Facility: PVNGS Units 1,2,3												Date of Exam: 12/13/04 – 12/16/04
	K/A Category Points											
Tier	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**	**A1**	**A2**	**A3**	**A4**	**G ***	**Total**
1. Emergency & Abnormal Plant Evolutions	1	1	2				2	2			2	10
2. Plant Systems	2	2	2	2	1	1	2	2	2	2	2	20
3. Generic Knowledge and Abilities Categories	**1**		**2**		**3**		**4**		**GFE**			10
	2		2		2		2		2			

Note:
1. Ensure that at least one topic from every K/A category is sampled within each tier.
2. The point total for each tier in the proposed outline must match that specified in the table.

   The final point total for each tier may deviate by ±1 from that specified in the table based on NRC revisions. The final exam must total 40 points.
3. Select topics from many systems and evolutions; avoid selecting more than two K/A topics from a given system (except fuel handling equipment) or evolution (except refueling accident).
4. The shaded areas are not applicable to the category/tier.
5.* 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.
6. If the applicants have not previously taken the GFE, Tier 3 shall include basic reactor theory, component, and thermodynamic topics that apply to fuel handling operations.
7. Systems/evolutions within each tier are identified on the associated outline. Enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IR) for the SRO license level, and the point totals (#) for each system and category. Enter the tier totals for each category in the table above.
8. 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-701-3.
9. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements. The facility licensee's JTA for fuel handlers should be used as the basis for eliminating or adding testable topics.

ES-701	LSRO PWR Written Examination Outline Emergency and Abnormal Plant Evolutions -Tier 1	Form ES-701-2

	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000025 Loss of RHR Syst						X	2.4.15	3.5	
000026 Loss of Component Cooling Water				X			AA1.03	3.6	
000032 Loss of Source Range NI			X				AK3.02	4.1	
000036 (BW/A08) Fuel Handling Accident					X		AA2.02	4.1	
000061 ARM System Alarms				X			AA1.01	3.6	
~~000033 Loss of Intermediate Range NI~~									
000055 Station Blackout									
000056 Loss of Offsite Power					X		AA2.08	2.3*	
000057 Loss of Vital AC Inst. Bus									
000058 Loss of DC Power	X						AK1.01	3.1	
000062 Loss of Nuclear Svc Water			X				AK3.02	3.9	
000065 Loss of Instrument Air						X	2.1.27	2.9	
000067 Plant Fire On Site									
000069 (W/E14) Loss of CTMT Integrity		X					AK2.03	2.9	
~~W/E16 High Containment Radiation~~									
K/A Category Totals:	1	1	2	2	2	2	Tier Point Total:		10

Note: * items rated < 2.5 in the KA catalog have been rated > 2.5 for PVNGS LSROs JTA.

System 033 Loss of Intermediate Range NI and System W/E16 High Containment Radiation are not CE Systems and were therefore eliminated.

ES-701	LSRO PWR Written Examination Outline Emergency and Abnormal Plant Evolutions -Tier 2	Form ES-701-2

	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	#
005 Residual Heat Removal						X						K6.03	2.6	1
015 Nuclear Instrumentation											X	2.2.31	2.9	1
033 Spent Fuel Pool Cooling					X					X		K5.04, A4.03	2.3* 2.9	2
034 Fuel Handling Equipment							X		X			A3.01, A1.02	3.1 3.7	2
103 Containment				X								K4.06	3.7	1
062 AC Electrical Distribution								X				A2.01	3.9	1
063 DC Electrical Distribution		X										K2.01	3.1	1
002 Reactor Coolant							X					A1.11	3.2	1
004 Chemical and Volume Control										X		A4.03	3.2	1
008 Component Cooling Water				X								K4.06	2.6*	1
013 Engineered Safety Features Actuation											X	2.2.25	3.7	1
064 Emergency Diesel Generator									X			A3.07	3.7	1
072 Area Radiation Monitoring	X											K1.04	3.5	1
076 Service Water	X											K1.01	3.3	1
~~078 Instrument Air~~														
~~079 Station Air~~														
086 Fire Protection			X									K3.01	3.2	1
006 ECCS			X									K3.02	4.4	1
022 Containment Cooling								X				A2.05	3.5	1
026 Containment Spray		X										K2.01	3.6	1
K/A Category Totals:	2	2	2	2	1	1	2	2	2	2	2	Tier Point Total:		20

System 026, Containment Spray has been added per NOTE 9 of ES 701-2: The facility licensee's JTA for fuel handlers should be used as the basis for eliminating or adding testable topics.

Systems 006 ECCS and 022 Containment Cooling are more IPE/PRA risk related systems than 078 Instrument Air and 070 Station Air Systems and were therefore used to replace these two systems. These two systems are also part of the LSRO JTA. System 070 Station Air System is not part of the LSRO JTA.

Note: * items rated < 2.5 in the KA catalog have been rated > 2.5 for PVNGS LSROs JTA.

ES-701 **LSRO Generic Knowledge and Abilities Outline (Tier 3)** Form ES-701-3

Facility: PVNGS Units 1,2,3 Date of Examination: 12/13/04-12/16/04

Category	K/A #	Topic	IR	#
1. Conduct of Operations	2.1.5	Use procedures for shift staffing	3.4	1
	2.1.8	Ability to control activities outside the control room	3.6	1
	2.1			
	2.1			
	Subtotal			
2. Equipment Control	2.2.18	Managing maintenance activities while shutdown	3.6	1
	2.2.20	Knowledge of the process for troubleshooting	3.3	1
	2.2			
	2.2			
	Subtotal			
3. Radiation Control	2.3.2	Knowledge of ALARA	2.9	1
	2.3.11	Ability to control radiation release	3.2	1
	2.3			
	2.3			
	Subtotal			
4. Emergency Procedures / Plan	2.4.44	Knowledge of Emergency Plan PAR's	4.0	1
	2.4.4	Entry level conditions for AOP/EOP	4.3	1
	2.4			
	2.4			
	Subtotal			
5. Generic Fundamentals	K1.07	5.191006 Heat Exchangers and Condensers	2.6	1
	K1.05	6.192001 Good characteristics of a moderator	2.1*	1
	Subtotal			
Tier 3 Point Total				10

Note: * items rated < 2.5 in the KA catalog rate > 2.5 for PVNGS LSROs JTA.

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Facility: PVNGS Units 1,2,3 Date of Examination: 12/13/04-12/17/04

	Title / Description of Tasks (JPMs)	KA / IR	Type Codes*	Evaluation (S or U)	Comment Page
Administrative					
1	Knowledge of the refueling process. JPM: Given an MBA transfer form set to review find 2 errors and the resulting impact on Tech Spec LCO 3.7.17.	2.2.27 3.5	N, A, T		
2	Knowledge of 10 CFR: 20 and related facility radiation control requirements. JPM: Determine proper REP and task, contact RP, and enter the RCA. Upon entering your EPD alarms.	2.3.1 3.0	D		
3	Knowledge of the Emergency Plan. JPM: Given a plant condition and references, identify the E-Plan classification.	2.4.29 4.0	N		
Systems					
1.	Fuel Handling Equipment - Lift/Lower a component using the New Fuel Elevator.	034K402 3.3	D, A, I		
2.	Fuel Handling Equipment – Perform Refueling Machine Load Test and address TRM LCO 3.9.102	034A101 3.2	N, A, T		
3.	Area Radiation Monitors – Verify SFHM bridge ARM alarm function is operable.	072A2.01 2.9	N, A, I		
4.	CVCS - Demonstrate makeup flowpath for BAMP to the SFP using P&ID's.	004K617 4.6	D		
Emergency / Abnormal Plant Evolutions					
1.	Loss of SDC – Loss of Inventory in the Refuel Pool	025AA102 3.9	N, T		
2.	Respond to New Fuel Damage in the Fuel Bldg	036AA202 4.1	N, A, R		
3.	Loss of a Startup Channel during Refueling	032AA202 3.9	D, P, T		

Type Codes & Criteria:
(A)lternate path (2 systems; 1 E/APE)
(C)ontrol room
(D)irect from bank (≤ 7)
(I)n-plant
(N)ew or (M)odified from bank including 1(A) (≥ 1 / section)
(P)revious two exams (≤ 1 / section)
(R)efueling accident (1)
(T)echnical specification (≥ 2)

Tier / Group	Randomly Selected K/A	Reason for Rejection
1	058AK3.01	Not relavent to the LSRO job position
1	058AK3.02	This procedure is used by the CRS not the LSRO
1	062AK3.03	Guidance given in the EOP is not a LSRO function
1	032AK3.03	Not a LSRO function
1	056AK1.01	Not a LSRO function
1	056AK1.03	Not a LSRO function
1	056AK1.04	Not a LSRO function
1	026AA1.01	Not a LSRO function
1	026AA1.02	Not a LSRO function
2	072A2.01	Selected for Operating Test
2	072A2.02	Not a LSRO function
2	072A2.03	Not a LSRO function
2	033A4.01	The RO / CRS monitor this in the Control Room. Not an LSRO function.
2	033A4.02	The RO / CRS monitor this in the Control Room. Not an LSRO function.
2	033A4.03	The RO / CRS monitor this in the Control Room. Not an LSRO function.
2	022A4.01-4.05	The RO / CRS monitor this in the Control Room. Not an LSRO function.
2	076A4.01-4.05	The RO / CRS monitor this in the Control Room. Not an LSRO function.