Facility: DCPP Printed: 03/05/2008

Date Of Exam: 06/13/2008

Tier	Group	RO K/A Category Points												SRO-Only Points				
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	Total	A2		G*	Total	
1. Emergency & Abnormal Plant Evolutions	1	3	3	3	N/A			3	3	N/A		3	18	0		0	0	
	2	2	2	1				2	2			0	9	0		0	0	
	Tier Totals	5	5	4				5	5			3	27	0		0	0	
2. Plant Systems	1	3	2	3	3	3	2	3	3	2	3	1	28	0		0	0	
	2	1	1	1	1	1	1	1	1	1	0	1	10	0	0	0	0	
	Tier Totals	4	3	4	4	4	3	4	4	3	3	2	38	0		0	0	
3. Generic Knowledge And Abilities Categories		1		2		3		4					10	1	2	3	4	0
		2		3		2		3						0	0	0	0	

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/evolutions that are not included on the outline should be added. Refer to Section D.1.b of ES-401 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. Refer to Section D.1.b of ES-401 for the applicable K/As.

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.

PWR RO Examination Outline

Printed: 02/04/2008

Facility: DCPP

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1** **Form ES-401-2**

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
000007 Reactor Trip - Stabilization - Recovery / 1			X				EK3.01 - Actions contained in EOP for reactor trip	4.0	1
000008 Pressurizer Vapor Space Accident / 3	X						AK1.01 - Thermodynamics and flow characteristics of open or leaking valves	3.2	1
000009 Small Break LOCA / 3		X					EK2.03 - S/Gs	3.0	1
000011 Large Break LOCA / 3					X		EA2.13 - Difference between overcooling and LOCA indications	3.7*	1
000015/000017 RCP Malfunctions / 4		X					AK2.10 - RCP indicators and controls	2.8*	1
000022 Loss of Rx Coolant Makeup / 2						X	2.4.31 - Knowledge of annunciator alarms, indications, or response procedures.	4.2	1
000025 Loss of RHR System / 4				X			AA1.11 - Reactor building sump level indicators	2.9	1
000026 Loss of Component Cooling Water / 8					X		AA2.04 - The normal values and upper limits for the temperatures of the components cooled by CCW	2.5	1
000027 Pressurizer Pressure Control System Malfunction / 3					X		AA2.04 - Tech-Spec limits for RCS pressure	3.7	1
000038 Steam Gen. Tube Rupture / 3			X				EK3.04 - Automatic actions provided by each PRM	3.9	1
000054 Loss of Main Feedwater / 4			X				AK3.01 - Reactor and/or turbine trip, manual and automatic	4.1	1
000055 Station Blackout / 6				X			EA1.06 - Restoration of power with one ED/G	4.1	1
000058 Loss of DC Power / 6						X	2.2.37 - Ability to determine operability and/or availability of safety related equipment.	3.6	1
000065 Loss of Instrument Air / 8						X	2.1.23 - Ability to perform specific system and integrated plant procedures during all modes of plant operation.	4.3	1
W/E04 LOCA Outside Containment / 3				X			EA1.3 - Desired operating results during abnormal and emergency situations	3.8	1
W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4		X					EK2.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.7	1
W/E11 Loss of Emergency Coolant Recirc. / 4	X						EK1.2 - Normal, abnormal and emergency operating procedures associated with Loss of Emergency Coolant Recirculation	3.6	1

Facility: DCPP

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1** **Form ES-401-2**

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
W/E12 - Steam Line Rupture - Excessive Heat Transfer / 4	X						EK1.3 - Annunciators and conditions indicating signals, and remedial actions associated with the Uncontrolled Depressurization of all Steam Generators	3.4	1
K/A Category Totals:	**3**	**3**	**3**	**3**	**3**	**3**	**Group Point Total:**		**18**

PWR RO Examination Outline

Printed: 02/04/2008

Facility: DCPP

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2** **Form ES-401-2**

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
000003 Dropped Control Rod / 1		X					AK2.05 - Control rod drive power supplies and logic circuits	2.5	1
000024 Emergency Boration / 1		X					AK2.03 - Controllers and positioners	2.6	1
000028 Pressurizer Level Malfunction / 2				X			AA1.05 - Initiation of excess letdown per the CVCS	2.8	1
000036 Fuel Handling Accident / 8					X		AA2.01 - ARM system indications	3.2	1
000051 Loss of Condenser Vacuum / 4					X		AA2.02 - Conditions requiring reactor and/or turbine trip	3.9	1
000061 ARM System Alarms / 7				X			AA1.01 - Automatic actuation	3.6	1
W/E02 SI Termination / 3	X						EK1.1 - Components, capacity, and function of emergency systems	3.2	1
W/E09 Natural Circ. / 4	X						EK1.3 - Annunciators and conditions indicating signals, and remedial actions associated with the Natural Circulation Operations	3.3	1
W/E16 High Containment Radiation / 9			X				EK3.2 - Normal, abnormal and emergency operating procedures associated with High Containment Radiation	2.9	1
K/A Category Totals:	**2**	**2**	**1**	**2**	**2**	**0**	**Group Point Total:**		**9**

PWR RO Examination Outline

Printed: 02/04/2008

Facility: DCPP

ES - 401 **Plant Systems - Tier 2 / Group 1** **Form ES-401-2**

Sys/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
003 Reactor Coolant Pump											X	2.1.27 - Knowledge of system purpose and/or function.	3.9	1
003 Reactor Coolant Pump					X							K5.03 - 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						X						K6.04 - Pumps	2.8	1
005 Residual Heat Removal				X								K4.05 - Relation between RHR flowpath and refueling cavity	2.5	1
005 Residual Heat Removal										X		A4.01 - Controls and indication for RHR pumps	3.6*	1
006 Emergency Core Cooling					X							K5.06 - Relationship between ECCS flow and RCS pressure	3.5	1
006 Emergency Core Cooling				X								K4.16 - Interlocks between RHR valves and RCS	3.2	1
007 Pressurizer Relief/Quench Tank							X					A1.02 - Maintaining quench tank pressure	2.7	1
008 Component Cooling Water			X									K3.01 - Loads cooled by CCWS	3.4	1
010 Pressurizer Pressure Control		X										K2.01 - PZR heaters	3.0	1
012 Reactor Protection	X											K1.08 - MFW	2.9*	1
013 Engineered Safety Features Actuation		X										K2.01 - ESFAS/safeguards equipment control	3.6*	1
013 Engineered Safety Features Actuation					X							K5.02 - Safety system logic and reliability	2.9	1
022 Containment Cooling				X								K4.04 - Cooling of control rod drive motors	2.8	1
022 Containment Cooling							X					A1.02 - Containment pressure	3.6	1
026 Containment Spray	X											K1.01 - ECCS	4.2	1
039 Main and Reheat Steam	X											K1.05 - T/G	2.5*	1
059 Main Feedwater										X		A4.12 - Initiation of automatic feedwater isolation	3.4	1
061 Auxiliary/Emergency Feedwater			X									K3.02 - S/G	4.2	1
061 Auxiliary/Emergency Feedwater								X				A2.04 - pump failure or improper operation	3.4	1
062 AC Electrical Distribution									X			A3.04 - Operation of inverter (e.g., precharging synchronizing light, static transfer)	2.7	1
063 DC Electrical Distribution								X				A2.01 - Grounds	2.5	1

PWR RO Examination Outline

Printed: 02/04/2008

Facility: DCPP

ES - 401 **Plant Systems - Tier 2 / Group 1** **Form ES-401-2**

Sys/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
064 Emergency Diesel Generator								X				A2.05 - Loading the ED/G	3.1	1
064 Emergency Diesel Generator						X						K6.07 - Air receivers	2.7	1
073 Process Radiation Monitoring							X					A1.01 - Radiation levels	3.2	1
076 Service Water			X									K3.07 - ESF loads	3.7	1
078 Instrument Air										X		A4.01 - Pressure gauges	3.1	1
103 Containment									X			A3.01 - Containment isolation	3.9	1
K/A Category Totals:	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**2**	**3**	**1**	**Group Point Total:**		**28**

PWR RO Examination Outline

Printed: 02/04/2008

Facility: DCPP

ES - 401 **Plant Systems - Tier 2 / Group 2** **Form ES-401-2**

Sys/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
002 Reactor Coolant			X									K3.03 - Containment	4.2	1
011 Pressurizer Level Control											X	2.4.4 - Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.	4.5	1
014 Rod Position Indication	X											K1.01 - CRDS	3.2*	1
017 In-core Temperature Monitor					X							K5.01 - Temperature at which cladding and fuel melt	3.1	1
027 Containment Iodine Removal		X										K2.01 - Fans	3.1*	1
028 Hydrogen Recombiner and Purge Control						X						K6.01 - Hydrogen recombiners	2.6	1
033 Spent Fuel Pool Cooling				X								K4.01 - Maintenance of spent fuel level	2.9	1
035 Steam Generator							X					A1.01 - S/G wide and narrow range level during startup, shutdown, and normal operations	3.6	1
045 Main Turbine Generator									X			A3.04 - T/G trip	3.4	1
079 Station Air								X				A2.01 - Cross-connection with IAS	2.9	1
K/A Category Totals:	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**1**	**Group Point Total:**		**10**

Generic Knowledge and Abilities Outline (Tier 3)

PWR RO Examination Outline

Printed: 02/04/2008

Facility: DCPP

Form ES-401-3

Generic Category	KA	KA Topic	Imp.	Points
Conduct of Operations	2.1.2	Knowledge of operator responsibilities during all modes of plant operation.	4.1	1
	2.1.37	Knowledge of procedures, guidelines, or limitations associated with reactivity management.	4.3	1
		Category Total:		**2**
Equipment Control	2.2.12	Knowledge of surveillance procedures.	3.7	1
	2.2.14	Knowledge of the process for controlling equipment configuration or status.	3.9	1
	2.2.43	Knowledge of the process used to track inoperable alarms.	3.2	1
		Category Total:		**3**
Radiation Control	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions.	3.2	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
		Category Total:		**2**
Emergency Procedures/Plan	2.4.14	Knowledge of general guidelines for EOP usage.	3.8	1
	2.4.25	Knowledge of fire protection procedures.	3.3	1
	2.4.37	Knowledge of the lines of authority during implementation of the emergency plan.	3.0	1
		Category Total:		**3**
		Generic Total:		**10**

Facility: DCPP Printed: 02/04/2008

Date Of Exam: 06/13/2008

Tier	Group	RO K/A Category Points												SRO-Only Points					
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	Total	A2			G*	Total	
1. Emergency & Abnormal Plant Evolutions	1	0	0	0	N/A			0	0	N/A		0	0	3			3	6	
	2	0	0	0				0	0			0	0	2			2	4	
	Tier Totals	0	0	0				0	0			0	0	5			5	10	
2. Plant Systems	1	0	0	0	0	0	0	0	0	0	0	0	0	3			2	5	
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2		1	3	
	Tier Totals	0	0	0	0	0	0	0	0	0	0	0	0	5			3	8	
3. Generic Knowledge And Abilities Categories		1		2		3		4					0	1	2	3	4		7
		0		0		0		0						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/evolutions that are not included on the outline should be added. Refer to Section D.1.b of ES-401 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. Refer to Section D.1.b of ES-401 for the applicable K/As.

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.

PWR SRO Examination Outline

Printed: 02/04/2008

Facility: DCPP

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1** **Form ES-401-2**

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
000009 Small Break LOCA / 3					X		EA2.14 - Actions to be taken if PTS limits are violated	4.4	1
000011 Large Break LOCA / 3						X	2.4.4 - Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.	4.7	1
000026 Loss of Component Cooling Water / 8						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.	4.2	1
000058 Loss of DC Power / 6					X		AA2.03 - DC loads lost; impact on to operate and monitor plant systems	3.9	1
000065 Loss of Instrument Air / 8					X		AA2.05 - When to commence plant shutdown if instrument air pressure is decreasing	4.1	1
W/E11 Loss of Emergency Coolant Recirc. / 4						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
K/A Category Totals:	**0**	**0**	**0**	**0**	**3**	**3**	**Group Point Total:**		**6**

PWR SRO Examination Outline

Printed: 02/04/2008

Facility: DCPP

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2** **Form ES-401-2**

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
000033 Loss of Intermediate Range NI / 7					X		AA2.04 - Satisfactory overlap between source-range, intermediate-range and power-range instrumentation	3.6	1
000036 Fuel Handling Accident / 8						X	2.1.23 - Ability to perform specific system and integrated plant procedures during all modes of plant operation.	4.4	1
000037 Steam Generator Tube Leak / 3					X		AA2.05 - Past history of leakage with current problem	3.3	1
W/E02 SI Termination / 3						X	2.2.44 - Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.	4.4	1
K/A Category Totals:	**0**	**0**	**0**	**0**	**2**	**2**	**Group Point Total:**		**4**

PWR SRO Examination Outline

Printed: 02/04/2008

Facility: DCPP

ES - 401 **Plant Systems - Tier 2 / Group 1** **Form ES-401-2**

Sys/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
004 Chemical and Volume Control								X				A2.18 - High VCT level	3.1	1
005 Residual Heat Removal											X	2.4.4 - Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.	4.7	1
062 AC Electrical Distribution											X	2.4.8 - Knowledge of how abnormal operating procedures are used in conjunction with EOPs.	4.5	1
063 DC Electrical Distribution								X				A2.02 - Loss of ventilation during battery charging	3.1	1
103 Containment								X				A2.05 - Emergency containment entry	3.9	1
K/A Category Totals:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**2**	**Group Point Total:**		**5**

PWR SRO Examination Outline

Printed: 02/04/2008

Facility: DCPP

ES - 401 **Plant Systems - Tier 2 / Group 2** **Form ES-401-2**

Sys/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
002 Reactor Coolant								X				A2.02 - Loss of coolant pressure	4.4	1
011 Pressurizer Level Control											X	2.4.45 - Ability to prioritize and interpret the significance of each annunciator or alarm.	4.3	1
056 Condensate								X				A2.04 - Loss of condensate pumps	2.8*	1
K/A Category Totals:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**Group Point Total:**		**3**

Generic Knowledge and Abilities Outline (Tier 3)

PWR SRO Examination Outline

Printed: 02/04/2008

Facility: DCPP

Form ES-401-3

Generic Category	KA	KA Topic	Imp.	Points
Conduct of Operations	2.1.37	Knowledge of procedures, guidelines, or limitations associated with reactivity management.	4.6	1
	2.1.40	Knowledge of refueling administrative requirements.	3.9	1
		Category Total:		**2**
Equipment Control	2.2.6	Knowledge of the process for making changes to procedures.	3.6	1
	2.2.25	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.	4.2	1
		Category Total:		**2**
Radiation Control	2.3.6	Ability to approve release permits.	3.8	1
		Category Total:		**1**
Emergency Procedures/Plan	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
		Category Total:		**2**
		Generic Total:		**7**

Tier / Group	Randomly Selected K/A	Reason for Rejection
1/1	54/AK.03	No specific procedure step to deal with manual control of AFW valves on Loss of Main Feedwater, additionally AFW is over sampled. (RO)
1/1	77/AK2.01	No specific procedure to deal with Generator Voltage and Electric Grid Disturbances and the effect on plant motors. (RO)
1/2	67/AK3.04	No EOP/AOP procedural guidance used by reactor operators to respond plant fire on site, will examine similar knowledge under G.2.4.25. (RO)
2/2	34/A3.03	No automatic actions for High Flux at shutdown at DCPP. (RO)
1/2	03/2.1.37	Generic item that is not on list of items to be included in ES-401 section D.1.b for Tiers 1 & 2. (SRO)
2/1	22/A2.06	Not applicable for DCPP, no CCS pumps. (SRO)
3	G2.2.25	Same K/A was selected for SRO exam, Item is more appropriate for SRO's. (RO)

Description of program used to generate DCPP June 2008 Written Exam K/A's

Generated the RO and SRO sample plan using the 'NKEG" Database program, version 1.1., developed by Westinghouse Electric Company. This program will automatically produce a Random Sample Plan based on NUREG 1122, Rev. 2, Supplement 1, K/As.

K/As were suppressed prior to the outline generation process as provided for in the examiner standard, the list of suppressed K/As is provided as required by the examiner standard.

Inappropriate and inapplicable K/As were discarded during the outline development process and are included in the record of rejected K/A's. The replacement K/A's were replaced using the random sample function of the NKEG database program to ensure they were randomly selected.

During development of the test questions, it was determined that one generic K/A was not appropriate for an RO exam, the same K/A was also selected for the SRO exam. The K/A was deleted and another generic K/A from the same area (Equipment Control) was randomly selected by placing into a cup, numbers that corresponded to the K/As in the Equipment Control Area. A number was then drawn out of the cup and that was used for the replacement K/A.