

Facility: South Texas Project, Units 1 and 2 (RO, Rev. 1)														Date of Exam: May 4, 2016			
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	3	3	3	N/A			3	3	N/A			3	18			
	2	1	2	1	N/A			2	1	N/A			2	9			
	Tier Totals	4	5	4	N/A			5	4	N/A			5	27			
2. Plant Systems	1	2	3	2	3	3	2	3	2	3	3	2	28				
	2	1	1	1	1	1	0	1	1	1	1	1	10				
	Tier Totals	3	4	3	4	4	2	4	3	4	4	3	38				
3. Generic Knowledge and Abilities Categories				1	2	3	4	10									
				2	3	3	2										

- Note:
- 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). [\(One Tier 3 Radiation Control K/A is allowed if the K/A is replaced by a K/A from another Tier 3 Category\).](#)
 - 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.
 - Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted with justification; operationally important, site-specific systems/evolutions that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.
 - 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.
 - 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.
 - Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
 - 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. Refer to Section D.1.b of ES-401 for the applicable K/As.
 - 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 a category 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.
 - 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.
- G* Generic K/As

ES-401		PWR Examination Outline						Form ES-401-2	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO / SRO)									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G*	K/A Topic(s)	IR	#
000055 Station Blackout / 6									
000056 Loss of Off-site Power / 6									
000057 Loss of Vital AC Inst. Bus / 6						X	2.4.3 - Ability to identify post-accident instrumentation. (CFR: 41.6 / 45.4)	3.7	12
000058 Loss of DC Power / 6	X						AK1.01 - Knowledge of the operational implications of the following concepts as they apply to Loss of DC Power: Battery charger equipment and instrumentation (CFR 41.8 / 41.10 / 45.3)	2.8	13
000062 Loss of Nuclear Svc Water / 4									
000065 Loss of Instrument Air / 8					X		AA2.06 - Ability to determine and interpret the following as they apply to the Loss of Instrument Air: When to trip reactor if instrument air pressure is de-creasing (CFR: 43.5 / 45.13)	3.6	14
W/E04 LOCA Outside Containment / 3	X						EK1.2 - Knowledge of the operational implications of the following concepts as they apply to the (LOCA Outside Containment): Normal, abnormal and emergency operating procedures associated with (LOCA Outside Containment). (CFR: 41.8 / 41.10, 45.3)	3.5	15
W/E11 Loss of Emergency Coolant Recirc. / 4				X			EA1.2 - Ability to operate and / or monitor the following as they apply to the (Loss of Emergency Coolant Recirculation): Operating behavior characteristics of the facility. (CFR: 41.7 / 45.5 / 45.6)	3.5	16
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4			X				EK3.1 - Knowledge of the reasons for the following responses as they apply to the (Loss of Secondary Heat Sink): Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics. (CFR: 41.5 / 41.10, 45.6, 45.13)	3.4	17
000077 Generator Voltage and Electric Grid Disturbances / 6					X		AA2.05 - Ability to determine and interpret the following as they apply to Generator Voltage and Electric Grid Disturbances: Operational status of offsite circuit (CFR: 41.5 and 43.5 / 45.5, 45.7, and 45.8)	3.2	18
K/A Category Totals:	3	3	3	3	3	3	Group Point Total:		18

ES-401		PWR Examination Outline						Form ES-401-2	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO / SRO)									
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									
000003 Dropped Control Rod / 1	x						AK1.19 - Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod: Differential rod worth (CFR 41.8 / 41.10 / 45.3)	2.8	19
000005 Inoperable/Stuck Control Rod / 1				x			AA1.05 - Ability to operate and / or monitor the following as they apply to the Inoperable / Stuck Control Rod: RPI (CFR 41.7 / 45.5 / 45.6)	3.4	20
000024 Emergency Boration / 1									
000028 Pressurizer Level Malfunction / 2									
000032 Loss of Source Range NI / 7		x					AK2.01 - Knowledge of the interrelations between the Loss of Source Range Nuclear Instrumentation and the following: Power supplies, including proper switch positions (CFR 41.7 / 45.7)	2.7	21
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									
000059 Accidental Liquid Radwaste Rel. / 9									
000060 Accidental Gaseous Radwaste Rel. / 9									
000061 ARM System Alarms / 7						x	2.4.31 - Knowledge of annunciator alarms, indications, or response procedures. (CFR: 41.10 / 45.3)	4.2	22
000067 Plant Fire On-site / 8									
000068 (BW/A06) Control Room Evac. / 8			x				AK3.02 - Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation: System response to turbine trip (CFR 41.5, 41.10 / 45.6 / 45.13)	3.7	23
000069 (W/E14) Loss of CTMT Integrity / 5									
000074 (W/E06&E07) Inad. Core Cooling / 4		x					EK2.08 - Knowledge of the interrelations between the and the following Inadequate Core Cooling: Sensors and detectors (CFR 41.7 / 45.7)	2.5	24
000076 High Reactor Coolant Activity / 9						x	2.2.44 - Ability to interpret control room indications to verify the status of a system, and understand how operator actions and directives affect plant and system conditions. (CFR: 41.5 / 43.5 / 45.12)	4.2	25

Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO / SRO)

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G*	K/A Topic(s)	IR	#
W/E01 & E02 Rediagnosis & SI Termination / 3					X		E01, EA2.1 - Ability to determine and interpret the following as they apply to the (Reactor Trip or Safety Injection Rediagnosis): Facility conditions and selection of appropriate procedures during abnormal and emergency operations (CFR: 43.5 / 45.13)	3.2	26
W/E13 Steam Generator Over-pressure / 4									
W/E15 Containment Flooding / 5									
W/E16 High Containment Radiation / 9				X			EA1.3 - Ability to operate and / or monitor the following as they apply to the (High Containment Radiation): Desired operating results during abnormal and emergency situations. (CFR: 41.7 / 45.5 / 45.6)	2.9	27
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									
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	2	1	2	2	Group Point Total:		9

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 2	A 3	A 4	G*	K/A Topic(s)	IR	#
003 Reactor Coolant Pump	X											K1.08 - Knowledge of the physical connections and/or cause-effect relationships between the RCPS and the following systems: Containment isolation (CFR: 41.2 to 41.9 / 45.7 to 45.8)	2.7	28
					X							K5.02 - Knowledge of the operational implications of the following concepts as they apply to the RCPS: Effects of RCP coastdown on RCS parameters (CFR: 41.5 / 45.7)	2.8	29
004 Chemical and Volume Control		X										K2.04 - Knowledge of bus power supplies to the following: BWST tank heaters (CFR: 41.7)	2.6	30
									X			A4.14 - Ability to manually operate and/or monitor in the control room: Ion exchangers and demineralizers (CFR: 41/7 / 45.5 to 45.8)	2.8	31
005 Residual Heat Removal								X				A2.01 - Ability to (a) predict the impacts of the following malfunctions or operations on the RHRS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure modes for pressure, flow, pump motor amps, motor temperature, and tank level instrumentation (CFR: 41.5 / 43.5 / 45.3 / 45.13)	2.7	32
006 Emergency Core Cooling						X						K6.02 - Knowledge of the effect of a loss or malfunction on the following will have on the ECCS: Core flood tanks (accumulators) (CFR: 41.7 / 45.7)	3.4	33
007 Pressurizer Relief/Quench Tank					X							K5.02 - Knowledge of the operational implications of the following concepts as they apply to PRTS: Method of forming a steam bubble in the PZR (CFR: 41.5 / 45.7)	3.1	34

008 Component Cooling Water												X	2.4.50 - Ability to verify system alarm setpoints and operate controls identified in the alarm response manual. (CFR: 41.10 / 43.5 / 45.3)	4.0	35
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 2	A 3	A 4	G*	K/A Topic(s)	IR	#	
010 Pressurizer Pressure Control									X			A3.01 - Ability to monitor automatic operation of the PZR PCS, including: PRT temperature and pressure during PORV testing (CFR: 41.7 / 45.5) K4.02 - Knowledge of PZR PCS design feature(s) and/or interlock(s) which provide for the following: Prevention of uncovering PZR heaters. (CFR: 41.7)	3.0	36	
				X									3.0	37	
012 Reactor Protection							X					A1.01 - Ability to predict and/or monitor Changes in parameters (to prevent exceeding design limits) associated with operating the RPS controls including: Trip setpoint adjustment (CFR: 41.5 / 45.5)	2.9	38	
013 Engineered Safety Features Actuation	X											K1.07 - Knowledge of the physical connections and/or cause effect relationships between the ESFAS and the following systems: AFW System (CFR: 41.2 to 41.9 / 45.7 to 45.8)	4.1	39	
								X				A2.03 - Ability to (a) predict the impacts of the following malfunctions or operations on the ESFAS; and (b) based Ability on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations; Rapid depressurization (CFR: 41.5 / 43.5 / 45.3 / 45.13)	4.4	40	
022 Containment Cooling										X		A4.04 - Ability to manually operate and/or monitor in the control room: Valves in the CCS (CFR: 41.7 / 45.5 to 45.8)	3.1	41	
025 Ice Condenser												Not part of the plant design			
026 Containment Spray									X			A3.01 - Ability to monitor automatic operation of the CSS, including: Pump starts and correct MOV positioning (CFR: 41.7 / 45.5)	4.3	42	

039 Main and Reheat Steam					X									K5.01 - Knowledge of the operational implications of the following concepts as they apply to the MRSS: Definition and causes of steam/water hammer (CFR: 441.5 / 45.7)	2.9	43
059 Main Feedwater				X										K4.13 - Knowledge of MFW design feature(s) and/or interlock(s) which provide for the following: Feedwater fill for S/G upon loss of RCPs (CFR: 41.7)	2.9	44
<p style="text-align: center;">ES-401 PWR Examination Outline Form ES-401-2</p> <p style="text-align: center;">Plant Systems - Tier 2/Group 1 (RO / SRO)</p>																
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	#	
061 Auxiliary/Emergency Feedwater		X											K2.01 - Knowledge of bus power supplies to the following: AFW system MOVs (CFR: 41.7)	3.2	45	
				X									K4.07 - Knowledge of AFW design feature(s) and/or interlock(s) which provide for the following: Turbine trip, including overspeed (CFR: 41.7)	3.1	46	
062 AC Electrical Distribution							X						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)	3.4	47	
063 DC Electrical Distribution									X				A4.03 - Ability to manually operate and/or monitor in the control room: Battery discharge rate (CFR: 41.7 / 45.5 to 45.8)	3.0	48	
064 Emergency Diesel Generator			X										K3.03 - Knowledge of the effect that a loss or malfunction of the ED/G system will have on the following: ED/G (manual loads) (CFR: 41.7 / 45.6)	3.6	49	
						X							K6.07 - Knowledge of the effect of a loss or malfunction of the following will have on the ED/G system: Air receivers (CFR: 41.7 / 45.7)	2.7	50	
073 Process Radiation Monitoring							X						A1.01 - Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PRM system controls including: Radiation levels (CFR: 41.5 / 45.7)	3.2	51	

076 Service Water											X		A3.02 - Ability to monitor automatic operation of the SWS, including: Emergency heat loads (CFR: 41.7 / 45.5)	3.7	52
078 Instrument Air		X											K2.02 - Knowledge of bus power supplies to the following: Emergency air compressor (CFR: 41.7)	3.3	53
<p>ES-401 Form ES-401-2</p> <p style="text-align: center;">PWR Examination Outline Plant Systems - Tier 2/Group 1 (RO / SRO)</p>															
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	#	
103 Containment			X									K3.02 - Knowledge of the effect that a loss or malfunction of the containment system will have on the following: Loss of containment integrity under normal operations (CFR: 41.7 / 45.6)	3.8	54	
											X	2.1.31 - Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup. (CFR: 41.10 / 45.12)	4.6	55	
K/A Category Point Totals:	2	3	2	3	3	2	3	2	3	3	2	Group Point Total:		28	

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	#
045 Main Turbine Generator				X								K4.01 - Knowledge of MT/G system design feature(s) and/or interlock(s) which provide for the following: Programmed controller for relationship between steam pressure at T/G inlet (impulse, first stage) and plant power level (CFR: 41.7)	2.7	63
055 Condenser Air Removal														
056 Condensate														
068 Liquid Radwaste														
071 Waste Gas Disposal														
072 Area Radiation Monitoring											X	2.1.19 - Ability to use plant computers to evaluate system or component status. (CFR: 41.10 / 45.12)	3.9	64
075 Circulating Water														
079 Station Air														
086 Fire Protection					X							K5.03 - Knowledge of the operational implication of the following concepts as they apply to the Fire Protection System: Effect of water spray on electrical components (CFR: 41.5 / 45.7)	3.1	65
K/A Category Point Totals:	1	1	1	1	1	0	1	1	1	1	1	Group Point Total:		10

Facility: South Texas Project, Units 1 and 2 (RO, Rev. 0) Date of Exam: May 4, 2016						
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.25	Ability to interpret reference materials, such as graphs, curves, tables, etc. (CFR: 41.10 / 43.5 / 45.12)	3.9	66		
	2.1.40	Knowledge of refueling administrative requirements. (CFR: 41.10 / 43.5 / 45.13)	2.8	67		
	2.1.					
	2.1.					
	2.1.					
	Subtotal				2	
2. Equipment Control	2.2.3	Knowledge of the design, procedural, and operational differences between units. (CFR: 41.5 / 41.6 / 41.7 / 41.10 / 45.12)	3.8	68		
	2.2.36	Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations. (CFR: 41.10 / 43.2 / 45.13)	3.1	69		
	2.2.39	Knowledge of less than or equal to one hour Technical Specification action statements for systems. (CFR: 41.7 / 41.10 / 43.2 / 45.13)	3.9	70		
	2.2.					
	2.2.					
	Subtotal				3	
3. Radiation Control	2.3.7	Ability to comply with radiation work permit requirements during normal or abnormal conditions. (CFR: 41.12 / 45.10)	3.5	71		
	2.3.11	Ability to control radiation releases. (CFR: 41.11 / 43.4 / 45.10)	3.8	72		
	2.3.14	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities. (CFR: 41.12 / 43.4 / 45.10)	3.4	73		
	2.3.					
	2.3.					
	Subtotal				3	
4. Emergency Procedures / Plan	2.4.6	Knowledge of EOP mitigation strategies. (CFR: 41.10 / 43.5 / 45.13)	3.7	74		
	2.4.29	Knowledge of the emergency plan. (CFR: 41.10 / 43.5 / 45.11)	3.1	75		
	2.4.					
	2.4.					
	2.4.					
	Subtotal				2	
Tier 3 Point Total				10		

NOTE: All replacement KAs were randomly selected picking a KA from a group of associated KA numbers that were placed in a container.

Tier / Group	Randomly Selected K/A	Reason for Rejection
1/1	APE 025 G2.4.30 (Outline Question 7)	The generic portion of the KA tests knowledge an SRO needs for making notifications. It is more suited for an SRO question. Therefore the KA was replaced with APE 025 G2.4.8.
1/1	APE 026 AA1.04 (Outline Question 8)	This KA tests knowledge of CCW and how it relates to CRDM high temperature alarms. At STP, CRDMs are not directly cooled by CCW. Therefore the KA was replaced with APE 026 AA1.05.
1/2	APE 076 G2.2.3 (Outline Question 25)	The generic portion of the KA tests knowledge of the differences between Unit 1 and 2 in regards to High Reactor Coolant Activity. There is no difference between the Units associated with High Reactor Coolant Activity. Therefore the KA was replaced with APE 076 G2.2.44.
2/1	006 K6.18 (Outline Question 33)	This KA tests knowledge of subcooling margin indicators as it relates to ECCS. A question for this KA would be similar to a question for KA EPE 009 EA1.16. (Outline Question 3) Therefore the KA was replaced with 006 K6.02.
2/1	008 G2.4.21 (Outline Question 35)	The generic portion of the KA tests knowledge of Safety Function parameters and logic. Component Cooling Water does not input into Safety Function parameters and logic. Therefore the KA was replaced with 008 G.2.4.50.
2/1	010 K4.02 (Outline Question 37)	NOTE: A Tier 2, Group 4, K4 question was missing from the original outline. 010 K4.02 was randomly selected to make up for the missing question.
2/1	022 A4.03 (Outline Question 40)	This KA tests the ability to operate and/or monitor Containment Cooling dampers. There are no Containment Cooling dampers to operate or monitor. Therefore the KA was replaced with 022 A4.04.
2/1	103 A3.07 (Outline Question 53)	NOTE: This is an administrative change only. There is no KA 103 A3.07. The KA should have been 103 A3.02 and has been properly corrected.
2/2	027 A4.02 (Outline Question 61)	This KA tests knowledge of remote operation of Containment Iodine filters. At STP, operations has no interface with the Containment Iodine filters. Therefore the KA was replaced with 027 A4.03.

Tier / Group	Randomly Selected K/A	Reason for Rejection
2/2	072 G2.2.4 (Outline Question 64)	The generic portion of this KA tests the variations in control board/control room layouts and other differences between the Units associated with Area Radiation Monitoring. At STP there are no differences between the Units associated with Area Radiation Monitoring. Therefore the KA was replaced with 072 G.2.1.19.
3/2	G2.2.17 (Outline Question 68)	This generic KA tests knowledge of managing maintenance activities. It is better suited for an SRO question. Therefore the KA was replaced with G.2.2.3.

Facility: South Texas Project, Units 1 and 2 (SRO, Rev. 1) Date of Exam: May 4, 2016																		
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														3	3	6	
	2				N/A				N/A					2	2	4		
	Tier Totals													5	5	10		
2. Plant Systems	1														3	2	5	
	2														2	1	3	
	Tier Totals													5	3	8		
3. Generic Knowledge and Abilities Categories				1	2	3	4							1	2	3	4	
														2	2	1	2	7

- Note:
- 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). [\(One Tier 3 Radiation Control K/A is allowed if the K/A is replaced by a K/A from another Tier 3 Category\).](#)
 - 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.
 - Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted with justification; operationally important, site-specific systems/evolutions that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.
 - 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.
 - 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.
 - Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
 - 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. Refer to Section D.1.b of ES-401 for the applicable K/As.
 - 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 a category 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.
 - 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.
- G* Generic K/As

BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4						X	2.4.41 - Knowledge of the emergency action level thresholds and classifications. (CFR: 41.10 / 43.5 / 45.11)	4.6	6
<p style="text-align: center;">ES-401 PWR Examination Outline Form ES-401-2</p> <p style="text-align: center;">Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO / SRO)</p>									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G*	K/A Topic(s)	IR	#
000077 Generator Voltage and Electric Grid Disturbances / 6									
K/A Category Totals:					3	3	Group Point Total:		6

BWE13&E14 EOP Rules and Enclosures											
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	A 2	G*	K/A Topic(s)	IR	#		
CE/A11; W/E08 RCS Overcooling - PTS / 4											
CE/A16 Excess RCS Leakage / 2											
CE/E09 Functional Recovery											
K/A Category Point Totals:					2	2	Group Point Total:		4		

059 Main Feedwater															
ES-401													PWR Examination Outline		Form ES-401-2
Plant Systems - Tier 2/Group 1 (RO / 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	#	
061 Auxiliary/Emergency Feedwater															
062 AC Electrical Distribution															
063 DC Electrical Distribution															
064 Emergency Diesel Generator															
073 Process Radiation Monitoring															
076 Service Water															
078 Instrument Air															
103 Containment															
K/A Category Point Totals:								3			2	Group Point Total:		5	

079 Station Air															
ES-401													PWR Examination Outline		Form ES-401-2
Plant Systems - Tier 2/Group 2 (RO / 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	#	
086 Fire Protection															
K/A Category Point Totals:								2			1	Group Point Total:		3	

Facility: South Texas Project, Units 1 and 2 (SRO, Rev. 0) Date of Exam: May 4, 2016						
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.6	Ability to manage the control room crew during plant transients. (CFR: 41.10 / 43.5 / 45.12 / 45.13)			4.8	19
	2.1.45	Ability to identify and interpret diverse indications to validate the response of another indication. (CFR: 41.7 / 43.5 / 45.4)			4.3	20
	2.1.					
	2.1.					
	2.1.					
	Subtotal					
2. Equipment Control	2.2.42	Ability to recognize system parameters that are entry-level conditions for Technical Specifications. (CFR: 41.7 / 41.10 / 43.2 / 43.3 / 45.3)			4.6	21
	2.2.43	Knowledge of the process used to track inoperable alarms. (CFR: 41.10 / 43.5 / 45.13)			3.3	22
	2.2.					
	2.2.					
	2.2.					
	Subtotal					
3. Radiation Control	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions. (CFR: 41.12 / 43.4 / 45.10)			3.7	23
	2.3.					
	2.3.					
	2.3.					
	2.3.					
	Subtotal					
4. Emergency Procedures / Plan	2.4.34	Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects. (CFR: 41.10 / 43.5 / 45.13)			4.1	24
	2.4.46	Ability to verify that the alarms are consistent with the plant conditions. (CFR: 41.10 / 43.5 / 45.3 / 45.12)			4.2	25
	2.4.					
	2.4.					
	2.4.					
	Subtotal					
Tier 3 Point Total						7

NOTE: All replacement KAs were randomly selected picking a KA from a group of associated KA numbers that were placed in a container.

Tier / Group	Randomly Selected K/A	Reason for Rejection
2/2	072 G2.2.38 (Outline Question 18)	The generic portion of this KA tests the knowledge of conditions and limitations of the facility license. The combination of this generic KA and Area Radiation Monitoring does not lend itself to creating a good question. Therefore the KA was replaced with 072 G.2.2.40.
3/1	G2.1.14 (Outline Question 19)	This generic KA tests knowledge associated with making plant announcements. It is better suited for an RO question. Therefore the KA was replaced with G.2.1.6.