Facility: **COMANCHE PEAK** Date of Exam: 09/13/2005

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	3	3	3				3	3			3	18					
	2	1	2	2				1	2			1	9					
	Tier Totals	4	5	5				4	5			4	27					
2 Plant Systems	1	2	2	3	2	3	3	2	3	2	3	3	28					
	2	0	1	1	1	1	1	1	1	1	1	1	10					
	Tier Totals	2	3	4	3	4	4	3	4	3	4	4	38					
3 Generic Knowledge and Abilities Categories					1		2		3		4		10	1	2	3	4	
					2		3		3		2							

Notes:

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; 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 10CFR55.43 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 column labeled "K" and "A". Use duplicate pages for RO and SRO-only exams.
8. For Tier 3, enter the K/A numbers, descriptions, importance ratings, and points totals on Form ES-401-3.
9. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.

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	K1	K2	K3	A1	A2	G	K/A Topic(s)	IR	#
000007 Reactor Trip - Stabilization - Recovery / 1		03					Interrelation with Reactor trip status panel	3.5	1
000008 Pressurizer Vapor Space Accident / 3					12		Determine / interpret PZR level indicators	3.4	2
000009 Small Break LOCA / 3						406	EOP mitigation strategies	3.1	3
000011 Large Break LOCA / 3 **(PRA/IPE)**		02					Interrelation with Pumps	2.6*	4
000015/17 RCP Malfunctions / 4									
000022 Loss of Reactor Coolant Makeup / 2				08			Operate / monitor VCT level	3.4	5
000025 Loss of RHR System / 4 **(IPE)**	01						Operational implications of Loss of RHRS during all modes of operation	3.9	6
000026 Loss of Component Cooling Water / 8						222	LCO and safety limits	3.4	7
000027 Pressurizer Pressure Control System Malfunction / 3					15		Determine / interpret the Actions to be taken if PZR pressure fails high	3.7	8
000029 ATWS / 1 **(PRA/IPE)**									
000038 Steam Gen. Tube Rupture / 3 **(PRA/IPE)**	03						Operational implication of Natural circulation	3.9	9
000040 (W/E12) Steam Line Rupture - Excessive Heat Transfer / 4 **(PRA)**		03					000040 - Interrelations with Valves	2.6*	10
			02				W/E12 - Reasons for procedures associated with Uncontrolled Depressurization of all SGs	3.3	11
000054 Loss of Main Feedwater / 4 **(PRA/IPE)**			04				Reasons for Actions contained in EOPs for loss of MFW	4.4	12
000055 Station Blackout / 6									
000056 Loss of Off-site Power / 6 **(PRA/IPE)**			01				Reasons for Order / time for the load sequencer	3.5	13
000057 Loss of Vital AC Inst. Bus / 6 **(IPE)**				03			Operate / monitor Feedwater pump speed to control S/G	3.6*	14
000058 Loss of DC Power / 6					03		Determine / interpret DC loads lost; impact on ability to operate / monitor	3.5	15
000062 Loss of Nuclear Svc Water / 4						449	Actions requiring immediate operation of components / controls	4.0	16
000065 Loss of Instrument Air / 8									
W/E04 LOCA Outside Containment / 3	02						Operational implication of procedures associated with LOCA Outside Containment	3.5	17
W/E11 Loss of Emergency Coolant Recirc. / 4				01			Operate / monitor Components, and functions of control / safety systems	3.9	18
W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4									
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	K1	K2	K3	A1	A2	G	K/A Topic(s)	IR	#
000001 Continuous Rod Withdrawal / 1									
000003 Dropped Control Rod / 1									
000005 Inoperable/Stuck Control Rod / 1									
000024 Emergency Boration / 1					04		Determine / interpret Availability of BWST	3.4	19
000028 Pressurizer Level Malfunction / 2	01						Operational implication of PZR reference leak abnormalities	2.8*	20
000032 Loss of Source Range NI / 7									
000033 Loss of Intermediate Range NI / 7									
000036 Fuel Handling Accident / 8									
000037 Steam Generator Tube Leak / 3									
000051 Loss of Condenser Vacuum / 4									
000059 Accidental Liquid RadWaste Rel. / 9				01			Operate / monitor Radioactive-liquid monitor	3.5	21
000060 Accidental Gaseous Radwaste Rel. / 9		02					Interrelation with Auxiliary building ventilation system	2.7	22
000061 ARM System Alarms / 7									
000067 Plant Fire On-site / 8									
000068 Control Room Evac. / 8									
000069 (W/E14) Loss of CTMT Integrity / 5			01				Reasons for Facility operating characteristics during transient conditions	3.2	23
000074 (W/E06&E07) Inad. Core Cooling / 4 **(PRA)**					01		Determine / interpret Facility conditions / selection of procedures	3.4	24
000076 High Reactor Coolant Activity / 9									
W/E01 & E02 Rediagnosis & SI Termination / 3		02					Interrelation with Facility's heat removal systems / operation	3.5	25
W/E13 Steam Generator Over-pressure / 4									
W/E15 Containment Flooding / 5									
W/E16 High Containment Radiation / 9						406	EOP mitigation strategies	3.1	26
W/E03 LOCA Cooldown/Depress. / 4									
W/E09&E10 Natural Circ. / 4									
W/E08 RCS Overcooling - PTS / 4			03				Reasons for Manipulation of controls	3.7	27
K/A Category Totals:	1	2	2	1	2	1	Group Point Total:		9

ES-401	PWR Examination Outline Plant Systems - Tier 2/Group 1 (RO/SRO)											Form ES-401-2	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#
003 Reactor Coolant Pump			02									Effect of loss / malfunction of S/G	3.5	28
004 Chemical and Volume Control **(IPE)**					36							Operational implication of Solubility of boron in water; temperature effect	2.5	29
										19		Operate / monitor CVCS letdown orifice isolation valve	3.1	30
005 Residual Heat Removal		03										Power supplies to pressure boundary MOVs	2.7*	31
006 Emergency Core Cooling						05						Effect of loss / malfunction of HPI/LPI cooling water	3.0	32
007 Pressurizer Relief/Quench Tank					02							Operational implication of Method of forming a steam bubble in the PZR	3.1	33
008 Component Cooling Water **(IPE)**							02					Predict / monitor changes in CCW temperature	2.9	34
											132	Explain / apply system limits and precautions	3.4	35
010 Pressurizer Pressure Control						01						Effect of loss / malfunction of Pressure detection systems	2.7	36
012 Reactor Protection					01							Operational implication of DNB	3.3*	37
										05		Operate / monitor Channel defeat controls	3.6	38
013 Engineered Safety Features Actuation **(IPE)**						01						Effect of loss / malfunction of Sensors and detectors	2.7*	39
022 Containment Cooling								05				Predict impact of Major leak in CCS / use procedures to mitigate	3.1	40
										01		Operate / monitor CCS fans	3.6	41
026 Containment Spray	02											Cause / effect with Cooling water	4.1	42
039 Main and Reheat Steam				05								Design feature / interlock for Automatic isolation of steam line	3.7	43
056 Condensate								04				Predict impact of Loss of condensate pumps / use procedures to mitigate	2.6	44
059 Main Feedwater			02									Effect of loss / malfunction on AFW system	3.6	45
061 Auxiliary/Emergency Feedwater **(PRA/IPE)**		02										Knowledge of bus power supplies to the following: AFW electric drive pumps	3.7*	46
											102	Operator responsibilities during operation	3.0	47
062 AC Electrical Distribution			02									Effect of loss / malfunction on ED/G	4.1	48
063 DC Electrical Distribution									01			Monitor Meters, annunciators, dials, recorders, lights	2.7	49
											222	LCO and safety limits	3.4	50
064 Emergency Diesel				10								Design feature / interlock for Automatic	3.5	51
073 Process Radiation Monitoring	01											Cause / effect with those systems served by PRMs	3.6	52
076 Service Water **(PRA/IPE)**								01				Predict impact of Loss of SWS / use procedures to mitigate	3.5*	53
078 Instrument Air									01			Monitor Air pressure	3.1	54
103 Containment							01					Predict / monitor changes in pressure, temperature, humidity	3.7	55
K/A Category Totals:	2	2	3	2	3	3	2	3	2	3	3	Group Point Total:		28

ES-401	PWR Examination Outline Plant Systems - Tier 2/Group 2 (RO/SRO)												Form ES-401-2	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#
001 Control Rod Drive														
002 Reactor Coolant											431	Annunciators alarms / indications / use of instructions	3.3	56
011 Pressurizer Level Control				06								Design feature / interlock for Letdown isolation	3.3	57
014 Rod Position Indication								03				Predict impact of Dropped rod / use procedures to mitigate	3.6	58
015 Nuclear Instrumentation					02							Operational implication of compensation operation	2.7	59
016 Non-nuclear Instrumentation														
017 In-core Temperature Monitor														
027 Containment Iodine Removal		01										Power supplies to Fans	3.1*	60
028 Hydrogen Recombiner and Purge Control														
029 Containment Purge									01			Monitor CPS isolation	3.8	61
033 Spent Fuel Pool Cooling														
034 Fuel Handling Equipment						02						Effect of loss / malfunction of Radiation monitoring systems	2.6	62
035 Steam Generator			01									Effect of loss / malfunction on RCS	4.4	63
041 Steam Dump/Turbine Bypass Control														
045 Main Turbine Generator							06					Predict / monitor changes in secondary plant parameters following T/G trip	3.3	64
055 Condenser Air Removal														
068 Liquid Radwaste														
071 Waste Gas Disposal														
072 Area Radiation Monitoring														
075 Circulating Water														
079 Station Air														
086 Fire Protection										02		Operate / monitor Fire detection panels	3.5	65
K/A Category Totals:	0	1	1	1	1	1	1	1	1	1	1	Group Point Total:		10

ES-401	Generic Knowledge and Abilities Outline (Tier 3)					Form ES-401-3
Facility:	**COMANCHE PEAK**			Date of Exam:		9/13/2005
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1 Conduct of Operations	2.1.30	Locate / operate components, including local	3.9	66		
	2.1.01	Conduct of operations requirements	3.7	67		
	Subtotal			2		
2 Equipment Control	2.2.12	Surveillance procedures	3.0	68		
	2.2.13	Tagging / clearance procedures	3.6	69		
	2.2.03	Design, procedural, operational differences between units	3.1	70		
	Subtotal			3		
3 Radiation Control	2.3.02	Facility ALARA program	2.5	71		
	2.3.11	Control radiation releases	2.7	72		
	2.3.10	Perform procedures to reduce radiation / personnel exposure	2.9	73		
	Subtotal			3		
4 Emergency Procedures/ Plan	2.4.39	Responsibilities in emergency plan implementation	3.3	74		
	2.4.01	EOP entry conditions / immediate action steps	4.3	75		
	Subtotal			2		
Tier 3 Point Total				10		7