

Facility: Palisades														Date of Exam: February 21, 2017				
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 Evolution	1	3	3	3	N/A			3	3	N/A		3	18	3	3	6		
	2	2	1	2				1	2			1	9	2	2	4		
	Tier Totals	5	4	5				4	5			4	27	5	5	10		
2. Plant Systems	1	3	3	2	3	3	2	2	3	3	2	2	28	2	3	5		
	2	1	0	1	1	1	1	1	1	1	1	1	10	1	1	3		
	Tier Totals	4	3	3	4	4	3	3	4	4	3	3	38	4	4	8		
3. Generic Knowledge and Abilities Categories				1		2		3		4				1	2	3	4	7
				3		2		2		3		10		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). (One Tier 3 Radiation Control K/A is allowed if the K/A is replaced by a K/A from another Tier 3 Category).
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 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.
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. Refer to Section D.1.b of ES-401 for the applicable K/As.
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 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.
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.

G* Generic K/As

ES-401		PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO)						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/E02 Reactor Trip Recovery / 1			0 1				EK3.1-Knowledge of the reasons for the following responses as they apply to the (Reactor Trip Recovery): 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)	3.2	1
000008 Pressurizer Vapor Space Accident / 3		0 2					AK2.02-Knowledge of the interrelations between the Pressurizer Vapor Space Accident and the following: Sensors and detectors (CFR: 41.7 / 45.7)	2.7	2
000009 Small Break LOCA / 3				1 3			EA1.13-Ability to operate and monitor the following as they apply to a small break LOCA: ESFAS (CFR: 41.7 / 45.5 / 45.6)	4.4	3
000011 Large Break LOCA / 3					0 5		EA2.05-Ability to determine or interpret the following as they apply to a Large Break LOCA: Significance of charging pump operation (CFR: 43.5 / 45.13)	3.3	4
000015/17 RCP Malfunctions / 4					0 8		AA2.08- Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): When to secure RCPs on high bearing temperature (CFR: 43.5 / 45.13)	3.4	5
000022 Loss of Rx Coolant Makeup / 2						04. 47	G2.4.47-Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material. (CFR: 41.10 / 43.5 / 45.12)	4.2	6
000025 Loss of RHR System / 4	0 1						AK1.01-Knowledge of the operational implications of the following concepts as they apply to Loss of Residual Heat Removal System: Loss of RHRS during all modes of operation (CFR 41.8 / 41.10 / 45.3)	3.9	7
000026 Loss of Component Cooling Water / 8			0 2				AK3.02- Knowledge of the reasons for the following responses as they apply to the Loss of Component Cooling Water: The automatic actions (alignments) within the CCWS resulting from the actuation of the ESFAS (CFR 41.5, 41.10 / 45.6 / 45.13)	3.6	8
000027 Pressurizer Pressure Control System Malfunction / 3									
000029 ATWS / 1	0 3						EK1.03-Knowledge of the operational implications of the following concepts as they apply to the ATWS: Effects of boron on reactivity (CFR: 41.10 / 43.5 / 45.3 / 45.12)	3.6	9
000038 Steam Gen. Tube Rupture / 3						02. 44	G2.2.44- Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions. (CFR: 41.5 / 43.5 / 45.12)	4.2	10
CE/E05 Excess Steam Demand / 4				0 3			EA1.03-Ability to operate and/or monitor the following as they apply to the (Excess Steam Demand): Desired operating results during abnormal and emergency situations (CFR: 41.7 / 45.5 / 45.6)	3.4	11
CE/E06 Loss of Feedwater / 4		0 2					EK2.2-Knowledge of the interrelations between the (Loss of Feedwater) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility. (CFR: 41.7 / 45.7)	3.5	12

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	0 3						AK1.03-Knowledge of the operational implications of the following concepts as they apply to Loss of Offsite Power: Definition of subcooling: use of steam tables to determine it. (CFR 41.8 / 41.10 / 45.3)	3.1	13
000057 Loss of Vital AC Inst. Bus / 6						04. 03	2.4.03-Ability to identify post-accident instrumentation. (CFR: 41.6 / 45.4)	3.7	14
000058 Loss of DC Power / 6			0 1				AK3.01-Knowledge of the reasons for the following responses as they apply to the Loss of DC Power: Use of dc control power by D/Gs (CFR 41.5 / 41.10 / 45.6 / 45.1)	3.4	15
000062 Loss of Nuclear Svc Water / 4				0 6			AA1.06-Ability to operate and / or monitor the following as they apply to the Loss of Nuclear Service Water (SWS): Control of flow rates to components cooled by the SWS (CFR 41.7 / 45.5 / 45.6)	2.9	16
000065 Loss of Instrument Air / 8					0 7		AA2.07-Ability to determine and interpret the following as they apply to the Loss of Instrument Air: Whether backup nitrogen supply is controlling valve position. (CFR: 43.5 / 45.13)	2.8	17
000077 Generator Voltage and Electric Grid Disturbances / 6		0 7					AK2.07-Knowledge of the interrelations between Generator Voltage and Electric Grid Disturbances and the following: Turbine / generator control (CFR: 41.4, 41.5, 41.7, 41.10 / 45.8)	3.6	18
K/A Category Totals:	3	3	3	3	3	3	Group Point Total:		18

[illegible]

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G*	K/A Topic(s)	IR	#
CE/E09 Functional Recovery					0 1		EA2.1-Ability to determine and interpret the following as they apply to the (Functional Recovery): Facility conditions and selection of appropriate procedures during abnormal and emergency operations. (CFR: 43.5 / 45.13)	3.2	27
K/A Category Point Totals:	2	1	2	1	2	1	Group Point Total:		9

ES-401		PWR Examination Outline Plant Systems - Tier 2/Group 1 (RO)											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	0 1											K1.01-Knowledge of the physical connections and/or cause-effect relationships between the RCPS and the following systems: RCP lube oil (CFR: 41.2 to 41.9 / 45.7 to 45.8)	2.6	28
004 Chemical and Volume Control		0 5					0 9					K2.05-Knowledge of bus power supplies to the following: MOVs (CFR: 41.7)	2.7	29
												A1.09-Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CVCS controls including: RCS Pressure and Temperature (CFR: 41.5 / 45.5)	3.6	30
005 Residual Heat Removal			0 7					0 3				K3.07-Knowledge of the effect that a loss or malfunction of the RHRS will have on the following: Refueling operations (CFR: 41.7 / 45.6)	3.2	31
												A2.03- Ability to (a) predict the impacts of a RHR pump/motor malfunction, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations. (CFR: 41.5 / 43.5 / 45.3 / 45.13)	2.9	32
006 Emergency Core Cooling				1 1			1 3					K4.11-Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following: Reset of SIS (CFR: 41.7)	3.9	33
												A1.13-Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ECCS controls including: Accumulator pressure (level, boron concentration). (CFR: 41.5 / 45.5)	3.5	34
007 Pressurizer Relief/Quench Tank					0 2							K5.02-Knowledge of the operational implications of the following concepts as the apply to PRTS: Method of forming a steam bubble in the PZR (CFR: 41.5 / 45.7)	3.1	35
008 Component Cooling Water			0 1									K3.01-Knowledge of the effect that a loss or malfunction of the CCWS will have on the following: Loads cooled by CCWS (CFR: 41.7)	3.4	36
010 Pressurizer Pressure Control						0 3						K6.03-Knowledge of the effect of a loss or malfunction of the following will have on the PZR PCS: PZR sprays and heaters. (CFR: 41.7 / 45.7)	3.2	37
012 Reactor Protection					0 1							K5.01-Knowledge of the operational implications of the following concepts as the apply to the RPS: DNB (CFR: 41.5 / 45.7)	3.3	38
013 Engineered Safety Features Actuation									0 2			2.4.50-Ability to verify system alarm setpoints and operate controls identified in the alarm response manual. (CFR: 41.10)	4.2	39
												A3.02-Ability to monitor automatic operation of the ESFAS including: Operation of actuated equipment. (CFR: 41.7 / 45.5)	4.1	40

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	#
022 Containment Cooling											01. 27	G2.1.27-Knowledge of system purpose and/or function. (CFR: 41.7)	3.9	41
025 Ice Condenser														
026 Containment Spray		0 1										K2.01-Knowledge of bus power supplies to the following: Containment spray pumps (CFR: 41.7)	3.4	42
039 Main and Reheat Steam	0 2											K1.02-Knowledge of the physical connections and/or cause-effect relationships between the MRSS and the following systems: Atmospheric relief dump valves (CFR: 41.2 to 41.9 / 45.7 to 45.8)	3.3	43
059 Main Feedwater										1 2		A4.12-Ability to manually operate and monitor in the control room: Initiation of automatic feedwater isolation (CFR: 41.7 / 45.5 to 45.8)	3.4	44
061 Auxiliary/Emergency Feedwater						0 1			0 3			K6.01-Knowledge of the effect of a loss or malfunction of the following will have on the AFW components: Controllers and positioners (CFR: 41.7 / 45.7)	2.5	45
												A3.03-Ability to monitor automatic operation of the AFW, including: AFW S/G level control on automatic start (CFR: 41.7 / 45.5)	3.9	46
062 AC Electrical Distribution				0 2						0 7		K4.02-Knowledge of ac distribution system design feature(s) and/or interlock(s) which provide for the following: Circuit breaker automatic trips (CFR: 41.7)	2.5	47
												A4.07-Ability to manually operate and/or monitor in the control room: synchronizing and paralleling of different ac supplies (CFR: 41.7 / 45.5 / to 45.8)	3.1	48
063 DC Electrical Distribution	0 3											K1.03-Knowledge of the physical connections and/or cause effect relationships between the DC electrical system and the following systems: Battery charger and battery (CFR: 41.2 to 41.9 / 45.7 to 45.8)	2.9	49
064 Emergency Diesel Generator		0 2							0 1			K2.02-Knowledge of bus power supplies to the following: Fuel oil pumps (CFR: 41.7)	2.8	50
												A3.01-Ability to monitor automatic operation of the ED/G system, including: Automatic start of compressor and ED/G (CFR: 41.7 / 45.5)	4.1	51
073 Process Radiation Monitoring					0 2							K5.02-Knowledge of the operational implications as they apply to concepts as they apply to the PRM system: Radiation intensity changes with source distance. (CFR: 41.5 / 45.7)	2.5	52
076 Service Water								0 2				A2.02-Ability to (a) predict the impacts of the following malfunctions or operations on the SWS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Service water header pressure (CFR: 41.5 / 43.5 / 45/3 / 45/13)	2.7	53
078 Instrument Air				0 2								K4.02-Knowledge of IAS design feature(s) and/or interlocks which provide for the following: Cross-over to other air systems. (CFR: 41.7)	3.2	54

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								0 3				A2.03-Ability to (a) predict the impacts of the following malfunctions or operations on the containment system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Phase A and B isolation (CFR: 41.5 / 43.5 / 45.3 / 45.13)	3.5	55
K/A Category Point Totals:	3	3	2	3	3	2	2	3	3	2	2	Group Point Total:		28

ES-401		PWR Examination Outline Plant Systems - Tier 2/Group 2 (RO)											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	0 3											K1.03-Knowledge of the physical connections and/or cause effect relationships between the CRDS and the following systems: CRDM (CFR: 41.2 to 41.9 / 45.7 to 45.8)	3.4	56
002 Reactor Coolant														
011 Pressurizer Level Control														
014 Rod Position Indication			0 2									K3.02-Knowledge of the effect that a loss or malfunction of the RPIS will have on the following: Plant computer (CFR: 41.7 / 45.6)	2.5	57
015 Nuclear Instrumentation														
016 Non-Nuclear Instrumentation					0 1							K5.01-Knowledge of the operational implication of the following concepts as they apply to the NNIS: Separation of control and protection circuits (CFR: 41.5 / 45.7)	2.7	58
017 In-Core Temperature Monitor														
027 Containment Iodine Removal														
028 Hydrogen Recombiner and Purge Control														
029 Containment Purge							0 2					A1.02-Ability to predict and/or monitor changes in parameters to prevent exceeding design limits) associated with operating the Containment Purge System controls including: Radiation levels (CFR: 41.5 / 45.5)	3.4	59
033 Spent Fuel Pool Cooling														
034 Fuel Handling Equipment														
035 Steam Generator						0 1						K6.01-Knowledge of the effect of a loss or malfunction on the following will have on the S/Gs: MSIVs. (CFR: 41.7 / 45.7)	3.2	60
041 Steam Dump/Turbine Bypass Control										0 6		A4.06-Ability to manually operate and/or monitor in the control room: Atmospheric relief valve controllers (CFR: 41.7 / 45.5 to 45.8)	2.9	61
045 Main Turbine Generator														
055 Condenser Air Removal														
056 Condensate											01. 23	G2.1.23-Ability to perform specific system and integrated plant procedures during all modes of plant operation. (CFR: 45.2 / 45.6)	4.3	62
068 Liquid Radwaste														
071 Waste Gas Disposal				0 4								K4.04-Knowledge of design feature(s) and/or interlock(s) which provide for the following: Isolation of waste gas release tanks (CFR: 41.7)	2.9	63

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	#
072 Area Radiation Monitoring								0 2				A2.02-Ability to (a) predict the impacts of the following malfunctions or operations on the ARM system- and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Detector failure (CFR: 41.5 / 43.5 / 43.3 / 45.13)	2.8	64
075 Circulating Water														
079 Station Air														
086 Fire Protection									0 2			A3.02-Ability to monitor automatic operation of the Fire Protection System including: Actuation of the FPS. (CFR: 41.7 / 45.7)	2.9	65
K/A Category Point Totals:	1	0	1	1	1	1	1	1	1	1	1	Group Point Total:		10

ES-401		PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (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/E02 Reactor Trip Recovery / 1									
000008 Pressurizer Vapor Space Accident / 3									
000009 Small Break LOCA / 3					3 4		EA2.34-Ability to determine or interpret the following as they apply to a small break LOCA: Conditions for throttling or stopping HPI (CFR 43.5 / 45.13)	4.2	76
000011 Large Break LOCA / 3									
000015/17 RCP Malfunctions / 4									
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									
000029 ATWS / 1									
000038 Steam Gen. Tube Rupture / 3						01. 20	G2.1.20-Ability to interpret and execute procedure steps (CFR: 41.10 / 43.5 / 45.12)	4.6	77
CE/E05 Excess Steam Demand / 4									
CE/E06 Loss of Feedwater / 4					0 1		EA2.1-Ability to determine and interpret the following as they apply to the (Loss of Feedwater): Facility conditions and selection of appropriate procedures during abnormal and emergency operations (CFR: 43.5 / 45.13)	3.9	78
000055 Station Blackout / 6					0 2		EA2.02-Ability to determine or interpret the following as they apply to a Station Blackout: RCS core cooling through natural circulation cooling to S/G cooling (CFR 43.5 / 45.13)	4.6	79
000056 Loss of Off-site Power / 6						02. 22	G2.2.22-Knowledge of limiting conditions for operations and safety limits. (CFR: 41.5 / 43.2 / 45.3)	4.7	80
000057 Loss of Vital AC Inst. Bus / 6									
000058 Loss of DC Power / 6						02. 37	G2.2.37-Ability to determine operability and/or availability of safety related equipment. (CFR: 41.7 / 43.5 / 45.12)	4.6	81
000062 Loss of Nuclear Svc Water / 4									
000065 Loss of Instrument Air / 8									
000077 Generator Voltage and Electric Grid Disturbances / 6									
K/A Category Totals:	0	0	0	0	3	3	Group Point Total:	6	

ES-401		PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (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	#	
000001 Continuous Rod Withdrawal / 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					1 0		AA2.10-Ability to determine and interpret the following as they apply to the Loss of Intermediate Range Nuclear Instrumentation: Tech-Spec limits if both intermediate range channels have failed. (CFR 43.5 / 45.13)	3.8	82	
000036 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						02. 25	G2.2.25-Knowledge of the bases in Technical Specification limiting conditions for operations and safety limits. (CFR: 41.5 / 41.7 / 43.2)	4.2	83	
000067 Plant Fire On-site / 8										
000068 Control Room Evac. / 8										
000069 Loss of CTMT Integrity / 5										
000074 Inad. Core Cooling / 4										
000076 High Reactor Coolant Activity / 9						02. 38	G2.2.38-Knowledge conditions and limitations in the facility license. (CFR: 41.7 / 41.10 / 43.1 / 45.13)	4.5	84	
CE/A13 Natural Circ. / 4										
CE/A11 RCS Overcooling - PTS / 4					0 2		AA2.2-Ability to determine and interpret the following as they apply to the (RCS Overcooling): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments. (CFR: 43.5 / 45.13)	3.4	85	
CE/A16 Excess RCS Leakage / 2										
CE/E09 Functional Recovery										
K/A Category Point Totals:	0	0	0	0	2	2	Group Point Total:		4	

ES-401		PWR Examination Outline Plant Systems - Tier 2/Group 1 (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														
004 Chemical and Volume Control														
005 Residual Heat Removal														
006 Emergency Core Cooling														
007 Pressurizer Relief/Quench Tank														
008 Component Cooling Water														
010 Pressurizer Pressure Control											02. 42	G2.2.42-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	86
012 Reactor Protection								0 3				A2.03-Ability to (a) predict the impacts of the following malfunctions or operations on the RPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Incorrect channel bypassing. (CFR: 41.5 / 43.5 / 45.3 / 45.5)	3.7	87
013 Engineered Safety Features Actuation														
022 Containment Cooling														
025 Ice Condenser														
026 Containment Spray														
039 Main and Reheat Steam														
059 Main Feedwater								0 4				A2.04-Ability to (a) predict the impacts of the following malfunctions or operations on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Feeding a dry S/G (CFR: 41.5 / 43.5 / 45.3 / 45.13)	3.4	88
061 Auxiliary/Emergency Feedwater														
062 AC Electrical Distribution														
063 DC Electrical Distribution											01. 07	G2.1.7-Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation. (CFR: 41.5 / 43.5 / 45.12 / 45.13)	4.7	89
064 Emergency Diesel Generator														
073 Process Radiation Monitoring														
076 Service Water														
078 Instrument Air														

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											04. 41	G2.4.41-Knowledge of the emergency action level thresholds and classifications. (CFR: 41.10 / 43.5 / 45.11)	4.6	90
K/A Category Point Totals:	0	0	0	0	0	0	0	2	0	0	3	Group Point Total:		5

ES-401		PWR Examination Outline Plant Systems - Tier 2/Group 2 (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														
011 Pressurizer Level Control														
014 Rod Position Indication														
015 Nuclear Instrumentation								0 1				A2.01-Ability to (a) predict the impacts on the following malfunctions or operations on the NIS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Power supply loss of erratic operation (CFR: 41.5 / 43.5 / 45.3 / 45.5)	3.9	91
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														
034 Fuel Handling Equipment				0 2								K4.02-Knowledge of design feature(s) and/or interlock(s) which provide for the following: Fuel movement (CFR: 41.7)	3.3	92
035 Steam Generator														
041 Steam Dump/Turbine Bypass Control														
045 Main Turbine Generator														
055 Condenser Air Removal														
056 Condensate														
068 Liquid Radwaste											01. 32	G2.1.32-Ability to explain and apply all system limits and precautions. (CFR: 41.10 / 43.2 / 45.12)	4.0	93
071 Waste Gas Disposal														
072 Area Radiation Monitoring														
075 Circulating Water														
079 Station Air														
086 Fire Protection														
K/A Category Point Totals:	0	0	0	1	0	0	0	1	0	0	1	Group Point Total:		3

Facility: Palisades		Date of Exam: February 2017				
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.4	Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, “no-solo” operation, maintenance of active license status, 10CFR55, etc. (CFR: 41.10 / 43.2)			3.8	94
	2.1.25	Ability to interpret reference materials, such as graphs, curves, tables, etc. (CFR: 41.10 / 43.5 / 45.12)	3.9	66		
	2.1.30	Ability to locate and operate components, including local controls. (CFR: 41.7 / 45.7)	4.4	67		
	2.1.37	Knowledge of procedures, guidelines, or limitations associated with reactivity management. (CFR: 41.1 / 43.6 / 45.6)			4.6	95
	2.1.44	Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area, communication with fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation. (CFR: 41.10 / 43.7 / 45.12)	3.9	68		
	Subtotal					
2. Equipment Control	2.2.11	Knowledge of the process for controlling temporary design changes. (CFR: 41.10 / 43.3 / 45.13)			3.3	96
	2.2.12	Knowledge of surveillance procedures. (CFR: 41.10 / 45.13)	3.7	69		
	2.2.35	Ability to determine Technical Specification Mode of Operation. (CFR: 41.7 / 41.10 / 43.2 / 45.13)	3.6	70		
	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)			4.5	97
	Subtotal					
3. Radiation Control	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions. (CFR: 43.4 / 45.10)	3.2	71		
	2.3.6	Ability to approve release permits. (CFR: 41.13 / 43.4 / 45.10)			3.8	98
	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	72		
	Subtotal					
4. Emergency Procedures / Plan	2.4.2	Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions. (CFR: 41.7 / 45.7 / 45.8)	4.5	73		
	2.4.6	Knowledge of EOP mitigation strategies. (CFR: 41.10 / 43.5 / 45.13)	3.7	74		
	2.4.11	Knowledge of abnormal condition procedures. (CFR: 41.10 / 43.5 / 45.13)	4.0	75		
	2.4.16	Knowledge of EOP implementation hierarchy and coordination with other support procedures. (CFR: 41.10 / 43.5 / 45.13)			4.4	99
	2.4.29	Knowledge of the emergency plan. (CFR: 43.5 / 45.11)			4.4	100
	Subtotal					
Tier 3 Point Total				10		7