

Facility: Arkansas Nuclear One – Unit 1														Date of Exam: 1/28/2009				
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	0	0	0	N/A			0	0	N/A			0	0	3	3	6	
	2	0	0	0	N/A			0	0	N/A			0	0	2	2	4	
	Tier Totals	0	0	0	N/A			0	0	N/A			0	0	5	5	10	
2. Plant Systems	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	5	
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3
	Tier Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	5	3	8	
3. Generic Knowledge and Abilities Categories				1		2		3		4		0		1	2	3	4	7
				0		0		0		0				2	1	2	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).
 - 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 and justified; 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 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.

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							Not selected	n/a	n/a
000008 Pressurizer Vapor Space Accident / 3					X		AA2.30 – Inadequate core cooling	4.7	1
000009 Small Break LOCA / 3							Not selected	n/a	n/a
000011 Large Break LOCA / 3							Not selected	n/a	n/a
000015/17 RCP Malfunctions / 4							Not selected	n/a	n/a
000022 Loss of Rx Coolant Makeup / 2							Not selected	n/a	n/a
000025 Loss of RHR System / 4							Not selected	n/a	n/a
000026 Loss of Component Cooling Water / 8							Not selected	n/a	n/a
000027 Pressurizer Pressure Control System Malfunction / 3							Not selected	n/a	n/a
000029 ATWS / 1							Not selected	n/a	n/a
000038 Steam Gen. Tube Rupture / 3							Not selected	n/a	n/a
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4					X		EA2.2 – Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.	4.0	2
000054 (CE/E06) Loss of Main Feedwater / 4					X		AA2.01 – Occurrence of Reactor and / or Turbine Trip.	4.4	3
000055 Station Blackout / 6						X	2.4.4 – Ability to recognize abnormal indications for system operating parameters that are entry – level conditions for emergency and abnormal operating procedures.	4.7	4
000056 Loss of Off-site Power / 6							Not selected	n/a	n/a
000057 Loss of Vital AC Inst. Bus / 6							Not selected	n/a	n/a
000058 Loss of DC Power / 6						X	2.2.22 – Knowledge of limiting conditions for operations and safety limits.	4.7	5
000062 Loss of Nuclear Svc Water / 4						X	2.1.23 – Ability to perform specific system and integrated plant procedures during all modes of plant operation.	4.4	6
000065 Loss of Instrument Air / 8							Not selected	n/a	n/a
W/E04 LOCA Outside Containment / 3							Not selected	n/a	n/a
W/E11 Loss of Emergency Coolant Recirc. / 4							Not selected	n/a	n/a
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4							Not selected	n/a	n/a
000077 Generator Voltage and Electric Grid Disturbances / 6							Not selected	n/a	n/a
K/A Category Totals:					3	3	Group Point Total:	6	

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000001 Continuous Rod Withdrawal / 1							Not selected	n/a	n/a
000003 Dropped Control Rod / 1							Not selected	n/a	n/a
000005 Inoperable/Stuck Control Rod / 1							Not selected	n/a	n/a
000024 Emergency Boration / 1							Not selected	n/a	n/a
000028 Pressurizer Level Malfunction / 2							Not selected	n/a	n/a
000032 Loss of Source Range NI / 7							Not selected	n/a	n/a
000033 Loss of Intermediate Range NI / 7						X	AA2.07 – Confirmation of reactor trip.	4.2	7
000036 (BW/A08) Fuel Handling Accident / 8							Not selected	n/a	n/a
000037 Steam Generator Tube Leak / 3							Not selected	n/a	n/a
000051 Loss of Condenser Vacuum / 4							Not selected	n/a	n/a
000059 Accidental Liquid RadWaste Rel. / 9							Not selected	n/a	n/a
000060 Accidental Gaseous Radwaste Rel. / 9							Not selected	n/a	n/a
000061 ARM System Alarms / 7							Not selected	n/a	n/a
000067 Plant Fire On-site / 8						X	2.2.40 – Ability to apply Technical Specifications for a system.	4.7	8
000068 (BW/A06) Control Room Evac. / 8							Not selected	n/a	n/a
000069 (W/E14) Loss of CTMT Integrity / 5							Not selected	n/a	n/a
000074 (W/E06&E07) Inad. Core Cooling / 4							Not selected	n/a	n/a
000076 High Reactor Coolant Activity / 9						X	2.4.41 – Knowledge of the Emergency Action Level thresholds and classifications.	4.6	9
W/E01 & E02 Rediagnosis & SI Termination / 3							Not selected	n/a	n/a
W/E13 Steam Generator Over-pressure / 4							Not selected	n/a	n/a
W/E15 Containment Flooding / 5							Not selected	n/a	n/a
W/E16 High Containment Radiation / 9							Not selected	n/a	n/a
BW/A01 Plant Runback / 1							Not selected	n/a	n/a
BW/A02&A03 Loss of NNI-X/Y / 7							Not selected	n/a	n/a
BW/A04 Turbine Trip / 4							Not selected	n/a	n/a
BW/A05 Emergency Diesel Actuation / 6							Not selected	n/a	n/a
BW/A07 Flooding / 8							Not selected	n/a	n/a
BW/E03 Inadequate Subcooling Margin / 4							Not selected	n/a	n/a
BW/E08; W/E03 LOCA Cooldown - Depress. / 4							Not selected	n/a	n/a
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4							Not selected	n/a	n/a
BW/E13&E14 EOP Rules and Enclosures						X	EA2.1 – Facility conditions and selection of appropriate procedures during abnormal and emergency operations.	4.0	10
CE/A11; W/E08 RCS Overcooling - PTS / 4							Not selected	n/a	n/a
CE/A16 Excess RCS Leakage / 2							Not selected	n/a	n/a
CE/E09 Functional Recovery							Not selected	n/a	n/a
K/A Category Point Totals:	0	0	0	0	2	2	Group Point Total:	4	

	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	2.4.9 – Knowledge of low power / shutdown implications in accident (e.g. loss of coolant accident or loss of residual heat removal) mitigation strategies.	4.2	11
004 Chemical and Volume Control												Not selected	n/a	n/a
005 Residual Heat Removal												Not selected	n/a	n/a
006 Emergency Core Cooling											X	2.2.42 – Ability to recognize system parameters that are entry-level conditions for Technical Specifications.	4.6	12
007 Pressurizer Relief/Quench Tank												Not selected	n/a	n/a
008 Component Cooling Water												Not selected	n/a	n/a
010 Pressurizer Pressure Control								X				A2.02 – Spray valve failures.	3.9	13
012 Reactor Protection												Not selected	n/a	n/a
013 Engineered Safety Features Actuation												Not selected	n/a	n/a
022 Containment Cooling												Not selected	n/a	n/a
025 Ice Condenser												Not selected	n/a	n/a
026 Containment Spray												Not selected	n/a	n/a
039 Main and Reheat Steam												Not selected	n/a	n/a
059 Main Feedwater								X				A2.04 – Feeding a dry S/G.	3.4	14
061 Auxiliary/Emergency Feedwater												Not selected	n/a	n/a
062 AC Electrical Distribution												Not selected	n/a	n/a
063 DC Electrical Distribution								X				A2.02 – Loss of ventilation during battery charging.	3.1	15
064 Emergency Diesel Generator												Not selected	n/a	n/a
073 Process Radiation Monitoring												Not selected	n/a	n/a
076 Service Water												Not selected	n/a	n/a
078 Instrument Air												Not selected	n/a	n/a
103 Containment												Not selected	n/a	n/a
K/A Category Point Totals:	0	0	0	0	0	0	0	3	0	0	2	Group Point Total:	5	

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
001 Control Rod Drive												Not selected	n/a	n/a
002 Reactor Coolant												Not selected	n/a	n/a
011 Pressurizer Level Control												Not selected	n/a	n/a
014 Rod Position Indication											X	2.2.22 – Knowledge of limiting condition for operations and safety limits.	4.7	16
015 Nuclear Instrumentation												Not selected	n/a	n/a
016 Non-nuclear Instrumentation								X				A2.01 – Detector failure	3.1*	17
017 In-core Temperature Monitor												Not selected	n/a	n/a
027 Containment Iodine Removal												Not selected	n/a	n/a
028 Hydrogen Recombiner and Purge Control												Not selected	n/a	n/a
029 Containment Purge												Not selected	n/a	n/a
033 Spent Fuel Pool Cooling												Not selected	n/a	n/a
034 Fuel Handling Equipment												Not selected	n/a	n/a
035 Steam Generator												Not selected	n/a	n/a
041 Steam Dump/Turbine Bypass Control												Not selected	n/a	n/a
045 Main Turbine Generator												Not selected	n/a	n/a
055 Condenser Air Removal												Not selected	n/a	n/a
056 Condensate								X				A2.04 – Loss of condensate pumps.	2.8*	18
068 Liquid Radwaste												Not selected	n/a	n/a
071 Waste Gas Disposal												Not selected	n/a	n/a
072 Area Radiation Monitoring												Not selected	n/a	n/a
075 Circulating Water												Not selected	n/a	n/a
079 Station Air												Not selected	n/a	n/a
086 Fire Protection												Not selected	n/a	n/a
K/A Category Point Totals:	0	0	0	0	0	0	0	0	2	0	0	1	Group Point Total:	3

Category	K/A #	Topic	RO		SRO	
			IR	#	IR	#
1. Conduct of Operations	2.1.35	Knowledge of the fuel-handling responsibilities of SROs.			3.9	19
	2.1.36	Knowledge of procedures and limitation involved in core alterations.			4.1	20
	Subtotal					2
2. Equipment Control	2.2.25	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.			4.2	21
	Subtotal					1
3. Radiation Control	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions.			3.7	22
	2.3.11	Ability to control radiation releases			4.3	23
	Subtotal					2
4. Emergency Procedures / Plan	2.4.1	Knowledge of EOP entry conditions and immediate actions steps.			4.8	24
	2.4.44	Knowledge of Emergency Plan protective action recommendations.			4.4	25
	Subtotal					2
Tier 3 Point Total						7

