Seabrook Station 2007 NRC Written Exam Outline

ES-401, Rev. 9 **PWR Examination Outline** **Form ES-401-2**

Facility:

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	A2	G*	Total
1. Emergency & Abnormal Plant Evolutions	1	2	2	4	N/A			3	4	N/A		3	18	4	2	6
	2	1	1	2				2	2			1	9	2	2	4
	Tier Totals	3	3	6				5	6			4	27	6	4	10
2. Plant Systems	1	4	1	4	4	1	2	3	2	3	2	2	28	2	3	5
	2	2	1	1	1	1	1	1	1	0	0	1	10	1	2	3
	Tier Totals	6	2	5	5	2	3	4	3	3	2	3	38	3	5	8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7
		4			2			2			2			2	2	1	2	

Note:1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, 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 RO exam must total 75 points and the SRO-only exam must total 25 points.

3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.

4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.

5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.

6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.

7.* 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.

8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics= importance ratings (IRs) 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; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note # 1 does not apply). Use duplicate pages for RO and SRO-only exams.

9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

Seabrook Station 2007 NRC Exam Tier 1/Group1 RO

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO / SRO)						Form ES-401-2		
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						X	2.1.20 Ability to execute procedure steps. (CFR: 41.10 / 43.5 / 45.12)	4.3	1
000008 Pressurizer Vapor Space Accident / 3			X				AK3.03, Knowledge of the reasons for the following responses as they apply to the Pressurizer Vapor Space Accident: Actions contained in EOP for Pressurizer Vapor Space Accident/LOCA	4.1	1
000009 Small Break LOCA / 3					X		EA2.15 Ability to determine or interpret the following as they apply to a small break LOCA: RCS parameters (CFR 43.5/ 45.13)	3.3	1
000011 Large Break LOCA / 3		X					EK2.02 Knowledge of the interrelationship between the following and a large break LOCA: Pumps (CFR 43.5/ 45.13)	2.6	1
000015/17 RCP Malfunctions / 4				X			AA1.07, Ability to operate and/or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of Flow): RCP Seal Water Injection Subsystem (CFR 41.7/45.5/45.6)	3.5	1
000022 Loss of Rx Coolant Makeup / 2			X				AK3.02, Knowledge of the interrelations between the Loss of Reactor Coolant Makeup and the following: Actions contained in SOPs and EOPs for RCPs, loss of makeup, loss of charging, and abnormal charging. (CFR 41.5/41.10/45.6/45.13)	3.5	1
000025 Loss of RHR System / 4						X	2.4.11, Knowledge of abnormal condition procedures. (CFR: 41.10 / 43.5 / 45.13)	3.4	1
000026 Loss of Component Cooling Water / 8									
000027 Pressurizer Pressure Control System Malfunction / 3	X						AK1.02, Knowledge of the operational implications of the following concepts as they apply to Pressurizer Pressure Control Malfunctions: Expansion of liquids as temperature increases. (CFR 41.8/41.10/45.3)	2.8	1
000029 ATWS / 1				X			EA1.01, Ability to operate and monitor the following as they apply to a ATWS: Charging Pumps. (CFR 41.7/45.5/45.6)	3.4	1
000038 Steam Gen. Tube Rupture / 3									
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4		X					AK2.02, Knowledge of the interrelationship between the Steam Line Rupture and the following: Sensors and detectors (CFR 41.7/45.7)	2.6	1
000054 (CE/E06) Loss of Main Feedwater / 4									
000055 Station Blackout / 6			X				EK3.02, Knowledge of the reasons for the following responses as they apply to the Station Blackout: Actions contained in EOP for loss of offsite and onsite power	4.3	1

							(CFR 41.5/41.10/45.6/45.13)		

Seabrook Station 2007 NRC Exam Tier 1/Group1 RO (Continued)

000056 Loss of Off-site Power / 6				X			AA1.18, Ability to operate and/or monitor the following as they apply to the Loss of Offsite Power: Control room normal ventilation supply fan. (CFR 41.7/45.5/45.6)	3.2	1
000057 Loss of Vital AC Inst. Bus / 6					X		AA2.15, Ability to determine and interpret the following as the apply to Loss Of Vital AC Instrument Bus: That a loss of ac has occurred: (CRF 43.5/45.13)	3.8	1
000058 Loss of DC Power / 6						X	2.4.11, Knowledge of abnormal condition procedures. (CFR: 41.10 / 43.5 / 45.13)	3.4	1
000062 Loss of Nuclear Svc Water / 4			X				AK3.02, Knowledge of the reasons for the following responses as they apply to the Loss Of Nuclear Service Water: The automatic actions (alignments) within the nuclear service water resulting from the actuation of ESFAS. (CFR 41.4/41.8/45.7)	3.6	1
000065 Loss of Instrument Air / 8					X		AA2.05, Ability to determine and interpret the following as they apply to the Loss of Instrument Air: When to commence plant shutdown if instrument air pressure is decreasing. (CFR 43.5/45.13)	3.4	1
W/E04 LOCA Outside Containment / 3	X						EK1.3, Knowledge of the operational implications of the following concepts as they apply to the LOCA Outside Containment: Annunciators and conditions indicating signals, and remedial actions associated with the LOCA Outside Containment. (CFR 41.8/41.10/45.3)	3.5	1
W/E11 Loss of Emergency Coolant Recirc. / 4					X		EA2.2 Ability to determine or interpret the following as they apply to Loss Of Emergency Coolant Recrculation: Adherence to appropriate procedures and operating within the limits of the facilities license/amendments. 43.5/45.13	3.4	1
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4									
K/A Category Totals:	3	2	3	3	4	3	**Group Point Total:**		18/6

Seabrook Station 2007 NRC Exam Tier 1/Group1 SRO

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO / SRO)							Form ES-401-2	
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					X		EA2.04, Ability to determine or interpret the following as they apply to a reactor trip: If reactor should be tripped but has not done so, manually trip the reactor and carry out actions in ATWS EOP. (CFR 41.7/45.5/45.6)	4.6	1
000008 Pressurizer Vapor Space Accident / 3									
000009 Small Break LOCA / 3									
000011 Large Break LOCA / 3					X		EA2.10, Ability to determine or interpret the following as they apply to a Large Break LOCA: Verification of adequate core cooling. (CFR 43.5/45.13)	4.7	1
000015/17 RCP Malfunctions / 4						X	2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation. (CFR: 43.5 / 45.12 / 45.13)	4.4	1
000022 Loss of Rx Coolant Makeup / 2									
000025 Loss of RHR System / 4									
000026 Loss of Component Cooling Water / 8									
000027 Pressurizer Pressure Control System Malfunction / 3						X	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
000029 ATWS / 1									
000038 Steam Gen. Tube Rupture / 3					X		EA2.15, Ability to determine and interpret the following as they apply to a SGTR: Pressure at which to maintain RCS during S/G cooldown. (CFR 43.5/45.13)	4.4	1
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4									
000054 (CE/E06) Loss of Main Feedwater / 4									
000055 Station Blackout / 6					X		EA2.03, Ability to detemine or interpret the following as they apply to a Station Blackout: Actions necessary to restore power. (CFR 43.5/45.13)	4.7	1
000056 Loss of Off-site Power / 6									
000057 Loss of Vital AC Inst. Bus / 6									
000058 Loss of DC Power / 6									

Seabrook Station 2007 NRC Exam Tier 1/Group1 SRO (Continued)									
000062 Loss of Nuclear Svc Water / 4									
000065 Loss of Instrument Air / 8									
W/E04 LOCA Outside Containment / 3									
W/E11 Loss of Emergency Coolant Recirc. / 4									
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4									
K/A Category Totals:					4	2	Group Point Total:		18/6

Seabrook Station 2007 NRC Exam Tier 1/Group 2 RO

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO / SRO)						Form ES-401-2	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1			K/A Topic(s)	IR	#
000001 Continuous Rod Withdrawal / 1									
000003 Dropped Control Rod / 1			X				AK3.04, Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod: Actions contained in the EOP for dropped control rod. (CFR 41.5/41.10/45.6/45.13)	3.8	1
000005 Inoperable/Stuck Control Rod / 1									
000024 Emergency Boration / 1									
000028 Pressurizer Level Malfunction / 2							AA2.03, Ability to determine and interpret the following as they apply to the Pressurizer Level Control Malfunction: Charging subsystem flow indicator and controller. (CFR 43.5/45.13)	2.8	1
000032 Loss of Source Range NI / 7									
000033 Loss of Intermediate Range NI / 7									
000036 (BW/A08) Fuel Handling Accident / 8									
000037 Steam Generator Tube Leak / 3									
000051 Loss of Condenser Vacuum / 4							AA2.02, Ability to determine and interpret the following as they apply to the Loss of Condenser Vacuum: Conditions requiring reactor and/or turbine trip. (CFR 43.5/45.13)	3.9	1
000059 Accidental Liquid RadWaste Rel. / 9									
000060 Accidental Gaseous Radwaste Rel. / 9									
000061 ARM System Alarms / 7									
000067 Plant Fire On-site / 8									
000068 (BW/A06) Control Room Evac. / 8									
000069 (W/E14) Loss of CTMT Integrity / 5									
000074 (W/E06&E07) Inad. Core Cooling / 4				X			EA1.3, Ability to operate and/or monitor the following as they apply to Degraded Core Cooling: Desired operating results during abnormal and emergency situations. (CFR 41.7/45.5/45.6)	3.7	1
000076 High Reactor Coolant Activity / 9							2.4.11 Knowledge of abnormal condition procedures. (CFR: 41.10 / 43.5 / 45.13)	3.4	1
W/EO1 & E02 Rediagnosis & SI Termination / 3									
W/E13 Steam Generator Over-pressure / 4									
W/E15 Containment Flooding / 5									

Seabrook Station 2007 NRC Exam Tier 1/Group 2 RO (Continued)

W/E16 High Containment Radiation / 9				X			**EA1.1, Ability to operate and/or monitor the following as they apply to High Containment Radiation:** **Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.** **(CFR 41.7/45.5/45.6)**	**3.1**	**1**
BW/A01 Plant Runback / 1									
BW/A02&A03 Loss of NNI-X/Y / 7									
BW/A04 Turbine Trip / 4									
BW/A05 Emergency Diesel Actuation / 6									
BW/A07 Flooding / 8									
BW/E03 Inadequate Subcooling Margin / 4									
BW/E08; W/E03 LOCA Cooldown - Depress. / 4			X				EK3.2, Knowledge of the reasons for the following responses as they apply to the LOCS Cooldown and Depressurization: Normal, abnormal, and emergency operating procedures associated with LOCA Cooldown and Depressurization. (CFR 41.5/41.10/45.6/45.13)	**3.4**	**1**
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4	X						**EK1.2, Knowledge of the operational implications of the following concepts as they apply to the Natural Circulation Cooldown:** **Normal, abnormal, and emergency operating procedures associated with Natural Circulation Cooldown.** **(CFR 41.8/41.10/45.3)**	**3.3**	**1**
BW/E13&E14 EOP Rules and Enclosures									
CE/A11; W/E08 RCS Overcooling - PTS / 4		X					**EK2.1, Knowledge of the interrelationships between the Pressurized Thermal Shock and the following:** **Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automati and manual features.** **(CFR 41.7/45.7)**	**3.4**	**1**
CE/A16 Excess RCS Leakage / 2									
CE/E09 Functional Recovery									
K/A Category Point Totals:	**1**	**1**	**2**	**2**			**Group Point Total:**		**9/4**

Seabrook Station 2007 NRC Exam Tier 1/Group 2 SRO

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO / SRO)							Form ES-401-2	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1			K/A Topic(s)	IR	#
000001 Continuous Rod Withdrawal / 1							AA2.05, Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal: Uncontrolled rod withdrawal, from available indications. (CFR 43.5/45.13)	4.6	1
000003 Dropped Control Rod / 1									
000005 Inoperable/Stuck Control Rod / 1									
000024 Emergency Boration / 1									
000028 Pressurizer Level Malfunction / 2									
000032 Loss of Source Range NI / 7									
000033 Loss of Intermediate Range NI / 7									
000036 (BW/A08) Fuel Handling Accident / 8							2.2.27, Knowledge of the refueling process. (CFR: 43.6 / 45.13)	3.5	1
000037 Steam Generator Tube Leak / 3									
000051 Loss of Condenser Vacuum / 4									
000059 Accidental Liquid RadWaste Rel. / 9									
000060 Accidental Gaseous Radwaste Rel. / 9									
000061 ARM System Alarms / 7									
000067 Plant Fire On-site / 8									
000068 (BW/A06) Control Room Evac. / 8							2.1.20 Ability to execute procedure steps. (CFR: 41.10 / 43.5 / 45.12)	4.2	1
000069 (W/E14) Loss of CTMT Integrity / 5									
000074 (W/E06&E07) Inad. Core Cooling / 4									
000076 High Reactor Coolant Activity / 9									
W/EO1 & E02 Rediagnosis & SI Termination / 3							EA2.2, Ability to determine and interpret the following as they apply to the SI Termiation: Adherence to appropriate procedures and operation within the limitations in the facilities license and amendments. (CFR 43.5/45.13)	4.0	1
W/E13 Steam Generator Over-pressure / 4									
W/E15 Containment Flooding / 5									
W/E16 High Containment Radiation / 9									
BW/A01 Plant Runback / 1									
BW/A02&A03 Loss of NNI-X/Y / 7									
BW/A04 Turbine Trip / 4									
BW/A05 Emergency Diesel Actuation / 6									
BW/A07 Flooding / 8									
BW/E03 Inadequate Subcooling Margin / 4									
BW/E08; W/E03 LOCA Cooldown - Depress. / 4									
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4									
BW/E13&E14 EOP Rules and Enclosures									

Seabrook Station 2007 NRC Exam Tier 1/Group 2 SRO (Continued)									
CE/A11; W/E08 RCS Overcooling - PTS / 4									
CE/A16 Excess RCS Leakage / 2									
CE/E09 Functional Recovery									
K/A Category Point Totals:					1	1	Group Point Total:		9/4

Seabrook Station 2007 NRC Exam Tier 2/Group 1 RO

ES-401	PWR Examination Outline Plant Systems - Tier 2/Group 1 (RO / SRO)											Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	:	A 3	A 4	G	K/A Topic(s)	IR	#
003 Reactor Coolant Pump	X											K1.04 Knowledge of the physical connections and/or cause effect relationships between the RCPS and the following systems: CVCS CFR 41.2 to 41.9/45.7 to 45.8	2.6	1
004 Chemical and Volume Control		X										K2.03 Knowledge of bus power supplies to the following: Charging Pumps 41.7	3.3	1
005 Residual Heat Removal			X									K3.01, Knowledge of the effect that a loss or malfunction of the RHRS will have on the following: RCS CFR 41.7/45.6	3.9	1
006 Emergency Core Cooling				X								K4.07, Knowledge of ECCS design features and/or interlocks which provide the following: Normal water supply for SIS CFR 41.7	3.4	1
007 Pressurizer Relief/Quench Tank				X								K4.01, Knowledge of the PRTS design features and/or interlocks which provide for the following: Quench tank cooling CFR 41.7	2.6	1
008 Component Cooling Water							X					A1.04, Ability to predict and/or monitor changes in parameters associated with operating the CCWS controls including: Surge Tank Level CFR 41.5/45.5	3.1	1
010 Pressurizer Pressure Control						X						K6.01, Knowledge of the effect of a loss or malfunction that the following will have on the PZR PCS:Pressure Detection Systems CFR 41.7/45.7	2.7	1
012 Reactor Protection	X											K1.03, Knowledge of the physical connections and/or cause effect relationships between the RPS and the following systems: CRDS CFR 41.2 to 41.9/45.7 to 45.8	3.7	1
013 Engineered Safety Features Actuation									X			A3.01 Ability to monitor automatic operation of the ESFAS including: Input channels and logic. 41.5/43.5/45.3/45.13	3.7	1
022 Containment Cooling										X		A4.05, Ability to manually operate and/or monitor in the control room: Containment readings of temperature, pressure, and humidity. CFR 41.7/45.5 to 45.8	3.8	1

025 Ice Condenser														
026 Containment Spray											X	G 2.4.2, Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions. CFR: 41.7 / 45.7 / 45.8	**3.9**	**1**
039 Main and Reheat Steam										X		A4.07, Ability to manually operate or monitor in the control room: Steam dump valves CFR 41.7/45.5 to 45.8	**2.8**	**1**
059 Main Feedwater									X			A3.02, Ability to monitor automatic operation of the MFW, including: Programmed levels of the S/G. CFR 41.7/45.5	**2.9**	**1**
061 Auxiliary/Emergency Feedwater								X				A2.07, Ability to predict the impacts of the following malfunctions or operations on the AFW, and based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Air or MOV failure. 41.5/43.5/45.3/45.13	**3.4**	**1**
062 AC Electrical Distribution							X					A1.01, Ability to predict and/or monitor changes in parameters associated with operating the ac distribution controls, including: Significance of D/G load limits CFR 41.5/45.5	**3.4**	**1**
063 DC Electrical Distribution			X									K3.02, Knowledge of the effect that a loss or malfunction of the DC electrical system will have on the following: Components using DC control power CFR 41.7/45.6	**3.5**	**1**
064 Emergency Diesel Generator				X								K4.02, Knowledge of the ED/G system design features and/or interlocks which provide for the following: Trips for ED/G while operating (normal or emergency) CFR 41.7	**3.9**	**1**
073 Process Radiation Monitoring	X											K1.01 Knowledge of the physical connections and/or cause-effect relationships between the PRM system and the following systems: Those systems served by PRM's. 41.2 to 41.9/45.7 to 45.8	**3.6**	**1**
076 Service Water	X											K1.16 Knowledge of the physical connections and/or cause-effect relationships between the SWS and the following systems: ESF CFR 41.2 to 41.9/45.7 to 45.8	**3.6**	**1**
078 Instrument Air			X									KA3.01 Ability to monitor automatic operation of the IAS, including: Air Pressure CFR 41.2 to 41.9/45.7 to 45.8	**3.1**	**1**
103 Containment									X			103A3.01 Ability to monitor automatic operation of the containment system, including:	**3.9**	**1**

											Containment isolation. CFR 41.7/45.5		
Seabrook Station 2007 NRC Exam Tier 2/Group 1 RO (Continued)													
003 Reactor Coolant Pump						X					K6.04 Knowledge of the effect of a loss or malfunction one of the following will have on the RCPS: Containment isolation valves affecting RCP operation. 41.7/45.5	**2.8**	**1**
004 Chemical and Volume Control					X						004K5.19 Knowledge of the operational implications of the following concepts as they apply to the CVCS: Concept of SDM CFR 41.5/45.7	**3.5**	**1**
005 Residual Heat Removal										X	G 2.1.28 Knowledge of the purpose and function of major system components and controls. CFR: 41.7	**3.2**	**1**
010 Pressurizer Pressure Control							X				010A1.06, Ability to predict and/or monitor changes in parameters associated with operating the PZR PCS controls including: RCS heatup and cooldown effect on pressure. CFR 41.5/45.5	**3.1**	**1**
012 Reactor Protection											012A2.05 Ability to predict the impacts of the following malfunctions or operations on the RPS, and based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Faulty or erratic operation of detectors and function generators. 41.5/43.5/45.3/45.5	**3.1**	**1**
059 Main Feedwater			X								059K3.04, Knowledge of the effect that a loss or malfunction of the MFW will have on the following: RCS CFR 41.7/45.6	**3.6**	**1**
061 Auxiliary/Emergency Feedwater				X							061K4.04, Knowledge of the AFW design features and/or interlocks which provide for the following: Prevention of AFW runout by limiting AFW flow. CFR 41.7	**3.1**	**1**
K/A Category Point Totals:	**4**	**1**	**4**	**4**	**1**	**2**	**3**		**3**	**2**	**2**	**Group Point Total:**	**28/5**

Seabrook Station 2007 NRC Exam Tier 2/Group 1 SRO

ES-401	PWR Examination Outline Plant Systems - Tier 2/Group 1 (RO / SRO)												Form ES-401-2	
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	[illegible]	A 3	A 4	G	K/A Topic(s)	IR	#
003 Reactor Coolant Pump														
004 Chemical and Volume Control												A2.07, Ability to predict the impacts of the following malfunctions or operations on the CVCS, and based on these predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations. Isolation of Letdown/Makeup (CFR 41.5/43.5/45.3/45.5)	3.7	1
005 Residual Heat Removal														
006 Emergency Core Cooling											X	2.1.12 Ability to apply technical specifications for a system. (CFR: 43.2 / 43.5 / 45.3) IMPORTANCE RO 2.9 SRO 4.0	4.0	1
007 Pressurizer Relief/Quench Tank														
008 Component Cooling Water														
010 Pressurizer Pressure Control														
012 Reactor Protection														
013 Engineered Safety Features Actuation														
022 Containment Cooling														
025 Ice Condenser														
026 Containment Spray														
039 Main and Reheat Steam														
059 Main Feedwater														
061 Auxiliary/Emergency Feedwater											X	2.1.20 Ability to execute procedure steps. CFR: 41.10/43.5/45.12	4.2	1
062 AC Electrical Distribution											X	2.1.28 Knowledge of the purpose and function of major system components and controls. (CFR: 41.7)	3.3	1
063 DC Electrical Distribution														
064 Emergency Diesel Generator												A2.02, Ability to predict the impacts of the following malfunctions or operations on the ED/G system: Load, VARS, pressure on air compressor, speed droop, frequency, voltage, fuel oil level, temperatures. (CFR 41.5/43.5/45.3/45.13)	2.9	1
073 Process Radiation Monitoring														

Seabrook Station 2007 NRC Exam Tier 2/Group 1 SRO (Continued)

076 Service Water														
078 Instrument Air														
103 Containment														
K/A Category Point Totals:								4			3	Group Point Total:		28/5

Seabrook Station 2007 NRC Exam Tier 2/Group 2 RO

ES-401	PWR Examination Outline Plant Systems - Tier 2/Group 2 (RO / SRO)											Form ES-401-2		
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	X											001K1.05 Knowledge of the physical connections and/or cause-effect relationships between the CRDS and the following: NIS and RPS	4.5	1
002 Reactor Coolant	X											002K1.09, Knowledge of the physical conection and/or cause and effect relationships between the RCS and the following: PZR	4.1	1
011 Pressurizer Level Control		X										011K2.02, Knowledge of bus power supplies to the following: PZR Heaters	3.1	1
014 Rod Position Indication														
015 Nuclear Instrumentation			X									015K3.01, Knowledge of the effect that a loss or malfunction of the NIS will have on the following: RPS	3.9	1
016 Non-nuclear Instrumentation														
017 In-core Temperature Monitor				X								017K4.02, Knowledge of ITM system design features and/or interlocks which provide for the following: Sensing and determination of location core hot spots.	3.1	1
027 Containment Iodine Removal														
028 Hydrogen Recombiner and Purge Control														
029 Containment Purge														
033 Spent Fuel Pool Cooling														
034 Fuel Handling Equipment														
035 Steam Generator					X							035K5.03, Knowledge of operational implications of the following concepts as they apply to the S/G's: Shrink and swell concepts	2.8	1
041 Steam Dump/Turbine Bypass Control						X						041K6.03, Knowledge of the effect of a loss or malfunction that the following will have on the SDS: Controller and positioners, including ICS, S/G, CRDS	2.7	1
045 Main Turbine Generator							X					045A1.05, Ability to predict and/or monitor changes in parameters associated with operating the MT/G system controls including: Expected response of primary	2.8	1

											system parameters following T/G trip.		
055 Condenser Air Removal													
056 Condensate											056A2.04, Ability to predict the impacts of the following malfunctions or operations on the Condensate System: Loss of Condensate pumps	**2.6**	**1**
068 Liquid Radwaste													
071 Waste Gas Disposal													
072 Area Radiation Monitoring													
075 Circulating Water											2.1.32 Ability to explain and apply all system limits and precautions.	**3.4**	
079 Station Air													
086 Fire Protection													
K/A Category Point Totals:	**2**	**1**	**1**	**1**	**1**	**1**	**1**		**0**	**0**	**Group Point Total:**		**10/3**

Seabrook Station 2007 NRC Exam Tier 2/Group 2 SRO

ES-401	PWR Examination Outline Plant Systems - Tier 2/Group 2 (RO / SRO)											Form ES-401-2		
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														
002 Reactor Coolant											✓	2.2.25 Knowledge of basis in Tech. Specs for LCOs and safety limits	3.7	1
011 Pressurizer Level Control														
014 Rod Position Indication														
015 Nuclear Instrumentation														
016 Non-nuclear Instrumentation														
017 In-core Temperature Monitor														
027 Containment Iodine Removal														
028 Hydrogen Recombiner and Purge Control														
029 Containment Purge														
033 Spent Fuel Pool Cooling								✓				A2.03, Ability to predict the impacts of the following malfunctions or operations on the Spent Fuel Pool Cooling System and 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								✓				034A2.01, Ability to predict impacts of the following malfunctions on the FHS and based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Dropped fuel element. 55.43	4.4	
035 Steam Generator														
041 Steam Dump/Turbine Bypass Control														
045 Main Turbine Generator														
055 Condenser Air Removal														
056 Condensate														
068 Liquid Radwaste											✓	2.3.6, Knowledge of the requirements for reviewing and approving release permits. (CFR: 43.4 / 45.10)	3.1	1
071 Waste Gas Disposal														

072 Area Radiation Monitoring													
075 Circulating Water													
079 Station Air													
086 Fire Protection													
Seabrook Station 2007 NRC Exam Tier 2/Group 2 SRO (Continued)													
K/A Category Point Totals:											Group Point Total:		10/3

Seabrook Station 2007 NRC Exam Tier 3 RO

Facility:		Date of Exam:				
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.1	G 2.1.1 Knowledge of conduct of operations requirements. (CFR: 41.10 / 45.13)	3.7	1		
	2.1.11	G 2.1.11 Knowledge of less than one hour technical specification action statements for systems. (CFR: 43.2 / 45.13)	3.0	1		
	2.1.28	2.1.28 Knowledge of the purpose and function of major system components and controls. (CFR: 41.7)	3.2	1		
	2.1.33	2.1.33 Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications. (CFR: 43.2 / 43.3 / 45.3)	3.4	1		
	2.1.					
	2.1.					
	Subtotal			4		
2. Equipment Control	2.2.13	2.2.13 Knowledge of tagging and clearance procedures. (CFR: 41.10 / 45.13)	3.6	1		
	2.2.22	2.2.22 Knowledge of limiting conditions for operations and safety limits. (CFR: 43.2 / 45.2)	3.4	1		
	2.2.					
	2.2.					
	2.2.					
	2.2.					
	Subtotal			2		

Seabrook Station 2007 NRC Exam Tier 3 RO (Continued)						
3. Radiation Control	2.3.1	2.3.1 Knowledge of 10 CFR: 20 and related facility radiation control requirements. (CFR: 41.12 / 43.4. 45.9 / 45.10)	2.6	1		
	2.3.4	2.3.4 Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized. (CFR: 43.4 / 45.10)	2.5	1		
	2.3.					
	2.3.					
	2.3.					
	2.3.					
	Subtotal			2		
4. Emergency Procedures / Plan	2.4.27	2.4.27 Knowledge of fire in the plant procedure. (CFR: 41.10 / 43.5 / 45.13)	3.0	1		
	2.4.49	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		
	2.4.					
	2.4.					
	2.4.					
	2.4.					
	Subtotal			2		
Tier 3 Point Total				10		

ES-401, Rev. 9 Generic Knowledge and Abilities Outline (Tier 3) Form ES-401-3

Seabrook Station 2007 NRC Exam Tier 3 SRO

Facility:		Date of Exam:				
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.4	2.1.4 Knowledge of shift staffing requirements. (CFR: 41.10 / 43.2)			3.4	1
	2.1.10	2.1.10 Knowledge of conditions and limitations in the facility license. (CFR: 43.1 / 45.13)			3.9	1
	2.1.					
	2.1.					
	2.1.					
	2.1.					
	Subtotal					2
2. Equipment Control	2.2.21	2.2.21 Knowledge of pre- and post-maintenance operability requirements. (CFR: 43.2)			3.5	1
	2.2.25	2.2.25 Knowledge of bases in technical specifications for limiting conditions for operations and safety limits. (CFR: 43.2)			3.7	1
	2.2.					
	2.2.					
	2.2.					
	2.2.					
	Subtotal					2
3. Radiation Control	2.3.4	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.					
	2.3.					
	Subtotal					1

Seabrook Station 2007 NRC Exam Tier 3 SRO (Continued)						
4. Emergency Procedures / Plan	2.4.21	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
	2.4.38	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.					
	2.4.					
	2.4.					
	2.4.					
	Subtotal					2
Tier 3 Point Total						7

Tier / Group	Randomly Selected K/A	Reason for Rejection
1/1	008 AK1.01	Original proposed exam question was reviewed by Lead NRC Examiner and deemed to be "fundamentals based". The examiner recommended randomly selecting a different K/A from the same category (008). A new ramdomly selected K/A, 008 AK3.03 has been selected, and an associated new exam question has been submitted.
1/1	E11 EA2.1	Original proposed exam question was reviewed by Lead NRC Examiner and deemed to be "too similar to SIMJPM09. The examiner recommended randomly selecting a different K/A from the same category (E11). A new ramdomly selected K/A, E11 EA2.2 has been selected and an associated new exam question has been submitted.
2/1	003 K1.02	Original proposed question was reviewed by Lead NRC Examiner and deemed to be a K/A mismatch. Multiple attempts to replace the question under the same K/A resulted in unwanted duplication of material within the written exam. A new randomly selected K/A, K1.04 from the same category (003, RCPS) and K number (K1) has been selected and an associated new exam question has been submitted.
2/1	012, Reactor Protection 2.1.27 Knowledge of system purpose and or function.	Original proposed KA was discussed with NRC Lead Examiner per teleconference. The Examiner suggested that the KA would be difficult to apply to an SRO level question. A new randomly selected KA, 061, Auxiliary Feedwater, 2.1.20 Ability to execute procedure steps. (CFR: 41.10 / 43.5 / 45.12)
2/2	033, A2.03	Original question associated with 033, A2.03 deemed to simple by Lead NRC Examiner. Due to difficulty creating an appropriate SRO level question for the KA new KA 034, A2.01 was randomly sampled. A new question has been submitted.

Seabrook Station 2007 NRC Exam Admin Topics-SRO

Facility: **Seabrook** Date of Examination: **July 9,2007**

Examination Level: RO [ ] SRO [X] Operating Test Number: _____

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R,N	2.1.6 Ability to supervise and assume a management role during plant transients and upset conditions. Activity- Reporting Requirements For Onsite Event
Conduct of Operations	R,M	2.1.12 Ability to apply technical specifications for a system. Activity- Technical Specifications and Allowed Outage Time.
Equipment Control	R,M	2.2.12 Knowledge of surveillance procedures. Activity-Verify RCS Steady State Leak Rate Determination.
Radiation Control	P,R,	2.3.10 Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure. Activity-Verifiy a Liquid Effluent Waste Sample Request.
Emergency Plan	S or R,N	2.4.40 Knowledge of the SRO's responsibilities in emergency plan implementation. Activity-Emergency Plan Classification and Notification

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

* Type Codes & Criteria:
(C)ontrol room, (S)imulator, or Class(R)oom
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1; randomly selected)

Seabrook Station 2007 NRC Exam Admin Topics-RO

Facility: **Seabrook** Date of Examination: **July 9,2007**

Examination Level: RO [X] SRO [ ] Operating Test Number: _____

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R,M	**2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.** **Activity- Perform RCS Steady State Leakrate Calculations.**
Conduct of Operations	R,M	**2.1.25 Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data.** **Activity- Calculate Shutdown Margin in Mode 2 With Dropped Rod.**
Equipment Control	R,M	**2.2.1 Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.** **Activity- Spent Fuel Pool Blended Makeup Calculation.**
Radiation Control	R,D,P	**2.3.10 Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.** **Activity- Verify COP Exhaust RM Setpoints Prior to Gaseous Effluent Release.**
Emergency Plan		

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

* Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1; randomly selected)

Seabrook Station 2007 NRC Exam JPM-SROI

Facility: **Seabrook** Date of Examination: **July 9, 2007**

Exam Level: RO ☐ SRO-I ☒ SRO-U ☐ Operating Test No.: _____

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a. Steam Generator System/Steam Header Pressure PT-507 Fails Low	S,N	4
b. Emergency Diesel Generators/Emergency Trip of DG 1B	A,S,D	6
c. Nuclear Instrumentation System/Power Range NI Failure	S,D,E	7
d. Containment Purge System/Placing COP in Service	S,N	8
e. Reactor Coolant System/Depressurize RCS Using Aux Spray (E-3)	A,S,E,D	2
f. Containment Spray System/ Transfer To Cold Leg Recirc (CBS-V-2 Fails)	A,S,E,N	5
g. Emergency Core Cooling System/Perform SI Termination/ Reduction	A,S,E,M	3
h.		
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. AC Electrical Distribution/Transfer Vital Instrument Bus	L,D	6
j. Component Cooling Water System/Align Alternate Cooling To CCP Lube Oil Cooler	D,E,R	8
k. Chemical and Volume Control System/Local Rapid Manual Boration	E,L,D,R	1

@	All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Seabrook Station 2007 NRC Exam JPM-SROU

Facility: **Seabrook** Date of Examination: **July 9, 2007**

Exam Level: RO ☐ SRO-I ☐ SRO-U ☒ Operating Test No.: _____

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a. Containment Spray System/ Transfer To Cold Leg Recirc (CBS-V-2 Fails)	A,S,E,N	5
b. Emergency Diesel Generators/Emergency Trip of DG 1B	A,S,D	6
c. Reactor Coolant System/Depressurize RCS Using Aux Spray (E-3)	A,S,E,D	2
d.		
e.		
f.		
g.		
h.		
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. AC Electrical Distribution/Transfer Vital Instrument Bus	L,D	6
j. Component Cooling Water System/Align Alternate Cooling To CCP Lube Oil Cooler	D,E,R	8
k.		

@ All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Seabrook Station 2007 NRC Exam JPM-RO

Facility: **Seabrook** Date of Examination: **July 9, 2007**

Exam Level: RO [X] SRO-I [ ] SRO-U [ ] Operating Test No.: _____

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a. Steam Generator System/Steam Header Pressure PT-507 Fails Low	E,N	4
b. Emergency Diesel Generators/Emergency Trip of DG 1B	S,A,D	6
c. Nuclear Instrumentation System/Power Range NI Failure	S,D,E	7
d. Containment Purge System/Placing COP in Service	S,N	8
e. Reactor Coolant System/Depressurize RCS Using Aux Spray (E-3)	A,S,E,D	2
f. Containment Spray System/ Transfer To Cold Leg Recirc (Loss of Recirculation	A,S,E,N	5
g. Emergency Core Cooling System/Perform SI Termination/ Reduction	A,S,E,M	3
h. Chemical and Volume Control System/Shifting From CCP to PDP	S,D	1
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. AC Electrical Distribution/Transfer Vital Instrument Bus	L,D	6
j. Component Cooling Water System/Align Alternate Cooling To CCP Lube Oil Cooler	D,E,R	8
k. Chemical and Volume Control System/Local Rapid Manual Boration	E,L,D,R	1

@ All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U

(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (L)ow-Power / Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (R)CA (S)imulator	4-6 / 4-6 / 2-3 ≤ 9 / ≤ 8 / ≤ 4 ≥ 1 / ≥ 1 / ≥ 1 ≥ 1 / ≥ 1 / ≥ 1 ≥ 2 / ≥ 2 / ≥ 1 ≤ 3 / ≤ 3 / ≤ 2 (randomly selected) ≥ 1 / ≥ 1 / ≥ 1

Facility: Seabrook Station Scenario No.: 4 (D) Op-Test No.: _____

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: Plant is at 30% power. Power decrease due to 'D' Atmospheric Steam Dump leaking.

Turnover: Plant at 30% power. Continue power decrease at 5%/hr. The 'D' ASDV is leaking and isolated.

Event No.	Malf. No.	Event Type*	Event Description
1		N-ATC N-BOP N-SRO R-SRO R-ATC R-BOP	Power Decrease
2	PtFWPT 505	I-BOP I-SRO I-ATC R-ATC R-SRO	Tavg/Tref mismatch failure.
3	MfRC01 6	C-SRO C-ATC C-BOP	D RCP seal failure.
4	MfSG00 2D	C-SRO C-ATC C-BOP M-SRO M-ATC M-BOP	SG Tube Rupture @ 300 gpm.
5	rvMSAV R50	M-SRO M-ATC R-SRO R-ATC R-BOP	D SG Safety Valve leaks past seat.

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

Facility: Seabrook Station Scenario No.: 2 (B) Op-Test No.: _____

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: Middle of Life. 75% power after downpower at 20%/hr.

Turnover: Continue power increase @ 10%/hr. SUFP is aligned to Bus 4 for breaker testing of Bus 5 SUFP breaker.

Event No.	Malf. No.	Event Type*	Event Description
1		R-SRO N-ATC N-BOP R-ATC R-BOP	Power Increase, Reactivity Change
2	CfRCLT 459	I-SRO I-ATC C-ATC	Controlling channel of PZR level fails low.
3	MfCS01 6	C-SRO C-ATC	Charging pump 2A overcurrent trip.
4	FWP32 B	C-SRO C-BOP	'B' Main Feed Pump shaft shear.
5	MFRPS 001	M-SRO M-ATC R-SRO R-ATC R-BOP	Failure of reactor to trip.
6	RfMSV1 29	C-BOP C-SRO	Turbine Driven Emergency Feedwater Pump trip.
7	MfED03 8	M-SRO M-ATC M-BOP	Loss of Offsite Power FR-H.1.

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

Facility: Seabrook Station Scenario No.: 1 (A) Op-Test No.: _____

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: Plant is at 75% power. Middle of Life. Xenon is building in after a 20% per hour power decrease. Boron concentration is 1171 ppm.

Turnover: Raise power to 100% @ 10%/hr.

Event No.	Malf. No.	Event Type*	Event Description
1		R-SRO N-SRO R-ATC R-BOP N-ATC N-BOP	Power Increase, Reactivity Change
2	CtFWFK 530 LtFWLT 553	I-BOP C-BOP C-SRO I-SRO	'C' FW Reg Valve Fails to 100% output and controlling channel of SG level fails low.
3	PtRCPT 455	I-ATC I-SRO C-ATC C-SRO	Controlling PZR pressure instrument fails high.
4	MfRC04 8C	C-SRO C-ATC N-SRO R-SRO R-BOP R-ATC	RCS Leak at 30 GPM to containment. Shutdown portion of RCS leak abnormal "" "" ""
5	MFR005 2	R-SRO R-ATC	Pressurizer manway failure.

		M-SRO M-ATC M-BOP	
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			