 (1.00)

a.

REFERENCE:

02-C-07-SD, Revision 5, Page 9

KA 000058K301 [3.4/3.7]

RO only

000058K301 ..(KA's)

ANSWER: 098 (1.00)

b.

MASTER

REFERENCE:

ONI-51, Revision 6, Page 4, Para. 5.1.1

KA 000065K303 [2.9/3.4]

Both RO and SRO

000065K303 ..(KA's)

ANSWER: 099 (1.00)

b.

REFERENCE:

ONI 2-6, Revision 5, page 29, Para. 12.2.1 and 12.2.2

KA 000028G010 [3.5/3.7]

RO only

000028G010 ..(KA's)

ANSWER: 100 (1.00)

b.

REFERENCE:

ONI-42, Revision 6, Page 4, Para. 3.3.1

KA 000056K302 [4.4/4.7]

Both RO and SRO

000056K302 ..(KA's)

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

A N S W E R K E Y

MULTIPLE CHOICE

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

ANSWER KEY

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

ANSWER KEY

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

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

A N S W E R   K E Y

MULTIPLE CHOICE

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

MASTER

ANSWER KEY

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

MASTER

A N S W E R   K E Y

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

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

MASTER

S R O Exam P W R Reactor

Organized by Question Number

	QUESTION	VALUE	REFERENCE
	001	1.00	9000261
	002	1.00	9000262
	003	1.00	9000263
	004	1.00	9000265
	005	1.00	9000266
	006	1.00	9000267
	007	1.00	9000268
	008	1.00	9000269
	009	1.00	9000271
	010	1.00	9000272
	011	1.00	9000273
	012	1.00	9000274
	013	1.00	9000275
	014	1.00	9000276
	015	1.00	9000277
	016	1.00	9000278
	017	1.00	9000279
	018	1.00	9000281
	019	1.00	9000284
RO#17	020	1.00	9000285
	021	1.00	9000287
	022	1.00	9000288
	023	1.00	9000289
	024	1.00	9000291
	025	1.00	9000293
RO#26	026	1.00	9000294
RO#27	027	1.00	9000295
	028	1.00	9000296
	029	1.00	9000297
	030	1.00	9000298
	031	1.00	9000299
	032	1.00	9000300
	033	1.00	9000303
	034	1.00	9000305
	035	1.00	9000307
RO#39	036	1.00	9000308
	037	1.00	9000310
	038	1.00	9000312
	039	1.00	9000313
	040	1.00	9000314
	041	1.00	9000315
	042	1.00	9000316
	043	1.00	9000317
	044	1.00	9000318
	045	1.00	9000319
	046	1.00	9000321
	047	1.00	9000322
	048	1.00	9000323
RO#52	049	1.00	9000324

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

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

QUESTION	VALUE	REFERENCE
050	1.00	9000325
051	1.00	9000326
052	1.00	9000328
053	1.00	9000329
054	1.00	9000331
055	1.00	9000332
056	1.00	9000333
057	1.00	9000336
058	1.00	9000337
059	1.00	9000338
060	1.00	9000339
061	1.00	9000340
062	1.00	9000341
063	1.00	9000342
064	1.00	9000343
065	1.00	9000345
066	1.00	9000346
067	1.00	9000347
068	1.00	9000348
069	1.00	9000349
070	1.00	9000350
RO# 73 - 071	1.00	9000351
072	1.00	9000352
073	1.00	9000353
074	1.00	9000356
075	1.00	9000359
076	1.00	9000360
077	1.00	9000361
078	1.00	9000362
079	1.00	9000363
080	1.00	9000364
081	1.00	9000365
082	1.00	9000366
083	1.00	9000367
084	1.00	9000368
085	1.00	9000370
RO# 90 - 086	1.00	9000371
087	1.00	9000372
088	1.00	9000373
089	1.00	9000374
090	1.00	9000375
091	1.00	9000376
092	1.00	9000377
093	1.00	9000378
094	1.00	9000379
095	1.00	9000381
096	1.00	9000382
097	1.00	9000383
098	1.00	9000384

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

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

QUESTION	VALUE	REFERENCE
099	1.00	9000386
RO# 100–100	1.00	9000387

	100.00	

	100.00	

U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
SENIOR OPERATOR LICENSE
REGION 5

CANDIDATE'S NAME: ________________

FACILITY: Trojan

REACTOR TYPE: PWR-WEC4

DATE ADMINISTERED: 92/07/06

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

MASTER

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

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

MULTIPLE CHOICE

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

MASTER

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

046 a b c d ____
047 a b c d ____
048 a b c d ____
049 a b c d ____
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082 a b c d ____
083 a b c d ____
084 a b c d ____
085 a b c d ____
086 a b c d ____
087 a b c d ____
088 a b c d ____
089 a b c d ____
090 a b c d ____
091 a b c d ____

MASTER

ANSWER SHEET

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 ____

MASTER

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

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

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

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

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

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

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

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

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

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

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

10. Show all calculations, methods, or assumptions used to obtain an answer to any short answer questions.

11. Partial credit may be given except on multiple choice questions. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK.

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

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

MASTER

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

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

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

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

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

MASTER

QUESTION: 001 (1.0C)

An independent verifier found a valve, required to be closed, that was fully open (tight on the backseat). The independent verifier closed the valve after notifying the Shift Manager. Which ONE [1] of the following actions should be taken?

a. Initiate a double verification check of the entire redundant system.

b. Reposition the valve back to the initial position.

c. Perform another independent verification of valve position.

d. Direct the independent verifier to reverify the position of the valve.

MASTER

QUESTION: 002 (1.00)

Which ONE [1] of the following persons, by position, may authorize repositioning a locked valve?

a. Control Operator.

b. Shift Supervisor.

c. Shift Technical Advisor.

d. Operations Branch Manager.

QUESTION: 003 (1.00)

During a clearance, if the normal boundary valve fails and an air-to-close valve is used as a boundary valve, which ONE [1] of the following actions must be taken?

a. Close the valve; then danger tag the air supply valve shut.

b. Danger tag the closing air supply shut and danger tag the opening vent valve open.

c. Install a temporary air supply to insure closing air will be available.

d. Lock the valve closed with a blocking device and danger tag the device.

MASTER

QUESTION: 004 (1.00)

The radiation level at the boundary to an area is 31 rem per hour. Which ONE [1] of the following is responsible for authorizing access into the area?

a. The Cor*rol Operator.

b. The Shift Technical Advisor.

c. The Health Physics Supervisor.

d. The Duty Plant General Manager.

MASTER

QUESTION: 005 (1.00)

When entering a High Radiation Exclusion Area, which ONE [1] of the following is responsible for ensuring all procedures and safeguards are followed?

a. Individual requesting access.

b. Control Operator.

c. Shift Manager.

d. Plant General Manager.

QUESTION: 006 (1.00)

Which ONE [1] of the following actions is used to verify an individual's identity prior to issuing manual security keys?

a. Compare the requestor with his card key photograph and contact Security to check the current authorization list.

b. Compare requestor with his card key photograph and verify that the requestor is listed on the Shift Manager's authorization list.

c. If the requestor is known then the key may be issued as desired.

d. If the requestor is known then the key may be issued if the requestor is listed on the Shift Manager's key authorization list.

QUESTION: 007 (1.00)

Which ONE [1] of the following identifies the two [2] individuals having the authority to modify or suspend security measures?

a. Shift Technical Advisor and Shift Manager.

b. Duty Plant General Manager and Shift Manager.

c. Duty Plant General Manager and Duty Security Manager.

d. Duty Operations Manager and Duty Security Manager.

MASTER

QUESTION: 008 (1.00)

If it is not possible to drain and depressurize a system having fluid at 180 degrees F and 80 psi, which ONE [1] of the following describes the action required before work begins?

a. Shift Manager approval must be obtained because the system is pressurized greater than 50 psi.

b. Shift Manager approval must be obtained because the fluid temperature is greater than 135 degrees F.

c. Plant General Manager approval is required because the system is pressurized greater than 75 psi.

d. Duty Plant General Manager approval is required because the fluid temperature is greater than 150 degrees F.

QUESTION: 009 (1.00)

Which ONE [1] of the following persons is responsible for maintaining a copy of active Confined Area Entry Permits [CAEPs]?

a. Assistant Control Operator.

b. Shift Manager.

c. Shift Technical Advisor.

d. Planning Supervisor.

MASTER

QUESTION: 010 (1.00)

Which ONE [1] of the following classes of fire are the Wheeled Dry Chemical extinguisher units primarily designed to extinguish?

a. Class A.

b. Class B.

c. Class C.

d. Class D.

QUESTION: 011 (1.00)

Which ONE [1] of the following actions is taken if a fire hose is removed from service to be used to pump tanks during maintenance?

a. Paint the fittings black and stencil the hose "Maintenance Use Only."

b. Paint the fittings yellow and stencil the hose "Tank Draining."

c. Install fittings with reverse threads and stencil with words "work hose".

d. Stencil with words "work hose" or remove at least one fitting.

MASTER

QUESTION: 012 (1.00)

When performing operations in accordance with Emergency Operating Procedures, which ONE [1] of the following describes how to determine if the action sequence is important?

a. If the sequence is important, the expected response will be capitalized.

b. If the sequence is important, the action will be in italics.

c. If the sequence is NOT important, the expected response will be designated by numbers.

d. If the sequence is NOT important, subtasks are designated by bullets.

MASTER

QUESTION: 013 (1.00)

Which ONE [1] of the following statements describe a situation where a licensed operator is permitted to deviate from Technical Specifications?

a. Following a Reactor Trip when the Shift Manager judges the deviation is more conservative and following an instrument failure with a subsequent trip when the Shift Manager judges the deviation will minimize equipment damage.

b. Following a Reactor Trip when the Shift Manager judges the EOPs are inadequate and following an instrument failure when the Shift Manager judges the deviation is necessary to maintain the plant at power.

c. Following a Reactor Trip when the Shift Manager judges the deviation is more conservative.

d. Following a Reactor Trip when the Shift Manager judges the EOPs are inadequate.

MASTER

QUESTION: 014 (1.00)

An operator on your shift has the following work history:

6/30/92	8 hours work + 0.5 hour turnover
7/1/92	12 hours work + 1 hour turnover
7/2/92	12 hours work + 1 hour turnover
7/3/92	8 hours work + 0.5 hour turnover
7/4/92	8 hours work + 0.5 hour turnover
7/5/92	14 hours work + 0.5 hour turnover

Assuming a 30 minute turnover is performed, which ONE of the following work limits must be applied for the operator on 7/6/92?

a. 8 hours.

b. 9 hours.

c. 10 hours.

d. 11 hours.

MASTER

QUESTION: 015 (1.00)

If an injury has occurred in a Radiologically Controlled Area, which ONE [1] of the following is called to request an ambulance?

a. Security Watch Supervisor and Load Dispatch.

b. Radiation protection and Shift Technical Advisor.

c. Radiation protection and chemistry personnel.

d. Shift Manager and Duty Operations Manager.

QUESTION: 016 (1.00)

Which ONE [1] of the following Emergency Communications Systems is intended to facilitate emergency command and control communications?

a. The green color coded [SS-1] system.

b. The brown color coded [SS-2] system.

c. The orange color coded [SS-3] system.

d. The gray color coded [SS-4] system.

MASTER

QUESTION: 017 (1.00)

If you are the Shift Manager [Emergency Coordinator], which ONE [1] of the following intervals describe the frequency for determining if additional Protective Action Recommendations [PARs] are required after the initial PARs were determined?

a. 15 minutes.

b. 30 minutes.

c. 45 minutes.

d. 60 minutes.

MASTER

QUESTION: 018 (1.00)

Which ONE (1) of the following descriptions explains why a 125 Vdc and a 70 Vdc power supplies are used in the DC Hold Cabinet?

a. The 70 Vdc is used to latch the grippers and the 125 Vdc is used to hold the grippers.

b. The grippers are latched by adding the 125 Vdc and 70 Vdc then the 125 Vdc is used to hold the grippers.

c. 125 Vdc is used to latch the grippers and 70 Vdc is used to hold the grippers.

d. 125 Vdc is used to latch the grippers and 70 Vdc is used to hold the grippers when raising or lowering the control rods.

MASTER

QUESTION: 019 (1.00)

If an electrical problem has been discovered with a control rod, which ONE [1] of the following statements describes the criteria for considering the control rod to be trippable?

a. The rod drop time was less than 3.3 seconds when last tested and the rod is within 12 steps of the other rods in the group.

b. The rod drop time criteria was satisfied when last tested and movement of at least 10 steps outward occurred 3 days ago.

c. Inward movement by at least 10 steps 31 days ago and the rod is within 12 steps of the other rods in the group.

d. Movement verified by in core flux map and rod is within 12 steps of the other rods in the group.

MASTER

QUESTION: 020 (1.00)

Which ONE [1] of the following reasons explains why a Reactor Coolant Pump #1 seal bypass valve should NEVER be opened during normal operation?

a. May have high leakoff from the #1 seal due to pressure transients on the #2 seal leakoff line.

b. Excessive delta P will exist across the #2 seal due to flow oscillations in the #2 seal leakoff line.

c. Thermal shocking the pump shaft and seals due to the limited capacity of the thermal barrier heat exchanger.

d. Increased flow in the seal leakoff line will cause excessive backpressure on the #2 seal.

QUESTION: 021 (1.00)

Which ONE [1] of the following statements explains why a Reactor Coolant Pump [RCP] should be running when any RCS cold leg is equal to or greater than 160 degrees F?

a. Ensures the assumptions made in the low temperature over pressure safety analysis are met.

b. Ensures seal packages will not experience thermal shock when the pump is started.

c. Ensures pressurizer spray flow will prevent thermal shock in the pressurizer spray line.

d. Ensures boron concentration in the pressurizer and the Reactor Coolant System will be equalized with pressurizer spray flow.

MASTER

QUESTION: 022 (1.00)

At BOL the plant is operating at 100% power with all systems operable when Control Rod Bank "D" starts stepping in slowly but at a noticeable rate. Which ONE [1] of the following events will cause this response?

a. RCP seal water return is lined up to the CCP suction and not the VCT.

b. The boron concentration in the blended makeup to the VCT is greater than the RCS concentration.

c. The mixed bed demineralizer is becoming exhausted.

d. A leak has developed in the tube bundle of the Seal Water Heat Exchanger.

MASTER

UESTION: 023 (1.00)

If Motor Control Center bus B25 is destroyed by fire, which ONE [1] of the following components will be lost?

a. Primary Makeup Water Pump P-219A.

b. Battery Charger #4.

c. Pressurizer Heaters, Backup Group A.

d. Boric Acid Transfer Pump B Decouple Switch.

QUESTION: 024 (1.00)

Which ONE [1] of the following statements describes the operation of the DBA Sequencers for the 4.16 KV vital buses [A-1 and A-2]?

a. They initiate timing functions to start the diesel generators and sequentially load the A-1 and A-2 buses.

b. They initiate their timing functions when the Train A and Train B sequencer slave relays energize.

c. They sequentially start the turbine driven and diesel driven auxiliary feedwater pumps at time zero and then start the Centrifugal Charging Pumps 2.0 seconds later.

d. They initiate containment isolation and start the Containment Spray Pumps [if hi-hi pressure signal is present].

MASTER

QUESTION: 025 (1.00)

The reactor is operating at 8% power when Intermediate Range Nuclear Instrument Channel N-35 fails LOW. Which ONE [1] of the following responses will occur?

a. "REACTOR TRIP FROM POWER RANGE LO SETPOINT" Alarms.

b. "IR COMP VOLTAGE FAILURE" Alarms.

c. Source range audible count rate increases.

d. P-6 for N-35 bistable status light goes out.

MASTER

QUESTION: 026 (1.00)

The following readings were noted on the Power Range and Intermediate Range Channels

N-35 @ 5 x 10E-5
N-36 @ 8 x 10E-6
N-41 @ 8.5%
N-42 @ 9%
N-43 @ 8.5%
N-44 @ 9%

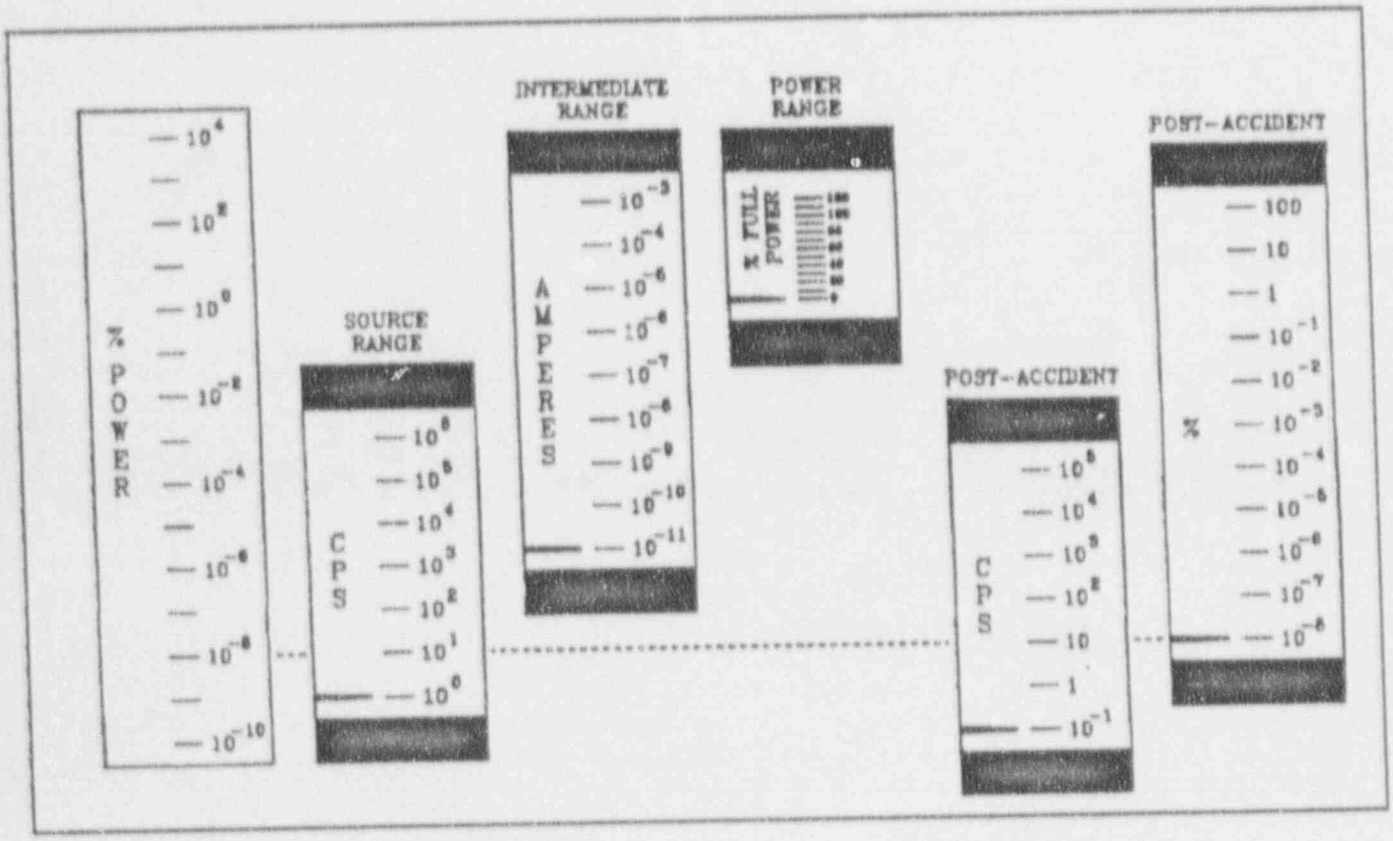
Which ONE [1] of the following describes the problem indicated by these readings? [See figure below]

a. N-35 reading high for current conditions.

b. N-36 reading low for current conditions.

c. N-41 and N-43 adjusted improperly during last calorimetric.

d. N-42 and N-44 adjusted improperly during last calorimetric.



QUESTION: 027 (1.00)

The reactor is operating at 100% power when digital rod position indication is lost.

Which ONE [1] of the following combinations of methods [listed below] would be used to verify the position of an individual rod?

1. Thermocouples
2. Excore detectors
3. Rod deviation alarm
4. Moveable incore detectors
5. P-250 Plant Computer

Select ONE [1] combination.

a. 1, 2, 4.

b. 1, 3, 4.

c. 2, 3, 5.

d. 2, 4, 5.

QUESTION: 028 (1.00)

During a plant shutdown the control rods were being inserted when the operator noted N-35 reading 3x10E-9 amps and N-36 reading 2x10E-11 amps. The operator immediately went to RESET on the manual switches for the source ranges. Which ONE [1] of the following conditions would cause a SR HIGH FLUX reactor trip to occur?

a. N-35 being properly compensated and N-36 being overcompensated.

b. N-35 being overcompensated and N-36 being properly compensated.

c. N-35 being properly compensated and N-36 being undercompensated.

d. N-35 being undercompensated and N-36 being properly compensated.

MASTER

QUESTION: 029 (1.00)

If the incore thermocouples are out of service, which ONE [1] of the following sets of plant parameters indicates that natural circulation cooling has been established?

a. Wide range Th 540 degrees F with a T-cold of 550 degrees F.

b. Wide range Th 575 degrees F with an RCS pressure of 1400 psig.

c. Wide range Th 590 degrees F with a T-cold of 530 degrees F.

d. Wide range Th 630 degrees F with a steam generator pressure of 1100 psig.

MASTER

QUESTION: 030 (1.00)

Which ONE [1] of the following statements describes how containment spray is realigned during a Post-LOCA swapover from the initial phase of containment spray [CS] to the recirculation phase?

a. The CS pumps trip on lo-lo RWST level, and the CS pump suction valves are remotely realigned.

b. The CS pumps automatically swapover to the containment sump upon a lo-lo RWST level signal.

c. The CS pump suction valves automatically realign with remote operation of the RHR suction valves.

d. The CS pumps trip on lo-lo RWST level, and the CS suction valves automatically realign with remote operation of the RHR suction valves.

QUESTION: 031 (1.00)

A reactor startup is in progress with reactor power at 10,000 counts per second. If the containment spray additive tank level is 2900 gallons, which ONE [1] of the following actions is required to be taken?

a. Trip the reactor and enter E-0, Reactor Trip or Safety Injection.

b. Stabilize reactor power at 8% - 9% and immediately restore spray additive tank level to greater than 3100 gallons.

c. Continue the reactor startup but verify that the spray additive tank has a minimum of 3000 gallons prior to exceeding 5% power.

d. Discontinue the startup and immediately reduce spray additive tank level to less than 2500 gallons.

QUESTION: 032 (1.00)

The plant has just tripped from full power because of a large break LOCA. Safety Injection and Containment Isolation [CIS] Phases A and B have actuated. All systems are operable.

Which ONE [1] of the following responses describes the changes that occur in the Containment Air Cooler System [CACS]?

a. CACS fans in AUTO are started by the DBA sequencer, and the cooling water flow increases as the orifice bypass valves open.

b. Phase B CIS trips the CACS fans and isolates the cooling water supply.

c. CACS fans in AUTO or PTL are automatically started, and cooling water flow increases as additional cooling pumps are started.

d. CACS fans in AUTO are automatically started, and Phase A CIS isolates CACS cooling water.

QUESTION: 033 (1.00)

Which ONE [1] of the following statements describes the reason for supplying 426 gpm total AFW flow within 60 seconds of the accident initiation?

a. Provide a heat sink in the event of a design basis loss of coolant accident.

b. Prevent uncovering of the steam generator tubes following a loss of Main Feedwater coincident with a loss of offsite power.

c. Prevent excessive temperature rise and resultant core damage in the event of a loss of offsite power.

d. Prevent overpressurization of the reactor coolant system during a coincident and total loss of normal and preferred power.

MASTER

QUESTION: 034 (1.00)

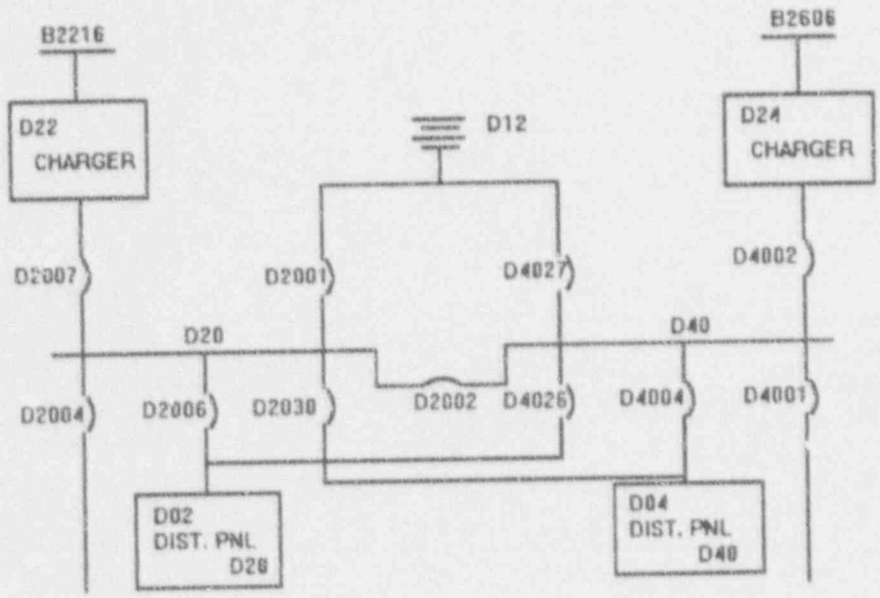
If the Ground Current Recorder on 125 Vdc Control Center D20/D40 indicates -100 V with the D22 charger in service, which ONE [1] of the following statements describes how the location of the ground is determined? [See drawing below]

a. Open the battery breaker associated with the D24 charger; if the ground goes away the ground is on battery D12.

b. Open the battery breaker associated with the D24 charger; if the ground goes away the ground is on the D20 bus or the battery D12.

c. Open the battery breaker associated with the D22 charger; if the ground goes away the ground is on the D20 bus.

d. Open the battery breaker associated with the D22 charger; if the ground goes away the ground is on the D40 bus or the battery D12.



MASTER

QUESTION: 035 (1.00)

Which ONE [1] of the following positions must grant permission to transfer dirty waste from the Dirty Waste Drain Tank to the Clean Waste Receiver Tank?

a. Unit Supervisor - Radioactive Waste.

b. Auxiliary Operator.

c. Shift Manager.

d. Operations Manager.

MASTER

QUESTION: 036 (1.00)

If Radiation Element PERM-14 is operating erratically, which ONE [1] of the following actions must be performed immediately?

a. Close Containment Isolation Valve MO-4180 and start the North Containment Sump Pump at C-19.

b. Place both Containment Sump Pumps in off at C-19.

c. Close both Containment Isolation Valves [MO-4180 and CV-4181] at C-19 and place both Containment Sump Pumps in PTL at C-151.

d. Close both Containment Isolation Valves [MO-4180 and CV-4181] at C-151 and place both Containment Sump Pumps in PTL at C-19.

QUESTION: 037 (1.00)

Which ONE [1] of the following statements describes why in-core thermocouples are monitored during natural circulation?

a. Differential pressure across the reactor core is excessive causing inadequate bypass RTD manifold flow.

b. Differential pressure across the reactor core is inadequate causing inadequate RTD bypass manifold flow.

c. Differential pressure across the reactor core is excessive causing excessive bypass RTD manifold flow.

d. Differential pressure across the reactor core is inadequate causing excessive RTD bypass manifold flow.

MASTER

QUESTION: 038 (1.00)

Which ONE [1] of the following statements is the BASIS for the Technical Specification 3.4.1.2.a requirement while in Mode 3, "With any control rod drive mechanism [CRDM] energized, all four reactor coolant loops shall be in operation"?

a. Single failure considerations require that four loops be operable.

b. Ensure that boron concentrations are equalized and produce gradual reactivity changes during boron concentration reduction in the Reactor Coolant System.

c. A loss of flow in two loops could cause a flow transient that could damage a CRDM if a CRDM test was in progress when the loss of flow occurred.

d. Ensures that the DNB design basis can be met for a bank withdrawal from subcritical or low power accident.

MASTER

QUESTION: 039 (1.00)

Which ONE [1] of the following interlocks must be satisfied before MO-8804A [RHR to CCP/SIP suction cross connect] can be opened?

a. SI miniflow recirculation valve [MO-8813 or MO-8814] must be closed.

b. Containment recirculation sump to RHR suction valve [MO-8811A] must be closed.

c. RHR suction from RCS Loop 4 hot leg valve [MO-8702] must be open.

d. RHR to CCP/SIP suction cross connect valve [MO-8804B] must be closed.

MASTER

QUESTION: 040 (1.00)

Which ONE [1] of the following statements provides the BASIS for Technical Specification 4.5.2 surveillance to verify that safety injection pump cold leg injection total head flow is less than or equal to 650 gpm?

a. Ensures excessive ECCS flow rate will not cause a loss of coolable core geometry.

b. Ensures excessive pressure drops will not be caused by high flow rates.

c. Ensures safety injection pump runout limit is not exceeded.

d. Ensures flow oscillations will not occur in the safety injection pump cold leg injection header.

MASTER

QUESTION: 041 (1.00)

Which ONE [1] of the following statements explains the BASIS for OI-5-2, Safety Injection, precaution "When in Modes 3, 2, 1; make level adjustments to one accumulator at a time"?

a. Prevent potential overpressurization of the Reactor Coolant System [RCS].

b. Prevent a single failure affecting the operability of more than one accumulator.

c. Could potentially place the plant in Technical Specification 3.0.3 statement.

d. Technical Specifications bases does not allow filling more than one accumulator at a time.

MASTER

QUESTION: 042 (1.00)

Which ONE [1] of the following statements describes the typical power source lineup for Pressurizer Heaters?

a. B09 supplies backup Group A and B10 supplies Group C.

b. B09 supplies Group C and B10 supplies backup Groups B and D.

c. Heater Group A has a LOCAL-REMOTE-DECOUPLE selector switch at B10 and Heater Group C has a LOCAL-REMOTE-DECOUPLE selector switch at both B09 and B10.

d. Heater Group B has a LOCAL-REMOTE-DECOUPLE selector switch at B09 and Heater Group A has a LOCAL-REMOTE-DECOUPLE selector switch at both B09 and B10.

MASTER

QUESTION: 043 (1.00)

Which ONE [1] of the following interlock conditions must be satisfied for Pressurizer Power Operated Relief Valve [PCV-455A] to OPEN in automatic?

a. Arming signal from CH 456.

b. Arming signal from CH 457.

c. Arming signal from CH 458.

d. Arming signal from PCV-455A block valve in OPEN position.

MASTER

QUESTION: 044 (1.00)

The following plant conditions exist:

- The reactor is at 100% power.
- Pressurizer level system is in automatic with Channel 459 selected for control.
- Pressurizer level Channel 459 fails LOW.

Which ONE [1] of the following describes the plant response without operator intervention?

a. Charging flow decreases.

b. Charging flow remains the same.

c. Reactor trips on high pressurizer level.

d. Reactor trips on low pressurizer pressure.

MASTER

QUESTION: 045 (1.00)

Which ONE [1] of the following statements describes the consequence of a failure of 120 VAC preferred instrument bus Y24?

a. Only Bus II [Y22] will be lost in Train A.

b. Only Bus III [Y13] will be lost in Train B.

c. A reactor trip will occur if the Train A slave relay power is lost.

d. A reactor trip will occur when the Train B Slave relay opens.

MASTER

QUESTION: 046 (1.00)

The following plant conditions exist:

- Reactor Power is 98%
- Rods are in AUTO
- SG water level control [SGWLC] is in AUTO
- Tavg is 584 degrees F

Which ONE [1] of the following conditions describes the effect on plant operation from a failure of controlling steam pressure transmitter (PT-514) low? (Assume NO operator action).

a. Increased steam flow input to SGWLC causes increased feed flow which results in P-14 permissive actuation on High SG level.

b. Increased steam flow input to SGWLC causes a decreased feed flow which results in SG swell.

c. Decreased steam flow input to SGWLC causes decreased feed flow which results in Reactor trip on LO-LO SG level.

d. Decreased steam flow input to SGWLC causes increased feed flow which results in Reactor trip on Hi-Hi SG level.

MASTER

QUESTION: 047 (1.00)

Which ONE [1] of the following percentages describes the maximum containment hydrogen concentration allowed during Hydrogen Recombiner operation?

a. 3.5%.

b. 4.0%.

c. 4.5%.

d. 5.0%.

QUESTION: 048 (1.00)

Which ONE [1] of the following signals will automatically isolate the Containment Purge System during functional testing?

a. Manual containment spray signal, containment spray actuation signal, and Phase A containment isolation signal.

b. Manual containment spray signal, containment spray actuation signal, and containment ventilation isolation signal.

c. Manual containment spray signal, Phase A containment isolation signal, and containment ventilation isolation signal.

d. Containment spray actuation signal, Phase A containment isolation signal, and containment ventilation isolation signal.

MASTER

QUESTION: 049 (1.00)

Which ONE [1] of the following statements describes why the Residual Heat Removal System [RHRS] is connected to the Spent Fuel Pool Cooling System [SFPCS]?

a. Supplement SFPC heat removal capacity if an entire core were unloaded into the pool during refueling.

b. The RHRS provides the normal flow path for the SFPC pumps to take a suction on the Refueling Water Storage Tank.

c. In the event that a failed fuel element is placed in the spent fuel pool, the RHRS provides increased purification flow through the purification filter and demineralizer.

d. The RHRS satisfies the single failure criteria for the SFPCS so that a redundant system did not have to be installed.

MASTER

QUESTION: 050 (1.00)

Which ONE [1] of the following sets of indications can be used to diagnose a loss of water level in the refueling canal?

a. Containment sump level decreasing and visual level indication.

b. Reduced frequency of sump pump starts and increasing radiation levels.

c. Low level alarms [Control Room] for the SFP and Reactor Cavity.

d. High level alarm in the SFP and increasing radiation levels.

MASTER

QUESTION: 051 (1.00)

When operating in accordance with OI 8-9, "Steam Generator Cold Layup", which ONE [1] of the following precautions is taken prior to draining a steam generator to less than 78% Wide Range/15% Narrow Range?

a. After chemicals are added, draining must be delayed for at least 1 hour to allow for complete mixing.

b. Reactor Coolant System temperature must be 160 degrees F to 180 degrees F.

c. Reactor Engineering concurrence must be obtained and documented in the Shift Supervisor Log.

d. The Auxiliary Feedwater pump auto start block switches shall be placed in the "Block" position.

MASTER

QUESTION: 052 (1.00)

If an Emergency Diesel Generator [EDG] trips after starting in response to an automatic start signal, which ONE [1] of the following statements explains why the EDG will not restart after resetting even though there may still be a demand to start?

a. As long as the auto start circuit is energized, the automatic start R3 relay cannot reset and further start commands cannot occur.

b. The automatic start R3 relay is not enabled until 15 seconds after the EDG trip; consequently the auto start circuit will be bypassed after resetting.

c. The automatic start R3 relay will initiate a start sequence, but since it is disabled by the 15 second timer, the fail to start relay will be actuated due to speed being less than 200 rpm.

d. The emergency shutdown relay and engine lockout relay were reset before the trip device limit switch was reset.

MASTER

QUESTION: 053 (1.00)

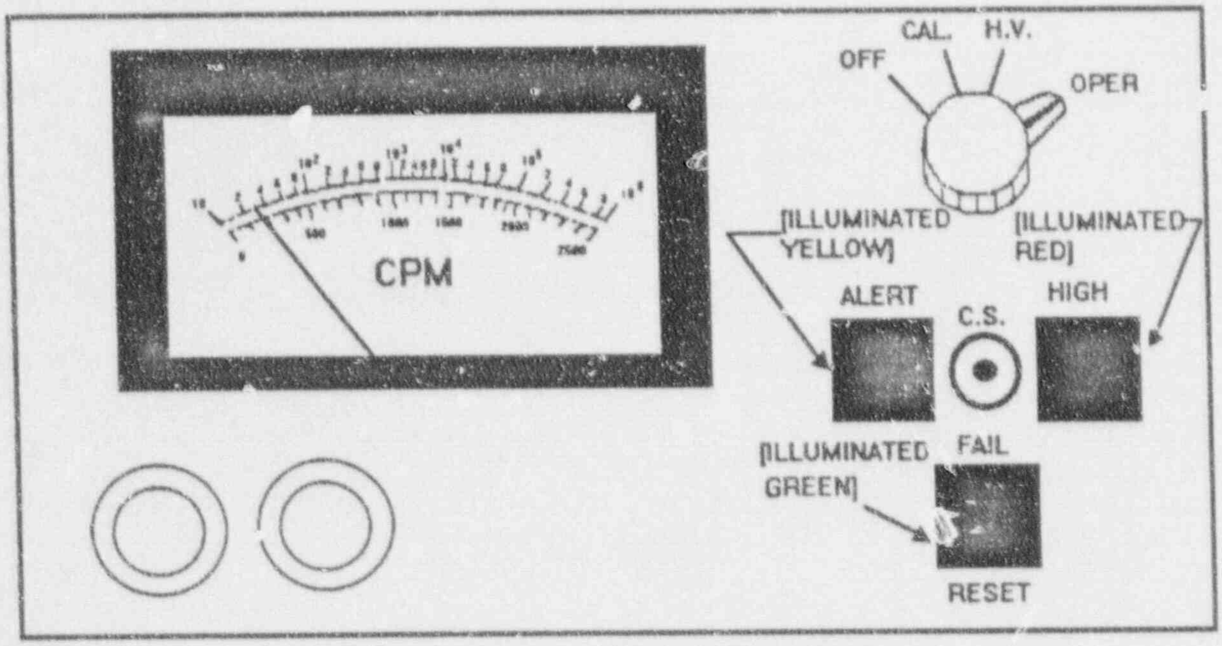
Refer to the PERMS LOG RATEMETER MODULE figure below. Which ONE [1] of the following statements explains the indications shown in the figure of the PERMS LOG RATEMETER?

a. A HIGH alarm has come in after the ALERT was acknowledged by depressing the ALERT light.

b. A HIGH alarm has come in after the ALERT was acknowledged by depressing the RESET light.

c. A fail condition exists.

d. The ALERT and HIGH setpoints were exceeded but have not been reset.



MASTER

QUESTION: 054 (1.00)

Which ONE [1] of the following statements explain [I] why RHR flow at 2,000 gpm should be avoided and [II] why RHR flows greater than 2,000 gpm are recommended whenever possible?

a. [I] Due to pe motor thrust bearing loads at this flow.
   [II] Minimize wear on the pumps.

b. [I] Due to maximum wear on the pumps at this flow.
   [II] Minimize motor thrust bearing loads.

c. [I] Minimize water hammer due to resonant frequency at this flow.
   [II] Heat exchanger vibrations may occur below 2,000 gpm flow.

d. [1] Due to heater bypass valve vibrations [strumming] concerns
   [II] Due to Residual Heat Removal Miniflow line limits.

MASTER

QUESTION: 055 (1.00)

While performing a plant startup just prior to synchronizing the main generator, steam header pressure sensor PT-507 fails LOW. Which ONE [1] of the following statements describes the plant response provided NO operator actions are taken?

a. Main Feedwater Pump speed INCREASES for the pump in automatic.

b. Main Feedwater Pump trips due to sensed excessive delta P.

c. Steam dump valves close if in automatic because pressure mode is selected.

d. Steam dump valves are NOT affected in automatic because TAVG mode is selected.

MASTER

QUESTION: 056 (1.00)

Which ONE [1] of the following actions will result from a trip of the main turbine?

a. Startup transformer is unloaded.

b. Output breakers to the EDGs will open.

c. Generator exciter current will increase.

d. Cooling group 2 fans for the main transformers will start.

QUESTION: 057 (1.00)

In the event of a loss of instrument air, which ONE [1] of the following describes how FCV-121, CCP Flow Control Valve, and HCV-182, Charging Header Flow Control Valve, respond?

a. FCV-121 fails open and HCV-182 fails open.

b. FCV-121 fails shut and HCV-182 fails open.

c. FCV-121 fails open and HCV-182 fails shut.

d. FCV-121 fails shut and HCV-182 fails shut.

MASTER

QUESTION: 058 (1.00)

Which ONE [1] of the following conditions will cause control rods to step out if the control rod mode selector switch is selected to automatic?

a. T-avg auctioneering circuit fails high.

b. Turbine First Stage Pressure Transmitter [PT-505] fails high.

c. Main Steam Bypass Header Pressure Transmitter [PT-507] fails low.

d. Loop 4 RCS Wide Range Temperature Element [TE-443A] fails high.

MASTER

QUESTION: 059 (1.00)

The following plant conditions exist:

- The Reactor is at 30% power with all systems operating normally.
- Control Bank D is at 126 steps.
- One [1] control bank D rod bottom LED is lit on DRPI.
- Another control bank D rod indicates 102 steps on DRPI.
- One [1] power range NI negative rate bistable picks up.
- The control rods begin stepping out.
- The Reactor does not trip.

Which ONE [1] of the following actions should be taken in response to these indications?

a. Trip the Reactor; a valid trip signal has failed to trip the Reactor.

b. Trip the Reactor; too many rods are excessively misaligned with control bank D.

c. Switch rod control to manual; adjust the control rods to match Tavg with Tref.

d. Switch rod control to manual; adjust turbine load to match Tavg with Tref.

MASTER

QUESTION: 060 (1.00)

The following plant conditions exist:

- Rod Position urgent failure alarm lighted.
- General Warning LED for rod F-6 lighted.
- Rod Bottom LED for rod F-6 lighted.
- Rod control in Manual.

Which ONE [1] of the following indications confirms the existence of a dropped rod?

a. The Tave chart recorder shows an increasing trend from 584 degrees F.

b. The Tave chart recorder shows a decreasing trend from 584 degrees F.

c. The power range NIs increased from 99% to 101% power.

d. The QPTR is 1.004 as compared to the last calculation of 1.005.

MASTER

UESTION: 061 (1.00)

Which ONE [1] of the following conditions require an immediate Reactor trip and implementation of EI-0, Reactor Trip, Safety Injection, and Diagnosis?

a. A control rod is misaligned 110 steps.

b. A control rod is misaligned greater than 100 steps and another control rod is misaligned 12 steps.

c. If two control rods are unexpectedly misaligned greater than 12 steps during physics testing.

d. If two control rods are misaligned greater than 12 steps during reactor startup.

MASTER

QUESTION: 062 (1.00)

The following plant conditions exist:

- Reactor Power at 98%.
- Tavg is 584 degrees F.
- Control Bank D is at 200 steps.
- Control rod H4 is at 186 steps; is not stuck but cannot be realigned at this time.
- Rod control is in Manual.

Which ONE [1] of the following describes the technical specification action to be taken? [Te ical Specification 3.1.3.1 is attached]

a. Reduce power to equal to or less than 85% within the next hour.

b. Reduce power to equal to or less than 80% within the next hour.

c. Reduce power to equal to or less than 75% within the next hour and reset the high neutron flux trip setpoint to 85% within 4 hours.

d. Reduce power to equal to or less than 50% within the next hour and reset the high neutron flux trip setpoint to 75% within 2 hours.

MASTER

QUESTION: 063 (1.00)

Which ONE [1] of the following conditions require PLACING the reactor in Hot Standby per the requirements of Technical Specification 3.0.3?

a. A rod position indication is not in agreement within 10 steps of the demand position [Group Step Counter].

b. A failed rod position indicator is associated with a rod in a controlling bank.

c. A rod is misaligned from its group by greater than 12 steps.

d. More than one rod position indicator per group is inoperable.

MASTER

QUESTION: 064 (1.00)

The following plant conditions exist:

- Reactor Power at 99%.
- Plant stabilization in progress.
- Tave is 590 degrees F.
- Rod control is in manual.
- One control rod is 10 steps from its group position.

Which ONE [1] of the following statements describes the action to be taken?

a. Refer to Trojan Technical Specification 4.1.1.1.1.a [Boration Control, Shutdown Margin] within one hour.

b. Refer to Trojan Technical Specification 3.2.4.b [Power Distribution Limits, Quadrant Power Tilt Ratio].

c. Refer to Trojan Technical Specification 3.2.5 [Power Distribution Limits, DNB Parameters]

d. Refer to Trojan Technical Specification 3.0.3.

MASTER

QUESTION: 065 (1.00)

Which ONE [1] of the following statements describes the basis for shifting to hot leg recirculation following a large cold leg break?

a. To terminate core boiling and prevent boron precipitation in the core.

b. To prevent boron plate out in the core and resultant flow blockage in the upper head.

c. To equalize temperature in the reactor vessel in order to minimize thermal stress.

d. To reduce the need for heat removal by other means as long as RHR flow is available.

QUESTION: 066 (1.00)

The following conditions exist while in EI-0, Reactor Trip, Safety Injection, and Diagnosis:

- RCS subcooling 37F and increasing slowly.
- RCS pressure 1360 psig and increasing slowly.
- Pressurizer level 6% and increasing slowly due to ECCS injection flow.
- RWST level 75% and decreasing slowly.
- SG levels all about 10% and increasing slowly.
- CST level 50% and decreasing slowly.
- Containment pressure 3.0 psig and decreasing slowly.

Which ONE [1] of the following actions should be performed?

a. Transition to EI-1, Loss of Reactor or Secondary Coolant, Step 1.

b. Transition to FR-H.1, Response to Loss of Heat Sink, Step 1.

c. Switch to an alternate AFW supply.

d. Trip all RCPs.

MASTER

QUESTION: 067 (1.00)

The following conditions exist following a LOCA:

- RCS subcooling 35 degrees F.
- PZR level 0%.
- Nuclear power 0%.
- RCPs off.
- SG levels 15% [Narrow Range] and increasing slowly.
- Containment pressure 4.5 psig and decreasing slowly.
- RWST level 50% and decreasing slowly.
- CST level 19% and decreasing slowly.

Which ONE [1] of the following actions should be taken?

a. Transition to EI-0, Reactor Trip Safety Injection, and Diagnosis, Step 1.

b. Switch to alternate AFW supplies by opening MO-3045A and MO-3045B.

c. Transition to FR-H.1, Response to Loss of Secondary Heat Sink, Step 1.

d. Transition to ES-1.3, Transfer to Cold Leg Recirculation, Step 1.

MASTER

QUESTION: 068 (1.00)

The following plant conditions exist:

- Reactor Power at 100%.
- RCS pressure 2235 psig.
- Tavg is 584 degrees F.
- Thermal bearing cooling water inlet temperature is 104 degrees F.
- Seal Injection flow is lost.

Which ONE [1] of the following describes a condition which would require tripping a RCP?

a. #1 seal leakoff rate 5.5 gpm.

b. #1 seal outlet temperature 239 degrees F.

c. RCP radial bearing temperature 220 degrees F.

d. #2 seal delta-P of 35 psig.

MASTER

QUESTION: 069 (1.00)

The following plant indications exist:

- Reactor Power at 25%
- Load being picked up on the main generator.
- RCP A trips.

Which ONE [1] of the following statements describe the action to be taken?

a. Verify RCP tripped, verify reactor trip and go to EI-0, Reactor Trip, Safety Injection, and Diagnosis.

b. Manually trip the reactor and go to EI-0, Reactor Trip, Safety Injection, and Diagnosis.

c. Monitor the remaining RCPs for proper operation, determine and correct the cause of the RCP trip.

d. Verify RCP tripped, monitor the remaining RCPs for proper operation, initiate a rapid, controlled plant shutdown.

MASTER

QUESTION: 070 (1.00)

When emergency boration valve MO-8104 is open, which ONE [1] of the following describes how to determine actual emergency boration flow?

a. Actual emergency boration flow is indicated directly on FI-183A [Emergency Boration Flow Indicator].

b. Subtract FI-183A reading from FI-121A [Charging Flow Indicator] reading.

c. Subtract total RCP seal injection flow from FI-121A reading.

d. Use ONI-10 "Emergency Boration" FT-183 correction curve.

MASTER

QUESTION: 071 (1.00)

Which ONE [1] of the following conditions require emergency boration in accordance with ONI-10 "Emergency Boration"?

a. "ROD LIMIT Lo-Lo" alarm.

b. "RC LOOPS Tave Lo-Lo" alarm while at power.

c. "ROD LIMIT Lo" alarm.

d. Unexplained or uncontrolled increase in RCS temperature due to rod insertion.

MASTER

QUESTION: 072 (1.00)

Which ONE [1] of the following statements describes the conditions at which the CCW surge tank must be maintained?

a. Equal to or greater than 105 psig when RCPs are running.

b. Equal to or greater than 100 psig when Reactor Power is greater than 5%.

c. Equal to or greater than 75 psig when control rod drive mechanisms are energized.

d. Equal to or greater than 60 psig when refueling is in progress.

MASTER

QUESTION: 073 (1.00)

Which ONE [1] of the following statements explains why subcriticality is the highest priority critical safety function?

a. The safeguard systems which protect the plant are designed assuming that only decay heat and pump heat are being added to the RCS.

b. If the reactor is not expeditiously made subcritical during accident conditions, the loss of mass from the Reactor Coolant System will result in core damage.

c. If the reactor is not expeditiously made subcritical during accident conditions the Pressurizer will become solid and RCS overpressurization will occur and lead to a LOCA.

d. The Emergency Core Cooling Systems are designed to protect against restart conditions but not ATWS conditions; consequently, subcriticality has been given highest priority for consistency considerations.

QUESTION: 074 (1.00)

If condenser vacuum is 5" Hg back pressure and decreasing [degrading] while operating at power, which ONE [1] of the following immediate actions should you direct to be performed?

a. Manually close the vacuum breaker valve [MO-3109].

b. Place the standby main air ejector assembly in service.

c. Manually trip the turbine.

d. Reduce turbine load.

MASTER

QUESTION: 075 (1.00)

If Bus Y11 is inadvertently deenergized, which ONE [1] of the following operator actions must be performed IMMEDIATELY?

a. Place rod control in manual control.

b. Shut PZR PORV block valves.

c. Take PZR master pressure and spray valve controller PK-455 A/B/C to manual control.

d. Take steam dump pressure controller PK-507 to manual control.

QUESTION: 076 (1.00)

In the event of a fire which requires outside assistance, which ONE [1] of the following statements identifies the position making the notification to outside agencies and the outside agencies notified?

a. Control Operator, notifies the Rainier Fire Department and the NRC resident.

b. Control Operator, notifies the NRC.

c. Shift Technical Advisor, notifies the Rainier Fire Department and the NRC.

d. Shift Manager, notifies the NRC.

MASTER

QUESTION: 077 (1.00)

Which ONE [1] of the following describes the conditions which must be satisfied prior to reentering the Control Room after a fire in the Control Room and the person responsible for making the report?

a. Fire is out, Control Room is habitable, report is made by the Fire Marshall.

b. Fire is out, Control Room is habitable, report is made by Fire Brigade Leader.

c. Fire is out, number of available personnel meets technical specification minimum crew, report is made by Operations Manager.

d. Control Room is habitable, number of available personnel meets technical specification minimum crew, report is made by Senior Operations Department Supervisor on site.

MASTER

QUESTION: 078 (1.00)

Which ONE [1] of the following describes the method for shutting down the reactor if the control room is evacuated per ONI-17 "Control Room Inaccessibility"?

a. Emergency boration.

b. Open the reactor trip breakers.

c. Manually drive rods IN at the Remote Shutdown Station.

d. Open the power supply breakers to the rod drive MG sets from the Remote Shutdown Station.

MASTER

QUESTION: 079 (1.00)

The control room operators are performing ECA-1.1, Loss of Emergency Coolant Recirculation, when a red path is identified on the containment status tree. The operators enter FR-Z.1, Response to High Containment Pressure, and verify containment isolation. The operators find that the directions to operate the containment spray pumps conflict with those actions just performed in ECA-1.1

For the conditions given above, which ONE [1] of the following procedures and bases should be followed?

a. ECA-1.1. This ensures that maximum heat removal capacity is used to reduce containment pressure.

b. ECA-1.1. Containment spray flow is restricted in order to conserve the available RWST water.

c. FR-Z.1. Functional Restoration Procedures take priority over all non-Functional Restoration Procedures.

d FR-Z.1. FR-Z.1 provides a more rapid means of verifying actuation of the containment spray system.

MASTER

QUESTION: 080 (1.00)

The following plant conditions exist:

- A LOCA has occurred.
- All core exit thermocouple indications reading greater than 1200 degrees F.

Which ONE [1] of the following methods will be used to restore the critical safety function associated with the above conditions?

a. Establish feed flow from a main feedpump.

b. Reduce RCS pressure by opening the pressurize PORV.

c. Start all RCPs to establish forced flow.

d. Establish high pressure SI flow.

QUESTION: 081 (1.00)

Control room operators are responding to a red path on the heat sink Critical Safety Function Status Tree [CSFST]. FR-H.1, Response to Loss of Secondary Heat Sink, is being implemented. Subsequently a red path on core cooling CSFST is identified.

Which ONE [1] of the following actions must be taken and what is the basis for the action?

a. Continue with FR-H.1, because the heat sink CSF has a higher priority than the core cooling CSF.

b. Continue with FR-H.1, because transitions to other procedures are not allowed during any red path procedure that is not complete.

c. Transfer to FR-C.1, Response to Inadequate Core Cooling, because the core cooling CSF has a higher priority than the heat sink CSF.

d. Transfer to FR-C.1, Response to Inadequate Core Cooling, because FR-C.1 encompasses actions necessary to restore loss of secondary heat sink.

QUESTION: 082 (1.00)

The following plant conditions exist:

- Reactor has tripped from 100% power.
- All rods indicate on the bottom.
- The turbine has NOT tripped.
- All Stop, Control and Intercept Valves are OPEN.

Which ONE [1] of the following describes the effect of NOT correcting this malfunction?

a. An uncontrolled cooldown of the RCS, resulting in decreased shutdown margin.

b. A loss of condenser vacuum, resulting in the loss of the Steam Dump system.

c. An increase in RCS pressure resulting in the PZR PORVs lifting.

d. The main turbine will overspeed, possibly resulting in damage to the main turbine rotor and shaft.

MASTER

QUESTION: 083 (1.00)

The following plant conditions exist:

- The reactor is operating at 100% power.
- A pressurizer PORV is leaking to the PRT at a rate of 1 gpm.

Which ONE [1] of the following describes the RCS Operational Leakage Technical Specification requirement in this situation?

a. IDENTIFIED leakage that requires shutdown.

b. UNIDENTIFIED leakage that required shutdown.

c. IDENTIFIED leakage that does NOT require shutdown.

d. UNIDENTIFIED leakage that does NOT require shutdown.

QUESTION: 084 (1.00)

A small break LOCA has occurred. All emergency core cooling system [ECCS] pumps are operating as designed. Twenty [20] minutes after the initial transient the following plant conditions exist:

- No reactor coolant pumps are running.
- Core exit TCs indicate 580 degrees F.
- Pressurizer level indicates 0%.
- Reactor coolant system [RCS] pressure indicates 1310 psig.
- The control room operators begin to withdraw more steam from the steam generators and increase the auxiliary feedwater flow rate to maintain steam generator levels.

Which ONE [1] following statements describes how ECCS flow will respond?

a. Increase. As the RCS cools down, RCS pressure decreases due to the contraction of the RCS.

b. Increase. As the RCS cools down, Safety Injection Pump net positive suction head will increase.

c. Decrease. The cooldown will increase natural circulation flow causing an apparent increase in discharge head as seen by the ECCS pumps.

d. Decrease. Reflux cooling by the steam generators keeps the break covered and prevents RCS depressurization.

MASTER

QUESTION: 085 (1.00)

The following plant conditions exist:

- Plant is shutdown and being cooled down using the RHR system.
- RCS pressure is 325 psig.
- RCS temperature is 150 F.
- Reactor Coolant Pumps are tagged out.
- Pressurizer is solid.

Which ONE [1] of the following provides the alternate cooling path if the operating RHR pump is lost and the standby RHR pump fails to start?

a. Initiate SI accumulator injection.

b. Feed and bleed using SI pumps.

c. Start containment air coolers.

d. Line up for spent fuel pool cooling.

MASTER

QUESTION: 086 (1.00)

The following plant conditions exist:

- "PZR SAFETY VLV HI LEAKAGE" alarm.
- "PZR RELIEF TEMP HI" alarm.
- Pressurizer spray valves closed.
- Pressurizer backup heaters on.
- Pressurizer level - 51% and decreasing slowly.
- Pressurizer pressure 2212 psig and decreasing slowly.
- Reactor Power 83% and steady.
- Rod Control in Automatic.

In accordance with ONI-36 "Pressurizer Relief or Safety Valve Actuation or Leakage", which ONE [1] of the following immediate actions should be performed?

a. If pressure cannot be controlled, start reducing power to less than 10% per GOI-5.

b. Trip the reactor and enter EI-0, Reactor Trip, Safety Injection, and Diagnosis, Step 1.

c. Shut the pressurizer PORV block valves.

d. Isolate letdown and increase charging.

MASTER

QUESTION: 087 (1.00)

The following plant conditions exist:

- Plant is in Mode 2.
- Reactor start-up in progress.
- Power below P-6.
- A Source Range Nuclear Instrument power supply fails.

Which ONE [1] of the following statements describe the action required to be taken by Technical Specifications?

a. Verify that the operable Source Range channel is selected to the audio court rate channel.

b. Place the level trip switch for the inoperable channel to the BYPASS position.

c. Suspend all operations involving positive reactivity changes.

d. Verify that NR-45 is not recording the defective channel.

QUESTION: 088 (1.00)

The following plant conditions exist:

- Reactor plant in MODE 3.
- Source range N32 fails low.
- Reactor trip breakers are closed.
- CRDMG sets are in operation.
- All preparations have been made for commencing a reactor start-up.

Which ONE [1] of the following statements describes the action to be taken? [Technical Specification 3.3.1 is attached]

a. Restore the N32 to operable within 48 hours or open the reactor trip breakers within 1 hour.

b. Within 1 hour determine that the shutdown margin as calculated by OI-11-8, Shutdown Margin, meets the requirements of the Technical Specifications.

c. Suspend all operations involving positive reactivity changes.

d. Place N32 in trip condition within 6 hours.

MASTER

QUESTION: 089 (1.00)

If intermediate range channel N35 is UNDERCOMPENSATED, the indicated power level for N35 will read ____[1]____ than the actual power level and the Source Range Nuclear Instruments ____[2]____ automatically energize when the LOWEST reading INRI reaches its setpoint.

Which ONE [1] of the following completes the above statement correctly?

a. [1] Higher; [2] will.

b. [1] Higher; [2] will NOT.

c. [1] Lower; [2] will.

d. [1] Lower; [2] will NOT.

QUESTION: 090 (1.00)

The following plant conditions exist:

- Reactor Power at 100%.
- Intermediate Range channel N36 is removed for repair.
- Intermediate Range channel N35 fails.

Which ONE [1] of the following statements describe the action to be taken if the estimated time to repair N36 is 12 hours?

a. Verify that power is above the P-10 setpoint and trip the N35 bistables. Power level will not be restricted.

b. Place the N35 IR channel LEVEL TRIP switch in the BYPASS position and continue power operation.

c. Do not change plant power level until at least one IR channel is restored to operable status.

d. Proceed to a hot standby condition within the next 6 hours. The reactor must be shut down.

MASTER

QUESTION: 091 (1.00)

The following plant conditions exist:

- A 70 gpm tube leak exists in "C" S/G.
- RCS pressure 1400 psig.
- "C" S/G Narrow Range level off-scale high.
- "C" S/G pressure 1000 psig.

Which ONE [1] of the following actions should have the highest priority?

a. Dump steam from "C" S/G via its PORV.

b. Establish a maximum blowdown rate for "C" S/G.

c. Pin the main steamline support hangers for "C" S/G.

d. Take action to reduce RCS pressure to less than "C" S/G pressure.

QUESTION: 092 (1.00)

The following plant conditions exist:

- SGTR has occurred.
- The ruptured S/G has been identified.

Which ONE [1] of the following describes the action to be taken with respect to the ruptured S/G PORV and the basis for the action?

a. Isolate the PORV; this will prevent a release if the PORV fails.

b. Do not isolate the PORV; the PORV will be needed for cooldown during plant recovery.

c. Do not isolate the PORV; the PORV will limit challenges to the S/G safety valves.

d. Isolate the PORV; this will limit the radiation release from the ruptured S/G during normal PORV operation.

QUESTION: 093 (1.00)

The following plant conditions exist:

- Reactor Power at 80%.
- One of two operating MFPs trip.
- Turbine runback is automatically initiated.
- Power level is ordered to be stabilized below 60%.

Which ONE [1] of the following statements describe the basis for stabilizing power at less than 60%?

a. The S/G blowdown tank flash steam may still be lined up to 3B FW heater.

b. The loss of the other MFP will not directly cause a reactor trip.

c. The remaining MFP can adequately maintain S/G water levels.

d. The running MFP will not trip on overspeed.

QUESTION: 094 (1.00)

The following plant conditions exist:

- Reactor trip and SI have been initiated due to a steam line break downstream of the MSIVs.
- The Diesel Auxiliary Feedwater Pump will not start.
- The maximum achievable AFW flow rate is 400 gpm.
- The level in S/G A, B, and D is off scale low [Narrow Range]
- The level in S/G C is 8% [Narrow Range]

Which ONE [1] of the following statements describe the condition of the secondary heat sink and the basis for that condition?

a. Inadequate because AFW flow is insufficient.

b. Inadequate because S/G level is insufficient.

c. Adequate because AFW flow is sufficient.

d. Adequate because S/G level is sufficient.

MASTER

QUESTION: 095 (1.00)

The following plant conditions exist:

- Mode 3.
- Preparing for a reactor startup.
- "A" AFP is supplying feedwater.
- "B" EDG is in parallel with offsite power for a load test.
- The Steam Dump System is maintaining RCS temperature at 557 degrees F.
- An automatic CVCS makeup is in progress.

If DC bus D10 is lost, which ONE [1] of the following responses will occur?

a. The CVCS makeup in progress will stop, and the "B" EDG will continue to run and cannot be stopped remotely.

b. The CVCS makeup in progress will stop, but charging will continue.

c. CVCS letdown is lost and CVCS makeup will have to be manually stopped to prevent overfilling the VCT.

d. The S/G PORVs will be needed for RCS temperature control because the MSIVs will close.

QUESTION: 096 (1.00)

Which ONE [1] of the following Process Radiation Monitors [PRM] will isolate a plant release when a High Radiation Alarm occurs on its Associated PRM?

a. Component Cooling Water System, PRM-7.

b. Liquid Radwaste Discharge Monitor, PRM-9.

c. Containment Sump Pump, PRM-14.

d. Reactor Coolant Drain Tank, PRM-15.

MASTER

QUESTION: 097 (1.00)

In the event of a loss of instrument air which of the following will occur in the CVCS?

1. Loss of normal letdown.
2. Loss of excess letdown (if in operation).
3. Loss of charging capability.
4. Loss of VCT venting capability.
5. Loss of emergency boration capability.
6. Loss of seal water injection capability.
7. Loss of VCT gas sampling capability.

Select ONE [1] combination.

a. 1, 2, 3, and 5.

b. 1, 2, 4, and 7.

c. 2, 4, 5, and 7.

d. 4, 5, 6, and 7.

MASTER

QUESTION: 098 (1.00)

If the controlling pressurizer level channel fails low, which ONE [1] of the following actions is an IMMEDIATE action in response to this failure?

a. Defeat the failed channel's input to level control to prevent a pressurizer level high reactor trip.

b. Defeat the failed channel's input to level control to minimize RCS thermal shock.

c. Place LK-459, PZR level master controller, in "MAN" position and reduce charging flow to prevent a pressurizer level high reactor trip.

d. Place LK-459, PZR level master controller, in "MAN" position and reduce charging flow to minimize RCS thermal shock.

QUESTION: 099 (1.00)

The following plant conditions exist:

- An irradiated fuel assembly is being transferred by the manipulator crane in the reactor vessel.
- The water level in the refueling cavity is decreasing slowly.
- "REFUEL CAVITY WATER LVL LOW" on Control Room Board K-19 has alarmed.

In accordance with FHP 13, Fuel Handling Emergency Procedures, which ONE [1] of the following actions must be performed IMMEDIATELY?

a. SUSPEND refueling operations, EVACUATE unnecessary personnel from the containment, and SECURE Control Room emergency ventilation.

b. SEAT the fuel assembly in the reactor vessel, CLOSE the door between the spent fuel pool and transfer canal, and RUN Control Room normal ventilation.

c. SUSPEND refueling operations, SEAT the fuel assembly in the reactor vessel, VERIFY RHR recirculation sump suction valves closed [MO-8811A and B].

d. NOTIFY Control Room, EVACUATE unnecessary personnel from the Containment and spent fuel pool area, and DEENERGIZE underwater lights.

MASTER

QUESTION: 100 (1.00)

If the "UNIT AUX XFRMR SUDN PRESS" alarm actuates, which ONE [1] of the following explains why the unit Auxiliary Transformer 12.47-kV feeders H-101 and H-201 open?

a. Operation of the generator OCB V-838 sudden pressure alarm.

b. Operation of the generator primary or backup lockout relay.

c. Operation of the Unit Aux transformer ground overcurrent relay.

d. Operation of the Unit Aux transformer phase overcurrent relay.

MASTER

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

ANSWER: 001 (1.00)

c.

REFERENCE:

02-K-01-H03, Revision 8, Page 9, Para. 0.4
02-K-01-LP, Revision 8, Objective 2.2.f.19
AO 3-26, Revision 5, Page 10, Para 4.7

KA 194001K101 [3.6/3.7]

Both RO and SRO

194001K101 ..(KA's)

ANSWER: 002 (1.00)

b.

REFERENCE:

02-L-01-H03, Revision 8, Page 8, Para. K.2
02-K-01-LP, Revision 8, Objective 2.2.f.18

KA 194001K101 [3.6/3.7]

Both RO and SRO

194001K101 ..(KA's)

ANSWER: 003 (1.00)

d.

REFERENCE:

02-K-01-H02, Revision 8, Page 15, Para. HH.1
02-K-01-LP, Revision 8, Objective 2.2.f.1
TPP 13-17, Revision 0, Attachment 9, Pages 48 - 50, Para 3.11

KA 194001K102 [3.7/4.1]

Both RO and SRO

194001K102 ..(KA's)

ANSWER: 004 (1.00)

d.

REFERENCE:

02-K-01-H03, Revision 8, Page 14, Para. DD.2
02-K-01-LP, Revision 8, Objective 2.2.t
RPMP-20, Revision 4, Section 5, Page 6

KA 194001K103 [2.8/3.4]

SRO only

194001K103 ..(KA's)

ANSWER: 005 (1.00)

a.

REFERENCE:

02-K-01-H03, Revision 8, Page 14, Para. DD.3
02-L-01-LP, Revision 8, Objective 2.2.t

KA 194001K104 [3.3/3.5]

Both RO and SRO

194001K104 ..(KA's)

ANSWER: 006 (1.00)

a.

REFERENCE:

02-K-01-H03, Revision 8, Page 12, Para. X.1
02-K-01-LP, Revision 8, Objective 2.2.n
AO 8-4, Revision 20, Page 7

KA 194001K105 [3.1/3.4]

SRO only

194001K105 ..(KA's)

ANSWER: 007 (1.00)

b.

REFERENCE:

02-K-01-H03, Revision 8, Page 12. Para. Y.1
02-K-01-LP, Revision 8, Objective 2.2.0
AO 8-11, Revision 11, Page 5

KA 194001K105 [3.1/3.4]

SRO only

194001K105 ..(KA's)

ANSWER: 008 (1.00)

d.

MASTER

REFERENCE:

PS-3-2, Revision 4 pages 1 and 3

KA 194001K108 [3.5/3.4]

Both RO and SRO

194001K108 ..(KA's)

ANSWER: 009 (1.00)

b.

REFERENCE:

PS 3-10, Revision 12, Page 5, Para. 5.2.1

KA 194001K114 [3.3/3.6]

Both RO and SRO

194001K114 ..(KA's)

ANSWER: 010 (1.00)

b.

REFERENCE:

02-I-04-SD, Fire Protection System, Revision 7, Page 13 and 16

KA 194001K116 [3.5/4.2]

Both RO and SRO

194001K116 ..(KA's)

ANSWER: 011 (1.00)

d.

REFERENCE:

PS-3-21, Revision 12, Page 2, Para. II.A.1

KA 194001K116 [3.5/4.2]

SRO only

194001K116 (KA's)

ANSWER: 012 (1.00)

d.

REFERENCE:

02-K-04-LP, Revision 4, Page 25, Para. j
02-K-04-LP, Revision 4, Objective m

KA 194001A102 [4.1/3.9]

Both RO and SRO

194001A102 ..(KA's)

ANSWER: 013 (1.00)

d.

MASTER

REFERENCE:

10 CFR 50.54(x)

KA 194001A102 [4.1/3.9]

Both RO and SRO

194001A102 ..(KA's)

ANSWER: 014 (1.00)

b.

REFERENCE:

TPP 13-15, Revision 0, Pages 4, 5, and 6

KA 194001A103 [2.5/3.4]

SRO only

194001A103 ..(KA's)

ANSWER: 015 (1.00)

a.

REFERENCE:

AO 10-4, Emergency Treatment, Revision 21, page 9

KA 194001A110 [2.9/3.9]

Both RO and SRO

194001A110 ..(KA's)

MASTER

S R O Exam P W R Reactor

Organized by Question Number

QUESTION	VALUE	REFERENCE
001	1.00	9000261
002	1.00	9000262
003	1.00	9000263
004	1.00	9000265
005	1.00	9000266
006	1.00	9000267
007	1.00	9000268
008	1.00	9000269
009	1.00	9000271
010	1.00	9000272
011	1.00	9000273
012	1.00	9000274
013	1.00	9000275
014	1.00	9000276
015	1.00	9000277
016	1.00	9000278
017	1.00	9000279
018	1.00	9000281
019	1.00	9000284
020	1.00	9000285
021	1.00	9000287
022	1.00	9000288
023	1.00	9000289
024	1.00	9000291
025	1.00	9000293
026	1.00	9000294
027	1.00	9000295
028	1.00	9000296
029	1.00	9000297
030	1.00	9000298
031	1.00	9000299
032	1.00	9000300
033	1.00	9000303
034	1.00	9000305
035	1.00	9000307
036	1.00	9000308
037	1.00	9000310
038	1.00	9000312
039	1.00	9000313
040	1.00	9000314
041	1.00	9000315
042	1.00	9000316
043	1.00	9000317
044	1.00	9000318
045	1.00	9000319
046	1.00	9000321
047	1.00	9000322
048	1.00	9000323
049	1.00	9000324

MASTER

S R O Exam PWR Reactor

Organized by Question Number

QUESTION	VALUE	REFERENCE
050	1.00	9000325
051	1.00	9000326
052	1.00	9000328
053	1.00	9000329
054	1.00	9000331
055	1.00	9000332
056	1.00	9000333
057	1.00	9000336
058	1.00	9000337
059	1.00	9000338
060	1.00	9000339
061	1.00	9000340
062	1.00	9000341
063	1.00	9000342
064	1.00	9000343
065	1.00	9000345
066	1.00	9000346
067	1.00	9000347
068	1.00	9000348
069	1.00	9000349
070	1.00	9000350
071	1.00	9000351
072	1.00	9000352
073	1.00	9000353
074	1.00	9000356
075	1.00	9000359
076	1.00	9000360
077	1.00	9000361
078	1.00	9000362
079	1.00	9000363
080	1.00	9000364
081	1.00	9000365
082	1.00	9000366
083	1.00	9000367
084	1.00	9000368
085	1.00	9000370
086	1.00	9000371
087	1.00	9000372
088	1.00	9000373
089	1.00	9000374
090	1.00	9000375
091	1.00	9000376
092	1.00	9000377
093	1.00	9000378
094	1.00	9000379
095	1.00	9000381
096	1.00	9000382
097	1.00	9000383
098	1.00	9000384

MASTER

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

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

QUESTION	VALUE	REFERENCE
099	1.00	9000386
100	1.00	9000387

	100.00	

	100.00	

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SRO Exam PWR Reactor

Organized by KA Group

PLANT WIDE GENERICS

QUESTION	VALUE	KA
012	1.00	194001A102
013	1.00	194001A102
014	1.00	194001A103
015	1.00	194001A110
016	1.00	194001A116
017	1.00	194001A116
002	1.00	194001K101
001	1.00	194001K101
003	1.00	194001K102
004	1.00	194001K103
005	1.00	194001K104
006	1.00	194001K105
007	1.00	194001K105
008	1.00	194001K108
009	1.00	194001K114
010	1.00	194001K116
011	1.00	194001K116

PWG Total	17.00	

PLANT SYSTEMS

Group I

QUESTION	VALUE	KA
019	1.00	001000G006
018	1.00	001000K103
021	1.00	003000G010
020	1.00	003000K103
022	1.00	004000K118
023	1.00	004000K202
024	1.00	013000K411
027	1.00	014000A202
026	1.00	015000A103
028	1.00	015000A202
025	1.00	015000K604
029	1.00	017020K301
032	1.00	022000A301
030	1.00	026000A301
031	1.00	026000G005
033	1.00	061000K501
034	1.00	063000A201
035	1.00	068000G001
036	1.00	068000G014

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

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

PLANT SYSTEMS

Group I

QUESTION	VALUE	KA
PS-I Total	19.00	

Group II

QUESTION	VALUE	KA
038	1.00	002000G006
037	1.00	002000K517
040	1.00	006000G006
041	1.00	006000G010
039	1.00	006000K406
042	1.00	010000K201
043	1.00	010000K403
044	1.00	011000A211
045	1.00	012000K201
046	1.00	016000K304
047	1.00	028000K601
048	1.00	029000K403
049	1.00	033000K102
050	1.00	034000A102
051	1.00	035000G010
052	1.00	064000A306
053	1.00	073000A402

PS-II Total	17.00	

Group III

QUESTION	VALUE	KA
054	1.00	005000G010
055	1.00	041020A102
056	1.00	045000A304
057	1.00	078000K302

PS-III Total	4.00	

PS Total	40.00	

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EMERGENCY PLANT EVOLUTIONS

Group I

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

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

EMERGENCY PLANT EVOLUTIONS

Group I

QUESTION	VALUE	KA
058	1.00	000001A205
060	1.00	000003A203
061	1.00	000003G010
059	1.00	000003K103
063	1.00	000005A203
064	1.00	000005G008
062	1.00	000005K305
066	1.00	000011A103
067	1.00	000011G012
065	1.00	000011K313
068	1.00	000015A210
069	1.00	000015G010
070	1.00	000024A117
071	1.00	000024G011
072	1.00	000026G007
073	1.00	000029K312
074	1.00	000051G010
075	1.00	00005[illegible]G010
076	1.00	000067G002
077	1.00	000067G003
078	1.00	000068K202
079	1.00	000069K301
081	1.00	000074G011
080	1.00	000074K305

EPE-I Total	24.00	

Group II

QUESTION	VALUE	KA
082	1.00	000007K103
083	1.00	000008G008
084	1.00	000009K101
085	1.00	000025K101
086	1.00	000027A206
087	1.00	000032G008
088	1.00	000032G010
089	1.00	000033A202
090	1.00	000033A210
091	1.00	000037A214
092	1.00	000038K306
094	1.00	000054G011
093	1.00	000054K304
095	1.00	000058A203

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

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

EMERGENCY PLANT EVOLUTIONS

Group II

QUESTION	VALUE	KA
096	1.00	000061A101
097	1.00	000065K303
EPE-II Total	16.00	

Group III

QUESTION	VALUE	KA
098	1.00	000028K305
099	1.00	000036G010
100	1.00	000056K302
EPE-III Total	3.00	
EPE Total	43.00	
Test Total	100.00	

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3/4.1.3 MOVABLE CONTROL ASSEMBLIES

GROUP HEIGHT

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: MODES 1* and 2*

ACTION:

The ACTION to be taken is based on the cause of inoperability of the control rods as follows:

CAUSE OF INOPERABILITY	ACTION One Rod	ACTION More Than One Rod
a) Immovable as a result of excessive friction or mechanical interference or known to be untrippable.	(1)	(1)
b) Misaligned from its group step counter demand height or from any other rod in its group by more than ± 12 steps (indicated position).	(4)	(2)
c) Inoperable due to a rod control urgent failure alarm or other electrical problem in the rod control system, but trippable.	(3)	(3)

ACTION 1 - 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.

ACTION 2 - Be in HOT STANDBY within 6 hours.

ACTION 3 - Restore the inoperable rods to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours.

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* See Special Exceptions 3.10.2 and 3.10.4.

LIMITING CONDITION FOR OPERATION

LDI 92-04

ACTION 4 - POWER OPERATION may continue provided that within 1 hour either:

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

2. 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) An analysis of the potential ejected rod worth is performed within 3 days and the rod worth is determined to be ≤ ~~0.99%~~ 0.90 Δk at zero power and ≤ 0.2 % Δk at RATED THERMAL POWER for the remainder of the fuel cycle, and

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

   c) The THERMAL POWER level is reduced to ≤ 75% of RATED THERMAL POWER WITHIN one hour and within the next 4 hours the high neutron flux trip setpoint is reduced to ≤ 85% of RATED THERMAL POWER, or

   d) The remainder of the rods in the group with the inoperable rod are aligned to within ± 12 steps of the inoperable rod within one hour while maintaining the rod sequence and insertion limits of Figures 3.1-1 and 3.1-2; the THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.5 during subsequent operation.

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. 115

4.1.3.1.2 Each rod not fully inserted shall be determined to be OPERABLE by movement of at least 10 steps in any one direction at least once per 31 days. 115

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POSITION INDICATOR CHANNELS

LIMITING CONDITION FOR OPERATION

3.1.3.2 Control rod position indication system for control and shutdown rods and the demand position indication system shall be OPERABLE and capable of determining the control rod positions with ±12 steps.

APPLICABILITY: MODES 1 and 2.

ACTION:

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

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

2. Reduce THERMAL POWER TO < 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 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 < 50% of RATED THERMAL POWER within 8 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.2 Each rod position indicator shall be determined to be OPERABLE by verifying the demand position indication system and the rod position indication system agree within 10 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 rod position indication system at least once per 4 hours.

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3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the reactor trip system instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE with RESPONSE TIMES as shown in Table 3.3-2.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each reactor trip system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the modes and at the frequencies shown in Table 4.3-1.

4.3.1.2 The logic for the interlocks shall be demonstrated OPERABLE during the at power CHANNEL FUNCTIONAL TEST of channels affected by interlock operation. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation.

4.3.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.

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TABLE 3.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. Manual Reactor Trip	2	1	2	1, 2	11
	2	1	2	3*, 4*, 5*	10
2. Power Range, Neutron Flux					
A. High Setpoint	4	2	3	1, 2	2#
B. Low Setpoint	4	2	3	1###, 2	2#
3. Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2	2#
4. Power Range, Neutron Flux, High Negative Rate	4	2	3	1, 2	2#
5. Intermediate Range, Neutron Flux	2	1	2	1###, 2	3
6. Source Range, Neutron Flux					
A. Startup	2	1	2	2##	4
B. Shutdown	2	1	2	3*, 4*, 5*	10
C. Shutdown	2	0	1	3, 4, 5	5
7. Overtemperature ΔT					
Four Loop Operation	4	2	3	1, 2	6#
Three Loop Operation	4	1**	3	1, 2	8
8. Overpower ΔT					
Four Loop Operation	4	2	3	1, 2	6#
Three Loop Operation	4	1**	3	1, 2	8
9. Pressurizer Pressure - Low	4	2	3	1#	6#
10. Pressurizer Pressure - High	4	2	3	1, 2	6#
11. Pressurizer Water Level - High	3	2	2	1#	6#

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
12. Loss of Flow - Single Loop (Above P-8)	3/loop	2/loop in any operating loop	2/loop in each operating loop	1	6#
13. Loss of Flow - Two loops (Above P-7 and below P-8)	3/loop	2/loop in two operating loops	2/loop in each operating loop	1	6#
14. Steam Generator Water Level - Low-Low	3/loop	2/loop in any operating loop	2/loop in each operating loop	1, 2	6#(1)
15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	2/loop-level and 2/loop-flow mismatch	1/loop-level coincident with 1/loop-flow mismatch in same loop	1/loop-level and 2/loop-flow mismatch or 2/loop-level and 1/loop-flow mismatch	1, 2	6#
16. Undervoltage - Reactor Coolant Pumps	4-2/bus	1/bus for each bus	3	1*	6#
17. Underfrequency - Reactor Coolant Pumps	4-2/bus	1/bus for each bus	3	1*	6#

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TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
18. Turbine Trip					
A. Low Hydraulic Control Oil Pressure	3	2	2	1#	6#
B. Turbine Stop Valve Closure	4-1/valve	4-1/valve	4-1/valve	1#	7#
19. Auto Safety Injection Input	2	1	2	1, 2	1
20. Reactor Coolant Pump Breaker Position Trip	4-1/breaker	2	1/breaker per operating loop	1#	9#
21. Reactor Trip Breakers	2	1	2	1, 2	1, 12
	2	1	2	3*, 4*, 5*	10, 12
22. Automatic Trip Logic	2	1	2	1, 2	1
	2	1	2	3*, 4*, 5*	10

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TABLE 3.3-1 (Continued)

TABLE NOTATION

* With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal.

** The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped condition.

\# The provisions of Specification 3.0.4 are not applicable.

\#\# When below the P-6 setpoint.

\#\#\# When below the P-10 setpoint.

ψ When above the P-7 setpoint.

(1) The applicable MODES and ACTION statement for these channels noted in Table 3.3-3 are more restrictive and, therefore, applicable.

ACTION STATEMENTS

ACTION 1 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours. One channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1 provided the other channel is OPERABLE.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided all of the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.

c. Either THERMAL POWER is restricted to $\leq$75% of RATED THERMAL POWER and the Power Range Neutron Flux trip setpoint is reduced to $\leq$85% of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours, per Specification 4.2.4.c.

TABLE 3.3-1 (Continued)

ACTION 3 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 setpoint.

b. Above P-6 but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.

c. Above 5% of RATED THERMAL POWER, power operation may continue.

ACTION 4 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, suspend all operations involving positive reactivity changes.

ACTION 5 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 (MODE 3) or Specification 3.1.1.2 (MODES 4 and 5) within 1 hour and at least once per 12 hours thereafter. 172

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided both of the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.

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ACTION 7 - With the number of OPERABLE channels less than the Total Number of Channels, place the inoperable channel in the tripped condition within 6 hours. Operation may continue until performance of the next required CHANNEL FUNCTIONAL TEST.

ACTION 8 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours. One channel associated with an operating loop may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1.

TABLE 3.3-1 (Continued)

ACTION 9 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 6 hours.

ACTION 10 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within 1 hour.

ACTION 11 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.

ACTION 12 - With one of the diverse trip features (undervoltage or shunt trip attachment) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply ACTION 1. The breaker shall not be bypassed while one of the diverse trip features is inoperable except for the time required for performing maintenance to restore the breaker to OPERABLE status. 137

REACTOR TRIP SYSTEM INTERLOCKS

DESIGNATION	CONDITION AND SETPOINT	FUNCTION
P-6	With 2 of 2 Intermediate Range Neutron Flux Channels $<6 \times 10^{-11}$ amps.	Prevents or defeats the manual block of source range reactor trip.
P-7	With 2 of 4 Power Range Neutron Flux Channels $\geq 11\%$ of RATED THERMAL POWER or 1 of 2 Turbine impulse chamber pressure channels ≥ 66 psia.	Prevents or defeats the automatic block of reactor trip on: Low flow in more than one primary coolant loop, reactor coolant pump under-voltage and under-frequency, turbine trip, pressurizer low pressure, and pressurizer high level.
P-8	With 2 of 4 Power Range Neutron Flux Channels $\geq 39\%$ of RATED THERMAL POWER.	Prevents or defeats the automatic block of reactor trip on low coolant flow in a single loop.

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INTERLOCKS

DESIGNATION	CONDITION AND SETPOINT	FUNCTION
P-10	With 3 of 4 Power Range Neutron Flux Channels <9% of RATED THERMAL POWER.	Prevents or defeats the manual block of: Power range low setpoint reactor trip, intermediate range reactor trip, and intermediate range rod stops. Provides input to P-7.
P-13	With 2 o´ 2 Turbine Impulse Chamber essure Channels <66 psia.	Provides input to P-7.

MASTER

ANSWER: 016 (1.00)

c.

REFERENCE:

EP-005, Communications, Revision 1, page 8

KA 194001A116 [3.1/4.4]

SRO only

194001A116 ..(KA's)

ANSWER: 017 (1.00)

b.

REFERENCE:

EP-100, Control Room, Revision 7 page 12, para. 2.2

KA 194001A116 [3.1/4.4]

SRO only

194001A116 ..(KA's)

ANSWER: 018 (1.00)

c.

REFERENCE:

02-B-09-LP, Revision 5, Rod Control System, Objective I.B.2.b.2.e
02-B-09-SD, Revision 7, Rod Control System, Page 29

KA 001000K103 [3.4/3.6]

Both RO and SRO

001000K103 ..(KA's)

ANSWER: 019 (1.00)

b.

REFERENCE:

02-B-09-LP, Revision 5, Objective I.B.2.k.1.a
Technical Specification, page B 3/4 1-3
ONI 2-4, Revision 4, Page 10

KA 001000G006 [2.9/3.8]

SRO only

001000G006 ..(KA's)

ANSWER: 020 (1.00)

c.

REFERENCE:

02-A-02-LP, Revision 7, Pages 41 and 42
02-A-02-LP, Revision 7, Objective I.B.2.b.5

KA 003000K103 [3.3/3.6]

Both RO and SRO

003000K103 ..(KA's)

MASTER

ANSWER: 021 (1.00)

a.

REFERENCE:

02-A-02-SD, Revision 3, page 21
02-A-02-LP, Revision 7, Objective I.B.2.i.1

KA 003000G010 [3.3/3.6]

Both RO and SRO

003000G010 ..(KA's)

ANSWER: 022 (1.00)

d.

REFERENCE:

02-A-06-LP, Revision 7, Objective I.B.2.i.14
02-A-06-SD, Revision 6, page 22

KA 004000K118 [2.9/3.2]

Both RO and SRO

004000K118 ..(KA's)

ANSWER: 023 (1.00)

a.

MASTER

REFERENCE:

02-A-06-LP, Revision 7, Objective I.B.2.e.5
02-A-06-LP, Revision 7, page 38
02-A-06-SD, Page 32

KA 004000K202 [2.9/3.1]

Both RO and SRO

004000K202 ..(KA's)

ANSWER: 024 (1.00)

b.

REFERENCE:

02-B-03-SD2, Revision 3, Pages 57 and 58
02-B-03-LP1, Revision 3, Objective I.B.2.g.12

KA 013000K411 [3.2/3.8]

Both RO and SRO

013000K411 ..(KA's)

ANSWER: 025 (1.00)

d.

REFERENCE:

02-B07-LF, T.O. # 00.00, E.O. #18, EQ#1
02-B-07, LP1, Revision 4, Objective I.B.2.c.9
02-B-07-SD, Revision 4, Page 21

KA 015000K604 [3.1/3.2]

Both RO and SRO

015000K604 ..(KA's)

MASTER

ANSWER: 026 (1.00)

a.

REFERENCE:

02-B07-LP, T.O. #00.00, E.O. #49, EQ #2
02-B07-LP, Revision 4, Objective I.B.2.e.9
02-B07-HO, Revision 5, Figure 1

KA 015000A103 [3.7/3.7]

Both RO and SRO
015000A103 ..(KA's)

ANSWER: 027 (1.00)

a.

REFERENCE:

02-B10-LP, T.O. #00.00, E.O. #48, EQ#1

KA 014000A202 [3.1/3.6]

Both RO and SRO

014000A202 ..(KA's)

ANSWER: 028 (1.00)

a.

MASTER

REFERENCE:

02-B-07-LP1, Revision 4, Objective I.B.2.g.6
02-B-07-SD2, Revision 4, Page 45

KA 015000A202 [3.1/3.5]

Both RO and SRO

015000A202 ..(KA's)

ANSWER: 029 (1.00)

c.

REFERENCE:

Lesson Plan Trojan 02-B-08-LP, Pg. 35
Learning Objective 02-B-08-LP.I.B.2.h.1

KA 017020K301 [3.5/3.7]

Both RO and SRO

017020K301 ..(KA's)

ANSWER: 030 (1.00)

a.

REFERENCE:

02-A09-LP, T.O. #00.00, E.O. #23, EQ#1

KA 026000A301 [4.3/4.5]

Both RO and SRO

026000A301 ..(KA's)

MASTER

ANSWER: 031 (1.00)

c.

REFERENCE:

02-A-09-LP2, Revision 3, page 32
02-A-09-LP2, Revision 3, Objective I.B.2.k.2.b

KA 026000G005 [3.3/3.9]

Both RO and SRO

026000G005 ..(KA's)

ANSWER: 032 (1.00)

a.

REFERENCE:

02-F-01-LP, Revision 2, Objective I.B.2.g.7
02-F-01-SD, Revision 3, Page 43

KA 022000A301 [4.1/4.3]

Both RO and SRO

022000A301 ..(KA's)

ANSWER: 033 (1.00)

d.

MASTER

REFERENCE:

02-A-12-SD, Revision 6, page 4
02-A-12-LP, Revision 4, Objective I.B.2.a

KA 061000K501 [3.6/3.9]

Both RO and SRO

061000K501 ..(KA's)

ANSWER: 034 (1.00)

d.

REFERENCE:

02-C-07-SD, Revision 5, Page 30
02-C-07-LP, Revision 3, Objective I.B.2.C.3

KA 063000A201 [2.5/3.2]
Both RO and SRO
063000A201 ..(KA's)

ANSWER: 035 (1.00)

d.

REFERENCE:

02-G-02-LP, Revision 2, page 14
02-G-02-LP, Revision 2, Objective I.B.2.i
OI 6-1, Revision 21, Page 3, Para 2.2.6

KA 068000G001 [2.7/3.1]

SRO only

068000G001 ..(KA's)

ANSWER: 036 (1.00)

c.

REFERENCE:

02-G-02-LP, Revision 2, Page 15
02-G-02-LP, Revision 2, Objective I.B.2.j.1.a

KA 068000G014 [2.6/2.8]

Both RO and SRO

068000G014 ..(KA's)

ANSWER: 037 (1.00)

b.

REFERENCE:

02-A-01-SD, Revision 3, Page 22
02-A-01-LP, Revision 4, Objective I.B.2.a.3.i

KA 002000K517 [3.8/4.1]

Both RO and SRO

002000K517 ..(KA's)

ANSWER: 038 (1.00)

d.

REFERENCE:

Technical Specification, page B 3/4 4-1

KA 002000G006 [2.6/3.8]

SRO only

002000G006 ..(KA's)

ANSWER: 039 (1.00)

a.

REFERENCE:

02-A07-LP, T.O. #00.00, E.O. #27, EQ #1
02-A-07-LP, Revision 8, Objective I.B.2.g.3
02-A-07-SD2, Revision 8, Page 43

KA 006000K406 [3.9/4.2]

Both RO and SRO

006000K406 ..(KA's)

ANSWER: 040 (1.00)

c.

REFERENCE:

Technical Specifications, Page B 3/4 5-1

XA 006000G006 [2.9/4.0]

SRO only

006000G006 ..(KA's)

MASTER

ANSWER: 041 (1.00)

c.

REFERENCE:

02-A07-LP, T.O. #00.00, E.O # 40, EQ #1
02-A07-LP, Revision 8, Objective I.B.2.j
OI-5-2, Step 2.2.5

KA 006000G010 [3.4/3.7]

Both RO and SRO

006000G010 ..(KA's)

ANSWER: 042 (1.00)

b.

REFERENCE:

02-B-04-SD, Revision 2, Page 13
02-B-04-LP, Revision 2, Objective I.B.2.d.2.a

KA 010000K201 [3.0/3.4]

Both RO and SRO

010000K201 ..(KA's)

ANSWER: 043 (1.00)

c.

MASTER

REFERENCE:

02-B-02-SD2, Revision 2, Page 37

KA 010000K403 [3.8/4.1]

Both RO and SRO

010000K403 ..(KA's)

ANSWER: 044 (1.00)

c.

REFERENCE:

02-B-04-SD Page 27
02-B-04-LP, Objective I.B.2.c

KA 011000A211 [3.4/3.6]

Both RO and SRO

011000A211 ..(KA's)

ANSWER: 045 (1.00)

c.

REFERENCE:

02-B-03-SD1, Revision 3, Page 29
02-B-03-LP1, Revision 3, Objective I.B.2.d

KA 012000K201 [3.3/3.7]

Both RO and SRO

012000K201 ..(KA's)

MASTER

ANSWER: 046 (1.00)

c.

REFERENCE:

02-B05-LP, T.O. #00.00, E.O. #37, EQ #4
02-B-05-LP1, Revision 4, Objective I.B.2.g.9

KA 016000K304 [2.6/2.7]

SRO only

016000K304 ..(KA's)

ANSWER: 047 (1.00)

b.

REFERENCE:

02-F-01-SD2, Revision 3, Pages 45 and 46
02-F-01-LP, Revision 2, Objective I.B.2.b.2.h

KA 028000K601 [2.6/3.1]

Both RO and SRO

028000K601 ..(KA's)

ANSWER: 048 (1.00)

c.

MASTER

REFERENCE:

02-F-01-SD1, Revision 3, Page 10
02-F-01-LP, Revision 2, Objective I.B.2.f.14

KA 029000K403 [3.2/3.5]

Both RO and SRO

029000K403 ..(KA's)

ANSWER: 049 (1.00)

a.

REFERENCE:

02-D-LP, Revision 2, Objective I.B.2.a
02-D-08-SD, Revision 5, Page 16

KA 033000K102 [2.5/2.7]

Both RO and SRO

033000K102 ..(KA's)

ANSWER: 050 (1.00)

c.

REFERENCE:

02-A-14-SD, Revision 5, Page 53
02-A-14-LP, Revision 4, Objective I.B.2.c.2

KA 034000A102 [2.9/3.7]

Both RO and SRO

034000A102 ..(KA's)

MASTER

ANSWER: 051 (1.00)

d.

REFERENCE:

OI 8-9, Revision 9, Page 4, Para. 4.6
02-A-04-LP, Revision 2, Objective 1.2.2.I.1

KA 035000G010 [3.2/3.4]

Both RO and SRO

035000G010 ..(KA's)

ANSWER: 052 (1.00)

a.

REFERENCE:

02-A-13-SD, Revision 5, Page 44
02-A-13-LP, Revision 4, Objective I.B.2.b.16

KA 064000A306 [3.3/3.4]

Both RO and SRO

064000A306 ..(KA's)

ANSWER: 053 (1.00)

d.

MASTER

REFERENCE:

02-J-09-SD Revision 3, Page 14
02-J-09-LP Revision 4, Objective I.B.2.C.3

KA 073000A402 [3.7/3.7]

Both RO and SRO

073000A402 ..(KA's)

ANSWER: 054 (1.00)

a.

REFERENCE:

02-A-08-LP, Revision 5, Objective I.B.2.k.1
OI 4-1, Revision 32, Page 3, para. 2.4.1.a. and 2.4.1.b.

KA 005000G010 [3.3/3.5]

Both RO and SRO

005000G010 ..(KA's)

ANSWER: 055 (1.00)

c.

REFERENCE:

02-B06-LP, T.O. # 00.00, E.O. # 36, EQ #1
02-B-06-LP1, Revision 4, Objective I.B.2.c.5

KA 041020A102 [3.1/3.2]

Both RO and SRO

041020A102 ..(KA's)

MASTER

ANSWER: 056 (1.00)

b.

REFERENCE:

02-A-13-SD, Revision 5, Page 43
02-C-01-LP, Revision 2, Objective I.B.2.i.1

KA 045000A304 [3.4/3.6]

Both RO and SRO

045000A304 ..(KA's)

ANSWER: 057 (1.00)

a.

REFERENCE:

02-A-06-LP, Revision 7, Objective I.B.2.i.10
02-A-06-SD, Revision 7, Page 19
ONI-51, Revision 6, Page 4, Para 5.1

KA 078000K302 [3.4/3.6]

Both RO and SRO

078000K302 ..(KA's)

ANSWER: 058 (1.00)

b.

MASTER

REFERENCE:

ONI 2-6, Revision 5, Page 37, Step 15.1.1

KA 000001A205 [4.4/4.6]

Both RO and SRO

000001A205 ..(KA's)

ANSWER: 059 (1.00)

d.

REFERENCE:

02-B-09-LP, Objective I.B.2.i.1
ONI 2-4, Revision 7, Page 6, Para 4.2.3.a

KA 000003K103 [3.5/3.8]

Both RO and SRO

000003K103 ..(KA's)

ANSWER: 060 (1.00)

b.

REFERENCE:

02-B-09-SD, Page 48
02-B-09-LP, Page 32, Objective I.B.2.i.1

KA 000003A203 [3.6/3.8]

Both RO and SRO

000003A203 ..(KA's)

MASTER

ANSWER: 061 (1.00)

c.

REFERENCE:

ONI 2-4, Revision 7, Page 6, Para. 4.2.1.c

KA 000003G010 [3.9/3.8]

SRO only

000003G010 ..(KA's)

ANSWER: 062 (1.00)

c.

REFERENCE:

02-B-09-SD, Revision 7, Page 51
02-B-09-LP, Objective 2.i.1
Technical Specification 3.1.3.1, Action 4

KA 000005K305 [3.4/4.2]

SRO only

000005K305 ..(KA's)

ANSWER: 063 (1.00)

d.

MASTER

REFERENCE:

UNI 2-4, Revision 7, Para. 6.2.5
Technical Specification 3.1.3.2 and 3.0.3

KA 000005A203 [3.5/4.4]

S: only

0005A203 ..(KA's)

ANSWER: 064 (1.00)

FERENCE:

2-B-09-LP, Objectiv
Technical Specifica

KA 000005G008 [3.1/

SRO only

00000 ..(KA's)

ANSWER: 065 (1.00)

a.

REFERENCE:

02-K-13-LP, Revision 3, Objective I.B.2.d.1 and 3
02-K-13-LP, Revision 3, Page 44

KA 000011K313 [3.8/4.2]

Both RO and SRO

000011K313 ..(KA's)

MASTER

ANSWER: 066 (1.00)

d.

REFERENCE:

Reference Page for EI-0 Series Procedures

KA 000011A103 [4.0/4.0]

Both RO and SRO

000011A103 ..(KA's)

ANSWER: 067 (1.00)

d.

REFERENCE:

EI-1, Reference Page Item 5, Cold Leg Recirculation Switchover Criteria

KA 000011G012 [4.0/4.1]

SRO only

000011G012 ..(KA's)

ANSWER: 068 (1.00)

b.

MASTER

REFERENCE:

02-A-02-LP, Objective I.B.2.j.5
ONI 3-4, Revision 1, Page 20, Para. 14.2.1.a.

KA 000015A210 [3.7/3.7]

Both RO and SRO

000015A210 ..(KA's)

ANSWER: 069 (1.00)

d.

REFERENCE

02-A-02-LP, Objective I.B.2.j.1
ONI 3-4, Revision 1, Page 4

KA 000015G010 [3.4/3.4]

SRO only

000015G010 ..(KA's)

ANSWER: 070 (1.00)

d.

REFERENCE:

ONI-10, Revision 6, Page 2, Step D.3

KA 000024A117 [3.9/3.9]

Both RO and SRO

000024A117 ..(KA's)

MASTER

ANSWER: 071 (1.00)

a.

REFERENCE:

ONI-10, Revision 6, Page 1, Step A.2.c.

KA 000024G011 [3.8/3.[illegible]]

Both RO and SRO

000024G011 ..(KA's)

ANSWER: 072 (1.00)

d.

REFERENCE:

02-A-11-LP, Objective I.B.2.j.1
ONI 4-2, Revision 3, Page 13, Note 6.2.1

KA 000026G007 [3.1/3.2]

Both RO and SRO

000026G007 ..(KA's)

ANSWER: 073 (1.00)

a.

MASTER

REFERENCE:

02-K-16-LP, Revision 5, Page 3
02-K-16-LP, Revision 5, Objective I.B.2.a

KA 000029K312 [4.4/4.7]

Both RO and SRO

000029K312 ..(KA's)

ANSWER: 074 (1.00)

d.

REFERENCE:

ONI-26, Revision 7, Page 2, Para. 4.1

KA 000051G010 [2.6/2.9]

SRO only

000051G010 ..(KA's)

ANSWER: 075 (1.00)

a.

REFERENCE:

ONI 1-7, Revision 0, Page 6, Para. 3.2.1

KA 000057G010 [3.6/3.7]

Both RO and SRO

000057G010 ..(KA's)

ANSWER: 076 (1.00)

d.

REFERENCE:

02-K-09-HO, Revision 2, Figure 4
02-K-09-LP, Objective I.B.2.a 2
EFP-0, Revision 15, Page 2

KA 000067G002 [3.2/4.1]

Both RO and SRO

000067G002 ..(KA's)

ANSWER: 077 (1.00)

b.

REFERENCE:

02-K-09-HO, Revision 2, Figure 14
02-K-09-LP, Objective I.B.2.c.9
EFP-1, Revision 14, Step 42

KA 000067G003 [3.1/3.6]

SRO only

000067G003 ..(KA's)

ANSWER: 078 (1.00)

b.

MASTER

REFERENCE:

ONI 17, Revision 15, Page 7, Para. 10.a

KA 000068K202 [3.7/3.9]

Both RO and SRO

000068K202 ..(KA's)

ANSWER: 079 (1.00)

b.

REFERENCE:

02-K-20-LP, Revision 1, Objective I.B.2.e
FR-Z.1 Background, Page 4

KA 000069K301 [3.8/4.2]

Both RO and SRO

000069K301 ..(KA's)

ANSWER: 080 (1.00)

d

REFERENCE:

FR-C.1, Response to Inadequate Core Cooling, Steps 1 and 2
02-K-17-LP, Objective I.B.2.h

KA 000074K305 [4.2/4.5]

Both RO and SRO

000074K305 ..(KA's)

MASTER

ANSWER: 081 (1.00)

c.

REFERENCE:

Functional Restoration Instruction, FR-0, CSFST, Page 3, Para 8
02-K-04-LP, Objective I.B.2.g

KA 000074G011 [4.5/4.6]

Both RO and SRO

000074G011 ..(KA's)

ANSWER: 082 (1.00)

a.

REFERENCE:

02-K-12-LP, Objective I.B.2.a.6
EI-0 Background, Step 2

KA 000007K103 [3.7/4.0]

SRO only

000007K103 ..(KA's)

ANSWER: 083 (1.00)

c.

MASTER

REFERENCE:

Technical Specification 3.4.6.2

KA 000008G008 [3.1/3.5]

Both RO and SRO

000008G008 ..(KA's)

ANSWER: 084 (1.00)

a.

REFERENCE:

02-K-13-LP, Revision 3, Objective I.B.2.a.3.4
02-K-13-LP, Revision 3, Pages 12 and 13

KA 000009K101 [4.2/4.7]

Both RO and SRO

000009K101 ..(KA's)

ANSWER: 085 (1.00)

b.

REFERENCE:

Trojan ONI 4-1, Revision 6, Pages 18 through 24

KA 000025K101 [3.9/4.3]

Both RO and SRO

000025K101 ..(KA's)

ANSWER: 086 (1.00)

a.

REFERENCE:

ONI-36, Revision 16, Page 8, Para. 4.2.2

KA 000027A206 [3.5/3.9]

Both RO and SRO

000027A206 ..(KA's)

ANSWER: 087 (1.00)

c.

REFERENCE:

Technical Specification 3.3.1

KA 000032G008 [2.8/3.3]

Both RO and SRO

000032G008 ..(KA's)

ANSWER: 088 (1.00)

a.

REFERENCE:

02-B-07-LP1, Revision 4, Objective I.B.2.5.1
ONI-16, Revision 9, Page 3, Para. 3.4.3.3

KA 000032G010 [2.9/3.1]

Both RO and SRO

000032G010 ..(KA's)

ANSWER: 089 (1.00)

b.

REFERENCE:

02-B-07-LP1, Revision 4, Objective I.B.2.f.2
02-B-07-SD2, Revision 4, Figure 8

KA 000033A202 [3.3/3.6]

Both RO and SRO

000033A202 ..(KA's)

ANSWER: 090 (1.00)

b.

REFERENCE:

02-B-07-LP1, Revision 4, Objective I.B.2.j.1
ONI-16, Revision 9, Page 4, Para. 4.4.1.1.1

KA 000033A210 [3.1/3.8]

Both RO and SRO

000033A210 ..(KA's)

ANSWER: 091 (1.00)

d.

REFERENCE:

02-K-15-LP, Objective I.B.2.c
EI-3, Caution preceding step 1

KA 000037A214 [4.0/4.4]

SRO only

000037A214 ..(KA's)

ANSWER: 092 (1.00)

c.

REFERENCE:

02-K-15-LP, Objective I.B.2.1.
EI-3, Steam Generator Tube Rupture, Background Information, Pages 10 and 12

KA 000038K306 [4.2/4.5]

SRO only

000038K306 ..(KA's)

ANSWER: 093 (1.00)

c.

REFERENCE:

02-E-12-LP, Objective I.B.2.j.1.b
ONI-23, Loss of One Feedwater Pumps, Step D

KA 000054K304 [4.4/4.6]

Both RO and SRO

000054K304 ..(KA's)

ANSWER: 094 (1.00)

d.

REFERENCE:

02-K-18-LP, Objective I.B.2.a.
FR-0 Background Information, Pages 21 & 22

KA 000054G011 [3.4/3.3]

Both RO and SRO

000054G011 ..(KA's)

ANSWER: 095 (1.00)

b.

REFERENCE:

ONI 1-1, Revision 0, page 12
02-C-07-LP, Revision 3, Objective I.B.2.h.2

KA 000058A203 [3.5/3.9]

SRO only

000058A203 ..(KA's)

MASTER

ANSWER: 096 (1.00)

b.

REFERENCE:

02-J-09-LP, Objective I.B.2.C.5
02-J-09-LP, Pages 55 through 60
ONI-12, Revision 18, Page 6, Para 2.3.6

KA 000061A101 [3.6/3.6]

SRO only

000061A101 ..(KA's)

ANSWER: 097 (1.00)

b.

REFERENCE:

ONI-51, Revision 6, Page 4, Para. 5.1.1

KA 000065K303 [2.9/3.4]

Both RO and SRO

000065K303 ..(KA's)

ANSWER: 098 (1.00)

d.

REFERENCE:

ONI 2-6, Revision 5, Page 29, Para. 12.2.2

KA 000028K305 [3.7/4.1]

SRO only

000028K305 ..(KA's)

ANSWER: 099 (1.00)

c.

REFERENCE:

FHP 13, Revision 19, Page 12, Para. 5.4.2

KA 000036G010 [3.7/3.8]

SRO only

000036G010 ..(KA's)

ANSWER: 100 (1.00)

b.

REFERENCE:

ONI-42, Revision 6, Page 4, Para. 3.3.1

KA 000056K302 [4.4/4.7]

Both RO and SRO

000056K302 ..(KA's)

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

ANSWER KEY

MULTIPLE CHOICE

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

A N S W E R K E Y

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

ANSWER KEY

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

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