

Facility: <u>Diablo Canyon</u>		Date of Examination: <u>07 / 2011</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: <u>L091</u>
Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations (NRCL091-A1)	M, R	<p style="text-align: center;">Calculate Rod Withdrawal Hold Points</p> 2.1.23 Ability to perform specific and integrated plant procedure during all modes of plant operations. (4.3) (from NRCADM051-501B)
Conduct of Operations (NRCL091-A2)	M, R	<p style="text-align: center;">Perform Shutdown Margin Calculation</p> 2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc. (3.9) (from LJAC0-04R)
Equipment Control (NRCL091-A3)	N, R	<p style="text-align: center;">Perform STP I-1A Check on Accumulator Volume</p> 2.2.44 Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions. (4.2)
Radiation Control (NRCL091-A4)	N, R	<p style="text-align: center;">Evaluate Release under Changing Plant Conditions</p> 2.3.11 Ability to control radiation releases. (3.8) (new)
Emergency Procedures/Plan		
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.		
* Type Codes & Criteria: <ul style="list-style-type: none"> (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) 		

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Examination Level: RO <input type="checkbox"/> SRO <input checked="" type="checkbox"/>		Operating Test Number: <u>L091</u>
Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations (NRCL091-A5)	M, R	<p style="text-align: center;">Verify Rod Withdrawal Hold Points</p> 2.1.23 Ability to perform specific and integrated plant procedure during all modes of plant operations. (4.3) (from NRCADM051-501B)
Conduct of Operations (NRCL091-A6)	M, R	<p style="text-align: center;">Verify Shutdown Margin Calculation</p> 2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc. (3.9) (from LJAC0-04R)
Equipment Control (NRCL091-A7)	N, R	<p style="text-align: center;">Verify STP I-1A Check on Accumulator Volume</p> 2.2.44 Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions. (4.2)
Radiation Control (NRCL091-A8)	N, R	<p style="text-align: center;">Review Discharge for Process Waste Receiver 0-2</p> 2.3.11 Ability to control radiation releases. (4.3) (new)
Emergency Procedures/Plan (NRCL091-A9)	D, R	<p style="text-align: center;">Perform An Off-Site Dose Assessment – GDT Rupture</p> 2.4.38 Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required. (4.4) (from LJAEP-04S)
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 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: <u>Diablo Canyon</u>		Date of Examination: <u>07 / 2011</u>
Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test Number: <u>L091</u>
Control Room Systems [@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
a. (Sa) (064.A4.06) Manually Start Diesel Generator 12 (LJC-085)	D, EN, L, S	6
b. (Sb) (E07.EA1.1) Respond to Saturated Core Conditions	A, N, L, S	2
c. (Sc) (006.A4.07) Respond to Accumulator Low Level (LJC-016)	D, S	3
d. (Sd) (004.A2.05) Establish steady state conditions after rod misalignment (LJC-022)	D, S	1
e. (Se) (016.A2.01) Remove PT-506 from Service	N, S	7
f. (Sf) (005.A2.03) Transfer To Cold Leg Recirculation (LJC-027A)	A, D, L, S	4P
g. (Sg) (022.A4.01) Start Containment Purge	N, S	5
h. (Sh) (051.AA2.02) Traveling Screen Problem	A, N, S	4S
In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. (P1) (062.A2.05) Transfer the TSC to Vital Power (LJP-058)	D, E, L	6
j. (P2) (068.AA1.03) Close S/G Blowdown valves outside containment (LJP-096)	A, D, E, L, R	8
k. (P3) (004.A2.06) Isolate Dilution Flow Paths (LJP-062)	A, D, E, L, R	1
<p>[@] All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>		
* 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	
(EN)gineered safety feature	- / - / ≥ 1 (control room system)	
(L)ow-Power / Shutdown	≥ 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		

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Control Room Systems [@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
a. (Sa) (064.A4.06) Manually Start Diesel Generator 12 (LJC-085)	D, EN, L, S	6
b. (Sb) (E07.EA1.1) Respond to Saturated Core Conditions	A, N, L, S	2
c.		
d. (Sd) (004.A2.05) Establish steady state conditions after rod misalignment (LJC-022)	D, S	1
e. (Se) (016.A2.01) Remove PT-506 from Service	N, S	7
f. (Sf) (005.A2.03) Transfer To Cold Leg Recirculation (LJC-027A)	A, D, L, S	4P
g. (Sg) (022.A4.01) Start Containment Purge	N, S	5
h. (Sh) (051.AA2.02) Traveling Screen Problem	A, N, S	4S
In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. (P1) (062.A2.05) Transfer the TSC to Vital Power (LJP-058)	D, E, L	6
j. (P2) (068.AA1.03) Close S/G Blowdown valves outside containment (LJP-096)	A, D, E, L, R	8
k. (P3) (004.A2.06) Isolate Dilution Flow Paths (LJP-062)	A, D, E, L, R	1
<p>[@] All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>		
* 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	
(EN)gineered safety feature	- / - / ≥ 1 (control room system)	
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1	
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1	
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(R)CA	≥ 1 / ≥ 1 / ≥ 1	
(S)imulator		

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Exam Level: RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>		Operating Test Number: <u>L091</u>
Control Room Systems [@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
a. (Sa) (064.A4.06) Manually Start Diesel Generator 12 (LJC-085)	D, EN, L, S	6
b.		
c.		
d.		
e. (Se) (016.A2.01) Remove PT-506 from Service	N, S	7
f.		
g.		
h. (Sh) (051.AA2.02) Traveling Screen Problem	A, N, S	4S
In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i.		
j. (P2) (068.AA1.03) Close S/G Blowdown valves outside containment (LJP-096)	A, D, E, L, R	8
k. (P3) (004.A2.06) Isolate Dilution Flow Paths (LJP-062)	A, D, E, L, R	1
<p>[@] All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>		
* 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	
(EN)gineered safety feature	- / - / ≥ 1 (control room system)	
(L)ow-Power / Shutdown	≥ 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		

Group 1 (U1, R1, R2)

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A P P L I C A N T	E V E N T T Y P E	S c e n a r i o s												T O T A L	M I N I M U M (*)		
		2			6			3			4						
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N						
		S R O	A T C	B O P													
													R	I	U		
RO	RX													0	1	1	0
<input type="checkbox"/>	NOR	2*												1	1	1	1
SRO-I	I/C	*3,4,5,8			1,2,3,5									8	4	4	2
<input type="checkbox"/>	MAJ	6			4,6									3	2	2	1
SRO-U	TS	2,3,4			1,2									5	0	2	2
<input checked="" type="checkbox"/>																	
RO	RX		1											1	1	1	0
<input checked="" type="checkbox"/>	NOR						2*							1	1	1	1
SRO-I	I/C		2,4,5,7,8				*3,5							7	4	4	2
<input type="checkbox"/>	MAJ		6				6							2	2	2	1
SRO-U	TS													0	0	2	2
<input type="checkbox"/>																	
RO	RX					2								1	1	1	0
<input checked="" type="checkbox"/>	NOR			3*										1	1	1	1
SRO-I	I/C			*4,8	2,3,5									5	4	4	2
<input type="checkbox"/>	MAJ			6	4,6									3	2	2	1
SRO-U	TS													0	0	2	2
<input type="checkbox"/>																	
RO	RX														1	1	0
<input type="checkbox"/>	NOR														1	1	1
SRO-I	I/C														4	4	2
<input type="checkbox"/>	MAJ														2	2	1
SRO-U	TS														0	2	2
<input type="checkbox"/>																	

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 serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for 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.

Group 3 (I4, I5, R6)

Facility: **Diablo Canyon** Date of Exam: **07/2011** Operating Test Number: **L091**

A P P L I C A N T	E V E N T T Y P E	S c e n a r i o s												T O T A L	M I N I M U M (*)		
		1			2			3			4						
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N						
		S R O	A T C	B O P													
													R	I	U		
RO	RX												1	1	1	0	
<input type="checkbox"/>	NOR	1*												1	1	1	
SRO-I	I/C	*2,3,4,6								2,3,6,8			6	9	4	4	2
<input checked="" type="checkbox"/>	MAJ	5,6								7			7	4	2	2	1
SRO-U	TS	1,3,4												3	0	2	2
RO	RX		2											1	1	1	0
<input type="checkbox"/>	NOR							2*						1	1	1	1
SRO-I	I/C		3,4					*3,4,5,6,8				2,3,4,6		11	4	4	2
<input checked="" type="checkbox"/>	MAJ		5,6					7				7,9		5	2	2	1
SRO-U	TS							2,4,5				2,3,4		6	0	2	2
RO	RX								1					1	1	1	0
<input checked="" type="checkbox"/>	NOR												5	1	1	1	1
SRO-I	I/C			1,3,4,6					2,4				3,8	8	4	4	2
<input type="checkbox"/>	MAJ			5,6					7				7,9	5	2	2	1
SRO-U	TS													0	0	2	2
RO	RX														1	1	0
<input type="checkbox"/>	NOR														1	1	1
SRO-I	I/C														4	4	2
<input type="checkbox"/>	MAJ														2	2	1
SRO-U	TS														0	2	2

Instructions:

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- 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.
- 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.

Group 4 (I1, I7, R3)

Facility: **Diablo Canyon** Date of Exam: **07/2011** Operating Test Number: **L091**

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			6			4						
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N						
		S R O	A T C	B O P													
													R	I	U		
RO	RX					1								1	1	1	0
<input type="checkbox"/>	NOR	1*												1	1	1	1
SRO-I	I/C	*2,3,4,6				2,4,5,7,8			1,2,3,5					13	4	4	2
<input checked="" type="checkbox"/>	MAJ	5,6				6			4,6					5	2	2	1
SRO-U	TS	1,3,4							1,2					5	0	2	2
<input type="checkbox"/>																	
RO	RX		2											1	1	1	0
<input type="checkbox"/>	NOR					2*								1	1	1	1
SRO-I	I/C		3,4			*3,4,5,8				2,3,5				9	4	4	2
<input checked="" type="checkbox"/>	MAJ		5,6			6				6				4	2	2	1
SRO-U	TS					2,3,4								3	0	2	2
<input type="checkbox"/>																	
RO	RX								2					1	1	1	0
<input checked="" type="checkbox"/>	NOR								3*					1	1	1	1
SRO-I	I/C			1,3,4,6					*4,8	2,3,5				9	4	4	2
<input type="checkbox"/>	MAJ			5,6					6	4,6				5	2	2	1
SRO-U	TS													0	0	2	2
<input type="checkbox"/>																	
RO	RX														1	1	0
<input type="checkbox"/>	NOR														1	1	1
SRO-I	I/C														4	4	2
<input type="checkbox"/>	MAJ														2	2	1
SRO-U	TS														0	2	2
<input type="checkbox"/>																	

Instructions:

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- 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.
- 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.

Rev 1 – incorporated NRC/utility validation comments, and made scenario 5 the "spare"; recalculated all totals

Group 5 (I6, R7, R8)

Facility: **Diablo Canyon** Date of Exam: **07/2011** Operating Test Number: **L091**

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			6						
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N						
		S R O	A T C	B O P													
													R	I	U		
RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX	SUR	2											1	1	1	0
	NOR	SUR						2*						1	1	1	1
	I/C	SUR	3,4					*3,4,5,6,8			1,2,3,5			11	4	4	2
	MAJ	SUR	5,6					7			4,6			5	2	2	1
	TS	SUR						2,4,5			1,2			5	0	2	2
RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX	SUR									2			1	1	1	0
	NOR	SUR						2*						1	1	1	1
	I/C	SUR						*3,6,8		2,3,5				6	4	4	2
	MAJ	SUR						7		4,6				3	2	2	1
	TS	SUR												0	0	2	2
RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX	SUR						1						1	1	1	0
	NOR	SUR		1*										1	1	1	1
	I/C	SUR		*3,4,6				2,4			2,3,5			8	4	4	2
	MAJ	SUR		5,6				7			6			4	2	2	1
	TS	SUR												0	0	2	2
RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2

Instructions:

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- 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.
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Group 6 (I10, I11, R9)

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A P P L I C A N T	E V E N T T Y P E	S c e n a r i o s												T O T A L	M I N I M U M (*)		
		1			2			3			4						
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N						
		S R O	A T C	B O P													
													R	I	U		
RO	RX							1						1	1	1	0
<input type="checkbox"/>	NOR				2*									1	1	1	1
SRO-I	I/C				*3,4,5,8			2,4			2,3,4,6			10	4	4	2
<input checked="" type="checkbox"/>	MAJ				6			7			7,9			4	2	2	1
SRO-U	TS				2,3,4						2,3,4			6	0	2	2
<input type="checkbox"/>																	
RO	RX											1		1	1	1	0
<input type="checkbox"/>	NOR							2*						1	1	1	1
SRO-I	I/C						3,4,8	*3,4,5,6,8			6			9	4	4	2
<input checked="" type="checkbox"/>	MAJ						6	7			7			3	2	2	1
SRO-U	TS							2,4,5						3	0	2	2
<input type="checkbox"/>																	
RO	RX					1								1	1	1	0
<input checked="" type="checkbox"/>	NOR											5		1	1	1	1
SRO-I	I/C				2,4,5,7,8					2,3,6,8		3,8		11	4	4	2
<input type="checkbox"/>	MAJ				6					7		7,9		4	2	2	1
SRO-U	TS													0	0	2	2
<input type="checkbox"/>																	
RO	RX														1	1	0
<input type="checkbox"/>	NOR														1	1	1
SRO-I	I/C														4	4	2
<input type="checkbox"/>	MAJ														2	2	1
SRO-U	TS														0	2	2
<input type="checkbox"/>																	

Instructions:

- 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 serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
- 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.
- 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.

Group 7 (I9, I8, R4)

Facility: **Diablo Canyon** Date of Exam: **07/2011** Operating Test Number: **L091**

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 (*)		
		6			2			3			4						
		CREW P O S I T I O N			CREW P O S I T I O N			CREW P O S I T I O N			CREW P O S I T I O N						
		S R O	A T C	B O P													
													R	I	U		
RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX												1	1	1	0	
	NOR									2*				1	1	1	
	I/C	1,2,3,5								*3,6,8		6		8	4	2	
	MAJ	4,6								7		7		4	2	1	
	TS	1,2												2	0	2	
RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX		2											1	1	0	
	NOR							2*						1	1	1	
	I/C		2,3,5					*3,4,5,6,8				2,3,4,6		12	4	2	
	MAJ		4,6					7				7,9		5	2	1	
	TS							2,4,5				2,3,4		6	0	2	
RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX								1					1	1	0	
	NOR											5		1	1	1	
	I/C			2,3,5					2,4				3,8	7	4	2	
	MAJ			6					7				7,9	4	2	1	
	TS													0	0	2	
RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX														1	0	
	NOR														1	1	
	I/C														4	2	
	MAJ														2	1	
	TS														0	2	

Instructions:

- 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 serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
- 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.
- 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.

Group 2 (I2, I3, R5)

Facility: **Diablo Canyon** Date of Exam: **07/2011** Operating Test Number: **L091**

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						
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N						
		S R O	A T C	B O P													
													R	I	U		
RO	RX												1	1	1	0	
<input type="checkbox"/>	NOR	1*											1	1	1	1	
SRO-I	I/C	*2,3,4,6				3,4,8						6	8	4	4	2	
<input checked="" type="checkbox"/>	MAJ	5,6				6						7	4	2	2	1	
SRO-U	TS	1,3,4											3	0	2	2	
<input type="checkbox"/>																	
RO	RX		2										1	1	1	0	
<input type="checkbox"/>	NOR				2*								1	1	1	1	
SRO-I	I/C		3,4		*3,4,5,8						2,3,4,6		10	4	4	2	
<input checked="" type="checkbox"/>	MAJ		5,6		6						7,9		5	2	2	1	
SRO-U	TS				2,3,4						2,3,4		6	0	2	2	
<input type="checkbox"/>																	
RO	RX					1							1	1	1	0	
<input checked="" type="checkbox"/>	NOR											5	1	1	1	1	
SRO-I	I/C			1,3,4,6		2,4,5,7,8						3,8	11	4	4	2	
<input type="checkbox"/>	MAJ			5,6		6						7,9	5	2	2	1	
SRO-U	TS												0	0	2	2	
<input type="checkbox"/>																	
RO	RX													1	1	0	
<input type="checkbox"/>	NOR													1	1	1	
SRO-I	I/C													4	4	2	
<input type="checkbox"/>	MAJ													2	2	1	
SRO-U	TS													0	2	2	
<input type="checkbox"/>																	

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 serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for 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: Diablo Canyon		Date of Examination: 07/2011				Operating Test No.: L091									
Competencies	GROUP 1 APPLICANTS														
	RO <input type="checkbox"/>		RO1 <input checked="" type="checkbox"/>		RO2 <input checked="" type="checkbox"/>		RO <input type="checkbox"/>								
	SRO-I <input type="checkbox"/>		SRO-I <input type="checkbox"/>		SRO-I <input type="checkbox"/>		SRO-I <input type="checkbox"/>								
	SRO-U1 <input checked="" type="checkbox"/>		SRO-U <input type="checkbox"/>		SRO-U <input type="checkbox"/>		SRO-U <input type="checkbox"/>								
SCENARIO				SCENARIO				SCENARIO				SCENARIO			
2		6		2		6		2		6		1	2	3	4
Interpret/ Diagnose Events and Conditions	2,3,4,5,6,8	1,2,3,4,5,6			2,4,5,6,7,8	2,3,5,6			2,3,4,6,8	2,3,4,5,6					
Comply With and Use Procedures (1)	1,2,3,4,5,6,7,8	1,2,3,5,6			1,2,4,5,6,7,8	2,3,5,6			1,2,3,4,6,8	3,5,6					
Operate Control Boards (2)					1,2,4,5,6,7,8	2,3,5,6			1,2,3,4,6,8	2,3,4,5,6					
Communicate and Interact	1,2,3,4,5,6,8	1,2,3,4,5,6			1,2,4,5,6,7,8	2,3,5,6			1,2,3,4,6,8	2,3,4,5,6					
Demonstrate Supervisory Ability (3)	1,2,3,4,5,6,8	1,2,3,4,5,6													
Comply With and Use Tech Specs. (3)	2,3,4	1,2													
Notes: (1) Includes Technical Specification compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs.															

Instructions:

Check the applicant's license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Facility: Diablo Canyon		Date of Examination: 07/2011				Operating Test No.: L091															
Competencies	GROUP 7 APPLICANTS																				
	RO <input type="checkbox"/>			RO <input type="checkbox"/>			RO4 <input checked="" type="checkbox"/>			RO <input type="checkbox"/>											
	SRO-I9 <input checked="" type="checkbox"/>			SRO-I8 <input checked="" type="checkbox"/>			SRO-I <input type="checkbox"/>			SRO-I <input type="checkbox"/>											
	SRO-U <input type="checkbox"/>			SRO-U <input type="checkbox"/>			SRO-U <input type="checkbox"/>			SRO-U <input type="checkbox"/>											
SCENARIO				SCENARIO				SCENARIO				SCENARIO									
3			4			6			3			4			6						
Interpret/ Diagnose Events and Conditions	2,3,5,6,7,8	2,3,6,7,9	1,2,3,4,5,6	2,3,4,5,6,7,8	2,3,4,6,7,9	2,3,4,5,6	2,3,4,6,7	3,4,7,8,9	2,3,5,6												
Comply With and Use Procedures (1)	2,3,6,7,8	1,2,6,7,9	1,2,3,5,6	1,2,3,4,5,6,7,8	1,2,4,6,7,9	3,5,6	1,2,4,7,8	5,7,8,9	2,3,5,6												
Operate Control Boards (2)	1,2,3,6,7,8	1,6,7				2,3,4,5,6	1,2,4,7,8	3,5,7,8,9	2,3,5,6												
Communicate and Interact	1,2,3,5,6,7,8	1,2,3,4,6,7,9	1,2,3,4,5,6	1,2,3,4,5,6,7,8	1,2,3,4,5,6,7,9	2,3,4,5,6	1,2,4,7,8	3,4,5,7,8,9	2,3,5,6												
Demonstrate Supervisory Ability (3)			1,2,3,4,5,6	1,2,3,4,6,7,8	1,2,3,4,6,7,9																
Comply With and Use Tech Specs. (3)			1,2	2,4,5	2,3,4																
Notes: (4) Includes Technical Specification compliance for an RO. (5) Optional for an SRO-U. (6) Only applicable to SROs.																					

Instructions:

Check the applicant's license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Facility: Diablo Canyon		Date of Examination: 07/2011				Operating Test No.: L091						
Competencies	GROUP 2 APPLICANTS											
	RO <input type="checkbox"/>			RO <input type="checkbox"/>			RO5 <input checked="" type="checkbox"/>			RO <input type="checkbox"/>		
	SRO-I2 <input checked="" type="checkbox"/>			SRO-I3 <input checked="" type="checkbox"/>			SRO-I <input type="checkbox"/>			SRO-I <input type="checkbox"/>		
	SRO-U <input type="checkbox"/>			SRO-U <input type="checkbox"/>			SRO-U <input type="checkbox"/>			SRO-U <input type="checkbox"/>		

Notes:

- (13) Includes Technical Specification compliance for an RO.
- (14) Optional for an SRO-U.
- (15) Only applicable to SROs.

Instructions:

Check the applicant's license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

ES-301

Competencies Checklist

Form ES-301-6

Facility: Diablo Canyon	Date of Examination: 07/2011	Operating Test No.: L091														
Competencies	GROUP 5 APPLICANTS															
	RO <input type="checkbox"/>	RO7 <input checked="" type="checkbox"/>				RO8 <input checked="" type="checkbox"/>				RO <input type="checkbox"/>						
	SRO-I6 <input checked="" type="checkbox"/>	SRO-I <input type="checkbox"/>				SRO-I <input type="checkbox"/>				SRO-I <input type="checkbox"/>						
	SRO-U <input type="checkbox"/>	SRO-U <input type="checkbox"/>				SRO-U <input type="checkbox"/>				SRO-U <input type="checkbox"/>						
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	1	3	6		1	3	6		1	3	6		1	2	3	4
Interpret/ Diagnose Events and Conditions	1,2,3,4,5,6	2,3,4,5,6,7,8	1,2,3,4,5,6		N/A	2,3,5,6,7,8	2,3,4,5,6		1,2,4,5,6	2,3,4,6,7	2,3,5,6					
Comply With and Use Procedures (1)	1,2,3,4,5,6	1,2,3,4,5,6,7,8	1,2,3,5,6		N/A	2,3,6,7,8	3,5,6		1,2,3,4,6	1,2,4,7,8	2,3,5,6					
Operate Control Boards (2)	2,3,4,5,6				N/A	1,2,3,6,7,8	2,3,4,5,6		1,3,4,6	1,2,4,7,8	2,3,5,6					
Communicate and Interact	1,2,3,4,5,6	1,2,3,4,5,6,7,8	1,2,3,4,5,6		N/A	1,2,3,5,6,7,8	2,3,4,5,6		1,2,3,4,5,6	1,2,4,7,8	2,3,5,6					
Demonstrate Supervisory Ability (3)		1,2,3,4,6,7,8	1,2,3,4,5,6													
Comply With and Use Tech Specs. (3)		2,4,5	1,2													
Notes:																
(16) Includes Technical Specification compliance for an RO.																
(17) Optional for an SRO-U.																
(18) Only applicable to SROs.																

Instructions:

Check the applicant's license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Facility: Diablo Canyon		Date of Examination: 07/2011				Operating Test No.: L091										
Competencies	GROUP 6 APPLICANTS															
	RO <input type="checkbox"/>				RO <input type="checkbox"/>				RO9 <input checked="" type="checkbox"/>				RO <input type="checkbox"/>			
	SRO-I10 <input checked="" type="checkbox"/>				SRO-I11 <input checked="" type="checkbox"/>				SRO-I <input type="checkbox"/>				SRO-I <input type="checkbox"/>			
	SRO-U <input type="checkbox"/>				SRO-U <input type="checkbox"/>				SRO-U <input type="checkbox"/>				SRO-U <input type="checkbox"/>			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	2	3	4		2	3	4		2	3	4		1	2	3	4
Interpret/ Diagnose Events and Conditions	2,3,4,5,6,8	2,3,4,6,7	2,3,4,6,7,9		2,3,4,6,8	2,3,4,5,6,7,8	2,3,6,7,9		2,4,5,6,7,8	2,3,5,6,7,8	3,4,7,8,9					
Comply With and Use Procedures (1)	1,2,3,4,5,6,7,8	1,2,4,7,8	1,2,4,6,7,9		1,2,3,4,6,8	1,2,3,4,5,6,7,8	1,2,6,7,9		1,2,4,5,6,7,8	2,3,6,7,8	5,7,8,9					
Operate Control Boards (2)		1,2,4,7,8			1,2,3,4,6,8		1,6,7		1,2,4,5,6,7,8	1,2,3,6,7,8	3,5,7,8,9					
Communicate and Interact	1,2,3,4,5,6,8	1,2,4,7,8	1,2,3,4,5,6,7,9		1,2,3,4,6,8	1,2,3,4,5,6,7,8	1,2,3,4,6,7,9		1,2,4,5,6,7,8	1,2,3,5,6,7,8	3,4,5,7,8,9					
Demonstrate Supervisory Ability (3)	1,2,3,4,5,6,8		1,2,3,4,6,7,9			1,2,3,4,6,7,8										
Comply With and Use Tech Specs. (3)	2,3,4		2,3,4			2,4,5										
Notes: (19) Includes Technical Specification compliance for an RO. (20) Optional for an SRO-U. (21) Only applicable to SROs.																

Instructions:

Check the applicant's license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Facility: Diablo Canyon

Printed: 04/11/2011

Date Of Exam: 07/08/2011

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

Note:

- 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).
- 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/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.
- 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. Refer to Section D.1.b of ES-401 for the applicable K/As.
- 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

Facility: Diablo Canyon

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					EK2.02 - Breakers, relays and disconnects	2.6	1
000009 Small Break LOCA / 3					X		EA2.17 - Total flow meter	3.3?	1
000011 Large Break LOCA / 3	X						EK1.01 - Natural circulation and cooling, including reflux boiling	4.1	1
000015/000017 RCP Malfunctions / 4						X	2.4.49 - Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4.6	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					AK2.01 - RHR heat exchangers	2.9	1
000026 Loss of Component Cooling Water / 8			X				AK3.04 - Effect on the CCW flow header of a loss of CCW	3.5	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						AK1.02 - Effects of feedwater introduction on dry S/G	3.6	1
000055 Station Blackout / 6					X		EA2.03 - Actions necessary to restore power	3.9	1
000056 Loss of Off-site Power / 6					X		AA2.37 - ED/G indicators for the following: voltage, frequency, load, load-status, and closure of bus tie breakers	3.7*	1
000057 Loss of Vital AC Inst. Bus / 6						X	2.1.28 - Knowledge of the purpose and function of major system components and controls.	4.1	1
000058 Loss of DC Power / 6				X			AA1.02 - Static inverter dc input breaker, frequency meter, ac output breaker, and ground fault detector	3.1*	1
000062 Loss of Nuclear Svc Water / 4						X	2.1.27 - Knowledge of system purpose and/or function.	3.9	1
000065 Loss of Instrument Air / 8			X				AK3.03 - Knowing effects on plant operation of isolating certain equipment from instrument air	2.9	1
000077 Generator Voltage and Electric Grid Disturbances / 6				X			AA1.02 - Turbine / generator controls	3.8	1
W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4				X			EA1.2 - Operating behavior characteristics of the facility	3.7	1

PWR RO Examination Outline

Printed: 04/11/2011

Facility: Diablo Canyon

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/E11 Loss of Emergency Coolant Recirc. / 4		X					EK2.2 - Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility	3.9	1
K/A Category Totals:	3	3	3	3	3	3	Group Point Total:	18	

PWR RO Examination Outline

Printed: 04/11/2011

Facility: Diablo Canyon

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
000024 Emergency Boration / 1		X					AK2.04 - Pumps	2.6	1
000036 Fuel Handling Accident / 8					X		AA2.03 - Magnitude of potential radioactive release	3.1*	1
000037 Steam Generator Tube Leak / 3	X						AK1.01 - Use of steam tables	2.9*	1
000059 Accidental Liquid RadWaste Rel. / 9			X				AK3.04 - Actions contained in EOP for accidental liquid radioactive-waste release	3.8	1
000069 Loss of CTMT Integrity / 5		X					AK2.03 - Personnel access hatch and emergency access hatch	2.8*	1
W/E02 SI Termination / 3					X		EA2.2 - Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments	3.5	1
W/E03 LOCA Cooldown - Depress. / 4						X	2.4.50 - Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	4.2	1
W/E10 Natural Circ. / 4			X				EK3.1 - Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics	3.4	1
W/E16 High Containment Radiation / 9				X			EA1.2 - Operating behavior characteristics of the facility	2.9	1
K/A Category Totals:	1	2	2	1	2	1	Group Point Total:	9	

PWR RO Examination Outline

Printed: 04/11/2011

Facility: Diablo Canyon

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										K2.01 - RCPS	3.1	1
004 Chemical and Volume Control						X						K6.26 - Methods of pressure control of solid plant (PZR relief and water inventory)	3.8	1
005 Residual Heat Removal	X											K1.11 - RWST	3.5	1
006 Emergency Core Cooling						X						K6.10 - Valves	2.6	1
007 Pressurizer Relief/Quench Tank			X									K3.01 - Containment	3.3	1
008 Component Cooling Water							X					A1.02 - CCW temperature	2.9	1
010 Pressurizer Pressure Control	X											K1.03 - RCS	3.6	1
012 Reactor Protection										X		A4.03 - Channel blocks and bypasses	3.6	1
012 Reactor Protection					X							K5.02 - Power density	3.1*	1
013 Engineered Safety Features Actuation										X		A4.01 - ESFAS-initiated equipment which fails to actuate	4.5	1
013 Engineered Safety Features Actuation			X									K4.11 - Vital power load control	3.2	1
022 Containment Cooling								X				A2.03 - Fan motor thermal overload/high-speed operation	2.6	1
026 Containment Spray		X										K2.01 - Containment spray pumps	3.4*	1
039 Main and Reheat Steam					X							K5.08 - Effect of steam removal on reactivity	3.6	1
059 Main Feedwater								X				A2.03 - Overfeeding event	2.7	1
059 Main Feedwater											X	2.2.42 - Ability to recognize system parameters that are entry-level conditions for Technical Specifications.	3.9	1
061 Auxiliary/Emergency Feedwater	X											K1.01 - S/G system	4.1	1
061 Auxiliary/Emergency Feedwater					X							K5.01 - Relationship between AFW flow and RCS heat transfer	3.6	1
062 AC Electrical Distribution							X					A1.03 - Effect on instrumentation and controls of switching power supplies	2.5	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			A3.01 - Meters, annunciators, dials, recorders, and indicating lights	2.7	1
063 DC Electrical Distribution			X									K3.01 - ED/G	3.7*	1

PWR RO Examination Outline

Printed: 04/11/2011

Facility: Diablo Canyon

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								K4.08 - ED/G fuel isolation valves	2.9*	1
073 Process Radiation Monitoring				X								K4.01 - Release termination when radiation exceeds setpoint	4.0	1
076 Service Water								X				A2.01 - Loss of SWS	3.5*	1
078 Instrument Air			X									K3.03 - Cross-tied units	3.0	1
078 Instrument Air											X	2.1.28 - Knowledge of the purpose and function of major system components and controls.	4.1	1
103 Containment							X					A1.01 - Containment pressure, temperature, and humidity	3.7	1
K/A Category Totals:	3	2	3	3	3	2	3	3	2	2	2	Group Point Total:		28

PWR RO Examination Outline

Printed: 04/11/2011

Facility: Diablo Canyon

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
011 Pressurizer Level Control					X							K5.12 - Criteria and purpose of PZR level program	2.7	1
015 Nuclear Instrumentation											X	2.4.20 - Knowledge of operational implications of EOP warnings, cautions, and notes.	3.8	1
017 In-core Temperature Monitor				X								K4.03 - Range of temperature indication	3.1	1
028 Hydrogen Recombiner and Purge Control							X					A1.01 - Hydrogen concentration	3.4	1
029 Containment Purge			X									K3.01 - Containment parameters	2.9	1
033 Spent Fuel Pool Cooling	X											K1.05 - RWST	2.7*	1
034 Fuel Handling Equipment						X						K6.02 - Radiation monitoring systems	2.6	1
072 Area Radiation Monitoring									X			A3.01 - Changes in ventilation alignment	2.9*	1
075 Circulating Water		X										K2.03 - Emergency/essential SWS pumps	2.6*	1
086 Fire Protection										X		A4.06 - Halon system	3.2	1
K/A Category Totals:	1	0	1	1	1	Group Point Total:	10							

Generic Knowledge and Abilities Outline (Tier 3)

PWR RO Examination Outline

Printed: 04/11/2011

Facility: Diablo Canyon

Form ES-401-3

<u>Generic Category</u>	<u>KA</u>	<u>KA Topic</u>	<u>Imp.</u>	<u>Points</u>
Conduct of Operations	2.1.14	Knowledge of criteria or conditions that require plant-wide announcements, such as pump starts, reactor trips, mode changes, etc.	3.1	1
	2.1.38	Knowledge of the station's requirements for verbal communications when implementing procedures.	3.7*	1
	2.1.43	Ability to use procedures to determine the effects on reactivity of plant changes, such as reactor coolant system temperature, secondary plant, fuel depletion, etc.	4.1	1
	Category Total:			3
Equipment Control	2.2.3	(multi-unit license) Knowledge of the design, procedural, and operational differences between units.	3.8	1
	2.2.36	Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.	3.1	1
	Category Total:			2
Radiation Control	2.3.7	Ability to comply with radiation work permit requirements during normal or abnormal conditions.	3.5	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	2.4.1	Knowledge of EOP entry conditions and immediate action steps.	4.6	1
	2.4.14	Knowledge of general guidelines for EOP usage.	3.8	1
	2.4.26	Knowledge of facility protection requirements, including fire brigade and portable fire fighting equipment usage.	3.1	1
	Category Total:			3
Generic Total:			10	

Facility: Diablo Canyon

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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	3		3	6
	2	0	0	0				0	0				0	0	2		2	4
	Tier Totals	0	0	0				0	0				0	0	0	5		5
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: 04/11/2011

Facility: Diablo Canyon

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		EA2.05 - Reactor trip first-out indication	3.9	1
000008 Pressurizer Vapor Space Accident / 3					X		AA2.04 - High-temperature computer alarm and alarm type	3.4	1
000026 Loss of Component Cooling Water / 8						X	2.2.38 - Knowledge of conditions and limitations in the facility license.	4.5	1
000040 Steam Line Rupture - Excessive Heat Transfer / 4					X		AA2.03 - Difference between steam line rupture and LOCA	4.7	1
000055 Station Blackout / 6						X	2.4.30 - Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.	4.1	1
W/E04 LOCA Outside Containment / 3						X	2.4.41 - Knowledge of the emergency action level thresholds and classifications.	4.6	1
K/A Category Totals:	0	0	0	0	3	3	Group Point Total:	6	

PWR SRO Examination Outline

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Facility: Diablo Canyon

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	2.4.9 - Knowledge of low power/shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.	4.2	1
000067 Plant Fire On-site / 9						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
W/E06 Inad. Core Cooling / 4					X		EA2.2 - Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments	4.1	1
W/E15 Containment Flooding / 5					X		EA2.2 - Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments	3.3	1
K/A Category Totals:	0	0	0	0	2	2	Group Point Total:		4

PWR SRO Examination Outline

Printed: 04/11/2011

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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				A2.01 - Problems with RCP seals, especially rates of seal leak-off	3.9	1
005 Residual Heat Removal											X	2.4.1 - Knowledge of EOP entry conditions and immediate action steps.	4.8	1
013 Engineered Safety Features Actuation								X				A2.04 - Loss of instrument bus	4.2	1
026 Containment Spray											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
076 Service Water								X				A2.01 - Loss of SWS	3.7*	1
K/A Category Totals:	0	3	0	0	2	Group Point Total:	5							

PWR SRO Examination Outline

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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
011 Pressurizer Level Control								X				A2.05 - Loss of PZR heaters	3.7	1
045 Main Turbine Generator								X				A2.17 - Malfunction of electrohydraulic control	2.9*	1
056 Condensate											X	2.2.42 - Ability to recognize system parameters that are entry-level conditions for Technical Specifications.	4.6	1
K/A Category Totals:	0	2	0	0	1	Group Point Total:	3							

Generic Knowledge and Abilities Outline (Tier 3)

PWR SRO Examination Outline

Printed: 04/11/2011

Facility: Diablo Canyon

Form ES-401-3

<u>Generic Category</u>	<u>KA</u>	<u>KA Topic</u>	<u>Imp.</u>	<u>Points</u>
Conduct of Operations	2.1.5	Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.	3.9	1
	2.1.35	Knowledge of the fuel-handling responsibilities of SROs.	3.9	1
	Category Total:			2
Equipment Control	2.2.25	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.	4.2	1
	2.2.37	Ability to determine operability and/or availability of safety related equipment.	4.6	1
	Category Total:			2
Radiation Control	2.3.6	Ability to approve release permits.	3.8	1
	Category Total:			1
Emergency Procedures/Plan	2.4.8	Knowledge of how abnormal operating procedures are used in conjunction with EOPs.	4.5	1
	2.4.18	Knowledge of the specific bases for EOPs.	4.0	1
	Category Total:			2
Generic Total:				7

Tier / Group	Randomly Selected K/A	Reason for Rejection
S-T1G1	APE027AA2.13	Unable to create SRO level question that properly discriminates as the tie of the KA between Pressurizer Pressure malfunctions and seal return flow is tenuous at best. Replaced with systematically selected K/A EPE 007 EA2.05 in same group, to keep outline balanced. Updated ES-401-2
S-T2G1	E08 G2.4.11	There are no abnormal procedures dealing with PTS. FR-P.1 and 2 are Function Restoration Procedures, part of the Emergency Operating Procedure network. Replaced with systematically selected K/A APE067 G2.4.4. Updated ES-401-2.
S-T2G1	004 A2.23	Unable to write a question to SRO level due to KA of low SRO discrimination value. The only procedure is alarm response on high DP, and action is at RO level (low seal injection on all RCPs, swap filters). Replaced with systematically selected KA 076 A2.01. Note, at DCPD Service Water is Aux Salt Water. Updated ES-401-2
S-T2G1	022 A2.01	Unable to write a question to SRO level due to KA of low SRO discrimination value. Plausible action, ie start another CFCU, would be RO knowledge. no EOP or Abnormal procedure actions for this malfunction. While there may be TS implications, the next SRO question for Containment Spray is also a TS KA and both use the same Technical Specification, 3.6.6. Used the KA sample program to systematically replace the KA. KA 013 A2.04 randomly selected by the program. Updated ES-401-2
R-T1G1		Charging pump recirc valves 8105 & 8106 do not have any automatic features and are not operated in FR-S.1 - ATWS. The valves are not addressed. Randomly selected APE 206 AK3.04 using the sample plan program. updated ES-401-2.
R-T2G1	010 A3.01	KA could not be tested without compromising another question (KA 007 K3.01). Randomly selected 061 K5.01 using sample plan program updated ES-401-2

Tier / Group	Randomly Selected K/A	Reason for Rejection
R-T2G1	062 G2.4.41	EAL classification not RO knowledge. Randomly selected replacement KA
		062 A3.04. updated ES-401-2
R0T2G2	068 A2.03	KA has no impact on DCPD operation. randomly selected replacement KA
		011 K5.12 using KA selection program. ES-401-2 updated.
S-T3	G2.4.49	KA is RO knowledge, as RO's are responsible to know immediate actions.
		Randomly selected KA 2.4.18. ES-401-2 updated.