

December 01, 1998

NOTE TO: NRC DOCUMENT CONTROL DESK
MAIL STOP 0-5-D-24

FROM: _____, LICENSING ASSISTANT
OPERATING LICENSING BRANCH _ REGION I

SUBJECT: OPERATOR LICENSING EXAMINATION ADMINISTERED ON
Oct. 19-23, 1998, AT GINNA
DOCKET NO. 50-244

ON Oct. 19-23, 1998 OPERATOR LICENSING EXAMINATIONS WERE ADMINISTERED AT THE REFERENCED FACILITY. ATTACHED YOU WILL FIND THE FOLLOWING INFORMATION FOR PROCESSING THROUGH NUDOCS AND DISTRIBUTION TO THE NRC STAFF, INCLUDING THE NRC PDR.

- Item #1 a) FACILITY SUBMITTED OUTLINE AND INITIAL EXAM SUBMITTAL DESIGNATED FOR DISTRIBUTION UNDER RIDS CODE A070.
- b) AS GIVEN OPERATING EXAMINATION, DESIGNATED FOR DISTRIBUTION UNDER RIDS CODE A070.
- Item #2 EXAMINATION REPORT WITH THE AS GIVEN WRITTEN EXAMINATION ATTACHED, DESIGNATED FOR DISTRIBUTION UNDER RIDS CODE IE42.

9812070028 981201
PDR ADOCK 05000244
V PDR

Original

Facility: R. E. Ginna		Date of Exam: 10/19/98		Exam Level: RO									
Tier	Group	K/A Category Points										Point Total	
		K 1	K 2	K 3	K4	K 5	K 6	A 1	A 2	A 3	A 4		G
1. Emergency & Abnormal Plant Evolutions	1	3	1	4				2	5			1	16
	2	4	0	5				3	4			1	17
	3	0	0	0				1	2			0	3
	Tier Totals	7	1	9				6	11			2	36
2. Plant Systems	1	4	3	2	4	2	2	2	3	0	1	0	23
	2	3	2	1	4	3	2	1	1	1	1	1	20
	3	2	1	0	2	0	0	0	0	1	1	1	8
	Tier Totals	9	6	3	10	5	4	3	4	2	3	2	51
3. Generic Knowledge and Abilities					Cat 1	Cat 2	Cat 3	Cat 4					13
					5	3	2	3					
<p>Note: . Attempt to distribute topics among all K/A categories; select at least one topic from every K/A category within each tier.</p> <p>. Actual point totals must match those specified in the table.</p> <p>. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.</p> <p>. Systems/evolutions within each group are identified on the associated outline.</p> <p>. The shaded areas are not applicable to the category/tier.</p>													

AO10

ES-401	PWR RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1						Form ES-401-4		
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000005 Inoperable/Stuck Control Rod / I			3.03				Stuck Rod Tech Specs	3.6	1.0
000015/17 RCP Malfunctions / IV		2.08					Loss CCW Effect on RCP	2.6	1.0
W/E10 Natural Circ. / IV				1.2			Bubble Formation in Rx Vessel Head	3.6	1.0
000024 Emergency Boration / I					2.05		Amount of Boric Acid to Achieve Required SDM	3.3	1.0
000026 Loss of Component Cooling Water / VIII					2.01		Determining leak location in CCW System	2.9	1.0
000027 Pressurizer Pressure Control System Malfunction / III					2.15		Response to a Pressurizer Pressure Controlling Channel Failing High	3.7	1.0
000040 Steam Line Rupture - Excessive Heat Transfer / IV	1.05						Plant Initial Conditions effect on Restart Magnitude	4.1	1.0
W/E08 RCS Overcooling - PTS / IV			3.2				Basis for performing a Temperature/Pressure Soak	3.6	1.0
000051 Loss of Condenser Vacuum / IV					2.02		Condition Requiring Turbine Trip on Low Vacuum	3.9	1.0
000055 Station Blackout / VI	1.05		3.02				Basis for Caution on Maintaining S/G levels Stopping of natural Circulation Due to inventory depletion	4.3 4.1	1.0 1.0
000057 Loss of Vital AC Elec. Inst. Bus / VI					2.19		Plant Auto Actions on Loss of AC Inst Bus	4.0	1.0
000062 Loss of Nuclear Service Water / IV			3.02				Basis for Service Water Isolation Signal on ESFAS signal	3.6	1.0
000067 Plant Fire On-site / IX	1.02						Type of Suppressants for Electrical Fires	3.1	1.0
000068 (BW/A06) Control Room Evac. / VIII									
000069 (W/E14) Loss of CTMT Integrity / V						2.1.12	Apply Tech Specs for Loss of Containment Integrity	2.9	1.0
000074 Inad. Core Cooling / IV				1.16			ICC Indications on Core Exit Thermocouples	4.4	1.0
BW/E03 Inadequate Subcooling Margin / IV							N/A		
000076 High Reactor Coolant Activity / IX									
BW/A02&A03 Loss of NNI -> /Y / VII							N/A		
K/A Category Totals:	3	1	4	2	5	1	Group Point Total:		16

ES-401	PWR RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2							Form ES-401-4	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000001 Continuous Rod Withdrawal / I					2.05		Action for Continuous Rod Withdrawal Diagnosis/Action	4.4	1.0
000003 Dropped Control Rod / I			3.04				Procedure Flowpath for Dropped Rod	3.8	1.0
000007 Reactor Trip - Stabilization - Recovery / I					2.04		Immediate Action for an ATWS	4.4	1.0
BW/A01 Plant Runback / i							N/A		
BW/A04 Turbine Trip / IV							N/A		
000008 Pressurizer Vapor Space Accident / III			3.01				Pressurizer Level Response	3.7	1.0
000009 Small Break LOCA / III			3.23				RCP Trip Criteria Basis	4.2	1.0
000011 Large Break LOCA / III				1.13			Limitation on RHR Pump Flow	4.1	1.0
W/E04 LOCA Outside Containment / III	1.2						Procedure Flowpath for LOCA O/S CNMT	3.5	1.0
W/E03 LOCA Cooldown/Depress. / IV	1.2						Basis for Depressurization	3.6	1.0
W/E11 Loss of Emergency Coolant Recirc. / IV	1.1						Use of RCDT Pump as a backup to RHR pumps	3.7	1.0
W/E02 SI Termination / III					2.1		Diagnosis of Procedure Entry Conditions	3.3	1.0
000022 Loss of Reactor Coolant Makeup / II	1.02						Effects of High Charging Head Flows on Pressure/Relief Valve	2.7	1.0
000025 Loss of RHR System / IV				1.02			Makeup to RCS to Restore RHR	3.8	1.0
000029 Anticipated Transient w/o Scram / I			3.01				Reactor Trip Verification	4.2	1.0
000032 Loss of Source Range NI / VII				1.01			Manual Restoration of Source Range on Failure of Auto Restoration	3.1	1.0
000033 Loss of Intermediate Range NI / VII									
000037 Steam Generator Tube Leak / III									
000038 Steam Generator Tube Rupture / III			3.06				Reason for Maintaining S/G Level in Narrow Range	4.2	1.0
000054 (CE/E06) Loss of Main Feedwater / IV									
W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / IV						2.4.20	Bleed and Feed Initiation Criteria Caution Basis	3.3	1.0
000058 Loss of DC Power / VI					2.03		Effect of Loss of DC on AC Buses and MCC's	3.5	1.0
000059 Accidental Liquid RadWaste Rel. / IX									
000060 Accidental Gaseous Radwaste Rel. / IX									
000061 ARM System Alarms / VII									
W/E16 High Containment Radiation / IX									
CE/E09 Functional Recovery							N/A		

ES-401		PWR RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2							Form ES-401-4	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points	
K/A Category Point Totals:	4	0	5	3	4	1			17	
Group Point Total:										

ES-401		PWR RO Examination Outline Plant Systems - Tier 2/Group 1										Form ES-401-4		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
001 Control Rod Drive		2.01					1.04					Power Supplies Effect of rod Movement at power	3.5 3.8	1.0 1.0
003 Reactor Coolant Pump	1.10					6.02						Seal Malfunction RCS Pressure Limitations	2.7 3.0	1.0 1.0
004 Chemical and Volume Control		2.03			5.20			2.18				VCT level Transmitter Failure Dilution flowpath/Effects Charging Pump Power Supplies	3.1 3.6 3.3	1.0 1.0 1.0
013 Engineered Safety Features Actuation			3.01	4.03								Steam Line isolation Signal Effect on ESFAS on Fuel	3.9 4.4	1.0 1.0
015 Nuclear Instrumentation						6.01	1.01					Power Range Trip Adjustment Intermediate Range Compensation Failure	2.9 2.9	1.0 1.0
017 In-core Temperature Monitor					5.03							Indications of Core Superheat	3.7	1.0
022 Containment Cooling	1.01	2.01										Service Water System on Actuation of CNMT Cooling Power Supplies to Fans Filter Damper Manual Operation	3.5 3.0 3.2	1.0 1.0 1.0
025 Ice Condenser												N/A		
056 Condensate								2.04				Loss of Condensate Pump	2.6	1.0
059 Main Feedwater	1.04		3.02									Effect of Tripping MFW on AFW Steam Generator Level Control	3.4 3.4	1.0 1.0
061 Auxiliary/Emergency Feedwater				4.01 4.02				2.07				Alternate Water Sources Pump Auto Starts Loss of Air to Valve Operators	4.1 4.5 2.7	1.0 1.0 1.0
068 Liquid Radwaste	1.07											Sources of Water to LRS	2.7	1.0
071 Waste Gas Disposal				4.02								Loss of CCW Effect on WGDS	2.5	1.0

ES-401		PWR RO Examination Outline Plant Systems - Tier 2/Group 2										Form ES-401-4		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
002 Reactor Coolant					5.15							Maintaining Subcooling during Natural Circ	4.2	1.0
006 Emergency Core Cooling						6.03						Swing Pump Response to Failure "C" SIP Start Logic	3.6	1.0
		2.01											3.6	1.0
010 Pressurizer Pressure Control											4.02	Backup Heater Operation	3.6	1.0
011 Pressurizer Level Control				4.01								Heater Cutout on Low Level	3.3	1.0
012 Reactor Protection						6.06					2.2.25	OT&T Trip Basis Multiple Channel Defeat Interactions	2.5 2.7	1.0 1.0
014 Rod Position Indication								2.01				Effect of Losing Power Supply	2.8	1.0
016 Non-nuclear Instrumentation					5.01							Separation of Control and protection	2.7	1.0
026 Containment Spray										3.01		Pump Starts	4.3	1.0
029 Containment Purge														
033 Spent Fuel Pool Cooling				4.01								SFP Pump Trips	2.9	1.0
035 Steam Generator					5.03							S/G Shrink and Swell	3.1	1.0
039 Main and Reheat Steam				4.06								Prevention of Steam Back Flow	3.3	1.0
055 Condenser Air Removal														
062 AC Electrical Distribution				4.03								4160 Breaker Interlocks	2.8	1.0
							1.01					Significance of D/G Load Limits	3.4	1.0
063 DC Electrical Distribution	1.02											Relationship between DC Buses and AC Inst Buses	2.7	1.0
			3.02									Effects of Losing DC on AC Buses	3.5	1.0

More system oriented
from K1 or K2.

ES-401 Generic Knowledge and Abilities Outline (Tier 3) Form ES-401-5

Facility: R. E. Ginna		Date of Exam: 10/19/98	Exam Level: RO	
Category	K/A #	Topic	Imp.	Points
Conduct of Operations	2.1.3	Shift Turnover Practices	3.0	1.0
	2.1.11	Knowledge of < 1 hr Tech Specs	3.0	1.0
	2.1.22	Ability to Determine Mode of Operation	2.8	1.0
	2.1.29	Knowledge of Conducting Valve Lineup (Ind. Verification)	3.4	1.0
	2.1.18	Log Keeping	2.9	1.0
	2.1.			
Total				
Equipment Control	2.2.11	Process for Controlling Temp. Procedure Changes	2.5	1.0
	2.2.12	Knowledge of Surveillance Procedures	3.0	1.0
	2.2.13	Knowledge to Tag and Clearance Procedures	3.6	1.0
	2.2.			
	2.2.			
	2.2.			
Total				
Radiation Control	2.3.4	Knowledge of Radiation Exposure Limits	2.5	1.0
	2.3.2	Knowledge of ALARA Program	2.5	1.0
	2.3.			
	2.3.			
	2.3.			
	2.3.			
Total				
Emergency Procedures and Plan	2.4.3	Ability to Identify Post Accident Instrumentation	3.5	1.0
	2.4.21	Knowledge of Red Path Entry Conditions	3.7	1.0
	2.4.31	Knowledge of Requirements for using AR Procedures	3.3	1.0
	2.4.			
	2.4.			
	2.4.			
Total				
Tier 1 Target Point Total (RO)				13

ORIGINAL

Facility: <u>R. E. Ginna</u> Date of Examination: <u>10/19/98</u> Exam Level (circle one): <u>RO</u> Operating Test No.: _____		
System / JPM Title / Type Codes*	Safety Function	Planned Follow-up Questions: K/A/G - Importance - Description
1. Rod Control (J001.001) Perform Rod Exercises per PT-1 (D) (S)	1	a. 001 K5.04 4.3/4.7 Rod Insertion Limits
		b. 001 A2.03 3.5/4.2 Effect of Misaligned Rods
2. CVCS (J004.011) Place Excess Letdown in Service (D) (S)	2	a. 103K1.08 3.6/3.8 Relationship between Containment and SIS
		b. 004 K1.34 2.7/2.9 Interface CVCS & RCDT VCT 004 A4.13 3.3/2.9 Level Control
3. SIS (J006.002) Nitrogen Makeup to Accumulator (D) (S)	3	a. 2.1.12 2.9/4.0 Ability to apply T.S. for a system
		b. 006 A1.02 3.0/3.6 Ability to Predict ECCS Parameters - Accumulator Boron Concentration
4. RHR (J005.001) Secure RHR (D) (L) (S)	4	a. 005 K4.01 3.0/3.2 RHRS Overpressure Mitigation System
		b. 005 K4.07 3.2/3.5 RHRS Protection Logics
5. ECCS (J103.001) Perform CI/CVI Attachment (Aux. Bldg) (M) (P) (R)	5	a. 005 K3.07 3.2/3.6 Effect Loss of RHR will have on Refueling Operation
		b. 103 K1.02 3.9/4.1 Containment System and Containment Integrity
6. EDG (J064.004) Start the A DG Locally (M) (A) (P)	6	a. 064 K4.02 3.9/4.2 Trips for EDG while Operating
		b. 2.1.12 2.9/4.0 Ability to Apply T/S for a System

Facility: R. E. Ginna
 Exam Level (circle one): RO

Date of Examination: 10/19/98
 Operating Test No.: _____

System / JPM Title / Type Codes*	Safety Function	Planned Follow-up Questions: K/A/G - Importance - Description
7. INST (J012.003) Defeat a Failed RCS Temperature Channel (D) (S)	7	a. 012 K4.08 2.8/3.3 RPS Design Features for Logic Matrix Testing b. 012 K4.06 3.2/3.5 Automatic or Manual Enable Disable of RPS Trips
8. CMNT (J029.001) Start Containment Purge (D) (S)	8	a. 029 K4.02 2.9/3.1 Design Features: Negative Pressure in Containment b. 029 K1.03 3.6/3.8 Cause/Effect Between Containment Purge and ESF
9. Lig Waste (J068.002) Burp the PRT (N) (S)	9	a. 068 A4.02 3.2/3.1 Operate/Monitor Remote Radwaste Release b. 071 K5.04 2.5/3.1 Relationship of Hydrogen/Oxygen Concentration to Flammability
10. UV Protection (J062.0019) Locally Trip UV Relays (D) (P) (R)	6	a. 062 K4.02 2.5/2.7 AC Distribution Design Features: Circuit Breaker Auto Trips b. 062 A4.01 3.3/3.1 Manual Breaker Operation
* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (P)lant, (R)CA		

Facility: <u>R. E. Ginna</u> Date of Examination: <u>10/19/98</u>		Exam Level (circle one): <u>SRO</u> Operating Test No.: _____	
System / JPM Title / Type Codes*	Safety Function	Planned Follow-up Questions: K/A/G - Importance - Description	
1. Rod Control (J001.001) Perform Rod Exercises per PT-1 (D) (S)	1	a. 001 K5.04 4.3/4.7 Rod Insertion Limits	
		b. 001 A2.03 3.5/4.2 Effect of Misaligned Rods	
2. SIS (J006.002) Nitrogen Makeup to Accumulator (D) (S)	2	a. 2.1.12 2.9/4.0 Ability to apply T.S. for a system	
		b. 006 A1.02 3.0/3.6 Ability to Predict ECCS Parameters - Accumulator Boron Concentration	
3. RHR (J005.001) Secure RHR (D) (L) (S)	3	a. 005 K4.01 3.0/3.2 RHRS Overpressure Mitigation System	
		b. 005 K4.07 3.2/3.5 RHRS Protection Logics	
4. ECCS (J103.001) Perform CI/CVI Attachment (Aux. Bldg) (M) (P) (R)	4	a. 005 K3.07 3.2/3.6 Effect Loss of RHR will have on Refueling Operation	
		b. 103 K1.02 3.9/4.1 Containment System and Containment Integrity	
5. EDG (J064.004) Start the A DG Locally (M) (A) (P)	5	a. 064 K4.02 3.9/4.2 Trips for EDG while Operating	
		b. 2.1.12 2.9/4.0 Ability to Apply T/S for a System	

* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (P)lant, (R)CA

Facility: <u>R. E. Ginna</u> Date of Examination: <u>10/19/98</u>		
Examination Level (circle one): <u>SRO</u> Operating Test Number: _____		
Administrative Topic/Subject Description	Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions	
A.1	Parameter Verification	JPM: Calculate a QPTR with an out of Spec. value. K/A 2.1.7 (4.4)
	Shift Personnel Responsibilities and Staffing	Question: Responsibilities and Authority of the "In Command SRO" K/A 2.1.2 (4.0) Question: Shift Staffing Requirements. K/A 2.1.4 (3.4)
A.2	Maintenance Activities Impact on Operations	Question: Process for restoring equipment to operable status following maintenance. K/A 2.2.21 (3.5)
		Question: Process for managing maintenance activities during power operations/use of the risk monitor. K/A 2.2.17 (3.5)
A.3	Radiation Protection	Question: Process for reviewing/approving release permits. K/A 2.3.7 (3.3)
		Question: Process for approving emergency exposures. K/A 2.3.4 (3.1)
A.4	Emergency Plan Classification	JPM: Perform an Event Classification K/A 2.4.41 (4.1)

As
WRITTEN

LICENSED OPERATOR TRAINING

INITIAL LICENSE PROGRAM

EXAM: L98017

Subject: NRC INITIAL LICENSE SRO EXAM

***** KEY *****

Total Points Possible: 100.0

Approved By: _____

R. E. Ginna Station Rules and Guidelines for License
Examinations

NOTE: Items 1 and 2 must be read verbatim to examinees

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic removal from licensed duties and possible disciplinary action.
2. You must sign the statement on the Exam Grade Summary Sheet that indicates that the work is your own and you have not received or been given assistance in completing the examination. This must be done after the examination has been completed.
3. Restroom trips are to be limited and only one individual 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 on the Exam Answer Sheet.
6. Fill in the date on the Exam Answer Sheet.
7. Answer all questions on the Exam Answer Sheet.
8. If parts of the examination are not clear as to intent, ask questions of the proctor only.
9. Section A of the examination is designed to take approximately 45 minutes to complete. You will be given one hour to complete this section. The Instructor SHALL allow 5 minutes for Board Walkdown.
10. Section B of the examination is designed to take approximately 90 minutes to complete. You will be given two hours to complete this section.
11. Due to the existence of questions that will require all examinations to refer to the same indications or controls, particular care must be taken to maintain individual examination security and avoid any possibility of compromise or appearance of cheating.

Power to energize the control rod drive mechanism coils originates at Bus 13 and Bus 15. Which one of the following components is not in the circuit between the bus and the CRDM.

- a. Rod drive MG sets
- b. Logic cabinet
- c. Reactor trip breakers
- d. Power cabinets

ANSWER:

- b. Logic cabinet

The plant is operating at 100% power when the RCP 1B Standpipe Hi Level alarm (B-4) comes in. RCP parameters indicate the following:

- RCP 1B No. 1 Seal Leakoff Flow has decreased to 0.24 gpm
- RCP 1B No. 1 Seal Differential Pressure greater than 400 psid and steady
- RCP 1B No. 1 Seal Leakoff Temperature 155 degrees F and steady

Which one of the following failures could lead to these indications?

- a. loss of seal injection
- b. #2 seal failed open
- c. #1 seal failed closed
- d. MOV 313 seal return line failed closed

ANSWER:

- b. #2 seal failed open

Many procedures require that the RCP #1 seal differential pressure is greater than 220 psid. Which of the following is the reason for maintaining the seal delta P.

- A. 220 psid ensures that sufficient flow from the #1 seal to prevent back flow from the VCT to the seals.
- B. 220 psid corresponds to adequate delta P across the labrynth seal for continued RCP operation
- C. 220 psid ensures adequate #1 seal and lower radial bearing cooling.
- D. No. 1 seal is a film-riding seal. 220 psid is required to maintain No. 1 seal film.

ANSWER:

-
- D. No. 1 seal is a film-riding seal. 220 psid is required to maintain No. 1 seal film.

Which of the following best describes the reactor makeup water flowpath during an ALTERNATE DILUTION, and the EFFECT of dilution with no rod motion?

- a. Reactor makeup water is sprayed into the VCT; T-avg begins to decrease and levels off lower than the initial value after the reactor makeup water pump(s) are stopped.
- b. Reactor makeup water is injected into the suction of the charging pumps; T-avg begins to increase and levels off above the initial value after the reactor makeup water pump(s) are stopped.
- c. Reactor makeup water is sprayed into the VCT; T-avg begins to increase and levels off above the initial value after the reactor makeup water pump(s) are stopped.
- d. Reactor makeup water is injected into the suction of the charging pumps and sprayed into the VCT; Tavg begins to increase and levels off above the initial value after the reactor makeup water pump(s) are stopped.

ANSWER:

- d. Reactor makeup water is injected into the suction of the charging pumps and sprayed into the VCT; Tavg begins to increase and levels off above the initial value after the reactor makeup water pump(s) are stopped.

Which one of the following lists the normal power supply for the positive displacement charging pumps 1A, 1B, 1C?

a. 1A - Bus 14
1B - Bus 14
1C - Bus 16

b. 1A - Bus 14
1B - Bus 16
1C - Bus 14

c. 1A - Bus 14
1B - Bus 16
1C - Bus 16

d. 1A - Bus 16
1B - Bus 16
1C - Bus 14

ANSWER:

c. 1A - Bus 14
1B - Bus 16
1C - Bus 16

Question: 6 (1.00 PTS) C039.0069 Rev: 0 Status: 2

Automatic isolation of the main steam lines will occur on an SI signal coincident with which of the following:

- a) High Containment Pressure 2/3 28 psig. Isolates both.
- b) Hi Hi Steam Flow 1/2 3.6 x 10⁶ lbm/hr. Isolate affected.
- c) Hi Steam Flow 1/2 .8 x 10⁶ lbm/hr and 2/4 low Tav_g 555°F. Isolates affected.
- d) Low Tav_g 2/4 545°F. Isolate both.

ANSWER:

- b) Hi Hi Steam Flow 1/2 3.6 x 10⁶ lbm/hr. Isolate affected.

Question: 7 (1.00 PTS) C000.1028 Rev: 1 Status: 3

Per a CAUTION in ER-AFW.1, ALTERNATE WATER SUPPLY TO THE AFW PUMPS, which ONE of the following is correct regarding the first preferred source of AFW to be used?

- a. SAFW pumps, taking their normal suction
- b. SAFW pumps, using city water connection
- c. AFW pumps, using SW suction supply
- d. AFW pumps, using water transferred from the outside CST

ANSWER:

- d. AFW pumps, using water transferred from the outside CST's

Question: 8 (1.00 PTS) C063.0045 Rev: 0 Status: 2

A plant trip from full power and loss of all AC power occurred at 1200 hours. How long will the batteries be able to supply adequate voltage to expected DC loads given that the proper loads are shed in accordance with UFSAR assumptions.

- a. 1400 hours
- b. 1600 hours
- c. 2000 hours
- d. 2400 hours

ANSWER:

- b. 1600

Question: 9 (1.00 PTS)

C068.0018 Rev: 0 Status: N

The plant is operating at 100% power. A 50 lbm/hr steam leak develops on a steam generator secondary manway. Where does the condensed water end up?

- a. Reactor Coolant Drain Tank
- b. CVCS Holdup Tank
- c. Waste Holdup Tank
- d. CNMT Recirc Fan Condensate Collector

ANSWER:

- c. Waste Holdup Tank

Question: 10 (1.00 PTS)

C071.0002 Rev: 0 Status: 2

The plant has just been manually tripped from 100% power due to a complete loss of component cooling flow. A few minutes later the plant vent gas monitor R-14 goes into ALERT with a reading that is still increasing. Which ONE of the following is the cause?

- a. Loss of CCW to the monitor is generating an erroneous indication.
- b. The in-service waste gas compressor has tripped, allowing the vent header relief to lift.
- c. An RCP thermal barrier heat exchanger leak has developed, allowing an activity release through the CC surge tank vent.
- d. Loss of seal water to the waste gas compressors is allowing waste gas leakage into the Auxiliary Building.

ANSWER:

- d. Loss of seal water to the waste gas compressors is allowing waste gas leakage into the Auxiliary Building.

Question: 11 (1.00 PTS)

C191.0002 Rev: 0 Status: 2

The major source of tritium in the Reactor Coolant System during power operation is?

- a. B10 reaction with a neutron.
- b. L7 reaction with a neutron.
- c. L6 Reaction with a Gamma
- d. Deuterium reaction with a neutron.

ANSWER:

-
- a. B10 reaction with a neutron.

Question: 12 (1.00 PTS)

C006.0081 Rev: 0 Status: 2

The plant experienced a small break LOCA. On SI initiation the "B" SI pump fails to start and cannot be manually started. Which of the following statement describes the response of the "C" SI Pump Discharge Valves (MOV 871A "C" SI Discharge to the "A" SI Pump Header, MOV 871B "C" SI Pump Discharge to the "B" SI Pump Header). Assume normal initial at Power Alignment.

- a. MOV-871A will close, MOV 871B will remain open.
- b. MOV-871A and B will remain open.
- c. MOV-871B will open, MOV-871A will remain closed.
- d. MOV-871B will close, MOV-871A will remain open.

ANSWER:

-
- a. MOV-871A will close, MOV-871B will remain open.

Which one of the following signals will cause the backup heaters to come on assuming all controllers in auto at normal setpoints?

- a. A decreasing pressurizer pressure of 2210 psig only.
- b. A plus or minus 5% deviation from pressurizer level program or a decreasing pressurizer pressure of 2210 psig.
- c. A minus 5% deviation from pressurizer level program only.
- d. A plus 5% deviation from pressurizer program or a decreasing pressurizer pressure of 2210 psig.

ANSWER:

-
- d. A plus 5% deviation from pressurizer program or a decreasing pressurizer pressure of 2210 psig.

Which ONE of the following transients as described below will result in DE-ENERGIZING the pressurizer backup heaters?

(Assume backup heater control switch is positioned to ON throughout the transients starting from at normal at power alignment):

- a. The pressurizer pressure controller has been shifted to manual and setpoint increased such that the proportional heaters have fully energized. Pressurizer pressure has increased to 2300 psig.
- b. The Charging Pump Speed controller has failed high, such that actual pressurizer level has increased to 55%. The operator has manually restored level to 49%.
- c. The controlling channel of pressurizer pressure has failed high, such that the spray valves have opened. Actual plant pressure has decreased to 2185 psig. The operator has swapped control channels and restored pressure to 2235 psig.
- d. The Charging Pump Speed controller has failed low, such that actual level has decreased to 9%. The operator has taken manual control and has raised level to 11% and is maintaining level at 11%.

ANSWER:

-
- d. The Charging Pump Speed controller has failed low, such that actual level has decreased to 9%. The operator has taken manual control and has raised level to 11% and is maintaining level at 11%.

Question: 15 (1.00 PTS)

C331.0095 Rev: 1 Status: 3

Select the statement below which explains which of the two types of signals generated by process control loops is more important?

- a. Control signals because they reduce the likelihood of reaching trip setpoints.
- b. Control signals because they ensure operation within Tech Spec limiting safety system settings.
- c. Protection signals because they ensure operation within the hot channel factor limits.
- d. Protection signals because they prevent reaching safety limits.

ANSWER:

-
- d. Protection signals because they prevent reaching safety limits.

Question: 16 (1.00 PTS)

C028.0023 Rev: 0 Status: 2

The hydrogen recombiner is operating in "normal" sequence with the combustor outlet temperature low. Which one of the following should occur to adjust combustor temperature.

- a) H2 Main Block Valves, BV-9 and BV-12 closes
- b) H2 Pilot Fuel Pressure Regulator, PCV-10204D throttles open
- c) Main Fuel Gas Flow Control Valve, FCV-10200N throttles open
- d) Oxygen flow Control Valve, FCV-10202F throttles closed

ANSWER:

-
- c) Main Fuel Gas Flow Control Valve, FCV-10200N throttles open

The attachment in the Emergency Operating Procedures (EOPs) for transferring water from the Spent Fuel Pit (SFP) to the Refueling Water Storage Tank (RWST) on loss of recirculation capability only uses the A SFP pump.

Which one of the following describes the reason the B SFP pump is not used?

- a. B pump has insufficient capacity to provide adequate makeup.
- b. B pump is locked off on SI.
- c. B pump trips on low SFP level.
- d. B pump cannot be lined up to RWST.

ANSWER:

- c. B pump trips on low SFP level.

The operators are swapping running service water pumps. Upon starting the A pump and then stopping the B pump, the following conditions exist:

- Service Water Header "A" Pressure prior to swapping pumps 60 psig
- Service Water Header "A" Pressure after swapping pumps 43 psig
- "B" SW pump rotating slowly in the reverse direction
- "A" SW pump operating normally
- "C" SW pump operating normally
- "D" SW pump operating normally

Which of the following actions should be performed.

- a) Isolate the "A" Service Water Pump, restart the B Service Water Pump
- b) Isolate the "B" Service Water Pump and declare it inoperable
- c) Initiate a Plant Shutdown in accordance with O-2.1 Normal Shutdown to Hot Shutdown
- d) Trip the Reactor and go to E-0

ANSWER:

- b) Isolate the "B" Service Water Pump and declare it inoperable

A steam break has occurred on the "A" S/G upstream of the MSIV and outside of CNMT. Both MSIV's are stuck open. Which one of the following will occur.

- a. The "A" S/G only will fully depressurize
- b. The "A" S/G and the "B" S/G will fully depressurize
- c. Neither S/G will depressurize
- d. Both Steam Generators will depressurize until the Auxiliary Operator completes Attachment SD-1 at which time the "B" S/G pressure will stabilize

ANSWER:

- a. The "A" S/G only will fully depressurize

Which one of the following correctly states the interlocks associated with closing the 12A normal feed breaker.

- a) - appropriate synchroscope on
- 767 or 751 breaker closed
- No #12 bus undervoltage
- No #12 transformer lockouts
- No #12 bus lockout
- Either 11A-12A ties open OR 11A normal feed and 11A-11B tie open
- b) - 767 or 751 breaker closed
- No #12 transformer lockout
- No #12 bus lockouts
- No #12 transformer undervoltage
- Either Bus 11A-12A breaker open OR Bus 11A and 11A-11B breakers open
- c) - appropriate synchroscope on
- 767 or 751 breaker closed
- No #12 transformer lockout
- No #11 transformer lockout
- No #12 transformer undervoltage
- Normal supplies to buses 11A open
- d) - appropriate synchroscope on
- 767 or 751 breaker closed
- No #12 transformer lockout
- No #12 transformer undervoltage
- No #12 Bus lockout
- either 11A-12A open OR 11A normal feed and 11A-11B tie breaker open

ANSWER:

- d) - appropriate synchroscope on
- 767 or 751 breaker closed
- No #12 transformer lockout
- No #12 transformer undervoltage
- No #12 Bus lockout
- Either 11A-12A open OR 11A normal feed and 11A-11B tie breaker open

While operating at power a fault develops on DC bus B causing the bus to deenergize. A short time later offsite power is lost. Which one of the following describes the response of the Emergency Diesel Generator system?

- A. The A D/G starts and energizes busses 14 and 18. The B emergency D/G will not start due to loss of DC power to its starting circuits.
- B. Both emergency D/Gs start, busses 14 and 18 are energized. Busses 16 and 17 will not energize due to loss of DC control power.
- C. On loss of the DC bus all control and support features swap to the alternate supply (B D/G), both emergency D/Gs start normally and supply their respective busses. No operator action will be required for at least 20 hours.
- D. On loss of the DC bus, some control and support features swap to the alternate supply (B D/G) both emergency D/Gs start and supply their respective busses. Operator action will be required on the B D/G within approximately one hour.

ANSWER:

- D. On loss of the DC bus, some starting, control and support features swap to the alternate supply (B D/G) the emergency D/Gs start and supply their respective busses. Operator action will be required on the B D/G within approximately one hour.

For liquid releases, it is required that a minimum amount of flow be established in the discharge canal to dilute the release. Without special analysis and permission from the Health Physicist, what are the minimum requirements?

- A. At least one circulating water pump must be running, no SW pumps required
- B. At least two service water pumps and a circulating water pump must be running.
- C. The recirc gate must be fully closed
- D. Either a CW pump or two SW pumps must be running.

ANSWER:

- A. At least one circulating water pump must be running, no SW pumps required?

Post Accident sampling is provided by the PASS. A sample that can be obtained from the PASS is:

- A. VCT gas sample
- B. Steam Generator sample
- C. Chemical and Volume Control Tank Sample
- D. Containment Atmosphere

ANSWER:

- D. Containment Atmosphere

Question: 24 (1.00 PTS)

C103.0014 Rev: 0 Status: 2

In order to reopen MOV-313 Seal Return Isolation following a SI,
which one of the following sequences is correct?

- a) Reset SI, Reset CI, Reset the x-y Relay and place MOV 313 switch in open
- b) Reset SI, Reset the x-y Relay, and Reset CI
- c) Reset SI, Reset CI, Reset x-y relay
- d) Reset SI, Reset the x-y Relay, place MOV-313 switch in open

ANSWER:

-
- a) Reset SI, Reset CI, Reset the x-y Relay and place MOV 313 switch in open

Question: 25 (1.00 PTS)

C002.0016 Rev: 1 Status: 3

Which of the following statements describes the unique feature
of the Wide Range RTDs installed in the RCS Cold legs?

- a. They are installed in thermowells.
- b. They measure temperature much higher than the narrow range.
- c. They are emersed directly in the RCS.
- d. They are used in control circuits to regulate RCS temperature when the temperature is below the narrow range.

ANSWER:

-
- a. They are installed in thermowells.

A loss of instrument air pressure is in progress due to a loss of all instrument air compressors. Which one of the following methods will normally supply a backup air source?

- a. Breathing air compressor will auto start on low pressure and supply instrument air system.
- b. A normally closed manual isolation valve can be opened to crosstie service air and instrument air systems.
- c. An automatic pressure regulating valve will open to float the instrument air system on service air if pressure drops below 90 psig.
- d. Two spoolpieces can be connected between normally blind flanged connections to crosstie service and instrument air systems.

ANSWER:

- c. An automatic pressure regulating valve will open to float the instrument air system on service air if pressure drops below 90 psig.

The response of the S/G level control system to a LT-463 channel failure is:

- A. The average of the two (2) "A" S/G remaining good channels are used for control; level control remains in automatic; ADFCS trouble alarm occurs.
- B. The control system makes a "bumpless" transfer to manual for the "A" steam generator; FW fail to manual alarm occurs at engineer/operator station in the relay room.
- C. The failed signal is rejected; the middle signal is used for control for the "A" S/G; level control remains in automatic; ADFCS trouble alarm occurs.
- D. The failed signal is rejected; the middle signal is used for control for the "A" S/G; level control remains in automatic; no alarms occur.

ANSWER:

-
- C. The failed signal is rejected; the middle signal is used for control for the "A" S/G level control remains in automatic; ADFCS trouble alarm occurs.

Note: DO NOT USE THIS QUESTION FOR REQUAL. LIC CLASS ONLY

Question: 28 (1.00 PTS)

C000.1014 Rev: 0 Status: 2

The unit is at 50% power. Which ONE of the following situations would require a manual reactor trip?

- a. A control rod lower than its associated group is being restored per ER-RCC.2, RESTORING MISALIGNED ROD, when the rod suddenly starts driving out at 66 spm
- b. AP-RCC.2, RCC/RPI MALFUNCTION, is being performed when it is discovered that 3 rods in control bank D are misaligned
- c. During retrieval of a dropped rod per ER-RCC.1, RETRIEVAL OF A DROPPED ROD, it is determined that the shutdown margin is inadequate
- d. While performing PT-1, ROD CONTROL SYSTEM, the selected rod bank moves IN 3 steps when OUT motion is demanded.

ANSWER:

-
- a. A control rod lower than its associated group is being restored per ER-RCC.2, RESTORING MISALIGNED ROD, when the rod suddenly starts driving out at 66 spm

Question: 29 (1.00 PTS)

C000.0189 Rev: 1 Status: 3

Which of the following procedures contain the correct guidance for responding to a dropped rod while at power?

AP-RCC.2, RCC RPI Malfunction
AP-TURB.2, Turbine Load Rejection
AP-RCC.3, Dropped Rod Recovery
ER-RCC.1, Retrieval of a Dropped Rod

- a. AP-TURB.2 to AP-RCC.3
- b. AP-RCC.2 to AP-RCC.3
- c. AP-TURB.2 TO AP-RCC.2 TO AP-RCC.3
- d. AP-RCC.3 and ER-RCC.1

ANSWER:

-
- d. AP-RCC.3 and ER-RCC.1

Assume the following plant conditions exist:

- 1200 2/20/96
- 100% power
- Group counter Bank D = 210 steps
- MRPI Rod C7 Bank D = 174
- MRPI Rod K7 Bank D = 186
- MRPI Rods G3 and G11 Bank D = 210 steps
- QPTR = 1.014
- C-5 PPCS Rod sequence rod deviation alarm lit
- MRPI has been verified to have no faults

Besides verify SDM (or borate) by 1300 which one of the following describes the required plant operations?

- a. Be in mode 2, with keff < 1, by 2000
- b. Be in mode 3 by 1800
- c. Reduce power to $\leq 75\%$ by 1400 (and additional surveillances) unrestricted ops allowed below 75%
- d. Reduce power to $\leq 75\%$ by 1400 (and additional surveillances) and be in mode 2 with keff < 1 by 1800 hours

ANSWER:

-
- d. Reduce power to $\leq 75\%$ by 1400 (and additional surveillances) and be in mode 2 with keff < 1 by 1800 hours

TC # 96-080

Assume a faulty pressurizer safety valve fails open, while the plant is at hot shutdown. Which one of the following describes the behavior of pressurizer level?

- a. The pressurizer rapidly empties, then begins to rise as pressure drops and safety injection pumps are able to refill the RCS.
- b. Pressurizer level becomes erratic and unreliable due to flashing in the reference legs of the level instruments.
- c. The pressurizer level will initially slowly decrease, then rapidly increase as RCS pressure drops below saturation for reactor vessel head temperature.
- d. Level increases initially due to swell as boiling begins in the pressurizer, drops due to inventory loss, then recovers from injection flow.

ANSWER:

- c. The pressurizer level will initially slowly decrease, then rapidly increase as RCS pressure drops below saturation for reactor vessel head temperature.

A small break LOCA is in progress. Safety injection has initiated and injection flow has been verified.

Which one of the following describes why it is still necessary to maintain steam generator levels?

- a. To ensure adequate secondary pressure to prevent exceeding the U-tube differential limit.
- b. To ensure adequate heat sink if injection/break flow is not adequate to remove all decay heat.
- c. To prevent thermal shock to the tubesheet in the event of steam generator dryout.
- d. To prevent an undesired steamline differential pressure SI after low pressure SI is reset.

ANSWER:

- b. To ensure adequate heat sink if injection/break flow is not adequate to remove all decay heat.

In ES-1.3, Transfer to Cold Leg Recirculation, as part of aligning for recirculation, step six checks RHR flow less than 1500 gpm per operating pump.

A caution prior to step six says:

"The RHR Hx outlet valves (HCV-624 and HCV-625) will fail open on loss of instrument air pressure."

Which one of the following explains the basis for this caution?

HCV-624 and HCV-625 full open may result in:

- A) an excessive cooldown rate unless the RHR heat exchanger bypass (HCV-626) is manually opened.
- B) inadequate RHR pump NPSH if a single RHR pump suction valve and both core deluge valves are open.
- C) plugging of the "B" sump suction strainers due to excessive RHR system flow.
- D) CCW flashing to steam in the RHR heat exchangers and CCW surge tank level oscillations.

ANSWER:

- B) inadequate RHR pump NPSH if a single RHR pump suction valve and both core deluge valves are open.

Following a safety injection from a loss of coolant accident, which operator procedural action(s) is(are) required if a LOCA outside of containment cannot be isolated.

- a. Transition from E-0 to ECA-1.2, LOCA Outside Containment, which gives full recovery guidance.
- b. Transition from E-0 to ECA-1.2, LOCA Outside Containment, and when it is determined the LOCA cannot be isolated, transition to ES-1.2, Post LOCA Cooldown and Depressurization, until RWST < 28%, then go to ECA-1.1, Loss of Emergency Recirculation.
- c. Transition from E-0 to ECA-1.2 LOCA Outside Containment and then to ECA-1.1 Loss of Emergency Coolant Recirculation, when RWST < 28%.
- d. Transition from E-0 to ECA-1.2, LOCA Outside Containment and then to ECA-1.1, Loss of Emergency Coolant Recirculation, when it is determined that the LOCA cannot be isolated.

ANSWER:

- d. Transition from E-0 to ECA-1.2, LOCA Outside Containment and then to ECA-1.1, Loss of Emergency Coolant Recirculation, when it is determined that the LOCA cannot be isolated.

A caution in FR-H.1, Response to Loss of Secondary Heat Sink states:

If WIDE RANGE level in both S/G's decreases to less than 35 inches (100 inches adverse CNMT) OR PRZR pressure increases to greater than 2335 psig due to loss of heat sink, then steps 13 through 15 should be immediately initiated for bleed and feed.

Which one of the following is the reason an immediate bleed and feed is initiated under these conditions?

- a. If bleed and feed is delayed PORV's may not remove enough energy to depressurize RCS to less than SI pump shutoff head.
- b. This ensures some water left in the S/Gs so that thermal stress is reduced on a later initiation of feed.
- c. If bleed and feed is delayed, the RCS pressure rise may not be terminated prior to exceeding RCS pressure safety limit.
- d. If bleed and feed is delayed the RCS void content will increase which will preclude continued RCP operations.

ANSWER:

- A. If Bleed and feed is delayed PORV's may not remove enough energy to depressurize RCS to less than SI pump shutoff head.

Which one of the following statements is the preferred order of restoring the RCS loop level following an erratic RHR flow with levels in the loops less than 30 inches and RCS temperature less than 200°F?

- a. Charging to loop B cold leg, safety injection to cold legs, RWST gravity feed, safety injection to hot legs.
- b. RWST gravity feed, charging to loop B cold leg, safety injection to cold legs, safety injection to hot legs.
- c. Safety injection to hot legs, charging to loop A cold leg, safety injection to cold legs, RWST gravity feed.
- d. Charging to loop A cold leg, RWST gravity feed, charging to loop hot legs, safety injection to cold legs.

ANSWER:

-
- b. RWST gravity feed, charging to loop B cold leg, safety injection to cold legs, safety injection to hot legs.

TC 97-063

Several EOP's require tripping the RCP's based on the delta P between the RCS and S/G's. What is the basis for this tripping criteria?

- A. Since continuous operation of the RCP's during a LOCA cannot be guaranteed, tripping the RCP's during accident conditions is to prevent excessive depletion of RCS water inventory.
- B. RCP forced flow can lead to further erosion of the break location resulting in a larger size LOCA.
- C. Tripping RCP's early results in a phase separation of RCS mass. This phase separation will then clearly show the void on RVLIS for further verification of ICC conditions.
- D. Operation of the RCP during a LOCA will result in two phase flow which will cause severe vibration and possible failure of the pump.

ANSWER:

- A. Since continuous operation of the RCP's during a LOCA cannot be guaranteed, tripping the RCP's during accident conditions is to prevent excessive depletion of RCS water inventory.

From the list below, identify the plant condition which will result in the most severe plant response, with respect to core restart, for a large steamline break accident.

- A. BOL, HFP Due to the highly negative Moderator Temperature Coefficient and the High Feedwater Flow to the Steam Generator.
- B. BOL, HZP Due to the slightly negative Moderator Temperature Coefficient and the large mass of water in the Steam Generator.
- C. EOL, HFP Due to the highly negative Moderator Temperature Coefficient and the High Feedwater Flow to the Steam Generator.
- D. EOL, HZP Due to the highly negative Moderator Temperature Coefficient and the large mass of water in the Steam Generator.

ANSWER:

-
- d. EOL, HZP Due to the highly negative Moderator Temperature Coefficient and the large mass of water in the Steam Generator.

What is the basis for establishing a minimum level in a ruptured steam generator in E-3 Steam Generator Tube Rupture prior to isolating AFW?

- a. To maximize back pressure and minimize break flow
- b. To promote thermal stratification in the ruptured SG during the subsequent RCS cooldown and depressurization
- c. To maintain the ruptured S/G as a heat sink
- d. To prevent dryout and subsequent corrosive failure of additional steam generator U-tubes due to thermal stresses

ANSWER:

-
- b. To promote thermal stratification in the ruptured SG during the subsequent RCS cooldown and depressurization

An SI has occurred, and a red path on SUBCRITICALITY has directed you to FR-S.1, Response to Reactor Restart or ATWS.

Step 4 of FR-S.1, Initiate Emergency Boration of RCS has the operator check SI status. If SI flow is indicated, immediate boration via MOV-350 is not attempted because:

- a. RCPs have been tripped, and boration flow through the RCP seals is reduced.
- b. SI pumps will be injecting and are more effective at boron addition than charging pumps.
- c. Immediate boration flow will be ineffective due to the loss of power to the Makeup System that occurred when Buses 13 and 15 were tripped in E-0.
- d. A steam break has occurred and addition of too much boric acid may result in a positive value of Moderator Temperature Coefficient.

ANSWER:

-
- b. SI pumps will be injecting and are more effective at boron addition than charging pumps.

Assume the following:

- Both reactor coolant pumps are deenergized.
- The incore thermocouples are reading 440°F and decreasing.
- Head thermocouples read 600°F.
- The RCS cold leg temperatures are 400°F and decreasing.
- The RCS pressure is 1500 psig and slowly decreasing.
- The pressurizer level has rapidly increased from 35% to 48%.

Which one of the following is the reason for the change in the pressurizer level?

- a. RCS pressure has decreased to the point where the safety injection pumps have begun injecting into the RCS.
- b. Anticipated response due to uneven loop cooling and flows during natural circulation.
- c. RCS depressurization has caused saturated conditions and a steam void in the reactor vessel head area.
- d. Pressurizer level swings are expected due to steam entering the pressurizer and surge line.

ANSWER:

- c. RCS depressurization has caused saturated conditions and a steam void in the reactor vessel head area.

ECA-0.0, Loss of All AC Power, instructs the operator to place equipment (charging pumps, SI pumps, RHR pumps) in Pull-To-Lock if neither train of AC emergency buses is energized. This action is taken because:

- a. The equipment placed in Pull-To-Lock will not be required if ECA-0.0 is successfully completed.
- b. The equipment placed in Pull-To-Lock to prevent auto-start upon bus re-energization and avoid potential transient.
- c. The equipment is placed in Pull-To-Lock to prevent auto-start upon bus re-energization and avoid potentially overpressurizing the RCS.
- d. The equipment is placed in Pull-To-Lock to prevent auto-start upon bus re-energization and avoid potential overload and loss of the bus.

ANSWER:

- d. The equipment is placed in Pull-To-Lock to prevent auto-start upon bus re-energization and avoid potential overload and loss of the bus.

Question: 43 (1.00 PTS)

C000.0663 Rev: 0 Status: 2

The Moveable Incore Detector System (MIDS) can be used post-accident to assess core damage. Which of the following describe how the system is used.

- A. MIDS can be setup for a low level trace of delayed neutrons and the trace subsequently analyzed.
- B. MIDS can be setup for a low level trace of gamma radiation and the trace subsequently analyzed.
- C. If the MIDS detectors insert to their normal insertion distance, this indicates there is no core damage.
- D. If the MIDS indicate erratic output the entire length of core this indicates severe core damage.

ANSWER:

-
- B. MIDS can be setup for a low level trace of gamma radiation and the trace subsequently analyzed.

Question: 44 (1.00 PTS)

C000.0667 Rev: 0 Status: 3

Which one of the following correctly states how incore thermocouples (TCs) would be used to determine the onset of inadequate core cooling?

- A. When any 5 core exit TCs are greater than 1200 degrees F.
- B. When any 5 core exit TCs are greater than 700 degrees F.
- C. When any non-failed core exit TC is greater than 1200 degrees F.
- D. When any non-failed core exit TC is greater than 700 degrees F.

ANSWER:

-
- A. When any 5 core exit TCs are greater than 1200 degrees F.

The plant has made a significant release of Radioactive gas above Tech Specs. Which one of the following correctly states the major factors that affect the off-site dose rates.

- a. Population density, wind speed and atmospheric stability and distance from plant
- b. Wind speed, atmospheric stability, radioactive gas release rate and distance from plant.
- c. Population density, wind speed, distance from plant and radioactive gas release rate.
- d. Distance from plant, radioactive gas release rate, atmospheric stability and precipitation.

ANSWER:

- b. Wind speed, atmospheric stability, radioactive gas release rate and distance from plant.

In ES-1.2 "Post LOCA Cooldown and Depressurization", all SI pumps are stopped, the next Major Action Category is to "Depressurize the RCS to minimize RCS subcooling."

Which one of the following describes the purpose of this action:

- a. Minimize chance of PTS by reducing pressure stress.
- b. Reduce pressure to inject the accumulators.
- c. Reduce pressure to allow RHR to inject into the RCS.
- d. Minimize break flow and reduce RCS makeup requirements.

ANSWER:

- d. Minimize break flow and reduce RCS makeup requirements.

Which of the following lists the basis for the Control Rod Insertion Limits.

- a) Limit reactivity inserted on an Ejected Rod
Limit Core Power Peaking Factors
Provide Adequate Shutdown Margin
- b) Maximize Control Rod maneuvering capability
Limit Core Power Peaking Factors
Provide Adequate Shutdown Margin
- c) Limit Reactivity inserted on an Ejected Rod
Limit Core Power Peaking Factors
Minimize Effects of a Dropped Rod
- d) Limit Reactivity inserted on a Dropped Rod
Minimize Control Rod Differential Worth
Provide Adequate Shutdown Margin

ANSWER:

-
- a) Limit reactivity inserted on an Ejected Rod
Limit Core Power Peaking Factors
Provide Adequate Shutdown Margin

The supply breaker for MCC 1K trips on a fault. The MCC cannot be restored. Which of the following tasks cannot be performed in the normal manner?

- a. Monitor control rod position within 12 steps of demand position using the MRPI system.
- b. Control pressurizer pressure with Pressurizer Pressure Controller PI-431K.
- c. Manually control feedwater using the ADFCS controllers on the MCB.
- d. Monitor core exit subcooling on the Plant Process Computer System.

ANSWER:

-
- a. Monitor control rod position within 12 steps of demand position.

A plant startup is in progress with the following conditions existing:

- Reactor Power = 16%
- Generator output breaker 9x-13A72 just closed
- Main Feedwater Pump B running
- AFW Bypass switches in Normal

If a trip of the B MFP occurs, what will be the effect on the AFW system assuming S/G level remains >17%?

- A. Both MDAFW pumps start immediately.
- B. Both MDAFW pumps start after 30 second time delay.
- C. Both MDAFW pumps do not start.
- D. TDAFW pump and both MDAFW pumps start.

ANSWER:

- A. Both MDAFW pumps start immediately.

With RCS Tavg channel 403, blue channel, defeated; which one of the following channel defeats would result in a reactor trip.

- A. RCS flow 1A-1 FI-411, red channel.
- B. RCS flow 1B-3 FI-416, yellow channel.
- C. PRZR Press PI-449, yellow channel.
- D. PRZR Press PI-431, blue channel.

ANSWER:

- C. PRZR Press PI-449, yellow channel.

The following conditions exist:

RCS Pressure 1155 psig
Core Exit T/C-600°F
No RCP's running
RVLIS - 63%

What core condition exists?

- a. Saturated core cooling condition
- b. Subcooled core cooling condition
- c. Inadequate core cooling condition
- d. Superheated core cooling condition

ANSWER:

- d. Superheated core cooling condition

Which one of the following is an auto start signal for the standby condensate pump:

- A. Low condensate header pressure of 285 psi with either generator output breaker closed.
- B. Hi hotwell level 60 inches.
- C. Running condensate pump trips.
- D. Low main feed pump suction pressure of 185 psi.

ANSWER:

- C. Running condensate pump trips.

During plant conditions at Hot Shutdown it becomes necessary to secure the running CNMT Recirc Fans. Which of the following is correct regarding this situation:

- a) Securing the fans has no effect since the Reactor Compartment Cooler are sufficient to cool containment.
- b) CNMT will heatup causing Steam Generator levels to indicate lower than actual.
- c) CNMT will heat up causing Steam Generator levels to indicate higher than actual
- d) CNMT will heat up but this will not affect S/G levels

ANSWER:

- c) CNMT will heat up causing Steam Generator levels to indicate higher than actual

Which one of the following describes the design basis of the Containment Spray System for LOCA accidents.

- a. Removes hydrogen and heat from the containment atmosphere
- b. Removes iodine and heat from the containment atmosphere
- c. Removes heat from the containment atmosphere
- d. Removes noble gas and iodine from the containment atmosphere

ANSWER:

- b. Removes iodine and heat from the containment atmosphere

Which one of the following will cause automatic actuation of the Containment Spray System?

- a. 2/3 containment pressure instruments at 18 psig.
- b. 2/3 containment pressure instruments at 28 psig.
- c. 2/3 out of 2/2 sets of containment pressure instruments at 28 psig.
- d. 2/3 out of 2/2 sets of containment pressure instruments at 18 psig.

ANSWER:

- c. 2/3 out of 2/2 sets of containment pressure instruments at 28 psig.

Which one of the following describes the "shrink" response of S/G level?

- a. On an increase in steam flow, S/G pressure decreases expanding bubble in the riser section which decrease flow resistance causing downcomer level to decrease.
- b. On a decrease in steam flow, S/G pressure increases collapsing bubble in the riser which decreases flow resistance causing downcomer level to decrease.
- c. On decreasing steam flow, S/G pressure decreases causing bubble in the riser to collapse which decreases flow resistance causing downcomer level to decrease.
- d. On increasing steam flow, S/G pressure increase causing bubble in the riser to collapse which decrease flow resistance causing downcomer level to decrease.

ANSWER:

- b. On a decrease in steam flow, S/G pressure increases collapsing bubble in the riser which decreases flow resistance causing downcomer level to decrease.

Question: 57 (1.00 PTS)

C300.0250 Rev: 3 Status: 3

In procedure O-15.1, "Administrative Requirements Checklist for Entry into Mode 6, Refueling" there is a step that requires 2 RHR Loops to be operable when < 23 feet of water in the cavity. What is the basis for that step:

- A. Provides additional boron mixing capability
- B. Provides additional decay heat removal capability
- C. Provides additional boron mixing and proper iodine removal capabilities for fuel handling accident
- D. Provides additional decay heat removal and proper iodine removal capabilities for fuel handling accident.

ANSWER:

B. Provides additional decay heat removal capability

(1c question)
98-002

Question: 58 (1.00 PTS)

C076.0002 Rev: 1 Status: 3

Under which one of the following conditions will Service Water Isolation signal be generated?

- a. SI signal and Emergency Diesel Generator Start
- b. Undervoltage on Busses 14 or 16 only
- c. DG auto start and undervoltage Busses 14 or 16
- d. SI signal with a normal supply breaker open on Bus 14 or 16

ANSWER:

d. SI signal with a normal supply breaker open on Bus 14 or 16

T.C. 94-049

Question: 59 (1.00 PTS)

B002.0035 Rev: 0 Status: 3

During full power operation, a loss of component cooling water to
an RCP will have the most effect on:

- a. RCP No. 1 seal outlet temperature
- b. RCP lower bearing (radial) water temperature
- c. RCP bearing (motor) temperatures
- d. RCP stator winding temperature

ANSWER:

- c. RCP bearing (motor) temperatures

Select from the below listed components the most likely possible sources of leakage into the CCW System.

- A. RCP thermal barrier heat exchanger
Non-Regen Heat Exchanger
SI pumps while in standby
Running CS pump.
- B. RCP thermal barrier heat exchanger
CS pumps while in standby
Running SI pumps
Primary Sample Heat exchanger
- C. Running SI pump
Running CS pump
Excess letdown heat exchanger when in service
Primary sample heat exchanger
- D. Reactor Support cooling
Boric Acid Exporator
RCP Thermal Barrier heat exchanger
Non-Regen Heat Exchanger

ANSWER:

- C. Running SI pump
Running CS pump
Excess letdown heat exchanger when in service
Primary Sample heatexchanger

While operating at power, pressurizer pressure instrument PT-449 fails high. Pressurizer pressure controlling channel is selected to Normal. Which one of the following describes plant response to this failure.

- a. Both sprays open and both PORV's open and PRZR heaters off.
- b. Both spray valves open and all PRZR heaters off.
- c. Both spray valves open. One PORV (PCV-431C) open; and all PRZR heaters off.
- d. PT-449 pressurizer pressure channel would be indicating high with no other plant response.

ANSWER:

- b. Both spray valves open and all PRZR heaters off.

When establishing flow to a SG with low level that currently has less than 50 gpm flow Procedure FR-H.5, Response to Steam Generator Low Level states in Step 4:

"If affected SG(s) wide range level is less than 35 inches (110 inches adverse CNMT), then establish AFW flow to the affected SG(s) at a rate not to exceed 100 gpm.

Which one of the following is the reason for this limit?

- a. To minimize thermal stresses to SG components
- b. To minimize water hammer to the SG feed ring
- c. To prevent Reactor restart from an excessive cooldown
- d. To prevent reactor vessel thermal stress from an excessive cooldown rate

ANSWER:

- a. To minimize thermal stresses to SG components

Starting from full power operation, a steam line break resulted in an uncontrolled cooldown to a cold leg temperature of 230 degrees F in just twenty minutes. Immediate and subsequent actions of E-0 have been completed and a transition to E-2 has been made. The initial cooldown has terminated and operator control of RCS temperatures is now possible.

NR level in non-faulted steam generator at 10%
CET's read 350°F average
RCS pressure is 490 psig
CNMT pressure is at 16 psig
RCS cold leg temperatures are stable

Which one of the following describes proper temperature control under these conditions:

- a. Cooldown should be continued at a controlled rate (i.e., less than the 100 degrees F/hour limit).
- b. Cooldown should be continued at a significantly reduced rate (i.e., less than 25 degrees F/hour).
- c. RCS temperatures should be stabilized at their present values.
- d. A controlled heatup at just under the 60 degrees F/hour limit should be commenced to increase RCS temperatures above nil ductility temperature limits.

ANSWER:

- c. RCS temperatures should be stabilized at their present values.

Which one of the following lists describes the major
plant responses to a loss of any single instrument bus?

Assume no corrective action is taken by the operator and plant at
100% power normal lineups on all systems.

- a. 1) Average Tavg - Tref deviation rod stop
2) Turbine Load Limit runback
3) Delta T and rod stop single channel alert
- b. 1) Average Tavg - Tavg deviation rod stop
2) Dropped rod rod stop
3) Delta T and rod stop single channel alert
- c. 1) Average Tavg - Tref deviation rod stop
2) Low pressure SI single channel alert
3) Delta T and rod stop single channel alert
- d. 1) Average Tavg - Tavg deviation rod stop
2) Letdown Isolation
3) Turbine Load Limit runback

ANSWER:

-
- b. 1) Average Tavg - Tavg deviation rod stop
2) Dropped rod rod stop
3) Delta T and rod stop single channel alert

Question: 65 (1.00 PTS)

C000.1040 Rev: 0 Status: 3

Which of the following conditions would require an entry into
ER-FIRE.1 Alternate Shutdown for Control Complex Fire:

- a) Small fire in the Control Room kitchen involving the stove and electrical panel
- b) An AO notices smoke coming out of a rack in the Relay Room
- c) A large uncontrollable fire in the "A" Battery Room
- d) A Main Control Board fire which is spreading despite efforts to control

ANSWER:

-
- d) A Main Control Board fire which is spreading despite efforts to control

Question: 66 (1.00 PTS)

C016.0136 Rev: 0 Status: 3

During a Control Room evacuation (with no fire) the Control Room operators are dispatched to various locations in the plant. Which one of the following describes the station of the Head Control Operator and the functions which the HCO will control.

- a) AFW Pump Area, AFW Pumps and PR1X Backup Heaters
- b) AFW Pump Area, AFW Pumps and Service Water Pumps
- c) Charging Pump Room, Charging and Letdown
- d) Charging Pump Room, Charging and PRZR Backup Heater

ANSWER:

-
- a) AFW Pump Area, AFW Pumps and PRZR Backup Heaters

While the plant is operating at 100% power, it is determined that AOV 7478 CNMT mini purge supply fail to meet leakage requirements. Which one of the following statements is correct regarding continued operation.

- a. Close and deactivate AOV 7445 within 1 hr or mode 5 next 36 hrs (mode 3 in 6 hrs)
- b. Close and deactivate AOV-7445 within 4 hours or mode 5 next 36 hours (mode 3 in 6 hrs)
- c. Close and deactivate AOV 7445 within 24 hours or mode 5 next 36 hours (mode 3 in 6 hrs)
- d. Close and deactivate AOV 7445 within 72 hours or mode 5 next 36 hours (mode 3 in 6 hrs)

ANSWER:

-
- c. Close and deactivate AOV 7445 within 24 hours or mode 5 next 36 hours (mode 3 in 6 hrs)

TC 97-039

Given the following information:

- Reactor is at full power at EOL
- RCS unidentified leakage is 0.25 gpm
- 0.2% fuel failure has occurred over the current cycle

Which ONE of the following radiation monitors will reach its ALARM setpoint to detect the fuel failure?

- a. R-2 Containment Area Monitor
- b. R-9 Letdown Line Monitor
- c. R-10B Plant Vent Iodine Monitor
- d. R-33 Nuclear Sample Room Wide Range Area Monitor

ANSWER:

- b. R-9 Letdown Line Monitor

For a valid reactor trip signal, it is noted while performing step 1 of E-0 that the rods are still at the same respective positions as prior to the receipt of the automatic trip signal.

Which one of the following is the first action to be performed?

- a. Open bus 13 and bus 15 normal feed breakers
- b. Manually insert control rods
- c. Initiate emergency boration
- d. Manually trip the reactor

ANSWER:

- d. Manually trip the reactor

Which one of the following lineups describes the basic flowpath that would be used if the RCDT pumps were used for Recirculation following a loss of RHR following a LB LOCA.

- a. RWST to RCDT pump to RHR Hx to loop cold leg to loop hot leg
- b. Loop hot leg to RCDT pump to RHR Hx to loop cold leg
- c. CNMT sump to RCDT pump to RHR Hx to core deluge
- d. CNMT to RCDT pump to RHR Hx to loop cold leg

ANSWER:

- c. CNMT sump to RCDT pump to RHR Hx to core deluge

During a shutdown, both Source Range fail to auto energize. Upon investigation it is discovered that N-35 Intermediate Range

-10

Channel is reading 1×10^{-10} . Which of the following is the correct action to restore source range power.

- a) Remove Instrument Power Fuses from two power range channel to defeat permissive P-10
- b) Depress both of the P-6 defeat pushbutton simultaneously
- c) Place the Level Trip Bypass switch to bypass on the affected Intermediate Range.
- d) Remove power from the P-6 interlock by placing switches RLTR-1 and RLTR-2 to on in the Reactor Protection Racks

ANSWER:

- b) Depress both of the P-6 defeat pushbutton simultaneously

Which statement describes the symptoms of an Intermediate Range channel compensating voltage failure low on a Reactor Shutdown?

- a. The intermediate range current will drop off faster than reactor power and will level off high due to the gamma flux that is present after a reactor trip.
- b. The intermediate range current will drop off faster than reactor power and will level off lower due to the compensation of all the gamma current and some of the neutron current.
- c. The intermediate range current will initially drop with reactor power but will drop faster and level lower due to the overcompensation of gamma flux that is present after a reactor trip.
- d. The intermediate range current will initially drop off with reactor power but will level off high due to the gamma flux that is present after a reactor trip.

ANSWER:

- d. The intermediate range current will initially drop off with reactor power but will level off high due to the gamma flux that is present after a reactor trip.

Which one of the following methods is used to quantify a primary to secondary leak rate?

- A. Performance of an RCS leakrate surveillance and subtracting the result of the previous surveillance.
- B. Comparison of precise values of charging and letdown flow obtained from the plant computer
- C. Chemistry analysis
- D. Comparison of feed flow minus blow down flow of the two steam generators.

ANSWER:

C. Chemistry analysis

The unit is at 100% power steady state with normal Service Air and Instrument Air System lineups.

- Service Air Comp. is in 'constant run'
- C Inst. Air Comp. running
- A&B Inst. Air Comp. in "Auto" but not running

The following event then occurs. The Inst. Air header fails in the Auxiliary Bldg but is isolated within minutes by closing valve V-7350. Which one of the following correctly states the effect on continued plant operation assuming 3 to 4 days is required for repairs.

- A. Repair time is irrelevant, the plant should have already tripped. Actions per E-0 Reactor Trip or Safety Injection should be taking place.
- B. The unit will have to shutdown because it has lost the ability for spray additive (Sodium Hydroxide) on the Containment Spray System.
- C. The unit will have to shutdown because this event results in a loss of RCS Inventory control ie; normal CVCS and excess letdown.
- D. The unit can continue to operate at full power with charging pump suction manually aligned to RWST.

ANSWER:

- C. The unit will have to shutdown because this event results in a loss of RCS Inventory control ie; normal CVCS and excess letdown.

TC 94-103

You have entered E-0, "Reactor Trip or Safety Injection", with all plant conditions stable, what procedure would you transition to from E-0, based on the following information.

- Steam Generator narrow range levels at 20% and stable
 - RCS pressure = 1700 psig and increasing
 - Pressurizer level = 10% and stable
 - Core Exit TC temperature = 547 degrees F
 - All radiation monitors normal
 - Containment pressure = 0.3 psig
 - Steam Generator pressures = 980 psig and stable
 - Safeguard sequence was initiated
- A. ES-0.0 Rediagnosis
- B. ES-0.1 Reactor Trip Response
- C. E-1 Loss of Reactor or Secondary Coolant
- D. ES-1.1 SI Termination

ANSWER:

D. ES-1.1 SI Termination

During plant operations with all control systems in normal configuration, the following alarms occur:

A-4 Regen Hx Outlet Hi Temp 395°F
F-4 Pressurizer Level Deviation ±5%
F-28 Pressurizer High Level Channel Alert 87%

Which of the following malfunctions could have resulted in these indications.

- a. Charging Pump Speed Control failing to High Speed
- b. LT-427 Pressurizer Level Failing High
- c. LT-428 Pressurizer Level Failing High
- d. HCV-142 Charging Backpressure Control Valve Failing Closed

ANSWER:

-
- c. LT-428 Pressurizer Level Failing High

A loss of offsite power has occurred with the plant at 100% power. Following the action of E-0, the operators transition to ES-0.1. They are directed to restore Tave to 547°F. Which of the following would be effective in restoring Tavg.

- a. Swap Condenser Steam Dump to pressure control and lower the setpoint.
- b. Set the S/G ARV controllers to 1005 psig in Auto.
- c. Set the S/G ARV controllers to less than 1005 psig in Auto
- d. Set the S/G ARV controllers to 1050 psig in Auto.

ANSWER:

-
- c. Set the S/G ARV controllers to less than 1005 psig in Auto.

Question: 78 (1.00 PTS)

C034.0067 Rev: 0 Status: 3

Which one of the following manipulator crane features prevent unlatching an assembly that is not being supported from below.

- a. Dillon load cell indication
- b. Gripper interlock circuit
- c. Bridge - trolley position limits
- d. Slack cable limiting circuit

ANSWER:

- b. Gripper interlock circuit

Question: 79 (1.00 PTS)

B004.0022 Rev: 1 Status: 3

Determine how much boric acid should be added for two (2) stuck rods following a reactor trip.

- a. 650 gallons
- b. 675 gallons
- c. 1300 gallons
- d. 1350 gallons

ANSWER:

- c. 1300 gallons

Which of the following statements gives the reason that three charging pumps should not be run at high speed while the RCS is at normal pressure.

- a) High Flows will cause excessive vibration in the charging line potentially leading to failures.
- b) The Charging Pump Relief Valves could lift resulting in a loss of Charging Flow.
- c) High Flows could cause damage to the seal injection filter resulting in RCP Seal Damage.
- d) High Flow could damage the pulse dampener partition plate

ANSWER:

- b) The Charging Line Relief Valve could lift resulting in a loss of Charging Flow.

Which of the following lists the power supplies for the CNMT Recirc Fan Coolers.

- a) CNMT Recirc Fans A and B - Bus 14
CNMT Recirc Fans C and D - Bus 16
- b) CNMT Recirc Fans A and C - Bus 14
CNMT Recirc Fans B and D - Bus 16
- c) CNMT Recirc Fans A and D - Bus 14
CNMT Recirc Fans B and C - Bus 16
- d) CNMT Recirc Fans A and D - Bus 16
CNMT Recirc Fans B and C - Bus 14

ANSWER:

- c) CNMT Recirc Fans A and D - Bus 14
CNMT Recirc Fans B and C - Bus 16

Which of the following statements describe the makeup water source for the CCW Surge Tank.

- a) Reactor Makeup Water Tank
- b) Condensate Storage Tanks
- c) Service Water System
- d) City Water System

ANSWER:

- a) Reactor Makeup Water Tank

Following a large break LOCA, a Red Path on the Integrity CSFST is received. The operators enter FR-P.1 but transition back to E-1, "Loss of Reactor or Secondary Coolant" after verifying RCS Pressure and RHR Flow.

Which of the following is the reason the remainder of FR-P.1 is not implemented during a LB LOCA.

- a) Following LB LOCA, the RCS cannot repressurize, therefore, vessel integrity is not a concern.
- b) Due to backflow caused by RHR injection, the Cold Leg Temperatures are not a true indication of vessel cooldown rate and Pressurized Thermal Shock is not a concern.
- c) The actions in E-1, Loss of Reactor or Secondary Coolant will address mitigating the PTS concern.
- d) The cooldown due to the LB LOCA will be of short duration. Once the vessel refill is complete the downcomer will heatup relieving the Vessel Thermal stresses.

ANSWER:

- a) Following LB LOCA, the RCS cannot repressurize, therefore, vessel integrity is not a concern.

During normal at power operation, the Shift Supervisor will be conducting a tour of activities outside the Control Room. Which of the following items must be completed prior to the Shift Supervisor leaving the Control Room.

- a) Review Temporary Procedure Changes submitted since the beginning of the shift with the Control Room Foreman.
- b) Notify the Control Room Foreman so that the CRF can assume the SRO In Command Function.
- c) Verify that no distracting activities are permitted in the Control Room during the Shift Supervisor's absence.
- d) Designate which control board operator is responsible for the control board monitoring function.

ANSWER:

-
- b) Notify the Control Room Foreman so that the CRF can assume the SRO in Command Function.

Which of the following requires action in less than one hour to comply with the requirements of Tech Specs?

- a) Reactor is at 100% power and the Plant Process Computer Fails making the delta I alarm inoperable.
- b) Plant is at 75% power and a Control Rod Bank Demand Position Indicator (step counter) fails.
- c) Less than the required Pressurizer Heater capacity is operable with the plant in Hot Shutdown (Mode 3)
- d) Both CNMT A Sump level indicators and both CNMT Sump Pumps are inoperable during power operations.

ANSWER:

-
- a) Reactor is at 100% power and the Plant Process Computer Fails making the delta I alarm inoperable.

Which one of the following conditions would require that an Independent Verifications be performed.

- a) Verification of valve lineup on a safety-related system per a S-30 series procedure
- b) Following manipulation of a component during plant outage on a system that is not required to be operable and will be realigned during pre-startup system alignments.
- c) A valve is found out of its normal position and will be realigned.
- d) A system alignment following a forced outage in which the lineup of the system was not changed.

ANSWER:

- c) A valve is found out of its normal position and will be realigned.

Which of the following statements explains the basis for the Reactor Core Safety Limit (attached figure).

- a) Prevent Fuel Damage due to DNB and Centerline Melting
- b) Prevent exceeding the 5% Failed Fuel Limit during plant power changes
- c) Prevent Overpressurization and Failure of the Reactor Coolant System
- d) Prevent Boiling from occurring in the Core

ANSWER:

- a) Prevent Fuel Damage due to DNB and Centerline Melting

Which of the following are acceptable activities for the Control Board operators to be performing at the same time (plant is at power).

- a) HCO - Administrative Paperwork
CO - Performing a Power Range Performance Test
- b) HCO - Monitoring the MCB Panels and PPCS
CO - Eating Lunch
- c) HCO - Discussing an In-Plant Task with the Primary AO
CO - Calculating a Calorimetric
- d) HCO - Monitoring the MCB Panels and PPCS
CO - Searching the Internet for vacation information

ANSWER:

- b) HCO - Monitoring the MCB Panels and PPCS
CO - Eating Lunch

Which one of the following items is the Shift Supervisor required to perform prior to approving a Temporary Procedure Change.

- a) Review the 10CFR50.59 Safety Review Form for adequacy and completeness in accordance with IP-SEV-1 Preparation, Review and Approval of Safety Reviews.
- b) Review other outstanding PCN's to the same procedure to ensure that all outstanding changes are incorporated and validated prior to approving the package.
- c) Review and determine the training and notification requirements for the procedure change.
- d) Review the temporary change for SIPE applicability for all procedures not exempted by A-52.15 Conduct of Significant Infrequently Performed Evolutions.

ANSWER:

- d) Review the temporary change for SIPE applicability for all procedures not exempted by A-52.15 Conduct of Significant Infrequently Performed Evolutions.

Which one of the following activities is a 10CFR50.59 review required for?

- a) Training Lesson Plan Change
- b) Plant Temporary Modification
- c) Changes to a system covered by an existing 10CFR50.59 Safety Review
- d) When optional steps in a procedure are marked N/A (Not Applicable)

ANSWER:

- b) Plant Temporary Modification

Which of the following is a responsibility of the Holding Authority in with respect to implementing the Hold process.

- a) Perform independent verification of valves when Holds are removed.
- b) Verify the adequacy of boundaries and protective positions of devices for the isolated work area.
- c) Notify the work week coordinator when a mark off request is received.
- d) Periodically spot check the Hold installed in the plant to verify that they are properly installed.

ANSWER:

- b) Verify the adequacy of boundaries and protective positions of devices for the isolated work area.

A precaution in the refueling procedures states that refueling must stop if an unexplained doubling of count rate (C.R.) occurs.

Select the best explanation for the basis for this precaution.

- A. The reactor is critical based on previous C.R.
- B. The reactor is half way to criticality based on previous C.R.
- C. The reactor is super critical based on previous C.R.
- D. The reactor is at the point of adding heat based on previous C.R.

ANSWER:

-
- B. The reactor is half way to criticality based on previous C.R.

Which one of the following statements describes how the Manipulator Crane contributes to the performance of the Fuel Handling System?

- a. It moves fuel within the SFP.
- b. It transfers fuel between the core and the upender.
- c. It transfers new fuel from the shipping casks to the new fuel storage building.
- d. It moves fuel between the SFP and the upender.

ANSWER:

- b. It transfers fuel between the core and the upender.

Which ONE of the following defines the term TEDE (Total Effective Dose Equivalent)?

- a. It is a federal dose rate guideline for the whole body exposure
- b. It is the dose to the whole body from external and internal exposure
- c. It is the combined dose rate from beta, gamma, and neutron radiation
- d. It is the term used for exposure to the extremities (hands, elbows, feet, etc.)

ANSWER:

- b. It is the dose to the whole body from external and internal exposure

Question: 95 (1.00 PTS)

C000.1061 Rev: 0 Status: 2

Which of the following items is the Shift Supervisor required to verify prior to authorizing a Gas Decay Tank Release.

- a) Radiation Monitors R-14 or R14A operable
- b) Both Plant Vent Exhaust Fans are running
- c) The Gas Decay Tank has been isolated and held for at least 30 days.
- d) The release will be initiated within 24 hours of tank sample time.

ANSWER:

-
- a) Radiation Monitors R-14 or R14A operable

Question: 96 (1.00 PTS)

C000.1064 Rev: 0 Status: 2

During implementation of an EOP, which of the following communication is the minimum acceptable for information transfer in accordance with OPG-3, Operation Communication Guideline.

- a) CRF to HCO: Bill, close RWST Outlet Valve MOV-356
HCO to CRF: I understand
- b) CRF to HCO: Bill, close RWST Outlet Valve MOV-356
HCO to CRF: Close MOV-356
- c) CRF to Primary AO (on Radio): Primary, Perform Attachment SD-1
Primary to CRF: Okay
- d) CRF to Primary (on radio): Primary, Perform Attachment SD-1
Primary to CRF: I understand, perform SD-1

ANSWER:

-
- b) CRF to HCO: Bill, close RWST Outlet Valve MOV-356
HCO to CRF: Close MOV-356

Question: 97 (1.00 PTS)

C000.1046 Rev: 0 Status: 2

Following an exit from E-0, which of the following conditions requires an entry into an FR procedure on a Red Path.

- a) Steam Generator levels "A" 5%, "B" 10%, AFW Flow 0 gpm
Normal CNMT
- b) Core Exit Thermocouples 5 CETS > 800°F and RVLIS level 55%
- c) RCS "A" Cold Leg Cooldown Rate 200°F in last 30 min
"A" Tcold 290°F
- d) CNMT Pressure 65 psig, no CNMT Spray Pumps Running

ANSWER:

- d) CNMT Pressure 65 psig, no CNMT Spray Pumps Running

Question: 98 (1.00 PTS)

C000.0905 Rev: 1 Status: 3

After the INITIAL notification of a General Emergency, New York State, Wayne County, and Monroe County should be UPDATED as to the status of the emergency every:

- a. 15 minutes
- b. 30 minutes
- c. 1 hour
- d. 2 hours

ANSWER:

- b. 30 minutes

A LOCA has occurred, and the control room operators are performing EOP E-1, Loss of Reactor or Secondary Coolant. The STA is manually monitoring the CSFSTs. He checks the first CSFST and finds that the CSF is satisfied. He checks the second CSFST, core cooling, and determines that an orange path exists. He then checks the remaining CSFSTs and finds that their CSFs are satisfied. He then announces that the operators should exit E-1 and enter FR-C.2, Degraded Core Cooling.

From the choices below, select the correct appraisal of the STA's performance.

- a. The STA should have called for the transition from E-1 to FR-C.2 as soon as the challenge to the second CSF was diagnosed.
- b. The STA should not have called for a transition; E-1 in this instance takes precedence over FR-C.2.
- c. The STA should have consulted with the operators because, in this case, it is at their discretion as to whether to continue in E-1 or to enter FR-C.2.
- d. The STA handled the CSFST monitoring correctly and made the appropriate recommendation.

ANSWER:

- d. The STA handled the CSFST monitoring correctly and made the appropriate recommendation. (1.0 pts)

Question: ** (1.00 PTS)

B000.0259 Rev: 5 Status: 3

A general emergency has been declared due to a Core Cooling red path. R-29 and R-30 are reading 1500 R/hr. The wind is from the North.

What Emergency Response Planning Area (ERPA) is circled for step 7B of EPIP 1-5 attachment 3A?

- a) M1, W1
- b) W1, W2
- c) M1, W1, W2
- d) W1, W2, W3

ANSWER:

- d) w1, W2, W3
(SRO PAR)

RO

EXAM

LICENSED OPERATOR TRAINING

INITIAL LICENSE PROGRAM

EXAM: L98018

Subject: 1998 NRC INITIAL LICENSE RO EXAM

Candidate's Name (Please Print)

Total Points Possible: 100.0

Approved By: _____

R. E. Ginna Station Rules and Guidelines for License
Examinations

NOTE: Items 1 and 2 must be read verbatim to examinees

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic removal from licensed duties and possible disciplinary action.
2. You must sign the statement on the Exam Grade Summary Sheet that indicates that the work is your own and you have not received or been given assistance in completing the examination. This must be done after the examination has been completed.
3. Restroom trips are to be limited and only one individual 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 on the Exam Answer Sheet.
6. Fill in the date on the Exam Answer Sheet.
7. Answer all questions on the Exam Answer Sheet.
8. If parts of the examination are not clear as to intent, ask questions of the proctor only.
9. Section A of the examination is designed to take approximately 45 minutes to complete. You will be given one hour to complete this section. The Instructor SHALL allow 5 minutes for Board Walkdown.
10. Section B of the examination is designed to take approximately 90 minutes to complete. You will be given two hours to complete this section.
11. Due to the existence of questions that will require all examinations to refer to the same indications or controls, particular care must be taken to maintain individual examination security and avoid any possibility of compromise or appearance of cheating.

Power to energize the control rod drive mechanism coils originates at Bus 13 and Bus 15. Which one of the following components is not in the circuit between the bus and the CRDM.

- a. Rod drive MG sets
- b. Logic cabinet
- c. Reactor trip breakers
- d. Power cabinets

The plant is operating at 100% power when the RCP 1B Standpipe Hi Level alarm (B-4) comes in. RCP parameters indicate the following:

- RCP 1B No. 1 Seal Leakoff Flow has decreased to 0.24 gpm
- RCP 1B No. 1 Seal Differential Pressure greater than 400 psid and steady
- RCP 1B No. 1 Seal Leakoff Temperature 155 degrees F and steady

Which one of the following failures could lead to these indications?

- a. loss of seal injection
- b. #2 seal failed open
- c. #1 seal failed closed
- d. MOV 313 seal return line failed closed

Many procedures require that the RCP #1 seal differential pressure is greater than 220 psid. Which of the following is the reason for maintaining the seal delta P.

- A. 220 psid ensures that sufficient flow from the #1 seal to prevent back flow from the VCT to the seals.
- B. 220 psid corresponds to adequate delta P across the labrynth seal for continued RCP operation
- C. 220 psid ensures adequate #1 seal and lower radial bearing cooling.
- D. No. 1 seal is a film-riding seal. 220 psid is required to maintain No. 1 seal film.

Which of the following statements explains the result of VCT Level Transmitter LT-139 failing low?

- a. VCT low level alarm will occur resulting in the initiation of automatic makeup to the VCT and charging pump suction will automatically swap to the RWST.
- b. VCT automatic makeup will not occur and the Charging Pump suction will automatically transfer to the RWST when level decreases to 5%.
- c. LCV-112A will modulate open when VCT level reaches 40%.
- d. LCV-112A will be unable to modulate flow to the hold-up tanks. When VCT actual level increases to 83% LCV 112A will divert full flow to the hold-up tanks.

Which of the following best describes the reactor makeup water flowpath during an ALTERNATE DILUTION, and the EFFECT of dilution with no rod motion?

- a. Reactor makeup water is sprayed into the VCT; T-avg begins to decrease and levels off lower than the initial value after the reactor makeup water pump(s) are stopped.
- b. Reactor makeup water is injected into the suction of the charging pumps; T-avg begins to increase and levels off above the initial value after the reactor makeup water pump(s) are stopped.
- c. Reactor makeup water is sprayed into the VCT; T-avg begins to increase and levels off above the initial value after the reactor makeup water pump(s) are stopped.
- d. Reactor makeup water is injected into the suction of the charging pumps and sprayed into the VCT; Tavg begins to increase and levels off above the initial value after the reactor makeup water pump(s) are stopped.

Which one of the following lists the normal power supply for the positive displacement charging pumps 1A, 1B, 1C?

a. 1A - Bus 14
1B - Bus 14
1C - Bus 16

b. 1A - Bus 14
1B - Bus 16
1C - Bus 14

c. 1A - Bus 14
1B - Bus 16
1C - Bus 16

d. 1A - Bus 16
1B - Bus 16
1C - Bus 14

Question: 7 (1.00 PTS)

C039.0069 Rev: 0 Status: 2

Automatic isolation of the main steam lines will occur on an SI signal coincident with which of the following:

- a) High Containment Pressure 2/3 28 psig. Isolates both.
- b) Hi Hi Steam Flow 1/2 3.6×10^6 lbm/hr. Isolate affected.
- c) Hi Steam Flow 1/2 $.8 \times 10^6$ lbm/hr and 2/4 low Tav_g 555°F. Isolates affected.
- d) Low Tav_g 2/4 545°F. Isolate both.

Question: 8 (1.00 PTS)

C000.1028 Rev: 1 Status: 3

Per a CAUTION in ER-AFW.1, ALTERNATE WATER SUPPLY TO THE AFW PUMPS, which ONE of the following is correct regarding the first preferred source of AFW to be used?

- a. SAFW pumps, taking their normal suction
- b. SAFW pumps, using city water connection
- c. AFW pumps, using SW suction supply
- d. AFW pumps, using water transferred from the outside CST

A plant startup is in progress with the following conditions existing:

- Reactor Power = 16%
- Generator output breaker 9x-13A72 just closed
- Main Feedwater Pump B running
- AFW Bypass switches in Normal

If a trip of the B MFP occurs, what will be the effect on the AFW system assuming S/G level remains >17%?

- A. Both MDAFW pumps start immediately.
- B. Both MDAFW pumps start after 30 second time delay.
- C. Both MDAFW pumps do not start.
- D. TDAFW pump and both MDAFW pumps start.

The plant is operating at 100% power. A 50 lbm/hr steam leak develops on a steam generator secondary manway. Where does the condensed water end up?

- a. Reactor Coolant Drain Tank
- b. CVCS Holdup Tank
- c. Waste Holdup Tank
- d. CNMT Recirc Fan Condensate Collector

The plant has just been manually tripped from 100% power due to a complete loss of component cooling flow. A few minutes later the plant vent gas monitor R-14 goes into ALERT with a reading that is still increasing. Which ONE of the following is the cause?

- a. Loss of CCW to the monitor is generating an erroneous indication.
- b. The in-service waste gas compressor has tripped, allowing the vent header relief to lift.
- c. An RCP thermal barrier heat exchanger leak has developed, allowing an activity release through the CC surge tank vent.
- d. Loss of seal water to the waste gas compressors is allowing waste gas leakage into the Auxiliary Building.

The plant experienced a small break LOCA. On SI initiation the "B" SI pump fails to start and cannot be manually started. Which of the following statement describes the response of the "C" SI Pump Discharge Valves (MOV 871A "C" SI Discharge to the "A" SI Pump Header, MOV 871B "C" SI Pump Discharge to the "B" SI Pump Header). Assume normal initial at Power Alignment.

- a. MOV-871A will close, MOV 871B will remain open.
- b. MOV-871A and B will remain open.
- c. MOV-871B will open, MOV-871A will remain closed.
- d. MOV-871B will close, MOV-871A will remain open.

Which one of the following signals will cause the backup heaters to come on assuming all controllers in auto at normal setpoints?

- a. A decreasing pressurizer pressure of 2210 psig only.
- b. A plus or minus 5% deviation from pressurizer level program or a decreasing pressurizer pressure of 2210 psig.
- c. A minus 5% deviation from pressurizer level program only.
- d. A plus 5% deviation from pressurizer program or a decreasing pressurizer pressure of 2210 psig.

Which ONE of the following transients as described below will result in DE-ENERGIZING the pressurizer backup heaters?
(Assume backup heater control switch is positioned to ON throughout the transients starting from at normal at power alignment):

- a. The pressurizer pressure controller has been shifted to manual and setpoint increased such that the proportional heaters have fully energized. Pressurizer pressure has increased to 2300 psig.
- b. The Charging Pump Speed controller has failed high, such that actual pressurizer level has increased to 55%. The operator has manually restored level to 49%.
- c. The controlling channel of pressurizer pressure has failed high, such that the spray valves have opened. Actual plant pressure has decreased to 2185 psig. The operator has swapped control channels and restored pressure to 2235 psig.
- d. The Charging Pump Speed controller has failed low, such that actual level has decreased to 9%. The operator has taken manual control and has raised level to 11% and is maintaining level at 11%.

Select the statement below which explains which of the two types of signals generated by process control loops is more important?

- a. Control signals because they reduce the likelihood of reaching trip setpoints.
- b. Control signals because they ensure operation within Tech Spec limiting safety system settings.
- c. Protection signals because they ensure operation within the hot channel factor limits.
- d. Protection signals because they prevent reaching safety limits.

The attachment in the Emergency Operating Procedures (EOPs) for transferring water from the Spent Fuel Pit (SFP) to the Refueling Water Storage Tank (RWST) on loss of recirculation capability only uses the A SFP pump.

Which one of the following describes the reason the B SFP pump is not used?

- a. B pump has insufficient capacity to provide adequate makeup.
- b. B pump is locked off on SI.
- c. B pump trips on low SFP level.
- d. B pump cannot be lined up to RWST.

A steam break has occurred on the "A" S/G upstream of the MSIV and outside of CNMT. Both MSIV's are stuck open. Which one of the following will occur.

- a. The "A" S/G only will fully depressurize
- b. The "A" S/G and the "B" S/G will fully depressurize
- c. Neither S/G will depressurize
- d. Both Steam Generators will depressurize until the Auxiliary Operator completes Attachment SD-1 at which time the "B" S/G pressure will stabilize

Which one of the following correctly states the interlocks associated with closing the 12A normal feed breaker.

- a) - appropriate synchroscope on
 - 767 or 751 breaker closed
 - No #12 bus undervoltage
 - No #12 transformer lockouts
 - No #12 bus lockout
 - Either 11A-12A ties open OR 11A normal feed and 11A-11B tie open

- b) - 767 or 751 breaker closed
 - No #12 transformer lockout
 - No #12 bus lockouts
 - No #12 transformer undervoltage
 - Either Bus 11A-12A breaker open OR Bus 11A and 11A-11B breakers open

- c) - appropriate synchroscope on
 - 767 or 751 breaker closed
 - No #12 transformer lockout
 - No #11 transformer lockout
 - No #12 transformer undervoltage
 - Normal supplies to buses 11A open

- d) - appropriate synchroscope on
 - 767 or 751 breaker closed
 - No #12 transformer lockout
 - No #12 transformer undervoltage
 - No #12 Bus lockout
 - either 11A-12A open OR 11A normal feed and 11A-11B tie breaker open

While operating at power a fault develops on DC bus B causing the bus to deenergize. A short time later offsite power is lost. Which one of the following describes the response of the Emergency Diesel Generator system?

- A. The A D/G starts and energizes busses 14 and 18. The B emergency D/G will not start due to loss of DC power to its starting circuits.
- B. Both emergency D/Gs start, busses 14 and 18 are energized. Busses 16 and 17 will not energize due to loss of DC control power.
- C. On loss of the DC bus all control and support features swap to the alternate supply (B D/G), both emergency D/Gs start normally and supply their respective busses. No operator action will be required for at least 20 hours.
- D. On loss of the DC bus, some control and support features swap to the alternate supply (B D/G) both emergency D/Gs start and supply their respective busses. Operator action will be required on the B D/G within approximately one hour.

For liquid releases, it is required that a minimum amount of flow be established in the discharge canal to dilute the release. Without special analysis and permission from the Health Physicist, what are the minimum requirements?

- A. At least one circulating water pump must be running, no SW pumps required
- B. At least two service water pumps and a circulating water pump must be running.
- C. The recirc gate must be fully closed
- D. Either a CW pump or two SW pumps must be running.

In order to reopen MOV-313 Seal Return Isolation following a SI, which one of the following sequences is correct?

- a) Reset SI, Reset CI, Reset the x-y Relay and place MOV 313 switch in open
- b) Reset SI, Reset the x-y Relay, and Reset CI
- c) Reset SI, Reset CI, Reset x-y relay
- d) Reset SI, Reset the x-y Relay, place MOV-313 switch in open

Question: 22 (1.00 PTS)

C320.0911 Rev: 0 Status: 2

RHR flow has been initiated with RCS temperature at 340°F without first establishing CCW flow through the RHR Heat Exchangers. Which one of the following is a potential adverse consequence of such an oversight?

- a. Overheating and Failure of RHR Pump Shaft Seals
- b. RHR Pump Cavitation due to low NPSH resulting from lack of Recirc Flow Cooling
- c. Heatup of CCW trapped in the RHR HX shell can result in the shell bursting
- d. Water hammer resulting from flashing of CCW when valves are opened

Question: 23 (1.00 PTS)

C002.0016 Rev: 1 Status: 3

Which of the following statements describes the unique feature of the Wide Range RTDs installed in the RCS Cold legs?

- a. They are installed in thermowells.
- b. They measure temperature much higher than the narrow range.
- c. They are emersed directly in the RCS.
- d. They are used in control circuits to regulate RCS temperature when the temperature is below the narrow range.

A loss of instrument air pressure is in progress due to a loss of all instrument air compressors. Which one of the following methods will normally supply a backup air source?

- a. Breathing air compressor will auto start on low pressure and supply instrument air system.
- b. A normally closed manual isolation valve can be opened to crosstie service air and instrument air systems.
- c. An automatic pressure regulating valve will open to float the instrument air system on service air if pressure drops below 90 psig.
- d. Two spoolpieces can be connected between normally blind flanged connections to crosstie service and instrument air systems.

An SI with loss of offsite power occurs and only the "A" D/G starts energizing its buses. Which of the following statements is correct?

- a) Service water isolation will not occur.
- b) Service water isolation will occur, all isolation valves will go to closed.
- c) Service water isolation will occur. One in each pair of isolation valves will go closed.
- d) A service water isolation signal will be generated. However, none of the isolation valves will close.

The response of the S/G level control system to a LT-463 channel failure is:

- A. The average of the two (2) "A" S/G remaining good channels are used for control; level control remains in automatic; ADFCS trouble alarm occurs.
- B. The control system makes a "bumpless" transfer to manual for the "A" steam generator; FW fail to manual alarm occurs at engineer/operator station in the relay room.
- C. The failed signal is rejected; the middle signal is used for control for the "A" S/G; level control remains in automatic; ADFCS trouble alarm occurs.
- D. The failed signal is rejected; the middle signal is used for control for the "A" S/G; level control remains in automatic; no alarms occur.

The unit is at 50% power. Which ONE of the following situations would require a manual reactor trip?

- a. A control rod lower than its associated group is being restored per ER-RCC.2, RESTORING MISALIGNED ROD, when the rod suddenly starts driving out at 66 spm
- b. AP-RCC.2, RCC/RPI MALFUNCTION, is being performed when it is discovered that 3 rods in control bank D are misaligned
- c. During retrieval of a dropped rod per ER-RCC.1, RETRIEVAL OF A DROPPED ROD, it is determined that the shutdown margin is inadequate
- d. While performing PT-1, ROD CONTROL SYSTEM, the selected rod bank moves IN 3 steps when OUT motion is demanded.

Which of the following describe the major procedure action for recovering a dropped rod.

- a. Reduce power to < 50%, go to bank control for the affected bank, disconnect the affected rod lift coil, realign rod, reconnect lift coil, reset P/A converter
- b. Reduce power to < 50%, go to bank control for the affected bank, disconnect all rods except the affected in bank, realign rod, reconnect lift coils, reset P/A converter
- c. Reduce power to < 75%, go to bank control for the affected bank, disconnect the affected rod lift coil, realign rod, reconnect lift coil, reset P/A converter
- d. Reduce power to < 75%, go to bank control for the affected bank, disconnect all rods except affected in bank, realign rod, reconnect lift coils, reset P/A converter

Assume a faulty pressurizer safety valve fails open, while the plant is at hot shutdown. Which one of the following describes the behavior of pressurizer level?

- a. The pressurizer rapidly empties, then begins to rise as pressure drops and safety injection pumps are able to refill the RCS.
- b. Pressurizer level becomes erratic and unreliable due to flashing in the reference legs of the level instruments.
- c. The pressurizer level will initially slowly decrease, then rapidly increase as RCS pressure drops below saturation for reactor vessel head temperature.
- d. Level increases initially due to swell as boiling begins in the pressurizer, drops due to inventory loss, then recovers from injection flow.

In ES-1.3, Transfer to Cold Leg Recirculation, as part of aligning for recirculation, step six checks RHR flow less than 1500 gpm per operating pump.

A caution prior to step six says:

"The RHR Hx outlet valves (HCV-624 and HCV-625) will fail open on loss of instrument air pressure."

Which one of the following explains the basis for this caution?

HCV-624 and HCV-625 full open may result in:

- A) an excessive cooldown rate unless the RHR heat exchanger bypass (HCV-626) is manually opened.
- B) inadequate RHR pump NPSH if a single RHR pump suction valve and both core deluge valves are open.
- C) plugging of the "B" sump suction strainers due to excessive RHR system flow.
- D) CCW flashing to steam in the RHR heat exchangers and CCW surge tank level oscillations.

You are performing Step 6 of ECA-1.2 LOCA Outside
CNMT, with the following plant conditions:

- AOV 754A closed,
- RCS pressure decreasing.

Which one of the following actions would be correct for the above conditions?

- a. Go to Step 7, transition to ECA 1.1 Loss of Emergency Coolant Recirculation.
- b. Trip RCP "A", close RCP A CCW return valve MOV-759A.
- c. Restore RCP A thermal barrier cooling, if desired, and close RCP B thermal barrier return valve AOV-754B.
- d. Restore RCP A thermal barrier cooling, if desired and close RCP B CCW return valve, MOV-759B.

A caution in FR-H.1, Response to Loss of Secondary Heat Sink states:

If WIDE RANGE level in both S/G's decreases to less than 35 inches (100 inches adverse CNMT) OR PRZR pressure increases to greater than 2335 psig due to loss of heat sink, then steps 13 through 15 should be immediately initiated for bleed and feed.

Which one of the following is the reason an immediate bleed and feed is initiated under these conditions?

- a. If bleed and feed is delayed PORV's may not remove enough energy to depressurize RCS to less than SI pump shutoff head.
- b. This ensures some water left in the S/Gs so that thermal stress is reduced on a later initiation of feed.
- c. If bleed and feed is delayed, the RCS pressure rise may not be terminated prior to exceeding RCS pressure safety limit.
- d. If bleed and feed is delayed the RCS void content will increase which will preclude continued RCP operations.

Which one of the following statements is the preferred order of restoring the RCS loop level following an erratic RHR flow with levels in the loops less than 30 inches and RCS temperature less than 200°F?

- a. Charging to loop B cold leg, safety injection to cold legs, RWST gravity feed, safety injection to hot legs.
- b. RWST gravity feed, charging to loop B cold leg, safety injection to cold legs, safety injection to hot legs.
- c. Safety injection to hot legs, charging to loop A cold leg, safety injection to cold legs, RWST gravity feed.
- d. Charging to loop A cold leg, RWST gravity feed, charging to loop hot legs, safety injection to cold legs.

Several EOP's require tripping the RCP's based on the delta P between the RCS and S/G's. What is the basis for this tripping criteria?

- A. Since continuous operation of the RCP's during a LOCA cannot be guaranteed, tripping the RCP's during accident conditions is to prevent excessive depletion of RCS water inventory.
- B. RCP forced flow can lead to further erosion of the break location resulting in a larger size LOCA.
- C. Tripping RCP's early results in a phase separation of RCS mass. This phase separation will then clearly show the void on RVLIS for further verification of ICC conditions.
- D. Operation of the RCP during a LOCA will result in two phase flow which will cause severe vibration and possible failure of the pump.

From the list below, identify the plant condition which will result in the most severe plant response, with respect to core restart, for a large steamline break accident.

- A. BOL, HFP Due to the highly negative Moderator Temperature Coefficient and the High Feedwater Flow to the Steam Generator.
- B. BOL, HZP Due to the slightly negative Moderator Temperature Coefficient and the large mass of water in the Steam Generator.
- C. EOL, HFP Due to the highly negative Moderator Temperature Coefficient and the High Feedwater Flow to the Steam Generator.
- D. EOL, HZP Due to the highly negative Moderator Temperature Coefficient and the large mass of water in the Steam Generator.

What is the basis for establishing a minimum level in a ruptured steam generator in E-3 Steam Generator Tube Rupture prior to isolating AFW?

- a. To maximize back pressure and minimize break flow
- b. To promote thermal stratification in the ruptured SG during the subsequent RCS cooldown and depressurization
- c. To maintain the ruptured S/G as a heat sink
- d. To prevent dryout and subsequent corrosive failure of additional steam generator U-tubes due to thermal stresses

Assume the following:

- Both reactor coolant pumps are deenergized.
- The incore thermocouples are reading 440°F and decreasing.
- Head thermocouples read 600°F.
- The RCS cold leg temperatures are 400°F and decreasing.
- The RCS pressure is 1500 psig and slowly decreasing.
- The pressurizer level has rapidly increased from 35% to 48%.

Which one of the following is the reason for the change in the pressurizer level?

- a. RCS pressure has decreased to the point where the safety injection pumps have begun injecting into the RCS.
- b. Anticipated response due to uneven loop cooling and flows during natural circulation.
- c. RCS depressurization has caused saturated conditions and a steam void in the reactor vessel head area.
- d. Pressurizer level swings are expected due to steam entering the pressurizer and surge line.

Which one of the following correctly states how incore thermocouples (TCs) would be used to determine the onset of inadequate core cooling?

- A. When any 5 core exit TCs are greater than 1200 degrees F.
- B. When any 5 core exit TCs are greater than 700 degrees F.
- C. When any non-failed core exit TC is greater than 1200 degrees F.
- D. When any non-failed core exit TC is greater than 700 degrees F.

In ES-1.2 "Post LOCA Cooldown and Depressurization", all SI pumps are stopped, the next Major Action Category is to "Depressurize the RCS to minimize RCS subcooling."

Which one of the following describes the purpose of this action:

- a. Minimize chance of PTS by reducing pressure stress.
- b. Reduce pressure to inject the accumulators.
- c. Reduce pressure to allow RHR to inject into the RCS.
- d. Minimize break flow and reduce RCS makeup requirements.

Assume a reactor startup in progress and the counts are low in the source range. Select from below the expected indication for intermediate range power as reactor power is increased to 1% power if compensating voltage had failed high on one channel (compare the two channels).

- a. Intermediate range indication on failed channel will read low as reactor power is increased.
- b. Intermediate range indication on failed channel will read high as reactor power is increased.
- c. Intermediate range indication on failed channel will stay low, then increase rapidly to normal value as reactor power is increased.
- d. Intermediate range indication on failed channel will stay high, then slowly increase to normal value as reactor power is increased.

Which one of the statements below is correct if the power range instruments have been adjusted to based on an erroneous calculated calorimetric?

- A. If the feedwater temperature used in the calorimetric calculation was lower than actual feedwater temperature, actual power will be greater than indicated power.
- B. If the reactor coolant pump heat input used in the calorimetric calculation is omitted, actual power will be less than indicated power.
- C. If the feedwater flow used in the calorimetric calculation was higher than actual feedwater flow, actual power will be greater than indicated power.
- D. If the steam enthalpy used in the calorimetric calculation is lower than actual steam enthalpy, actual power will be less than indicated power.

Question: 42 (1.00 PTS)

C076.0030 Rev: 0 Status: 2

Which one of the following actions occur in the Service Water System when a SI signal occurs (assume no other signals present).

- a. Non-selected SW pump trip/selected pumps auto start
- b. Service water isolation occurs
- c. Service water from CNMT coolers AOV 4561/4562 open
- d. Service water isolates to CCW Heat Exchangers

Question: 43 (1.00 PTS)

B014.0003 Rev: 0 Status: 3

The supply breaker for MCC 1K trips on a fault. The MCC cannot be restored. Which of the following tasks cannot be performed in the normal manner?

- a. Monitor control rod position within 12 steps of demand position using the MRPI system.
- b. Control pressurizer pressure with Pressurizer Pressure Controller PI-431K.
- c. Manually control feedwater using the ADFCS controllers on the MCB.
- d. Monitor core exit subcooling on the Plant Process Computer System.

Which ONE of the following statements is correct regarding the reason for maintaining subcooling during natural circulation conditions?

- a. Subcooling must be maintained because natural circulation cannot occur in a system in which T_h has reached saturation
- b. Subcooling provides the RDH (Thermal driving head) necessary for natural circulation to take place
- c. Subcooling will prevent the formation of a non-condensable gas bubble in the steam generator loop.
- d. Subcooling minimizes the percentage of voids, allowing PZR level to be an indication of true water inventory in the primary.

Which one of the following describes how the C SI Pump starts with an SI actuation and all buses are energized by offsite power.

- a. Starts on Bus 14 with no time delay. If Bus 14 breaker fails to close, it starts on Bus 16 after a 2 second time delay.
- b. Starts on Bus 14 with a 5 sec time delay. If Bus 14 breaker fails to close, it starts on Bus 16 after a 7 second time delay.
- c. Starts on Bus 14 with a no-time delay. If a fault occurs on the pump and the Bus 14 breaker trips, the Bus 16 breaker will close after a 37 second time delay.
- d. Start on Bus 14 after a 7 second time delay. If the Bus 14 breaker fails to close, then the Bus 16 breaker will close after a 30 second time delay.

What is the difference between overpower delta T and
overtemperature delta T?

- a. Overpower delta T is used as backup to the more electronically complicated overtemperature delta T computing circuitry.
- b. Overpower delta T is intended as protection against excessive power density; overtemperature delta T is intended as protection against DNB.
- c. Overtemperature delta T uses a dynamic rate function to compensate for loop piping delays; overpower delta T does not.
- d. Overpower delta T adjusts setpoint based on delta I; overtemperature delta T does not.

With RCS Tavg channel 403, blue channel, defeated; which one of the following channel defeats would result in a reactor trip.

- A. RCS flow 1A-1 FI-411, red channel.
- B. RCS flow 1B-3 FI-416, yellow channel.
- C. PRZR Press PI-449, yellow channel.
- D. PRZR Press PI-431, blue channel.

The following conditions exist:

RCS Pressure 1155 psig
Core Exit T/C-600°F
No RCP's running
RVLIS - 63%

What core condition exists?

- a. Saturated core cooling condition
- b. Subcooled core cooling condition
- c. Inadequate core cooling condition
- d. Superheated core cooling condition

During power operation, pulling control rods (while maintaining constant steam demand) will have the net effect of causing:

- A. T_{ave} to increase
- B. reactor coolant system pressure to decrease
- C. reactor power to increase
- D. pressurizer level to decrease

Which one of the following is an auto start signal for the standby condensate pump:

- A. Low condensate header pressure of 285 psi with either generator output breaker closed.
- B. Hi hotwell level 60 inches.
- C. Running condensate pump trips.
- D. Low main feed pump suction pressure of 185 psi.

Which one of the following will cause automatic actuation of the Containment Spray System?

- a. 2/3 containment pressure instruments at 18 psig.
- b. 2/3 containment pressure instruments at 28 psig.
- c. 2/3 out of 2/2 sets of containment pressure instruments at 28 psig.
- d. 2/3 out of 2/2 sets of containment pressure instruments at 18 psig.

Question: 52 (1.00 PTS)

C061.0023 Rev: 0 Status: 3

Which one of the following statements describes an auto start feature of the auxiliary feedwater system that will start both motor driven and the turbine driven aux feed pumps?

- a. Loss of either main feed pump.
- b. Loss of both main feed pumps.
- c. Low-low level in any steam generator.
- d. Low-low level in both steam generators.

Question: 53 (1.00 PTS)

C061.0033 Rev: 0 Status: 2

Given the following plant conditions:

- Loss of all AC power has occurred
- Diesel Air Compressor is not available

Which ONE of the following statements is true regarding the turbine-driven AFW?

- a. The TDAFP motor-operated discharge valve fails "as-is" on a loss of AC, and DC control power must be removed to operate locally
- b. The TDAFP air-operated discharge valves fail open, and must be pinned to operate locally
- c. The TDAFP steam admission valves are AC powered, and must be operated locally
- d. The DC driven lube oil pump will have to be manually started and the trip/throttle valve reset to start the TDAFW pump

Which one of the following describes the "shrink" response of S/G level?

- a. On an increase in steam flow, S/G pressure decreases expanding bubble in the riser section which decrease flow resistance causing downcomer level to decrease.
- b. On a decrease in steam flow, S/G pressure increases collapsing bubble in the riser which decreases flow resistance causing downcomer level to decrease.
- c. On decreasing steam flow, S/G pressure decreases causing bubble in the riser to collapse which decreases flow resistance causing downcomer level to decrease.
- d. On increasing steam flow, S/G pressure increase causing bubble in the riser to collapse which decrease flow resistance causing downcomer level to decrease.

Which of the following is the requirement for RHR cooling while refueling mode?

- a. When > 23 ft. in cavity two RHR pumps required to be operable one operating
- b. When < 23 ft. in cavity two RHR pumps required to be operating.
- c. When < 23 ft. in cavity only one RHR pump is required to be operable
- d. When > 23 ft. in cavity only one RHR pump is required to be operable and in operation

Which one of the following describes the normal and alternate power sources to the 1C Instrument Bus?

A) NORMAL-1A Battery Charger and/or 1A1 Battery Charger and/or 1A Battery through the 1A Inverter

ALTERNATE-MCC-1C through 1A Auto Static Transfer Switch

B) NORMAL-1B Battery Charger and/or 1B1 Battery Charger and/or 1B Battery through the 1B Inverter

ALTERNATE-MCC-1D through 1B Auto Static Transfer Switch

C) NORMAL-MCC-1C through a constant voltage transformer

ALTERNATE-MCC-1A

D) NORMAL- MCC-1B through a constant voltage transformer

ALTERNATE-MCC-1A

During a station blackout, "A" D/G is carrying 1850 kW of load.

Which ONE of the following is the maximum load of proportional heaters that can be loaded onto the "A" D/G without exceeding its continuous service rating?

- a. 100 kW
- b. 200 kW
- c. 400 kW
- d. 450 kW

What are the normal power supplies for the 1A/1B Diesel Air Compressors?

- a) 1A-MCC 1J
1B-MCC 1H
- b) 1A-MCC 1H
1B-MCC 1J
- c) 1A-MCC 1K
1B-MCC 1G
- d) 1A-MCC 1M
1A-MCC 1L

Which of the following correctly describes the operation of the steam dump system in response to a reactor and turbine trip from full power?

- a. Steam dumps modulate open then modulate shut to restore T-avg to 547 deg F with no deadband
- b. Steam dumps modulate open then modulate shut to restore T-avg to within a 6 deg F deadband of 547 deg F
- c. The first two sets of steam dumps go full open then all valves modulate to restore T-avg to 547 deg F with no deadband
- d. The first two sets of steam dumps go full open then all valves modulate to restore T-avg to within a 6 deg F deadband of 547 deg F

During full power operation, a loss of component cooling water to an RCP will have the most effect on:

- a. RCP No. 1 seal outlet temperature
- b. RCP lower bearing (radial) water temperature
- c. RCP bearing (motor) temperatures
- d. RCP stator winding temperature

Select from the below listed components the most likely possible sources of leakage into the CCW System.

- A. RCP thermal barrier heat exchanger
Non-Regen Heat Exchanger
SI pumps while in standby
Running CS pump.
- B. RCP thermal barrier heat exchanger
CS pumps while in standby
Running SI pumps
Primary Sample Heat exchanger
- C. Running SI pump
Running CS pump
Excess letdown heat exchanger when in service
Primary sample heat exchanger
- D. Reactor Support cooling
Boric Acid Exporator
RCP Thermal Barrier heat exchanger
Non-Regen Heat Exchanger

While operating at power, pressurizer pressure instrument PT-449 fails high. Pressurizer pressure controlling channel is selected to Normal. Which one of the following describes plant response to this failure.

- a. Both sprays open and both PORV's open and PRZR heaters off.
- b. Both spray valves open and all PRZR heaters off.
- c. Both spray valves open. One PORV (PCV-431C) open; and all PRZR heaters off.
- d. PT-449 pressurizer pressure channel would be indicating high with no other plant response.

Reactor power is being increased per O-1.2, Plant from Hot Shutdown to Full Load. With power at 140 MW (electric), alarm H-7 (Condenser High Press 25.5" Hg) sounds. Condenser vacuum is 25" Hg and decreasing slowly, and back pressure is 3.8" Hg and increasing slowly. What action is required?

- A. Trip the turbine and go to E-0 Reactor Trip or Safety Injection
- B. Reduce Turbine load at maximum safe rate and when turbine load is at minimum, Trip Turbine and go to O-2.1 Normal Shutdown to Hot Shutdown.
- C. Adjust turbine load at maximum safe rate to return the backpressure to the satisfactory operating region.
- D. Trip the turbine and go to AP-TURB.1 Turbine Trip without RX trip required.

The plant experiences a loss of all AC power. Efforts to restore AC power prove unsuccessful. RCS inventory depletion from RCP seal leakage continues, eventually draining the upper head of the reactor vessel and causing steam voids to form in the S/G U-tubes.

If the operators are unable to restore AC power, natural circulation will:

- a. Stop, and all means of decay heat removal will be lost. Extensive core damage will occur soon after the interruption of natural circulation.
- b. Stop, and reflux boiling will remove decay heat until enough inventory is lost to prevent decay heat removal. Then inadequate core cooling may occur.
- c. Stop, but reflux boiling will provide adequate decay heat removal for as long as necessary.
- d. Decrease, but continue to provide adequate decay heat removal for as long as necessary.

Which one of the following lists describes the major
plant responses to a loss of any single instrument bus?

Assume no corrective action is taken by the operator and plant at
100% power normal lineups on all systems.

- a. 1) Average Tavg - Tref deviation rod stop
2) Turbine Load Limit runback
3) Delta T and rod stop single channel alert
- b. 1) Average Tavg - Tavg deviation rod stop
2) Dropped rod rod stop
3) Delta T and rod stop single channel alert
- c. 1) Average Tavg - Tref deviation rod stop
2) Low pressure SI single channel alert
3) Delta T and rod stop single channel alert
- d. 1) Average Tavg - Tavg deviation rod stop
2) Letdown Isolation
3) Turbine Load Limit runback

Which one of the following describes why Service Water Isolation is desired:

- a. To ensure adequate SW flow to the Emergency Diesel Generators
- b. To ensure adequate Service Water to accident equipment
- c. To ensure adequate Service Water flow to CCW Heat Exchangers
- d. To ensure adequate Service Water flow to RHR Heat Exchangers

Which of the following describes the preferred order of equipment
for fighting an electrical fire?

- a. High velocity fresh water fog
Dry chemical extinguisher
CO2 extinguisher
- b. CO2 extinguisher
Dry chemical extinguisher
High velocity freshwater fog
- c. CO2 extinguisher
Dry chemical extinguisher
Fine sand
- d. Dry chemical extinguisher
Low conductivity foam
CO2 extinguisher

Question: 68 (1.00 PTS)

B004.0014 Rev: 2 Status: 3

While the plant is operating at 100% power, it is determined that AOV 7478 CNMT mini purge supply fail to meet leakage requirements. Which one of the following statements is correct regarding continued operation.

- a. Close and deactivate AOV 7445 within 1 hr or mode 5 next 36 hrs (mode 3 in 6 hrs)
- b. Close and deactivate AOV-7445 within 4 hours or mode 5 next 36 hours (mode 3 in 6 hrs)
- c. Close and deactivate AOV 7445 within 24 hours or mode 5 next 36 hours (mode 3 in 6 hrs)
- d. Close and deactivate AOV 7445 within 72 hours or mode 5 next 36 hours (mode 3 in 6 hrs)

Question: 69 (1.00 PTS)

C000.1038 Rev: 0 Status: 3

Which of the following conditions would require transition from E-0 to FR-S.1

- a) Two rods stuck out after Rx Trip
- b) Only one of the two Rx Trip Breakers open
- c) Turbine Trip Fails, one stop valve open
- d) Neutron flux not decreasing

Question: 70 (1.00 PTS)

C000.1039 Rev: 0 Status: 3

Which one of the following lineups describes the basic flowpath that would be used if the RCDT pumps were used for Recirculation following a loss of RHR following a LB LOCA.

- a. RWST to RCDT pump to RHR Hx to loop cold leg to loop hot leg
- b. Loop hot leg to RCDT pump to RHR Hx to loop cold leg
- c. CNMT sump to RCDT pump to RHR Hx to core deluge
- d. CNMT to RCDT pump to RHR Hx to loop cold leg

Question: 71 (1.00 PTS)

C015.0146 Rev: 0 Status: 3

During a shutdown, both Source Range fail to auto energize. Upon investigation it is discovered that N-35 Intermediate Range

-10

Channel is reading 1×10^{-10} . Which of the following is the correct action to restore source range power.

- a) Remove Instrument Power Fuses from two power range channel to defeat permissive P-10
- b) Depress both of the P-6 defeat pushbutton simultaneously
- c) Place the Level Trip Bypass switch to bypass on the affected Intermediate Range.
- d) Remove power from the P-6 interlock by placing switches RLTR-1 and RLTR-2 to on in the Reactor Protection Racks

The plant has experienced an Instrument Air Leak. Plant conditions are:

Rx Power 95%
Inst Air Pressure 50 psig stable
A,B,C Inst Air Compressor running
Service Air Compressor running
S/G level 48% decreasing slowly
Diesel Air Compressor available, not running
AP-IA.1 just entered by the CRF

Which of the following is the first action which should be implemented per procedure.

- a) Start the Diesel Air Compressor
- b) Verify Service Air Cross tie Valve AOV-5251 open
- c) Decrease Load per AP-TURB.5
- d) Isolate Instrument Air to Containment

You have entered E-0, "Reactor Trip or Safety Injection", with all plant conditions stable, what procedure would you transition to from E-0, based on the following information.

- Steam Generator narrow range levels at 20% and stable
 - RCS pressure = 1700 psig and increasing
 - Pressurizer level = 10% and stable
 - Core Exit TC temperature = 547 degrees F
 - All radiation monitors normal
 - Containment pressure = 0.3 psig
 - Steam Generator pressures = 980 psig and stable
 - Safeguard sequence was initiated
- A. ES-0.0 Rediagnosis
- B. ES-0.1 Reactor Trip Response
- C. E-1 Loss of Reactor or Secondary Coolant
- D. ES-1.1 SI Termination

Question: 74 (1.00 PTS)

C000.0930 Rev: 0 Status: 3

For a valid reactor trip signal, it is noted while performing step 1 of E-0 that the rods are still at the same respective positions as prior to the receipt of the automatic trip signal.

Which one of the following is the first action to be performed?

- a. Open bus 13 and bus 15 normal feed breakers
- b. Manually insert control rods
- c. Initiate emergency boration
- d. Manually trip the reactor

Question: 75 (1.00 PTS)

C011.0007 Rev: 1 Status: 3

Which one of the following would NOT be an expected indication or symptom of PRZR Level LT 428, failing high with selector switch in normal (427/428)?

- a. Alarm A-4, Regen HX Letdown Outlet HI Temperature 395 degrees.
- b. Alarm F-3, Pressurizer HI Level 70%.
- c. Alarm F-4, Pressurizer Level Deviation -5 normal +5.
- d. Alarm F-28, Pressurizer High Level Channel Alert 87%.

A loss of offsite power has occurred with the plant at 100% power. Following the action of E-0, the operators transition to ES-0.1. They are directed to restore Tave to 547°F. Which of the following would be effective in restoring Tavg.

- a. Swap Condenser Steam Dump to pressure control and lower the setpoint.
- b. Set the S/G ARV controllers to 1005 psig in Auto.
- c. Set the S/G ARV controllers to less than 1005 psig in Auto
- d. Set the S/G ARV controllers to 1050 psig in Auto.

Assume the following plant conditions exist:

- 1200 2/20/96
- 100% power
- Group counter Bank D = 210 steps
- MRPI Rod C7 Bank D = 174
- QPTR = 1.014
- C-5 PPCS Rod sequence rod deviation alarm lit
- MRPI has been verified to have no faults

Besides verify SDM (or borate) by 1300 which one of the following describes the required plant operations?

- a. Be in mode 2, with keff <1, by 1800
- b. Be in mode 3 by 1800
- c. Reduce power to ≤75% by 1400 (and additional surveillances) operation is allowed below 75%
- d. Reduce power to ≤75% by 1400 (and additional surveillances) and be in mode 2 with keff < 1 by 1800 hours

Which of the following lists the power supplies for the CNMT
Recirc Fan Coolers.

- a) CNMT Recirc Fans A and B - Bus 14
CNMT Recirc Fans C and D - Bus 16
- b) CNMT Recirc Fans A and C - Bus 14
CNMT Recirc Fans B and D - Bus 16
- c) CNMT Recirc Fans A and D - Bus 14
CNMT Recirc Fans B and C - Bus 16
- d) CNMT Recirc Fans A and D - Bus 16
CNMT Recirc Fans B and C - Bus 14

Determine how much boric acid should be added for two (2) stuck
rods following a reactor trip.

- a. 650 gallons
- b. 675 gallons
- c. 1300 gallons
- d. 1350 gallons

Question: 80 (1.00 PTS)

C000.1043 Rev: 0 Status: 3

Which of the following is the reason for performing a temperature soak of the RCS in procedure FR-P.1 Response to Imminent Pressurized Thermal Shock.

- a) Allow time for the Reactor Vessel head to cool in order to prevent a steam bubble from forming.
- b) To decrease the magnitude of Thermal Stresses in the Reactor Vessel Wall.
- c) To decrease the Thermal Stresses in the Steam Generator Tube Sheet.
- d) To allow time for the Pressurizer Heaters to bring the pressurizer water back to saturation without insurges or outsurges occurring.

Question: 81 (1.00 PTS)

C000.1044 Rev: 0 Status: 3

A caution in ECA-0.0 states:

S/G Narrow Range Level should be maintained greater than 5% (25% adverse CNMT) in at least one intact S/G. If level cannot be maintained, S/G depressurization should be stopped until level is restored in at least one S/G.

What is the reason that S/G depressurization should be stopped?

- a) Provide for an adequate Heat Sink for Natural Circulation and Reflux Cooling.
- b) Provide for fission product partitioning for any leaking Steam Generator tube.
- c) Ensure that adequate steam is available to power the TDAFW Pump.
- d) To prevent Steam Generator Tube Creep Failure during a Core Melt.

Question: 82 (1.00 PTS)

C004.0110 Rev: 0 Status: 3

Which of the following statements gives the reason that three charging pumps should not be run at high speed while the RCS is at normal pressure.

- a) High Flows will cause excessive vibration in the charging line potentially leading to failures.
- b) The Charging Pump Relief Valves could lift resulting in a loss of Charging Flow.
- c) High Flows could cause damage to the seal injection filter resulting in RCP Seal Damage.
- d) High Flow could damage the pulse dampener partition plate

Question: 83 (1.00 PTS)

C063.0046 Rev: 0 Status: 3

Which of the following describes the effect of loss of DC Distribution Bus on the AC Distribution System.

- a) 480 Volt Buses associated with the affected DC Bus will auto swap to the other DC Bus for control power. MCC's associated with the affected DC Bus will lose control power.
- b) 480 Volt Buses and MCC's associated with the affected DC Bus will both lose control power.
- c) 480 Volt Buses and MCC's associated with the affected DC Bus will swap to the other DC Bus for control power.
- d) 480 Volt Buses associated with the affected DC Bus will lose control power, MCC's associated with the affected DC Bus will auto swap to the other DC Bus for control power.

Which one of the following Diesel Generator trips is blocked during Safety Injection.

- a) Overspeed
- b) Reverse power
- c) Overcrank
- d) Low Lube Oil Pressure

Which one of the following is an ECCS acceptance criterion?

- a. Ensure calculated offsite dose rates following an accident remain within the guidelines of 10 CFR Part 100 limits.
- b. Ensure Core remains in a coolable Geometry.
- c. Ensure that the Iodine released following an accident is less than or equal to 1% of the total amount of Iodine in the core.
- d. Maintain Peak Centerline Temperature following an accident to less than or equal to 4700°F.

Question: 86 (1.00 PTS)

C022.0030 Rev: 0 Status: 2

Which of the following statements describe how the Containment Post Accident Charcoal Filter Dampers are monitored and manually operated?

- a. Green lights on the MCB when extinguished indicate that the dampers have opened. Manual Actuation is by actuating containment isolation.
- b. Red/green lights on the MCB indicate damper position. Manual actuation by tripping relays locally in the Relay Room.
- c. Red/green light on the MCB indicate damper position. Manual actuation is by actuating containment isolation.
- d. Green lights on the MCB when extinguished indicate that the dampers have opened. Manual actuation by tripping relays locally in the Relay Room.

Question: 87 (1.00 PTS)

C008.0046 Rev: 0 Status: 2

Which of the following statements describe the makeup water source for the CCW Surge Tank.

- a) Reactor Makeup Water Tank
- b) Condensate Storage Tanks
- c) Service Water System
- d) City Water System

Question: 88 (1.00 PTS)

C000.1055 Rev: 0 Status: 2

Which of the following is a requirement for Oncoming Control Board Operators to perform prior to accepting the Shift Turnover?

- a) Review of Temporary PCN submitted since the previous watch of the oncoming operator
- b) Walkdown of the RMS and MCB Rear Panels
- c) Review of all Action Reports submitted since the previous watch of the oncoming operator
- d) Review of the form tool turnover sheet

Question: 89 (1.00 PTS)

C000.1054 Rev: 0 Status: 2

Which of the following requires action in less than one hour to comply with the requirements of Tech Specs?

- a) Reactor is at 100% power and the Plant Process Computer Fails making the delta I alarm inoperable.
- b) Plant is at 75% power and a Control Rod Bank Demand Position Indicator (step counter) fails.
- c) Less than the required Pressurizer Heater capacity is operable with the plant in Hot Shutdown (Mode 3)
- d) Both CNMT A Sump level indicators and both CNMT Sump Pumps are inoperable during power operations.

The plant has just gone critical, power is 1.0×10^7 amp in the Intermediate Range and RCS Tavg is 545°F. Which of the following is the correct Plant Mode.

- a) Mode 1
- b) Mode 2
- c) Mode 3
- d) Mode 4

An Auxiliary Operator is verifying valve lineups. A step requires that a lock open valve be verified open. The locking device prevents any motion of the valve hand wheel. Which of the following is the correct technique for verifying the valve is open.

- a) Remove the locking device, attempt to move the valve in the open direction, return valve to original position, relock valve.
- b) Verify valve position by stem position indication.
- c) Remove the locking device, attempt to move the valve in the closed direction, return valve to original position, relock valve.
- d) Remove the locking device, close valve completely, count number of turns to reopen, relock valve.

Question: 92 (1.00 PTS)

C000.1052 Rev: 0 Status: 2

Which of the following items is required to be recorded in the Official Record.

- a) An Action Report concerning housekeeping in the Turbine Building
- b) An Unexpected Waste Panel Alarm requiring operator action
- c) Completion of A-52.4 Control of Limiting Conditions for Operating Equipment
- d) Speculative information on the cause of a Reactor Trip

Question: 93 (1.00 PTS)

C000.1051 Rev: 0 Status: 2

Which of the positions are required to approved a Temporary Procedure Change to an Operating Procedure prior to its use.

- a) Plant Manager
- b) Emergency Procedure Coordinator
- c) Supervisor of Operator Training
- d) Shift Supervisor

Question: 94 (1.00 PTS)

C000.1062 Rev: 0 Status: 2

Regarding the time interval between routine surveillances. The maximum extension is _____ for a single surveillance and _____ for the combined interval of 3 consecutive tests.

- a) 50%, 3.25
- b) 25%, 3.75
- c) 25%, 3.25
- d) 50%, 3.75

Question: 95 (1.00 PTS)

C000.1048 Rev: 0 Status: 2

Which of the following personnel combinations are qualified to place and verify holds per A-1401 Station Holding Rules on a Motor Operated Valve which is part of an isolation boundary. (Valve is to be held closed with power removed)

- a) Place - Plant Operator
Verify - Mechanic or Pipefitter
- b) Place - Plant Operator
Verify - License Trainee
- c) Place - STA
Verify - Electrician
- d) Place - Plant Operator
Verify - Electrician

During a Site Emergency, the Primary Operator is unaccounted for. You have volunteered, and been directed to conduct a search and rescue with a member from Security, and have all the necessary equipment and received a briefing. Under these conditions, what is the limit on total dose allowed to perform this emergency life saving service?

- a. 5 rem
- b. 10 rem
- c. 25 rem
- d. 75 rem

Which ONE of the following defines the term TEDE (Total Effective Dose Equivalent)?

- a. It is a federal dose rate guideline for the whole body exposure
- b. It is the dose to the whole body from external and internal exposure
- c. It is the combined dose rate from beta, gamma, and neutron radiation
- d. It is the term used for exposure to the extremities (hands, elbows, feet, etc.)

Question: 98 (1.00 PTS)

C000.1063 Rev: 0 Status: 2

Which of the following instruments are included as part of the post-accident instrumentation.

- a) Source Ranges N-31 and N-32
- b) Pressurizer Levels LT-426, 427 and 428
- c) Containment sump A water level
- d) RCS Narrow Range Pressure PT-429, 430, 431 and 449

Question: 99 (1.00 PTS)

C000.1046 Rev: 0 Status: 2

Following an exit from E-0, which of the following conditions requires an entry into an FR procedure on a Red Path.

- a) Steam Generator levels "A" 5%, "B" 10%, AFW Flow 0 gpm
Normal CNMT
- b) Core Exit Thermocouples 5 CETS > 800°F and RVLIS level 55%
- c) RCS "A" Cold Leg Cooldown Rate 200°F in last 30 min
"A" Tcold 290°F
- d) CNMT Pressure 65 psig, no CNMT Spray Pumps Running

Which of the following describes the requirements for the use of Alarm Response (AR) procedures.

- a) AR procedures shall be referenced for every alarm received during normal operations and unexpected alarms during abnormal or emergency events.
- b) AR procedures shall be referenced for unexpected alarms when the responding operator is not certain of the proper response action.
- c) AR procedures shall be referenced for all unexpected alarms which involve systems with Tech Spec operability requirements.
- d) AR procedures need not be referenced if one of the operators verbalizes the alarm to the control room and states whether it is expected or unexpected.

As Given
No Change from orig

Facility: R. E. Ginna													Date of Exam: 10/19/98		Exam Level: RO	
Tier	Group	K/A Category Points											Point Total			
		K 1	K 2	K 3	K4	K 5	K 6	A 1	A 2	A 3	A 4	G				
1. Emergency & Abnormal Plant Evolutions	1	3	1	4				2	5			1	16			
	2	4	0	5				3	4			1	17			
	3	0	0	0				1	2			0	3			
	Tier Totals	7	1	9				6	11			2	36			
2. Plant Systems	1	4	3	2	4	2	2	2	3	0	1	0	23			
	2	3	2	1	4	3	2	1	1	1	1	1	20			
	3	2	1	0	2	0	0	0	0	1	1	1	8			
	Tier Totals	9	6	3	10	5	4	3	4	2	3	2	51			
3. Generic Knowledge and Abilities					Cat 1		Cat 2		Cat 3		Cat 4		13			
					5		3		2		3					
<p>Note: . Attempt to distribute topics among all K/A categories; select at least one topic from every K/A category within each tier.</p> <p>. Actual point totals must match those specified in the table.</p> <p>. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.</p> <p>. Systems/evolutions within each group are identified on the associated outline.</p> <p>. The shaded areas are not applicable to the category/tier.</p>																

A070

ES-401		PWR RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1					Form ES-401-4		
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000005 Inoperable/Stuck Control Rod / I			3.03				Stuck Rod Tech Specs	3.6	1.0
000015/17 RCP Malfunctions / IV		2.08					Loss CCW Effect on RCP	2.6	1.0
W/E10 Natural Circ. / IV				1.2			Bubble Formation in Rx Vessel Head	3.6	1.0
000024 Emergency Boration / I					2.05		Amount of Boric Acid to Achieve Required SDM	3.3	1.0
000026 Loss of Component Cooling Water / VIII					2.01		Determining leak location in CCW System	2.9	1.0
000027 Pressurizer Pressure Control System Malfunction / III					2.15		Response to a Pressurizer Pressure Controlling Channel Failing High	3.7	1.0
000040 Steam Line Rupture - Excessive Heat Transfer / IV	1.05						Plant Initial Conditions effect on Restart Magnitude	4.1	1.0
W/E08 RCS Overcooling - PTS / IV			3.2				Basis for performing a Temperature/Pressure Soak	3.6	1.0
000051 Loss of Condenser Vacuum / IV					2.02		Condition Requiring Turbine Trip on Low Vacuum	3.9	1.0
000055 Station Blackout / VI	1.05		3.02				Basis for Caution on Maintaining S/G levels Stopping of natural Circulation Due to inventory depletion	4.3 4.1	1.0 1.0
000057 Loss of Vital AC Elec. Inst. Bus / VI					2.19		Plant Auto Actions on Loss of AC Inst Bus	4.0	1.0
000062 Loss of Nuclear Service Water / IV			3.02				Basis for Service Water Isolation Signal on ESFAS signal	3.6	1.0
000067 Plant Fire On-site / IX	1.02						Type of Suppressants for Electrical Fires	3.1	1.0
000068 (BW/A06) Control Room Evac. / VIII									
000069 (W/E14) Loss of CTMT Integrity / V						2.1.12	Apply Tech Specs for Loss of Containment Integrity	2.9	1.0
000074 Inad. Core Cooling / IV				1.16			ICC Indications on Core Exit Thermocouples	4.4	1.0
BW/E03 Inadequate Subcooling Margin / IV							N/A		
000076 High Reactor Coolant Activity / IX									
BW/A02&A03 Loss of NNI-X/Y / VII							N/A		
K/A Category Totals:	3	1	4	2	5	1	Group Point Total:		16

ES-401	PWR RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2						Form ES-401-4		
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000001 Continuous Rod Withdrawal / I					2.05		Action for Continuous Rod Withdrawal Diagnosis/Action	4.4	1.0
000003 Dropped Control Rod / I			3.04				Procedure Flowpath for Dropped Rod	3.8	1.0
000007 Reactor Trip - Stabilization - Recovery / I					2.04		Immediate Action for an ATWS	4.4	1.0
BW/A01 Plant Runback / I							N/A		
BW/A04 Turbine Trip / IV							N/A		
000008 Pressurizer Vapor Space Accident / III			3.01				Pressurizer Level Response	3.7	1.0
000009 Small Break LOCA / III			3.23				RCP Trip Criteria Basis	4.2	1.0
000011 Large Break LOCA / III				1.13			Limitation on RHR Pump Flow	4.1	1.0
W/E04 LOCA Outside Containment / III	1.2						Procedure Flowpath for LOCA O/S CNMT	3.5	1.0
W/E03 LOCA Cooldown/Depress. / IV	1.2						Basis for Depressurization	3.6	1.0
W/E11 Loss of Emergency Coolant Recirc. / IV	1.1						Use of RCDT Pump as a backup to RHR pumps	3.7	1.0
W/E02 SI Termination / III					2.1		Diagnosis of Procedure Entry Conditions	3.3	1.0
000022 Loss of Reactor Coolant Makeup / II	1.02						Effects of High Charging Head Flows on Pressure/Relief Valve	2.7	1.0
000025 Loss of RHR System / IV				1.02			Makeup to RCS to Restore RHR	3.8	1.0
000029 Anticipated Transient w/o Scram / I			3.01				Reactor Trip Verification	4.2	1.0
000032 Loss of Source Range NI / VII				1.01			Manual Restoration of Source Range on Failure of Auto Restoration	3.1	1.0
000033 Loss of Intermediate Range NI / VII									
000037 Steam Generator Tube Leak / III									
000038 Steam Generator Tube Rupture / III			3.06				Reason for Maintaining S/G Level in Narrow Range	4.2	1.0
000054 (CE/E06) Loss of Main Feedwater / IV									
W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / IV						2.4.20	Bleed and Feed Initiation Criteria Caution Basis	3.3	1.0
000058 Loss of DC Power / VI					2.03		Effect of Loss of DC on AC Buses and MCC's	3.5	1.0
000059 Accidental Liquid RadWaste Rel. / IX									
000060 Accidental Gaseous Radwaste Rel. / IX									
000061 ARM System Alarms / VII									
W/E16 High Containment Radiation / IX									
CE/E09 Functional Recovery							N/A		

ES-401		PWR RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2							Form ES-401-4	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points	
K/A Category Point Totals:	4	0	5	3	4	1			17	
Group Point Total:										

ES-401	PWR RO Examination Outline Plant Systems - Tier 2/Group 1											Form ES-401-4		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
001 Control Rod Drive		2.01					1.04					Power Supplies Effect of rod Movement at power	3.5 3.8	1.0 1.0
003 Reactor Coolant Pump	1.10					6.02						Seal Malfunction RCS Pressure Limitations	2.7 3.0	1.0 1.0
004 Chemical and Volume Control		2.03			5.20			2.18				VCT level Transmitter Failure Dilution flowpath/Effects Charging Pump Power Supplies	3.1 3.6 3.3	1.0 1.0 1.0
013 Engineered Safety Features Actuation			3.01	4.03								Steam Line isolation Signal Effect on ESFAS on Fuel	3.9 4.4	1.0 1.0
015 Nuclear Instrumentation						6.01	1.01					Power Range Trip Adjustment Intermediate Range Compensation Failure	2.9 2.9	1.0 1.0
017 In-core Temperature Monitor					5.03							Indications of Core Superheat	3.7	1.0
022 Containment Cooling	1.01	2.01										Service Water System on Actuation of CNMT Cooling Power Supplies to Fans Filter Damper Manual Operation	3.5 3.0 3.2	1.0 1.0 1.0
025 Ice Condenser												N/A		
056 Condensate								2.04				Loss of Condensate Pump	2.6	1.0
059 Main Feedwater	1.04		3.02									Effect of Tripping MFW on AFW Steam Generator Level Control	3.4 3.4	1.0 1.0
061 Auxiliary/Emergency Feedwater				4.01 4.02				2.07				Alternate Water Sources Pump Auto Starts Loss of Air to Valve Operators	4.1 4.5 2.7	1.0 1.0 1.0
068 Liquid Radwaste	1.07											Sources of Water to LRS	2.7	1.0
071 Waste Gas Disposal				4.02								Loss of CCW Effect on WGDS	2.5	1.0

ES-401	PWR RO Examination Outline Plant Systems - Tier 2/Group 2											Form ES-401-4		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
002 Reactor Coolant					5.15							Maintaining Subcooling during Natural Circ	4.2	1.0
006 Emergency Core Cooling						6.03						Swing Pump Response to Failure	3.6	1.0
		2.01										"C" SIP Start Logic	3.6	1.0
010 Pressurizer Pressure Control										4.02		Backup Heater Operation	3.6	1.0
011 Pressurizer Level Control				4.01								Heater Cutout on Low Level	3.3	1.0
012 Reactor Protection						6.06					2.2.25	OT&T Trip Basis	2.5	1.0
												Multiple Channel Defeat Interactions	2.7	1.0
014 Rod Position Indication								2.01				Effect of Losing Power Supply	2.8	1.0
016 Non-nuclear Instrumentation					5.01							Separation of Control and protection	2.7	1.0
026 Containment Spray										3.01		Pump Starts	4.3	1.0
029 Containment Purge														
033 Spent Fuel Pool Cooling				4.01								SFP Pump Trips	2.9	1.0
035 Steam Generator					5.03							S/G Shrink and Swell	3.1	1.0
039 Main and Reheat Steam				4.06								Prevention of Steam Back Flow	3.3	1.0
055 Condenser Air Removal														
062 AC Electrical Distribution				4.03								4160 Breaker Interlocks	2.8	1.0
							1.01					Significance of D/G Load Limits	3.4	1.0
063 DC Electrical Distribution	1.02											Relationship between DC Buses and AC Inst Buses	2.7	1.0
			3.02									Effects of Losing DC on AC Buses	3.5	1.0

more system oriented
from K1 or K2.

ES-401	PWR RO Examination Outline Plant Systems - Tier 2/Group 3											Form ES-401-4		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
005 Residual Heat Removal	1.01											Effect of Loss of Cooling	3.2	1.0
007 Pressurizer Relief/Quench Tank									3.01			PRT in leakage	2.7	1.0
008 Component Cooling Water	1.05											Makeup Water to CCW Source	3.0	1.0
027 Containment Iodine Removal														
028 Hydrogen Recombiner and Purge Control														
034 Fuel Handling Equipment											2.1.32	RHR Requirements in Refueling	3.4	1.0
041 Steam Dump/Turbine Bypass Control				4.14								Response to Rx Trip	2.5	1.0
045 Main Turbine Generator														
076 Service Water		2.08										Service Water Isolation on Loss of AC Training	3.1	1.0
078 Instrument Air				4.02								Backup Air Supplies	3.2	1.0
103 Containment										4.04		CNMT Isolation Reset	3.5	1.0
K/A Category Point Totals:	2	1	0	2	0	0	0	0	1	1	1	Group Point Total:		8

ES-401 Generic Knowledge and Abilities Outline (Tier 3) Form ES-401-5

Facility: R. E. Ginna		Date of Exam: 10/19/98	Exam Level: RO	
Category	K/A #	Topic	Imp.	Points
Conduct of Operations	2.1.3	Shift Turnover Practices	3.0	1.0
	2.1.11	Knowledge of < 1 hr Tech Specs	3.0	1.0
	2.1.22	Ability to Determine Mode of Operation	2.8	1.0
	2.1.29	Knowledge of Conducting Valve Lineup (Ind. Verification)	3.4	1.0
	2.1.18	Log Keeping	2.9	1.0
	2.1.			
	Total			
Equipment Control	2.2.11	Process for Controlling Temp. Procedure Changes	2.5	1.0
	2.2.12	Knowledge of Surveillance Procedures	3.0	1.0
	2.2.13	Knowledge to Tag and Clearance Procedures	3.6	1.0
	2.2.			
	2.2.			
	2.2.			
Total				
Radiation Control	2.3.4	Knowledge of Radiation Exposure Limits	2.5	1.0
	2.3.2	Knowledge of ALARA Program	2.5	1.0
	2.3.			
	2.3.			
	2.3.			
	2.3.			
Total				
Emergency Procedures and Plan	2.4.3	Ability to Identify Post Accident Instrumentation	3.5	1.0
	2.4.21	Knowledge of Red Path Entry Conditions	3.7	1.0
	2.4.31	Knowledge of Requirements for using AR Procedures	3.3	1.0
	2.4.			
	2.4.			
	2.4.			
	Total			
Tier 1 Target Point Total (RO)				13

*As Given
no changes from orig*

ES-301

Individual Walk-Through Test Outline

Form ES-301-2

Facility: <u>R. E. Ginna</u> Date of Examination: <u>10/19/98</u>		Exam Level (circle one): <u>RO</u> Operating Test No.: _____	
System / JPM Title / Type Codes*	Safety Function	Planned Follow-up Questions: K/A/G - Importance - Description	
1. Rod Control (J001.001) Perform Rod Exercises per PT-1 (D) (S)	1	a.	001 K5.04 4.3/4.7 Rod Insertion Limits
		b.	001 A2.03 3.5/4.2 Effect of Misaligned Rods
2. CVCS (J004.011) Place Excess Letdown in Service (D) (S)	2	a.	103K1.08 3.6/3.8 Relationship between Containment and SIS
		b.	004 K1.34 2.7/2.9 Interface CVCS & RCDT VCT 004 A4.13 3.3/2.9 Level Control
3. SIS (J006.002) Nitrogen Makeup to Accumulator (D) (S)	3	a.	2.1.12 2.9/4.0 Ability to apply T.S. for a system
		b.	006 A1.02 3.0/3.6 Ability to Predict ECCS Parameters - Accumulator Boron Concentration
4. RHR (J005.001) Secure RHR (D) (L) (S)	4	a.	005 K4.01 3.0/3.2 RHRS Overpressure Mitigation System
		b.	005 K4.07 3.2/3.5 RHRS Protection Logics
5. ECCS (J103.001) Perform CI/CVI Attachment (Aux. Bldg) (M) (P) (R)	5	a.	005 K3.07 3.2/3.6 Effect Loss of RHR will have on Refueling Operation
		b.	103 K1.02 3.9/4.1 Containment System and Containment Integrity
6. EDG (J064.004) Start the A DG Locally (M) (A) (P)	6	a.	064 K4.02 3.9/4.2 Trips for EDG while Operating
		b.	2.1.12 2.9/4.0 Ability to Apply T/S for a System

Facility: R. E. Ginna
 Exam Level (circle one): RO

Date of Examination: 10/19/98
 Operating Test No.: _____

System / JPM Title / Type Codes*	Safety Function	Planned Follow-up Questions: K/A/G - Importance - Description
7. INST (J012.003) Defeat a Failed RCS Temperature Channel (D) (S)	7	a. 012 K4.08 2.8, 3 RPS Design Features for Logic Matrix Testing b. 012 K4.06 3.2/3.5 Automatic or Manual Enable Disable of RPS Trips
8. CMNT (J029.001) Start Containment Purge (D) (S)	8	a. 029 K4.02 2.9/3.1 Design Features: Negative Pressure in Containment b. 029 K1.03 3.6/3.8 Cause/Effect Between Containment Purge and ESF
9. Lig Waste (J068.002) Bump the PRT (N) (S)	9	a. 068 A4.02 3.2/3.1 Operate/Monitor Remote Radwaste Release b. 071 K5.04 2.5/3.1 Relationship of Hydrogen/Oxygen Concentration to Flammability
10. UV Protection (J062.0019) Locally Trip UV Relays (D) (P) (R)	6	a. 062 K4.02 2.5/2.7 AC Distribution Design Features: Circuit Breaker Auto Trips b. 062 A4.01 3.3/3.1 Manual Breaker Operation

* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (P)lant, (R)CA

Facility: <u>R. E. Ginna</u>		Date of Examination: <u>10/19/98</u>
Exam Level (circle one): <u>SRO</u>		Operating Test No.: <u> </u>
System / JPM Title / Type Codes*	Safety Function	Planned Follow-up Questions: K/A/G - Importance - Description
1. Rod Control (J001.001) Perform Rod Exercises per PT-1 (D) (S)	1	a. 001 K5.04 4.3/4.7 Rod Insertion Limits
		b. 001 A2.03 3.5/4.2 Effect of Misaligned Rods
2. SIS (J006.002) Nitrogen Makeup to Accumulator (D) (S)	2	a. 2.1.12 2.9/4.0 Ability to apply T.S. for a system
		b. 006 A1.02 3.0/3.6 Ability to Predict ECCS Parameters - Accumulator Boron Concentration
3. RHR (J005.001) Secure RHR (D) (L) (S)	3	a. 005 K4.01 3.0/3.2 RHRS Overpressure Mitigation System
		b. 005 K4.07 3.2/3.5 RHRS Protection Logics
4. ECCS (J103.001) Perform CI/CVI Attachment (Aux. Bldg) (M) (P) (R)	4	a. 005 K3.07 3.2/3.6 Effect Loss of RHR will have on Refueling Operation
		b. 103 K1.02 3.9/4.1 Containment System and Containment Integrity
5. EDG (J064.004) Start the A DG Locally (M) (A) (P)	5	a. 064 K4.02 3.9/4.2 Trips for EDG while Operating
		b. 2.1.12 2.9/4.0 Ability to Apply T/S for a System
* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (P)lant, (R)CA		

As given
no changes from Orig

Facility: R. E. Ginna Date of Examination: 10/19/98
Examination Level (circle one): SRO Operating Test Number: _____

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Parameter Verification	JPM: Calculate a QPTR with an out of Spec. value. K/A 2.1.7 (4.4)
	Shift Personnel Responsibilities and Staffing	Question: Responsibilities and Authority of the "In Command SRO" K/A 2.1.2 (4.0)
Question: Shift Staffing Requirements. K/A 2.1.4 (3.4)		
A.2	Maintenance Activities Impact on Operations	Question: Process for restoring equipment to operable status following maintenance. K/A 2.2.21 (3.5)
		Question: Process for managing maintenance activities during power operations/use of the risk monitor. K/A 2.2.17 (3.5)
A.3	Radiation Protection	Question: Process for reviewing/approving release permits. K/A 2.3.7 (3.3)
		Question: Process for approving emergency exposures. K/A 2.3.4 (3.1)
A.4	Emergency Plan Classification	JPM: Perform an Event Classification K/A 2.4.41 (4.1)