

Facility: DCPD

Printed: 01/05/2007

Date Of Exam: 03/16/2007

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	1	2	2	N/A			1	2	N/A			1	9	0		0	0
	Tier Totals	4	5	5	N/A			4	5	N/A			4	27	0		0	0
2. Plant Systems	1	2	2	3	3	3	2	2	3	2	3	3	28	0		0	0	
	2	0	1	1	1	1	1	1	1	1	1	1	10	0	0	0	0	
	Tier Totals	2	3	4	4	4	3	3	4	3	4	4	38	0		0	0	
3. Generic Knowledge And Abilities Categories				1		2		3		4		10		1	2	3	4	0
				2		3		3		2				0	0	0	0	

Note:

- Ensure that at least two topics from every K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
- The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
- Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; 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.
- Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
- Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
- Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- \* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
- On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance 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.
- 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: 01/05/2007

Facility: DCPD

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					EK2.03 - Reactor trip status panel	3.5	1
000008 Pressurizer Vapor Space Accident / 3				X			AA1.02 - HPI pump to control PZR level/pressure	4.1	1
000009 Small Break LOCA / 3			X				EK3.26 - Maintenance of RCS subcooling	4.4	1
000015/000017 RCP Malfunctions / 4	X						AK1.01 - Natural circulation in a nuclear reactor power plant	4.4	1
000022 Loss of Rx Coolant Makeup / 2	X						AK1.02 - Relationship of charging flow to pressure differential between charging and RCS	2.7	1
000025 Loss of RHR System / 4		X					AK2.03 - Service water or closed cooling water pumps	2.7	1
000027 Pressurizer Pressure Control System Malfunction / 3			X				AK3.01 - Isolation of PZR spray following loss of PZR heaters	3.5*	1
000029 ATWS / 1		X					EK2.06 - Breakers, relays, and disconnects	2.9*	1
000038 Steam Gen. Tube Rupture / 3						X	2.4.31 - Knowledge of annunciators alarms and indications, and use of the response instructions.	3.3	1
000040 Steam Line Rupture - Excessive Heat Transfer / 4					X		AA2.01 - Occurrence and location of a steam line rupture from pressure and flow indications	4.2	1
000054 Loss of Main Feedwater / 4						X	2.2.22 - Knowledge of limiting conditions for operations and safety limits.	3.4	1
000055 Station Blackout / 6	X						EK1.02 - Natural circulation cooling	4.1	1
000057 Loss of Vital AC Inst. Bus / 6					X		AA2.19 - The plant automatic actions that will occur on the loss of a vital ac electrical instrument bus	4.0	1
000062 Loss of Nuclear Svc Water / 4					X		AA2.02 - The cause of possible SWS loss	2.9	1
000065 Loss of Instrument Air / 8				X			AA1.02 - Components served by instrument air to minimize drain on system	2.6	1
W/E04 LOCA Outside Containment / 3			X				EK3.2 - Normal, abnormal and emergency operating procedures associated with LOCA Outside Containment	3.4	1
W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4						X	2.1.27 - Knowledge of system purpose and or function.	2.8	1

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ES - 401

**Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1**

**Form ES-401-2**

<b>E/APE # / Name / Safety Function</b>	<b>K1</b>	<b>K2</b>	<b>K3</b>	<b>A1</b>	<b>A2</b>	<b>G</b>	<b>KA Topic</b>	<b>Imp.</b>	<b>Points</b>
W/E11 Loss of Emergency Coolant Recirc. / 4				X			EA1.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.9	1
<b>K/A Category Totals:</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>Group Point Total:</b>	<b>18</b>	

**PWR RO Examination Outline**

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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
000001 Continuous Rod Withdrawal / 1						X	2.4.31 - Knowledge of annunciators alarms and indications, and use of the response instructions.	3.3	1
000028 Pressurizer Level Malfunction / 2		X					AK2.02 - Sensors and detectors	2.6	1
000033 Loss of Intermediate Range NI / 7			X				AK3.01 - Termination of startup following loss of intermediate-range instrumentation	3.2	1
000036 Fuel Handling Accident / 8					X		AA2.03 - Magnitude of potential radioactive release	3.1*	1
000059 Accidental Liquid RadWaste Rel. / 9					X		AA2.05 - The occurrence of automatic safety actions as a result of a high PRM system signal	3.6	1
000069 Loss of CTMT Integrity / 5			X				AK3.01 - Guidance contained in EOP for loss of containment integrity	3.8*	1
000076 High Reactor Coolant Activity / 9		X					AK2.01 - Process radiation monitors	2.6	1
W/E02 SI Termination / 3	X						EK1.1 - Components, capacity, and function of emergency systems	3.2	1
W/E07 Inad. Core Cooling / 4				X			EA1.3 - Desired operating results during abnormal and emergency situations	3.5	1
<b>K/A Category Totals:</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>Group Point Total:</b>	<b>9</b>	

**PWR RO Examination Outline**

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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							K5.02 - Effects of RCP coastdown on RCS parameters	2.8	1
004 Chemical and Volume Control								X				A2.13 - Low RWST	3.6	1
005 Residual Heat Removal					X							K5.05 - Plant response during "solid plant": pressure change due to the relative incompressibility of water	2.7*	1
005 Residual Heat Removal										X		A4.03 - RHR temperature, PZR heaters and flow, and nitrogen	2.8*	1
006 Emergency Core Cooling						X						K6.02 - Core flood tanks (accumulators)	3.4	1
007 Pressurizer Relief/Quench Tank				X								K4.01 - Quench tank cooling	2.6	1
008 Component Cooling Water							X					A1.02 - CCW temperature	2.9	1
008 Component Cooling Water									X			A3.10 - CCW pump instruments and their respective sensors, including flow, pressure, oil level, and discharge temperature	2.9*	1
010 Pressurizer Pressure Control								X				A2.01 - Heater failures	3.3	1
010 Pressurizer Pressure Control											X	2.4.6 - Knowledge symptom based EOP mitigation strategies.	3.1	1
012 Reactor Protection	X											K1.03 - CRDS	3.7	1
013 Engineered Safety Features Actuation			X									K3.01 - Fuel	4.4	1
013 Engineered Safety Features Actuation										X		A4.02 - Reset of ESFAS channels	4.3	1
022 Containment Cooling								X				A2.06 - Loss of CCS pump	2.8*	1
026 Containment Spray				X								K4.09 - Prevention of path for escape of radioactivity from containment to the outside (interlock on RWST isolation after swapover)	3.7*	1
026 Containment Spray										X		A4.01 - CSS controls	4.5	1
039 Main and Reheat Steam							X					A1.10 - Air ejector PRM	2.9*	1
039 Main and Reheat Steam											X	2.4.31 - Knowledge of annunciators alarms and indications, and use of the response instructions.	3.3	1
059 Main Feedwater	X											K1.05 - RCS	3.1*	1
059 Main Feedwater											X	2.1.27 - Knowledge of system purpose and or function.	2.8	1

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**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
061 Auxiliary/Emergency Feedwater					X							K5.03 - Pump head effects when control valve is shut	2.6	1
062 AC Electrical Distribution		X										K2.01 - Major system loads	3.3	1
063 DC Electrical Distribution				X								K4.04 - Trips	2.6?	1
064 Emergency Diesel Generator						X						K6.07 - Air receivers	2.7	1
073 Process Radiation Monitoring			X									K3.01 - Radioactive effluent releases	3.6	1
076 Service Water		X										K2.01 - Service water	2.7*	1
078 Instrument Air									X			A3.01 - Air pressure	3.1	1
103 Containment			X									K3.01 - Loss of containment integrity under shutdown conditions	3.3*	1
<b>K/A Category Totals:</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>Group Point Total:</b>		<b>28</b>

**PWR RO Examination Outline**

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**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
001 Control Rod Drive			X									K3.02 - RCS	3.4*	1
002 Reactor Coolant						X						K6.07 - Pumps	2.5	1
011 Pressurizer Level Control		X										K2.02 - PZR heaters	3.1	1
016 Non-nuclear Instrumentation											X	A4.02 - Recorders	2.7	1
033 Spent Fuel Pool Cooling									X			A3.02 - Spent fuel leak or rupture	2.9	1
034 Fuel Handling Equipment				X								K4.02 - Fuel movement	2.5	1
035 Steam Generator								X				A2.04 - Steam flow/feed mismatch	3.6	1
045 Main Turbine Generator					X							K5.17 - Relationship between moderator temperature coefficient and boron concentration in RCS as T/G load increases	2.5*	1
068 Liquid Radwaste											X	2.4.49 - Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4.0	1
071 Waste Gas Disposal							X					A1.06 - Ventilation system	2.5	1
<b>K/A Category Totals:</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>Group Point Total:</b>		<b>10</b>

# Generic Knowledge and Abilities Outline (Tier 3)

## PWR RO Examination Outline

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Form ES-401-3

<u>Generic Category</u>	<u>KA</u>	<u>KA Topic</u>	<u>Imp.</u>	<u>Points</u>
<b>Conduct of Operations</b>	2.1.9	Ability to direct personnel activities inside the control room.	2.5	1
	2.1.20	Ability to execute procedure steps.	4.3	1
	<b>Category Total:</b>			<b>2</b>
<b>Equipment Control</b>	2.2.12	Knowledge of surveillance procedures.	3.0	1
	2.2.23	Ability to track limiting conditions for operations.	2.6	1
	2.2.34	Knowledge of the process for determining the internal and external effects on core reactivity.	2.8	1
	<b>Category Total:</b>			<b>3</b>
<b>Radiation Control</b>	2.3.1	Knowledge of 10 CFR: 20 and related facility radiation control requirements.	2.6	1
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	2.9	1
	2.3.11	Ability to control radiation releases.	2.7	1
	<b>Category Total:</b>			<b>3</b>
<b>Emergency Procedures/Plan</b>	2.4.21	Knowledge of the parameters and logic used to assess the status of safety functions including: 1. Reactivity control; 2. Core cooling and heat removal; 3. Reactor coolant system integrity; 4. Containment conditions; 5. Radioactivity release control.	3.7	1
	2.4.48	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.	3.5	1
	<b>Category Total:</b>			<b>2</b>
<b>Generic Total:</b>			<b>10</b>	



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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	4	2	6	
	2	0	0	0				0	0				0	0	0	2	2	4
	Tier Totals	0	0	0				0	0				0	0	0	0	0	0
2. Plant Systems	1	0	0	0	0	0	0	0	0	0	0	0	0	2	3	5		
	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2	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			1	2	2	2	

Note:

- Ensure that at least two topics from every K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
- The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
- Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; 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.
- Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
- Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
- Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- \* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
- On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance 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.
- 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: 01/05/2007

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ES - 401

**Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1**

**Form ES-401-2**

<b>E/APE # / Name / Safety Function</b>	<b>K1</b>	<b>K2</b>	<b>K3</b>	<b>A1</b>	<b>A2</b>	<b>G</b>	<b>KA Topic</b>	<b>Imp.</b>	<b>Points</b>
000009 Small Break LOCA / 3					X		EA2.21 - Containment radiation trend recorder	3.9	1
000015/000017 RCP Malfunctions / 4						X	2.4.4 - Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.3	1
000026 Loss of Component Cooling Water / 8					X		AA2.06 - The length of time after the loss of CCW flow to a component before that component may be damaged	3.1*	1
000054 Loss of Main Feedwater / 4						X	2.1.33 - Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	4.0	1
000058 Loss of DC Power / 6					X		AA2.03 - DC loads lost; impact on to operate and monitor plant systems	3.9	1
W/E11 Loss of Emergency Coolant Recirc. / 4					X		EA2.2 - Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments	4.2	1
<b>K/A Category Totals:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>2</b>	<b>Group Point Total:</b>		<b>6</b>

**PWR SRO Examination Outline**

Printed: 01/05/2007

Facility: DCPD

ES - 401

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

**Form ES-401-2**

<b>E/APE # / Name / Safety Function</b>	<b>K1</b>	<b>K2</b>	<b>K3</b>	<b>A1</b>	<b>A2</b>	<b>G</b>	<b>KA Topic</b>	<b>Imp.</b>	<b>Points</b>
000003 Dropped Control Rod / 1						X	2.4.49 - Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4.0	1
000036 Fuel Handling Accident / 8						X	AA2.02 - Occurrence of a fuel handling incident	4.1	1
000037 Steam Generator Tube Leak / 3						X	2.1.33 - Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	4.0	1
W/E16 High Containment Radiation / 9						X	EA2.1 - Facility conditions and selection of appropriate procedures during abnormal and emergency operations	3.3	1
<b>K/A Category Totals:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>Group Point Total:</b>	<b>4</b>	

**PWR SRO Examination Outline**

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**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				A2.05 - Effects of VCT pressure on RCP seal leakoff flows	2.8	1
006 Emergency Core Cooling											X	2.4.31 - Knowledge of annunciators alarms and indications, and use of the response instructions.	3.4	1
061 Auxiliary/Emergency Feedwater											X	2.2.25 - Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.7	1
064 Emergency Diesel Generator								X				A2.19 - Consequences of high VARS on ED/G integrity	2.7	1
103 Containment											X	2.1.33 - Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	4.0	1
<b>K/A Category Totals:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>Group Point Total:</b>	<b>5</b>	

**PWR SRO Examination Outline**

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**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
017 In-core Temperature Monitor								X				A2.02 - Core damage	4.1	1
034 Fuel Handling Equipment							X					A1.02 - Water level in the refueling canal	3.7	1
075 Circulating Water								X				A2.02 - Loss of circulating water pumps	2.7	1
<b>K/A Category Totals:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Group Point Total:</b>	<b>3</b>	

# Generic Knowledge and Abilities Outline (Tier 3)

## PWR SRO Examination Outline

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**Form ES-401-3**

<u>Generic Category</u>	<u>KA</u>	<u>KA Topic</u>	<u>Imp.</u>	<u>Points</u>
<b>Conduct of Operations</b>	2.1.20	Ability to execute procedure steps.	4.2	1
	<b>Category Total:</b>			<b>1</b>
<b>Equipment Control</b>	2.2.19	Knowledge of maintenance work order requirements.	3.1	1
	2.2.23	Ability to track limiting conditions for operations.	3.8	1
	<b>Category Total:</b>			<b>2</b>
<b>Radiation Control</b>	2.3.4	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.	3.1	1
	2.3.6	Knowledge of the requirements for reviewing and approving release permits.	3.1	1
	<b>Category Total:</b>			<b>2</b>
<b>Emergency Procedures/Plan</b>	2.4.4	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.3	1
	2.4.5	Knowledge of the organization of the operating procedures network for normal, abnormal, and emergency evolutions.	3.6	1
	<b>Category Total:</b>			<b>2</b>

**Generic Total: 7**



# Suppressed K/As

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Facility: DCPD

		<u>Basis</u>	<u>IMPORTANCE</u> <u>RO / SRO</u>
<b>001</b>	<b>Continuous Rod Withdrawal</b>		
<b><u>K1</u></b>	<b>Knowledge of the operational implications of the following concepts as they apply to Continuous Rod Withdrawal:</b>		
AK1.14	Interaction of ICS control stations as well as purpose, function, and modes of operation of ICS	not applicable to unit	3.4*/3.7
AK1.19	Voids coefficient	not applicable for the unit	2.6/2.8
<b>003</b>	<b>Dropped Control Rod</b>		
<b><u>K1</u></b>	<b>Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod:</b>		
AK1.13	Interaction of ICS control stations as well as purpose, function, and modes of operation of ICS	not applicable to unit	3.2*/3.6
AK1.18	Voids coefficient	does not apply to unit.	2.1/2.2
AK2.03	Metroscope	does not apply to unit	3.1*/3.2*
AK3.01	When ICS logic has failed on a dropped rod, the load must be reduced until flux is within specified target bank	does not apply to unit	3.5*/3.9*
AA1.04	Control rod drive safety rod out limit bypass switch or key	does not apply to unit	3.4*/3.3
<b>005</b>	<b>Inoperable/Stuck Control Rod</b>		
<b><u>K1</u></b>	<b>Knowledge of the operational implications of the following concepts as they apply to Inoperable/Stuck Control Rod:</b>		
AK1.04	Definitions of axial imbalance, neutron error, power demand, actual power tracking mode, ICS tracking	does not apply to unit	3.0*/3.4*
AK2.03	Metroscope	does not apply to unit	3.1*/3.3*
AA1.03	Metroscope	does not apply to unit	3.4*/3.4*
AA2.02	Difference between jog and run rod speeds, effect on CRDM of stuck rod	does not apply to unit	2.5*/3.0*
<b>024</b>	<b>Emergency Boration</b>		
<b><u>A1</u></b>	<b>Ability to operate and/or monitor the following as they apply to the Emergency Boration:</b>		
AA1.11	BIT suction and recirculation valves	not applicable to unit	2.9*/2.7*
AA1.24	BIT inlet and outlet valve switches and indicators	not applicable to unit	3.2*/3.1*
<b>029</b>	<b>Anticipated Transient Without Scram (ATWS)</b>		
<b><u>A1</u></b>	<b>Ability to operate and/or monitor the following as they apply to a ATWS:</b>		
EA1.04	BIT inlet valve switches	does not apply to unit.	3.9*/3.8*
EA1.05	BIT outlet valve switches	does not apply to unit.	3.7*/3.6*
<b>038</b>	<b>Steam Generator Tube Rupture (SGTR)</b>		
<b><u>K3</u></b>	<b>Knowledge of the reasons for the following responses as they apply to the SGTR:</b>		
EK3.07	RCS loop isolation valves	does not apply to unit.	3.4*/3.8
<b>001</b>	<b>Control Rod Drive System</b>		
<b><u>K1</u></b>	<b>Knowledge of the physical connections and/or cause-effect relationships between the CRDS and the following systems:</b>		
K1.01	CCW	not applicable to unit	3.0*/3.2*
K1.02	CVCS	not applicable to unit	3.6*/3.7*
K1.06	WGDS	not applicable to unit	1.7*/2.0*
K1.07	Quench tank	not applicable to unit	1.7*/2.1*
K1.08	CCWS: must be shut down to prevent condensation on CRDM stators	not applicable to unit	2.2*/2.4*
K1.09	CCWS must be cut in before energizing CRDS	not applicable to unit	2.8*/3.1*
K5.76	Effects on power of inserting axial shaping rods	does not apply to unit.	3.3*/3.7*
K5.79	Effects of positioning of axial shape rods on SDM	does not apply to unit.	3.0*/3.6*
A1.10	Location and operation of controls and indications for CRDS component cooling water	does not apply to unit.	2.9/2.7
A1.13	"Prepower dependent insertion limit" and power dependent insertion limit, determined with metroscope	does not apply to unit.	4.0*/4.2?
A2.08	Loss of CCW to CRDS	does not apply to unit.	2.9/3.3
A4.01	Controls for CCWS	does not apply to unit.	3.1/2.9



# Suppressed K/As

Printed: 01/08/2007

Facility: DCPD

		Basis	IMPORTANCE RO / SRO
A4.04	Part-length rod position	does not apply to unit.	3.9*/3.6*
A4.09	CCWS	does not apply to unit.	2.8/3.1
<b>008</b>	<b>Component Cooling Water System (CCWS)</b>		
<b>K3</b>	<b>Knowledge of the effect that a loss or malfunction of the CCWS will have on the following:</b>		
K3.02	CRDS	does not apply to unit.	2.9/3.1
<b>012</b>	<b>Reactor Protection System</b>		
<b>K6</b>	<b>Knowledge of the effect of a loss or malfunction of the following will have on the RPS:</b>		
K6.07	Core protection calculator	Does not apply to this unit.	2.9*/3.2*
K6.08	COLSS	Does not apply to this unit.	3.6*/3.7*
K6.09	CEAC	Does not apply to this unit.	3.6*/3.7*
<b>014</b>	<b>Rod Position Indication System (RPIS)</b>		
<b>K2</b>	<b>Knowledge of bus power supplies to the following:</b>		
K2.01	Reed switches	does not apply to unit.	1.8/2.0
K2.02	Metroscope	does not apply to unit.	1.9*/2.2
K4.01	Upper electrical limit	does not apply to unit.	2.5*/2.7*
K4.02	Lower electrical limit	does not apply to unit.	2.5*/2.7*
K4.04	Zone reference lights	does not apply to unit.	2.6*/2.9*
K5.03	Differences in accuracy of reed switches and pulse counters	does not apply to unit.	2.1/2.3
K6.03	Metroscope	does not apply to unit.	2.1*/2.6
A1.01	Metroscope reed switch display	does not apply to unit.	2.9*/3.1
A1.03	PDIL, PPDIL	does not apply to unit.	3.6*/3.8?
A2.07	Loss of reed switch	does not apply to unit.	2.6/2.9
<b>015</b>	<b>Nuclear Instrumentation System</b>		
<b>K1</b>	<b>Knowledge of the physical connections and/or cause-effect relationships between the NIS and the following systems:</b>		
K1.05	ICS	does not apply to unit.	3.9*/3.9*
K1.06	Reactor regulating system	does not apply to unit.	3.1*/3.4*
K3.04	ICS	does not apply to unit.	3.4*/4.0*
K3.06	Reactor regulating system	does not apply to unit.	2.9*/3.2*
<b>025</b>	<b>Ice Condenser System</b>	does not apply to unit	
<b>K1</b>	<b>Knowledge of the physical connections and/or cause-effect relationships between the Ice Condenser System and the following systems:</b>		
K1.01	Containment ventilation		2.7*/2.7*
K1.02	Refrigerant systems		2.7*/2.7*
K1.03	Containment sump system		3.2*/3.0*
K2.01	Containment ventilation fans and dampers		2.2*/2.7*
K2.02	Refrigerant systems		2.0*/2.5*
K2.03	Isolation valves		2.0*/2.2*
K3.01	Containment		3.8*/3.8*
K4.01	Glycol expansion tank levels and ice condenser system containment isolation valves		2.2*/2.5*
K4.02	System control		2.8*/3.0*
K5.01	Relationships between pressure and temperature		3.0*/3.4*
K5.02	Heat transfer		2.6*/2.8*
K5.03	Gas laws		2.4*/2.8*
K6.01	Upper and lower doors of the ice condenser		3.4*/3.6*
A1.01	Temperature chart recorders		3.0*/3.0*
A1.02	Glycol expansion tank level		2.5*/2.2*
A1.03	Glycol flow to ice condenser air handling units		2.5*/2.5*

# Suppressed K/As

Printed: 01/08/2007

Facility: DCPD

		<u>Basis</u>	IMPORTANCE <u>RO / SRO</u>
A2.01	Trip of glycol circulation pumps		2.2*/2.7*
A2.02	High/low floor cooling temperature		2.7*/2.5*
A2.03	Opening of ice condenser doors		3.0*/3.2*
A2.04	Containment isolation		3.0*/3.2*
A2.05	Abnormal glycol expansion tank level		2.5*/2.7*
A2.06	Decreasing ice condenser temperature		2.5*/2.7*
A3.01	Refrigerant system		3.0*/3.0*
A3.02	Isolation valves		3.4*/3.4*
A4.01	Ice condenser isolation valves		3.0*/2.7*
A4.02	Containment vent fans		2.7*/2.5*
A4.03	Glycol circulation pumps		2.2*/2.2*
<b>027</b>	<b>Containment Iodine Removal System (CIRS)</b>		
<b><u>K1</u></b>	<b>Knowledge of the physical connections and/or cause-effect relationships between the CIRS and the following systems:</b>		
K1.01	CSS		3.4*/3.7*
K2.01	Fans		3.1*/3.4*
K5.01	Purpose of charcoal filters		3.1*/3.4*
A2.01	High temperature in the filter system		3.0*/3.3*
A4.01	CIRS controls		3.3*/3.3*
A4.02	Remote operation and handling of iodine filters		2.8*/3.0*
A4.03	CIRS fans		3.3*/3.2*
A4.04	Filter temperature		2.8*/2.9*
<b>041</b>	<b>Steam Dump System (SDS) and Turbine Bypass Control</b>		
<b><u>K2</u></b>	<b>Knowledge of bus power supplies to the following:</b>		
K2.01	ICS, normal and alternate power supply	does not apply to unit.	2.8*/2.9*
K2.02	ICS inverter breakers	does not apply to unit.	2.8*/2.8*
K4.15	"Measured variable" readings on ICS hand-automatic stations and required action if reading is out of the acceptable band	does not apply to unit.	2.9*/2.9*
A4.01	ICS voltage inverter	does not apply to unit.	2.9*/3.1*
<b>059</b>	<b>Main Feedwater (MFW) System</b>		
<b><u>K1</u></b>	<b>Knowledge of the physical connections and/or cause-effect relationships between the MFW System and the following systems:</b>		
K1.07	ICS	does not apply to unit.	3.2*/3.2*
A3.07	ICS	does not apply to unit.	3.4*/3.5*
A4.10	ICS	does not apply to unit.	3.9*/3.8*
<b>062</b>	<b>A.C. Electrical Distribution System</b>		
<b><u>K4</u></b>	<b>Knowledge of A.C. Distribution System design feature(s) and/or interlock(s) which provide for the following:</b>		
K4.06	One-line diagram of 6.9kV distribution, including sources of normal and alternative power	does not apply to this unit.	2.9*/3.3*
<b>075</b>	<b>Circulating Water System</b>		
<b><u>A2</u></b>	<b>Ability to (a) predict the impacts of the following malfunctions or operations on the Circulating Water System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:</b>		
A2.08	Ice buildup on intake structure	does not apply to unit.	2.0*/2.0*
A4.13	Cooling tower operations	does not apply to unit.	1.8*/1.7*
A4.19	De-icing valve	does not apply to unit.	1.6*/1.7*
<b>076</b>	<b>Service Water System (SWS)</b>		
<b><u>K1</u></b>	<b>Knowledge of the physical connections and/or cause-effect relationships between the SWS and the following systems:</b>		
K1.02	Turbine lube oil system	does not apply to this	1.8/1.8

# Suppressed K/As

Printed: 01/08/2007

Facility: DCPD

		<u>Basis</u>	IMPORTANCE <u>RO / SRO</u>
K1.03	Relationship of SWS to raw water filtration (RWF) system and location of SWS supply pump to RWF system	does not apply to this unit.	1.9*/1.9*
K1.05	ED/G	does not apply to this unit.	3.8*/4.0*
K1.06	Switch gear room coolers	does not apply to this unit.	2.1*/2.0*
K1.07	Secondary closed cooling water	does not apply to this unit.	2.5*/2.3
K1.08	RHR system	does not apply to this unit.	3.5*/3.5*
K1.09	Reactor building closed cooling water	does not apply to this unit.	3.0*/3.1*
K1.10	Turbine building closed cooling water	does not apply to this unit.	2.1*/2.1
K1.11	Domestic water and raw water	does not apply to this unit.	1.7/1.6
K1.15	FPS	does not apply to this unit.	2.5/2.6
K1.20	AFW	does not apply to this unit.	3.4*/3.4*
K1.22	Water treatment	does not apply to this unit.	1.8/1.8
K1.23	Spent fuel pool makeup	does not apply to this unit.	2.1*/2.2
K1.25	Heat sink pond makeup	does not apply to this unit.	2.4*/2.3*
K2.03	Secondary closed cooling water	does not apply to this unit.	2.1*/2.0*
K2.04	Reactor building closed cooling water	does not apply to this unit.	2.5*/2.6*
K2.05	Turbine building closed cooling water	does not apply to this unit.	2.0*/2.0*
K2.06	RHR components, controls, sensors, indications and alarms, including radiation monitors	does not apply to this unit.	2.2*/2.4*
K2.07	Cooling tower fans	does not apply to this unit.	2.2*/2.1*
K3.02	Secondary closed cooling water	does not apply to this unit.	2.5*/2.8*
K3.03	Reactor building closed cooling water	does not apply to this unit.	3.5*/3.9*
K3.04	Turbine building closed cooling water	does not apply to this unit.	2.2*/2.4*
K3.05	RHR components, controls, sensors, indicators, and alarms, including rad monitors	does not apply to this unit.	3.0*/3.2*
K3.06	Turbine lube oil system	does not apply to this unit.	1.7/1.8
K4.04	River intake water level recorders	does not apply to this unit.	2.2*/2.5*
K6.08	Cooling towers	does not apply to this unit.	1.7*/1.8*
A1.01	Line losses in SWS, by comparing SWS pump discharge and turbine building gauge	does not apply to this unit.	1.9/1.9
A1.02	Reactor and turbine building closed cooling water temperatures	does not apply to this unit.	2.6*/2.6*

K/A selection:

Initial pass through KA catalog to deselect KAs not applicable to Diablo Canyon (attached).

Initial sample plan developed using a software program developed by WD Associates, version PA-OCS-0059, released July 2006. This program generated a random sample plan for both the RO and SRO exams.

The RO sample plan was satisfactory; however, the SRO sample plan over sampled Tier 1, groups 1 and 2 by one question each. This resulted in 12 KAs for Tier 1, 6 KAs for Tier 2 and 7 for Tier 3. Tiers 1 and 2 were not in alignment with NRC guidance in ES-401. ES-401 requires 10 KAs in Tier 1 and 8 KAs in Tier 2.

Tier 1 was corrected as follows:

- Tier 1 Group 1 - Placed 7 tabs, corresponding to the 7 KAs, in a hat and withdrawing one. The number selected was 4. Four corresponded to dropping KA 027 G2.1.14.
- Tier 1 Group 2 - Placed 5 tabs, corresponding to the 5 KAs, in a hat and withdrawing one. The number selected was 3. Three corresponded to dropping KA 060 AA2.02.

Added KA to Tier 2 Groups 1 and 2 using a random method based on the methodology outlined in ES-401, attachment 1.

Tier 2 Group 1:

- The new KA selected – 003 A2.05.

Tier 2 Group 2:

- The new KA selected – 017 A2.02.

Additionally, the following SRO K/A's were rejected and replaced using methodology in Attachment 1 of ES-401.

- 026A2.02, from Tier 2 Group 1, did not have applicability at Diablo Canyon. The replacement KA is 006 G2.4.31.
- W/E02 G2.2.22 – No testable tie between “Knowledge of limiting conditions for operations and safety limits” and SI Termination. Replaced with KA APE 037 – Steam Generator Tube Leak, G2.1.33.

The SRO sample plan was updated and saved as rev 1.

<b>Facility:</b> DCPD <b>Examination Level:</b> SRO		<b>Date of Examination:</b> 19 March 2007 <b>Operating Test Number:</b> NRCADM051S
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations NRCADM051-501B	R/N	Verify Startup Checks per OP L-2 step 6.1.14
Conduct of Operations NRCADM051-301B	R/D	PZR Loop Seal Monthly Checks per STP-I-1D
Equipment Control NRCADM051-502	R/N	IPTE Determination per OP1.ID4
Radiation Control NRCADM051-504	R/N	Stay Time Determination
Emergency Plan NRCADM051-150	R/M	Offsite Dose Assessment EP-R2
<b>NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.</b>		
<b>* Type Codes &amp; Criteria:</b> (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank ( $\leq 3$ for ROs; $\leq 4$ for SROs & RO retakes) (N)ew or (M)odified from bank ( $\geq 1$ ) (P)revious 2 exams ( $\leq 1$ ; randomly selected)		

<b>Facility:</b> DCP <b>Examination Level:</b> RO	<b>Date of Examination:</b> 19 March 2007 <b>Operating Test Number:</b> NRCADML51R
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Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations NRCADM051-501A	R/N	Startup Verifications per OP L-2 Step 6.1.14
Conduct of Operations NRCADM051-301A	R/D	PZR Loop Seal Monthly Checks per STP-I-1A
Equipment Control NRCADM051-503	R/N	Determine Clearance Points
Radiation Control NRCADM051-504	R/N	Stay Time Determination
Emergency Plan	N/A	N/A

**NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.**

**\* Type Codes & Criteria:**  
 (C)ontrol room, (S)imulator, or Class(R)oom  
 (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)  
 (N)ew or (M)odified from bank (≥ 1)  
 (P)revious 2 exams (≤ 1; randomly selected)

Facility: DCPP  
Exam Level: RO

Date of Examination: 03/19/2007  
Operating Test No.: 01

**Control Room Systems<sup>@</sup> (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)**

System / JPM Title	Type Code*	Safety Function
a. 004 / Establish Emergency Boration NRCLJC051-063	A/D/E/L/S	01
b. 006 / Respond to Low Accumulator Pressure NRCLJC051-077	D/S	02
c. 038 / Depressurize the RCS for SG Backfill NRCLJC051-049	A/D/E/L/S	03
d. 059 / Perform Immediate Actions for AP-15, Loss of Feedwater NRCLJC051-501	A/E/N/S	04s
e. 015 / Foldout Page Phase B and RCP Trip Criteria NRCLJC051-504	A/E/L/N/S	04p
f. 022 / Place CFCU Drain Collection System In Service NRCLJC051-302	A/D/P/S (L001)	05
g. 062 / Transfer Bus G to Aux Pwr from DG 12 NRCLJC051-087	D/S	06
h. 015 / Remove Pwr Range Ch. N42 From Service NRCLJC051-051	D/S/P (L001)	07

**In-Plant Systems<sup>@</sup> (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)**

i. 059 / Isolate Ruptured LHUT NRCLJP051-038	D/E/R	09
j. 068 / Align and Check 4KV Bus F Energized NRCLJP051-216	A/E/L/M	08
k. 004 / Isolate Dilution Flow Paths NRCLJP051-062	A/D/E/L/R	01

<sup>@</sup>All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(L)ow-Power / <b>Shutdown</b>	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Facility: DCPP  
 Exam Level: SRO-I

Date of Examination: 03/19/2007  
 Operating Test No.: 01

**Control Room Systems<sup>@</sup> (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)**

System / JPM Title	Type Code*	Safety Function
a. 006 / Respond to Low Accumulator Pressure NRCLJC051-077	D/S	02
b. 038 / Depressurize the RCS for SG Backfill NRCLJC051-049	A/D/E/L/S	03
c. 059 / Perform Immediate Actions for AP-15, Loss of Feedwater NRCLJC051-501	A/E/N/S	04s
d. 015 / Foldout Page Phase B and RCP Trip Criteria NRCLJC051-504	A/E/L/N/S	04p
e. 022 / Place CFCU Drain Collection System In Service NRCLJC051-302	A/D/P/S (L001)	05
f. 062 / Transfer Bus G to Aux Pwr from DG 12 NRCLJC051-087	D/S	06
g. 015 / Remove Pwr Range Ch. N42 From Service NRCLJC051-051	D/S/P (L001)	07

**In-Plant Systems<sup>@</sup> (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)**

i. 059 / Isolate Ruptured LHUT NRCLJP051-038	D/E/R	09
j. 068 / Align and Check 4KV Bus F Energized NRCLJP051-216	A/E/L/M	08
k. 004 / Isolate Dilution Flow Paths NRCLJP051-062	A/D/E/L/R	01

<sup>@</sup>All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(L)ow-Power / <b>Shutdown</b>	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	



Facility: DCPP  
Exam Level: SRO-U

Date of Examination: 03/19/2007  
Operating Test No.: 01

**Control Room Systems<sup>@</sup> (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)**

System / JPM Title	Type Code*	Safety Function
a. 059 / Perform Immediate Actions for AP-15, Loss of Feedwater NRCLJC051-501	A/E/N/S	04s
b. 015 / Foldout Page Phase B and RCP Trip Criteria NRCLJC051-504	A/E/L/N/S	04p

**In-Plant Systems<sup>@</sup> (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)**

i. 059 / Isolate Ruptured LHUT NRCLJP051-038	D/E/R	09
j. 068 / Align and Check 4KV Bus F Energized NRCLJP051-216	A/E/L/M	08
k. 004 / Isolate Dilution Flow Paths NRCLJP051-062	A/D/E/L/R	01

@All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(L)ow-Power / <b>Shutdown</b>	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Facility: DCPD		Date of Exam: 19 March 2007											Operating Test No.: 01				
A P P L I C A N T	E V E N T  T Y P E	Scenarios												T O T A L	M I N I M U M (*)		
		1			2			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P				
												R	I	U			
RO	RX	1	1	1	5	5	5	6	6	6	1	1	1		1	1	0
SRO-I	NOR							1	1	1	1	1	1		1	1	1
SRO-U	I/C	2,3,4,5,10	2,3,4,5,10	3,4,7,8	1,2,3,4,6,11	2,3,4,11	1,2,4,8,9	2,3,5	2,5,8	3,4	2,3,4,5,7,8	2,4,8	2,3,5,7		4	4	2
	MAJ	6,9	6,9	6,9	7,10	7,10	7,10	7,9	7,9	7,9	6	6	6		2	2	1
	TS	2,3			1,3			3,5			3,5				0	2	2
RO	RX														1	1	0
SRO-I	NOR														1	1	1
SRO-U	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2
RO	RX														1	1	0
SRO-I	NOR														1	1	1
SRO-U	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2
RO	RX														1	1	0
SRO-I	NOR														1	1	1
SRO-U	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2

Instructions:

- 1) Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must do one scenario, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position.
- 2) Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (\*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
- 3) Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: DCPP Scenario No.: 01 Op-Test No.: L051-1

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Initial Conditions:** 100% Power, EOL, 40 ppm CB

**Turnover:** PRA Status: ORANGE - CCP 1-1 MOW. Protected Equipment: Train B, Buses H & G, Prot. Sets II,III,IV;. Homeland Security: YELLOW. CCP 1-1 was cleared 10 hours ago to repair a pump seal. It is expected to be returned to service in 8 hours; Boron concentration is 40 ppm from a sample taken 4 hours ago. Have been placing the deborating demineralizer in service for 15 minutes approximately every two hours. It was last removed from service 30 minutes ago. ΔI is stable. No one is in Containment, no entries are expected. U-2 is operating at 100% power.

Event No.	Malf. No.	Event Type*	Event Description
1		R	Ramp to 770 MW
2	Mal cvc8	C	Seal Injection Filter Hi DP
3	Xmt tur2	I	Turbine 1 <sup>st</sup> Stage Pressure Instrument Fails As Is at 100%
	Mal sei1		Seismic Event
4	Mal syd1	C	Loss of Offsite Power due to seismic resulting in Load Rejection
5	Mal rod6	I	Uncontrolled Rod Motion
6	Mal ppl5	M	ATWS with Supply Breaker 13D/E Available
7	Mal eps	C	4kV Bus H feeder breaker trips on differential current
8	Pmp afw2	C	AFWP 1-3 fails to auto start, requiring manual start
9	Mal rcs3	M	LOCA
10	Pmp sis1 Pmp cvc2	C	SIP 1-2 and CCP 1-2 trip, and SIP 1-1 failure to auto start, resulting in Loss of High and Intermediate Head Injection until SIP 1-1 is started

\*(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: DCPPScenario No.: 02Op-Test No.: L051-1

Examiners: \_\_\_\_\_

Operators: \_\_\_\_\_

**Initial Conditions:** 100% Power, BOL, 1000 ppm CB

**Turnover:** PRA Status: GREEN. Protected Equipment: Train A & B, Buses F, H & G, Prot. Sets II, III, IV. Homeland Security: YELLOW. Boron concentration is 1000 ppm from a sample taken 4 hours ago. Borating the RCS ~ 1 gal/hr. The last boration was completed 30 minutes ago.  $\Delta I$  is stable. No one is in Containment, no entries are expected. U-2 is operating at 100% power.

Event No.	Malf. No.	Event Type*	Event Description
1	pmp asw1	C	Loss of ASW pump 11
2	Vlv cvc16	C	Failure of 8152
3	xmt rcs16	I	Loop 1 T <sub>COLD</sub> failure
4	Mal cws2a	C	Condenser tube leak
5		R	Ramp
6	Loa cnd1	C	Condenser vacuum leak
7		M	Reactor Trip
8	Pmp ccw2	C	CCW pump trip
9	Pmp afw2	C	Loss of AFW
10		M	Establish Condensate Flow
11	Cnv mss22	C	10% Fail open

\*(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: DCPP

Scenario No.: 03

Op-Test No.: L051-1

Examiners: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Initial Conditions:** 100% Power, BOL, 1000 ppm CB

**Turnover:** PRA Status: GREEN. Protected Equipment: Train A& B, Buses F, H & G, Prot. Sets II,III,IV. Homeland Security: YELLOW. Boron concentration is 1000 ppm from a sample taken 4 hours ago. Borating the RCS 2 gal/2hrs. The last boration was completed 30 minutes ago. ΔI is stable. No one is in Containment, no entries are expected. U-2 is operating at 100% power.

Event No.	Mal. No.	Event Type*	Event Description
1		N	Swap from PDP to CCP 1-2
2	xmt cvc19	I	VCT Level Transmitter LT-112 Fails Low
3	mal eps4c	C	Differential on 4kV Bus F
4	pmp cnd1	C	Condensate Pump 1-1 Trip
	mal sei1		Seismic event
5	asisrwst	C	RWST Leak
6		R	Ramp unit offline
7	mal rcs3c	M	LOCA
8	pmp sis2 pmp cvc2	C	SIP 1-2 fail to auto start, CCP 1-2 trips
9		M	Loss of Cold Leg Recirc. Capability

\*(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: DCPP Scenario No.: BU Op-Test No.: L051-1

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Initial Conditions:** 2% Power, MOL, 1192 ppm CB, 78 Steps D, 2251 psig, 549 T<sub>AVG</sub>, Turbine latched, buses transferred to S/U transformer.

**Turnover:** PRA Status: GREEN. Protected Equipment: Train A & B, Buses F, G, H, Sets I, II, III, IV. Homeland Security: YELLOW. Boron concentration is 1192 ppm from a sample taken 4 hours ago. Borating 40 ppm/2 hrs expected during ramp. No one is in Containment, no entries are expected. U-2 is operating at 100% power. Continue with OP L-3, step 6.12.3, placing MFP in service.

Event No.	Malf. No.	Event Type*	Event Description
1		N/R	MFW Startup
2	pmp cvc3	C	PDP trip
3	vlv afw7	I	TDAFWP Supply Valve FCV-95 fails open
4	xmt mss1	I	Steam Dump Controller fails requiring manual control
	mal sei1		Seismic event
5	mal eps4	C	4kV Bus F feeder breaker trip
6	mal mss3	M	SG 12 Steam line break outside Containment
7	vlv mss	C	MSIV 11-14 fail to close in auto
8	mal ppl3	I	Failure of Auto SI

\*(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor