

Draft Submittal
(Pink Paper)

**MCGUIRE OCTOBER 2003
EXAM 50-369 & 50-37012003-302**

OCTOBER 21,2003

1. Written Exam Sample outlines

*NRC Development Outline*Facility: *McGuire*Date of Exam: *Retake 2008*

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												18			4	3	7
	2												9			3	2	5
	Tier Totals												27			7	5	12
2. Plant Systems	1												28			2	2	4
	2												10			1	1	2
	Tier Totals												38			3	3	6
3. Generic Knowledge and Abilities Categories				1	2	3	4	10				1	2	3	4	7		
												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 75 points and the SRO-only exam must total 25 points.
3. Select topics from many systems and evolutions; avoid selecting more than two WA 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 WA 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 SRQ-only knowledge and non-A2 ability categories in the columns labeled "K" and "A." Use duplicate pages for RO and SRO-only exams.
- h. For Tier 3, enter the K/A numbers, descriptions, importance ratings, and point totals on Form ES-401-3.
- i. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate WA statements.

Tier 1 Group 1

Name / Safety Function:	K1	K2	K3	A1	A2	G	KIA Number	Question Type	KIA Topic	RO	SRO
Reactor Trip - Stabilization-Recovery / 1	0	0	0	0	0	0	007EG2.1.32	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	3.8
Pressurizer Vapor Space Accident / 3	0	0	0	0	0	0	008AG2.1.32	This is a Generic, no stem statement is associated.	WA Randomly Rejected	3.4	3.8
Small Break LOCA / 3	0	0	0	0	0	0	009EA2.32	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION) (CFR 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.2	3.6
Large Break LOCA / 3	0	0	0	0	0	1	011EG2.4.49	This is a Generic, no stem statement is associated.	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls	4	4
RCP Malfunctions / 4	0	0	0	0	0	0	015AG2.1.33	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	4
Loss of Rx Coolant Makeup / 2	0	0	0	0	1	0	022AA2.04	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION) (CFR 41.10 / 43.5 / 45.13)	How long PZR level can be maintained within limits	2.9	3.8
Loss of RHR system / 4	0	0	0	0	1	0	025AA2.06	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION) (CFR 41.10 / 43.5 / 45.13)	Existence of proper RHR overpressure protection	3.2	3.4
Loss of Component Cooling Water / 8	0	0	0	0	0	0	026AG2.4.49	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	4	4
Pressurizer Pressure Control System Malfunction / 3	0	0	0	0	0	0	027AG2.2.22	This is a Generic, no Stem statement is associated.	K/A Randomly Rejected	3.4	4.1

25 Point Test

Tier I Group 1

Name/ Safety
Function:

	K1	K2	K3	A1	A2	G	KIA Number	Question Type	K/A Topic	RO	SUO
ATWS / 1	0	0	0	0	0	0	029EG2.1.32	This is a Generic, no stem statement is associated.	KIA Randomly Rejected	3.4	3.8
Steam Gen Tube Rupture 1 3	0	0	0	0	0	0	038EA2.14	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION) (CFR 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.3	4.6
Steam Line Rupture - Excessive Heat Transfer / 4	0	0	0	0	0	3	040AG2.4.30	This is a Generic, no stem statement is associated	K/A Randomly Rejected	2.2	3.6
Loss of Main Feedwater / 4	0	0	0	0	0			apply to ABNORMAL PLANT EVOLUTION) (CFR: 41.10 / 43.5 / 45.13)		4.1	4.4
Station Blackout / 6	0	0	0	0	0	0	055EG2.1.33	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	A
Loss of Off-site Power / 6	0	0	0	0	0	0	056AA2.52	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION) (CFR: 41.10 / 43.5 / 45.13)	KIA Randomly Rejected	2.6	2.8
Loss of Vital AC Inst. Bus / 6	0	0	0	0	0	1	057AG2.1.14	This is a Generic, no stem statement is associated	Knowledge of system status criteria which require the notification of plant personnel.	2.5	3.3
Loss of DC Power / 6	0	0	0	0	1	0	058AA2.02	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION) (CFR: 41.10 / 43.5 / 45.13)	125V dc bus voltage, low/critical low. alarm	3.3	3.6
Loss of Nuclear Svc Water / 4	0	0	0	0	0	0	062AG2.4.30	This is a Generic, no stem statement is associated	WA Randomly Rejected	2.2	3.6

Tier 1 Group 1

Name / Safety

Function:	K1	K2	K3	A1	A2	G	KIA Number	Question Type	K/A Topic	RO	SRO
Loss of Instrument Air / 8	0	0	0	0	0	1	065AG2.1.14	This is a Generic, no stem statement is associated.	Knowledge of system status criteria which require the notification of plant personnel	25	3.3
LOCA Outside Containment / 3	0	0	0	0	0	0	VE04EA2.2	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION): (CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	36	4.2
Loss of Emergency Coolant Recirc. / 4	0	0			1	0	WE11EA2.2	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION) (CFR: 41.10 / 43.5 / 45.13)	Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments	34	4.2
Steam Line Rupture - Excessive Heat Transfer / 4	0	0	0	0	0	0	WE12EA2.2	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION): (CFR: 41.10 / 43.5 / 45.13)	KIA Randomly Rejected	34	3.9
inadequate Heat Transfer - Loss Of Secondary	0	0	0	0	0	0	WE05EG2.2	This is a Generic, no Stem statement is associated	KIA Randomly Rejected	25	3.7

Tier 1 Group 2

Name / Safety Function:	K1	K2	K3	A1	A2	G	KIA Number	Question Type	KIA Topic		
High Containment Radiation / 9	0	0	0	0	0	1	WE16EG2.4	This is a Generic. no stem statement is associated	Knowledge symptom based EOP mitigation strategies.		
SI Termination / 3	0	0	0	0	0	0	WE02EA2.1	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.3	4.2
			0	0	0	0	WE03EG2.1	This is a Generic, no stem statement is associated.	WA Randomly Rejected		
Natural Circ / 4	0	0	0	0	0	0	WE09EG2.4	This is a Generic, no stem statement is associated	K/A Randomly Rejected		
Natural Circ With Seam	0	0	0	0	0	1	WE10EG2.4	This is a Generic. no stem statement is associated <i>SD 45.3 Refuse go must Deselect</i>	Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.		
RCS Overcooling - PTS / 4	0	0	0	0	0	0	WE08EA2.1	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	WA Randomly Rejected		
Degraded Core Cooling / 4	0	0	0	0	0	0	WE06EA2.1	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	Facility conditions and selection of appropriate procedures during abnormal and emergency operations	3.4	4.2

Continuous	0	0	0	0	0	0	001AG2.1.14	This is a Generic, no stem statement is associated.	KIA Randomly Rejected	2.5	3.3
Dropped Control Rod / 1	0	0	0	0	0	0	033AG2.4.4	This is a Generic, no stem statement is associated	WA Randomly Rejected	4	4.3
Inoperable/Stuck Control Rod / 1	0	0	0	0	0	0	005AA2.03	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.5	4.4
Emergency Boration / 1	0	0	0	0	0	0	024AG2.1.32	This is a Generic, no stem statement is associated.	KIA Randomly Uejected	3.4	3.8
Pressurizer Level Malfunction / 2	0	0	0	0	0	0	028AR2.14	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	2.6	2.8
	0	0	0	0	0	0	032AG2.4.49	This is a Generic, no stem statement is associated	K/A Randomly Rejected	4	4
Loss Of	0	0	0	0	0	0	033AG2.4.49	This is a Generic, no Stem statement is associated	WA Randomly Rejected	4	4

25 Point Test

Tier 1 Group 2

Name ■ Safety Function:	K1	K2	K3	A1	A2	G	KIA Number	Question Type	KIA Topic	RO	SRO
Fuel Handling Accident / 8	0	0	0	0	0	0	036AA2.02	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.4	4.1
Steam Generator Tube Leak / 3	0	0	0	0	0	0	037AG2.4.49	This is a Generic, no stem statement is associated	WA Randomly Rejected	4	4
LOSS of Condenser Vacuum / 4	0	0	0	0	0	0	051AA2.01	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	2.4	2.7
Accidental Liquid RadWaste Rel.	0	0	0	0	1	0	059AA2.02	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	The permit for liquid radioactive-waste release	2.9	3.9
Accidental Gaseous Radwaste Rel / 9	0	0	0	0	0	0	060AA2.03	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.2	3.9
ARM System Alarms / 7	0	0	0	0	1	0	061AA2.01	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	ARM panel displays	3.5	3.7
Plant Fire On-site / 9.8	0	0	0	0	0	0	067AG2.2.25	This is a Generic, no stem statement is associated	WA Randomly Rejected	2.5	3.7

25 Point Test

Tier1 Group2

Name/ Safety Function:	K1	K2	K3	A1	A2	G	KIA Number	Question Type	KIA Topic	RO	SRO
Control Room Evac / 8	0	0	0	0	0	0	068AA2.08	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.9	4.1
Loss of CTMT Integrity / 5	0	0	0	0	0	0	069AG2.2.22	This is a Generic, no stem statement is associated.	KIA Randomly Rejected	3.4	4.1
Inad. Core Cooling / 4	0	0	0	0	0	0	074EA2.05	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	WA Randomly Rejected	3.4	4.2
High Reactor Coolant Activity / 9	0	0	0	0	0	0	076AA2.05	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	2.2	2.5
Radiagnosis/3	0	0	0	0	0	0	WE01EG2.2	This is a Generic, no stem statement is associated	KIA Randomly Rejected	2.5	3.7
Steam Generator Over-pressure / 4	0	0	0	0	0	0	WE13EG2.1	This is a Generic, no stem statement is associated	K/A Randomly Rejected	3.4	4
Containment Flooding/ 5	0	0	0	0	0	0	WE15EA2.2	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	2.9	3.3

Saturated Core Cooling Core Cooling / 4	0	0	0	0	0	0	0	WE07EA2.2	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION) (CFR 41.10 / 43.5 / 45.13)			
Loss of CTMT Integrity / 5	0	0	0	0	0	0	0	WE14EA2.2	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 143.5/ 45.13)	K/A Randomly Rejected	3.3	3.8

25 Point Test

Tier 2 Group 1

Name / Safety Function:	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Number	Question Type	K/A Topic	KO	SRO
Reactor Coolant Pump	0	0		0	0	0	0	0	0	0	1	003GG2.1.1	this is a Generic. no stem statement is associated.	Knowledge of system status criteria which require the notification of plant personnel	2.5	3.3
Chemical and Volume Control	0	0		0	0	0	0	0	0	0		004GG2.4.5	this is a Generic. no stem statement is associated.	KIA Randomly Rejected	3.3	3.3
Residual Heat Removal	0	0		0	0	0	0	0	0	0	0	005GG2.4.4	this is a Generic. no stem statement is associated.	KIA Randomly Rejected	4.0	1.3
Emergency Core Cooling	0	0		0	0	0	0	0	0	0	0	006A2.13	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 45.6)	K/A Randomly Uejected	3.9	4.2
Pressurizer Relief/Quench Tank	0	0	0	0	0	0	0	0	0	0	0	007A2.03	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 45.6)	KIA Randomly Rejected	3.6	3.9
Component Cooling Water	0	0	0	0	0	0	0	0	0	0	0	008GG2.1.2	this is a Generic. no stem Statement is associated	KIA Randomly Rejected	2.8	2.9
Pressurizer Pressure Control	0	0	0	0	0	0	0	0	0	0	0	010GG2.1.3	This is a Generic, no stem statement is associated.	KIA Randomly Rejected	3.9	3.4
Reactor Protection	0	0	0	0	0	0	0	0	0	0	0	012A2.01	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those Predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 45.6)	K/A Randomly Rejected	3.1	3.6
Engineered Safety Features Actuation	0	0	0	0	0	0	0	1	0	0	0	013A2.0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	Loss of instrument bus	3.6	4.2

25 Point Test

Tier 2 Group 1

Name / Safety Function:	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Number	Question Type	KIA Topic	RO	SRO
Containment Cooling	0	0	0	0	0	0	0	0	0	0	0	022A2 04	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 1 45.6)	WA Randomly Rejected	3.9	3.2
Ice Condenser	0			0	0	0	0	0	0	0	0	025GG2 1 2	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.0	4.0
Containment Spray	0			0	0	0	0	0	0	0	0	026GG2 1 3	This is a Generic, no Stem statement is associated.	WA Randomly Rejected	3.4	3.8
Main and Reheat Steam	0	0	0	0	0	0	0	1	0	0	0	039A2 04	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 1 43.5 / 45.3 145.13)	Malfunctioning steam dump	3.4	3.7
Condensate	0	0	0	0	0	0	0	0	0	0	0	056GG2 1 3	This is a Generic, no stem statement is associated.	WA Randomly Rejected	3.4	4.0
Main Feedwater	0	0	0	0	0		0	0	0	0	0	059A2 12	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR 41 5 / 45 6)	K/A Randomly Rejected	3.1	3.4
Auxiliary/Emergency Feedwater	0	0	0	0	0		0	0	0	0	0	061GG2 1 3	This is a Generic, no stem statement is associated	WA Randomly Rejected	3.4	3.8
AC Electrical Distribution	0	0	0	0	0		0	0	0	0	0	062A2.11	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 45.6)	K/A Randomly Rejected	3.7	4.1
DC Electrical Distribution	0	0	0	0	0		0	0	0	0	0	063GG5.1.2	This is a Generic, no stem statement is associated.	WA Randomly Rejected	3.9	4.0

25 Point Test

Tier 2 Group 1

Name / Safety Function:	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	6	K/A Number	Question Type	K/A Topic	RO	SRO
Emergency Diesel Generator	0	0	0	0	0	0	0	0	0	0	0	064A2.05	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: (CFR: 41.5 45.6)	K/A Randomly Rejected	3.1	3.2
Process Radiation Monitoring	0	0	0	0	0	0	0	0	0	0	1	073G2.1.32	This is a Generic, no stem statement is associated.	Ability to explain and apply all system limits and precautions.	3.4	3.8
Service Water	0	0	0	0	0	0	0	0	0	0	0	076GG2.2.2	This is a Generic, no stem statement is associated.	KIA Randomly Rejected	2.5	3.7
Instrument Air	0	0	0	0	0	0	0	0	0	0	0	078A2	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR 41.5 / 45.6)	K/A Randomly Rejected	0	0
Containment	0	0	0	0	0	0	0	0	0	0	0	103GG2.2.2	This is a Generic, no stem statement is associated.	KIA Randomly Rejected	2.5	3.7

25 Point Test

Tier 2 Group 2

Name / Safety Function:	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Number	Question Type	K/A Topic	RO	SRC
Control Rod Drive	0	0	0	0	0	0	0	0	0	0	0	001A2.12	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR: 41.5 / 45.6)	KIA Randomly Rejected	3.6	4.2
Reactor Coolant	0	0	0	0	0	0	0	0	0	0	0	002A2.01	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR: 41.5 / 45.6)	K/A Randomly Rejected	4.3	4.4
Pressurizer Level Control	0	0	0	0	0	0	0	0	0	0	0	011GG2.13	This is a Generic, no stem statement is associated	KIA Randomly Rejected		
Rod Position Indication	0	0	0	0	0	0	0	0	0	0	0	014A2.06	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR: 42.5 / 45.6)	K/A Randomly Rejected	2.6	3.0
Nuclear instrumentation	0	0	0	0	0	0	0	0	0	0	0			K/A Randomly Rejected	3.4	3.8
Non-nuclear Instrumentation	0	0	0	0	0	0	0	0	0	0	0	016GG2.2.2	This is a Generic, no stem Statement is associated	K/A Randomly Rejected	3.4	4.1
in-core Temperature Monitor	0	0	0	0	0	0	0	0	0	0	0	017A2.02	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR: 41.5 / 45.6)	KIA Randomly Rejected	3.6	4.1
Containment Iodine Removal	0	0	0	0	0	0	0	0	0	0	1	027G2.1.32	This is a Generic, no stem statement is associated.	Ability to explain and apply all system limits and precautions.	3.4	3.8
Hydrogen Recombiner and Purge Control	0	0	0	0	0	0	0	0	0	0	0	028A2.02	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation (CFR: 41.5 / 45.6)	KIA Randomly Rejected	3.5	3.9

25 Point Test

Tier 2 Group 2

Name / Safety Function:	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KIA Number	Question Type	KIA Topic	RO	SRO
Containment Purge	0	0	0	0	0	0	0	0	0	0	0	029A2 01	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use Procedures to correct, control, or mitigate the consequences of those abnormal operation: (CFR: 41.5 / 95.6)	KIA Randomly Rejected	2.9	3.6
Spent Fuel Pool Cooling	0	0	0	0	0	0	0	0	0	0	0	033GG2.4.4	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	4.0	4.0
Fuel Handling Equipment	0	0	0	0	0	0	0	0	0	0	0	034GG2.4.4	This is a Generic, no stem statement is associated	K/A Randomly Rejected	4.0	4.0
Steam Generator	0	0	0	0	0	0	0	0	0	0	0	035GG2.2.2	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	4.1
Steam Dump/Turbine Bypass Control	0	0	0	0	0	0	0	0	0	0	0	041GG2 1.2	This is a Generic, no stem Statement is associated	K/A Randomly Rejected	3.0	4.0
Main Turbine Generator	0	0	0	0	0	0	0	0	0	0	0	045GG2 1.3	This is a Generic, no stem statement is associated	K/A Randomly Rejected	3.4	4.0
Condenser Air Removal	0	0	0	0	0	0	0	0	0	0	0	055GG2.1 2	This is a Generic, no stem statement is associated	K/A Randomly Rejected	3.2	3.3
Liquid Radwaste	0	0	0	0	0	0	0	0	0	0	0	068A2 02	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: (CFR: 41.5 / 15.6)	K/A Randomly Rejected	2.7	2.8
Waste Gas Disposal	0	0	0	0	0	0	0	0	0	0	0	071A2 02	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: (CFR: 41.5 / 15.6)	K/A Randomly Rejected	3.3	3.6

Tier 2 Group 2

Name / Safety Function:	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KIA Number	Question Type	KIA Topic		
Area Radiation Monitoring	0	0	0	0	0	0	0	0	0	0	0	072GG2.1.3	This is a Generic. no stem statement is associated.	KIA Randomly Rejected		
Circulating Water	0	0	0	0	0	0	0	1	0	0	0	075A2.02	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use proceduresto correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	Loss of circulating water pumps	25	27
Station Air	0	0	0	0	0	0	0	0	0	0	0	079A2.01	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions. use proceduresto correct, control, or mitigate the	KIA Randomly Rejected		
Fire Protection	0	0	0	0	0	0	0	0	0	0	0	086GG2.1.1	This is a Generic, no stem statement is associated	KIA Randomly Rejected		

Tier 3

Category	KA Number	KIA Topic	RO	SRO
Conduct of Operations	G2.15	Ability to locate and use Procedures and directives related to shift staffing and activities	2.3	3.4
Conduct of Operations	G2.1.12	Ability to apply technical specifications for a system	2.9	4
Equipment Control	G2.2.21	Knowledge of pre- and post-maintenance operability requirements	2.3	3.5
Equipment Control	G2.2.19	Knowledge of maintenance work order requirements	2.1	3.1
Radiation Control	G2.3.3	Knowledge of SRO responsibilities for auxiliary systems that are outside the control room (e.g. waste disposal and handling systems)	1.8	2.9
Emergency Procedures/Plan	G2.4.36	Knowledge of chemistry / health physics tasks during emergency operations.	2	2.8
Emergency Procedures/Plan	G2.4.49	Ability to perform without reference to procedures those that require immediate operation of system components and controls.	4	4

*Facility Modified Outline*Facility: *M^cGuire*Date of Exam: *10-21-2003*

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												2418			7		7		
	2												469			3	2	5		
	3												3							
	Tier Totals												437					12		
2. Plant Systems	1												928			3	1	4		
	2												11			1	1	2		
	3																			
	Tier Totals												4038			4	2	6		
3. Generic Knowledge and Abilities Categories				Cat 1				Cat 2				Cat 3				Cat 4				7
				1				2				3				4				
				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. Also, 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 4675 points and the SRQ-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 Piers 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 gages for RO and SRQ-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.

E/APE # / Name / Safety Function										K/A Topic(s)		Imp.	Points	Bank	Level	Lesson Plan	Source Information							Memory	Comp	Analysis
K	1	K	2	K	3	A	1	A	2	G							NRC	Bank	Mod	New						
000007											Deselcted															
000008											Deselcted															
000009											Deselcted															
000011										2.14	Ability to determine or interpret the following as they apply to a Large Break : OCA: Actions to be taken if limits for PTS are violated	4.00	1	1077.00	SRO					X				X		
000015/17											Deselcted															
000022										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	1056	SRO					X					X	
000025											Deselcted															
000026											Deselcted															
000027										2.15	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	1033	SRO					X				X		
000029											Deselcted															
000036											Deselcted															
000040											Deselcted															
000040											Deselcted															
000054											Deselcted															
000055											Deselcted															
000056											Deselcted															
000057										2.18	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	1020	SRO					X					X	
000058										2.02	Ability to determine and interpret the following as they apply to the Loss of	3.6	1	851.1	SRO				X					X		
000062											Deselcted															
000065										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				

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W/E04 LOCA Outside Containment						Deselected														
W/E11 Loss of Emergency Coolant Recirc / 4				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:														

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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	Lesson Information				Memory	Comp	Analysis		
																						NRC	Bank	Mod	New					
000001 Continuous Rod Withdrawal / I																Deselected														
000003 Dropped Control Rod / I																Deselected														
000005 Inoperable/Stuck Control Rod / I																Deselected														
000024 Emergency Boration / I																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 Accidental Liquid Rad/Waste Rel / 8														2.02		Ability to determine and interpret the following as they apply to the Accidental Liquid Radwaste Release: The permit for liquid radioactive waste release.	3.9	1	SRO	999.1				X				X		
000060 Accidental 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														
000069 Control Room Evac / 8																Deselected														
000069 (WE14) Loss of CTMT Integrity / V																Deselected														
000074 (WE06&E07) Inad. Core Cooling / IV														2.16		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	180.1					X			X		
000076 High Reactor Coolant Activity / 8																Deselected														
WE01 & E02 Rediagnosis & SI Termination																Deselected														
WE01 & E02 Rediagnosis & SI Termination																Deselected														

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W/E13 Steam Generator Over-pressure / 4							Deselected												
W/E15 Containment Flooding							Deselected												
W/E18 High Containment Radiation / 9						2.4.5	Knowledge of symptom based mitigation strategies.	4.0	1	SRO	1082						X	X	
BW/A01 Plant Runback / 1							Deselected												
BW/A02 & A03 Loss of NRI / 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/F08; W/E03 LOCA Cooledown - Depress. / 4							Deselected												
BW/E09; CE/A13; W/E9&10 Natural Circ. / 4						2.4.50	Ability to verify system alarm setpoints and operate control identified in the alarm response manual.	3.3	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												
CF/E09 Functional Recovery							Deselected												
K/A Category Totals:																			
Group Point Total:																			

deselect 1c/1A

** 2.4.50 is 45.3 and not valid.*

Page 13 of 13																						Bank		Source Information											
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	Lesson Plan	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 exist, 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 Safety Features Actuation														2.04								ESFAS, and based on those predictions, use procedures to correct, control, or mitigate 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 predictions, use procedures to correct, control or mitigate 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													

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1-3																					1-3													
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	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.	5.6	1	SRO	1075				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	1078				X		X	

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[illegible][illegible]

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Category	K/A #	Topic	Imp.	Points	Level	Question	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 starting 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	264.1			X			X			✓
Total															
Radiation Control	2.3.3	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	✓
	2.4.48	Ability to perform without reference to procedures those actions that require immediate operation of systems components and controls.	4	1	SRO	1089			X			X			✓
Total															

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

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