EXAMINATION OUTLINE FOR THE

PERRY RETAKE EXAMINATION - AUGUST 2007

FENOC
FirstEnergy Nuclear Operating Company

Perry Nuclear Power Station
10 Center Road
Perry, Ohio 44081

Barry S. Allen
Vice President

440-280-5382
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May 31, 2007
PY-CEI/OIE-0702L

ATTN: Dell McNeil, Chief Examiner
United States Nuclear Regulatory Commission
2443 Warrenville Road Suite 210
Lisle, Illinois 60532-4352

Perry Nuclear Power Plant
Docket No. 50-440
NRC Initial License Examination Outline Submittal

Dear Mr. McNeil:

In accordance with NUREG-1021, ES-201, enclosed is the required examination materials that document the NRC initial license examination outline for the Perry Nuclear Power Plant. The examination materials are being developed in accordance with the guidelines specified in NUREG-1021, Revision 9.

It is hereby requested that the enclosed examination materials be withheld from public disclosure until after the initial license examinations are completed. The tentative examination start date is August 6, 2007.

If you have any questions or require additional information, please contact Mr. Daniel K. Zielinski at (440) 280-5277.

Daniel K. Zielinski
Nuclear Qualification Instructor – Author

Frederick W. Smith
Facility Representative

Sincerely yours,

for Barry S. Allen

JUN 4 2007

Enclosures:

1. Form ES-201-2 (Examination Outline Quality Checklist)
2. Form ES-201-3 (Examination Security Agreement)
3. Form ES-401-1 (BWR Examination Outline) for a BWR SRO Examination
4. Form ES-401-3 (Generic Knowledge and Abilities Outline (Tier 3)) for a BWR RO/SRO Examination
5. Form ES-401-1 (BWR Examination Outline) for a BWR RO Examination
6. Form ES-401-4 (Record of Rejected K/As) for a BWR RO and SRO Examination
7. Description of Systematic Random Selection Process
8. Pre-Suppression of K/A memo

cc: NRC Document Control Desk w/o Enclosures
NRC Project Manager w/o Enclosures
NRC RIII Branch Chief w/o Enclosures
NRC Resident Inspector w/o Enclosures

Form ES-201-2
Examination Outline Quality Checklist

Facility: Perry **Date of Examination:** August 6, 2007

Item	Task Description	Initials a	b*	c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	DL		DM
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.	DL		DM
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	DL		DM
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	DL		DM
2. SIMULATOR	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.			
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and that scenarios will not be repeated on subsequent days.		NA DL 5-25-2007	
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.			
3. W/T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.		NA DL 5-25-2007	
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations			
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.			
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	DL		DM
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	DL		DM
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	DL		DM
	d. Check for duplication and overlap among exam sections. * Written Exam Only	NA	N/A	N/A
	e. Check the entire exam for balance of coverage. * Written Exam Only	NA	N/A	N/A
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	DL		DM

	Printed Name/Signature	Date
a. Author	DANIEL K. CIELINSKI / [signature]	5-25-2007
b. Facility Reviewer (*)	FREDERICK W SMITH / [signature]	5/25/2007
c. NRC Chief Examiner (#)	Dell R. McNeal / [signature]	6/08/07
d. NRC Supervisor	Hironori Peterson / [signature]	6/08/07

Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.

Form ES-201-3
Examination Security Agreement

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 8-6-2007 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of _____. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	D.K. Zielinski	Exam Lead / Write Exam		3-26-2007			
2.	Joseph D. Pierson	Exam writer / Instructor		4/3/07			
3.	Frederick M. Smith	Facility Reviewer		4/5/07			
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							

NOTES:

Form ES-401-1
(BWR Examination Outline) for a BWR SRO Examination

Facility: Perry														Date of Exam: August 2007				
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	3	3	6	N/A			2	4	N/A		2	20	4		3		7
	2	1	2	1				2	1			0	7	2		1		3
	Tier Totals	4	5	7				4	5			2	27	6		4		10
2. Plant Systems	1	3	1	3	2	1	3	3	2	1	4	3	26	3		2		5
	2	2	1	0	2	1	0	1	1	2	2	0	12		2	1		3
	Tier Totals	5	2	3	4	2	3	4	3	3	6	3	38	5		3		8
3. Generic Knowledge and Abilities Categories					1		2		3		4		10	1	2	3	4	7
					3		2		2		3		10	2	1	2	2	7

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 Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 SRO							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	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4									
295003 Partial or Complete Loss of AC / 6									
295004 Partial or Total Loss of DC Pwr / 6									
295005 Main Turbine Generator Trip / 3					x		AA 2.04 Reactor pressure	3.8	1
295006 SCRAM / 1									
295016 Control Room Abandonment / 7									
295018 Partial or Total Loss of CCW / 8									
295019 Partial or Total Loss of Inst. Air / 8						x	G 2.2.23 Ability to track limiting conditions for operations	3.8	1
295021 Loss of Shutdown Cooling / 4									
295023 Refueling Acc / 8									
295024 High Drywell Pressure / 5						x	G 2.4.45 Ability to prioritize and interpret the significance of each annunciator or alarm	3.6	1
295025 High Reactor Pressure / 3					x		EA 2.04 Suppression pool level	3.9	1
295026 Suppression Pool High Water Temp. / 5					x		EA 2.01 Suppression pool temperature	4.2	1
295027 High Containment Temperature / 5									
295028 High Drywell Temperature / 5					x		EA 2.01 Drywell temperature	4.1	1
295030 Low Suppression Pool Wtr Lvl / 5									
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						x	G 2.4.10 Annunciator Response Procedures	3.1	1
600000 Plant Fire On Site / 8									
K/A Category Totals:					4	3	Group Point Total:		7

ES-401	BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 SRO							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	#
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		AA 2.01 Reactor water level	4.2	1
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						x	G 2.1.7 Ability to evaluate plant performance and make operational judgements based on operating characteristics/reactor behavior/instrument interpretation	4.4	1
295017 High Off-site Release Rate / 9									
295020 Inadvertent Cont. Isolation / 5 & 7					x		AA 2.06 Cause of isolation	3.8	1
295022 Loss of CRD Pumps / 1									
295029 High Suppression Pool Wtr Lvl / 5									
295032 High Secondary Containment Area Temperature / 5									
295033 High Secondary Containment Area Radiation Levels / 9									
295034 Secondary Containment Ventilation High Radiation / 9									
295035 Secondary Containment High Differential Pressure / 5							Not Applicable to Perry		
295036 Secondary Containment High Sump/Area Water Level / 5									
500000 High CTMT Hydrogen Conc. / 5									
K/A Category Point Totals:					2	1	Group Point Total:		3

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	#
203000 RHR/LPCI: Injection Mode														
205000 Shutdown Cooling														
206000 HPCI												Not Applicable to Perry		
207000 Isolation (Emergency) Condenser												Not Applicable to Perry		
209001 LPCS								x				A 2.08 Valve openings	3.1	1
209002 HPCS														
211000 SLC														
212000 RPS								x				A2.03 Surveillance testing	3.5	1
215003 IRM														
215004 Source Range Monitor											x	G 2.2.27 Knowledge of refueling process	3.5	1
215005 APRM / LPRM								x				A 2.05 Loss of recirculation flow signal	3.6	1
217000 RCIC											x	G 2.1.12 Ability to apply technical specifications for a systems	4.0	1
218000 ADS														
223002 PCIS/Nuclear Steam Supply Shutoff														
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														
400000 Component Cooling Water														
215005 OPRM														
K/A Category Point Totals:								3			2	Group Point Total:		5

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 2 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	#
201001 CRD Hydraulic														
201002 RMCS												Not Applicable to Perry		
201003 Control Rod and Drive Mechanism														
201004 RSCS												Not Applicable to Perry		
201005 RCIS														
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.											x	G 2.2.12 Knowledge of surveillance procedures	3.4	1
219000 RHR/LPCI: Torus/Pool Cooling Mode								x				A 2.05 AC electrical failure	3.5	1
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				A 2.01 Interlock failure	3.7	1
239001 Main and Reheat Steam														
239003 MSIV Leakage Control												Not Applicable to Perry		
241000 Reactor/Turbine Pressure Regulator														
245000 Main Turbine Gen. / Aux.														
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:								2			1	Group Point Total:		3

Form ES-401-3
Generic Knowledge and Abilities Outline (Tier 3) for a BWR RO/SRO Examination

Facility: Perry					Date of Exam: July 2007	
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.1	Conduct of operations	3.7	1		
	2.1.2	Operator responsibility all modes of operation	3.0	1		
	2.1.25	Interpret station reference materials	2.8	1		
	2.1.					
	2.1.11	Less than one hour technical specification action statements			3.8	1
	2.1.32	Explain and apply system limits and precautions			3.8	1
	Subtotal			3		2
2. Equipment Control	2.2.13	Tagging and clearance procedures	3.6	1		
	2.2.26	Refueling administrative requirements	2.5	1		
	2.2.					
	2.2.					
	2.2.					
	2.2.14	Process for making configuration change			3.0	1
	Subtotal			2		1
3. Radiation Control	2.3.2	Facility ALARA program	2.5	1		
	2.3.11	Control radiation release	2.7	1		
	2.3.					
	2.3.					
	2.3.1	10CFR20 and related facility radiation control requirement			3.0	1
	2.3.8	Process for performing a planned gaseous RAD release			3.2	1
	Subtotal			2		2
4. Emergency Procedures / Plan	2.4.2	System setpoints/interlocks and automatic actions associated with EOP entry conditions	3.9	1		
	2.4.5	Organization of operating procedures network for normal/abnormal and emergency conditions	2.9	1		
	2.4.32	Operator response to loss of all annunciators	3.3	1		
	2.4.6	Symptom based EOP mitigation strategies			4.0	1
	2.4.41	Emergency action level thresholds and classifications			4.1	1
	Subtotal			3		2
Tier 3 Point Total				10		7

Form ES-401-1
(BWR Examination Outline) for a BWR RO Examination

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	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4			x				AK 3.05 Reduced Loop Operating Requirements	3.2	1
295003 Partial or Complete Loss of AC / 6						x	G 2.4.3 Ability to identify post accident instruments	3.5	1
295004 Partial or Total Loss of DC Pwr / 6	x						AK 1.05 Loss of breaker protection	3.3	1
295005 Main Turbine Generator Trip / 3			x				AK 3.04 Main Generator Trip	3.2	1
295006 SCRAM / 1					x		AA 2.06 Cause of Scram	3.5	1
295016 Control Room Abandonment / 7						x	G 2.1.32 Ability to explain/apply system limits and precautions.	3.4	1
295018 Partial or Total Loss of CCW / 8			x				AK 3.03 Securing individual components	3.1	1
295019 Partial or Total Loss of Inst. Air / 8				x			AA 1.02 Instrument Air system valves	3.3	1
295021 Loss of Shutdown Cooling / 4			x				AK 3.01 Raising reactor water level	3.3	1
295023 Refueling Acc / 8	x						AK 1.02 Shutdown Margin	3.2	1
295024 High Drywell Pressure / 5	x						EK 1.01 Drywell integrity	4.1	1
295025 High Reactor Pressure / 3			x				EK 3.09 Low-low set initiation	3.7	1
295026 Suppression Pool High Water Temp. / 5		x					EK 2.01 Suppression pool cooling	3.9	1
295027 High Containment Temperature / 5				x			EA 1.02 Containment ventilation / cooling	3.5	1
295028 High Drywell Temperature / 5					x		EA 2.03 Reactor water level	3.7	1
295030 Low Suppression Pool Wtr Lvl / 5					x		EA 2.01 Suppression pool level	4.1	1
295031 Reactor Low Water Level / 2		x					EK 2.10 Redundant reactivity control	4.0	1
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1		x					EK 2.07 Neutron monitoring system	4.0	1
295038 High Off-site Release Rate / 9			x				EK 3.02 System isolations	3.9	1
600000 Plant Fire On Site / 8					x		AA 2.16 Vital equipment and control systems to be maintained and operated during a fire	3.0	1
K/A Category Totals:	3	3	6	2	4	2	Group Point Total:		20

ES-401	BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 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	#
295002 Loss of Main Condenser Vac / 3									
295007 High Reactor Pressure / 3		x					AK 2.03 RHR / LPCI	3.1	1
295008 High Reactor Water Level / 2		x					AK 2.02 Reactor feedwater system	3.6	1
295009 Low Reactor Water Level / 2									
295010 High Drywell Pressure / 5									
295011 High Containment Temp / 5	x						AK 1.01 Containment pressure	4.0	1
295012 High Drywell Temperature / 5									
295013 High Suppression Pool Temp. / 5									
295014 Inadvertent Reactivity Addition / 1			x				AK 3.01 Reactor Scram	4.1	1
295015 Incomplete SCRAM / 1									
295017 High Off-site Release Rate / 9				x			AA 1.06 Condenser air removal system	3.2	1
295020 Inadvertent Cont. Isolation / 5 & 7									
295022 Loss of CRD Pumps / 1									
295029 High Suppression Pool Wtr Lvl / 5					x		EA 2.02 Reactor pressure	3.5	1
295032 High Secondary Containment Area Temperature / 5									
295033 High Secondary Containment Area Radiation Levels / 9									
295034 Secondary Containment Ventilation High Radiation / 9									
295035 Secondary Containment High Differential Pressure / 5							Not Applicable to Perry		
295036 Secondary Containment High Sump/Area Water Level / 5				x			EA 1.02 Affected systems so as to isolate damaged portions	3.5	1
500000 High CTMT Hydrogen Conc. / 5									
K/A Category Point Totals:	1	2	1	2	1		Group Point Total:		7

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 1 RO												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	#
203000 RHR/LPCI: Injection Mode						x						K 6.03 Emergency generator	3.7	1
205000 Shutdown Cooling							x					A 1.06 Reactor temperatures	3.7	1
206000 HPCI												Not Applicable to Perry		
207000 Isolation (Emergency) Condenser												Not Applicable to Perry		
209001 LPCS											x	G 2.4.11 Knowledge of abnormal condition procedures	3.4	1
209002 HPCS	x											K 1.01 Condensate transfer and storage	3.4	1
211000 SLC											x	G 2.2.24 Ability to analyze the affect of maintenance activities on LCO status	2.6	1
212000 RPS		x										K 2.01 RPS motor generators	3.2	1
215003 IRM			x									K 3.04 Reactor power indication	3.6	1
215004 Source Range Monitor						x						K 6.04 Detectors	2.9	1
215005 APRM / LPRM										x		A 4.06 Verification of function/operability	3.6	1
217000 RCIC							x					A 1.02 RCIC pressure	3.3	1
218000 ADS					x							K 5.01 ADS logic operation	3.8	1
223002 PCIS/Nuclear Steam Supply Shutoff	x								x			K 1.08 Shutdown cooling system RHR and A 3.02 Valve Closures	3.4 3.5	2
239002 SRVs			x							x		K 3.01 Reactor pressure control and A 4.04 Suppression pool temperature	3.9 4.3	2
259002 Reactor Water Level Control							x					A 1.01 Reactor water level	3.8	1
261000 SGTS				x								K 4.04 Radioactive particulate filtration	2.7	1
262001 AC Electrical Distribution								x		x		A 2.11 Degraded system voltage and A 4.04 Synchronizing and paralleling of AC	3.2 3.6	2
262002 UPS (AC/DC)						x						K 6.02 DC electrical power	2.8	1
263000 DC Electrical Distribution											x	G 2.4.34 Knowledge of RO tasks performed outside control room during emergency operations including	3.8	1
264000 EDGs								x		x		A 2.07 Loss of off-site power during full load tests and A 4.04 Manual start, load and stop	3.5 3.7	2
300000 Instrument Air			x									K 3.02 Systems with pneumatic valves/controls	3.3	1
400000 Component Cooling Water	x											K 1.02 Loads Cooled by CCWS	3.2	1
215005 OPRM				x								K 4.02 Reactor scram signals	4.1	1
K/A Category Point Totals:	3	1	3	2	1	3	3	2	1	4	3	Group Point Total:		26

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 2 RO												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	#
201001 CRD Hydraulic														
201002 RMCS												Not Applicable to Perry		
201003 Control Rod and Drive Mechanism								x				A2.01 Stuck Rod	3.4	1
201004 RSCS												Not Applicable to Perry		
201005 RCIS														
201006 RWM												Not Applicable to Perry		
202001 Recirculation		x										K 2.01 Recirculation pumps	3.2	1
202002 Recirculation Flow Control										x		A 4.02 Hydraulic power units	2.8	1
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.					x							K 5.09 Hydrogen production mechanism	2.6	1
226001 RHR/LPCI: CTMT Spray Mode				x								K 4.09 Auto containment spray initiation	3.2	1
230000 RHR/LPCI: Torus/Pool Spray Mode												Not Applicable to Perry		
233000 Fuel Pool Cooling/Cleanup														
234000 Fuel Handling Equipment														
239001 Main and Reheat Steam							x					A 1.09 Main steam flow	3.5	1
239003 MSIV Leakage Control												Not Applicable to Perry		
241000 Reactor/Turbine Pressure Regulator										x		A 4.08 Control/governor valves (operation)	3.5	1
245000 Main Turbine Gen. / Aux.									x			A 3.12 Auto turbine control	3.3	1
256000 Reactor Condensate	x											K 1.06 Extraction steam system	2.7	1
259001 Reactor Feedwater									x			A 3.08 Turbine speed: TDRFP's only	2.8	1
268000 Radwaste														
271000 Offgas														
272000 Radiation Monitoring	x											K 1.20 Auxiliary building	2.8	1
286000 Fire Protection				x								K 4.07 Diesel engine protection	3.3	1
288000 Plant Ventilation														
290001 Secondary CTMT														
290003 Control Room HVAC														
290002 Reactor Vessel Internals														
K/A Category Point Totals:	2	1		2	1		1	1	2	2		Group Point Total:		12

Form ES-401-4
Record of Rejected K/As,
for a BWR RO and SRO Examination

Tier / Group	Randomly Selected K/A	Reason for Rejection
1/1 RO	295026 EK2.06	To balance coverage in the area of Suppression Pool Temperature and Suppression Pool Level between RO and SRO outline, randomly selected K&A EK2.01 Suppression Pool cooling.
1/2 RO	295013	Selected K&A was High Suppression Pool Temperature, to balance coverage randomly selected 295008 High Reactor Water Level.
2/1 RO	209001 A2.10	Selected K&A was High Suppression Pool Temperature, to balance coverage randomly selected K&A G2.4.11.
2/2 RO	256000 K1.25	Selected K&A was Main Steam, no physical connection with Condensate System. Randomly selected K&A K1.06 Extraction Steam.
2/2 RO	259001 A3.09	Selected K&A was Lights and Alarms, due to recent installation of new digital feedwater governor control system along with digital feedwater application this K&A has minimum operations validity. Randomly selected K&A A3.08 Turbine Speed.

Description of Systematic Random Selection Process

The following process, which uses the BWR outline (Form ES-401-1) for illustration, *may be used* for each group in Tiers 1 and 2 of the RO examination outline.

1. Review each group and delete those items [emergency/abnormal plant evolutions (E/APEs) for Tier 1 and systems for Tier 2] that clearly do not apply to the facility for which the examination is being written; be prepared to explain the basis for the deletions to the NRC's chief examiner. Add any operationally-important systems or E/APEs that pertain to the facility but are not included in the generic lists on Form ES-401-1.
2. Sequentially number the remaining items in the group and sequentially annotate the same number of tokens. If we assume that none of the 20 E/APEs in Tier 1, Group 1 was deleted in Step 1, there should be 20 tokens, numbered from 1 to 20.
   a. Since the number of items remaining in the group (in this case 20) is the same as the required number of points for the group specified in the right-hand column of the examination outline, each item in the group would be sampled one time.
   b. If the number of items remaining in the group is smaller than the required number of points for the group (e.g., Tier 2, Group 1 has 23 items but requires 26 points), sample each item once, and determine the rest of the sample by randomly selecting and removing tokens (in this case 3 of the 23) until the required total number of points is reached. Update Form ES-401-1 to note the selected items.
   c. If the number of items remaining in the group is larger than the required number of points for the group (e.g., Tier 1, Group 2 has 20 items but only requires 7 points), randomly select and remove the required number of tokens and note them on Form ES-401-1.
3. After selecting the topics to be sampled in each group as described in Step 2, count the number of K/A categories in the group [e.g., 6 for each group in Tier 1 (i.e., K1, K2, K3, A1, A2, and G)] and sequentially annotate the same number of tokens (in this case 6). For each E/APE (and system) selected in Step 2, randomly select and remove a token and note the K/A category on Form ES-401-1. If the E/APE (or system) was sampled more than once in accordance with Step 2.a, randomly select a second K/A category. If the selected K/A category contains no K/A statements having an importance rating above 2.5, systematically select another K/A category, unless the lower importance is justified based on plant-specific priorities. Then replace all tokens in the container and repeat the process for every selected item in each group.
4. Use a similar method to randomly select from among the K/A statements under each selected K/A category. Describe each K/A topic in the space provided on Form ES-401-1 and enter the importance rating. K/As having importance ratings less than 2.5 can be used if justified based on plant priorities; the facility contact should be prepared to explain the basis to the NRC's chief examiner.

For Tier 3 (plant-wide generics) of the examination outline, randomly select K/As from Section 2 of the NRC's K/A catalog so that each of the four K/A categories (i.e., "Conduct of Operations," "Equipment Control," Radiation Control," and "Emergency Procedures/Plan") has at least two items.

Repeat Steps (1) through (4), above, to select the required number of topics for the SRO-only portion of the exam. With respect to Step (3), select topics from the shaded portions of the Tier 1 and 2 outlines [i.e., the "A2" and "G" K/A categories, which are linked to 10 CFR 55.43, and the fuel handling equipment, which is specifically identified for sampling in 10 CFR 55.43(b)(7)]. For Tier 3, select seven K/As linked to 10 CFR 55.43; sample one of the categories only once.

Pre-Suppression of K & A memo

NRC WRITTEN EXAMINATION
PERRY NUCLEAR POWER PLANT

JUSTIFICATIONS FOR ADDITIONS/DELETIONS ON WRITTEN EXAMINATION OUTLINE

EMERGENCY PLANT EVOLUTIONS (EPEs) DELETED (BOTH SRO AND RO)

295035 Secondary Containment High Differential Pressure - This is not a condition, event or symptom which leads to entry into the Perry plant specific Emergency Operating Procedures (EOPs). Perry does not have a true Secondary Containment and therefore has no Secondary Containment Ventilation System that performs a HVAC function. Additionally, Perry does not have Blow-out Panels. Operation of the Perry Annulus Exhaust Gas Treatment System is covered by 261000 (Standby Gas Treatment System). A high radiation release is covered by 295038 (High Off-Site Release Rate), 295034 (Sec Cont Vent Rad High), and 295033 (Sec Cont Area Rad Levels).

SYSTEMS DELETED (BOTH SRO AND RO)

201002 Reactor Manual Control System - This system is not incorporated into the BWR-6 design. The functions of this system are incorporated into the Rod Control and Information System.

201004 Rod Sequence Control System - This system is not incorporated into the BWR-6 design. The functions of this system are incorporated into the Rod Control and Information System.

201006 Rod Worth Minimizer System - This system is not incorporated into the BWR-6 design. The functions of this system are incorporated into the Rod Control and Information System.

214000 Rod Position Information System - This system is not incorporated into the BWR-6 design. The functions of this system are incorporated into the Rod Control and Information System.

215002 Rod Block Monitor System - This system is not incorporated into the BWR-6 design. The functions of this system are incorporated into the Rod Control and Information System.

206000 High Pressure Core Injection (HPCI) - This system is not incorporated into the BWR 6 design.

207000 Isolation (Emergency) Condenser - This system is not incorporated into the BWR 6 design. This was replaced by the Mark III Containment Suppression Pool.

230000 RHR/LPCI: Torus/Pool Spray Mode - This system is not incorporated into the BWR 6 Mark III Containment design.

239003 Main Steam Isolation Valve Leakage Control System – This system has been deleted as authorized by Tech Spec Amendment 103.

SYSTEM ADDED (BOTH SRO AND RO)

Oscillating Power Range Monitors (OPRM) was added to Tier 2/Group 1 using 215005 APRM/LPRM as the K and A source document. This system is a recent incorporation to Perry's design and is a significant system that has caused one automatic SCRAM at Perry.

GENERIC CATEGORIES DELETED (BOTH SRO AND RO)

GEN 2.2.3 Category is applicable to multi-unit facilities; Perry is a single unit facility.

GEN 2.2.4 Category is applicable to multi-unit facilities; Perry is a single unit facility.

REJECTED K/As (BOTH SRO AND RO)

Refer to the respective Form ES 401-4, for the reason for rejection of any K/A that was deleted.

Outline Modifications in accordance with ES-401

During the random selection process of 100 K/As, the following adjustments were made as allowed by ES-401.D.1: To balance coverage when an area, for example K1 was receiving more selections than another area that chip was not returned to the draw population until there were at least two selections in each K/A category. In addition when selecting within a K/A category a chip was not added to the draw population for any K/A with an importance of <2.5.