

Facility: Waterford 3		Date of Exam: 8/22/03																	
Tier	Group	RO K/A Category Points											SRO – Only Points						
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	K	A	A 2	G *	TOTAL	
1. Emergency & Abnormal Plant Evolutions	1	1	2	4				4	4				3	18					7
	2	1	1	2				2	2				1	9					5
	Tier Totals	2	3	6				6	6				4	27					12
2. Plant Systems	1	3	3	3	2	2	1	3	4	2	3	2	28						4
	2	2	1	0	2	1	1	0	1	1	0	1	10						2
	Tier Totals	5	4	3	4	3	2	3	5	3	3	3	38						6
3. Generic Knowledge and Abilities																			
				1	2	3	4	10											
				3	3	2	2												
<p>Note:</p> <ol style="list-style-type: none"> 1. Ensure that at least two topics from every K/A category are sampled within each tier of the RO Outline (i.e., the "Tier Totals" in each K/A category shall not be less than two). Refer to Section D.1.c for additional guidance regarding SRO sampling. 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 RO exam must total 75 points and the SRO –only exam must total 25 points. 3. Select topics from many systems and evolutions; avoid selecting more than two K/A topics from a given system or evolution 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 (G) 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. The SRO K/As must also be linked to 10 CFR 55.43 or an SRO-level learning objective. 7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IR) for the applicable license level, and the point totals for each system and category. Enter the group and tier totals for each category in the table above; summarize all the SRO-only knowledge and non-A2 ability categories in the columns labeled "K" and "A". Use duplicate pages for RO and SRO-only exams. 8. For Tier 3, enter the K/A number, descriptions, importance ratings, and point totals on Form ES-401-3. 9. Refer to ES-401, *-Attachment 2, for guidance regarding the elimination of inappropriate K/A statements. 																			

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
00007 (BW/E02 & E10; CE/E02) Reactor Trip – Stabilization – Recovery / 1						1	2.4.49 - 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	1
00008 Pressurizer Vapor Space Accident / 3		1					AK2.01 - Knowledge of the interrelations between the Pressurizer Vapor Space Accident and the following: Valves (CFR 41.7 / 45.7)	2.7	1
000009 Small Break LOCA / 3					1		EA2.37 - Ability to determine or interpret the following as they apply to a small break LOCA: Existence of adequate natural circulation (CFR 41.14/ 43.5 / 45.13)	4.5	1
000011 Large Break LOCA / 3				1			EA1.13 - Ability to operate and monitor the following as they apply to a Large Break LOCA: Safety injection components. (CFR 41.7 / 45.5 / 45.6)	4.2	1
000015/17 RCP Malfunctions / 4		1					AK2.10 - Knowledge of the interrelations between the Reactor Coolant Pump Malfunctions (Loss of RC Flow) and the following: RCP indicators and controls (CFR 41.7 / 45.7)	2.8	1
000022 Loss of Rx Coolant Makeup / 2			1				AK3.04 - Knowledge of the reasons for the following responses as they apply to the Loss of Reactor Coolant Pump Makeup: Isolating letdown. (CFR 41.5,41.10 / 45.6 / 45.13)	3.4	1
000025 Loss of RHR System / 4				1			AA1.12 - Ability to operate and / or monitor the following as they apply to the Loss of Residual Heat Removal System: RCS temperature indicators. (CFR 41.7 / 45.5 / 45.6)	3.5	1
000026 Loss of Component Cooling Water / 8					1		AA2.06 - Ability to determine and interpret the following as they apply to the Loss of Component Cooling Water: The length of time after the loss of CCW flow to a component before that component may be damaged. (CFR: 41.7/43.5 / 45.13)	3.1*	1
000027 Pressurizer Pressure Control System Malfunction / 3				1			AA1.01 - Ability to operate and / or monitor the following as they apply to the Pressurizer Pressure Control Malfunctions: PZR heaters, sprays, and PORVs. (CFR 41.7 / 45.5 / 45.6)	3.9	1
000029 ATWS / 1					1		EA2.09 - Ability to determine or interpret the following as they apply to a ATWS: Occurrence of a main turbine/reactor trip. (CFR 41.8/43.5 / 45.13)	4.5	1
000038 Steam Gen. Tube Rupture / 3	1						EK1.01 - Knowledge of the operational implications of the following concepts as they apply to the SGTR: Use of steam tables. (CFR 41.8 / 41.10 / 45.3)	3.4	1
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4			1				AK3.06 - Knowledge of the reasons for the following responses as they apply to the Steam Line Rupture: Containment temperature and pressure considerations. (CFR 41.5,41.10 / 45.6 / 45.13)	3.9	1
000054 (CE/E06) Loss of Main Feedwater / 4						1	2.4.4 - Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures. (CFR 41.10 / 43.2 / 45.6)	4.3	1
000055 Station Blackout / 6			1				EK3.01 - Knowledge of the reasons for the following responses as they apply to the Station Blackout: Length of time for which battery capacity is designed. (CFR 41.5 / 41.10 / 45.6 / 45.13)	3.4	1
000056 Loss of Off-site Power / 6					1		AA2.38 - Ability to determine and interpret the following as they apply to the Loss of Offsite Power: Load sequencer status lights. (CFR: 41.7/43.5 / 45.13)	3.8	1
000057 Loss of Vital AC Inst. Bus / 6							Randomly deselected this topic area.		0
000058 Loss of DC Power / 6						1	2.1.8 - Ability to coordinate personnel activities outside the control room. (CFR: 41.10/45.5 / 45.12 / 45.13)	3.6	1
000062 Loss of Nuclear Svc Water / 4				1			AA1.03 - Ability to operate and / or monitor the following as they apply to the Loss of Nuclear Service Water (SWS): SWS as a backup to the CCWS. (CFR 41.7 / 45.5 / 45.6)	3.6	1
000065 Loss of Instrument Air / 8			1				AK3.08 - Knowledge of the reasons for the following responses as they apply to the Loss of Instrument Air: Actions contained in EOP for loss of instrument air. (CFR 41.5,41.10 / 45.6 / 45.13)	3.9	1
W/E04 LOCA Outside Containment / 3							Not Applicable to Waterford 3		0
W/E11 Loss of Emergency Coolant Recirc. / 4							Not Applicable to Waterford 3		0

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4							Not Applicable to Waterford 3		0
K/A Category Totals:	1	2	4	4	4	3	Group Point Total:		18

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000001 Continuous Rod Withdrawal / 1							Not Selected		0
000003 Dropped Control Rod / 1							Not Selected		0
000005 Inoperable/Stuck Control Rod / 1							Not Selected		0
000024 Emergency Boration / 1	1						AK1.04 - Knowledge of the operational implications of the following concepts as they apply to Emergency Boration: Low temperature limits for boron concentration. (CFR 41.8 / 41.10 / 45.3)	3.6	1
000028 Pressurizer Level Malfunction / 2				1			AA1.04 - Ability to operate and / or monitor the following as they apply to the Pressurizer Level Control Malfunctions: Regenerative heat exchanger and temperature limits. (CFR 41.7 / 45.5 / 45.6)	2.8	1
000032 Loss of Source Range NI / 7						1	2.2.24 - Ability to analyze the affect of maintenance activities on LCO status. (CFR: 41.10/43.2 / 45.13)	3.8	1
000033 Loss of Intermediate Range NI / 7							Not Selected		0
000036 (BW/A08) Fuel Handling Accident / 8							Not Selected		0
000037 Steam Generator Tube Leak / 3					1		AA2.15 - Ability to determine and interpret the following as they apply to the Steam Generator Tube Leak: Magnitude of atmospheric radioactive release if cool-down must be completed using steam dump or atmospheric reliefs. (CFR: 41.12/43.5 / 45.13)	4.2	1
000051 Loss of Condenser Vacuum / 4			1				AK3.01 - Knowledge of the reasons for the following responses as they apply to the Loss of Condenser Vacuum: Loss of steam dump capability upon loss of condenser vacuum. (CFR 41.5,41.10 / 45.6 / 45.13)	3.1*	1
000059 Accidental Liquid RadWaste Rel. / 9							Not Selected		0
000060 Accidental Gaseous Radwaste Rel. / 9				1			AA1.01 - Ability to operate and / or monitor the following as they apply to the Accidental Gaseous Radwaste: Area radiation monitors. (CFR 41.7 / 45.5 / 45.6)	3.0	1
000061 ARM System Alarms / 7							Not Selected		0
000067 Plant Fire On-site / 8							Not Selected		0
000068 (BW/A06) Control Room Evac. / 8							Not Selected		0
000069 (W/E14) Loss of CTMT Integrity / 5			1				AK3.01 - Knowledge of the reasons for the following responses as they apply to the Loss of Containment Integrity: Guidance contained in EOP for loss of containment integrity. (CFR 41.5,41.10 / 45.6 / 45.13)	4.2	1
000074 (W/E06&E07) Inad. Core Cooling / 4							Not Selected		0
000076 High Reactor Coolant Activity / 9							Not Selected		0
W/E01 & E02 Rediagnosis & SI Termination / 3							Not Applicable to Waterford 3		0
W/E13 Steam Generator Over-pressure / 4							Not Applicable to Waterford 3		0
W/E15 Containment Flooding / 5							Not Applicable to Waterford 3		0
W/E16 High Containment Radiation / 9							Not Applicable to Waterford 3		0
BW/A01 Plant Runback / 1							Not Applicable to Waterford 3		0
BW/A02&A03 Loss of NNI-X/Y / 7							Not Applicable to Waterford 3		0
BW/A04 Turbine Trip / 4							Not Applicable to Waterford 3		0
BW/A05 Emergency Diesel Actuation / 6							Not Applicable to Waterford 3		0
BW/A07 Flooding / 8							Not Applicable to Waterford 3		0
BW/E03 Inadequate Subcooling Margin / 4							Not Applicable to Waterford 3		0
BW/E08; W/E03 LOCA Cooldown - Depress. / 4							Not Applicable to Waterford 3		0

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4		1					AK2.2 - Knowledge of the interrelations between the (Natural Circulation Operations) and the following: The facility's heat removal systems, including primary coolant, emergency coolant, decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility. (CFR: 41.7 / 45.7)	3.6	1
BW/E13&E14 EOP Rules and Enclosures							Not Applicable to Waterford 3		0
CE/A11; W/E08 RCS Overcooling - PTS / 4					1		AA2.1 - Ability to determine and interpret the following as they apply to the RCS Overcooling: Facility conditions and selection of appropriate procedures during abnormal and emergency operations. (CFR: 41.10/43.5 / 45.13)	3.3	1
CE/A16 Excess RCS Leakage / 2							Not Selected		0
CE/E09 Functional Recovery							Not Selected		0
K/A Category Totals:	1	1	2	2	2	1	Group Point Total:		9

Plant systems – Tier 2/Group 1 (RO)

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
003 Reactor Coolant Pump									1			A3.04 - Ability to monitor automatic operation of the RCPS, including: RCS flow. (CFR: 41.7 / 45.5)	3.6	1
004 Chemical and Volume Control		1										K2.03 - Knowledge of bus power supplies to the following: Charging pumps. (CFR: 41.7)	3.5	1
005 Residual Heat Removal										1		A4.01 - Ability to manually operate and/or monitor in the control room: Controls and indication for RHR pumps. (CFR: 41.7 / 45.5 to 45.8)	3.4	1
006 Emergency Core Cooling			1									K3.02 - Knowledge of the effect that a loss or malfunction of the ECCS will have on the following: Fuel. (CFR: 41.7 / 45.6)	4.4	1
007 Pressurizer Relief/ Quench Tank	1											K1.01 - Knowledge of the physical connections and/or cause effect relationships between the PRTS and the following systems: Containment system. (CFR: 41.2 to 41.9 / 45.7 to 45.8)	3.1	1
007 Pressurizer Relief/ Quench Tank								1				A2.03 - Ability to (a) predict the impacts of the following malfunctions or operations on the PRTS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Overpressurization of the PZR. (CFR: 41.5 / 43.5 / 45.3 / 45.13)	3.9	1
008 Component Cooling Water		1										K2.02 - Knowledge of bus power supplies to the following: CCW pump, including emergency backup. (CFR: 41.7)	3.2*	1
010 Pressurizer Pressure Control					1							K5.01 - Knowledge of the operational implications of the following concepts as they apply to the PZR PCS: Determination of condition of fluid in PZR, using steam tables. (CFR: 41.5 / 45.7)	4.0	1
010 Pressurizer Pressure Control										1		A4.02 - Ability to manually operate and/or monitor in the control room: PZR heaters. (CFR: 41.7 / 45.5 to 45.8)	3.4	1
012 Reactor Protection									1			A3.06 - Ability to monitor automatic operation of the RPS, including: Trip logic. (CFR: 41.7 / 45.5)	3.7	1
012 Reactor Protection											1	2.4.49 - 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	1
013 Engineered Safety Features Actuation					1							K5.02 - Knowledge of the operational implications of the following concepts as they apply to the ESFAS: Safety system logic and reliability. (CFR: 41.5 / 45.7)	3.3	1
022 Containment Cooling		1										K2.01 - Knowledge of power supplies to the following: Containment cooling fans. (CFR: 41.7)	3.1	1
022 Containment Cooling										1		A4.03 - Ability to manually operate and/or monitor in the control room: Dampers in the CCS. (CFR: 41.7 / 45.5 to 45.8)	3.2*	1
025 Ice Condenser												Not Applicable to Waterford 3		0
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)	4.2	1
039 Main and Reheat Steam	1											K1.04 - Knowledge of the physical connections and/or cause-effect relationships between the MRSS and the following systems: RCS temperature monitoring and control. (CFR: 41.2 to 41.9 / 45.7 to 45.8)	3.1	1

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
039 Main and Reheat Steam								1				A2.03 - Ability to (a) predict the impacts of the following malfunctions or operations on the MRSS; and (b) based on predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Indications and alarms for main steam and area radiation monitors (during SGTR). (CFR: 41.5 / 43.5 / 45.3 / 45.13)	3.7	1
056 Condensate								1				A2.04 - Ability to (a) predict the impacts of the following malfunctions or operations on the Condensate System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of condensate pumps. (CFR: 41.5 / 43.5 / 45.3 / 45.13)	2.8*	1
059 Main Feedwater			1									K3.02 - Knowledge of the effect that a loss or malfunction of the MFW will have on the following: AFW system. (CFR: 41.7 / 45.6)	3.7	1
061 Auxiliary/Emergency Feedwater	1											K1.02 - Knowledge of the physical connections and/or cause effect relationships between the AFW and the following systems: MFW System. (CFR: 41.2 to 41.9 / 45.7 to 45.8)	3.7	1
062 AC Electrical Distribution							1					A1.01 - Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ac distribution system controls including: Significance of D/G load limits. (CFR: 41.5 / 45.5)	3.8	1
063 DC Electrical Distribution							1					A1.01 Ability to predict and/or monitor changes in parameters associated with operating the DC electrical system controls including: Battery capacity as it is affected by discharge rate. (CFR: 41.5 / 45.5)	3.3	1
064 Emergency Diesel Generator								1				A2.06 - Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Operating unloaded, lightly loaded, and highly loaded time limit. (CFR: 41.5 / 43.5 / 45.3 / 45.13)	3.3	1
073 Process Radiation Monitoring											1	2.2.22 - Knowledge of limiting conditions for operations and safety limits. (CFR: 41.10/43.2 / 45.2)	4.1	1
073 Process Radiation Monitoring			1									K3.01 - Knowledge of the effect that a loss or malfunction of the PRM system will have on the following: Radioactive effluent releases. (CFR: 41.7 / 45.6)	4.2	1
076 Service Water				1								K4.02 - Knowledge of SWS design feature(s) and/or interlock(s) which provide for the following: Automatic start features associated with SWS pump controls. (CFR: 41.7)	3.2	1
078 Instrument Air						1						A4.01 - Ability to manually operate and/or monitor in the control room: Pressure gauges. (CFR: 41.7 / 45.5 to 45.8)	3.1	1
103 Containment				1								K4.01 - Knowledge of containment system design feature(s) and/or interlock(s) which provide for the following: Vacuum breaker protection. (CFR: 41.7)	3.7*	1
K/A Category Totals:	3	3	3	2	2	1	3	4	2	3	2	Group Point Total:		28

ES-401	PWR Examination Outline											Form ES-401-2		
Plant systems – Tier 2/Group 2 (RO)														
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
001 Control Rod Drive					1							K5.04 - Knowledge of the following operational implications as they apply to the CRDS: Rod insertion limits. (CFR: 41.5/45.7)	4.7	1
002 Reactor Coolant												Not Selected		0
011 Pressurizer Level Control		1										K2.02 - Knowledge of bus power supplies to the following: PZR heaters. (CFR: 41.7)	3.2	1
014 Rod Position Indication											1	2.1.11 - Knowledge of less than one hour technical specification action statements for systems. (CFR: 41.10/43.2 / 45.13)	3.8	1
015 Nuclear Instrumentation												Not Selected		0
016 Non-nuclear Instrumentation				1								K4.03 - Knowledge of NNIS design feature(s) and/or interlock(s) which provide for the following: Input to control systems. (CFR: 41.7)	2.9*	1
017 In-core Temperature Monitor												Not Selected		0
027 Containment Iodine Removal												Not Selected		0
028 Hydrogen Recombiner and Purge Control						1						K6.01 - Knowledge of the effect of a loss or malfunction on the following will have on the HRPS: Hydrogen recombiners. (CFR: 41.7 / 45.7)	3.1	1
029 Containment Purge									1			A3.01 - Ability to monitor automatic operation of the Containment Purge System including: CPS isolation. (CFR: 41.7 / 45.5)	4.0	1
033 Spent Fuel Pool Cooling								1				A2.03 - Ability to (a) predict the impacts of the following malfunctions operations on the Spent Fuel Pool Cooling System ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Abnormal spent fuel pool water level or loss of water level. (CFR: 41.5 / 43.5 / 45.3 / 45.13)	3.5	1
034 Fuel Handling Equipment												Not Selected		0
035 Steam Generator												Not Selected		0
041 Steam Dump/Turbine Bypass Control												Not Selected		0
045 Main Turbine Generator				1								K4.11 - Knowledge of MT/G system design feature(s) and/or interlock(s) which provide for the following: T/G reactor trip. (CFR: 41.7)	3.9	1
055 Condenser Air Removal												Not Selected		0
068 Liquid Radwaste												Not Selected		0
071 Waste Gas Disposal	1											K1.05 - Knowledge of the physical connections and/or cause effect relationships between the Waste Gas Disposal System and the following systems: Meteorological tower. (CFR: 41.2 to 41.9 / 45.7 to 45.8)	2.8	1
072 Area Radiation Monitoring												Not Selected		0
075 Circulating Water	1											K1.02 - Knowledge of the physical connections and/or cause effect relationships between the circulating water system and the following systems: Liquid radwaste discharge. (CFR: 41.2 to 41.9 / 45.7 to 45.8)	3.1	1
079 Station Air												Not Selected		0
086 Fire Protection												Not Selected		0
K/A Category Totals:	2	1	0	2	1	1	0	1	1	0	1	Group Point Total:		10

Facility Waterford 3

Date of Exam: 8/22/03

Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.1	Knowledge of conduct of operations requirements. (CFR: 41.10 / 45.13)	3.8	1		
	2.1.12	Ability to apply technical specifications for a system. (CFR: 43.2 / 43.5 / 45.3)	4.0	1		
	2.1.32	Ability to explain and apply all system limits and precautions. (CFR: 41.10 / 43.2 / 45.12)	3.8	1		
	2.1					
	2.1					
	Subtotal				3	
2. Equipment Control	2.2.11	Knowledge of the process for controlling temporary changes. (CFR: 41.10 / 43.3 / 45.13)	3.4*	1		
	2.2.26	Knowledge of refueling administrative requirements. (CFR: 41.13 / 43.5 / 45.13)	3.7	1		
	2.2.13	Knowledge of tagging and clearance procedures. (CFR: 41.10 / 45.13)	3.8	1		
	2.2					
	2.2					
	Subtotal				3	
3. Radiation Control	2.3.11	Ability to control radiation releases. (CFR: 41.11 / 45.9 / 45.10)	3.2	1		
	2.3.9	Knowledge of the process for performing a containment purge.(CFR: 41.9 / 43.4 / 45.10)	3.4	1		
	2.3					
	2.3					
	2.3					
	Subtotal				3	
4. Emergency Procedures/ Plan	2.4.31	Knowledge of annunciators, alarms and indications, and use of the response instructions. (CFR: 41.10 / 45.3)	3.4	1		
	2.4.43	Knowledge of emergency communications systems and techniques. (CFR: 41.10 / 45.13)	3.5	1		
	2.4					
	2.4					
	2.4					
	2.4					
	Subtotal				2	
Tier 3 Point Total				10		7

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000007 (BW/E02 & E10; CE/E02) Reactor Trip – Stabilization – Recovery / 1			1				EK3.01 - Knowledge of the reasons for the following as they apply to a reactor trip: Actions contained in EOP for reactor trip (CFR 41.5/41.10/43.5/ 45.6/ 45.13)	4.6	1
000008 Pressurizer Vapor Space Accident / 3					1		AA2.23 - Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: Criteria for throttling high-pressure injection after a small LOCA (CFR: 43.5 / 45.13)	4.3	1
000009 Small Break LOCA / 3						1	2.4.6 Knowledge symptom based EOP mitigation strategies. (CFR: 41.10 / 43.5 / 45.13)	4.0	1
000011 Large Break LOCA / 3							Not Selected		0
000015/17 RCP Malfunctions / 4							Not Selected		0
000022 Loss of Rx Coolant Makeup / 2							Not Selected		0
000025 Loss of RHR System / 4					1		AA2.03 - Ability to determine and interpret the following as they apply to the Loss of Residual Heat Removal System: Increasing reactor building sump level. (CFR: 43.5 / 45.13)	3.8	1
000026 Loss of Component Cooling Water / 8							Not Selected		0
000027 Pressurizer Pressure Control System Malfunction / 3							Not Selected		0
000029 ATWS / 1						1	2.4.41 - Knowledge of the emergency action level thresholds and classifications. (CFR: 43.5 / 45.11)	4.1	1
000038 Steam Gen. Tube Rupture / 3					1		EA2.14 - Ability to determine or interpret the following as they apply to a SGTR: Magnitude of atmospheric radioactive release if cooldown must be completed using steam dumps or if atmospheric reliefs lift. (CFR 43.5 / 45.13)	4.6	1
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4							Not Selected		0
000054 (CE/E06) Loss of Main Feedwater / 4							Not Selected		0
000055 Station Blackout / 6				1			EA1.04 - Ability to operate and monitor the following as they apply to a Station Blackout: Reduction of loads on the battery. (CFR 41.7 / 43.5/ 45.5 / 45.6)	3.9	1
000056 Loss of Off-site Power / 6							Not Selected		0
000057 Loss of Vital AC Inst. Bus / 6							Not Selected		0
000058 Loss of DC Power / 6							Not Selected		0
000062 Loss of Nuclear Svc Water / 4							Not Selected		0
000065 Loss of Instrument Air / 8							Not Selected		0
W/E04 LOCA Outside Containment / 3							Not Applicable to Waterford 3		0
W/E11 Loss of Emergency Coolant Recirc. / 4							Not Applicable to Waterford 3		0
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4							Not Applicable to Waterford 3		0
K/A Category Totals:	0	0	1	1	3	2	Group Point Total:		7

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000001 Continuous Rod Withdrawal / 1							Not Selected		0
000003 Dropped Control Rod / 1			1				AK3.04 - Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod: Actions contained in EOP for dropped control rod. (CFR 41.5 / 41.10 / 43.2 / 45.13 / 45.6)	4.1	1
000005 Inoperable/Stuck Control Rod / 1				1			AA1.05 - Ability to operate and / or monitor the following as they apply to the Inoperable / Stuck Control Rod: RPI. (CFR 41.7/ 43.6 / 45.5 / 45.6)	3.4	1
000024 Emergency Boration / 1							Not Selected		0
000028 Pressurizer Level Malfunction / 2							Not Selected		0
000032 Loss of Source Range NI / 7							Not Selected		0
000033 Loss of Intermediate Range NI / 7							Not Selected		0
000036 (BW/A08) Fuel Handling Accident / 8							Not Selected		0
000037 Steam Generator Tube Leak / 3							Not Selected		0
000051 Loss of Condenser Vacuum / 4							Not Selected		0
000059 Accidental Liquid RadWaste Rel. / 9					1		AA2.02 - Ability to determine and interpret the following as they apply to the Accidental Liquid Radwaste Release: The permit for liquid radioactive-waste release. (CFR: 43.5 / 45.13)	3.9	1
000060 Accidental Gaseous Radwaste Rel. / 9							Not Selected		0
000061 ARM System Alarms / 7							Not Selected		0
000067 Plant Fire On-site / 8					1		AA2.16 - Ability to determine and interpret the following as they apply to the Plant Fire on Site: Vital equipment and control systems to be maintained and operated during a fire. CFR (43.5 / 45.13)	4.0	1
000068 (BW/A06) Control Room Evac. / 8						1	2.2.29 - Knowledge of SRO fuel handling responsibilities. (CFR: 43.6 / 45.12)	3.8	1
000069 (W/E14) Loss of CTMT Integrity / 5							Not Selected		0
000074 (W/E06&E07) Inad. Core Cooling / 4							Not Selected		0
000076 High Reactor Coolant Activity / 9							Not Selected		0
W/E01 & E02 Rediagnosis & SI Termination / 3							Not Applicable to Waterford 3		0
W/E13 Steam Generator Over-pressure / 4							Not Applicable to Waterford 3		0
W/E15 Containment Flooding / 5							Not Applicable to Waterford 3		0
W/E16 High Containment Radiation / 9							Not Applicable to Waterford 3		0
BW/A01 Plant Runback / 1							Not Applicable to Waterford 3		0
BW/A02&A03 Loss of NNI-X/Y / 7							Not Applicable to Waterford 3		0
BW/A04 Turbine Trip / 4							Not Applicable to Waterford 3		0
BW/A05 Emergency Diesel Actuation / 6							Not Applicable to Waterford 3		0
BW/A07 Flooding / 8							Not Applicable to Waterford 3		0
BW/E03 Inadequate Subcooling Margin / 4							Not Applicable to Waterford 3		0
BW/E08; W/E03 LOCA Cooldown - Depress. / 4							Not Applicable to Waterford 3		0
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4							Not Selected		0
BW/E13&E14 EOP Rules and Enclosures							Not Applicable to Waterford 3		0
CE/A11; W/E08 RCS Overcooling - PTS / 4							Not Selected		0

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
CE/A16 Excess RCS Leakage / 2							Not Selected		0
CE/E09 Functional Recovery							Not Selected		0
K/A Category Totals:	0	0	1	1	2	1	Group Point Total:		5

Plant systems – Tier 2/Group 1 (SRO)

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
003 Reactor Coolant Pump												Not Selected		0
004 Chemical and Volume Control												Not Selected		0
005 Residual Heat Removal												Not Selected		0
006 Emergency Core Cooling				1								K4.16 - Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following: Interlocks between RHR valves and RCS. (CFR: 41.7/43.2)	3.5	1
007 Pressurizer Relief/ Quench Tank												Not Selected		0
008 Component Cooling Water								1				A2.05 - Ability to (a) predict the impacts of the following malfunctions or operations on the CCWS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Effect of loss of instrument and control air on the position of the CCW valves that are air operated. (CFR: 41.5 / 43.5 / 45.3 / 45.13)	3.5	1
010 Pressurizer Pressure Control												Not Selected		0
012 Reactor Protection												Not Selected		0
013 Engineered Safety Features Actuation												Not Selected		0
022 Containment Cooling												Not Selected		0
025 Ice Condenser												Not Selected		0
026 Containment Spray												Not Selected		0
039 Main and Reheat Steam												Not Selected		0
056 Condensate												Not Selected		0
059 Main Feedwater												Not Selected		0
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 / 43.2/43.5/ 45.5)	3.9	1
062 AC Electrical Distribution											1	2.2.21 - Knowledge of pre- and post-maintenance operability requirements. (CFR: 43.2)	3.5	1
063 DC Electrical Distribution												Not Selected		0
064 Emergency Diesel Generator												Not Selected		0
073 Process Radiation Monitoring												Not Selected		0
076 Service Water												Not Selected		0
078 Instrument Air												Not Selected		0
103 Containment												Not Selected		0
K/A Category Totals:	0	0	0	1	0	0	1	1	0	0	1	Group Point Total:		4

Plant systems – Tier 2/Group 2 (SRO)

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
001 Control Rod Drive												Not Selected		0
002 Reactor Coolant												Not Selected		0
011 Pressurizer Level Control												Not Selected		0
014 Rod Position Indication												Not Selected		0
015 Nuclear Instrumentation												Not Selected		0
016 Non-nuclear Instrumentation												Not Selected		0
017 In-core Temperature Monitor											1	2.1.19 - Ability to use plant computer to obtain and evaluate parametric information on system or component status. (CFR: 43.5/45.12)	3.0	1
027 Containment Iodine Removal												Not Selected		0
028 Hydrogen Recombiner and Purge Control												Not Selected		0
029 Containment Purge												Not Selected		0
033 Spent Fuel Pool Cooling												Not Selected		0
034 Fuel Handling Equipment												Not Selected		0
035 Steam Generator												Not Selected		0
041 Steam Dump/Turbine Bypass Control												Not Selected		0
045 Main Turbine Generator												Not Selected		0
055 Condenser Air Removal												Not Selected		0
068 Liquid Radwaste												Not Selected		0
071 Waste Gas Disposal												Not Selected		0
072 Area Radiation Monitoring												Not Selected		0
075 Circulating Water												Not Selected		0
079 Station Air												Not Selected		0
086 Fire Protection								1				A2.03 - Ability to (a) predict the impacts of the following malfunctions or operations on the Fire Protection System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Inadvertent actuation of the FPS due to circuit failure or welding. (CFR: 41.5 / 43.5 / 45.3 / 45.13)	2.9	1
K/A Category Totals:	0	0	0	0	0	0	0	1	0	0	1	Group Point Total:		2

Facility Waterford 3

Date of Exam: 8/22/03

Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.4	Knowledge of shift staffing requirements. (CFR: 41.10 / 43.2)			3.4	1
	2.1.33	Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications. (CFR: 41.7 / 43.2 / 43.3 / 45.3)			4.0	1
	2.1					
	2.1					
	2.1					
	2.1					
	Subtotal					
2. Equipment Control	2.2.18	Knowledge of the process for managing maintenance activities during shutdown operations. (CFR: 43.5 / 45.13)			3.6	1
	2.2.28	Knowledge of new and spent fuel movement procedures. (CFR: 43.7 / 45.13)			3.5	1
	2.2					
	2.2					
	2.2					
	2.2					
	Subtotal					
3. Radiation Control	2.3.4	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized. (CFR: 43.4 / 45.10)			3.1	1
	2.3					
	2.3					
	2.3					
	2.3					
	Subtotal					
4. Emergency Procedures/ Plan	2.4.38	Ability to take actions called for in the facility emergency plan, including (if required) supporting or acting as emergency coordinator. (CFR: 43.5 / 45.11)			4.0	1
	2.4.21	Knowledge of the parameters and logic used to assess the status of safety functions including: 1. Reactivity control, 2. Core cooling and heat removal, 3. Reactor coolant system integrity, 4. Containment conditions, 5. Radioactivity release control. (CFR: 43.5 / 45.12)			4.3	1
	2.4					
	2.4					
	2.4					
	Subtotal					
Tier 3 Point Total				10		7

Facility: Waterford III		Scenario No.: 1	Op-Test No.: 1
Examiners: _____		Operators: _____	
_____		_____	
_____		_____	
Initial Conditions: IC-30, 100%, EOC			
Turnover: RCP 2B Lower Seal failed two days ago (RC08D). Charging pump AB has been OOS for 24 hours to replace a cracked pump block. CS Pump A has been OOS for 74 hours to replace the pump impeller.			
Event No.	Malf. No.	Event Type*	Event Description
1	ED02C	C-SRO	After the crew takes the shift, SUT A fails requiring evaluation of operability of AC offsite circuits, Technical Specification 3.8.1.1. OP-903-066 must be performed within 1 hour.
2	CC03A	C-BOP/SRO	After the crew evaluates Tech Specs for the SUT failure, CC Pump A bearing seizes. This causes CC Pump A to trip on overcurrent. The crew should implement OP-901-510, CCW Malfunction, Subsection E0 and E2 and evaluate actions for TS 3.7.3, TRM 3.7.3 and OP-100-014 (cascading Tech Specs).
3	RC21A	I-BOP/RO/SRO	After the crew starts CC Pump AB and evaluates Tech Specs, Reactor Regulating System Hot Leg 1 temperature input fails low affecting the PZR Level Control Setpoint. The crew should implement OP-901-110, PZR Level Control Malfunction, Subsection E0 and E2.
4	CV05B2	C-RO/SRO	While the crew is implementing OP-901-110, the in-service letdown back-pressure control valve fails closed. The crew should implement OP-901-112, Charging or Letdown Malfunction, Subsection E0 and E2.
5	RC03D RD11A73 RD11A58	C-RO/SRO M-All	After the crew places the alternate letdown back-pressure control valve in service, RCP 2B shaft seizure occurs, resulting in a reactor trip and loss of the offsite power source to Train A safety buses. Three CEAs fail to insert on the reactor trip. This requires the RO to initiate emergency boration. The crew should implement OP-902-000, Standard Post Trip Actions.
6	OVR45- OVR MS13A	I-BOP or RO M (All)	After emergency boration is initiated and the crew has transitioned to OP-902-001, Reactor Trip Recovery, a Main Steam Line Break on S/G 1 outside Containment occurs. MSIS fails to actuate automatically. This requires manual initiation of MSIS. The crew should re-diagnose to OP-902-004, Excess Steam Demand Recovery.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: Waterford III		Scenario No.: 2	Op-Test No.: 1
Examiners: _____		Operators: _____	
_____		_____	
_____		_____	
Initial Conditions: IC-27, 65%, EOC			
Turnover: RCP 2B Lower Seal failed two days ago (RC08D). Charging pump AB has been OOS for 24 hours to replace a cracked pump block. CS Pump A has been OOS for 74 hours to replace the pump impeller.			
Event No.	Malf. No.	Event Type*	Event Description
1	NI01E	I-BOP/SRO	After the crew takes the shift, ENI Channel A Middle Detector fails low, energizing Startup (SU) Channel 2. The crew should de-energize SU Channel 2. The crew should evaluate TS 3.3.1 and bypass affected trip bistables.
2	CC12E2	I-BOP/SRO	After the crew bypasses the trip bistables, a Component Cooling Water Surge Tank Level switch fails which causes realignment of the CC system. The crew should enter OP-901-510, CCW Malfunction, Attachment 1 and evaluate TS 3.7.3, cascading Tech Specs and OP-100-014.
3	RC09D	C-BOP/RO/SRO	After the crew evaluates Tech Specs, RCP 2B middle seal fails, as a result of the CC malfunction. The crew should implement OP-901-130, RCP Malfunction, Subsection E0 and E1.
4	N/A	R-RO N-BOP/SRO	The RCP seal failure requires the crew to perform a plant shutdown in accordance with OP-010-005.
5	RX14A	I-RO/SRO	After the crew satisfies the reactivity manipulation, the in-service PZR pressure control channel fails high. The crew should implement OP-901-120, PZR Pressure Control Malfunction, Subsection E0 and E1.
6	RC14B1	C-All	After transferring to the non-faulted PPCS Channel. PZR Spray Valve B fails partially open requiring implementation of OP-901-120, Subsection E3. This requires a manual reactor trip and securing at least RCP 1B. Tripping the reactor requires implementation of OP-902-000, Standard Post Trip Actions. The crew should diagnose to OP-902-001, Reactor Trip Recovery.
7	SI01B RC23D	M-ALL	After the crew commences implementation of OP-902-001, a Small Break LOCA occurs due to RCP 2B seal failure. The crew should transition to OP-902-002. HPSI pump B trips on overcurrent.
	EG08A		After the crew starts to implement OP-902-002 a fault on A2 bus causes a loss of power to the Train A safety busses. EDG A fails to

8	ED05A	C-BOP/SRO	auto start. The crew should manually start EDG A.
---	-------	-----------	---

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: Waterford III		Scenario No.: 3	Op-Test No.: 1
Examiners: _____		Operators: _____	
_____		_____	
_____		_____	
Initial Conditions: IC-20, 100%, MOC			
Turnover: RCP 2B Lower Seal failed two days ago (RC08D). Charging pump AB has been OOS for 24 hours to replace a cracked pump block. CS Pump A has been OOS for 74 hours to replace the pump impeller.			
Event No.	Malf. No.	Event Type*	Event Description
1	SG10B	I-BOP/SRO	After the crew takes the shift, the PPS Channel B S/G 1 narrow range level instrument fails high. The crew should evaluate TS 3.3.1 and 3.3.2 and take required actions to bypass the S/G Level High, S/G Level Low and S/G Delta-P trips for S/G 1 in PPS Channel B within 1 hour.
2	CV02A RC23A	C-RO/SRO	After the crew bypasses the trip bistables in PPS Channel B, an RCS leak in excess of Tech Spec limits occurs. The crew should implement OP-901-111, RCS Leak, and evaluate T.S. 3.4.5.2. The backup charging pump fails to start on lowering level. The crew should evaluate TS 3.1.2.4 and TRM 3.1.2.4.
3	RD02A20	C-BOP/RO/SRO	After the crew addresses the RCS leak, CEA 20 drops into the core. The crew should implement OP-901-102, CEDMCS or CEA Malfunction, Subsection E0 and E1.
4	N/A	R-RO N-BOP/SRO	Within 15 minutes of the dropped CEA the crew must start a power reduction in accordance with OP-901-212, Rapid Plant Power Reduction.
5	RD02A02	C-RO/SRO	After the crew reduces power to less than 70%, or at the lead examiner's discretion, CEA 2 drops which requires a manual reactor trip. The crew should implement OP-902-000, Standard Post Trip Actions.
6	OVR25-28 OVR53-56 RC23A	I-RO M-ALL	While the crew is implementing OP-902-000, a large break LOCA occurs. SIAS/CIAS/MSIS fail to automatically actuate, requiring manual actuation. The crew should complete the Standard Post Trip Actions and diagnose to OP-902-002.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: Waterford III		Scenario No.: 4	Op-Test No.: 1
Examiners: _____		Operators: _____	
_____		_____	
_____		_____	
Initial Conditions: IC-30, 100%, EOC			
Turnover: RCP 2B Lower Seal failed two days ago (RC08D). Charging pump AB has been OOS for 24 hours to replace a cracked pump block. CS Pump A has been OOS for 74 hours to replace the pump impeller.			
Event No.	Malf. No.	Event Type*	Event Description
1	RC15A2	I-RO/SRO	After the crew takes the shift, in-service pressurizer level channel fails low requiring the crew to implement OP-901-110, PZR Level Control Malfunction, Subsection E0 and E1. The crew should evaluate Tech Spec 3.3.3.6.
2	CH01A	C-BOP/SRO	After the crew implements OP-901-110, Containment Fan Cooler A trips. The crew should start the idle Containment Fan Cooler in accordance with OP-008-003, Containment Cooling System, Subsection 6.1 and evaluate Tech Spec 3.6.2.2 and 3.4.5.1.
3	CV01B	C-RO/SRO	Charging Pump B trips on Overcurrent. The crew should implement OP-901-112, Charging or Letdown Malfunction, Subsection E0 and E1 and evaluate Tech Spec 3.1.2.4 and TRM 3.1.2.4.
4	SG04E	I-BOP/SRO	Sometime after the crew has commenced restoration of charging and letdown, S/G 1 pressure input to PPS channel A fails low. The crew should evaluate Tech Specs 3.3.1, 3.3.2, 3.3.3.5, and 3.3.3.6. PPS Channel A trip bistables for S/G 2 pressure low and both S/G delta-pressures must be bypassed within one hour.
5	RP01A-D RP02A-D MS-13B	I-RO/SRO M-All	After the PPS Channel A bistables are bypassed a Main Steam Line Break outside containment occurs on S/G 2. The reactor fails to trip automatically or by manual pushbuttons, however, Diverse Reactor Trip pushbuttons do work. The crew should implement OP-902-000, Standard Post Trip Actions and diagnose to OP-902-004, ESD Recovery.
6	SG01B	M-ALL	After the crew diagnoses to OP-902-004 and S/G dryout occurs, a Steam Generator Tube Rupture occurs in S/G 2. The crew should implement OP-902-008.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: Waterford III		Scenario No.: 5	Op-Test No.: 1
Examiners: _____		Operators: _____	
_____		_____	
_____		_____	
Initial Conditions: IC-29, 85%, EOC			
Turnover: RCP 2B Lower Seal failed two days ago (RC08D). Charging pump AB has been OOS for 24 hours to replace a cracked pump block. CS Pump A has been OOS for 74 hours to replace the pump impeller.			
Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R-RO N-BOP/SRO	After the crew takes the shift, a power reduction to 65% will be performed to remove FWPT A from service to repair an oil leak and replace oil soaked lagging.
2	PC01	I-All	After the crew satisfies the reactivity manipulation, the Plant Monitoring Computer fails. The crew should implement OP-901-501, PMC or COLSS Inoperable. The crew should evaluate Tech Specs 3.2.1, 3.2.4, and 3.2.7.
3	SG05A	I-BOP/SRO	After the crew evaluates Tech Specs, a S/G1 Narrow Range control channel instrument fails low causing the controllers for FWCS 1 to shift to manual. The crew should implement OP-901-201 and control S/G 1 level manually. Post trip, the Main and Startup Feed Reg Valve controllers must be placed in a RTO condition.
4	FW12A	C-All	After the crew addresses the FWCS malfunction, the oil leak worsens on FWPT A requiring a manual trip of FWPT A and a Reactor Power Cutback. The crew should implement OP-901-101, Reactor Power Cutback.
5	FW03B FW07A FW05	C-BOP M-All	After the crew stabilizes the plant, FWPT B trips on overspeed. The crew should manually trip the reactor in accordance with OP-901-101, Reactor Power Cutback. The crew should implement OP-902-000. When EFAS-1 or 2 is actuated, EFW Pump A fails to auto start and EFW Pump AB trips on overspeed. The crew should diagnose to OP-902-006, Loss of Main Feedwater.
6	SG01A	M-ALL	During implementation of OP-902-006, a Steam Generator Tube Rupture occurs in S/G 1. The crew should re-diagnose and implement OP-902-007 Tube Rupture.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: Waterford III Exam Level (circle one): RO / SRO(I) / SRO(U)		Date of Examination: 08/25/03 Operating Test No.: 1
Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)		
System / JPM Title	Type Code*	Safety Function
a. Makeup to the VCT Using the Auto Makeup Mode (Selected Boric Acid Makeup Pump Trips)	M, S, A	2
b. SNPO Immediate Operator Actions on CR Evacuation	M, C, A	4
c. Perform Anticipated Transient System Check (DRTS)	N, S, L	7
d. Synchronize and Load the EDG (Oil Leak)	D, S, A	6
e. Placing CCW Pump AB in Service to Replace CCW Pump B (Oil Leak on CCW Pump AB)	D, S, A	8
f. Aligning LPSI to Replace CS	D, C, L	5
g. Recover Dropped CEA (Continuous CEA Motion)	N, S, A	1
h.		
Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i. Reset EFW Pump AB Mechanical Overspeed During Control Room Evacuation with a Fire	N, R, L	4
j. Restore Dry Cooling Tower Sump Pumps During a Control Room Evacuation and a Loss of Offsite Power (No Fire)	D, R, L	8
k. Startup A Safety Related Battery Charger (High Voltage Shutdown)	D, A	6
* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA		

Facility: Waterford III Exam Level (circle one): RO / SRO(I) / <u>SRO(U)</u>		Date of Examination: 08/25/03 Operating Test No.: 1
Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)		
System / JPM Title	Type Code*	Safety Function
a. Makeup to the VCT Using the Auto Makeup Mode (Selected Boric Acid Makeup Pump Trips)	M, S, A	2
b. SNPO Immediate Operator Actions on CR Evacuation	M, C, A	4
c. Reset MSIS	D, S, L	7
d.		
e.		
f.		
g.		
h.		
Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i. Restore Dry Cooling Tower Sump Pumps During a Control Room Evacuation and a Loss of Offsite Power (No Fire)	D, R, L	8
j. Startup A Safety Related Battery Charger (High Voltage Shutdown)	D, A	6
k.		
* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA		

Facility: <u>Waterford 3</u>		Date of Examination: <u>08/25/03</u>
Examination Level (circle one): RO <u>(SRO)</u>		Operating Test Number: <u>1</u>
Administrative Topic (See Note)	Describe activity to be performed:	
Conduct of Operations	JPM – Perform a Shutdown Margin Calculation with one untrippable CEA and determine required actions.	
Conduct of Operations	JPM – Perform a Mode 5 entering Mode 6 Checklist.	
Equipment Control	JPM – Review and Approve an EOS. Applicant must find 3 errors with the provided EOS.	
Radiation Control	JPM – Review and Approve a Gaseous Waste Release Permit. Applicant will review a Gaseous Waste release request on GDT 'A' for approval to release. Applicant must determine actions necessary to release GDT 'A'.	
Emergency Plan	JPM – Determine Emergency Plan Classification in an Emergency. The Applicant will be given initial conditions using the Simulator as a reference. As Emergency Coordinator the candidate must determine the Emergency Plan Classification in accordance with EP-001-001.	
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.		

Written Outline K/A Selection Methodology

Waterford III uses the following methodology for selecting K/As for Initial Licensed Operator Written Examination outlines:

1. For each Tier Group determine the topic areas within the group which are applicable (EX. – For a CE plant, eliminate topics that are applicable only to a B&W or Westinghouse plant. Be careful not to eliminate any topics that may be called by a different name in the K/A catalog, such as Incore Temperature Monitor vs. Core Exit Thermocouples).
2. Determine the number of questions per topic area by dividing the required number of questions for the Tier Group by the number of applicable topic areas. If the number of required questions can not be divided evenly by the number of topics, determine which topics get extra coverage or will not be used by assigning numbers to the systems and random selection using tokens or a random number generator. Prepare outline forms for each Tier/Group that reflect the number of questions to be selected for each topic.
3. Determine the number of K/A/G classifications that are applicable within the Tier Group. (e.g. 11 for systems Tiers and 7 for APE/EPE Tiers)
4. Divide the number of questions required within the Tier Group by the number of applicable K/A/G classifications applicable to the Tier Group. This determines the number of questions that should be included from each K/A/G Classification. If the required number of questions in the tier group cannot be evenly divided by the number of applicable K/A/Gs, assign numbers to the applicable K/A/G groups and randomly select the additional K/A/G Groups using tokens or a random number generator.
5. Prepare tokens with the number of K/A/Gs determined previously and place in a container that will not allow inadvertent viewing of the tokens while selecting. Random number generators may be used in place of the tokens.
6. Pull one token at a time from the container and fill in form ES-401-4 for the applicable Tier Group. Start at the top and work to the bottom of the list. If the same K/A/G group is selected for a topic twice return the token to the container and select again until another K/A/G group is selected. A random number generator may be used in place of tokens by designating a number for each applicable K/A/G group in the tier.
7. Using tokens or a random number generator select a K/A from the selected K/A/G group with a rating of ≥ 2.5 that is appropriate to be tested on the written examination. Selected K/A/G groups should only be changed if:
 - No K/As exist in the selected K/A/G group with a rating of ≥ 2.5 ,
 - No K/As exist within the K/A/G group which are appropriate to be tested on the written examination,
 - Or to prevent low coverage of K/A/G groups.
8. The process is repeated for each Tier Group.
9. K/As may also be replaced to ensure proper sampling of 10CFR55 requirements.