Final Submittal

(Blue Paper)

MCGUIRE OCTOBER 2003
EXAM 50-369 & 50-370/2003-302

OCTOBER 21, 2003

FINAL OUTLINES AND

REJECTED KAs

Facility: McGuire Date of Exam: Oct 21, 2003 ~~Exam Level:~~

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 *	~~Point~~ Total	K	A	A 2	G *	Total
1. Emergency & Abnormal Plant Evolutions	1												~~24~~18			7		7
	2												~~16~~9			4	1	5
	~~3~~												3					
	Tier Totals												~~43~~27			11	1	12
2. Plant Systems	1												~~12~~28			3	1	4
	2												~~7~~10			1	1	2
	~~3~~												*					
	Tier Totals												~~40~~38			4	2	6
3. Generic Knowledge and Abilities Categories		~~Cat~~ 1		~~Cat~~ 2		~~Cat~~ 3		~~Cat~~ 4					~~17~~10	1	2	3	4	7
		1												2	2	1	2	

Note:
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 ~~100~~ 75 points and the SR0-only exam must total 25 points.
3. Select topics from many systems and evolutions; avoid selecting more than ~~two or three~~ 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 10 CFR 55.43 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 ~~SRO~~ applicable license level, and the point totals for each system and category. ~~K/As below 2.5 should be justified on the basis of plant-specific priorities.~~ 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 columns 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 point 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	High Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1										Form ES-401-3											
													Bank			Source Information						
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Points	Question	Level	Lesson Plan	NRC	Bank	Mod	New	Memory	Comp	Analysis
000007 Reactor Trip - Stabilization - Recovery / 1							Deselected												
000008 Pressurizer Vapor Space Accident / 3							Deselected												
000009 Small Break LOCA / 3							Deselected												
000011 Large Break LOCA / 3					2.14		Ability to determine or interpret the following as they apply to a Large Break LOCA: Actions to be taken if limits for PTS are violated.	4.00	1	1077.00	SRO					X		X	
000015/17 RCP Malfunctions / 4							Deselected												
000022 Loss of Reactor Coolant Makeup / 2					2.04		Ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Pump Makeup: How long Pzr level can be maintained within limits.	3.8	1	1088	SRO					X			X
000025 Loss of RHR System / 4							Deselected												
000026 Loss of Component Cooling Water / 8							Deselected												
000027 Pressurizer Pressure Control System Malfunction / 3					2.15	2.4.11	Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunction: Actions to be taken is PZR pressure instrument fails high	4.0	1	1083	SRO					X		X	
000029 ATWS							Deselected												
000038 Steam Generator Tube Rupture / 3							Deselected												
000040 W/E12 Steam Line Rputure- Excessive Heat Transfer / 4							Deselected												
000040 W/E12 Steam Line Rupture - Excessive Heat Transfer / 4							Deselected												
000054 Loss of Main Feedwater / 4							Deselected												
000055 Station Blackout / 6							Deselected												
000056 Loss of Offsite Power / 6							Deselected												
000057 Loss of Vital AC Inst Bus / 6					2.19		Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: The plant automatic actions that will occur on the loss of a vital ac electrical instrument bus.	4.3	1	1080	SRO					X			X
000058 Loss of DC Power / 6					2.02		Ability to determine and interpret the following as they apply to the Loss of	3.6	1	881.1	SRO				X			X	
000062 Loss of Nuclear Service Water / 4							Deselected												
000065 Loss of Instrument Air / 8					2.06		Ability to determine and interpret the following as they apply to the Loss of Instrument Air: When to trip the reactor if instrument air pressure is decreasing.	4.2	1	1081	SRO					X	X		

W/E04 LOCA Outside Containment							Deselected												
W/E11 Loss of Emergency Coolant Recirc / 4					2.2.20		Ability to determine and interpret the following as they apply to the (Loss of Emergency Coolant Recirculation) Adherence to appropriate procedures and operation within the limitations in the facility license and amendments.	4.2	1	1084	SRO					X			X
W/E05 Inadequate Heat Sink/Loss of Secondary Heat Sink / 4							Deselected												
K/A Category Totals:							Group Point Total:												

ES-401	PWR Examination Outline	Form ES-401-3
	Emergency and Abnormal Plant Evolutions - Tier 1/Group 2	

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Points	Level	Bank Question	Lesson Plan	Source: NRC	Bank	Mod	New	Memory	Comp	Analysis
000001 Continuous Rod Withdrawal / 1							Deselected												
000003 Dropped Control Rod / 1							Deselected												
000005 Inoperable/Stuck Control Rod /1							Deselected												
000024 Emergency Boration / 1							Deselected												
000026 Pressurizer Level Malfunction / 2							Deselected												
000032 Loss of Source Range NI / 7							Deselected												
000033 Loss of Intermediate Range NI / 7							Deselected												
000036 Fuel Handling Accident / 8							Deselected												
000037 Steam Generator Tube Leak							Deselected												
000051 Loss of Condenser Vacuum / IV							Deselected												
000059 Accidential Liquid Rad/Waste Rel / 8					2.02		Ability to determine and interpret the following as they apply to the Accidnetial Liquid Radwaste Release: The permit for liquid radioactive waste release.	3.9	1	SRO	999.1			X			X		
000060 Accidential Gaseous Radwaste Rel / 8							Deselected												
000061 ARM System Alarms / 7					2.01		Ability to determine and interpret the following as they apply to the Area Radiation Monitoring System Alarms: ARM panel displays	3.7	1	SRO	495.1			X			X		
000067 Plant Fire On-site / 8							Deselected												
000068 Control Room Evac / 8							Deselected												
000069 (W/E14) Loss of CTMT Integrity / V							Deselected												
000074 (W/E06&E07) Inad. Core Cooling / IV					2.10		Ability to determine and interpret the following as they apply to the (Degraded Core Cooling): Facility conditions and selection of appropriate abnormal and emergency operations.	4.2	1	SRO	188.1				X		X		
000076 High Reactor Coolant Activity / 9							Deselected												
W/E01 & E02 Rediagnosis & SI Termination							Deselected												
WE01 & E02 Rediagnosis & SI Termination							Deselected												

W/E12 Steam Generator Over-pressure / 4							Deselected												
W/E15 Containment Flooding							Deselected												
W/E16 High Containment Radiation / 9						2.4.6	Knowledge of symptom based mitigation strategies.	4.0	1	SRO	1082					X	X		
BW/A01 Plant Runback / 1							Deselected												
BW/A02 & A03 Loss of NNI / 7							Deselected												
BW/A04 Turbine Trip / 4							Deselected												
BW/A05 Emergency Diesel Actuation / 6							Deselected												
BW/A07 Flooding							Deselected												
BW/E03 Inadequate Subcooling Margin / 4							Deselected												
BW/E06; W/E03 LOCA Cooldown - Depress. / 4							Deselected												
BW/E09; CE/A13;W/E9&10 Natural Circ. / 4					2.10		Facility conditions and selecton of appropriate proecdures during abnormal and emergency operations.	3.6	1	SRO	871.2			X			X		
BW/E13&14 EOP Rules and Enclosures							Deselected												
CE/A11; W/E08 RCS Overcooling - PTS / 4							Deselected												
CE/A16 Excess RCS Leakage / 2							Deselected												
CE/E09 Functional Recovery							Deselected												
K/A Category Totals:							Group Point Total:												

ES-401 — Form ES-401-3

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)	Imp.	Points	Level	Bank Question	Lesson Plan	Source Information: NRC	Bank	Mod	New	Memory	Comp	Analysis
003 Reactor Coolant Pump								2.01				RCPS, and based on those predictions, use procedures to correct, control or mitigate the consequences: Problems with the RCP easl , especially leak off rates.	3.3	1	SRO	1086					X	X		
003 Reactor Coolant Pump												Deselected												
004 Chemical Volume and Control												Deselected												
005 Residual Heat Removal												Deselected												
006 Emergency Core Cooling												Deselected												
007 Pressurizer Relief/Quench Tank												Deselected												
008 Component Cooling Water												Deselected												
010 Pressurizer Pressure Control												Deselected												
010 Pressurizer Pressure Control												Deselected												
012 Reactor Protection												Deselected												
012 Reactor Protection												Deselected												
013 Engineered Szfety Features Actuation								2.04				ESFAS: and based Ability on those predictoins, use procedures to correct, control, or mitigagte the consequences of those malfunctions or operations: Loss of an instrument bus.	4.2	1	SRO	1076					X		X	
022 Containment Cooling												Deselected												
025 Ice Condenser												Deselected												
026 Containment Spray												Deselected												
026 Containment Spray												Deselected												
039 Main and Reheat Steam								2.04				MRSS: and based on predicitions, use procedures to correct, control or mitigagte the consequences of those malfunctions: Malfunctioning steam dump.	3.7	1	SRO	979.1				X			X	
056 Condensate												Deselected												
059 Main Feedwater												Deselected												
061 Auxiliary/Emergency Feedwater												Deselected												

062 AC Electrical Distribution											Deselected																
063 DC Electrical Distribution											Deselected																
064 Emergency Diesel Generator											Deselected																
064 Emergency Diesel Generator											Deselected																
073 Process Radiation Monitoring										2.1.3	Ability to explain and apply all system limits and precautions.	3.8	1	SRO	1006.1			X			X					
076 Service Water											Deselected	2.6															
078 Instrument Air											Deselected	2.7															
103 Containment											Deselected	3.9															
K/A Category Totals:											Group Point Total:																

ES-401 — PWR Examination Outline — Form ES-401-3

Plant Systems - Tier 2 Group 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)	Imp.	Points	Level	Question	NRC	Bank	Mod	New	Memory	Comp	Analysis
001 Control Rod Drive												Deselected											
002 Reactor Coolant												Deselected											
011 Pressurizer Level Control												Deselected											
014 Rod Position Indication												Deselected											
015 Nuclear Instrumentation												Deselected											
016 Non-nuclear Instrumentation												Deselected											
017 In-core Temperature Monitor												Deselected											
027 Containment Iodine Removal											2.1.3	Ability to explain and apply all system and limits and precautions.	3.8	1	SRO	1C75				X	X		
028 Hydrogen Recombiner and Purge Control												Deselected											
029 Containment Purge												Deselected											
033 Spent Fuel Pool Cooling												Deselected											
034 Fuel Handling Equipment												Deselected											
035 Steam Generator												Deselected											
041 Steam Dump/Turbine Bypass Control												Deselected											
045 Main Turbine Generator												Deselected											
055 Condenser Air Removal												Deselected											
068 Liquid Radwaste												Deselected											
071 Waste Gas Disposal												Deselected											
072 Area Radiation Monitoring												Deselected											
075 Circulating Water									2.02			circulating water system; and based on those predictions,use procedures to correct, control or mitigate the consequences of those malfunctions: Loss of circulating water pumps.	2.7	1	SRO	1C78		Bank		X		X	

079 Station Air											Deselected											
086 Fire Protection											Deselected											
K/A Category Totals:											Group Point Total:											

ES-401 Generic Knowledge and Abilities Outline (Tier 3) Form ES-401-5

Facility: McGuire Date of Exam: 9/30/2003 Exam Level:

Category	K/A #	Topic	Imp.	Points	Level	Bank Question	Lesson Plan	NRC	Bank	Mod	New	Memory	Comp	Analysis
Conduct of Operations	2.1.5	Ability to locate and use procedures and directives related to shift staffing and activities	3.4	1	SRO	121.1			X				X	
	2.1.12	Ability to apply technical specifications for a system.	4	1	SRO	1079			X				X	
	Total													
Equipment Control	2.2.21	Knowledge of pre and post maintenance activities.	3.5	1	SRO	1087					X			X
	2.2.22	Knowledge of limiting conditions for operations and safety limits	4.1	1	SRO	284.1			X			X		
	Total													
Radiation Control	2.3.5	Knowledge of SRO responsibilities for auxiliary systems that are outside the control room (e.g. waste disposal and handling systems).	2.9	1	SRO	1085					X	X		
	Total													
Emergency Procedures and Plan	2.4.44	Knowledge of emergency plan recommendations	4	1	SRO	210.1			X					X
	2.4.49	Ability to perform without reference to procedeures those actions that require immediate operation of systems components and controls.	4	1	SRO	1089			X			X		
	Total													

[illegible]

17 SRO K/As to be sampled - 13 will be imported from the RO generic section

Tier / Group	Randomly Selected K/A	Reason for Rejection
T1/G1	000011 G2.4.49	Could not write operationally valid SRO level of responsibility question on this KA and are no immediate actions in E-1. Randomly swapped to EA2.14
T1/G1	000025 AA2.06 (G 2.4.11)	Could not write operationally valid SRO level of responsibility question on this KA. RO level of knowledge. Randomly swapped to 000027 AA2.15
T1/G1	000057 G2.1.14	Could not write operationally valid **SRO** level of responsibility question on this KA. Randomly swapped to AA2.19
T1/G1	000065 62.1.14	Could not write operationally valid SRO level of responsibility question on this KA. Randomly swapped to AA2.06
T2/G1	003 G 2.1.14	Could not write operationally valid SRO level of responsibility question on this KA. Randomly swapped to **A2.01**
Generics	2.2.19	The process under question is changing rapidly and would be very difficult psychometrically sound question at SRO level. This KA was randomly swapped to 2.2.22.
Generics	2.4.36	Not SRO JTA applicable. Could not write operationally valid SRO level of responsibility question on this KA. Randomly swapped to 2.4.44
T1/G2	G 2.4.50	Deselected by lead examiner. G 2.4.50 not 10CFR55.43 reselected W/E 10 EA 2.1
*	USED RANDOM, RG	