Facility: **Perry** Date of Exam: **Feb. 2013**

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	3	3	N/A			3	3	N/A		4	**20**	3		4		**7**
	2	1	1	2				1	1			1	**7**	2		1		**3**
	Tier Totals	5	4	5				4	4			5	**27**	5		5		**10**
2. Plant Systems	1	2	3	4	2	2	3	2	3	2	2	1	**26**	2		3		**5**
	2	2	0	1	1	1	1	1	2	1	1	1	**12**	1	1	1		**3**
	Tier Totals	4	3	5	3	3	4	3	5	3	3	2	**38**	4		4		**8**
3. Generic Knowledge and Abilities Categories		1		2		3		4		**10**	1	2	3	4				**7**
		2		3		2		3			2	2	1	2				

Note:
1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally 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.
4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
7.* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

ES-401 BWR Examination Outline Form ES-401-1
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 **RO**

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4			X				AK3.02 Knowledge of the reasons for the following responses as they apply to Partial Or Complete Loss Of Forced Core Flow Circulation: Reactor power response	3.7	1
295003 Partial or Complete Loss of AC / 6				X			AA1.02 Knowledge of the operational implications of the following concepts as they apply to partial or complete loss of A.C. Power: Emergency generators	4.2*	1
295004 Partial or Total Loss of DC Pwr / 6					X		AA2.04 Ability to determine and/or interpret the following as they apply to Partial Or Complete Loss Of D.C. Power : System lineups	3.2	1
295005 Main Turbine Generator Trip / 3						X	2.2.37 Ability to determine operability and/or availability of safety related equipment.	3.6	1
295006 SCRAM / 1	X						AK1.03 Knowledge of the operational implications of the following concepts as they apply to SCRAM: Reactivity control	3.7	1
295016 Control Room Abandonment / 7		X					AK2.02 Ability to determine and/or interpret the following as they apply to Control Room Abandonment: Local control stations: Plant-Specific	4.0*	1
295018 Partial or Total Loss of CCW / 8			X				AK3.02 Knowledge of the reasons for the following responses as they apply to Partial Or Complete Loss Of Component Cooling Water: Reactor power reduction	3.3	1
295019 Partial or Total Loss of Inst. Air / 8				X			AA1.01 Ability to operate and/or monitor the following as they apply to Partial Or Complete Loss Of Instrument Air: Backup air supply	3.5	1
295021 Loss of Shutdown Cooling / 4					X		AK2.05 Knowledge of the interrelations between Loss Of Shutdown Cooling and the following: Fuel pool cooling and cleanup system	2.7	1
295023 Refueling Acc / 8						X	2.4.41 Knowledge of the emergency action level thresholds and classifications.	2.9	1
295024 High Drywell Pressure / 5	X						EK1.01 Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL PRESSURE: Drywell integrity:	4.1	1
295025 High Reactor Pressure / 3									
295026 Suppression Pool High Water Temp. / 5		X					EK2.06 Knowledge of the interrelations between Suppression Pool High Water Temperature and the following: Suppression pool level	3.5	1
295027 High Containment Temperature / 5			X				EK3.01 Knowledge of the reasons for the following responses as they apply to High Containment Temperature (Mark III Containment Only): Emergency depressurization: Mark-III	3.7	1
295028 High Drywell Temperature / 5				X			EA1.02 Ability to operate and/or monitor the following as they apply to HIGH DRYWELL TEMPERATURE: Drywell ventilation system	3.9	1
295030 Low Suppression Pool Wtr Lvl / 5					X		EA2.01 Ability to determine and/or interpret the following as they apply to Low Suppression Pool Water Level: Suppression pool level	4.1*	1
295031 Reactor Low Water Level / 2						X	2.2.36 Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.	3.1	1

ES-401	BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 **RO**							Form ES-401-1
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	X						EK1.05 Knowledge of the operational implications of the following concepts as they apply to Scram Condition Present And Reactor Power Above APRM Downscale Or Unknown: Cold shutdown boron weight: Plant-Specific	3.4	1
295038 High Off-site Release Rate / 9						X	2.4.1 Knowledge of EOP entry conditions and immediate action steps.	4.6	1
600000 Plant Fire On Site / 8	X						AK1.02 Knowledge of the operation applications of the following concepts as they apply to Plant Fire On Site: Fire Fighting	2.9	1
700000 Generator Voltage and Electric Grid Disturbances / 6		X					AK2.06 Knowledge of the interrelations between Generator Voltage And Electric Grid Disturbances and the following: Reactor power	3.9	1
K/A Category Totals:	4	3	3	3	3	4	Group Point Total:		20

ES-401 BWR Examination Outline Form ES-401-1
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 **RO**

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295002 Loss of Main Condenser Vac / 3									
295007 High Reactor Pressure / 3									
295008 High Reactor Water Level / 2									
295009 Low Reactor Water Level / 2			X				AK3.01 Knowledge of the reasons for the following responses as they apply to Low Reactor Water Level: Recirculation pump run back: Plant-Specific	3.2	1
295010 High Drywell Pressure / 5									
295011 High Containment Temp / 5									
295012 High Drywell Temperature / 5			X				AK3.01 Knowledge of the reasons for the following responses as they apply to High Drywell Temperature: Increased drywell cooling	3.5	1
295013 High Suppression Pool Temp. / 5				X			AA1.02 Ability to operate and/or monitor the following as they apply to High Suppression Pool Temperature: Systems that add heat to the suppression pool	3.9	1
295014 Inadvertent Reactivity Addition / 1									
295015 Incomplete SCRAM / 1					X		AA2.01 Ability to determine and/or interpret the following as they apply to Incomplete Scram: Reactor power	4.1*	1
295017 High Off-site Release Rate / 9									
295020 Inadvertent Cont. Isolation / 5 & 7						X	2.2.38 Knowledge of conditions and limitations in the facility license	3.6	1
295022 Loss of CRD Pumps / 1									
295029 High Suppression Pool Wtr Lvl / 5									
295032 High Secondary Containment Area Temperature / 5	X						EK1.01 Knowledge of the operational implications of the following concepts as they apply to High Secondary Containment Area Temperature: Personnel protection	3.6	1
295033 High Secondary Containment Area Radiation Levels / 9		X					EK2.02 Knowledge of the interrelations between HIGH SECONDARY Containment Area Radiation Levels and the following: Process radiation monitoring system	3.8	1
295034 Secondary Containment Ventilation High Radiation / 9									
295035 Secondary Containment High Differential Pressure / 5									
295036 Secondary Containment High Sump/Area Water Level / 5									
500000 High CTMT Hydrogen Conc. / 5									
K/A Category Point Totals:	1	1	2	1	1	1	Group Point Total:		7

ES-401 BWR Examination Outline Form ES-401-1
Plant Systems - Tier 2/Group 1 **RO**

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	#
203000 RHR/LPCI: Injection Mode								X				A2.12 Knowledge of the operational implications of the following concepts as they apply to RHR/LPCI Injection Mode (Plant Specific): Pump runout	2.6*	1
205000 Shutdown Cooling									X			A3.01 Ability to monitor automatic operations of the Shutdown Cooling System (RHR Shutdown Cooling Mode) including: Valve operation	3.2	1
206000 HPCI												**Not Applicable to Perry**		
207000 Isolation (Emergency) Condenser												**Not Applicable to Perry**		
209001 LPCS		X								X		K2.01 Pump power A4.03 Ability to manually operate and/or monitor in the control room: Injection valves	3.0 3.7	2
209002 HPCS	X											K1.03 Knowledge of the physical connections and/or cause-effect relationships between High Pressure Core Spray System (HPCS) and the following: Water leg (jockey) pump: BWR-5,6	3.0	1
211000 SLC		X										K2.01 Knowledge of electrical power supplies to the following: SBLC Pumps	2.9	1
212000 RPS			X					X				K3.02 Knowledge of the effect that a loss or malfunction of the Reactor Protection System will have on following: Primary containment isolation system/nuclear steam supply shut-off: Plant-Specific A2.02 Ability to (a) predict the impacts of the following on the REACTOR PROTECTION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: RPS bus power supply failure	3.7 3.7	2
215003 IRM				X								K4.02 Knowledge of Intermediate Range Monitor (IRM) System design feature(s) and/or interlocks which provide for the following: Reactor SCRAM signals	4.0	1
215004 Source Range Monitor					X							K5.01 Knowledge of the operational implications of the following concepts as they apply to Source Range Monitor (SRM) System: Detector operation	2.6	1
215005 APRM / LPRM / OPRM						X						K6.03 Knowledge of the effect that a loss or malfunction of the following will have on the Average Power Range Monitor/Local Power Range Monitor System: Detectors	3.1	1
217000 RCIC			X				X					A1.07 Ability to predict and/or monitor changes in parameters associated with operating the Reactor Core Isolation Cooling System (RCIC) controls including: Suppression pool level K3.01 Knowledge of the effect that a loss or malfunction of the Reactor Core Isolation Cooling System (RCIC) will have on following: Reactor water level	3.3 3.7	2

ES-401 BWR Examination Outline Form ES-401-1
Plant Systems - Tier 2/Group 1 **RO**

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	#
218000 ADS								X				A2.04 Ability to (a) predict the impacts of the following on the Automatic Depressurization System ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: ADS failure to initiate	4.1	1
223002 PCIS/Nuclear Steam Supply Shutoff			X						X			A3.02 Ability to monitor automatic operations of the Primary Containment Isolation System/Nuclear Steam Supply Shut-Off including: Valve closures K3.18 Knowledge of the effect that a loss or malfunction of the Primary Containment Isolation System/Nuclear Steam Supply Shut-Off will have on following: Containment ventilation	3.5 3.0	2
239002 SRVs										X		A4.07 Ability to manually operate and/or monitor in the control room: Lights and alarms	3.6	1
259002 Reactor Water Level Control											X	2.1.30 Ability to locate and operate components, including local controls	4.4	1
261000 SGTS	X											K1.04 Knowledge of the physical connections and/or cause-effect relationships between Standby Gas Treatment System and the following: High radiation sampling system	2.5	1
262001 AC Electrical Distribution		X										K2.01 Knowledge of electrical power supplies to the following: Off-site sources of power	3.3	1
262002 UPS (AC/DC)			X									K3.07 Knowledge of the effect that a loss or malfunction of the Uninterruptable Power Supply (A.C./D.C.) will have on following: Movement of control rods: Plant-Specific	2.6	1
263000 DC Electrical Distribution				X								K4.01 Knowledge of D.C. Electrical Distribution design feature(s) and/or interlocks which provide for the following: Manual/ automatic transfers of control: Plant-Specific	3.1	1
264000 EDGs					X	X						K5.06 Knowledge of the operational implications of the following concepts as they apply to Emergency Generators (Diesel/Jet): Load sequencing K6.03 Knowledge of the effect that a loss or malfunction of the following will have on the Emergency Generators (Diesel/Jet) : Lube oil pumps	3.4 3.5	2
300000 Instrument Air						X						K6.07 Knowledge of the effect that a loss or malfunction of the following will have on the Instrument Air System: Valves	2.5	1
400000 Component Cooling Water							X					A1.04 Ability to predict and / or monitor changes in parameters associated with operating the CCWS controls including: Surge Tank Level	2.8	1
K/A Category Point Totals:	2	3	4	2	2	3	2	3	2	2	1	Group Point Total:		26

ES-401 BWR Examination Outline Form ES-401-1
Plant Systems - Tier 2/Group 2 **RO**

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	#
201001 CRD Hydraulic														
201002 RMCS												**Not Applicable to Perry**		
201003 Control Rod and Drive Mechanism														
201004 RSCS												**Not Applicable to Perry**		
201005 RCIS			X									K3.02 Knowledge of the effect that a loss or malfunction of the Rod Control And Information System (RCIS) will have on following: Reactor startup: BWR-6	3.5	1
201006 RWM												**Not Applicable to Perry**		
202001 Recirculation														
202002 Recirculation Flow Control														
204000 RWCU				X								K4.04 Knowledge of Reactor Water Cleanup System design feature(s) and/or interlocks which provide for the following: System isolation upon-receipt of isolation signals	3.5	1
214000 RPIS												**Not Applicable to Perry**		
215001 Traversing In-core Probe														
215002 RBM												**Not Applicable to Perry**		
216000 Nuclear Boiler Inst.					X							K5.11 Knowledge of the operational implications of the following concepts as they apply to Nuclear Boiler Instrumentation: Indicated vessel temperature response during rapid heatups or cooldowns	3.2	1
219000 RHR/LPCI: Torus/Pool Cooling Mode														
223001 Primary CTMT and Aux.						X						K6.08 Knowledge of the effect that a loss or malfunction of the following will have on the Primary Containment System And Auxiliaries: Containment atmospheric control	3.3	1
226001 RHR/LPCI: CTMT Spray Mode														
230000 RHR/LPCI: Torus/Pool Spray Mode												**Not Applicable to Perry**		
233000 Fuel Pool Cooling/Cleanup														
234000 Fuel Handling Equipment							X					A1.03 Ability to predict and/or monitor changes in parameters associated with operating the Fuel Handling Equipment controls including: †core reactivity level	3.4	1
239001 Main and Reheat Steam								X				A2.08 Ability to (a) predict the impacts of the following on the Main And Reheat Steam System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Low condenser vacuum	3.6	1
239003 MSIV Leakage Control												**Not Applicable to Perry**		

ES-401 BWR Examination Outline Form ES-401-1
Plant Systems - Tier 2/Group 2 **RO**

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	#
241000 Reactor/Turbine Pressure Regulator									X			A3.17 Ability to monitor automatic operations of the Reactor/Turbine Pressure Regulating System including: Turbine runback	3.3	1
245000 Main Turbine Gen. / Aux.										X		A4.02 Ability to manually operate and/or monitor in the control room: Generator controls	3.1	1
256000 Reactor Condensate											X	2.1.32 Ability to explain and apply system limits and precautions	3.8	1
259001 Reactor Feedwater														
268000 Radwaste														
271000 Offgas														
272000 Radiation Monitoring														
286000 Fire Protection														
288000 Plant Ventilation														
290001 Secondary CTMT	X											K1.06 Knowledge of the physical connections and/or cause-effect relationships between Secondary Containment and the following: Auxiliary building isolation: BWR-6	3.4	1
290003 Control Room HVAC	X											K1.01 Knowledge of the physical connections and/or cause-effect relationships between Control Room HVAC and the following: Radiation monitors	3.4	1
290002 Reactor Vessel Internals								X				A2.02 Ability to (a) predict the impacts of the following on the Reactor Vessel Internals; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: †Over pressurization transient	3.6	1
K/A Category Point Totals:	2	0	1	1	1	1	1	2	1	1	1	Group Point Total:		12

ES-401 BWR Examination Outline Form ES-401-1
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 **SRO**

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4						X	2.1.23 Ability to perform specific system and integrated plant procedures during all modes of plant operation	4.4	1
295003 Partial or Complete Loss of AC / 6									
295004 Partial or Total Loss of DC Pwr / 6									
295005 Main Turbine Generator Trip / 3									
295006 SCRAM / 1						X	2.4.50 Ability to verify system alarm setpoints and operate controls identified in the alarm response manual	4.0	1
295016 Control Room Abandonment / 7									
295018 Partial or Total Loss of CCW / 8					X		AA2.05 Ability to determine and/or interpret the following as they apply to Partial Or Complete Loss Of Component Cooling Water: System pressure	2.9	1
295019 Partial or Total Loss of Inst. Air / 8						X	2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc.	4.2	1
295021 Loss of Shutdown Cooling / 4									
295023 Refueling Acc / 8									
295024 High Drywell Pressure / 5									
295025 High Reactor Pressure / 3									
295026 Suppression Pool High Water Temp. / 5					X		EA2.01 Ability to determine and/or interpret the following as they apply to Suppression Pool High Water Temperature: Suppression pool water temperature	4.2	1
295027 High Containment Temperature / 5									
295028 High Drywell Temperature / 5						X	2.4.30 Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.	4.1	1
295030 Low Suppression Pool Wtr Lvl / 5					X		EA2.02 Ability to determine and/or interpret the following as they apply to Low Suppression Pool Water Level: Suppression pool temperature	3.9	1
295031 Reactor Low Water Level / 2									
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1									
295038 High Off-site Release Rate / 9									
600000 Plant Fire On Site / 8									
700000 Generator Voltage and Electric Grid Disturbances / 6									
K/A Category Totals:	0	0	0	0	3	4	Group Point Total:		7

ES-401 BWR Examination Outline Form ES-401-1
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 **SRO**

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295002 Loss of Main Condenser Vac / 3									
295007 High Reactor Pressure / 3									
295008 High Reactor Water Level / 2					X		AA2.05 Ability to determine and/or interpret the following as they apply to High Reactor Water Level: Swell	3.1	1
295009 Low Reactor Water Level / 2									
295010 High Drywell Pressure / 5									
295011 High Containment Temp / 5									
295012 High Drywell Temperature / 5									
295013 High Suppression Pool Temp. / 5									
295014 Inadvertent Reactivity Addition / 1									
295015 Incomplete SCRAM / 1									
295017 High Off-site Release Rate / 9									
295020 Inadvertent Cont. Isolation / 5 & 7									
295022 Loss of CRD Pumps / 1									
295029 High Suppression Pool Wtr Lvl / 5					X		EA2.02 Ability to determine and/or interpret the following as they apply to High Suppression Pool Water Level: Reactor pressure	3.6	1
295032 High Secondary Containment Area Temperature / 5						X	2.4.2 Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.	4.6	1
295033 High Secondary Containment Area Radiation Levels / 9									
295034 Secondary Containment Ventilation High Radiation / 9									
295035 Secondary Containment High Differential Pressure / 5									
295036 Secondary Containment High Sump/Area Water Level / 5									
500000 High CTMT Hydrogen Conc. / 5									
K/A Category Point Totals:	0	0	0	0	2	1	Group Point Total:		3

ES-401 BWR Examination Outline Form ES-401-1
Plant Systems - Tier 2/Group 1 **SRO**

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	#
203000 RHR/LPCI: Injection Mode											X	2.2.25 Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.	4.2	1
205000 Shutdown Cooling														
206000 HPCI												**Not Applicable to Perry**		
207000 Isolation (Emergency) Condenser												**Not Applicable to Perry**		
215005 OPRM														
209001 LPCS														
209002 HPCS								X				A2.07 Ability to (a) predict the impacts of the following on the HIGH PRESSURE CORE SPRAY SYSTEM (HPCS) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Pump seal failure: BWR-5,6	3.0	1
211000 SLC														
212000 RPS														
215003 IRM														
215004 Source Range Monitor														
215005 APRM / LPRM														
217000 RCIC											X	2.2.37 Ability to determine operability and/or availability of safety related equipment.	4.6	1
218000 ADS														
223002 PCIS/Nuclear Steam Supply Shutoff								X				A2.05 Ability to (a) predict the impacts of the following on the Primary Containment Isolation System/Nuclear Steam Supply Shut-Off; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Nuclear boiler instrumentation failures	3.6	1
239002 SRVs														
259002 Reactor Water Level Control														
261000 SGTS														
262001 AC Electrical Distribution														
262002 UPS (AC/DC)														
263000 DC Electrical Distribution														
264000 EDGs														
300000 Instrument Air														

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 1 **SRO**												Form ES-401-1	
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	#
400000 Component Cooling Water											X	2.1.32 Ability to explain and apply system limits and precautions.	4.0	1
K/A Category Point Totals:	0	0	0	0	0	0	0	2	0	0	3	Group Point Total:		5

ES-401 BWR Examination Outline Form ES-401-1
Plant Systems - Tier 2/Group 2 **SRO**

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	#
201001 CRD Hydraulic														
201002 RMCS												**Not Applicable to Perry**		
201003 Control Rod and Drive Mechanism											X	2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.	4.7	1
201004 RSCS												**Not Applicable to Perry**		
201005 RCIS								X				A2.03 Ability to (a) predict the impacts of the following on the Rod Control And Information System (RCIS) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Insert block: BWR-6	3.2	1
201006 RWM												**Not Applicable to Perry**		
202001 Recirculation														
202002 Recirculation Flow Control														
204000 RWCU														
214000 RPIS												**Not Applicable to Perry**		
215001 Traversing In-core Probe														
215002 RBM												**Not Applicable to Perry**		
216000 Nuclear Boiler Inst.														
219000 RHR/LPCI: Torus/Pool Cooling Mode														
223001 Primary CTMT and Aux.														
226001 RHR/LPCI: CTMT Spray Mode														
230000 RHR/LPCI: Torus/Pool Spray Mode												**Not Applicable to Perry**		
233000 Fuel Pool Cooling/Cleanup														
234000 Fuel Handling Equipment	X											K1.05 Knowledge of the physical connections and/or cause-effect relationships between Fuel Handling Equipment and the following: Reactor vessel components: Plant-Specific	3.3	1
239001 Main and Reheat Steam														
239003 MSIV Leakage Control												**Not Applicable to Perry**		
241000 Reactor/Turbine Pressure Regulator														
245000 Main Turbine Gen. / Aux.														

ES-401 BWR Examination Outline Form ES-401-1
Plant Systems - Tier 2/Group 2 **SRO**

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	#
256000 Reactor Condensate														
259001 Reactor Feedwater														
268000 Radwaste														
271000 Offgas														
272000 Radiation Monitoring														
286000 Fire Protection														
288000 Plant Ventilation														
290001 Secondary CTMT														
290003 Control Room HVAC														
290002 Reactor Vessel Internals														
K/A Category Point Totals:	1	0	0	0	0	0	0	1	0	0	1	Group Point Total:		3

Facility: **Perry** Date of Exam: **February 2013**

Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.5	Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.	2.9*	1		
	2.1.44	Knowledge of RO duties in the control room during fuel handling such as responding to alarms from the fuel handling area, communication with the fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation.	3.9	1		
	2.1.20	Ability to interpret and execute procedure steps.			4.6	1
	2.1.4	Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, “no-solo” operation, maintenance of active license status, 10CFR55, etc.			3.8	1
	Subtotal			2		2
2. Equipment Control	2.2.12	Knowledge of surveillance procedures.	3.7	1		
	2.2.40	Ability to apply Technical Specifications for a system.	3.4	1		
	2.2.14	Knowledge of the process for controlling equipment configuration or status.	3.9	1		
	2.2.42	Ability to recognize system parameters that are entry-level conditions for Technical Specifications.			4.6	1
	2.2.20	Knowledge of the process for managing troubleshooting activities.			3.8	1
	Subtotal			3		2
3. Radiation Control	2.3.5	Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.	2.9	1		
	2.3.13	Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.	3.4	1		
	2.3.11	Ability to control radiation releases.			4.3	1
	Subtotal			2		1
4. Emergency Procedures / Plan	2.4.30	Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.	2.7	1		
	2.4.46	Ability to verify that the alarms are consistent with the plant conditions.	4.2	1		
	2.4.42	Knowledge of emergency response facilities.	2.6	1		
	2.4.23	Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations.			4.4	1
	2.4.32	Knowledge of operator response to loss of all annunciators.			4.0	1
	Subtotal			3		2
Tier 3 Point Total				**10**		**7**