

# Draft Submittal

**VOGTLE MAY 2005 EXAM  
50-424, 425/2005-301**

**MAY 17 - 25, 2005  
MAY 27, 2005 (WRITTEN)**

**DRAFT Written Exam Quality Checklist (ES-401-6)  
& Written Exam Sample Plan**

DRAFT

Facility: Vogtle		Date of Exam: May 2005		Exam Level: RO/SRO		
Item Description				Initial		
				a	b*	c*
1.	Questions and answers are technically accurate and applicable to the facility.			MB	NA	MB
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.			MB	↑	MB
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401			N/A		N/A
4.	If more than four RO and two SRO questions are repeated from the last two NRC licensing exams, the facility licensee's sampling process was random and systematic.			N/A		N/A
5.	Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: ___ the audit exam was systematically and randomly developed ___ the audit exam was completed before the license exam was started ___ the examinations were developed independently ___ the licensee certifies that there is no duplication ___ other (explain) Independently Developed, MB			N/A		N/A MB
6.	Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distributions(s) at right.	Bank	Modified	New	MB	MB
		22,75	17,75	36,75		
7.	Between 50 and 60 percent of the questions on the RO exam are written at the comprehension/ analysis level; the SRO exam may exceed 60 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right. C/A: 43/75 = 57.33%	Memory	C/A		MB	MB
		32,75	43,75			
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.			MB		MB
9.	Question content conforms with specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.			MB		MB
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.			MB		MB
11.	The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet.			MB	↓	MB
				Printed Name / Signature		Date
a.	Author	MARK A. BATES / Mark A. Bates			19 APRIL 2005	
b.	Facility Reviewer (*)	N/A				
c.	NRC Chief Examiner (#)	RICHARD S. BALDWIN / Richard Baldwin			20 April 2005	
d.	NRC Regional Supervisor	GERARD W. Laska / Gerard W. Laska			21 April 2005	
Note: * The facility reviewer's initials/signature are not applicable for NRC-developed examinations. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.						

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Facility: Vogtle		Date of Exam: May 2005		Exam Level: RO/SRO		
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				a	b*	c*
1.	Questions and answers are technically accurate and applicable to the facility.			MAB	MAB	MAB
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.			MAB		MAB
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401			MAB		MAB
4.	If more than four RO and two SRO questions are repeated from the last two NRC licensing exams, the facility licensee's sampling process was random and systematic.			MAB		MAB
5.	Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: <input type="checkbox"/> the audit exam was systematically and randomly developed <input type="checkbox"/> the audit exam was completed before the license exam was started <input checked="" type="checkbox"/> the examinations were developed independently <input type="checkbox"/> the licensee certifies that there is no duplication <input type="checkbox"/> other (explain)			MAB		MAB
6.	Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distributions(s) at right.	Bank	Modified	New	MAB	MAB
		1 / 25	4 / 25	20 / 25		
7.	Between 50 and 60 percent of the questions on the RO exam are written at the comprehension/ analysis level; the SRO exam may exceed 60 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.	Memory		CIA	MAB	MAB
		9 / 25		16 / 25		
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.			MAB		MAB
9.	Question content conforms with specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.			MAB		MAB
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.			MAB		MAB
11.	The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet.			MAB	Y	MAB
				Printed Name / Signature		Date
a.	Author	Mark A. Bates / <i>Mark A. Bates</i>		04.25.2005		
b.	Facility Reviewer (*)					
c.	NRC Chief Examiner (#)	Richard S. Baldwin / <i>Richard S. Baldwin</i>		4/25/05		
d.	NRC Regional Supervisor	James H. Moorman III / <i>James H. Moorman III</i>		4-26-05		
Note: * The facility reviewer's initials/signature are not applicable for NRC-developed examinations. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.						

Facility: Vogtle		Date of Exam: May 2005																	
Tier	Group	RO K/A Category Points												SRO -- Only Points					
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G*	Total	A2	G*	Total			
1. Emergency & Abnormal Plant Evolutions	1	4	1	4	N/A			3	3	N/A			3	18	3	3	6		
	2	1	4	2	N/A			0	0	N/A			2	9	2	2	4		
	Tier Totals	5	5	6	N/A			3	3	N/A			5	27	5	5	10		
2. Plant Systems	1	4	3	2	3	2	1	3	3	2	4	1	28	2	3	5			
	2	1	1	1	1	0	2	1	1	1	0	1	10	2	1	3			
	Tier Totals	5	4	3	4	2	3	4	4	3	4	2	38	4	4	8			
3. Generic Knowledge and Abilities Categories					1		2		3		4				1	2	3	4	
					3		3		2		2		10		1	2	1	3	7

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  $\pm 1$  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; operability-important, site-specific systems that are not included on the outline should be added. Refer to ES-401, Attachment 2, 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, unless the entire exam will be administered only to SRO applicants, in which case the SRO ratings should be used throughout.
- 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.
- On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance rating (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. 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, importance ratings, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

ES-401 Vogtle 2005-301		PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO-R / SRO-S)						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	#
000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1							Not selected.		
000008 Pressurizer Vapor Space Accident / 3			R		S		R 008AK3.05 Knowledge of the reasons for the following responses as they apply to the Pressurizer Vapor Space Accident: ECCS termination or throttling criteria.  S 008AA2.09 Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: PZR spray block valve controls and indicators.	4.0 3.7	1 1
000009 Small Break LOCA / 3				R			R 009EA1.15 Ability to operate and monitor the following as they apply to a small break LOCA: PORV and PORV Block Valve.	3.9	1
000011 Large Break LOCA / 3					R		R 011EA2.07 Ability to determine or interpret the following as they apply to a Large Break LOCA: That equipment necessary for functioning of critical pump water seals is operable.	3.2	1
000015/17 RCP Malfunctions / 4					S	R	R 015017G2.2.12 Knowledge of surveillance procedures.  S 015017AA2.09 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 stator temperatures.	3.0 3.5	1 1
000022 Loss of Rx Coolant Makeup / 2						S	S 022G2.1.12 Ability to apply technical specifications for a system.	4.0	1
000025 Loss of RHR System / 4	R						R 025AK3.01 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.	3.9	1
000026 Loss of Component Cooling Water / 8			R		S		R 026AK3.02 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.  S 026G2.4.48 Ability to interpret control room indications to verify the status and operation of the system, and understand how operator actions and directives affect plant and system conditions.	3.6 3.8	1 1
000027 Pressurizer Pressure Control System Malfunction / 3			R				R 027AK3.03 Knowledge of the reasons for the following responses as they apply to the Pressurizer Pressure Control Malfunction: Actions contained in EOP for PZR PCS malfunction.	3.7	1
000029 ATWS / 1				R	S		R 029EA1.12 Ability to operate and monitor the following as they apply to an ATWS: M/G set power supply and reactor trip breakers.  S 029EA2.05 Ability to determine or interpret the following as they apply to an ATWS: System component valve position indications.	4.1 3.4	1 1
000038 Steam Gen. Tube Rupture / 3					R	S	R 038EA2.17 Ability to determine or interpret the following as they apply to a SGTR: RCP restart criteria.  S 038G2.4.46 Ability to verify that the alarms are consistent with the plant conditions.	3.8 3.6	1 1
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4						R	R W/E12 G2.1.8 Uncontrolled Depressurization of all Steam Generators - Ability to coordinate personnel activities outside the control room.	3.8	1
000054 (CE/E06) Loss of Main Feedwater / 4	R						R 054AK1.02 Knowledge of the operational implications of the following concepts as they apply to Loss of Main Feedwater (MFW): Effects of feedwater introduction on dry S/G.	3.6	1
000055 Station Blackout / 6	R						R 055EK1.02 Knowledge of the operational implications of the following concepts as they apply to the Station Blackout: Natural Circulation Cooling.	4.1	1
000056 Loss of Off-site Power / 6			R				R 056AK3.02 Knowledge of the reasons for the following responses as they apply to the Loss of Offsite Power: Actions contained in EOP for loss of offsite power	4.4	1
000057 Loss of Vital AC Inst. Bus / 6				R			R 057AA1.04 Ability to operate and / or monitor the following as they apply to the Loss of Vital AC Instrument Bus: RWST and VCT valves.	3.5	1

ES-401 Vegtle 2005 301		PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO-R / SRO-S)						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	#
000058 Loss of DC Power / 6						R	R 058AA2.02 Ability to determine and interpret the following as they apply to Loss of DC Power: 125 V dc bus voltage, low/critical low, alarm.	3.3	1
000062 Loss of Nuclear Svc Water / 4						R	R 062G2.1.32 Ability to explain and apply all system limits and precautions.	3.4	1
000065 Loss of Instrument Air / 8							Not selected.		
W/E04 LOCA Outside Containment / 3	R						R W/E04EK1.1 Knowledge of the operational implications of the following concepts as they apply to the (LOCA Outside Containment): Components, capacity, and function of emergency systems.	3.5	1
W/E11 Loss of Emergency Coolant Recirc. / 4		R					R W/E11EK2.2 Knowledge of the interrelations between the (Loss of Emergency Coolant Recirculation) and the following: Facility's heat removal systems, including primary coolers, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.	3.9	1
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4							Not selected.		
	K 1	K 2	K 3	A 1	A 2	G			
K/A Category Totals:	4 0	1 0	4 0	3 0	3 3	3 3	Group Point Total:		18 / 6

E/APE # / Name / Safety Function	K	K	K	A	A	G	K/A Topic(s)	IR	#
	1	2	3	1	2				
000001 Continuous Rod Withdrawal / 1							Not selected.		
000003 Dropped Control Rod / 1							Not selected.		
000005 Inoperable/Stuck Control Rod / 1						S	S 005AA2.03 Ability to determine and interpret the following as they apply to the Inoperable / Stuck Control Rod: Required actions if more than one rod is stuck or inoperable.	4.4	1
000024 Emergency Boration / 1		R					R 024AK2.01 Knowledge of the interrelations between the Emergency Boration and the following: Valves.	2.7	1
000028 Pressurizer Level Malfunction / 2						S	S 028AA2.07 Ability to determine and interpret the following as they apply to the Pressurizer Level Control Malfunctions: Seal water flow indicator for RCP.	2.9	1
000032 Loss of Source Range NI / 7		R					R 032AK2.01 Knowledge of the interrelations between the Loss of Source Range Nuclear Instrumentation and the following: Power supplies, including power switch positions.	2.7	1
000033 Loss of Intermediate Range NI / 7							Not selected.		
000036 (BW/A08) Fuel Handling Accident / 8	R						R 036AK1.02 Knowledge of the operational implications of the following concepts as they apply to Fuel Handling Incidents: SDM.	3.4	1
000037 Steam Generator Tube Leak / 3							Not selected.		
000051 Loss of Condenser Vacuum / 4							Not selected.		
000059 Accidental Liquid RadWaste Rel. / 9							Not selected.		
000060 Accidental Gaseous Radwaste Rel. / 9							Not selected.		
000061 ARM System Alarms / 7							Not selected.		
000067 Plant Fire On-site / 8			R				R 067AK3.02 Knowledge of the reasons for the following responses as they apply to the Plant Fire on Site: Steps called out in the site fire protection plan, FPS.	2.5	1
000068 (BW/A06) Control Room Evac. / 8							Not selected.		
000069 (W/E14) Loss of CTMT Integrity / 5						S	S 069G2.1.33 High Containment Pressure - Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	4.0	1
000074 (W/E06&E07) Inad. Core Cooling / 4						S	S 074G2.4.6 Knowledge of symptom based EOP mitigation strategies.	4.0	1
000076 High Reactor Coolant Activity / 9							Not selected.		
W/E01 & E02 Rediagnosis & SI Termination / 3							Not selected.		
W/E13 Steam Generator Over-pressure / 4							Not selected.		
W/E15 Containment Flooding / 5						R	R W/E15G3.2.25 Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	2.5	1
W/E16 High Containment Radiation / 9		R					R W/E16EK2.i Knowledge of the interrelations between the (High Containment Radiation) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.	3.0	1
BW/A01 Plant Runback / 1							Not selected.		
BW/A02&A03 Loss of NNI-X/Y / 7							Not selected.		
BW/A04 Turbine Trip / 4							Not selected.		
BW/A05 Emergency Diesel Actuation / 6							Not selected.		
BW/A07 Flooding / 8							Not selected.		
BW/E03 Inadequate Subcooling Margin / 4							Not selected.		

ES-401 Vogtle 2005-301		PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO-R / SRO-S)							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	#	
BW/E08; W/E03 LOCA Cooldown - Depress. / 4			R				R W/E03EK3.3 Knowledge of the reasons for the following responses as they apply to the (LOCA Cooldown and Depressurization): Manipulation of controls required to obtain desired operating results during abnormal, and emergency situations.	3.9	1	
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4		R					R W/E09EK2.2 Knowledge of the interrelations between the (Natural Circulation Operations) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, and decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.	3.6	1	
BW/E13&E14 EOP Rules and Enclosures							Not selected.			
CE/A11; W/E08 RCS Overcooling - PTS / 4						R	R W/E08G2.4.20 Knowledge of the operational implications of EOP cautions, warnings, and notes.	3.3	1	
CE/A16 Excess RCS Leakage / 2							Not selected.			
CE/E09 Functional Recovery							Not selected.			
	K 1	K 2	K 3	A 1	A 2	G				
<b>K/A Category Point Totals:</b>	<b>1 0</b>	<b>4 0</b>	<b>2 0</b>	<b>0 0</b>	<b>0 2</b>	<b>2 2</b>	<b>Group Point Total:</b>		<b>9/4</b>	



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	#
039 Main and Reheat Steam					R						R	R 039K5.08 Knowledge of the operational implications of the following concepts as they apply to the MRSS: Effect of steam removal on reactivity.  R 039A4.07 Ability to manually operate and / or monitor in the control room: Steam dump valves.	3.6 2.8	1 1
059 Main Feedwater			R								R	R 059K3.03 Knowledge of the effect that a loss or malfunction of the MPW will have on the following: S/Gs.  R 059A4.12 Ability to manually operate and monitor in the control room: Initiation of automatic feedwater isolation.	3.5 3.4	1 1
061 Auxiliary/Emergency Feedwater								R			S	R 061A2.08 Ability to (a) predict the impacts of the following malfunctions or operations on the AFW; and (b) based on these predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Flow rates expected from various combinations of AFW pump discharge valves.  S 061G2.4.18 Knowledge of the specific bases for EOPs.	2.7 3.6	1 1
062 AC Electrical Distribution							R		R			R 062A7.01 Ability to predict and / or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ac distribution system: controls including: Significance of D/G load limits  R 062A3.05 Ability to monitor automatic operation of the ac distribution system, including: Safety-related indicators and controls.	3.4 3.5	1 1
063 DC Electrical Distribution											R	R 063A4.01 Ability to manually operate and / or monitor in the control room: Major breakers and control power fuses.	2.8	1
064 Emergency Diesel Generator								S			R	R 064G2.2.23 Ability to track limiting conditions for operations.  S 064A2.05 Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loading the ED/G.	2.6 3.2	1 1
073 Process Radiation Monitoring	R											R 073K1.01 Knowledge of the physical connections and / or cause-effect relationships between the PRM system and the following systems: Those systems served by PRMs.	3.6	1
076 Service Water		R									S	R 076K2.08 Knowledge of bus power supplies to the following: ESF-actuated MOVs.  S 076G2.4.11 Knowledge of abnormal condition procedures.	3.1 3.6	1 1
078 Instrument Air	R											R 078K1.01 Knowledge of the physical connections and / or cause-effect relationships between the IAS and the following systems: Sensor air.	2.8	1
103 Containment				R								R 103K4.06 Knowledge of containment system design feature(s) and / or interlock(s) which provide for the following: Containment isolation system.	3.1	1
	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G			
K/A Category Point Totals:	4 0	3 0	2 0	3 0	2 0	1 0	3 0	3 2	2 0	4 0	1 3	Group Point Total:		28/5

System # / Name	K	K	K	K	K	K	A	A	A	A	G	K/A Topic(s)	IR	#
	1	2	3	4	5	6	1	2	3	4				
003 Reactor Coolant Pump					R							R 003K5.03 Knowledge of the operational implications of the following concepts as they apply to the RCPS: Effects of RCP shutdown on T-ave., including the reason for the unreliability of T-ave. In the shutdown loop.	3.1	1
004 Chemical and Volume Control						R		R				R 004K6.13 Knowledge of the effect of a loss or malfunction on the following CVCS components: Purpose and function of the boration / dilution batch controller.	3.1	1
												R 004A2.07 Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Isolation of letdown / makeup.	3.4	1
005 Residual Heat Removal							R	S				R 005A1.07 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RHRS controls including: Determination of test acceptability by comparison of recorded valve response times with Tech-Spec requirements.	2.5	1
												S 005A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the RHRS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: RHR valve malfunction.	2.9	1
006 Emergency Core Cooling								R				R 006A2.11 Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Rupture of ECCS header.	4.0	1
007 Pressurizer Relief/Quench Tank									R			R 007A3.01 Ability to monitor automatic operation of the PRTS, including: Components which discharge to the PRT.	2.7	1
008 Component Cooling Water										R		R 008A4.11 Ability to manually operate and / or monitor in the control room: CCW pump recirculation valve and its three-way control switch.	3.0	1
010 Pressurizer Pressure Control	R										S	R 010K1.06 Knowledge of the physical connections and / or cause-effect relationships between the PZR PCS and the following systems: CVCS.	2.9	1
												S 010G2.2.22 Knowledge of limiting conditions for operations and safety limits.	4.1	1
012 Reactor Protection	R	R										R 012K1.07 Knowledge of the physical connections and / or cause effect relationships between the RPS and the following systems: SDS.	3.2	1
												R 012K2.01 Knowledge of bus power supplies to the following: RPS channels, components, and interconnections.	3.3	1
013 Engineered Safety Features Actuation			R				R					R 013K3.03 Knowledge of the effect that a loss or malfunction of the ESFAS will have on the following: Containment.	4.3	1
												R 013A1.04 Ability to predict and / or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ESFAS controls including: S/G level.	3.4	1
022 Containment Cooling		R		R								R 022K2.01 Knowledge of power supplies to the following: Containment cooling fans.	3.0	1
												R 022K4.01 Knowledge of CCS design feature(s) and / or interlock(s) which provide for the following: Cooling of containment penetrations.	2.5	1
025 Ice Condenser												Not applicable.		
026 Containment Spray				R								R 026K4.09 Knowledge of CSS design feature(s) and / or interlock(s) which provide for the following: Prevention of path for escape of radioactivity from containment to the outside (interlock on RWST isolation after swapover).	3.7	1

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#
001 Control Rod Drive		R										R 001K2.01 Knowledge of bus power supplies to the following: One-line diagram of power supply to M/G sets.	3.5	1
002 Reactor Coolant											R	R 002G2.4.3 Knowledge of annunciators alarms, and indications, and use of the response instructions.	3.3	1
011 Pressurizer Level Control												Not selected.		
014 Rod Position Indication							R					R 014A1.03 Ability to predict and / or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RPLS controls, including: PDIL, PPDIL.	3.6	1
015 Nuclear Instrumentation												Not selected.		
016 Non-nuclear Instrumentation								S				S 016A2.03 Ability to (a) predict the impacts of the following malfunctions or operations on the NNIS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Interruption of transmitted signal.	3.3	1
017 In-core Temperature Monitor			R									R 017K3.01 Knowledge of the effect that a loss or malfunction of the ITM system will have on the following: Natural circulation indications.	3.5	1
027 Containment Iodine Removal												Not selected.		
028 Hydrogen Recombiner and Purge Control												Not selected.		
029 Containment Purge												Not selected.		
033 Spent Fuel Pool Cooling												Not selected.		
034 Fuel Handling Equipment				R								R 034K4.03 Knowledge of design feature(s) and / or interlock(s) which provide for the following: Overload protection.	2.6	1
035 Steam Generator											S	S 035G2.1.20 Ability to execute procedure steps.	4.2	1
041 Steam Dump/Turbine Bypass Control						R						R 041K6.03 Knowledge of the effect of a loss or malfunction on the following will have on the SDS: Controller and positioners, including ICS, S/G, CRDS.	2.7	1
045 Main Turbine Generator	R											R 045K1.15 Knowledge of the physical connections and / or cause-effect relationships between the M/G system and the following systems: RPS.	3.6	1
055 Condenser Air Removal												Not selected.		
056 Condensate												Not selected.		
068 Liquid Radwaste						R						R 068K6.10 Knowledge of the effect of a loss or malfunction on the following will have on the Liquid Radwaste System: Radiation monitors.	2.5	1
071 Waste Gas Disposal												Not selected.		
072 Area Radiation Monitoring								S				S 072A2.02 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.	2.9	1
075 Circulating Water												Not selected.		
079 Station Air								R				R 079A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the SAS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of these malfunctions or operations: Cross-connection with IAS.	2.9	1
086 Fire Protection									R			R 086A3.02 Ability to monitor automatic operation of the Fire Protection System including: Actuation of the FPS.	2.9	1
K/A Category Point Totals:	10	10	10	10	0	2	1	1	1	0	1	Group Point Total:		10/3

ES-401		Generic Knowledge and Abilities Outline (Tier 3)		Form ES-401-3		
Facility: Vogtle		Date of Exam : May 2005				
Category	K/A #	Topic	RO		SRO - Only	
			IR	#	IR	#
Conduct of Operations	2.1.1	Knowledge of conduct of operations requirements.	3.7	1		
	2.1.7	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.	3.7	1		
	2.1.23	Ability to perform specific system and plant procedures during all modes of plant operation.	3.9	1		
	2.1.14	<b>Knowledge of system status criteria which require the notification of plant personnel.</b>			3.3	1
	Subtotal			3		1
Equipment Control	2.2.13	Knowledge of tagging and clearance procedures.	3.6	1		
	2.2.24	Ability to analyze the affect of maintenance activities on LCO status.	2.6	1		
	2.2.28	Knowledge of new and spent fuel movement procedures.	2.6	1		
	2.2.7	<b>Knowledge of the process for conducting tests or experiments not described in the safety analysis report.</b>			3.2	1
	2.2.21	<b>Knowledge of pre- and post- maintenance operability requirements.</b>			3.5	1
Subtotal			3		2	
Radiation Control	2.3.1	Knowledge of 10CFR: 20 and related facility radiation control requirements.	2.6	1		
	2.3.11	Ability to control radiation releases.	2.7	1		
	2.3.6	<b>Knowledge of the requirements for reviewing and approving release permits.</b>			3.1	1
Subtotal			2		1	
Emergency Procedures / Plan	2.4.4	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.0	1		
	2.4.12	Knowledge of general operating crew responsibilities during emergency operations.	3.4	1		
	2.4.16	<b>Knowledge of EOP implementation hierarchy and coordination with other support procedures.</b>			4.0	1
	2.4.44	<b>Knowledge of emergency plan protective action recommendations.</b>			4.0	1
	2.4.45	<b>Ability to prioritize the significance of each annunciator or alarm.</b>			3.6	1
Subtotal			2		3	
Tier 3 Point Total				10		7

