Form ES-301-1

Facility: <u>Palisades</u>		Date of Examination: <u>October 2012</u>					
Administrative Topic (See Note)	Type Code*	Describe activity to be performed					
Conduct of Operations	R, N	(2.1.25) Determine Final PCS Boron Concentration from S/G Backflow Dilution					
Conduct of Operations	S, D	(2.1.19) Perform a Heat Balance Calculation					
Equipment Control	S, P	(2.2.12) Perform TSST SHO-1					
Radiation Control							
Emergency Procedures/ Plan	S, D	(2.4.43) Activate ERDS					
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 (D)irect fr (N)ew or (P)reviou	room, (S)imulator, or Class(R)oom rom bank ( $\leq$ 3 for ROs; $\leq$ 4 for SROs & RO retakes) (M)odified from bank ( $\geq$ 1) is 2 exams ( $\leq$ 1; randomly selected)					

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Form ES-301-1

Facility: <u>Palisades</u>		Date of Examination: October 2012					
Examination Level: RO 🗌 SRO	$\boxtimes$	Operating Test Number: <u>1</u>					
Administrative Topic (See Note)	Type Code*	Describe activity to be performed					
Conduct of Operations	R, D, P	(2.1.37) Determine Compensation for a Withdrawn Inoperable Control Rod					
Conduct of Operations	R, D	(2.1.25) Review and Approve a PCS Leak Rate					
Equipment Control	R, D	(2.2.12) Review and Approve Completed TSST MO-29					
Radiation Control	R, N	(2.3.4) Calculate Maximum Permissible Stay Time					
Emergency Procedures/Plan	R, N	(2.4.41)(2.4.44) Classify Event and Determine PAR					
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 (D)irect fi (N)ew or (P)reviou	room, (S)imulator, or Class(R)oom rom bank ( $\leq$ 3 for ROs; $\leq$ 4 for SROs & RO retakes) (M)odified from bank ( $\geq$ 1) is 2 exams ( $\leq$ 1; randomly selected)					

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# Control Room/In-Plant Systems Outline

Form ES-301-2

Facility: Palisades	Date of Exa	mination: Octob	per 2012								
Exam Level: RO 🛛 SRO-I 🗌 SRO-U 🗌	est Number: <u>1</u>										
Control Room Systems <sup>(2)</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. CVCS / Terminate Emergency Boration	D	1									
b. ESFAS / Perform Post RAS Actions		D, EN	2								
c. PZR PCS / Open PORV Block Valves		A, D, L	3								
d. RCPS / Start a Primary Coolant Pump		A, D, L	4p								
e. MRSS / Bypass MSIV Closure		N, A, L	4s								
f. CCS / Align Containment Air Coolers		A, D	5								
g. PRM / Adjust Liquid Radwaste Discharge M	D	7									
h. CPS / Initiate a Containment Purge While in	A, D, L, P	8									
In-Plant Systems <sup>@</sup> (3 for RO); (3 for SRO-I); (3	or 2 for SRO-U)										
i. SDS / Test an Atmospheric Steam Dump Va	N, S, L	4s									
j. EDG / Isolate and Locally Start Diesel Gene	rator 1-1	D, E	6								
k. WGDS / Secure from Waste Gas release		D, R, P 9									
All RO and SRO-I control room (and in-pla functions; all 5 SRO-U systems must serv overlap those tested in the control room.	ant) systems must be different and e different safety functions; in-plar	serve different s It systems and fu	afety nctions may								
*Type Codes	Criteria for RO / SRO-I /	SRO-U									
(A)Iternate path (C)ontrol room	4-6 / 4-6 / 2-3										
(D)irect from bank	<u>&lt;</u> 9 / <u>&lt;</u> 8 /	<u>&lt;</u> 4									
(E)mergency or abnormal in-plant	<u> </u>	<u>&gt;</u> 1									
(EN)gineered safety feature	- / - /	> 1 (control room)	n system)								
(L)ow-Power / Shutdown	<u>&gt;</u> 1 / <u>&gt;</u> 1 /	<u>&gt;</u> 1									
(N)ew or (M)odified from bank including 1(A)	<u>&gt;</u> 2 / <u>&gt;</u> 2 /	<u>&gt;</u> 1									
(P)revious 2 exams	<u>&lt;</u> 3 / <u>&lt;</u> 3 /	2 (randomly se	lected)								
(R)CA	<u>&gt;</u> 1 / <u>&gt;</u> 1 /	<u>&gt;</u> 1									
(S)imulator											

# Control Room/In-Plant Systems Outline

Form ES-301-2

Facility: <u>Palisades</u>	Date of Exa	mination: Octob	per 2012							
Exam Level: RO 🗌 SRO-I 🛛 SRO-U 🗌	est Number: <u>1</u>									
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.										
b. ESFAS / Perform Post RAS Actions		D, EN	2							
c. PZR PCS / Open PORV Block Valves		A, D, L	3							
d. RCPS / Start a Primary Coolant Pump		A, D, L	4p							
e. MRSS / Bypass MSIV Closure		N, A, L	4s							
f. CCS / Align Containment Air Coolers	A, D	5								
g. PRM / Adjust Liquid Radwaste Discharge M	D	7								
h. CPS / Initiate a Containment Purge While in	A, D, L, P	8								
In-Plant Systems <sup>@</sup> (3 for RO); (3 for SRO-I); (3	or 2 for SRO-U)									
i. SDS / Test an Atmospheric Steam Dump Va	N, S, L	4s								
j. EDG / Isolate and Locally Start Diesel Gene	D, E	6								
k. WGDS / Secure from Waste Gas release	D, R, P	9								
@ All RO and SRO-I control room (and in-pla functions; all 5 SRO-U systems must serv overlap those tested in the control room.	ant) systems must be different and e different safety functions; in-plar	serve different s t systems and fu	afety nctions may							
*Type Codes	Criteria for RO / SRO-I /	SRO-U								
(A)Iternate path (C)ontrol room	4-6 / 4-6 / 2-3									
(D)irect from bank	< 9 / < 8 /	< 4								
(E)mergency or abnormal in-plant	>1 / >1 / >1									
(EN)gineered safety feature	- / - /	> 1 (control room)	n system)							
(L)ow-Power / Shutdown	<u>≥</u> 1 / <u>≥</u> 1 /	<u>&gt;</u> 1	- /							
(N)ew or (M)odified from bank including 1(A)	<u>&gt;</u> 2 / <u>&gt;</u> 2 /	<u>&gt;</u> 1								
(P)revious 2 exams	<u>&lt;</u> 3 / <u>&lt;</u> 3 /	2 (randomly se	lected)							
(R)CA	<u>&gt;</u> 1 / <u>&gt;</u> 1 /	<u>&gt;</u> 1								
(S)imulator										

# Control Room/In-Plant Systems Outline

Form ES-301-2

Facility: Palisades	Date of Exar	mination: Octob	oer 2012							
Exam Level: RO 🗌 SRO-I 🗌 SRO-U 🛛	est Number: <u>1</u>									
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.										
b. ESFAS / Perform Post RAS Actions		D, EN	2							
c. PZR PCS / Open PORV Block Valves		A, D, L	3							
d.										
e. MRSS / Bypass MSIV Closure		N, A, L	4s							
f.										
g.										
h.										
In-Plant Systems <sup>@</sup> (3 for RO); (3 for SRO-I); (3	or 2 for SRO-U)									
i.										
j. EDG / Isolate and Locally Start Diesel Gene	rator 1-1	D, E	6							
k. WGDS / Secure from Waste Gas release	D, R, P	9								
@ All RO and SRO-I control room (and in-pla functions; all 5 SRO-U systems must serv overlap those tested in the control room.	ant) systems must be different and e different safety functions; in-plan	serve different s t systems and fu	afety nctions may							
*Type Codes	Criteria for RO / SRO-I /	SRO-U								
(A)Iternate path (C)ontrol room	4-6 / 4-6 /	2-3								
(D)irect from bank	<u>&lt;</u> 9 / <u>&lt;</u> 8 /	<u>&lt;</u> 4								
(E)mergency or abnormal in-plant	 <u>&gt;</u> 1 / <u>&gt;</u> 1 /	<u>&gt;</u> 1								
(EN)gineered safety feature	- / - /	> 1 (control room)	n system)							
(L)ow-Power / Shutdown	<u>&gt;</u> 1 / <u>&gt;</u> 1 /	<u>&gt;</u> 1								
(N)ew or (M)odified from bank including 1(A)	<u>&gt;</u> 2 / <u>&gt;</u> 2 /	<u>&gt;</u> 1								
(P)revious 2 exams	<u>&lt;</u> 3 / <u>&lt;</u> 3 /	2 (randomly se	lected)							
(R)CA	<u>&gt;</u> 1 / <u>&gt;</u> 1 /	<u>&gt;</u> 1								
(S)imulator										

#### **Transient and Event Checklist**

Form ES-301-5

Facility:	Palisa	ades	des         Date of Exam:         October 2012         Operating Test No.:         1										1				
A	E								Scena	arios							
P P	V E		1		2 3					S	PARE	(#)	-				
	N T	CRE	CREW POSITION			CREW POSITION			CREW POSITION			N POS	ITION	0	MI	NIMUN	l (*)
C A	т	S	А	В	S	А	В	s	А	В	s	А	В	T			
N T	Y P E	R O	T C	O P	R O	T C	O P	R O	T C	O P	R O	T C	O P	L	R	Ι	U
	RX													0			0
	NOR				12									2			1
SRO-U	I/C	2456			45									6			2
	MAJ	7			6									2			1
	TS	34			34									4			2
	RX		4											1	1		
	NOR						12							2	1		
RO	I/C		568				457							6	4		
	MAJ		7				6							2	2		
	TS													0	0		
	RX					2								1	1		
	NOR			1										1	1		
RO	I/C			24		358								5	4		
	MAJ			7		6								2	2		
	15													0	0		
Notes: (1) The above three candidates will form one operating crew ( <b>Crew 1</b> ).																	
Instruction	ons:																
1. Ch an	neck the	e appli pplicat	cant lev	el and e	enter th cants.	e opera ROs m	ating tes just serv	st numt ve in bo	per and oth the '	+orm ± at-the-₀	28-D-1	event r	iumbers " and "h	s tor e alanc	acn ev e-of-pl:	ent typ ant (BC	e; IS )P)"
pc	sitions	; Instar	nt SRO	s must s	erve in	both th	ne SRO	and the	e ATC	position	s, inclu	ding at	least tv	vo inst	trumen	t or	,
co B(	mpone	ent (I/C	) malfur ne I/C r	nctions a malfunct	and one	e major n be cre	transie	nt, in th ward th	he ATC	positior I/C malf	<ol> <li>If an function</li> </ol>	Instan s requ	t SRO a ired for	dditio. the Al	nally se IC posi	erves ir	ו the
	o. pee	, e															
2. Re	eactivity	y manij	oulation	s may b	be cond	lucted i	under no	ormal o	or <i>contro</i>	olled ab	normal	conditi	ons (rei	fer to S	Section	D.5.d)	) but
ad	Iditiona	l instru	ment o	r compo	nent m	alfunct	ions on	a 1-for	-1 basis	' anu nu S.	innai ev	Joiulior	is may i	le ieb	aced v	VILII	

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.

#### **Transient and Event Checklist**

Form ES-301-5

Facility:	Palisa	ides	les Date of Exam: October 2012 Operating Test No.: 1														
Α	E								Scena	arios							
P P	V E		1		2 3 SPARE (#)						(#)	-					
L	N T	CREW POSITION			CREW POSITION			CREW POSITION			CRE\	V POS	ITION	T O	MINIMUM (*)		
C A N	T	S R	A T	B	S R	A T	В	S R	A T	В	S R	A	В	T A			
Т	P E	0	Ċ	P	Ö	Ċ	P	0	Ċ	P	0	Ċ	P	L	R	I	U
	6													0			0
	NOR						12							2			1
SRO-U	I/C	2456					457							7			2
	MAJ	7					6							2			1
	TS	34												2			2
	RX		4											1		1	
	NOR				12									2		1	
SRO-I			568		45									5		4	
	MAJ		1		6									2		2	
					34	0								2	4	2	
						2								1	1		
DO				24		358								5	1		
RU	MA.I			7		6								2	- 2		
	TS													0	0		
Notes: (1) The above three candidates will form one operating crew ( <b>Crews 2, 3, &amp; 4</b> ).																	
<ol> <li>Instructions:         <ol> <li>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.</li> </ol> </li> <li>Reactivity manipulations may be conducted under normal or <i>controlled</i> 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</li> </ol>																	

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.