Draft Submittal
(Pink Paper)

1. Senior Reactor Operator Written Exam

VOGTLE EXAM 2002-301
50-424 AND 50-425

NOVEMBER 26, &
DECEMBER 2 - 13, 2002

Draft/

Facility: Vogtle Date of Exam: Exam Level: SRO

Tier	Group	K/A Category Points											Point Total	
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G *		
1. Emergency & Abnormal Plant Evolutions	1	4	3	4				3	7			3	24	24
	2	2	2	2				5	2			3	16	16
	3	1	0	1				0	1			0	3	3
	Tier Totals	7	5	7	0	0	0	8	10	0	0	6	43	43
2. Plant Systems	1	3	1	2	1	1	1	3	2	0	3	2	19	19
	2	2	1	1	2	1	1	2	2	2	1	2	17	17
	3	0	1	1	0	1	0	0	0	1	0	0	4	4
	Tier Totals	5	3	4	3	3	2	5	4	3	4	4	40	40
3. Generic Knowledge and Abilities					Cat 1		Cat 2		Cat 3		Cat 4			17
					4		5		4		4		17	

Note:
1. Ensure that at least two topics from every K/A category are sampled within each tier (i.e., the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final exam must total 100 points.
3. 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.
4. Systems/evolutions within each group are identified on the associated outline.
5. The shaded areas are not applicable to the category/tier.
6.* The generic K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings for the SRO license level, and the point totals for each system and category. K/As below 2.5 should be justified on the basis of plant-specific priorities. Enter the tier totals for each category in the table above.

ES-401	PWR SRO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1							Form ES-401-3
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000001 Continuous Rod Withdrawal / 1	1						AK1.05 - Knowledge of the operational implications of the following concepts as they apply to Continuos Rod Withdrawal: Effects of turbine-reactor power mismatch on rod control (CFR: 41.8 / 41.10 / 45.3)	3.5/3.8	B
000003 Dropped Control Rod / 1						1	G2.4.49 - Ability to perform without reference to procedures those actions that require immediate operation of system components and controls. (CFR: 41.10 / 43.2 / 45.6)	4.0/4.0	B
000005 Inoperable/Stuck Control Rod / 1			1				AK3.02 Knowledge of the reason for the following responses as they apply to the Dropped Control Rod: Reactor runback with a dropped control rod (CFR 41.5,41.10 / 45.6 / 45.13)	3.3/3.7	S
000011 Large Break LOCA / 3		1					EK2.02 knowledge of the inter-relationship LB LOCA and pumps	2.6/2.7	B
000011 Large Break LOCA / 3				1			EA1.04 - ESF actuation system in manual (CFR 41.7/45.5/45.6)	4.4/4.4	S
W/E04 LOCA Outside Containment / 3					1		EA2.1 - Facility conditions and selection of appropriate procedures during abnormal and emergency operations. (CFR: 43.5 / 45.13)	3.4/4.3	S
W/EO1 & E02 Rediagnosis & SI Termination / 3	1						EK1.2 - Normal, abnormal and emergency operating procedures associated with (Reactor Trip or Safety Injection / Rediagnosis). (CFR: 41.8 / 41.10 / 45.3)	3.4/4.0	S
000015/17 RCP Malfunctions / 4	1						AK1.02 - Consequences of an RCPS failure(CFR 41.8 / 41.10 / 45.3)	3.7/4.1	B
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4					1		EA2.2 - Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments. (CFR: 43.5 / 45.13)	3.4/3.8	B
000024 Emergency Boration / 1		1					AK2.01 - Valves - (CFR 41.7 / 45.7)	2.7/2.7	B
000026 Loss of Component Cooling Water / 8			1				AK3.01 - Knowledge of the reasons for the following responses as they apply to the Loss of CCW: The conditions that will initiate the automatic opening and closing of the SWS isolation valves to the CCWS collers (CFR 41.5,41.10 / 45.6 / 45.13)	3.2/3.5	B
000029 Anticipated Transient w/o Scram / 1				1			EA1.13 - Manual trip of main turbine (41.8/41.10/45.3)	4.1/3.9	B
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - E1cessive Heat Transfer / 4						1	AG2.4.4 ability to recognize abnormal indications for system operating parameters which are entry level conditions for EOPs and AOPs (CFR 41.10, 43.2, 45.6	4.0/4.3	B
CE/A11; W/E08 RCS Overcooling - PTS / 4					1		EA2.1 - Facility conditions and selection of appropriate procedures during abnormal and emergency operations. (CFR: 43.5 / 45.13)	3.4/4.2	S
000051 Loss of Condenser Vacuum / 4					1		AA2.02 - Conditions requiring reactor and/or turbine trip (CFR: 43.5 / 45.13)	3.9/4.1	S
000055 Station Blackout / 6			1				EK3.02 - Actions contained in EOP for loss of offsite and onsite power (CFR 41.5 / 41.10 / 45.6 / 45.13)	4.3/4.6	B
000057 Loss of Vital AC Elec. Inst. Bus / 6					1		AA2.19 - Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: The the plant automatic actions that will occur on a loss of a vital ac electrical instrument bus (CFR: 43.5 / 45.13)	4.0/4.3	S

ES-401	PWR SRO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1							Form ES-401-3	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000059 Accidental Liquid RadWaste Rel. / 9				1			AA1.01 - Radioactive-liquid monitor (CFR 41.7 / 45.5 / 45.6)	3.5/3.5	B
000062 Loss of Nuclear Service Water / 4						1	AG2.4.24 - Knowledge of loss of cooling water procedures. (CFR: 41.10 / 45.13)	3.3/3.7	B
000067 Plant Fire On-site / 9	1						AK1.02 - Fire fighting (CFR 41.8 / 41.10 / 45.3)	3.1/3.9	B
000068 (BW/A06) Control Room Evac. / 8			1				AK3.18 - Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation: Actions contained in EOP for control room evacuation emergency task. (CFR 41.5,41.10 / 45.6 / 45.13)	4.2/4.5	B
000069 (W/E14) Loss of CTMT Integrity / 5		1					AK2.03 - Personnel access hatch and emergency access hatch (CFR 41.7 / 45.7)	2.8/2.9	B
000074 (W/E06&E07) Inad. Core Cooling / 4					1		EA2.1 - Ability to determine and interpret the following as they apply to the (Saturated Core Cooling) Facility conditions and selection of appropriate procedures during abnormal and emergency operations. (CFR 43.5 / 45.13)	3.2/4.0	S
BW/E03 Inadequate Subcooling Margin / 4									
000076 High Reactor Coolant Activity / 9					1		AA2.02 Ability to determine and interpret the following as they apply to the High Reactor Coolant Activity: Corrective actions required for high fission product activity in RCS. (CFR: 43.5 / 45.13)	2.8/3.4	S
BW/A02&A03 Loss of NNI-X/Y / 7									
K/A Category Totals:	4	3	4	3	7	3	Group Point Total: 24		24

ES-401	PWR SRO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2							Form ES-401-3	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1				1			EA1.03 - RCS pressure and temperature (CFR 41.7 / 45.5 / 45.6)	4.2/4.1	S
BW/A01 Plant Runback / 1									
BW/A04 Turbine Trip / 4									
000008 Pressurizer Vapor Space Accident / 3	1						AK1.01 - Knowledge of the operational implications of the following concepts as they apply to a Pressurizer Vapor Space Accident: Thermodynamics and flow characteristics of open or leaking valves (CFR 41.8 / 41.10 / 45.3)	3.2/3.7	B
000009 Small Break LOCA / 3					1		EA2.34 - Ability to determine or interpret the following as they apply to a small break LOCA: Conditions for throttling or stopping HPI. (CFR 43.5 / 45.13)	3.6/4.2	S
BW/E08; W/E03 LOCA Cooldown - Depress. / 4		1					EK2.2 - Knowledge of the operational implicationsFacility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility. (CFR: 41.7 / 45.7)	3.7/4.0	B
W/E11 Loss of Emergency Coolant Recirc. / 4				1			EA1.3 - Ability to monitor / operate to obtain the desired operating results during abnormal and emergency situations during a loss of emerg cool recirc. (CFR: 41.7 / 45.5 / 45.6)	3.7/4.2	B
000022 Loss of Reactor Coolant Makeup / 2						1	AG2.1.32 - Ability to explain and apply all system limits and precautions. (CFR: 41.10 / 43.2 / 45.12)	3.4/3.8	B
000025 Loss of RHR System / 4		1					AK2.02 - Knowledge of the interrelationship of the LPI or Decay Heat Removal/RHR pumps during a loss of RHR (CFR 41.7 / 45.7)	3.2/3.2	B
000027 Pressurizer Pressure Control System Malfunction / 3			1				AK3.03 - Knowledge of the actions contained in EOP for PZR PCS malfunction (CFR 41.5,41.10 / 45.6 / 45.13)	3.7/4.1	B
000032 Loss of Source Range NI / 7	1						AK1.01 - Knowledge of the operational implications of the effects of voltage changes on performance during a loss of SR NI (CFR 41.8 / 41.10 / 45.3)	2.5/3.1	B
000033 Loss of Intermediate Range NI / 7									
000037 Steam Generator Tube Leak / 3			1				AK3.07 - Knowledge of the reasons for the following responses as they apply to the Steam Generator Tube Leak: Actions contained in EOP for S/G tube leak (CFR 41.5, 41.10 / 45.6 / 45.13)	4.2/4.4	B
000038 Steam Generator Tube Rupture / 3				1			EA1.04 - Ability to operate and monitor the following as they apply to a SGTR: PZR spray, to reduce coolant system pressure. (CFR 41.7 / 45.5 / 45.6)	4.3/4.1	S
000054 (CE/E06) Loss of Main Feedwater / 4						1	EG2.4.48 - Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions. (CFR: 43.5 / 45.12)	3.5/3.8	B
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4				1			EA1.3 - Ability to obtain desired operating results during abnormal and emergency situations. (CFR: 41.7 / 45.5 / 45.6)	3.8/4.2	B
000058 Loss of DC Power / 6									

ES-401	PWR SRO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2								Form ES-401-3
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000060 Accidental Gaseous Radwaste Rel. / 9					1		AA2.04 - Ability to determine and interpret the following as they apply to the Accidental Gaseous Radwaste: The effects on the power plant of isolating a given radioactive-gas leak (CFR: 43.5 / 45.13)	2.6/3.4	S
000061 ARM System Alarms / 7									
W/E16 High Containment Radiation / 9						1	2.3.10 - Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure. (CFR: 43.4 / 45.10)	2.9/3.3	S
000065 Loss of Instrument Air / 8				1			AA1.03 - Ability ot conduct restoration of systems served by instrument air when pressure is regained (CFR 41.7 / 45.5 / 45.6)	2.9/3.1	B
CE/E09 Functional Recovery									
K/A Category Point Totals:	2	2	2	5	2	3	Group Point Total:	16	16

ES-401	PWR SRO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 3							Form ES-401-3	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000028 Pressurizer Level Malfunction / 2					1		AA2.12 - Ability to determine and interpret the following as they apply to the Pressurizer Level Control Malfunctions: Cause for PZR level deviation alarm: controller malfunction or other instrument malfunction. (CFR: 43.5 / 45.13)	3.1/3.5	S
000036 (BW/A08) Fuel Handling Accident / 8									
000056 Loss of Off-site Power / 6	1						AK1.01 - knowledge of the operational implications of the Principle of cooling by natural convection as it applies to LOSP (CFR 41.8 / 41.10 / 45.3)	3.7/4.2	S
BW/E13&E14 EOP Rules and Enclosures									
BW/A05 Emergency Diesel Actuation / 6									
BW/A07 Flooding / 8									
CE/A16 Excess RCS Leakage / 2									
W/E13 Steam Generator Over-pressure / 4			1				EK3.2 -Knowledge of the normal, abnormal and emergency operating procedures associated with (Steam Generator Overpressure). (CFR: 41.5 / 41.10, 45.6, 45.13)	2.9/3.3	S
W/E15 Containment Flooding / 5									
K/A Category Point Totals:	1	0	1	0	1	0	Group Point Total: 3		3

ES-401	PWR SRO Examination Outline Plant Systems - Tier 2/Group 1												Form ES-401-3	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
001 Control Rod Drive	1											K1.05 Knowledge of the physical connections and/or cause-effect relationship between the CRDS and the following systems: NIS and RPS (CFR 41.2 to 41.9 / 45.7 to 45.8)	4.5/4.4	B
003 Reactor Coolant Pump								1				A2.02 Ability to predict the impact of the following malfunction or operation on the RCPS : Conditions which exist for an abnormal shutdown of an RCP in comparison to a normal shutdown of an RCP (CFR: 41.5 / 43.5/ 45.3 / 45/13)	3.7/3.9	S
004 Chemical and Volume Control								1				A2.12 Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedure to correct, control, or mitigate the consequences of those malfunctions or operations: CIAS, SIAS (CFR: 41.5 / 43.5 / 45.3 / 45.5)	4.1/4.3	B
004 Chemical and Volume Control										1		A4.07Ability to manually operate and/or monitor in the control room: Boration/dilution. (CFR: 41.7 / 45.5 to 45.8)	3.9/3.7	B
013 Engineered Safety Features Actuation		1										K2.01 Knowledge of the power supplies of the ESFAS/safeguards equipment control (CFR: 41.7)	3.6/3.8	B
014 Rod Position Indication										1		A4.01 Ability to manually operate or monitor in the CR the rod selection control (CFR: 41.7 / 45.5 to 45.8)	3.3/3.1	B
015 Nuclear Instrumentation				1								K4.06 Knowledge of the NIS design features and interlocks provided for Reactor trip bypasses (CFR: 41.7)	3.9/4.2	B
015 Nuclear Instrumentation					1							K5.04 Knowledge of the operational implication of the following concepts as they apply to the NIS: Factors affecting accuracy and reliability of calorimetric calibrations. (CFR: 41.5 / 45.7)	2.6/3.1	B
017 In-core Temperature Monitor			1									K3.01 Knowledge of the effect of loss of Natural circulation indications (CFR: 41.7 / 45.6)	3.5/3.7	B
022 Containment Cooling											1	G2.1.27 - Knowledge of system purpose and function. (CFR: 41.7)	2.8/ 2.9	B
025 Ice Condenser														
025 Ice Condenser														
026 Containment Spray							1					A1.01 - Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CSS controls including: Containment pressure (CFR: 41.5 / 45.5)	3.9/4.2	B

ES-401	PWR SRO Examination Outline Plant Systems - Tier 2/Group 1											Form ES-401-3		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
056 Condensate	1											K1.03 -Knowledge of the physical connection or cause-effect relationship between condensate system and the MFW (CFR: 41.2 to 41.9 / 45.7 to 45.8)	2.6/2.6	B
059 Main Feedwater						1						K6.09 Knowledge of the effect of loss of MFW pump and flow regulating valves	2.4/2.6	B
059 Main Feedwater										1		A4.11 - Recovery from automatic feedwater isolation (CFR: 41.7 / 45.5 to 45.8)	3.1/3.3	B
061 Auxiliary/Emergency Feedwater							1					A1.04 - Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the AFW controls including: AFW source tank level. (CFR: 41.5 / 45.5)	3.9/3.9	B
063 DC Electrical Distribution														
068 Liquid Radwaste	1											K1.07 - Knowledge of the sources of liquid wastes for LRS (CFR: 41.2 to 41.9 / 45.7 to 45.8)	2.7/2.9	B
071 Waste Gas Disposal			1									K3.05 Knowledge of the effect that a loss of the waste gas disposal will have on ARM and PRM (CFR 41.7, 45.6)	3.2/3.2	B
072 Area Radiation Monitoring							1					A1.01 Predict/monitor changes in radiation levels to prevent exceeding design limits (CFR 41.5, 45.5)	3.4/3.6	B
072 Area Radiation Monitoring											1	G2.1.28 Knowledge of the purpose and function of major system components and controls. (CFR41.7)	3.2/3.3	B
K/A Category Point Totals:	3	1	2	1	1	1	3	2	0	3	2	Group Point Total:	19	19

ES-401	PWR SRO Examination Outline Plant Systems - Tier 2/Group 2											Form ES-401-3		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
002 Reactor Coolant					1							K5.10 Knowledge of the operational implications of relationship between reactor power and RCS differential temperature (CFR 41.5, 45.7)	3.6/4.1	B

ES-401	PWR SRO Examination Outline Plant Systems - Tier 2/Group 2												Form ES-401-3
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
006 Emergency Core Cooling	1											K1.07 Knowledge of the physical connections and/or cause-effect relationship between the ECCS and the following systems: MFW system. (CFR 41.2 to 41.9 / 45.7 to 45.8)	2.9/3.3	B
006 Emergency Core Cooling							1					A1.11 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ECCS controls including: Boron concentration. (CFR 41.5 / 45.5)	3.1/3.4	B
010 Pressurizer Pressure Control			1									K3.01 Knowledge of the loss of PZR PCS on RCS (CFR 41.7, 45.6)	3.8/3.9	B
011 Pressurizer Level Control									1			A3.03 Ability to monitor automatic operation of PZR LCS including: Charging and letdown (CFR 41.7 / 45.5)	3.2/3.3	B
012 Reactor Protection						1						K6.10 Knowledge of the effect of loss of permissive circuits on RPS (CFR 41.7, 45.7)	3.3/3.5	B
016 Non-nuclear Instrumentation														
027 Containment Iodine Removal														
028 Hydrogen Recombiner and Purge Control														
029- Containment Purge														
033 Spent Fuel Pool Cooling											1	G2.4.18 Knowledge of the specific bases for EOPs (CFR 41.10 / 45.13)	2.7/3.6	S
034 Fuel Handling Equipment				1								K4.01 Knowledge of the design features and interlocks which provide fuel protection from binding and dropping (CFR 41.7)	2.6/3.4	B
035 Steam Generator	1											K1.09 Knowledge of the cause / effect between S/G and RCS (CFR 41.2 - 9, 45.7 - 8)	3.8/4.0	B
039 Main and Reheat Steam							1					A1.03 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MRSS controls including: Primary system temperature indications, and required valves, during main steam system warm-up. (CFR 41.5 / 45.5)	2.6/2.7	B
055 Condenser Air Removal														
062 AC Electrical Distribution									1			A3.05 Ability to monitor automatic operation of the ac distribution system, including: Safety related indicators and controls. (41.7 / 45.5)	3.5/3.6	B
064 Emergency Diesel Generator		1										K2.03 Knowledge control power power supplies (CFR 41.7)	3.2/3.6	B
073 Process Radiation Monitoring								1				A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the PRM system; and (b) based on those predictions, use procedure to correct, control, or mitigate the consequences of those malfunctions or operations: Erratic or failed power supply. (CFR: 41.5 / 43.5 / 45.3 / 45.13)	2.5/2.9	S

ES-401	PWR SRO Examination Outline Plant Systems - Tier 2/Group 2												Form ES-401-3	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
075 Circulating Water										1		A4.01 Ability to operate/monitor emergency / essential SWS pumps (CFR 41.7, 45.5 - 8)	3.2/3.2	B
079 Station Air				1								K4.01 Knowledge of SAS design feature and cross Connection with IAS (CFR41.7)	2.9/3.2	B
086 Fire Protection											1	2.4.25 Knowledge of fire protection procedures (CFR 41.0, 43.5, 45.5)	2.9/3.4	S
103 Containment								1				A2.03 Ability to predict impact and use procedures to address malfunction of phase A and B isolation (CFR 41.5, 43.5, 45.3, 45.13)	3.5/3.8	S
K/A Category Point Totals:	2	1	1	2	1	1	2	2	2	1	2	Group Point Total:	17	17

ES-401	PWR SRO Examination Outline Plant Systems - Tier 2/Group 3	Form ES-401-3

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
005 Residual Heat Removal					1							K5.03 Knowledge of the operational implications of reactivity effects of RHR fill water (CFR 41.5, 45.7)	2.9/3.1	S
007 Pressurizer Relief/Quench Tank														
008 Component Cooling Water														
041 Steam Dump/Turbine Bypass Control			1									K3.04 Knowledge of the effect of a malfunction of the SDS has on reactor power (CFR41.7, 45.6)	3.5/3.4	B
045 Main Turbine Generator									1			A3.05 Ability to monitor auto operation of the MT/G system, including: Electrohydraulic control. (CFR 41.7 / 45.5)	2.6/2.9	B
076 Service Water		1										K2.08 Knowledge of the power supplies to ESF-actuated MOV (CFR 41.7)	3.1/3.3	B
078 Instrument Air														
K/A Category Point Totals:	0	1	1	0	1	0	0	0	1	0	0	Group Point Total:	4	4

Plant-Specific Priorities

System / Topic	Recommended Replacement for...	Reason	Points
Plant-Specific Priority Total: (limit 10)			

Facility:	Date of Exam:			Exam Level: SRO
Category	K/A #	Topic	Imp.	Points
Conduct of Operations	2.1.3	Knowledge of shift turnover practices	3.0/3.4	B
	2.1.2	Knowledge of operator responsibility during all modes of operation	3.0/4.0	B
	2.1.14	Knowledge of system status criteria which require the notification of plant personnel	2.5/3.3	S
	2.1.32	Ability to explain and apply all system limits and precautions	3.4/3.8	B
	2.1.			
	2.1.			
	Total			4
Equipment Control	2.2.3	Knowledge of the design, procedural and operational differences between Units	3.1/3.3	B
	2.2.8	Knowledge of the process for determining if the proposed change, test, or experiment involves an unreviewed safety question.	1.8/3.3	S
	2.2.12	Knowledge of surveillance procedures	3.0/3.4	B
	2.2.22	Knowledge of limiting conditions for operations and safety limits	3.4/4.1	B
	2.2.29	Knowledge of SRO fuel handling responsibilities	1.6/3.8	S
	2.2.			
	Total			5
Radiation Control	2.3.1	Knowledge of 10 CFR 20 and related facility radiation control requirements	2.6/3.0	B
	2.3.4	Knowledge of radiation exposure limits and contamination control including permissible levels in excess of those authorized	2.5/3.1	B
	2.3.9	Knowledge of the process for performing a containment purge	2.5/3.4	B
	2.3.8	Knowledge of the process for performing a planned gaseous release	2.3/3.2	S
	2.3.			
	2.3.			
	Total			4
Emergency Procedures/ Plan	2.4.1	Knowledge of EOP entry conditions and immediate action steps	4.3/4.6	B
	2.4.14	Knowledge of general guidelines for EOP flowchart use	3.0/3.9	B
	2.4.8	Knowledge of how the event-based emergency/abnormal operating procedures are used in conjunction with the symptom-based EOPs	3.0/3.7	B
	2.4.11	Knowledge of abnormal condition procedures	3.4/3.6	B
	2.4.			
	Total			4
Tier 3 Point Total (RO/SRO)				17

SRO

QUESTIONS REPORT
for VOGTLEFINDRFT1028

1. 001AK1.05 001

The following conditions exist:

- Reactor power = 100 ~~25~~%
- Control Bank D is at 137 steps withdrawn
- Rod control is in AUTO

If PT-505 fails LOW, how will the rods in Control Bank D respond?

A. Move inward at 48 steps per minute.

B. Move inward at 72 steps per minute.

C. Move outward at 72 steps per minute.

D. Move outward at 48 steps per minute.

REF: VG LP-27101 C-5 Rod Control
distracter A - 48 SPM is the speed for manual operation of control banks and wrong direction.

Distracter B - inward movement is a misapplication of PT-485 failing high.

Answer C - correct maximum speed of 72 SPM in the outward direction

Distracter D - 48 SPM is the speed for manual operation of control banks.
Changed Power to 22% as requested from Utility to get further above C-5 auto-rod interlock.
Made 4th item match MCB nomencalture.
Removed "for input to the rod control system" to avoid "teaching" in the stem.

2. 001K1.05 001

Given the following:

- 75% power
- Channel N-41 - 74%~~.80~~
- Channel N-42 - 73%~~.75~~
- Channel N-43 - 75%~~.20~~
- Channel N-44 - 74%~~.50~~
- Rod control is in Automatic

Which of the following describes Rod Control system response to channel N-41 failing LOW ~~low~~?

A. Control Rods drive in at a maximum rate until C-5 blocks rod motion or a reactor trip on low PRZR press occurs.

B. Control Rods drive in until the temperature mismatch equals the power mismatch and Tavg stabilizes at a lower temperature.

C. Control Rods remain in present position until ~~power mismatch causes a signal to move.~~Tave is 1.5 degrees F above Tref.

D. Control Rods drive out until the temperature mismatch equals the power mismatch and Tavg stabilizes at a lower temperature.

New, REF: LO-LP-27101-21

a. incorrect - auctioneered hi is used in the rod circuitry, and N-43 is the hi not N-41
b. incorrect - auctioneered hi is used in the rod circuitry, and N-43 is the hi not N-41
c. correct - auctioneered hi is used in the rod circuitry, and N-43 is the hi not N-41
d. incorrect - auctioneered hi is used in the rod circuitry, and N-43 is the hi not N-41

3. 002K5.10 001

Given the following conditions:

- Tavg is on program
- Unit 1 is at 94% power and ramping up.
- Rods are in automatic with Bank D at 200 steps
- Turbine load set is raised to 1220 MWe using the increase pushbutton
- Turbine control valves are opening and megawatts are increasing

Which ONE of the following describes Tavg behavior assuming no operator action?

A. Tavg and Tref will increase and continue to be matched until the ~~control valves reach the limiter setting~~ turbine reaches set load.

B. Tref will increase until the ~~control valves~~ turbine reaches set load ~~the limiter setting~~, but Tavg will remain constant.

C. Tavg and Tref will remain constant and matched as the turbine load increases. ~~control valves reach the limiter setting.~~

D. ~~Tavg will initially increase, but then decrease as the control valves reach the limiter setting. until the turbine reaches set load~~.
Tavg will decrease and Tref will increase until the turbine reaches set load.

Ref: VG LO-LP-28103 - C

Distactor analysis:
D is correct because Bank D hits the C11 rod stop at 220 steps. As the governor valves continue to open, turbine power continues to rise along with Pimp (Tref). However, no more positive reactivity is added (no dilution per stem) and no rods due to C11, but doppler adds negative reactivity which drives Tavg down until Moderator temp coefficient balances at a lower Tavg.
A, B, and C are incorrect they have Tavg either rising or remaining constant.

4. 003A2.02S 001

Unit 1 Reactor power has been reduced to remove Loop 3 RCP due to excessive vibrations.

Which ONE of the following describes the plant response at the time the RCP is tripped and any follow-up action required?

A. ~~Tavg~~ Delta T in loop 3 increases ~~to Thot of~~ above the other 3 loops and MFW flow to loop 3 must be increased ~~reduced~~.

B. ~~Tavg~~ Delta T in loop 3 decreases below ~~to less than Tcold of~~ the other 3 loops and MFW flow to loop 3 must be reduced.

C. ~~Tavg~~ Delta T in loop 3 increases ~~to Thot of~~ above the other 3 loops and ~~loop 3 PZR spray valve must be closed.~~ MFW flow to the other 3 loops must be increased.

D. ~~Tavg~~ Delta T in loop 3 decreases to below ~~less than Tcold of the~~ other 3 loops and ~~loop 3 PZR spray valve must be closed.~~ MFW flow to the other 3 loops must be reduced.

Ref: VG Ann Response 17021-1 window A01

A & C are incorrect because loop 3 Tavg decreases
D is incorrect because loop 3 has no spray valve
B is correct because when a RCP is removed from service, a reverse flow occurs in the affected loop. The result is a significant reduction in the RCS hot leg temperature and reduction in steam generation from the affected SG. Previous experience in losing an RCP "at power" showed that Tavg in the affected loop went below Tcold in the active loops until feedwater was isolated and a thermal equilibrium was reached. In this instance, Tavg for the affected loop could go below the minimum temperature for criticality. Tavg will return to greater than 551°F in <10 minutes following isolation of
feedwater to the idle S/G.

5. 003G2.4.49 001

At 11:00 you are notified that RCP #1 ~~CCS~~ ACCW inlet line is leaking badly. Maintenance was notified and is in the process of determining what type of repairs are needed. At 11:05 via plant computer and other control room indications, you determine that the following conditions exist:

- Motor bearing temperature is 195 F and rising at 1 F / min
- Motor stator winding temperature is 315 F and steady
- Seal water Inlet temperature is 240 F and steady

Based on the above conditions, what action(s) should be taken?

A. ✓ Immediately trip the RCP

B. Trip the RCP if ~~seal injection~~ ACCW to the pump is not re-established by 11:16 with total #1 seal flow ~~is~~ greater than 5 gpm

C. Trip the RCP if ~~seal injection~~ ACCW flow is not re-established by 11:10

D. Trip the RCP, then the reactor if seal water temperature is not returned to 235~~0~~ F by 11:16

Ref: VG LO-LP-16401, 13003-1

6. 004A2.12 001

Given the following:

- Unit 2 is at 100% power
- CCP "A" is in service, providing normal charging flow
- An inadvertent "B" train SI was generated by I&C
- ~~"A" train~~ SI "A" train is ~~not~~ NOT present
- No operator action takes place

Which of the following is correct?

A. Normal mini-flow paths for both CCPs are isolated, alternate flow-paths for both CCPs are available.

B. Normal mini-flow paths for both CCPs are isolated, CCP "A" alternate miniflow path is isolated, CCP "B" alternate mini-flow path is available.

C. CCP "A" normal mini-flow path is available, CCP "A" alternate miniflow path is isolated, CCP "B" alternate mini-flow path is available.

D. Normal mini-flow paths for both CCPs are isolated, alternate flow-paths for both CCPs are isolated.

Ref : VG bank, LO-LP-09201-01-05
A. incorrect - train A Isolation occurred
B. correct
C. incorrect - train A valves closed
D. incorrect - train B valves unaffected

7. 004A4.07 001

Which of the following describes the proper reactor makeup control system valve positions after the ~~reactor~~ Makeup ~~Master~~ Control Switch is placed to the START position with the ~~Reactor Makeup~~ Mode selector switch in DILUTE?

A. ~~Blender Acid Supply Flow Control Valve - CLOSED~~
~~Makeup to CCP Suction Flow Control Valve- CLOSED~~
~~Boric Acid Blender to VCT Inlet Flow Control Valve- OPEN~~
~~Blender Primary Water Flow Control Valve- MODULATED~~

Boric Acid to Blender Valve (FV-0110A) - CLOSED
Blender Outlet to Charging Pumps Suction Valve (FV-0110B)- CLOSED
Blender Outlet to VCT Valve (FV-0111B)- OPEN
RX MU WTR to BA Blender Valve (FV-0111A)- MODULATED

B. ~~Blender Acid Supply Flow Control valve - CLOSED~~
~~Makeup to CCP Suction Flow Control Valve - OPEN~~
~~Boric Acid Blender to VCT Inlet Flow Control Valve - MODULATED~~
~~Blender Primary Water Flow Control Valve - CLOSED~~

Boric Acid to Blender Valve (FV-0110A) - CLOSED
Blender Outlet to Charging Pumps Suction Valve (FV-0110B)- OPEN
Blender Outlet to VCT Valve (FV-0111B)- MODULATED
RX MU WTR to BA Blender Valve (FV-0111A)- CLOSED

C. ~~Blender Acid Supply Flow Control valve - OPEN~~
~~Makeup to CCP Suction Flow Control Valve - OPEN~~
~~Boric Acid Blender to VCT Inlet Flow Control Valve - CLOSED~~
~~Blender Primary Water Flow Control Valve - MODULATED~~

Boric Acid to Blender Valve (FV-0110A) - OPEN
Blender Outlet to Charging Pumps Suction Valve (FV-0110B)- OPEN
Blender Outlet to VCT Valve (FV-0111B)- CLOSED
RX MU WTR to BA Blender Valve (FV-0111A)- MODULATED

D. ~~Blender Acid Supply Flow Control valve - MODULATED~~
~~Makeup to CCP Suction Flow Control Valve - MODULATED~~
~~Boric Acid Blender to VCT Inlet Flow Control Valve - OPEN~~
~~Blender Primary Water Flow Control Valve - OPEN~~

Boric Acid to Blender Valve (FV-0110A) - MODULATED
Blender Outlet to Charging Pumps Suction Valve (FV-0110B)- MODULATED
Blender Outlet to VCT Valve (FV-0111B)- OPEN
RX MU WTR to BA Blender Valve (FV-0111A)- OPEN

Ref: Farley Exam Bank, verified for Vogtle, LP 09401

a. correct dilute flowpath
b., c, d, incorrect flowpaths see drawing

8. 005AK3.02S 001

Given the following plant conditions:

- Reactor power is at 75% with a power rise in progress using control rods.
- The ROAC determines that Control Bank D, group 1 rod, M-12 ~~is immovable and~~ is 14 steps below the other rods in Bank D.
- Maintenance determined there was an electrical problem and repaired the equipment
- Crew is performing 18003-C, "Rod Control System Malfunction" to correct the rod alignment condition.

Which ONE of the following describes how the control rods should be realigned and how ~~control bank insertion limit will change~~ the rod control annunciators will be affected following the realignment?

A. Control Bank D will be realigned to control rod H-12 and the ~~control bank D insertion limit will be higher.~~ Rod Bank Lo-Lo Limit alarm will be accurate.

B. Control Bank D will be realigned to control rod H-12 and ~~control bank D insertion limit will be lower~~ the Rod Control Urgent Failure alarm will be active.

C.✓ Control rod H-12 will be realigned to Control Bank D and ~~control bank D insertion limit will be lower.~~ Rod bank Lo-Lo Limit alarm will be inaccurate.

D. Control rod H-12 will be realigned to Control Bank D ~~and control bank D insertion limit will be higher.~~ the Rod Control Urgent Failure alarm will be reset.

Ref : WB bank validated for Vogtle: 18003-C, SRO 55.43.1, 43.6

a. incorrect- insertion limits are lower
B. correct - if the rod can't be moved realigning the group to the rod will keep the power profile and insertion limits decrease
c. incorrect - if the rod can't move it can't be realigned
d. incorrect - rod won't move and inserion limits will be lower when the bank is realigned

9. 005K5.03S 001

Given the following plant conditions:

- The Unit 1 is in MODE 6, refueling activities in progress inside containment.
- "B" train RHR was just taken out of service and "A" train RHR was placed in service for core cooling and letdown to CVCS.
- Chemistry reports RCS boron concentration is 1711 ~~1925~~ ppm.

Which ONE of the following describes the correct actions and basis?

A. Isolate Refueling Cavity from the Spent Fuel Pit by closing the transfer tube wafer valve to prevent dilution of the Spent Fuel Pit.

B. Place train"B" RHR in service, remove "A" train to isolate dilution paths connected to "A" train RHR.

C. Initiate boration using 13009-1, CVCS Reactor Makeup Control System, to increase boron concentration to minimum required limits.

D. Evacuate containment and verify contaiment integrity intact.

Ref: WB Exam bank, modified to add reason for SRO level question.

Need references GO-6, 13009-C and COLR for boron limts

Distractor analysis:
A is incorrect in that closing the transfer tube valve will not help the regain SDM.
B is incorrect because swapping trains will not increase SDM
C is correct because 13009-1 provides guidance for immediately increase C_b = 2500 ppm.
D is incorrect due to no procedural guidance to do so and it does not increase SDM.

10. 006A1.11 001

Given the following plant conditions:

- SGTR has occurred on SG #1.
- 19031, "~~ES-3.1~~, Post-SGTR Cooldown Using Backfill", is in progress.
- Ruptured SG level is 25% NR.
- ~~RCS is at 390°F.~~
- ~~RCS is at 400 psig.~~
- Crew is cooling down using steam dumps to condenser.
- RCP #4 in service.

19031, Post-SGTR Cooldown Using Backfill"

- Step 14 requires a return to step 3 if RCS temperature is greater than 200°F.
- Step 3 requires the operator to ensure adequate shutdown margin.

~~ES-3.1, step 14 requires a return to step 3 if RCS temperature is greater than 200°F. Step 3 requires the operator to ensure adequate shutdown margin.~~ -

Why is it necessary to re-verify shutdown margin at this point in the procedure?

A. The RCS temperature change during cooldown will cause significant boron concentration changes due to PZR outsurge.

B. Charging to maintain PZR level during cooldown will cause significant boron concentration changes.

C. The secondary fluid in the ruptured SG will cause ~~significant boron concentration changes.~~ dilution of the RCS.

D. The auxiliary spray will cause significant boron concentration changes.

Ref: WB bank, VG 19031
a. incorrect - cooldown does not effect the boron concentration
b. incorrect - charging should be set for the desired boron concentration
c. correct - this guidance results in the S/G backfeeding into the RCS with the nonborated feedwater
d. incorrect - spray should be causing increased boron concentration which will increase the shutdown margin

11. 006K1.07 001

Given the following sequence of events ~~conditions~~:

- The plant is operating at 100% power.
- ~~Inadvertent~~ Safety Injection occurred ~~due to an Instrument Maintenance technician working in the instrument racks who accidentally shorted a circuit board.~~
- Reactor tripped due to the SI signal
- Controlling #1 SG level transmitter ~~that controls MDAFW pump LCV failed low, the MFRV~~ fails ~~closed~~ low after the trip
- #4 SG ~~PO~~ ARV opened momentarily ~~after the reactor trip~~ and developed a large packing leak.

Which ONE of the following would cause the INITIAL ~~initial~~ main feedwater isolation during this transient?

A. The #1 SG level reached 86%.

B. The safety injection actuation signal.

C. Tavg dropping to 564°F following the reactor trip.

D. ~~When the south valve vault level had risen to 4 inches due to the PORV packing leak.~~ When #4 SG level reached 38%.

Ref: LP-28103

a. Incorrect - level may reach 86% but FWI would already have been actuated by the SI.
b. Correct - SI causes immediate FWI.
c. Incorrect - would normally actuate FWI following a reactor trip however the SI initiated the FWI immediately.
d. Incorrecty - PORV leak would cause increase in level in the vault room however FWI would have already been actuated by the SI.

12. 007EA1.03 001

An RCS cooldown is in progress per ES-0.2, "Natural Circulation Cooldown". The plant is being depressurized using auxiliary spray. As pressure drops through 1300 psig, a rapid rise in pressurizer level is observed. Charging and Letdown are in manual and are matched.

Which of the following describes the expected operator actions?

A. Isolate charging flow and raise the cooldown rate to 50 degrees F/hr.

B. Isolate charging flow and place additional letdown orfice(s) in service.

C. Isolate the ~~Cold Leg~~ Accuimulators.

D. ~~Isolate the auxiliary spray and energize pressurizer B/U heaters~~
Energize pressurizer B/U heaters and reduce auxiliary spray flow

WB Bank - VG 19002-C step 14 RNO, SRO LO - 17, control of depressurization

a. incorrect - increasing the cooldown rate will further decrease RCS pressure
b. incorrect - this will decrease the inventory but not address the pressure drop
c. incorrect - isolating the cold leg accumulators will not effect the level or ppressure at this time
d. correct - stopping the aux spray flow will stop the depressurization and turning the B/U htrs on will help recover the pressure.

13. 008AK1.01 001

Given the following:

- Unit 1 is stable at 100% power
- A pressurizer safety valve opens and fails to reseat, remaining 25% open and the Unit trips
- RCS pressure stabilizes at 1600 psig SI actuates
- PRT pressure gradually increases from 5 psig to 100 psig

Which of the following indications would the operator expect to see as a result of this event ~~in the next 30 minutes~~?

A. Safety tailpipe temperature would increase to greater than 600 F and then slowly decrease.

B. Safety tailpipe temperature would increase to greater than 600 F and then slowly increase.

C. ~~Safety tailpipe temperature would increase to between 220 and 340 F and then slowly decrease and stablize.~~

Safety tailpipe temperature would increase to approximately 230 F and then slowly decrease to 212 F as PRT pressure gradually increases.

D. ~~Safety tailpipe temperature would increase to between 220 and 340 F and then slowly increase and stablize.~~

Safety tailpipe temperature would increase to approximately 230 F and then slowly increase to 330 F as PRT pressure gradually increases.

Ref- Farley 2000, validated for VG, LO-LP-16301, Pzr and PRT

a. incorrect - the temperature is correct for pressures of 2240
b. incorrect - the temperature is correct for pressures of 2240
c. correct - since it relieves to the PRT, the pressure will increase until the rupture disc relieves (100 psig) and then the pressure (and temperature) will decrease and eventually stablize
d. incorrect - will not continue to increase once the PRT rupture disc relieves.

14. 009EA2.34S 001

Given the following conditions on Unit 1:

- A small break LOCA is in progress
- ~~Reactor trip and safety injection have occurred~~
- MSIVs have just closed due to containment pressure
- 19010-C "LOSS OF REACTOR OR SECONDARY COOLANT" is in progress

- The crew is evaluating plant parameters using 19010-C:
  - RCS pressure is 1700 psig and stable
  - CETCs indicate 570 F
  - Total AFW flow is 700 gpm
  - PZR level is 42% and rising

Based on these known conditions, the operators should .....

A. actuate ~~phase~~ CIA to address the increased containment pressure.

B. transition to 19011-C "SI Termination" ~~terminate Safety Injection.~~

C. verify all RCPs are stopped.

D. initiate containment spray as a result of increased containment pressure.

Ref: bank from Byron '00, validated for VG in E-0, ES-1.1

a. incorrect - Phase B actuated if containment pressure >2.8 psig,
b. correct SI termination criteria met
c. incorrect - adequate RCS pressure, no reason to trip RCPs
d. incorrect - if required the containment spray pumps would have auto started, containment presure only high enough to close MSIVs

15. 010K3.01 001

Given the following:

- The Pressurizer Master Pressure Controller fails to a constant output equivilent to ~~2230~~ 2219 psig.
- Pressurizer pressure is ~~2230~~ 2270 psig and rising.
- The variable heaters are energized.
- The spray valves are closed.

Which ONE of the following describes the response of the pressure control system if the operator takes no further action?

A. Pressure will rise until the spray valves open to control pressure.

B. ✓ Pressure will rise until PORV 456 opens to control pressure.

C. Pressure will rise until PORV 455 opens to control pressure.

D. Pressure will cycle on the variable heaters at a higher setpoint.

Ref: WB bank, VG LP-16303-19-C, LP-16301

Distractor analysis:
A is incorrect because PORV continues to receive a constant input and therefore remains closed.
B is correct because PORV 456 receives input from PT 456 which is seeing the actual pressure rise.
C is incorrect because the spray valves remain closed because there input is not changing from the master controller and is spray open setpoint.
D is incorrect because the input to the variable heaters is constant at a value less than their shutoff point.

16. 011A3.03 001

Given the following:

- Unit is at 50% power.
- All automatic control systems are in their normal lineup.
- Pressurizer program level sticks at constant output for 50% power.
- ~~Controlling pressurizer program level fails to an output corresponding to 50% load.~~
- Assume no operator action is taken.

Which of the following describes the effect on charging flow and PZR level as the plant load is increased to 100%?

A. Charging flow increases and actual PZR level remains constant.
Actual PZR level remains constant and charging flow increases.

B. Charging flow decreases and actual PZR level decreases.
Actual PZR level decreases and charging flow decreases.

C. ~~Charging flow decreases and actual PZR level increases.~~
Actual PZR level increases and charging flow decreases.

D. Charging flow remains constant and actual PZR level increases.
Actual PZR level increases and charging flow remains constant.

Reference: WB bank, VG LO-LP-16302
Distractor analysis:

A is incorrect because Tav increases as power increases which will make PZR actual level increase.
B is incorrect, same reason as A
C is correct because as PZR level rises with coolant expansion due to Tav increase, with LT-459 output at 50%, an error is generated that PZR level is too high, causing charging flow to decrease.
D is incorrect, same as A for PZR level, charging flow increases, see C.

17. 011EA1.04 001

Given the following plant conditions:

- Unit 1 tripped due to a Large Break LOCA.
- Containment pressure is 23.5 psig.
- RWST level is 14%.
- Containment Emergency Sump levels are 15% inches.
- All 8 containment coolers running in low speed.
- RHR Swapover to the Containment Sump could not be performed.
- The operating crew has transitioned to 19111-C, "~~ECA - 1.1,~~ Loss of Emergency Coolant Recirculation."

Using the reference provided which ONE of the following actions will result in the Containment Spray pumps being in the proper alignment under the existing plant conditions?

A. Leave both Containment Spray pumps running until RWST level at 8%

B. Leave both Containment Spray pumps running until sump level < 13.5"

C. Stop one Containment Spray pump and allow the remaining pump to take suction from the RWST until RWST level is at 8%, then stop remaining pump.

D. ~~Stop both Containment Spray pumps, until RHR pump suction can be aligned to the containment Sumps, then restart one pump.~~
Reset the Containment Spray Signal, then stop both Containment Spray pumps.

WB bank - validated for VG 19111-C, 19010-C, 19013-C,19251-C 10CFR SRO 43.

a. incorrect - 19111-C has a chart that calls for both pumps stopped
b. incorrect -19111-C has a chart that calls for both pumps stopped
c. incorrect - 19111-C has a chart that calls for both pumps stopped
d. CORRECT 19111 step 8

18. 011EK2.02 001

Given the following conditions:

- A large break LOCA occurred
- ~~Operators have just completed swapover to Containment Sump~~
- Operators have just completed 19013-C, "Transfer to Cold Leg Recirculation"
- A loss of offsite power occurs

Which ONE of the following describes the actions required for this condition?

A. Pull to lock SIPs and CCPs until the RHR pumps are started by the blackout sequencer after the diesel generators start and load the 4160 vital buses.

B. ✓ ~~Ensure the RHR pumps are manually started after the diesel generators start and load the 4160 vital buses, then manually start SIPs.~~
Manually start the RHR pumps after the diesel generators start and load the 4160 vital buses, then manually start SIPs.

C. Ensure both RHR pumps are started by the blackout sequencer after the diesel generators start and load, then manually start CCPs and SIPs as needed

D. Ensure all ECCS pumps are started by the blackout sequencer when the diesel generators reenergize 4160 vital buses.

WB bank - modified distractors Validated in 19013-C caution statement

a. incorrect - RHR pumps manually started
b. correct
c. incorrect - RHR pumps are manually started
d. incorrect - only RHR and SIPs are addressed in 19013 caution.

19. 012K6.10 001

Given the following conditions

- Unit shutdown in progress
- Power at 9%
- Permissive "P-7 LO POWER TRIPS BLOCKED" illuminates

~~Unit 1 is at 100% power~~
~~Permissive **70-D, P-7 LO POWER TRIPS BLOCKED** illuminates~~

Which ONE of the following describes the effects on RPS?

A. The reactor will not trip on Pressizer High Pressure.

B. ~~The reactor will not trip on Pressurizer Low Water Level.~~
The reactor will not trip on high positive rate

C. The reactor will not trip on Pressurizer Low Pressure.

D. ~~The reactor will not trip on Loss of Flow in one loop.~~
The reactor will not trip on low steam generator level

Ref: VG LO-LP-28103 NEED WINDOW INFORMATION
Distractor analysis:

A is incorrect because P-7 is not an input to the trip.
B is incorrect because PZR Lo Water Level is not a trip.
C is correct, because P-7 blocks it when P-7 is off (light on).
D is incorrect because P-8 is unaffected and trips Rx on 1/4 logic.

20. 013K2.01 001

Given the following:

- SIP 1A & 1B are in Auto
- Control power is lost to SIP 1A
- Safety injection (SI) occurs

~~- 1A-A and 1B-B SI pump breakers are "racked in"~~
~~- A fuse blows in the NORMAL DC Trip Circuit for the 1A-A SI pump~~
~~- A safety injection (SI) acutation occurs~~

Which of the following describes the response of the SI pumps to the Safety Injection ~~SI~~ signal?

A. ~~1B-SI pump will start, but 1A-SI pump will not auto start until the control power supply is transferred.~~
SIP 1B will start, but SIP 1A will not auto or manually start until the control power supply is restored.

B. ~~1B-SI pump will start, but 1A-SI pump will not auto start and must be started from MCR handswitch.~~
SIP 1B will start, but SIP 1A will not auto start and must be started from MCR handswitch.

C. ~~Both SI pumps will auto start, but the 1A-SI pump can not be stopped from the MCR.~~
Both SI pumps will auto start, but the SIP 1A can not be stopped from the MCR.

D. ~~Both SI pumps will auto start, but the 1A-SI pump can not be stopped from the mechanically at the breaker.~~
Both SI pumps will auto start, but the SIP 1A can not be stopped except mechanically at the breaker.

Watts Bar exam bank - NEED CONFIRMATION ON BREAKER LOGIC

21. 014A4.01 001

Given the following:

- Operators are ~~preparing for~~ conducting a reactor startup
- ~~Both shutdown banks we withdrawn~~
- ~~All~~ control banks are ~~still fully inserted~~ being withdrawn in 50 step increments
- ~~The rod control startup reset switch is manipulated in error~~
- The SS notices that Control Bank A is at 200 steps and Control Bank B is at 0 steps

~~Which of the following describes the required actions to proceed with the startup?~~
Which of the following explains these indications?

A. ~~Restore the P/A converter to 230 steps.~~
Rod bank selector switch is in the manual position.

B. ~~Restore the shutdown group step counters to 230 steps.~~
Rod bank selector switch is in the Control Bank A postion.

C. ~~Restore the bank overlap unit to 230 steps.~~
The rod control startup switch is stuck in the reset postion.

D. ~~Reinsert all shutdown banks.~~
DRPI Data B failure has occurred.

INPO bank - validated for VG in LO-LP-27102-12

a. incorrect - P/A converter does not need to be reset because the control banks are fully inserted
b. correct - all group step counters are reset to 0 by the reset switch
c. incorrect - bank overlap counters are at 0 because the control rods are fully inserted
d. the shutdown group counters can be manually reset - reinsertion is not required

22. 015K4.06 001

While operating at 90% power, ~~one~~ power range channel N41 ~~of nuclear instrumentation Power Range High Flux Reactor Trip~~ is placed in bypass (BTI) for a surveillance.

~~What is the coincidence for this reactor trip and how long can this reactor trip remain in bypass?~~

Which one of the following conditions would result in a reactor trip?

A. ~~2 out of 4 and can be bypassed for no more than 12 hours.~~
Any of the other 3 PR NIS channels fail high

B. ~~1 out of 3 and can be bypassed for no more than 12 hours.~~
Any 2 of the 4 channels reading 105%

C. ~~2 out of 4 and can be bypassed for no more than 72 hours.~~
PR channels N41 and N44 lose control power

D. ~~1 out of 3 and can be bypassed for no more than 72 hours.~~
Operator places PR channel N42 in test

INPO bank - validated for Vogtle by LO-LP-17301-24, TS 3.3.1

a. incorrect - coincidence changes to 1 out of three when in bypass
b. correct - coincidence changes to 1 out of 3 and in bypass for 12 hrs for surveillance
c. incorrect - wrong logic and bypass limited to 4 hours
d. incorrect - bypass status limited to 12 hours for surveillance

23. 015K5.04 001

Manual calibration of the NIS is being performed in accordance with procedure 14030-2, "Nuclear Instrument Calorimetric Calibration." Feedwater average temperature is incorrectly calculated to a value 17 degrees less than actual. For these conditions, which of the following is correct?

Calculated reactor thermal power will be.....

A. lower than actual and a gain adjustment of the NI channels using the calculated value would be non-conservative such that the indicated power is farther from the setpoints.

B. higher than actual and a gain adjustment of the NI channels using the calculated value would be non-conservative such that the indicated power is farther from the setpoints.

C. lower than actual and a gain adjustment of the NI channels using the calculated value would be non-conservative such that the indicated power is closer ~~from~~ to the setpoints.

D. higher than actual and a gain adjustment of the NI channels using the calculated value would be conservative such that the indicated power is closer ~~from~~ to the setpoints.

ref: 14030-2, LP-LO-17301

a. incorrect the calculated is higher than actual and conservative
b. incorrect the calculated is higher but conservative
c. incorrect the calculated is higher but conservative.

24. 017AK1.02 001

IF RCP #1 trips when the plant is at 13 ~~30~~% power during a load increase to 100%, which one of the following statements is correct?

A. A reactor trip will occur and operators should implement 19000-C.

B. ✓ The affected pressurizer spray valve should be shut to prevent spray flow from bypassing the pressurizer.

C. The affected S/G blowdown rate may be isolated to facilitate level control.

D. ~~An immediate plant shut down is required per technical specification 3.4.1.1.~~

Reactor trip breakers should be immediately opened to comply with the action statement for LCO 3.4.4, "RCS Loops-Modes 1 and 2".

Ref: VG bank

25. 017K3.01 001

Given the following conditions:

- Reactor trip
- All RCPs are tripped
- All core-exit thermocouples are inoperable

19001-C step 9 has the operators verify that natural circulation flow is occuring. What indication(s) would the operator use?

~~If all core-exit thermocouples are inoperable during an event in which the RCPs were tripped, what indication(s) may be used to verify that natural circulation cooling is occurring?~~

A. ~~RCS hot leg temperatures only~~
RCS loop delta T's stable or lowering

B. ~~RCS cold leg temperatures only~~
RCS loop delta T's increasing to full power values

C. ~~Both RCS cold leg and hot leg temperatures~~
Both RCS hot leg temperature stable or lowering and RCS cold leg temperature at saturation for SG pressure

D. There are no adequate indications for RCS temperature ~~is~~ available in this condition.

Bank (NA'02) - validated for Vogtle in EOP 19001-C

a. incorrect - insufficient information
b. incorrect - insufficient information
c. correct - the difference in temperatures will be adequate to determine of natural circulation has been established
d. incorrect, using both hot and cold legs is adequate

26. 022AG2.1.32 001

During water solid operations with letdown from RHR, procedure 13011-1 requires that 1-HV-0128, Letdown From RHR, be full open.

Which ONE of the following describes the basis for this precaution?

A. To ensure maximum letdown flow rate for purification.

B. To ensure VCT level can be maintained under all charging flow conditions.

C. To ensure 1-PIC-0131, Low Pressure Letdown Controller can control pressure transients.

D. To ensure RCS to RHR Supply Line Relief Valves PSV-8708B and PSV-8708A isn't challenged.

VG 13011-1, pg 21 caution

Distractor analysis:
Answer A is incorrect because charging flow controls letdown flow.
Answer B is incorrect because balancing charging and letdown controls VCT level.
Answer C is correct because with hv-0128 less than full open, it can in effect limit flow and prevent pressure reduction whenpic-0131 fully opens in response to a high pressure transient.
Answer D is incorrect because the suction relief can be challenged by other factors (eg. pump starts) even with hv-0131 full open.

27. 024AK2.01 001

~~The unit was at 100% power when a reactor trip occurred. While responding to the event, the RO identifies 2 control rods failed to insert. An emergency boration was initiated, using both boric acid transfer pumps, aligned through emergency borate valve 1-HV-8104. However, HV-8104 failed to operate correctly and 1-FI-0183A indicated an emergency boration flow of 23 gpm, although charging flow was indicating 42 gpm.~~

Given the following conditions:

- 2 rods stick out on a reactor trip
- The RO initiates emergency boration using HV-8104
- Boric flow on FI-0183A is 23 gpm and charging flow is 42 gpm

Which of the following is the correct response to this condition?

The RO can correct this condition by.....

A. Placing charging flow controller FIC-0121 in manual and increasing the set point to >42 gpm, ensuring charging flow increases and FI-0183A indicates >30 gpm.

B. ~~Realign the emergency boration flow path by closing HV-8104,~~ opening FV-110A, closing FV-110B, and ensuring FI-0183A indicates >30 gpm.

C. ~~realign the emergency flow path by closing HV-8104,~~ opening HV-112D and HV-112E, then closing HV-112B and HV112C, ensuring charging flow is >87.5 gpm.

D. ~~realign the emergency flow path by closing HV-8104,~~ opening HV-112B and HV-112C, then closing HV-112D and HV112E, ensuring charging flow is >87.5 gpm.

Ref: LO-LP-09402, 13009-1, 17010-1 window D04

a. incorrect because the intial conditions indicate HV-1804 is limiting the boration flow, charging flow is adequate.
b. incorrect because FV-110B also needs to be open for a complete flowpath
c. correct, correct valves in the correct order
d. incorrect because the order will isolate the suction to the charging pumps causing cavitation.

28. 025AK2.02 001

Given the following:

- RCS temperature is 118 F
- Reactor Vessel head is removed
- Reactor Upper Internals are installed in the reactor vessel
- Refueling Level is ~~186 ft, 6 inches~~ 188 ft, 3 inches.
- RCS draining is in process at 10 gpm
- The RO increases RHR pump A flow from 3000 to 3800 gpm
- ~~RHR pump A is running with indicated flow of 3800 gpm~~
- RHR pump A begins to exhibit indications of cavitation

The cavitation and resulting loss of RHR is occurring due to .....

A. draining with the upper internals in place, which reduced the RHR suction pressure.

B. steam binding of the RHR pump, caused by low recirculation flow.

C. ✓ air entrapment at the RHR suction inlet, caused by the high flow conditions.

D. draining with the upper internals in place, which reduced the RHR discharge pressure.

Ref. Bank - VG verification LO-LP-12101-39, 12008, Data Book, Tab 8

a. incorrect, upper internal installation will not effect RHR suction pressure.

b. incorrect, recirculation flow valve shuts at 14000gpm

c. correct, air entrapment occurs at higher flow rates, normal midloop flow rate is 3000 - 3500
d. incorrect, upper internals installed will not effect RHR discharge pressure to this extent

29. 026A1.01 001

Given the following conditions on Unit 2:

- Following a LOCA, containment pressure is rising.
- Containment pressure has reached 20 psig on three channels and 22 psig on one channel.

~~Which of the following is a complete list of the minimum required automatic/manual manipulations required to start containment spray?~~

Which one of the following will result in containment spray actuation?

A. ~~When one (1) more containment pressure channel transmitter indicates containment pressure of 22 psig, or when one (1) manual handswitch is actuated on the QMCB.~~

When 1 more containment pressure channel indicates 22 psig, or when 1 manual handswitch is actuated.

B. ~~When one (1) more containment pressure channel transmitter indicates containment pressure of 22 psig, or when two (2) manual handswitch is actuated on the QMCB.~~

When 1 more containment pressure channel indicates 22 psig, or when 2 manual handswitches are actuated.

C. ~~When two (2) more containment pressure channel transmitter indicates containment pressure of 22 psig, or when one (1) manual handswitch is actuated on the QMCB.~~

When 2 more containment pressure channels indicate 22 psig, or when 1 manual handswitch is actuated.

D. ~~When two (2) more containment pressure channel transmitter indicates containment pressure of 22 psig, or when two (2) manual handswitch is actuated on the QMCB.~~

When 2 more containment pressure channels indicate 22 psig, or when 2 manual handswitches are actuated.

Ref: VG LO-LP-15101

all actuation signals for Containment spray - when 2/4 containment pressure transmitters indicate cont press of 21.5 psig or when 2/2 manual switches are actuated on the QMCB

30. 026AK3.01 001

Given the following plant conditions:

- Unit 2 is in Mode ~~3 for Maintenance~~
- ALB 04, window A2, "ACCW LO HDR PRESS" is alarming
- ALB 07, window D3, "LTDN HX OUT HI TEMP" is alarming

Which one of the following events would cause both of these alarms?

A. Letdown Hx Tube Rupture

B. ✓ ACCW Supply Header Rupture

C. Loss of Seal Injection

D. Loss of Charging Flow

Ref: VG exam 2000 -

a. incorrect - alarms indicate ACCW not Letdown HX problem
b. correct
c. incorrect - loss of seal injection will not cause either of these
d. incorrect loss of charging would cause the hi temp alarm but not the letdown alarm
Reference:

31. 027AK3.03 001

Given the following conditions:

- Unit 1 is at 100% power.

~~Annunciator 89A, PZR PORV LINE TEMP HI, illuminates.~~

- ALB12 E01 "PRZR RELIEF DISCH HI TEMP" illuminates
- Both PORV's indicate closed.
- PORV-455 tailpipe temperature is reading 220 degrees F.
- PORV-456 tailpipe temperature is reading 187 degrees F.
- Pressurizer pressure is lowering ~~normal.~~

~~In accordance with ARP-17012-1 which ONE of the following is the correct action and reason?~~

Which one of the following is the correct action?

A. Close the associated block valve for PORV-456~~5~~ because a vapor-space leak causes PZR level to increase.

B. Close both block valves because a vapor-space leak causes PZR level to increase.

C. Close the associated block valve for PORV-455 to stop leakage to the PRT ~~because the PRT will rupture.~~

D. Close both block valves to stop leakage to the PRT ~~because the PRT will rupture.~~

Ref: NEED VOGTLE EQUIVALENT INDICATION AND RESPONSE
Disaster analysis:
Answer A is incorrect because PZR level rise is only associated with large leaks that affect PZR pressure.
Answer B is incorrect because the_____ requires the leaking PORV to be determined by alternately closing the block valve and AOI requires closing only the associated block valve.
Answer C is correct because it follows the ARI guidance and small leaks can raise PRT pressure to the rupture disc setpoint.
Answer D is incorrect same as B and A.

32. 028AA2.12 001

Given the following conditions:

- The Unit is at 50% power
- Pressurizer level control is selected to 459/460
- Pressurizer level is increasing slowly
- Charging flow is increasing

~~- Unit 1 is at 100% power~~
~~- The Reactor Operator notes that Pressurizer level is decreasing slowly~~
~~- He also notes that the output of the Pressurizer Level Controller is increasing,~~ -
~~the Charging Flow Controller is increasing and charging flow decreasing.~~
~~- Annunciator alarm ALB 11-D-1, Przr Lo Level Deviation, illuminates.~~

Which ONE of the following is the cause of the Pressurizer level increase ~~decrease~~?

A. ~~FCV-121, charging flow control valve, has developed a diaphram leak.~~
LT-460 is drifting high

B. ~~The FIC - 121, Charging Flow Controller, is failing high.~~
LT-459 is drifting high

C. ~~The PZR Level Controller is failing high.~~
FT-121 which provides feedback to FIC-0121 has failed high

D. ~~The Tave input to the PZR is failing high.~~
FT-121 which provides feedback to FIC-0121 has failed low

Ref: Watts Bar lesson plan 3-OT-SYS068C & 3-OT-SYS062A, obj. 15 Vogtle LP-9201& LP-16302, 17011-1

Answer A is incorrect because FCV-62-93 fails open, hence a diaphram leak would tend to make the valve open (higher flow). Note: If the leak is small enough, the flow controller would handle it with increased output, but flow would stay on program until the controller max'ed out and then flow would increase.

Answer B is correct because the Charging Flow Controller failing, in this case high, causes FCV-62-93 to close thus decreasing flow and hence PZR level.

Answer C is incorrect because the PZR Level Contoller failing high would call for more charging flow thus causing Charging flow and PZR level to increase.

Answer D is incorrect because the auctioneeried high controlling Tave wwould call for a level increase until it max'ed out the program. This would cause charging flow to either increase or remain the same.

33. 029EA1.13 001

Which ONE of the following is the NEXT action the operator is required to take if the main turbine does NOT trip automatically and CANNOT be manually tripped from the Control Room ,~~MCR: per FR-S.1~~ per 19211-C "RESPONSE TO NUCLEAR POWER GENERATION/ATWT"?

A. Place both EHC pumps control switches in PTL.

B. Trip the turbine locally at the front standard.

C. Manually Runback the turbine.

D. Shut the MSIV's.

WB exam bank, validated VG procedure 19211-C, step 2 RNO

Distractor analysis:
A is incorrect because it is a followup action later in the procedure, step 9 RNO.
B is incorrect because it is a local action if MCR actions fail, step 9 RNO.
C is correct per RNO step 2
D is also in RNO step 2, but only occurs if runback doesn't work.

34. 032AK1.01 001

Given the following conditions:

- Reactor Startup in progress
- ~~Shutdown Banks withdrawn~~
- ~~Control Bank withdrawal is immenent~~
- SRM N-32 indicates ~~approximately~~ 1000 cps
- SRM N-31 is in bypass

Which ONE of the following will occur if the control power fuse for SRM N-31 blows?

A. Lose indication for SRM N-31 on Main Control Board and NIS cabinets.

B. Both SRM drawers deenergizes and the "non-operate" alarm acuates.

C. Reactor will trip.

D. Rod withdrawal is blocked.

Modified from WB bank - rewrote question stem and changed distractor. Validated for Vogtle in LO-LP-17103-00-C

a. incorrect-not all indicatipon lost since instrument power is available
b. incorrect-SRM N132 unaffected by loss of control power to SRM N131
c. correct- loss of control power deenergizes bistables and initiates trip signal (1/2 logic)
d. incorrect - Source range low does not initiate rod stop

35. 033G2.4.18S 001

~~During a refueling outage in which the entire core has been discharged into the fuel pool a maintenance error disables both trains of spent fuel pool cooling. The fuel pool temperature is rising slowly. You enter Abnormal Operating Procedures 18030-C. After 20 minutes the temperature is 125 degrees F and one of the trains has been restored.~~

A loss of SFPC has occured. The procedure instructs you to open the cask loading gates.

The basis for this action is to allow.....

A. a feed path from the RWST.

B. circulation between the pools.

C. a recirculation path to the RWST.

D. the water to bypass the spent fuel pool demineralizers.

Ref: 18030-C basis for step 6
Open cask loading pit gates and maintain them open to allow circulation between pools

36. 034K4.01 001

Which one of the following describes a feature of the Refueling Machine designed to prevent the accidental release of a fuel assembly?

A. The Gripper is mechanically engaged and disengaged by a remote operating handle on the bridge and requires no power or air to operate.

B. The gripper requires air to disengage, however, a mechanical latch prevents gripper release under load even if air is supplied.

C. The gripper will disengages upon loss of air, however, a mechanical latch prevents gripper release under load even if air is removed.

D. When the gripper is engaged, the fuel handlers ~~operators~~ mechanically lock gripper in place with extension shaft which must be unlocked before the gripper can release.

Ref: lesson LO-LP-25101-19-C, STILL NEED DETAIL INFO ON THE MECHANICS OF THE GRIPPER

a. incorrect - air required to disengage
b. correct - mechanical latch on gripper works under load
c. incorrect - engages on loss of air
d. incorrect - no operator action required for gripper mechanical latch to operate

37. 035K1.09 001

Given the following plant conditions:

- The reactor is operating at 50% power.
- Rod control is in MANUAL.
- ~~Turbine control is in AUTO.~~
- #3 S/G ARV ~~PORV~~ fails OPEN.

Which ONE of the following describes the resulting steady-state conditions?
(Assume no reactor trip, no operator action and turbine power remains constant)

A. Final Tavg < initial Tavg and final power > initial power.

B. Final Tavg < initial Tavg and final power = initial power.

C. Final Tavg = initial Tavg and final power > initial power.

D. Final Tavg = initial Tavg and final power = initial power.

Reference: general theory

Distractor analysis:
A is correct steam loss through PORV causes Tav decrease which adds positive reactivitiy which causes power to rise. Tav will remain less than initial Tav because some of the reactivity is used to overcome power defect associated with power rise.
B, C, and D are incorrect because they conflict with the above correct answer.

38. 037AK3.07 001

Given the following:

- ~~A~~ SG #3 ~~tube leak of approximately~~ has a 30 gpm leak ~~has been identified on SG #3.~~
- ~~The operating crew has entered~~ AOP 18009-C, Steam Generator Tube Leak, is being implemented
- ~~Operators have completed Step A9 of the AOP and have isolated feed flow to SG #3.~~
- ~~Step A12 requires that the~~ level in the leaking S/G ~~(S/G #3)~~ is maintained greater than 10%.

Which ONE of the following is a bases for ensuring the affected SG level greater than 10%?

A. To ensure that the pressure and temperature limits of the SG shell are maintained.

B. To prevent ~~the~~ RCS cooldown from causing depressurization of the affected SG.

C. To prevent SG overfill.

D. To prevent thermal shock to the tubes during RCS cooldown.

Ref: VG AOP 18009-C

A is incorrect in that these limits apply to CSD conditions
B is correct because the insulating layer of water above the tubesheet helps trap pressure in the S/G and minimize tube d/p during cooldown.
C is incorrect because level control is not an issue.
D is incorrect because there is no sudden introduction of cold water after the level is attained.

39. 038EA1.04 001

~~- Unit 1 was at 100% and experienced a failed open PORV for which the block valve only partially closed.~~
~~- After the immediate actions of 1-E-0, Reactor Trip or Safety Injection, it has been determined that 1C SG is ruptured.~~
~~- The operating crew has isolated the ruptured SG and transitioned to 1-ECA-3.1, SGTR and LOCA - Subcooled Recovery~~
~~- RCS pressure has recovered and is 1750 psig and increasing~~
~~- Pressurizer level is 100%~~
~~- RCS temperature is 530° F~~
~~- 1C SG Wide Range level is 85% and increasing~~
~~- All automatic systems have functioned properly and RCP's are running~~

~~Which ONE of the following describes the actions required to stabilize SG break flow?~~

Given the following conditions:

- A SGTR with a small primary LOCA has occurred
- The crew is implementing 19131-C, "SGTR with Loss of Reactor Coolant, Subcooled Recovery Desired"
- RCS pressure is 1534 psig and temperature is 547 degrees F
- RCPs #1 & 3 have tripped due to a loss of power to 1NAA

Which ONE of the following describes the actions required to minimize the primary to secondary break flow?

A. Cooldown by dumping steam from the intact ~~non-ruptured~~ SG's followed by depressurization of the RCS with <u>both</u> Pressurizer Spray Valves.

B. Cooldown with RHR followed by depressurization of the RCS with Pressurizer Spray valves.

C. Cooldown by dumping steam from the intact ~~non-ruptured~~ SG's followed by depressurization of the RCS with loop 4 Pressurizer Spray Valve. ~~PORV's.~~

D. Cooldown with RHR followed by depressurization of the RCS with Pressurizer PORV's.

Ref: VG E-3, Steam Generator Tube Rupture, pg 16 &17

Answer A is
Answer B is incorrect because RCS pressure is too high for RHR
Answer C is incorrect because PORV's are by procedure the next preferred depressurization method after PZR sprays and the SG's are the preferred heat removal method
Answer D is incorrect because RCS pressure is too high for RHR

40. 039A1.03 001

~~The crew is performing 13615-1, Condensate and Feedwater section 4.4.6, Main Feedwater System Warmup Using 5A/5B Feedwater Heaters. The crew completed the following sequence:~~

~~4.4.6.2 Return FW heater 5A High Level Controller 1-LCH-4286 to AUTO~~

~~a. ESTABLISH communications with personnel at the PHPF~~
~~b. PLACE Heater 5A Normal Level Controller 1-LCH-4282 in AUTO~~
~~c. ENSURE heater 5A High Level Controller, 1-LCH-4286, is in manual~~
~~d. SLOWLY RAISE the 1-LCH-4286 output to close 1-LV-4286~~

~~You note that 1-LCH-4286 is not responding and RCS temperature is decreasing slightly. Which one of the following could have caused this?~~

Unit 2 is in mode 3 at NOPT for a post refueling start up
MSIVs are shut and the main steamlines need to warmed
SG ARVs are in manual controlling loop Taves at 557 F

Which of the following correctly describes the method used and the indications observed while warming the main steamlines?

A. ~~inadequate level in the 5A heater~~
Slow open MSIVs one at a time. RCS pressure will remain constant while temperature decreases.

B. ~~high level in the 5A heater~~
Open steam dumps to 1% to 2% after placing both bypass switches in the bypass position. RCS temperature will decrease and RCS pressure will decrease.

C. ~~feed flow was not in-service prior to establishing feedwater heating~~
Open MSIV bypass valve(s). RCS temperature and pressure will both decrease.

D. ~~the unit is still in Long Cycle recirculation~~
Open MSIV bypass valve(s) after placing both steam dump bypass switches in the bypass position. RCS temperature and pressure will both decrease.

REF: 13615-1, Condensate and Feedwater sect 4.4.6

Note: Due to inadequate level in the heater 1-LV-4282 may not respond until heating steam has been initiated

41. 040AG2.4.4 001

Given the following plant conditions:

- Unit was at 100% power
- A main steam line break occurred in the Turbine Building
- Operators were unable to close the MSIVs and transitioned to ECA-2.1, "Uncontrolled Depressurization of All Steam Generators."
- ~~SI termination steps are in progress~~
- Loop 3 MSIV is closed locally
- The CRO observes the # 3 S/G pressure rising slowly

Which of the following actions should be performed?

A. Immediately transition to E-2, "Faulted S/G Isolation"

B. Immediately transition to ES-1.1, "SI Termination"

C. Remain in ECA-2.1 until RHR is in service

D. Remain in ECA-2.1 until SI is terminated

Ref: WB bank , verified for VG ECA-2.1, ES-1.1, E-2

A. incorrect-wrong because do not leave ECA-2.1 until SI terminated
B. incorrect - wrong because do not leave ECA-2.1 until SI terminated
C. incorrect - wrong because stay in procedure until SI terminated not RHR in service
D. correct - complete SI termination prior to transitioning to E-2

42. 041K3.04 001

Given the following conditions:

- Unit at ~~100~~ 75% power, EOL conditions.
- ~~Turbine operating in manual~~
- A steam dump valve inadvertently comes full open.
- All other control systems normal.

Which ONE of the following correctly describes the plant conditions, when plant stabilizes, and assuming NO operator action?

A. Megawatts electrical same as initial; reactor power increases.

B. Megawatts electrical same as initial; reactor power dereases.

C. Megawatts electrical decreases; reactor power increases.

D. Megawatts electrical decreases; reactor power decreases.

Ref: WB Exam Bank, modified for VG

43. 045A3.05 001

The following plant conditions exist:

- Unit 1 is at 90% power
- Main Turbine is in STANDBY to repair a failed speed sensor

Which ONE of the following correctly describes the status of the Turbine Control System?

A. All overspeed protection has been defeated except for the Mechanical Trip and the Backup Overspeed Trip.

B. Overspeed protection from the speed control circuits and PLU has been defeated. IV Fast Closure, Mechanical Trip, and Backup Overspeed Trip are still operable.

C. The Power Load Unbalance circuit is still active and will allow fast closure of the Control Valves and the Intercept Valves if a sudden load rejection of more than 40% occurs.

D. The Power Load Unbalance circuit is defeated and the Backup Overspeed Trip setpoint is reduced to 105%.

Ref: VG Exam Bank
VG Lesson Plan LO-LB-30303 Obj. 20

44. 051AA2.02S 001

The following plant conditions exist:

- Unit 1 is at 45% ~~percent~~ power.
- TURB CNDSR LO VAC annunciator lit.
- Condenser vacuum reads 20.5 inches Hg.

Which ONE of the following should have occurred?

A. Turbine run back, only.

B. Turbine trip, only.

C. Reactor trip initiating a turbine trip.

D. Turbine trip initiating a reactor trip.

REF:.
VEGP 17019-1, rev. 8, pp. 11, & 19.

45. 054EG2.4.48 001

Given the following:

- Unit 1 is at 100% power.
- ~~Annunciator ALB13-D01~~ STM GEN 1 HI/LO LVL DEVIATION alarm is illuminated
- ~~The operator notices only S/G #1 level rising along with MFP speed.~~
- S/G #1 level rising
- Both MFPs speed are rising
- The other S/G levels are slightly below program

Which ONE of the follow describes the (1) cause, (2) required action and (3) direct consequence of an operator failing to take action?

A. (1) #1 S/G FRV is opening, (2) stabailize #1 S/G level at new level, (3) Turbine Runback Initiated

B. (1) #1 S/G FRV is opening, (2) return #1 S/G level to program, (3) Feedwater Isolation initiated

C. (1) MFP master controller failing high, (2) control MFP speed using manual, (3) Auto Turbine Trip initiated

D. (1) MFP master contrroller failing high, (2) manually trip turbine, (3) Feedwater Isolation initiated

Ref: VG 18016-C, section D

Distractor analysis:
A is incorrect because the consequence is a P-14, Hi-Hi SG level which initaties a FW isolation.
B is correct because only one SG is rising, hence a FRV is the cause, action is from 18016-c for FRV failure and FW isolation occurs with no operator action at P-14.
C is incorrect because a problem with the MFP controller would affect all SG's the same.
D is incorrect same as C.

46. 055EK3.02 001

Which ONE of the following is a purpose of depressurizing all intact SGs to 300 psig during the performance of 19100-C ~~ECA-0.0,~~ "Loss of All AC Power"?

A. Reduces DP across SG U-tubes to minimize possibility of tube rupture.

B. Reduces DP across RCP seals to minimize leakage and loss of RCS inventory.

C. Maximizes Natural Circulation flow before Reflux cooling begins as the RCS becomes saturated.

D. Maximizes Natural Circulation flow to allow reactor vessel head to cool since CRDM are unavailable.

The correct answer is B

a. Incorrect - the most likely failure for this event is loss of inventory through failed RCP seals not SGTR.
b. Correct - reduces potential for a seal LOCA by reducing the driving force.
c. Incorrect - steaming is a method to increase natural circ and would occur, however minimizing inventory loss is a greater concern at this point.
d. Incorrect - steaming is a method to increase natural circ and would occur, however minimizing inventory loss is the greater concern at this point.

References: ECA-0.0; ECA0000.03
K/A 055 EK3.02 [4.3/4.6]

47. 056AK1.01S 001

Given the following plant conditions:

~~- Unit 1 has experienced a Loss of Offsite Power~~
- The operating crew is ~~currently~~ performing a cooldown, in accordance with 19002-C ~~ES-0.2~~, Natural Circulation Cooldown
- ~~Prior to initiating the cooldown,~~ all CRDM fans trip
- ~~After initiating the cooldown, observation of~~ RCS cold leg temperatures indicate a cooldown rate of 65°F/hour
- Subcooling has decreased from 132 ~~100~~°F to 74°F

Which ONE of the following describe the appropriate action?

A. Continue the cooldown/depressurization of RCS since steam voiding in the RCS vessel will not occur unless subcooling is less than 74°F.

B. Transition to 19003-C, ~~ES-0.3~~ Natural Circulation Cooldown with Void in Vessel (with RVLIS) and reduce coodown rate to 50 °F/hr because a void has probably formed.

C. ~~Stop the cooldown/ depressurization and hold until subcooling is increased to 100°F than continue with the procedure.~~
Continue the cooldown/depressurization of RCS and reduce cooldown rate to 50 °F/hr and increase subcooling to 124 °F.

D. Decrease the rate of depressurization by decreasing the cooldown rate to 50°F/hour, ensure subcooling is returned to 100°F and then continue with the procedure.

Ref:

a. incorrect - with no CRDM fans running subcooling of < 124 °F will be insufficient to prevent voiding
b. correct - caution prior to step 12 states that if the cooldown/depressurization is exceeding step 13 requirements then go to 19003
c. incorrect - with no CRDM fans subcooling must be >124°F
d. incorrect - stop depressurization and reestablish subcooling to > 124°F

48. 056K1.03 001

Unit 1 is at ~~72~~ 70% power. A ~~control problem~~ limit switch problem causes ~~2-HV-3140~~ MFP 1A turbine exhaust valve to close ~~1 to slowly close.~~

Which ONE of the following describes the effect on continued plant operation?

A. 1A MFP rolls to idle, the Standby condensate ~~booster~~ pump starts and Rx power can remain at 70%

B. 1A MFP trips, the standby condensate ~~booster~~ pump remains in standby, ~~does not start~~ and Rx power can remain at 70%.

C. 1A MFP trips, the standby condensate ~~booster~~ pump starts and Rx power must be reduced to 56%.

D. 1A MFP rolls to idle, the standby condensate ~~booster~~ pump does not start and Rx power must be reduced to below 56%

Ref: Vogtle ARP-17015-2.
Distractor analysis:
A and D are incorrect, because the 1A MFP trips on low condenser vacuum
C is incorrect because the standbycondensate pump auto starts
B is correct, because the standby condensate pump starts and the 1b MFP can carry 76% , the sum of which is above 72%.

49. 057AA2.19S 001

Unit 1 is shutting down due to a failure of 120 VAC Vital Instrument bus ~~Power Board~~ 1AY1A. When Rx power is approximately 10%, the unit trips.

Which ONE of the following decribes the reason for the trip?

A. SR~~M~~-High Flux Trip

B. IR~~M~~-High Flux Trip

C. Low Setpoint of PR~~M~~ High Flux Trip

D. High Setpoint of PR~~M~~ High Flux Trip

VG LO-LP17103-00-C

Distractor analysis:

A is incorrect because the plant is above P-6
B is correct because 1 of 2 IRM's high flux trip is in when the plant goes below P-10 which reinstates the IRM High Flux Trip function.
C is incorrect because coincidence for PRM trip not met
D is incorrect because coincidence for PRM trip not met and power less than trip setpoint.

50. 059A4.11 001

After which one of the following events can ~~the~~ feedwater isolation be reset by operating the feedwater isolation reset handswit~~h~~ches ~~pushbuttons~~ without performing any other actions?

A. A spray valve fails open causing pressurizer pressure to drop to 1725 psig. The spray valve is closed and pressure returns to 2235.

B. At ~~10~~–75% Rx power, the operator overfeeds a single steam generator to the High-High Level setpoint causing a turbine trip and then clears the High-High Level.

C. A turbine trip from 65% Rx power, causing a reactor trip. Steam dumps open to control Tavg at 557°F.

D. A high steam line flow causes a low Tavg and an SI. Main Steam isolation terminates high flow condition and allows Tavg to return to 557°F.

Ref: Vogtle lo-lp-18201-17C

Distractor analysis:
Answers A and D are incorrect because the SI input must also be reset.
Answer C is incorrect because both the FWI switches AND pushbuttons must reset.
Answer B is correct because when only a Hi-Hi S/G level input is present, when it clears, only the pushbutton needs depressing to break the seal-in. See attached logic drawing.

Note: This needs to be discussed with the licensee carefully

51. 059AA1.01 001

Given the following plant conditions:

- Plant is operating a 100% power
- Plant systems aligned ~~and operating~~ for normally at power operation
- RE-1950, Auxiliary Component Cooling Water radiation monitor, is in alarm

Which ONE of the following lists the type and process flows that are sensed by the alarming radiation monitor?

A. Gamma; Thermal Barrier leakage

B. Beta; Excess Letdown Hx leakage

C. Gamma; RHR Hx leakage

D. Beta; RCP Motor Cooler leakage

Ref: VG LO-LP-16401, LO-LP-04101

Distractor analysis:

a. Correct - liquid process monitors utilize gamma scintillation detectors. The thermal barrier would give direct leakage path for RCS should it develop a leak.

b. Incorrect - liquid process monitors utilize gamma scintillation detectors. The thermal barrier would give direct leakage path for RCS should it develop a leak.

c. Incorrect - liquid process monitors utilize gamma scintillation detectors, but ACCW does not cool RHR hx

d. Incorrect - liquid process monitors utilize gamma scintillation process monitors utilize gamma scintillation detectors.

52. 059K6.09 001

Given the following:

- Unit is at 60% power with both ~~A and B~~ MFP's operating in AUTO.
- PT-507, Steam Header Pressure, output begins to slowly drift low.

Which ONE of the following describes the initial effect on the Main Feed Water System, assuming no operator action?

A. Both MFP's discharge pressure begins to increase and all Feed Water Reg valves begin to close.

B. Both MFP's discharge pressure begins to increase and all Feed Water Reg valves begin to open.

C. Both MFP's discharge pressure begins to decrease and all Feed Water Reg valves begin to open.

D. Both MFP's discharge pressure begins to decrease and all Feed Water Reg valves begin to close.

Ref: VG LO-LP-18001, student text 13A logic diagram
Distractor analysis:

C is correct because input from d/p program remains constant because steam flow remains contant. However, PT-507 failing low, causes the d/p actual (as sensed) to increase above program. This in turn causes the speed summer to decrease its output to the speed control station which will reduce feedpump speed and it's discharge pressure. Flow rate will decrease and the FRV's will open to increase flow to the S/G's.

All other answers are incorrect because they are variations of the answer with one parameter going in the wrong direction.

53. 060AA2.04 001

Given the following plant condtions:

- Gas Decay Tank release in progress
- A leak occurs on the waste gas compressor which results in a gas release to the Auxiliary building
- ~~0-RE-90-101, Auxiliary Building Vent Monitor, is in alarm~~
- RE-12442C, Plant Vent Radiation Monitor, is in High alarm

Which of the following indicates the effect this leak will have on the plant?

A. Gas Decay Tank release will be terminated; ~~ABGTS will be stopped~~ Auxiliary Building Exhaust Units trip

B. Gas Decay Tank release will be terminated; ~~ABGTS will continue to run~~ Auxiliary Building Exhaust Units continue to run

C. Gas Decay Tank release will continue; ~~ABGTS will be stopped~~ Auxiliary Building Exhaust Units trip

D. Gas Decay Tank release will continue; ~~ABGTS will continue to run~~ Auxiliary Building Exhaust Units continue to run

REF: WB ' 01 - Vogtle - **Talk to the liscensee about the area monitor** that would indicate this leak, questions goes to the location of piping and exposure area for the leak

54. 061A1.04 001

Given the following plant conditions:

- The Unit 1 is at 100% power
- ~~CST level is lo-lo~~
- ~~A loss of offsite power occurs~~
- A loss of both RATs occurs due to a switchyard fault
- The unit is manually tripped
- 1AA02 and 1BA03 are energized by their D/Gs
- ~~during the event, one of the S/G ARVs PORVs stuck open~~

Which of the following correctly describes the effect this will has on CST level and the actions that will be necessary?

~~Which of the following states the maximum capability of the CST under these conditions?~~

~~The CST supply to the TDAFW will be sufficient for~~

CST #1 level will:

A. ~~4 hours followed by a controlled cooldown to cold shutdown.~~
continuously lower requiring manual swap to CST #2.

B. ~~an immediate cooldown to hot shutdown.~~
be maintained by automatic makeup.

C. ~~4 hours followed by a controlled cooldown to hot shutdown.~~
continuously lower and automatically swaps to CST #2.

D. ~~an immediate cooldown to cold shutdown.~~
remain full until CST #2 level reaches 66% .

Modified from Byron - validated from LO-LP-20101-C,

a. incorrect - capacity is for a 4 hour hold then cool to mode 4
b. incorrect - capacity for 4 hours and then cool to mode 4
c. correct - stand pipe in CST ensures 4 hours hold and then cooldown to mode 4
d. incorrect - capacity to hold for 4 hours with cooldown to mode 4

55. 062A3.05 001

Given ~~that~~ the following ~~occurred in~~ sequence:

- A small break LOCA occurred ~~which~~ resulting~~ed~~ in a reactor trip and SI.
- The SI signal was reset during the performance of 19010-C, "~~E-1,~~ Loss of Reactor or Secondary Coolant."
- A loss of offsite power ~~(LOSP)~~ occurred and the diesel generators loaded as designed.

Assuming no operator actions, which ONE of the following would be the status of the loads on the 4160Vac 1E buses. ~~6.9kV SD boards~~?

A. All equipment powered from the 4160Vac 1E buses ~~4160 safety boards~~ with the control board switch in automatic will be restarted.

B. No 4160Vac 1E bus ~~6.9kV SD board~~ loads are automatically restarted.

C. Equipment normally started during a LOSP will be automatically restarted; SI and RHR pumps remain OFF.

D. All equipment that was operating prior to the LOSP will be automatically restarted; All running ESF equipment will be reenergized

Reference:WB bank, validated from VG LO-LP-280201.

56. 062AG2.4.24 001

The crew is in 19100-C, "Reactor Trip or Safety Injection". Prior to the step that the crew places equipment in PTL, the procedure cautions that 2 NSCW pumps should be available to load on each AC Emergency Bus.

These pumps are required to provide cooling for the .....

A. SI pump.

B. MDAFW pump.

C. ACCW pump.

D. EDG

Ref: 19100-C Caution Before Step 7

57. 063K3.02 001

Unit 1 was at 100% power
DG1A was running paralled to the 4160Vac 1E bus ~~6.9kV Shutdown Board~~ for a surveillance.
Unit 1 trips
The operator notes annunciators:

- ALB34 D01 "125V DC SWGR 1AD1 TROUBLE"
- ALB34 E03 "120V AC PANELS 1AY1A 1AY2A TROUBLE"
- ALB34 D03 "125 DC PNL 1AD12 TROUBLE"
- ALB34 F02 "125V DC PNL 1AD11 TROUBLE"

~~17-A 125 DC VITAL CHGR/BATT I ABNORMAL~~
~~17-B 125 DC VITAL BATT BD I ABNORMAL CKTS ISOLATED~~

Which ONE of the following describes the response to this event by DG1A?

A. DG1A trips and its output breaker opens

B. DG1A continues to run and it's output breaker opens

C. DG1A trips and its output breaker remains closed

D. DG1A continues to run and its output breaker remains closed

Ref: NEED TO VALIDATE THIS FOR VOGTLE
Distractor analysis:
A is incorrect because the DG can run using its own DC control power, but the output breaker has no control power to trip.
B is incorrect because the output breaker has no control power to trip.
C is incorrect because the DG does not trip
D is correct because the DG has its own control power and the output breaker remains closed due to no control power.

58. 064K2.03 001

Unit 1 is at 100% power
All Diesel Generators are currently operable
Annunciator ALB38-B09, "DG1B ENGINE CNTL POWER B FAILURE"~~, B10, DG2B DISABLED GEN CONTROL PWR FAILURE~~ just illuminated

Which ONE of the following describes the status of the Diesel Generator 2B with this annunciator in alarm?

A. DG2B still has capability to start and load once and is operable.

B. If DG2B was running ~~in parallel~~ when this occurred it will continue to operate and can be shutdown from the control room. ~~there is no affect but once stopped~~ DG2B must be declared inoperable.

C. DG2B can be started and loaded manually but is inoperable.

D. If DG2B was running ~~in parallel when this occurred, there will be a loss load control,~~ it will continue to operate and can only be shutdown from the front standard. DG2B must be declared inoperable.

Ref: VG ARP 17038-2, window B10Distractor analysis:

A is incorrect because the starting air solenoids need power from the Diesel 125V DC.
B is incorrect because the voltage regulator and governor are out of the droop circuit
C is incorrect because the field flash is inoperable.
D. is correct

59. 065AA1.03 001

Unit 1 just experienced a loss of air and entered AOP 18028-C, "Loss of Instrument Air" The header pressure is 70 psig. Given the current conditions, what action, per procedure, should be taken by the operator to prevent inadvertent operation of equipment repositioned due to the loss of air?

A. Because pressure is less than 80 psig, verify the cask loading pit gate seal assemblies are supplied with bottled nitrogen > 50 psig.

B. Because pressure is less than 80 psig, ensure ~~the control - to - aux air isol valve 0-FCV-32-82~~ PV-9375 "Service Air Header Isolation Valve" is open.

C. If MSIVs closed due to low air pressure, place the MSIV hand switches to closed.

D. If normal letdown had not isolated due to low pressure, place the normal letdown isolation switches in open.

New - ref: AOI-10, Loss of Air.
a. correct - 18028-C, step A3 requires nitrogen bottle alignment to cask loading seals
b. incorrect - less than 80 psig, ensure the control - to - aux air isol valve 0-FCV-32-82 should be closed
c. incorrect - procedure gives no guidance to msiv handswitch placement
d. incorrect - normal letdown isolation switches fail closed

60. 067AK1.02 001

There is a fire in the generator hydrogen cooling system. Fire fighting efforts have cause the fire main header pressure to lower. Which ONE of the following will cause the FIRST diesel driven fire pump to start automatically?

A fire header pressure of.....

A. 85 psig.

B. ✓ 95 psig.

C. 105 psig.

D. 110 psig.

REFERENCE

VEGP LO-LP-43101-07-C, pg. 33, LO 9.

61. 068AK3.18 001

Evacuation of the Control Room is required due to a Control Room fire.

The actions of AOP 18038-1, "Operation From Remote Shutdown Panels," prior to evacuating the control room, include which of the following?

A. Tripping ~~the~~ both main feedwater pumps.

B. Ensure S/G pressure control in AUTO

C. Place the PZR pressure control in AUTO

D. Trip ~~all~~ RCPs 1, 2, and 3

Ref: VG AOP 18038-1, steps 1 - 4

a. correct, feedwater pump status is addressed prior to evacuation at the discretion of the SRO
b. incorrect, this is done if there is NO control room fire
c. incorrect - this is done if there is NO control room fire
d. incorrect, only RCP 1 and 4 are tripped

62. 068K1.07 001

Which one of the following describes how the incore instrumentation seal table leakage enters the Liquid Rad Waste system?

A. ✓ Drains to Reactor Cavity Sump, and then is pumped to the Waste Holdup Tank.

B. Drains to the floor drain, overflows into the Reactor Cavity Sump, and then is pumped to the Waste Monitor ~~Evaporator Holdup~~ Tank

C. Drains to the floor drain, overflows into the Reactor Cavity Sump, and then is pumped to the Waste Holdup Tank

D. Drains to Reactor Cavity Sump, and then is pumped to the Waste Monitor ~~Evaporator Holdup~~ Tank.

Ref: Vg drawing 1x4db143 (e-1)
NEED LESSON PLAN ON DRAINS AND SUMPS
See see drawing

63. 069AK2.03 001

Unit 1 is at 100% power.

- ~~Operation~~ personnel enter Containment for a preoutage walkdown
- The inner door is discovered ajar with a broken latch.

~~Annuciator _____UPR CNTMT AIRLOCK INNER/OUTER alarmed for no apparent reason on the previous shift. Operation personnel were dispatched to investigate the alarm. They reported that they opened the outer door and found the inner door ajar with a broken latch.~~

Which ONE of the following describes the correct actions required by technical specifications?

A. ~~Verify the outer door closed within one hour and document the condition for TS tracking.~~
Close the outer door within 1 hour

B. ~~Repair the inner door within one hour and lock the outer door within 24 hours.~~
Close both doors within 1 hour

C. ~~Close the outer door within one hour and lock the outer door within 24 hours.~~
Place the unit in mode 3 within 1 hour

D. ~~Commence plant shutdown within one hour and be in Mode 5 within 24 hours.~~
Commence a unit shutdown within 1 hour and apply LCO 3.0.3

Ref: VG Tech Specs need correct window

Distractor analysis:
A is incorrect because the ts action does not address logging tracking items
B is incorrect because there is no requirement to repair the inner door within one hour.
C is correct per Tech Specs 3.6.2 condition A.
D is incorrect because there is no requirement per AOI 12 to commence shutdown within 1 hour.

64. 071K3.05 001

Chemistry has taken a grab sample of the release in progress from the gaseous radwaste system. The results indicate that the release is above the release permit setpoint ~~10 CFR 20 limits~~. Which one of the following caused this?

A. Waste Gas effluent monitor, RE-14, failed low.

B. Waste Gas effluent monitor, RE-14, failed high.

C. A loss of 125 V~~v~~DC power to radiation trip valve, RV-0014.

D. A loss of instrument air to radiation trip valve, RV-0014

Ref: VG LO-LP-46101 LO -11, text 17c, pg 14

65. 072A1.01 001

ARE-2532A and ARE-2533A are indicating increasing levels of radiation.

If this trend continues which of the following should occur?

A. Only the Train A FHB isolation dampers close, the supply unit trips but the post-accident filter unit does not start.

B. The AREs will alarm locally and in the control room, causing normal FHB HVAC units ~~all FHB HVAC~~ to trip and isolate on an intermediate alarm from both monitors.

C. Only the Train A supply and exhaust dampers isolate, supply and exhaust units continue to run and the post-accident filter units start.

D. Train A and B supply and exhaust dampers isolate, the supply and exhaust units trip on low flow, and the post-accident filter units start on a high alarm from either monitor.

VG LO-LP-23301, LO-LP-32101-C

a. incorrect because signal is 1/2 all dampers isolate
b. incorrect - supply unit trips
c. incorrect - the post accident unit will start
d. correct - FHB normal supply and exhaust dampers isolate, supply and exhaust units trip and filter units start

66. 072G2.1.28 001

RE-0019, 0020 and 0021 are in alarm. Waste Water Retention Basin Valve RV-0021 and SGBD Demin Isolation Valve ~~H~~FV-1150 have just closed.

Which equipment caused the closure?

A. RE-0019 Only

B. RE-0020 Only

C. RE-0021 Only

D. The Combination of both RE-0019 and RE-0020

Ref: LO-LP-24101

Learning Objective 9

EXPLAIN THE PURPOSE OF RAD MONITORS RE-0019 AND RE0021:
RE-0019
Measures radiation levels of Blowdown fluid upstream of demins - Alarms and indication only
RE-0021:
Measures radiation levels of Blowdown fluid downstream of demins
Isolates blowdown flow to Waste Water Retention Basin by closing RV-21 and HV-1150 on high radiation alarm. Also gives indication of valve position.

67. 073A2.01S 001

Given the following:

- The Unit is in Mode 5
- The containment vent effluent radiation monitor's (RE-2565) power supply failed.

Which ONE of the following would be required to correct the ~~any errant~~ automatic actions caused by this failure?

A. Reestablish flow from containment drains system to the waste water retention basin.

B. Secure the control room ventilation from safety grade filtration train.

C. Open containment purge supply and exhaust ducts.

D. Place the control room ventilation in safety grade filtration mode

REF:
VEGP Training Text, Ch. 11a, pp. 17 to 20
Objective-Correctly describe the automatic control function of the perms

68. 075A4.01 001

An operator making rounds reports that 1-TI-1712, which measures the NSCW temperature at the outlet of the CCW Hx is reading 204 degrees F and suspects that it is broken.

Which one of the following describes how this can be verified in the control room?

A. Use D/G jacket water inlet temperature since this is essentially the same temperature as the CCW Hx outlet temperature.

B. ACCW Hx outlet temperature can be used, a table is available to convert the indicated temperature.

C. Use the IPC since redundant information is available on the IPC ~~at point T2607~~.

D. CCW Hx and ACCW Hx flow can be used since a nomograph is available to convert the indicated temperature.

Ref: procedure 13150, step for setting additional jacket water Hx NSCW flow.

69. 076AA2.02 001

Given the following plant conditions:

- Unit is at 100%
- ~~Chem -Lab reported~~ RCS Dose Equivalent Iodine-131 sample taken @ 0730 on 11/04/02~~activity~~ is 6.30 µCi/gram.
~~- Sample was taken @ 0730 on 11/04/02.~~
~~- The operating crew entered the appropriate AOI and has taken the appropriate actions with some success.~~
- ~~Chem lab has just reported that the~~ RCS Dose Equivalent Iodine-131 sample taken @ 0730 on 11/06/02 is now 2.5 mCi/gram.

~~Based on these conditions, which one of the following operator actions is now required?~~
Using Tech Specs. determine the required corrective actions.

A. Place all CVCS demins in service at maximum flow rate and continue power operations.

B. ✓ ~~Using GO-4 and GO-5~~, Place the Unit in Mode 3 at less than 500 degrees F within 6 hours

C. Continue to monitor dose equivalent Iodine 131 remains within acceptable region once per 4 hours.

D. ~~Initiate~~ Complete a load reduction to less than 50% within 6 hours ~~per AOI-39, then cooldown the RCS to less then 500 degrees F.~~

WB Bank - validated for VG in AOP 18014-C

a. incorrect - CVCS demins already in service per procedure,
b. correct - per procedure if activity greater than tech spec limit of 1.0 mCi/gram then go to mode 3 and < 500
c. incorrect - monitoring took place earlier during validation of sample results
d. incorrect - this is the action for TR 13.4.1 not being met

70. 076K2.08 001

~~Which ONE of the following describes the power supply for 1-FCV-67-91B, Lower Containment 1C Cooler Supply?~~

Which one of the following describes the power supply for containment coolers 7 & 8 NSCW Supply Valve (HV-1809)?

A. ~~480 V Reactor MOV Board 1B2-B~~
480 Vac switchgear 1AB16

B. ~~480 V Shutdown Board 1B2-B~~
480 Vac switchgear 1NB21

C. ~~480 V Reactor MOV Board 2B1-B~~
480 Vac MCC 1BBD

D. ~~480 V Shutdown Board 1B1-B~~
480 Vac MCC 1NBM

Ref: WB Lesson Plan 3-OT-SYS067A, no specific learning objective
Dwgs: 1-45W760-67-5
1-45W751-11
1-45W749-4
1-45-W724-2
Distractor Analysis:
A is correct based on attached dwg's.
B and D are incorrect because the 480 V shutdown board does not directly feed any MOV's
C is incorrect because they have unit 2 designators.

71. 079K4.01 001

If Station Instrument and Service Air System air pressure is dropping, the ~~Turbine Building~~ Service Air System automatically isolates from the Instrument Air System when pressure drops below which ONE of the following?

A. 80 psig.

B. 100 psig.

C. 78 psig.

D. 70 psig.

Ref: WB Exam Bank, VG lo-lp-02110Distractor analysis:
A is correct, see lesson plan pp. 33 (attached)
B is incorrect, corresponds to service air header lo pressure alarm
C is incorrect, doesn't correspond to any auto event
D is incorrect, instrument air lo pressure

72. 086G2.4.25 001

During the response to a fire in the turbine building, an injured person must be transported off site. The only safe way to transport this person is via the Turbine Building elevator. The elevator is locked out. According to procedure 92005-C, which one of the following persons can authorize the use of ~~17103A-C for~~ the elevator during the fire ~~fire service recall~~?

A. Fire Team Captain, only

B. The Unit Shift Supervisor of the affected unit, only

C. Any Fire alarm response Team Member

D. The Burke County Emergency Management Agency

Ref: If the fire team captian has determined it is safe to use the elevator(s), and the elevator is locked out, it may be necessary to reference proc. 17103A-C for the elevator fire service recall section

73. 103A2.03S 001

Following a LOCA, containment pressure has reached 45 psig. Hydrogen concentration is 8% and the Emergency Director instructed you to implement SOP-13130 ~~131310-1~~, Diluting Containment Hydrogen Concentration Using the Service Air System.

Which one of the following is the required action to open the "Service Air to CNMT Header Isolation Valve", 1-HV-9385?

A. Only Train A CIA signal must be reset to open 1-HV-9385, then place 1-HS-9385A to OPEN, hold 1HS-9385B in OPEN until 1-HV-9385 is fully open.

B. Both Train A and B SI signals must be reset, then place 1-HS-9385B to OPEN, hold 1HS-9385A in OPEN until 1-HV-9385 is fully open.

C. ~~Both SI and Phase A~~ Both Train A and B CIA signals must be reset, then place 1-HS-9385A to OPEN, hold 1HS-9385B in OPEN until 1-HV-9385 is fully open.

D. Only Train A CIA signal must be reset to open 1-HV-9385, then place 1-HS-9385B to OPEN, hold 1HS-9385A in OPEN until 1-HV-9385 is fully open.

Ref: Procedure 13130-1

74. G2.1.14 001

Given the following Conditions/events:

- Unit 1 is at 100% power
- Main steam line break inside the north main steam valve room
- Reactor is manually tripped and SI is actuated
- Emergency Director declares an NOUE

Which of the following is the correct notification required for plant personnel?

~~According to Procedure 00004-C, "Plant Communications", upon receipt of an emergency report, Control Room personnel must do, as a minimum, which one of the following?~~

A. ~~Verify the emergency condition, then sound the appropriate alarm, if applicable.~~
A warble tone would be sounded for 15 seconds, page announcement warning personnel of the steam leak and its location.

B. ~~Verify the emergency condition, then notify personnel of the emergency and location using the pager system, sound the alarm, if applicable, and then repeat the same information.~~
A siren tone would be sounded for 15 seconds, page announcement warning personnel of the steam leak and its location

C. ~~Immedediatly announce the emergency and location on the paging system, sound the appropriate alarm, and then repeat the same information.~~
Page announcement warning personnel of the steam leak and its location no alarm is required.

D. ~~Immediately notify the USS, then verify the emergency condition, notify personnel of the location using the pager system, sound the appropriate alarm, if applicable, and then repeat the same information.~~
Page announcement warning personnel of the steam leak and its location, then sound warble tone for 15 seconds.

Ref: VG 00004-c

Distractor analysis

per procedure step 5.1.2

75. G2.1.2 001

Given the following indications on Unit 1:

~~- Steam generator tube rupture has occurred and you are performing actions of 19030-C (SGTR)~~
- 19030-C, SGTR is being implemented
~~- Reactor is tripped and power is in the source range~~
- Both CCPs and both SIPs are running
~~- Pressurizer level is 10% and falling slowly~~
- RCS pressure 1350 psig and falling slowly
- Level in S/G 1 is 80% NR rising slowly
- Level in other S/Gs is 5% NR rising slowly
- MSIVs are open
- RCS temperature is 558 degrees F and rising slowly

Which ONE of the following describes the action to be taken and the basis for that action?

A. Dump steam at the maximum rate to cooldown the RCS.

B. Isolate SG#1 to minimize RCS cooldown.

C. Stop all RCPs because RCP trip Criteria have been met prior to initiation of RCS cooldown.

D. Stabilize the level in intact S/Gs to preserve a heat sink for cooldown.

*REFERENCE
LO-LP-37311-08-C, Objective 10, RCP Trip Criteria is met

76. G2.1.3 001

An procedure writer ~~Instructor~~ with an active RO license is in the control room to review a ~~material for~~ procedure revision ~~an upcoming walkthrough examination~~. The RO ~~OATC~~ is called for a random drug test. The RO ~~OATC~~ requests that the procedure writer ~~instructor~~ relieve him for about 15 minutes for the drug test.

Which one of the following describe the shift relief requirements for this situation?

The procedure writer ~~instructor~~ may ~~r~~ relieve the RO ~~OATC~~ provided...

A. ...the procedure writer ~~instructor~~ reviews the narrative logs, rounds sheets, and checklists for his station. The review shall include narrative logs since the last shift worked or the preceding 3 days, which ever is longer.

B. ...the procedure writer ~~instructor~~ and the on-shift RO ~~OATC~~ independently walk-down their assigned control boards to verify checklists items and discuss equipment status.

C. ...~~up to 45 minutes provided that~~ a) the relieving operator is knowledgeable of plant conditions, b) they perform a joint walkdown of applicable control panels, and c) the Unit Shift Supervisor acknowledges the relief.

D. .....however, a full turnover is required as described in procedure 10004-C, Shift Relief.

Ref: Surry exam 2002, VG 10004-C section 4

NEED to check this closely - does it matter if the relieving RO is the BOP or assigned plant tours

77. G2.1.32 001

Which ONE of the following describes the normal configuration of the Component Cooling Water system and the reason, respectively?

A. 2 pumps running, one pump in pull-to-lock, to prevent CCW Hx tube vibration damage from excessive flow rates.

B. 2 pumps running, one pump in pull-to-lock, to avoid system pressure exceeding relief setpoints

C. ✓ 2 pumps running, one pump on standby, to avoid system pressure exceeding relief setpoints

D. 2 pumps running, one pump on standby, to prevent CCW Hx tube vibration damage from excessive flow rates.

Ref: VG proc 13715-1
Distractor analysis:
C is correct, see P&L
A,B, and D are incorrect due to pump in pull-to-lock or wrong reason.

78. G2.2.12 001

Unit 1 is at 100%
Surveillance 14905-1, RCS Leakage Calculation (Inventory Balance) is in progress
~~1 hour has elapsed since commencing data collection~~
~~Final readings indicate that the total RCS leakage rate is -0.08 gpm~~

~~Which ONE of the following describes the correct action to be taken?~~

Which ONE of the following would invalidate the leak rate calculation?

A. ~~Sign the surviellance as satifactory~~
RCS diluted 50 gallons to raise RCS temperature back to program

B. ~~Continue data collection for an additional hour~~
Main turbine load reduced 5 MWe to prevent exceeding allowed power limits.

C. ~~Void the surveillance and perform at a later time~~
Control rods inserted 5 steps for AFD control.

D. ~~Investigate to determine the source of inleakage to the RCS~~
ECCS accumulator filled with an SI pump due to a slow leak

Ref: Vogtle 14905-1 pg 2

A is incorrect because data must be collected for at least an additional hour before the surveillance can be termed complete
B is correct, see SI-68-32, pp. 16 & 17
C is incorrect because it is contrary to procedure guidance
D is incorrect - surveillance already considers normal inleakage calculations

79. G2.2.22 001

Using the reference provided determine which one of the following sets of conditions represents a violation of a technical specification safety limit and required action?

A. Power = 10%, Pressure = 2400 psig, Tavg = 655°F, restore to within limits OR be in Mode 3 in 1 hour

B. Power = 80%, Pressure = 2250 psig, Tavg = 640°F, restore to within limits AND be in Mode 3 in 1 hour

C. Power = 10%, Pressure = 2400 psig, Tavg = 655°F, restore to within limits in 2 hrs or be in Mode 3 in 6 hrs

D. Power = 80%, Pressure = 2250 psig, Tavg = 640°F, restore to within in 2 hrs or be in Mode 3 in 2 hrs

Ref: Modified from TP 2000, validate VG TS 2.0

Distractor analysis:
A and C are incorrect because they are within limits and no action required
D is incorrect, because even though it is out of limits, it must be restore within 1 hour, 2 hours is the DNB parameter spec.
B is correct because it is both out of limits and has the correct required action per TS

80. G2.2.29 001

The refueling SRO is directing refueling activities when he is notified that one source range channel failed its surveillance.

Which ONE of the following is the required action?

A. Suspend core alterations until the failed source range channel is operable

B. Continue fuel reload as one channel is operable

C. Continue fuel reload for $\leq$ 1 hour in any 8 hour period until two source range channels operable.

D. Suspend core alterations until boron sampling has been completed

Ref: San Onofre Bank 2000
VG, section 3.9.3

B and C are incorrect because they violate TS
D is incorrect because it is part of the actions for loss of two source ranges

81. G2.2.3 001

Which one of the following decribes the Plant Integrated Computer (IPC) terminals?

They are in mirror image locations. The IPC terminals are identical except that the .....

A. common radiation monitors go to Unit 2 only and weather data goes to Unit 1.

B. common radiation monitors go to Unit 1 only and weather data goes to Unit 2.

C. ~~both, the~~ common radiation monitors and weather data go to Unit 1 only.

D. ~~both, the~~ common radiation monitors and weather data go to Unit 2 only.

Ref: 61300

The IPCs do not have common inputs to Unit 2, so both, the common radiation monitors and weather data go to Unit 1 only.

82. G2.2.8 001

Changes to which ONE of the following will require a 10CFR50.59 review?

A. Change to the Physical Security Plan that requires moving a section of the perimeter fence.

B. Revision to the Radiological Emergency Plan that changes the designated assembly areas for accountability.

C. System modification that adds a full flow recirculation test line to the discharge of the Safety Injection pumps.

D. Changes to the Nuclear Quality Assurance Plan.

Reference: VG need reference procedures for 50.59 screening / review 00056-C

83. G2.3.1 001

Which one of the following dose components are combined in a Radiation Worker's Occupational Dose?

A. Total Effective Dose Equivalent and Planned Special Exposures.

B. Planned Special Exposures and Committed Effective Dose Equivalent.

C. Total Effective Dose Equivalent and Committed Effective Dose Equivalent

D. Deep Dose Equivalent and Committed Effective Dose Equivalent.

Ref: Surry exam 2002, VG lo-lp-63920

84. G2.3.4 001

Given the following plant conditions:

- A LOCA occurred and a Site Area Emergancy was declared.
- ~~The TSC and OSC have been activated.~~
- It is recommended that entry be made into the Safety Injection Pump Room 1A to determine why the pump will not start.
- Projected dose rate in the pump room is 1.16×10^5 mr/hr.
- Duration of the exposure is expected to be 3 minutes.

Which ONE of the following is required to ~~may~~ authorize this exposure?

A. EOF Manager

B. Operations Support Center Manager

C. Health Physics Supervisor

D. Emergency Director

REFERENCES:

WBN Exam Bank, VG proce 91102-C, 91301-C

Exposure calculates to be 5.8 rem/hr, greater than 10 CFR 20 limit for any
ONly the Emergency director can approve exposures that exceed the 10 CFR 20 limits

85. G2.3.8 001

~~You are the USS and have directed the Catalytic Hydrogen Recombiner be placed in service in accordance with 13201-1 Waste Gas Processing System. Your crew just completed procedure step 4.1.4.8, "Open GWPS H2 Recomb Out To Decay Tank Drn Hdr 1-1902-U4-162 (A-1902-U4-157)."~~ -

~~You are informed that all LCOs for the Oxygen and Hydrogen Analyzers for the Recombiner to be placed in service have not been exited. You evaluate the LCO's and determine that they will not effect the system operability. Under what circumstances can you continue with the procedure? In accordance with 13201-1 Waste Gas Processing System, ...~~

A release of Waste Gas Decay Tank #1 is in progress. Which one of the following would require that the release be terminated?

A. ~~you have the authority to make this decision.~~
RE-0013, Waste Gas process monitor fails low and is declared inoperable by the USS

B. ~~you must get concurrence from another SRO.~~
Waste Gas Decay Tank #2 pressure is lowering in conjunction with Gas Decay Tank #1

C. ~~you must get permission from the Operations Manager~~
The inlet Oxygen analyzer on the recombiner panel is declared inoperable

D. ~~the LCO's must be cleared before the procedure can be continued.~~
Auxiliary Building Continuous Exhaust Unit #1 trips on low flow

Ref: VG Procedure 13201-1 Waste Gas Processing System

"CONTACT the USS and VERIFY that all LCOs for the Oxygen and Hydrogen Analyzers for the Recombiner to be placed in service have been exited. If not, DO NOT proceed until LCOs have been exited unless the USS approves operation under the action statement."

86. G2.3.9 001

Given the following conditions:

- Unit 1 is in Mode 2 following a refueling outage
- Containment Mini-Purge System was placed in operation for ALARA considerations in preparation for maintenance personnel to make a containment entry.
- Maintenance has requested the Mini-purge system be shutdown prior to entry to reduce noise levels while they perform their activities.
- ~~The Shift Manager has directed that the Containment Purge System be secured in accordance 13125-1, Containment Purge System.~~

Which ONE of the following should be considered prior to securing Containment Purge?

A. Outside air temperature and pressure

B. Containment humidity

C. Containment r~~R~~adiological ~~implications~~ conditions

D. Containment Purge HEPA and Charcoal filter DP

Ref: VG Procedure 13125-2

Distractor analysis:
A and D are incorrect because they only apply while the system is in service
B is incorrect, because it only applies when placing the system in service
C is correct because changes in ventillation, particularly reduction in ventillation can have adverse affects on radiation levels. This is also a precaution in the procedure related to securing CTMT purge. (see below)

Caution in procedure:
For ALARA and respirable air quality, the Mini-Purge System should be placed in service approximately 48 hours prior to planned containment entries. After work is complete and all personnel have exited containment, the Mini-Purge System should be shut down.

87. G2.4.1 001

Given the following events:

- Unit 1 reactor trip
- Operators enter 19000-C and observe the following conditons on step 3
  - 1AA02 is deenergized due to a bus fault
  - 1B-DG suppling 1BA03
  - 1BB06 feeder breaker trips during load sequencing

Which of the following would describe the correct actions to take?

~~Unit 1 just had a loss of all AC power. Which one of the following describes your required actions?~~

~~Enter 19100-C, then verify reactor and turibine trip, then ....~~

A. ....~~start a diesel generator, verify AC emergency bus of the started D/G automatically energized.~~
Remain in 19000-C on step 3 until power is restored to 1BB06

B. ....~~check if RCS is isolated, and verify AFW flow is greater than 570 gpm.~~
Transition to 19100-C "LOSS OF ALL AC POWER"

C. ...~~transition to 19100-C, then start a diesel generator, and verify AC emergency bus of the started D/G automatically energized.~~
Perform 18031-C ' LOSS OF CLASS IE ELECTRICAL SYSTEMS" in parallel with 19000-C

D. ...~~transition to 19100-C, then check if RCS is isolated, and verify AFW flow is greater than 570 gpm.~~
Continue in 19000-C while trying to restore power to 1AA02 and 1BB06

ref - VG 19000-C, 19100-C, lo-lp-37031

19100-C is entered directly, and the awf is verified after the reactor and turbine trip prior to attempting to address the DGs

The first two IMMEDIATE OPERATOR ACTIONS required by procedure 19100-C, Loss of All AC Power (ECA-0.0) are:
"Verify Reactor trip and Verify Turbine trip".
Which ONE of the following describes the remaining step(s).
a. Start a Diesel Generator, verify AC emergency bus of started DG automatically energized.
b. Check if RCS is isolated, verify AFW flow - GREATER THAN 570 GPM.
c. Check AC emergency busses - AT LEAST ONE ENERGIZED, restore DC loads.
d. Check SGs secondary pressure boundaries, verify if CST is isolated from hotwell

88. G2.4.11 001

Unit 1 is at 100% power operating in 18009-C "STEAM GENERATOR TUBE LEAK" Action Level 1, with known leakage in SG #2 of ~~0.05 gpm~~ 72 GPD.

~~- Leakage is being monitored validated by chemistry, sampling every 4 hours.~~
- RE-724 & RE-810 both indicate leakage increased to 86 GPD and has remained constant for 1 hour
- Chemistry sampling confirms the radiation monitor trends.

~~The chemistry personnel reports that the sample at 1300 hrs indicated leakage is 0.06 (86 GPD), up from 0900 hrs sample indication of 0.05 gpm leakage.~~

Which ONE of the following should be performed?

Reference provided

A. Be in Mode 3 within 24 hours.

B. Reduce load to hot standby within 2 hrs, then cooldown and depressurize the RCS.

C. Trip the reactor; enter E-0, then transition to E-3.

D. Convene ~~PORC~~ PRB to evaluate continued operation.

VG 180049-C,
Distractor analysis:
A is correct per step B3 RNO and caution prior to step (unstable leak rate change of > 10%)
B is incorrect the 2 hrs is the action for a leakage of 30 gpd/hr
C is incorrect because 0.6 is well within charging capability which is the decision point for E-0
D is incorrect because it is the action for leaks less than 0.05 per day

89. G2.4.16 001

While in the Emergency Response procedures the team is directed to "Go To" another procedure, which one of the following is the correct implementation of this action?

A. The "GO TO" implies the procedure in use is still not applicable, and therefore any tasks in progress need not be completed.

B. The original procedure remains applicable because tasks still in progress must be completed prior to the transition directed by the "GO TO" step.

C. ✓ The "GO TO" implies the procedure in use is no longer applicable, transition to the new procedure but any tasks in progress should be completed.

D. Tasks still in progress need not be completed prior to the transition directed by the "GO TO" step, unless preceded by a note stating otherwise.

Bank: From Surry 2002, Vogtle proc. 100012
Distractor analysis:
Answer C is correct,
Answer A and B are incorrect due to timing or required completion
Answer D is incorrect because double astericks relates to high and low level steps vice transitions.

90. G2.4.8 001

~~Unit 1 is responding to a Reactor Trip and Safety Injection.~~

Unit 1 ~~now~~ has the following symptoms:

- Reactor is tripped
- core exit TC temperatures greater than 1200 F~~, and~~
- ~~a~~ RVLIS full range indication is 25%~~less than 3-1/2 feet above the bottom of the active fuel~~

Which ONE of the following are your required actions?

Enter 19221-C ~~FR-C.1~~, Response to Inadequate Core Cooling, from ~~one of the two ...~~

A. Orange path~~s from Critical Safety Function Status Tree, F-0.2~~ on Core Cooling, and

1) Reinitiate~~ion of~~ high pressure safety injection
2) Rapidly depressurize the steam generators
3) Restart RCPs and/or open~~ing~~ PRZR PORVs

B. Orange path~~s from Critical Safety Function Status Tree, F-0.2,~~ on Core Cooling, and

1) Reinitiate~~ion of~~ high pressure safety injection
2) Slowly depressurize the steam generators
3) Stop all running RCPs and open PRZR PORVs

C. Red path~~s from Critical Safety Function Status Tree, F-0.2,~~ on Core Cooling, and

1) Reinitiate~~ion of~~ high pressure safety injection
2) Rapidly depressurize the steam generators
3) Restart RCPs and/or open~~ing~~ PRZR PORVs

D. Red path~~s from Critical Safety Function Status Tree, F-0.2, C~~ on Core Cooling, and

1) Reinitiate~~ion of~~ high pressure safety injection
2) ~~Slowly secondary depressurization~~ Slowly depressurize the steam generators
3) Stop all running RCPs and open PRZR PORVs

WOG BACKROUND:
FR-C.1, RESPONSE TO INADEQUATE CORE COOLING, has been developed to address the symptoms for inadequate core cooling.

The basis for these symptoms can be found in the Critical Safety Function Status Tree background document, F-0.2, CORE COOLING.

The guideline is entered from F-0.2 on either of two RED priorities. The major actions to be performed in this guideline include:

1) Reinitiation of high pressure safety injection
2) Rapid secondary depressurization
3) RCP restart and/or opening PRZR PORVs

91. WE02EK1.2S 001

Operating crew is implementing 19011-C "SI TERMINATION":

~~Given the following conditions:~~

- ~~Main steam line break has occurred outside containment, resulting in a reactor trip/safety injection.~~
- ~~MSIV closure stopped the steam release.~~
- ~~SI termination criteria was met and the crew is currently terminating the SI per ES-1.1, "SI Termination."~~

- Small LOCA is in progress
- SI flow has been terminated
- Normal charging flow has been established
- RO raises charging flow to maximum with both CCPs running

Which ONE of the following combinations of parameters would require ~~an immediate~~ reinitiation of safety injection?

	~~Maximum~~ CNTMT Press	RCS Subcooling	RCS Pressure	PZR Level
A.	4 psig	65°F	dropping	39%
B.	2 psig	48°F	dropping	14%
C.	3 psig	20°F	stable	34%
D.	4 psig	55°F	stable	24%

Ref: WB validated for Vogtle in 19011-c
Distractor analysis:

a. Incorrect -both PZR level and RCS subcooling are above the minimum for adverse containment conditions.
b. Incorrect - with containment conditions below the adverse setpoint of 3.8 psig the reinitiation criteria is PZR level <9% and subcooling < 24°F.
c. Incorrect - with containment conditions below the adverse setpoint of 3.8 psig the reinitiation criteria is PZR level <9% and subcooling < 24°F.
d. Correct - with adverse containment conditions (>3.8psig) the reinitiation criteria is PZR level <36% or RCS subcooling <38°F.

92. WE03EK2.2 001

Given the following plant conditions:

- A small break LOCA has occurred.
- RCPs have been tripped.
- Appropriate actions in accordance with 19000-C & 19010-C ~~E-0 and E-1~~ have been completed.
- RCS pressure is stable at 1525 psig.
- ECCS is operating in cold leg injection mode.

Which ONE of the following statements describes the primary method of decay heat removal at this time?

A. Heat transfer between the RCS and the S/Gs due to natural circulation flow.

B. Heat transfer between the RCS and CCS via the RHR Heat Exchangers.

C. Heat transfer from the injection of water from the RWST and the removal of steam/water out of the break.

D. Heat transfer from Reflux boiling in the S/Gs.

Ref: WB bank, VG 19000

Distractor Analysis:
A is correct because due to the thermodynamic ? H between the primary and secondary and resultant heat transfer rate will exceed the heat transfer into the injection flow water.
B is incorrect because CCS flow is isolated from the RHR Hx's at this point in the accident.
C is incorrect same as A
D is incorrect because at this point in the accident the S/G U-tubes are still filled with water.

93. WE04EA2.1 001

Given the following sequence of events:

- Reactor trip and safety injection actuated due to a LOCA outside CNMT
- ~~The shift crew entered 19112-C, "LOCA Outside Containment," due to a LOCA outside Containment~~
- ~~After completion~~ They enter 19111-C "Loss of Emergency Coolant Recirculation," since they were unable to isolate the leak.

~~The shift crew is responding to a primary LOCA outside containment. The ractor was tripped and SI was manually actuated. they have completed procedure 19112-C, "LOCA Outside Containment," and transitioned to 19111-c, "Loss of Emergency Coolant Recirculation," since they were unable to isolate the leak.~~

Which of the following choices describes the correct actions to take in 19111-C under these conditions?

A. Initiate RCS cooldown, minimize ECCS flow to keep RVLIS full range >62% and start makeup to the RWST.

B. Initiate RCS cooldown, verify containment cooling units running in low speed, maximize the number of containment spray pumps running.

C. Shift containment cooling units to fast speed, stop all containment spray pumps, and minimize ECCS flow to maintain at least 24 deg F subcooling.

D. Initiate RCS cooldown, maximize ~~ensure both trains of~~ ECCS flow to maintiain subcooling > 74 deg F, and start makeup to the RWST.

a. correct per procedure
b. incorrect - minimize not maximize CS pumps based on procedure table
c. incorrect - subcooling required is >74 degrees
d. incorrect - should be establishing a single train of ECCSRef: INPO bank, VG 1999, verified in 19111-C

94. WE05EA1.3 001

Given the following plant conditions:

~~Unit is operating at 100% power at EOL.~~
- ~~Total loss of feedwater occurs and~~ operators are implementing 19231-C, "~~FR-H.1~~, Response to Loss of Secondary Heat Sink".

~~No means of feedwater addition is available and the operators have~~
- ~~initiated~~ RCS feed and bleed is required
- Manual Safety Injection was initiated and when the operator attempted to open the pressurizer PORVs, PORV 455 failed to open.

Which ONE of the following describes the correct operator mitigation strategy to respond to this problem?

A. Stop one Centrifugal Charging Pump to reduce loss of inventory through PORVs.

B. Close any open Pzr PORV to conserve RCS inventory and return to the steps to re-establish Main Feedwater.

C. Open the reactor head vents to reduce RCS pressure since one pressurizer PORV may not provide sufficient heat removal capacity.

D. Verify PORV 456 and it's block valve open to reduce RCS pressure since 1 Pzr PORV provides adequate heat removal capacity for a loss of heat sink.

Ref: WB lesson plan 3-OT-FRH0001, obj. 9 & 10

Distractor analysis:PORV a.
Incorrect - one PORV is not sufficient to provide adequate heat removal.
c. Correct - increases the bleed path capability and reduce pressure to ensure the core remains cooled.
b. Incorrect - procedure directs bleed and feed not depressurizing a SG which would be a less effective cooling method.
d. Incorrect - more bleed path capacity is needed to ensure pressure reduction and cooling capability, not less injection.

95. WE07A2.01S 001

19221-C, "~~FR - C.1~~ Response To Inadequate Core Cooling" has been implemented. The following conditions exist:

- ~~SI~~ ECCS flow could not be established by any means
- The ~~first~~ secondary depressurization was performed at the maximum rate per 19221-C ~~FR-C.1~~
- Hot Leg temperatures are ~~stabailized~~ stable at 370 ~~400~~ degrees F
- All S/G pressures are at ~~1~~200 psig
- SG levels are 8% WR
- ~~All RCPs are stopped~~
- ~~RCS pressure has stabilized at 650 degrees F~~
- ~~—~~ Core exit thermocouples temperatures are approximately 900 degrees F
- ~~RVLIS is 0% upper head~~

The crew should.....

A. Exit 19221-C and enter 19222-C, ~~FR-C.2,~~ Response to Degraded Core Cooling

B. ~~Start~~ Ensure ~~r~~Reactor coolant pumps running regardless of support conditions

C. Continue S/G depressurization to atmospheric pressure, isolating the accumulators at RCS pressure < 150 ~~250~~ psig

D. ~~Stop S/G depressurization until the accumulators are isolated, then depressurize to atmospheric pressure~~ -
Stop S/G depressurization, isolate accumulators, then depressurize S/Gs to atmospheric pressure

Farley Bank - validated for VG 19221-C
a. incorrect - stay in 19221-C
b. incorrect - establish RCP pump start criteria per Table 1, RCP emergency restart criteria
c. correct - depressurize letting the acculmulators inject, isolate when RCS @ 250 psig
d. incorrect - do not hold at 650, continue to depressurize.

96. WE08EA2.1S 001

Given the following plant conditions:

- Crew is responding to a large-break LOCA
- RCS Integrity CSFST is Orange
- 19241-C, "~~FR-P.1~~, Response to Imminent Pressurized Thermal Shock Condition" is ~~currently~~ being performed ~~in response to a PTS Orange path~~
- Containment CSFST ~~status tree~~ is now Orange

Which of the following is the correct crew response if the PTS status tree turns Yellow prior to the completion of 19241-C?

A. The crew should stop performance of all Function Restoration Procedures, then evaluate all Critical Safety Functions to determine the appropriate procedure to implement.

B. Crew must complete 19241-C, since it is equivalent to the PTS Red path Function Restoration Procedure, unless it is superceded by a higher priority red path.

C. Crew should continue with 19241-C, until transitioned out or the procedure is completed. Status Trees will be evaluated at that time to determine the appropriate procedure.

D. Crew should stop performing 19241-C, and implement the Containment Orange path Function Restoration procedure since it now has the highest priority.

Ref: WB bank, validated for Vogtle Procedure 19241-C, 19200, 10012

97. WE10EA2.2 001

Given the following plant conditions:

- Tech Spec action statement requires the unit to be in mode 4 within 60 minutes
- Reactor trip occurred with subsequent loss of RCPs.
- Operators have implemented 19002, "~~ES-0.2,~~ Natural Circulation Cooldown".
- A cooldown rate of 50 ~~25~~°F/hour has been established.
- Current RCS temperature is 450°F
- ~~RCS depressurization has been initiated while maintaining subcooling -> 165°F.~~
- Operators are monitoring PZR level and RVLIS for void formation.
- ~~The OAC observes that loss of inventory in the Condensate Storage Tank is imminent.~~

Which ONE of the following describes the appropriate procedural actions to comply with the Tech Spec action statement?

A. Stop the cooldown and remain in 19002, "ES-0.2, Natural Circulation Cooldown".

B. Raise the cooldown rate and remain in 19002, "ES-0.2, Natural Circulation Cooldown" .

C. Transition to 19003-C, "ES-0.3, Natural Circulation Cooldown With Steam Voids in Vessel (With RVLIS)" and LOWER ~~lower~~ the cooldown rate.

D. ✓ Transition to 19003-C, "ES-0.3, Natural Circulation Cooldown With Steam Voids in Vessel (With RVLIS)" and RAISE ~~raise~~ the cooldown rate.

Ref Inpo quest, validated for VG - 19002, 19003

a. Incorrect - loss of CST inventory should cue the examinee that transition to ES-0.3 is appropriate. Examinee may believe stopping cooldown is appropriate to conserve inventory.
b. Incorrect - loss of CST inventory should cue the examinee that transition to ES-0.3 is appropriate. Examinee may believe raising cooldown rate would be appropriate in order to reach RHR conditions sooner however ES-0.2 does not provide instruction to do this.
c. Incorrect - loss of CST inventory is an appropriate condition to require transition to ES-0.3 since more rapid cooldown rate is allowed while addressing voids in the RCS. Examinee may believe it is necessary to lower cooldown rate to conserve inventory.
d. Correct - loss of CST inventory is an appropriate condition to require transition to ES-0.3 since more rapid cooldown rate is allowed while addressing voids in the RCS.

REFERENCES:

ES-0.2; ES-0.3; Modified INPO exam bank question

10CFR55.43.5/45.13

RO-N/A SRO-22

98. WE11EA1.3 001

Given the following plant conditions:

- Reactor trip and SI occurred on Unit 1 due to a ~~small break~~ LOCA.
- Crew has transitioned ~~from 19013, "ES-1.3, Transfer to Cold Leg Recirculation",~~ to 19111. "ECA-1.1, Loss of Emergency Coolant Recirculation", due to the failure of both RHR sump suction valves to open.
- ~~Crew has reduced ECCS flow to 1 CCP per step 11 of ECA-1.1.~~
- Current RCS conditions are 400°F and 700 psig
- RWST level is 10%
- ~~Crew is performing Step 19 of ECA-1.1 to check makeup flow adequate and observes the following indications:~~
  - ~~No RCP running~~
  - ~~RVLIS full range = 60% and slowly dropping~~

Which one of the following lists the correct operator action for this condition?

A. ~~Ensure additional makeup source to RWST has been aligned.~~
Reduce ECCS to one train

B. ~~Control charging to raise makeup flow.~~
Stop all ECCS pumps

C. Place RHR shutdown cooling in service.

D. ~~Slowly depressurize RCS to inject CLAs.~~
Isolate the ECCS accumulators

Ref: WB bank - validated for Vogtle, Procedures 19011, 19111

Per procedure

99. WE13EK3.2S 001

~~The Unit 1 operating crew is currently executing 19010-C, "E-1, Loss of Reactor or Secondary Coolant". Plant conditions are as follows:~~

~~- Containment pressure is 4.5 psig and slowly decreasing.~~
~~- RCS temperature is 570°F.~~
~~- S/G Pressures: S/G #1 = 1200 psig; S/G #2 = 1190 psig; S/G #3 = 1230 psig; S/G #4 = 1205 psig.~~
~~- SG NR Levels: S/G #1 = 25%; S/G #2 = 30%; S/G #3 = 85%; S/G #4 = 35%.~~
~~- 19232-C, "FR-H.2, Response To Steam Generator Overpressure", has been entered.~~

~~For the existing plant conditions, the Unit Supervisor should:~~

Given the following condtions:

- The reactor was locally tripped 5 minutes after the load rejection
- RCS temp and pressure spiked up and resulted in a stuck open PRZR Safety Valve
- RCS pressure is 934 psig and slowly lowering
- SG pressures are 1253 psig
- The crew is implementing 19010-C, "Response to LOCA"
- CSFST heat sink is yellow due to high SG pressure
- The SSS reports the FRP 19232-C, "Response to SG Overpressure" should be implemented based on CSFSTs

Which of the following is the correct action to take?

A. ✓ ~~Direct the operators to NOT release steam from S/G #3 and transition to 19233-C, "FR-H.3, Response to Steam Generator High Level" to control and lower S/G #3's level.~~
The USS has the option to stay in the current procedure and can dump steam from SG #1.

B. ~~Direct the operators to NOT release steam from S/G #3 and continue with 19232-C to reduce S/G pressure.~~
The USS is required to transition to 19232-C and complete it.

C. ~~Direct the operator to open the PORV on S/G #3 to drop pressure below 1220 psig then transition to 19233-C, "FR-H.3, Response to Steam Generator High Level" to control and lower S/G#3's level.~~
The USS is required to transition to 19232-C and complete it unless RWST level lowers to 39%.

D. ~~Direct the operator to open the PORV on S/G#3 to drop pressure below 1220 psig and continue with 19232-C to reduce S/G pressure.~~
The USS has the option of transitioning to 19232-C. He cannot exit the FRP until the heat sink CSFST is green.

Ref: WB Lesson Plan 3-OT-FRH0001 obj 6
WB Lesson Plan 3-OT-FRH0001 pp 41 & 42 of 56
10CFR43.5

Source WB exam bank last used in '98 SRO audit

Distractor analysis:
Answer A is correct based on 19232-C (FR-H.2) procedure step 3 RNO
Answers B, C, & D are incorrect based on inappropriate actions and branching directions

100. WE16G2.3.10 001

Given the following:

- A Small Break LOCA occurred 12 hours ago.
- Containment pressure is 4.7 ~~1.7~~ psig.
- Containment temperature is 227 ~~220~~°F.
- ~~Lower containment radiation indicated level is 25 R/hr.~~
- CNMT low range radition montors (RE-002/003) are in high alarm reading 12 R/hr
- 19253-C, "~~FR-Z.3,~~ High Containment Radiation Level", is entered.

Which ONE of the following actions is required in accordance with 19253-C ~~FR-Z.3~~?

A. Peform a manual ~~Phase~~ CIA ~~isolation~~ to isolate CNMT air from outside air.

B. ✓ Ensure CVI actuated and ~~containment isolation damper~~ alignment is correct

C. ~~Sample containment atmosphere~~
Place all CNMT lower level air circulators in service to lower radiation levels.

D. Ensure that all ~~lower compartment~~ CNMT coolers are in service on high speed to increase flow through the HEPA filters

Ref: WB Exam Bank,validated for VG in FR-Z.3

Distactor analysis:
B correct because of step in FR-Z.3.
A, C, D, are incorrect because they are not required by the procedure.