Form ES-401-5

Facility: CPSI	Facility: CPSES   Date of Exam: 05/2001   Exam L     Category   K/A #   Topic   Image: Complexity of the staffing requirements   Image: Complexity of the staffing requirements   Image: Complexity of the staffing requirements     Conduct of Operations   2.1.4   K/O shift staffing requirements   Image: Complexity of the staffing requirements   Image: Complexity of the staffing requirements     Conduct of Operations   2.1.9   A/T Direct personnel activities inside control room   Image: Complexity of the staffing requirements     Conduct of Operations   2.1.10   K/O Conditions and Limitations in Facility License   Image: Complexity of the staffing requirements     2.1.11   K/O Less than 1 hour TS action statements   Image: Complexity of the staffing requirements     2.1.32   A/T explain/apply system limits & precautions     Total   Image: Complexity of the staffing if change involves a USQ     2.2.12   K/O Surveillance procedures     2.2.13   K/O clearance and tanging procedures		Level:	SRO
Category	K/A #	Торіс	Imp.	Points
	2.1.4	K/O shift staffing requirements	3.4	1
Conduct of	2.1.9	A/T Direct personnel activities inside control room	4.0	1
Operations	2.1.10	K/O Conditions and Limitations in Facility License	3.9	1
	2.1.11	K/O Less than 1 hour TS action statements	3.8	1
	2.1.32	A/T explain/apply system limits & precautions	3.8	1
	Total			5
	2.2.8	K/O determining if change involves a USQ	3.3	1
	2.2.12	K/O Surveillance procedures	3.4	1
	2.2.13	K/O clearance and tagging procedures	3.8	1
Equipment	2.2.24	A/T analyze affect of maint on LCO status	3.8	1
Control	2.2.29	K/O SRO fuel handling responsibilities	3.8	1
	Total			5
	2.3.11	Ability to control radiation releases	3.2	1
	2.3.4	K/O radiation exposure limits and contamination control	3.1	1
Radiation	2.3.6	K/O reviewing and approving radiation releases	3.2	1
Control	Total			3
	2.4.7	K/O event based EOP mitigation strategies	3.8	1
	2.4.26	K/O Facility protection requirements including fire brigade and portable fire fighting equip use	3.3	1
Procedures/ Plan	2.4.43	K/O Emergency communications systems and techniques	3.5	1
	2.4.44	K/O emergency plan protective action plan recommendation	3.8	1
	Total			4
Tier 3 Point T	otal (SRO	)		17

Facility: CPSES		[	Date o	of Ex	am: (	)5/20	01	E	xam	Leve	I: RC	)	
<b>-</b>	6				K/A	A Cat	egory	/ Poii	nts				
lier	Group	К 1	K 2	К 3	K 4	K 5	К 6	A 1	A 2	A 3	A 4	G *	Point Total
1.	1	2	2	5				2	3			2	16
Emergency & Abnormal	2	4	0	3				4	5			1	17
Plant	3	3	0	0				0	0			0	3
Evolutions	Tier Totals	9	2	8				6	8			3	36
	1	3	2	3	3	3	1	1	3	3	1	0	23
2. Plant	2	3	1	4	2	2	1	2	3	0	1	1	_20
Systems	3	1	0	1	0	0	0	2	1	1	1	1	8
	Tier Totals	.7	3	8	5	5	2	5	7	4	3	2	51
3. Generic K	nowledge ar	nd At	oilities	3	Ca	at 1	Ca	at 2	Ca	at 3	Ca	at 4	
						3	;	3		4		3	13
Note: 1. E ex tv 2. A 3. S 4. S 5. T 6.* T 6.* T 7. C tc tc tc tr	nsure that af ach tier (i.e., vo). ctual point to elect topics f ppics from a ystems/evolu he shaded a he generic K catalog, but to ppic, the topionals for each the basis of p the table about	t leas the " from giver utions (/As i he to ng pa cs' im n syst lant-s /e.	t two Tier must many syst s with are r n Tie pics r ages, porta tem a specif	topic Total matc / syst em u not ap rs 1 a must ente ance ance ance fic pri	cs fro s" in ch tho ems; inless ach gi oplica and 2 be re rating atego oritie	m ev each se si avoi s they roup ble te shal elevai K/A gs foi ory. H s. El	ery K K/A pecifi d sel r rela are id o the so the the so the so the the so the so the so the so the so the so the	JA categorial categori	the f g mo plant ied o gory/ ted fr pplic cens v 2.5 er tot	ry are shall table re that -spector tier. om S able e leve shou als fo	e sar not b an tw cific p e asso Sectic evolu script el, ar ild be or eac	npled e less pro or f priorit pociate on 2 c tion o tion o nd the justi ch cat	t within s than three K/A ies. ed outline. of the K/A or system. of each e point fied on tegory in

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ES-401			Emerge	ency an	PWR R d Abnor	O Examin mal Plant	ation Outline Evolutions - Tier 1/Group 1	Form	ı ES-401-4
E/APE # / Name / Safety Function	K1	K2	КЗ	A1	A2	G	K/A Topic(s)	Imp.	Points
000005 Inoperable/Stuck Control Rod / 1						2.1.12	A/T apply technical specifications for a system	2.9	1
000015/17 RCP Malfunctions / 4			A03				Sequence of events for manually tripping RX & RCP	3.7	1
BW/E09; CE/A13; W/E09&E10 Natural Circ./4	E 1						Components, capacity, and function of emergency systems	3.3	1
000024 Emergency Boration / 1									
000026 Loss of Component Cooling Water / 8					A 01		Location of leak in CCW system	2.9	1
000027 Pressurizer Pressure Control System Malfunction / 3					A16		Actions to be taken if PZR instrument fails low	3.6	1
000040 ( <del>BW/E05; CE/E05; W/E12)</del> Steam Line Rupture - Excessive Heat Transfer / 4			A 06				Containment temperature and pressure considerations	3.4	1
CE/A11; W/E08 RCS Overcooling - PTS / 4		E 2					Heat removal systems - primary coolant, emerg coolant, decay heat removal, and relations between these and the facility	3.6	1
000051 Loss of Condenser Vacuum / 4			A 01				Loss of steam dump capability upon loss of condenser vacuum	2.8	1
000055 Station Blackout / 6				E 06			Restoration of power with one EDG	4.1	1
000057 Loss of Vital AC Elec. Inst. Bus / 6				A 06			Manual control of components for which auto control is lost	3.5	1
000062 Loss of Nuclear Service Water / 4			A 02				Automatic actions within service water resulting from ESFAS act.	3.6	1
000067 Plant Fire On-site / 9		-			A 17		Systems that may be affected by fire	3.5	1
000068 (BW/A06) Control Room Evac. / 8			A12				Required sequence of actions for emerg evacuation of control room	4.1	1
000069 (W/E14) Loss of CTMT Integrity / 5						2.4.47	Diagnose/recognize trends in an accurate and timely manner	3.4	1
000074 ( <del>W/E06&amp;E07</del> ) Inad. Core Cooling / 4	E 07						Definition of saturated steam	2.8	1
BW/E03 Inadequate Subcooling Margin / 4									
000076 High Reactor Coolant Activity / 9		<b>A</b> 01					Knowledge of the interactions between high RCS activity and process radiation monitors	2.6	1
BW/A02&A03 Loss of NNI-X/Y / 7									
K/A Category Totals:	2	2	5	2	3	2	Group Point Total:		16

ES-401		E	Emergen	PW cy and A	R RO Ex	amination Plant Evolu	Outline utions - Tier 1/Group 2	Form	ES-401-4
E/APE # / Name / Safety Function	K1	K2	КЗ	A1	A2	G	K/A Topic(s)	Imp.	Points
000001 Continuous Rod Withdrawal / 1	A05						Effects of turbine-reactor power mismatch on rod control	3.5	1
000003 Dropped Control Rod / 1						2.1.20	Ability to execute procedure steps	4.3	. 1
000007 (BW/E02&E10 CE/E02) Reactor Trip - Stabilization - Recovery / 1					E 04		Carry out actions in ATWS EOP	4.4	1
BW/A01 Plant Runback / 1									
BW/A04 Turbine Trip / 4									
000008 Pressurizer Vapor Space Accident / 3					A 20		Effect of an open PORV on code safety	3.4	1
000009 Small Break LOCA / 3				E09			Operate RCPs during a SBLOCA	3.6	1
000011 Large Break LOCA / 3					E 13		Diff between overcooling and LOCA indications	3.7	1
W/E04 LOCA Outside Containment / 3	E2						Normal, abn, and emerg operating proc with LOCA outside cont.	3.5	1
BW/E08; W/E03 LOCA Cooldown/Depress. / 4									
W/E11 Loss of Emergency Coolant Recirc. / 4			E2				Normal, abn, & emerg oper proc associated with loss of recirc	3.5	1
W/EO1 & E02 Rediagnosis & SI Termination / 3									
000022 Loss of Reactor Coolant Makeup / 2							3		
000025 Loss of RHR System / 4			A 03				Immediate actions contained in EOP for loss of RHR	3.9	1
000029 Anticipated Transient w/o Scram / 1					E 07		Determine/interpret Rx trip indicating lights	4.2	1
000032 Loss of Source Range NI / 7			A 01				Startup termination on source range loss	3.2	1
000033 Loss of Intermediate Range NI / 7									
000037 Steam Generator Tube Leak / 3									
000038 Steam Generator Tube Rupture / 3				E 09			Pzr tank level/press indicators, gauges, and recorders	3.2	1
000054 (CE/E06) Loss of Main Feedwater / 4				A 04			HPI, under total feedwater loss conditions	4.4	1
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4					E 1		Facility conditions and selection of app proc during abn & emerg ops	3.4	1
000058 Loss of DC Power / 6	A 01						Battery charger equipment and instrumentation	2.8	1
000059 Accidental Liquid RadWaste Rel. / 9									
000060 Accidental Gaseous Radwaste Rel. / 9									
000061 ARM System Alarms / 7				A 01			Automatic actuation	3.6	1
W/E16 High Containment Radiation / 9	E2						K/O operational implications as they apply to procedures	2.7	1
CE/E09 Functional Recovery									
K/A Category Point Totals:	4	0	3	4	5	1	Group Point Total:		17

ES-401		E	Emerge	ency a	PWR 1d Abr	RO Ex iormal	xamination Outline Plant Evolutions - Tier 1/Group 3	Form	ES-401-4
E/APE # / Name / Safety Function	K1	К2	КЗ	A1	A2	G	K/A Topic(s)	Imp.	Points
000028 Pressurizer Level Malfunction / 2	A 01						PZR reference leak abnormalities	2.8	1
000036 (BW/A08) Fuel Handling Accident / 8	A 01						Fuel handling incident radiation exposure hazards	3.5	1
000056 Loss of Off-site Power / 6									
000065 Loss of Instrument Air / 8									
BW/E13&E14 EOP Rules and Enclosures									
BW/A05 Emergency Diesel Actuation / 6									
BW/A07 Flooding / 8									
CE/A16 Excess RCS Leakage / 2									
W/E13 Steam Generator Over-pressure / 4	E 3						Annuciators and conditions indicating signals, and remedial actions associated with the steam generator overpressure	3.0	1
W/E15 Containment Flooding / 5									
	,								
K/A Category Point Totals:	3	0	0	0	0	0	Group Point Total:	1	3

ES-401						PWR I Plant S	RO Exa Systems	aminatio s - Tier	on Outlin 2/Group	ne p 1			Fo	rm ES-40
System # / Name	<b>K</b> 1	К2	КЗ	K4	К5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Point
001 Control Rod Drive		02	<u> </u>									One-line diagram of pwr supply to trip bkrs	3.6	1
001 Control Rod Drive					04							Operational implications of rod insertion limits	4.3	1
003 Reactor Coolant Pump				ļ			02					RCP pump/motor bearing temperatures	2.9	1
003 Reactor Coolant Pump					ļ	02						K/O effect on RCP for loss of seal or seal water	2.7	1
004 Chemical and Volume Control			07							_		Effect that loss/malfunction of CVCS on PZR	3.8	1
004 Chemical and Volume Control		ļ		01								Design features/interlocks for RCS O <sub>2</sub> control	2.8	1
013 Engineered Safety Features Actuation				04								Aux. Feed Actuation Signal	4.3	1
013 Engineered Safety Features Actuation					02					ļ		Safety system logic and reliability	2.9	1
015 Nuclear Instrumentation	01											Cause/Effect between NIS and RPS	4.1	1
015 Nuclear Instrumentation			02									Effect that loss of NIS will have on CRDS	3.3	1
017 In-core Temperature Monitor				-				01	ļ			Thermocouple open and short circuits	3.1	1
022 Containment Cooling							ļ			01		Manually operate/monitor fans in Control Rm	3.6	1
022 Containment Cooling									01			Monitor automatic operation of CCS	4.1	1
<del>025 lee Condenser</del>														
056 Condensate	03											Relationship between cond and MFW	2.6	1
059 Main Feedwater			04									Effect of loss/malfunction of MFW on RCS	3.6	1
059 Main Feedwater	04											Relationship between MFW & SG level control	3.4	1
061 Auxiliary/Emergency Feedwater		02										Bus pwr supplies to AFW elec drive pump	3.7	1
061 Auxiliary/Emergency Feedwater								07				Predict the impact of air or MOV failure	3.4	1
068 Liquid Radwaste									02			Ability to monitor automatic isolation	3.6	1
071 Waste Gas Disposal				04								Isolation of waste gas release tanks	2.9	1
071 Waste Gas Disposal					04							Relationship of [H <sub>2</sub> /O <sub>2</sub> ] to flammability	2.5	1
072 Area Radiation Monitoring								02				Detector failure	2.8	1
072 Area Radiation Monitoring									01			Monitor changes in ARM vent alignment	2.9	1
K/A Category Point Totals:	3	2	3	3	3	1	1	3	3	1	0	Group Point Total:		23

ES-401					F	WR R lant Sy	O Exa /stems	minati - Tier	on Out 2/Gro	line up 2			For	n ES-401-4
System # / Name	K1	К2	КЗ	K4	К5	К6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
002 Reactor Coolant						12						Effect of loss/malfunction of code SRVs	3.0	1
006 Emergency Core Cooling	03											Cause/Effect between ECCS and RCS	4.2	1
010 Pressurizer Pressure Control							07					Predict/monitor change with RCS press	3.7	1
011 Pressurizer Level Control							01					Predict/monitor change in PZR level/press	3.5	1
012 Reactor Protection	03											Relationship between RPS and CRDS	3.7	1
014 Rod Position Indication											2. 4. 21	Parameters and logic used to assess the status of safety functions	3.7	1
016 Non-nuclear Instrumentation			12							•		Effect loss/malfunction of NNIS on S/G	3.4	1
026 Containment Spray		01										Bus pwr supplies to CS pumps	3.4	1
029 Containment Purge										04		Manually operate cont evacuation signal	3.5	1
033 Spent Fuel Pool Cooling	ļ			05			<u> </u>					Design feature for adequate SDM [boron]	3.1	1
035 Steam Generator								03				Impact of press/level trans. failure	3.4	1
039 Main and Reheat Steam	<u> </u>							04				Impact of malfunctioning stm dumps	3.4	1
055 Condenser Air Removal			01									Effect of loss of CARS on Main Condenser	2.5	1
062 AC Electrical Distribution			01									Major system loads	3.5	1
063 DC Electrical Distribution				02								Bkr interlocks, permissives, bypasses	2.9	1
064 Emergency Diesel Generator	04											Relationship between EDG & DC dist system	3.6	1
073 Process Radiation Monitoring			01									Effect/loss of PRM on rad effluent releases	3.6	1
075 Circulating Water								03				Safety features/relationship between cond vacuum, turbine trip, & stm dump	2,5	1
035 Steam Generator					03							Shrink and swell concept	2.8	1
086 Fire Protection					04							Hazard to personnel as a result of fire type and methods of protection	2.9	1
K/A Category Point Totals:	3	1	4	2	2	1	2	3	0	1	1	Group Point Total:	I	20

ES-401					P Pl	NR RO ant Sys	) Exar stems	ninatio - Tier 2	on Outl 2/Grou	ine p 3			Form	n ES-401-4
System # / Name	K1	K2	КЗ	К4	К5	К6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
005 Residual Heat Removal								03				RHR pump/motor malfunction	2:9	1
007 Pressurizer Relief/Quench Tank														
008 Component Cooling Water							01					Predict changes in CCW flow rate during ops	2.8	1
027 Containment Iodine Removal														
028 Hydrogen Recombiner and Purge Control											2. 1. 28	K/O purpose and function of system	3.2	1
034 Fuel Handling Equipment									02			Monitor load limits associated with FHES	2.5	1
041 Steam Dump/Turbine Bypass Control														
045 Main Turbine Generator	20											Protection system	3.4	1
076 Service Water							04		Manually operate/Monitor SWS including emergency heat loads	3.7	1			
078 Instrument Air			02									Effect of loss/malf of IAS will have on pneumatic valves and controls	3.4	1
103 Containment							01					Predict/monitor changes in containment press, temp, and humididty	3.7	1
K/A Category Point Totals:	1	0	1				2	1	1	1	1	Group Point Total:		8
						Plant-	Specif	fic Prio	orities					
System / Topic						Reco	mmen	ded R	eplace	ment f	or	Reason		Points
												· · · · · · · · · · · · · · · · · · ·		
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												·		
		·												
Plant-Specific Priority Total: (limit 10)		<u> </u>								<u></u>				

## Generic Knowledge and Abilities Outline (Tier 3)

Form ES-401-5

Facility: CPSE	ES	Date of Exam: 05/2001 Exam	Level:	RO
Category	K/A #	Торіс	Imp.	Points
	2.1.2	K/O Operator responsibilities during all modes of plant operation	3.0	1
Conduct of	2.1.9	A/T Direct personnel activities inside control room	2.5	1
Operations	2.1.23	A/T Perform specific system integrated plant procedures during all modes	3.9	1
	2.1.			
·	Total			3
	2.2.12	K/O Surveillance procedures	3.0	1
Fauipment	2.2.13	K/O Clearance and tagging procedures	3.6	1
Control	2.2.28	K/O New and Spent Fuel Movement Procedures	2.6	1
	2.2.			
	Total			3
	2.3.11	Ability to control radiation releases	2.7	1
	2.3.4	K/O radiation exposure limits and contamination control	2.5	1
Radiation	2.3.9	K/O process for performing cont. purge	2.5	1
Control	2.3.10	A/T Perform procedures to reduce excessive levels of radiation	2.9	1
	Total		··	4
	2.4.3	Ability to identify post-accident instrumentation	3.5	1
Emorgonov	2.4.26	K/O Facility protection requirements including fire brigade and portable fire fighting equip use	2.9	1
Procedures/ Plan	2.4.43	K/O Emergency communications systems and techniques	2.8	1
	2.4.			
	Total			3
Tier 3 Point T	otal (RO)			13

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## PWR SRO Examination Outline Form ES-401-3

Facility: CPSES		Da	te of	Exar	n: 05	/200	1		Exam	Lev	vel: S	RO		
Tior	Crown				K//	A Cat	egor	y Poi	nts					
Ther	Group	К 1	K 2	К 3	K 4	К 5	К 6	A 1	A2	A 3	A 4	G *	Point Total	
1.	1	3	3	5				2	6			5	24	
Emergency & Abnormal	2	2	1	3				4	4			2	16	
Plant Evolutions	3	2										1	3	
	Tier Totals	7	4	8				6	10			8	43	
	1	2	2	2	3	1	0	1	3	2	1	2	19	
∠. Plant	2	_2	0	3	0	1	2	3	2	0	1	3	17	
Systems	3	2 2 0 3 0 1 2 3 2 0 1 3 17   3 0 0 1 0 0 0 1 1 1 0 4												
	3   0   0   1   0   0   0   0   1   1   1   0   4     Tier   4   2   6   3   2   2   4   6   3   3   5   40     Totals   3   5   40   3   5   40													
3. Generic K	nowledge ar	nd Ab	oilities	;	Са	it 1	Са	it 2	Cat	3	Ca	ıt 4		
					į	5		5	3		4	4	17	
Note: 1. E e tv 2. A 3. S 4. S 5. T 6.* T 7. C 7. C tc tr	nsure that at ach tier (i.e., vo). ctual point to elect topics f ppics from a g ystems/evolu he shaded at he generic K atalog, but th on the followin opic, the topic tals for each ne basis of pl ne table abov	leas the " tals r rom r given itions reas /As in reas /As in reas /As in reas /As in syst ant-s e.	t two Tier must many syste s with are n Tier pics r ages, porta em a pecif	topic Totals matc syst em ui in ea ot ap rs 1 a nust ente ince i nd ca ic prid	s from s' in e h tho ems; nless ch gr plica ond 2 be re r the rating atego orities	m eve each se sp avoid they oup a ble to shall levar K/A r gs for ry. k s. Er	ery K K/A becifi d sele relat are ic the be s the s the f the f (/As h hter t	/A ca categ ed in ecting te to lentif categ elect he ap ers, a RO lig pelow he tie	the tag the tag plant-sied on gory/ti- ed fro oplical a brief cense v 2.5 s	y are hall r ble. the er. m S ble e f des f des hou s foi	e san not be an tw cific p asso ectio evolu- script el, an Id be r eac	o or t prioriti ociate n 2 o tion c d the justil h cat	within s than hree K/A es. ed outline. f the K/A or system. f each point fied on egory in	

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ES-401			Emerger	PW icy and A	R SRO E bnormal	Examinatio Plant Evo	n Outline Iutions - Tier 1/Group 1	Forr	n ES-401-3
E/APE # / Name / Safety Function	К1	К2	КЗ	<b>A</b> 1	A2	G	K/A Topic(s)	Imp.	Points
000001 Continuous Rod Withdrawal / 1						2.1.33	Recognize entry level conditions for TS	4.0	1
000003 Dropped Control Rod / 1						2.1.20	A/T execute procedure steps	4.2	1
000005 Inoperable/Stuck Control Rod / 1						2.1.12	Ability to apply technical specification action statements	4.0	1
000011 Large Break LOCA / 3					E 13		Diff between overcooling and LOCA indications	3.7	1
W/E04 LOCA Outside Containment / 3	E2			-			Normal, abn, and EOP with LOCA outside containment	4.2	1
W/EO1 & E02 Rediagnosis & SI Termination / 3					E2		Adh to proc & ops within limitation in license & amendments	3.9	1
000015/17 RCP Malfunctions / 4			A 03				Seq of event for manually tripping RX and RCP	4.0	1
BW/E09; CE/A13; W/ <del>E09&amp;</del> E10 Natural Circ. / 4	E1						Components, capacity, and function of emergency systems	3.6	1
000024 Emergency Boration / 1						2.4.18	K/O the specific basis for EOPs	3.6	1
000026 Loss of Component Cooling Water / 8					A 01		Location of leak in CCW system	3.5	1
000029 Anticipated Transient w/o Scram / 1					E 07		Determine/interpret Rx trip indicating lights	4.3	1
000040 <del>(BW/E05; CE/E05; W/E12)</del> Steam Line Rupture - Excessive Heat Transfer / 4			A 06				Containment temperature and pressure considerations	3.9	1
CE/A11; W/E08 RCS Overcooling - PTS / 4		E2					Heat removal systems - primary coolant, emerg coolant, decay heat removal, and relations between these and the facility	4.0	1
000051 Loss of Condenser Vacuum / 4			A01				Loss of steam dump capability upon loss of condenser vacuum	3.1	1
000055 Station Blackout / 6				E 06			Restoration of power with one EDG	4.5	1
000057 Loss of Vital AC Elec. Inst. Bus / 6				A 06			Manual control of components for which auto control is lost	3.5	1
000059 Accidental Liquid RadWaste Rel. / 9		A 01					Interrelations between acc lig radwaste release and rad-lig monitors	2.8	1
000062 Loss of Nuclear Service Water / 4			A02				Automatic actions within service water resulting from ESFAS act.	3.9	1
000067 Plant Fire On-site / 9					A 17		Systems that may be affected by fire	4.3	1
000068 (BW/A06) Control Room Evac. / 8			A12				Required sequence of actions for emerg evac of control rroom	4.5	1
000069 (W/E14) Loss of CTMT Integrity / 5						2.4.47	Diagnose/recognize trends in an accurate and timely manner	3.7	1
000074 <del>(W/E06&amp;E07)</del> Inad. Core Cooling / 4	E07						Definition of saturated steam	3.2	1
000076 High Reactor Coolant Activity / 9		A01					Knowledge of the interactions between high RCS activity and process radiation monitors	3.0	1
000026 Loss of Component Cooling Water / 8					A 03		Determine valve lineup to restart CCW while bypassing comp.	2.9	1
K/A Category Totals:	3	3	5	2	6	5	Group Point Total:		24

ES-401		E	mergenc	PWR y and Ab	SRO Ex	amination	Outline tions - Tier 1/Group 2	Form	I ES-401-3
E/APE # / Name / Safety Function	К1	К2	КЗ	A1	A2	G	K/A Topic(s)	Imp.	Points
000007 (BW/E02&E10 CE/E02) Reactor Trip - Stabilization - Recovery / 1					E 04		Carry out actions in ATWS EOP	4.6	1
000008 Pressurizer Vapor Space Accident / 3					A 20		Effect of an open PORV on code safety	3.6	1
000009 Small Break LOCA / 3				E 09			Operate RCPs during a SBLOCA	3.6	1
BW/E08; W/E03 LOCA Cooldown - Depress. / 4						2.4.41	K/O emergency action level thresholds and classifications	4.1	1
W/E11 Loss of Emergency Coolant Recirc. / 4	ļ		E2				Normal, abn, & emerg oper proc associated with loss of recirc	4.0	1
000022 Loss of Reactor Coolant Makeup / 2									
000025 Loss of RHR System / 4			A 03				Immediate actions contained in EOP for loss of RHR	4.1	1
000027 Pressurizer Pressure Control System Malfunction / 3		03					K/O PRZR Press Control and malfunction of controller/post.	2.8	1
000032 Loss of Source Range NI / 7			A 01				Startup termination on source range loss	3.6	1
000033 Loss of Intermediate Range NI / 7					A 08		Determine/Interpret IR channel operability	3.4	1
000037 Steam Generator Tube Leak / 3									
000038 Steam Generator Tube Rupture / 3				E 09			Pzr tank level/press indicators, gauges, and recorders	3.3	1
000054 (CE/E06) Loss of Main Feedwater / 4				A 04			Operate HPI, under total feedwater loss conditions	4.5	1
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4					E 1		Facility conditions and selection of app proc during abn & emerg ops	4.4	1
000058 Loss of DC Power / 6	A 01						Battery charger equipment and instrumentation	3.1	1
000060 Accidental Gaseous Radwaste Rel. / 9									
000061 ARM System Alarms / 7				A 01			Automatic actuation	3.6	1
W/E16 High Containment Radiation / 9	E2						K/O operational implications of high radiation with procedures	3.2	1
000065 Loss of Instrument Air / 8						2.1.7	Evaluate plant perf and make oper judgements based on oper characteristics, reactor behavior, and instrument interpretation	4,4	1
K/A Category Point Totals:	2	1	3	4	4	2	Group Point Total:		16
							· · · · · · · · · · · · · · · · · · ·		

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ES-401 PWR SRO Examination Outline Fo Emergency and Abnormal Plant Evolutions - Tier 1/Group 3										
E/APE # / Name / Safety Function	<b>K</b> 1	К2	КЗ	A1	A2	G	K/A Topic(s)	Imp.	Points	
000028 Pressurizer Level Malfunction / 2	A 01						PZR reference leak abnormalities	3.1	1	
000036 (BW/A08) Fuel Handling Accident / 8						2.3.10	A/T perform procedures to reduce excessive levels of radiation and guard against personnel exposure	3.3	1	
000056 Loss of Off-site Power / 6										
BW/E13&E14 EOP Rules and Enclosures										
BW/A05 Emergency Diesel Actuation / 6										
BW/A07 Flooding / 8							· · · · · · · · · · · · · · · · · · ·			
CE/A16 Excess RCS Leakage / 2							· · ·			
W/E13 Steam Generator Over-pressure / 4	E 3					<b>~</b>	Annuciators and conditions indicating signals, and remedial actions associated with the steam generator overpressure	3.2	1	
W/E15 Containment Flooding / 5										
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					1					
		ν.								
K/A Category Point Totals:	2					1	Group Point Total:		3	

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ES-401 PWR SRO Examination Outline Form ES-401-3 Plant Systems - Tier 2/Group 1														
System # / Name	K1	К2	КЗ	К4	К 5	К6	A1	A2	A 3	A4	G	K/A Topic(s)		Points
001 Control Rod Drive					04							Operational implications of rod insertion 4.		1
003 Reactor Coolant Pump							02					RCP pump/motor bearing temperatures	2.9	1
004 Chemical and Volume Control			07									Effect that loss/malfunction of CVCS on PZR	4.1	1
013 Engineered Safety Features Actuation				4								Aux. Feed Actuation Signal	4.5	1
014 Rod Position Indication											2.4.21	Parameters and logic used to assess 4. the status of safety functions		1
015 Nuclear Instrumentation	01											Cause/Effect between NIS and RPS 4.		1
017 In-core Temperature Monitor								01				Thermocouple open and short circuits	3.5	1
022 Containment Cooling										01		Manually operate/monitor fans in Control Rm	3.6	1
022 Containment Cooling				17					0 1			Monitor automatic operation of CCS	4.3	1
026 Containment Spray		01										Bus pwr supplies to CS pumps	3.6	1
056 Condensate	03											Relationship between cond and MFW		1
059 Main Feedwater			04									Effect of loss/malfunction of MFW on 3 RCS		1
061 Auxiliary/Emergency Feedwater		02									•	Bus pwr supplies to AFW elec pump	3.7	1
063 DC Electrical Distribution				02								Bkr interlocks, permissives, bypasses	3.2	1
071 Waste Gas Disposal				04								Isolation of waste gas release tanks	3.4	1
072 Area Radiation Monitoring									0 1			Monitor changes in ARM vent alignment	3.1	1
026 Containment Spray						-		05				Predict impact failure of chemical add tanks to inject	4.1	1
061 Auxiliary/Emergency Feedwater								_			2.2.21	K/O pre and postmaint operability req	3.7	1
015 Nuclear Instrumentation								04				Impact on NIS amd mitigate consequences	3.8	1
K/A Category Point Totals:	2	2	2	3	1	0	1	3	2	1	2	Group Point Total:		19

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ES-401 PWR SRO Examination Outline Plant Systems - Tier 2/Group 2												Form ES-401-3		
System # / Name	К1	К2	КЗ	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)		Points
002 Reactor Coolant						12						Effect of loss/malfunction of code SRVs		1
006 Emergency Core Cooling	03											Cause/Effect between ECCS and RCS	4.3	1
010 Pressurizer Pressure Control							07					Predict/monitor change with RCS press	3.7	1
011 Pressurizer Level Control							01					Predict/monitor change in PZR level/press	3.6	1
012 Reactor Protection	03											Relationship between RPS and CRDS	3.8	1
016 Non-nuclear Instrumentation			12									Effect loss/malfunction of NNIS on S/G	3.6	1
027 Containment Iodine Removal														
028 Hydrogen Recombiner and Purge Control											2.1.28	K/O purpose and function of system		1
029 Containment Purge										04		Manually operate cont evacuation signal		1
033 Spent Fuel Pool Cooling														
034 Fuel Handling Equipment											2.2.28	K/O new and spent fuel movement procedures	3.5	1
035 Steam Generator								03				Impact of press/level trans. failure		1
039 Main and Reheat Steam								04				Impact of malfunctioning stm dumps		1
055 Condenser Air Removal			01									Effect of loss of CARS on Main Condenser	2.7	1
062 AC Electrical Distribution			01									Major system loads	3.9	1
064 Emergency Diesel Generator						07						K/O effect If loss of air receivers	2.9	1
073 Process Radiation Monitoring														
<del>075 Circulating Water</del>														
035 Steam Generator					03							Shrink and swell concept	3.1	1
086 Fire Protection											2.2.17	K/O process for managing maint during pwr ops	3.5	1
103 Containment							01					Predict/monitor changes in containment press, temp, and humididty	4.1	1
K/A Category Point Totals:	2	0	3	0	1	2	3	2	0	1	3	Group Point Total:		17

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ES-401 PWR SRO Examination Outline Form ES-40 Plant Systems - Tier 2/Group 3													ו ES-401-3	
System # / Name	К1	К2	КЗ	K4	K5	К 6	<b>A</b> 1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
005 Residual Heat Removal									03			RHR pump/motor malfunction	3.1	1
007 Pressurizer Relief/Quench Tank														
008 Component Cooling Water		÷						07				Consequences of high/low CCW flow rate and temp; the flow rate at which the CCW standby pump will start	2.8	1
041 Steam Dump/Turbine Bypass Control														
045 Main Turbine Generator														
076 Service Water										04		Manually operate/Monitor SWS including emergency heat loads	3.7	1
078 Instrument Air			02									Effect of loss/malf of IAS will have on pneumatic valves and controls	3.6	1
K/A Category Point Totals: 0 0 1 0 0			0	0 0 1 1 1 0 Group Point Total:							4			
						Plant	-Speci	fic Pric	orities					
System / Topic						Rec	omme	nded F	Replace	ement f	or	Reason		Points
										······				
								<del></del>						
Plant-Specific Priority Total: (limit 10)														

## Generic Knowledge and Abilities Outline (Tier 3)

Form ES-401-5

Facility: CPSI	ES	Date of Exam: 05/2001 Exam	Level:	RO						
Category	K/A #	Торіс	Imp.	Points .						
	2.1.2	K/O Operator responsibilities during all modes of plant operation	3.0	1						
Conduct of Operations	2.1.9	A/T Direct personnel activities inside control room	2.5	1						
	2.1.23	A/T Perform specific system integrated plant procedures during all modes	3.9	1						
	2.1.									
	Total		3							
	2.2.12	K/O Surveillance procedures	3.0	1						
Fauipment	2.2.13	K/O Clearance and tagging procedures	3.6	1						
Control	2.2.28	K/O New and Spent Fuel Movement Procedures	2.6	1						
	2.2.									
	Total			3						
	2.3.11	Ability to control radiation releases	2.7	1						
	2.3.4	K/O radiation exposure limits and contamination control	2.5	1						
Radiation	2.3.9	K/O process for performing cont. purge	2.5	1						
Control	2.3.10	A/T Perform procedures to reduce excessive levels of radiation	2.9	1						
	Total	Total								
	2.4.3	Ability to identify post-accident instrumentation	3.5	1						
Emergency Procedures/ Plan	2.4.26	K/O Facility protection requirements including fire brigade and portable fire fighting equip use	2.9	1						
	2.4.43	K/O Emergency communications systems and techniques	2.8	1						
	2.4.									
	Total			3						
Tier 3 Point Total (RO)										