# **Draft Submittal**

(Pink Paper)

1. Written Exam Sample outlines

## TURKEY POINT EXAM 2002-301

#### 50-250, 50-251/2002-301 OCTOBER 7 - 11 & 15, 2002

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1. Written Exam Sample outlines

# TURKEY POINT EXAM 2002-301

### 50-250, 50-251/2002-301 OCTOBER 7 - 11 & 15, 2002



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Facility: Turkey F	Point			Date	of Ex	am: '	10/14	/200	2	Ex	am L	evel:	RO	
					K/A	A Cat	egory	/ Poi	nts				Delat	
Tier	Group	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	
1.	1	3	3	2				3	3			2	16	
Emergency & Abnormal	2	2	2	3				3	3			4	17	
Plant	3			1				1	1				3	
Evolutions	Tier Totals	5	5	6				7	7			6	36	
	1	3		2	3	1	3	2	3	2	1	3	23	
2. Plant	2     1     3     3     2     2     3     1     4     1     20       3     2     2     2     2     1     1     8													
Systems	3     2     2     2     1     1       Tion     4     2     7     5     3     4     8     4     6     4     51													
	Tier         4         3         7         5         3         3         4         8         4         6         4         51           Totals         Image: Control of the second													
3. Generic K	(nowledge al	nd Ak	oilities	3	Ca	at 1	Ca	at 2	Ca	at 3	Ca	at 4		
			<u></u>		<u> </u>	4		3		3		3	13	
Note: 1. E e tv 2. T tf d 3. S 5. T 6.* T 7. C tc td tf	insure that a ach tier (i.e., vo). The point tota nat specified eviate by ±1 nal exam mu- celect topics ppics from a systems/evol the shaded a the generic k Catalog, but t On the following poic, the topi totals for each ne basis of p the table above	l leas the ' in the from st to from giver ution reas (/As i he to ng pa cs' in a sys lant-sys	et two Tier each that tal 10 many syst are r n Tie pics r ages, nporta tem a specil	topic Total group e. T spec 0 po y system of ap rs 1 a must ente ance and c fic pri	es fro s" in p and he fir ified ints. tems: ach g pplica and 2 be re atego ioritie	m ev each l tier hal po in the s they roup ble te shal eleva K/A gs fo ory. I es. E	ery K K/A in the bint to table a table a table table table table table table table table table table table tab	C/A catego catego tal for e base ectin te to dentific cate selec the a pers, SRO below the tig	atego gory s posed or ead sed o g mo plant fied c gory/ ted fr pplic a brid licer w 2.5 er tot	ary are shall d out ch gro n NR are the tier. on the tier. om S able ef de shou als fo	e san not b line n oup a C rev an tw cific p e asso script evel, a uld be or eac	nplec e les nust i visior vo or priorit ociate tion c and ti pust ch ca	l within s than match er may hs. The three K/A ties. ed outline. of the K/A or system. of each he point ified on tegory in	

ES-401		Ē	mergei	ncy an	PWR I d Abno	RO Exan ormal Pla	nination Outline Fo nt Evolutions - Tier 1/Group 1	orm ES-401-4	4 (R8, S1)
E/APE # / Name / Safety Function	K1	К2	К3	A1	A2	G	K/A Topic(s)	Imp.	Points
000005 Inoperable/Stuck Control Rod / 1				05			AA1.05 RPI	3.4/3.4	
000015/17 RCP Malfunctions / 4	01						AK1.01 Natural circulation in a nuclear power plant	4.4/4.6	
000015/17 RCP Malfunctions / 4				02			AA1.02 RCP oil reservoir level and alarm indicators	2.8/2.7	
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4						4.48	EG2.4.48 Interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions	3.5/3.8	
000024 Emergency Boration / 1									
000026 Loss of Component Cooling Water / 8					02		AA2.02 The cause of possible CCW loss	2.9/3.6	S/R
000027 Pressurizer Pressure Control System Malfunction / 3		03					AK2.03 Controllers and positioners	2.6/2.8	
000027 Pressurizer Pressure Control System Malfunction / 3					17		AA2.17 Allowable RCS temperature difference vs. reactor power	3.1/3.3	
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4	3						EK1.3 Annunciators and conditions indicating signals, and remedial actions associated with the (Uncontrolled Depressurization of all Steam Generators)	3.4/3.7	
CE/A11; W/E08 RCS Overcooling - PTS / 4									
000051 Loss of Condenser Vacuum / 4						1.08	AG2.1.8 Coordinate personnel activities outside the control room	3.8/3.6	
000055 Station Blackout / 6			02				EK3.02 Actions contained in EOP for loss of offsite and onsite power	4.3/4.6	
000057 Loss of Vital AC Elec. Inst. Bus / 6				01			AA1.01 Manual inverter swapping	3.7/3.7	
000062 Loss of Nuclear Service Water / 4									
000067 Plant Fire On-site / 9	01						AK1.01 Fire classifications, by type	2.9/3.9	
000068 (BW/A06) Control Room Evac. / 8				31			AA1.31 ED/G	3.9/4.0	
000069 (W/E14) Loss of CTMT Integrity / 5		03					AK2.03 Personnel access hatch and emergency access hatch	2.8/2.9	
000074 (W/E06&E07) Inad. Core Cooling / 4		03					AK2.03 AFW pump	4.0/4.0	
BW/E03 Inadequate Subcooling Margin / 4									
000076 High Reactor Coolant Activity / 9					01		AA2.01 Location or process point that is causing an alarm	2.7/3.2	
BW/A02&A03 Loss of NNI-X/Y / 7	<u> </u>				<u> </u>				
K/A Category Totals:	3	3	2	3	3	2	Group Point Total:		16

		E	merge	ncy an	id Abno	ormal Pla	ant Evolutions - Tier 1/Group 2		
E/APE # / Name / Safety Function	К1	К2	КЗ	A1	A2	G	K/A Topic(s)	Imp.	Γ
000001 Continuous Rod Withdrawal / 1						4.11	AG2.4.11 Abnormal conditions procedure	3.4/3.6	
000003 Dropped Control Rod / 1	02						AK1.02 Effects of turbine-reactor power mismatch on rod control	3.1/3.4	
000007 (BW/E02&E10 CE/E02) Reactor Trip - Stabilization - Recovery / 1			01				EK3.01 Actions contained in EOP for reactor trip	4.0/4.6	
BW/A01 Plant Runback / 1				1					
BW/A04 Turbine Trip / 4									
000008 Pressurizer Vapor Space Accident / 3		01					AK2.01 Valves	2.7/2.7	
000009 Small Break LOCA / 3				12			EA1.12 RPS	4.2/4.2	
000011 Large Break LOCA / 3			05				EK3.05 Injection into cold leg	4.0/4.1	
W/E04 LOCA Outside Containment / 3					2		EA2.2 Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments	3.6/4.2	
BW/E08; W/E03 LOCA Cooldown/Depress. / 4			1				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	3.3/3.7	
W/E11 Loss of Emergency Coolant Recirc. / 4						4.18	EG2.4.18 Specific bases for EOPs	2.7/3.6	
W/EO1 & E02 Rediagnosis & SI Termination / 3				1			EA1.1 Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	4.0/3.9	
000022 Loss of Reactor Coolant Makeup / 2					04		AA2.04 How long PZR level can be maintained within limits	2.9/3.8	
000025 Loss of RHR System / 4		02					AK2.02 LPI or decay heat removal/RHR pumps	3.2/3.2	
000029 Anticipated Transient w/o Scram / 1				-		4.34	AG2.4.34 Knowledge of RO tasks performed outside the main control room during emergency operations including system geography and system implications	3.8/3.6	
000032 Loss of Source Range NI / 7				01			AA1.01 Manual restoration of power	3.1/3.4	
000033 Loss of Intermediate Range NI / 7									
000037 Steam Generator Tube Leak / 3									
000038 Steam Generator Tube Rupture / 3						1.07	EG2.1.07 Evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation	3.7/4.4	T
000054 (CE/E06) Loss of Main Feedwater / 4									
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4									
000058 Loss of DC Power / 6					03		AA2.03 DC loads lost; impact on ability to operate and monitor plant systems	3.5/3.9	ſ

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000060 Accidental Gaseous Radwaste Rel. / 9									
000061 ARM System Alarms / 7	01						AK1.01 Detector limitations	2.5/2.9	
W/E16 High Containment Radiation / 9									
CE/E09 Functional Recovery									
K/A Category Point Totals:	2	2	3	3	3	4	Group Point Total:		17
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ES-401		E	merge	ncy an	PWR d Abn	RO Ex ormal F	amination Outline For Plant Evolutions - Tier 1/Group 3	m ES-401-	4 (R
E/APE # / Name / Safety Function	К1	К2	КЗ	A1	A2	G	K/A Topic(s)	Imp.	F
000028 Pressurizer Level Malfunction / 2									
000036 (BW/A08) Fuel Handling Accident / 8				02			AA1.02 ARM system	3.1/3.5	
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					1		EA2.1 Facility conditions and selection of appropriate procedures during abnormal and emergency operations	2.9/3.4	
W/E15 Containment Flooding / 5			1				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	2.7/2.9	
K/A Category Point Totals:			1	1	1		Group Point Total:		

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ES-401					P\ Pla	NR RC ant Sys	) Exan	ninatio	n Outlin /Group	ne p 1		For	rm ES-4
System # / Name	K1	К2	КЗ	К4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	lmp.
001 Control Rod Drive				20								K4.20 The permissives and interlocks associated with increase from zero power	3.2/3.
001 Control Rod Drive								10				A2.10 Loss of power to one or more M/G sets	3.4/3.
003 Reactor Coolant Pump								02				A2.02 Conditions which exist for abnormal S/D of a RCP in comparison to a normal S/D of a RCP	3.7/3.9
003 Reactor Coolant Pump											1.20	G2.1.20 Execute procedure steps	4.3/4.:
004 Chemical and Volume Control	10											K1.10 Pneumatic valves and RHRS	2.7/2.9
004 Chemical and Volume Control			08									K3.08 RCP seal injection	3.6/3.8
013 Engineered Safety Features Actuation					01							K5.01 Definitions of safety train and ESF channel	2.8/3.2
013 Engineered Safety Features Actuation											4.9	G2.4.9 Low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies	3.3/3.9
015 Nuclear Instrumentation						01						K6.01 Sensors, detectors, and indicators	2.9/3.2
015 Nuclear Instrumentation									03			A3.03 Verification of proper functioning/operability	3.9/3.9
017 In-core Temperature Monitor						01						K6.01 Sensors and detectors	2.7/3.0
022 Containment Cooling	01											K1.01 SWS/cooling system	3.5/3.7
022 Containment Cooling							03					A1.03 Containment humidity	3.1/3.4
025 Ice Condenser													
056 Condensate	03											K1.03 MFW	2.6/2.(
059 Main Feedwater							.03					A1.03 Power level restrictions for operation of MFW pumps and valves	2.7/2.9
059 Main Feedwater										08		A4.08 Feed regulating valve controller	3.0/2.
061 Auxiliary/Emergency Feedwater						01						K6.01 Controllers and positioners	2.5/2.
061 Auxiliary/Emergency Feedwater				02								K4.02 AFW auto start upon loss of MFW pump, S/G level, blackout, or SI	4.5/4.
068 Liquid Radwaste									02			A3.02 Automatic isolation	3.6/3.

068 Liquid Radwaste								.02				A2.02 Lack of tank recirculation prior to release	2.7/2.8	RÔ
071 Waste Gas Disposal				05								K4.05 Point of release	2.7/3.0	RO
071 Waste Gas Disposal											4.10	G2.4.10 Annunciator response procedures	3.0/3.1	RO
072 Area Radiation Monitoring			01									K3.01 Containment ventilation isolation	3.2/3.4	
K/A Category Point Totals:	3	1	2	2	1	3	2	3	2	1	3	Group Point Total:		23

ES-401					P\ Pla	WR RC	) Exan	nination Tier 2	n Outli //Grou	ne p 2		For	m ES-401-4	4 (R8, S1)
System # / Name	К1	К2	КЗ	К4	K5	<b>K</b> 6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points_
002 Reactor Coolant								04				A2.04 Loss of heat sinks	4.3/4.6	S/R
006 Emergency Core Cooling				14								K4.14 Cross-connection of HPI/LPI/SIP	3.9/4.2	
010 Pressurizer Pressure Control			03									K3.03 ESFAS	4.0/4.2	
011 Pressurizer Level Control									03			A3.03 Charging and letdown	3.2/3.3	
012 Reactor Protection					01							K5.01 DNB	3.3/3.8	
014 Rod Position Indication				03								K4.03 Rod bottom lights	3.2/3.4	
016 Non-nuclear Instrumentation										02		A4.02 Recorders	2.7/2.6	
026 Containment Spray										05		A4.05 Containment spray reset switches	3.5/3.5	
029 Containment Purge			02									K3.02 Containment entry	2.9/3.5	
033 Spent Fuel Pool Cooling								03				A2.03 Abnormal spent fuel pool water level or loss of water level	3.1/3.5	S/R
033 Spent Fuel Pool Cooling											2.3	G2.2.3 Knowledge of design, procedural, and operational differences between units	3.1/3.3	RO
035 Steam Generator										01		A4.01 Shift of S/G controls between manual and automatic control, by bumpless transfer	3.7/3.6	
039 Main and Reheat Steam					05							K5.05 Bases for RCS cooldown limits	2.7/3.1	
055 Condenser Air Removal			01									K3.01 Main condenser	2.5/2.7	
062 AC Electrical Distribution		01										K2.01 Major system loads	3.3/3.4	
063 DC Electrical Distribution		01										K2.01 Major DC loads	2.9/3.1	
064 Emergency Diesel Generator		02										K2.02 Fuel oil pumps	2.8/3.1	
073 Process Radiation Monitoring	01											K1.01 Those systems served by PRMs	3.6/3.9	
075 Circulating Water								01				A2.01 Loss of intake structure	3.0/3.2	
079 Station Air														
086 Fire Protection										06		A4.06 Halon system	3.2/3.2	RO
K/A Category Point Totals:	1	3	3	2	2			3	1	4	1	Group Point Total:		20

ES-401					P\ Pla	WR RC ant Sys	) Exan	nination - Tier 2	n Outli /Grou	ne p3		For	m ES-40'	
System # / Name	К1	К2	кз	K4	К5	К6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	
005 Residual Heat Removal								02				A2.02; Pressure transient protection during cold shutdown	3.5/3.7	
005 Residual Heat Removal								04				A2.04 RHR valve malfunction	2.9/2.9	
007 Pressurizer Relief/Quench Tank														
008 Component Cooling Water														
027 Containment Iodine Removal					<u> </u>									
028 Hydrogen Recombiner and Purge Control							01					A1.01 Hydrogen concentration	3.4/3.8	
034 Fuel Handling Equipment														
041 Steam Dump/Turbine Bypass Control												·		
045 Main Turbine Generator							05					A1.05 Expected response of primary plant parameters (temperature and pressure) following T/G trip	3.8/4.1	
076 Service Water			01									K3.01 Closed cooling water 3.4/3.6		
076 Service Water			05									K3.05 RHR components, controls, sensors, indicators, and alarms, including rad monitors		
078 Instrument Air										01		A4.01 Pressure gauges	3.1/3.1	
103 Containment									01			A3.01 Containment isolation	3.9/4.2	
K/A Category Point Totals:			2				2	2	1	1		Group Point Total:		
						Plan	t-Spec	ific Prie	orities					
System / Topic						Rec	omme	nded F	leplace	ement	for	Reason	•	
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Plant-Specific Priority Total: (limit 10)

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ES-401 Generic Knowledge and Abilities Outline (Tier 3)

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Form ES-401-5 (R8, S1)

Facility: Turl	key Point	Date of Exam:10/14/2002	Exam Lev	el: RO
Category	K/A #	Торіс	lmp.	Point s
	2.1.12	Apply technical specifications for a system	2.9/4.0	S/R
	2.1.29	How to conduct and verify valve lineups	3.4/3.4	
Conduct of	2.1.32	Explain and apply all sys limits and precautions	3.4/3.8	
Operations	2.1.22	Determine mode of operation	2.8/3.3	
	Total		·····	4
	2.2.12	Surveillance procedures	3.0/3.4	S/R
	2.2.11	Process for controlling temporary changes	2.5/3.4	
Equipment Control	2.2.01	Perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity	3.7/3.6	
	Total			3
	2.3.01	10 CFR: 20 and related facility radiation control requirements	2.6/3.0	
	2.3.10	Perform procedures to reduce excessive levels of radiation and guard against personnel exposure	2.9/3.3	S/R
Radiation	2.3.11	Control radiation releases	2.7/3.2	
Control	Total			3
	2.4.09	Low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies	3.3/3.9	
Emergency	2.4.20	Operational implications of EOP warnings, cautions and notes	3.3/4.0	
Procedures/ Plan	2.4.16	EOP implementation hierarchy and coordination with other support procedures	3.0/4.0	S/R
	Total			3
Tier 3 Point To	otal (RO)			13

ES-401

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#### PWR SRO Examination Outline

Form ES-401-3 (R8, S1)

Facility: Turkey F	Point		Da	ate o	f Exa	m: 1(	D/14/:	2002	^	Ex	am L	evel	: SRO		
					 K//	A Cat	egory	/ Poii	nts						
Tier	Group	K 1	K 2	К 3	K 4	K 5	K 6	A 1	A2	A 3	A 4	G *	Point Total		
1.	1	4	2	3				4	7			4	24		
Emergency &	2	1	3	2				2	5			3	16		
Plant	3			1				1	1				3		
Evolutions	Tier Totals	5	5	6				7	13			7	43		
	1	2		2	2	1	3	1	2	1	2	3	19		
2. Plant	2     1     2     3     1     2     1     3     2     2     17       3     1     1     1     1     1     1     4														
Systems	3     1     1     1     1     4       Tion     2     2     6     3     3     6     3     5     3     40														
	3         1         1         1         1         1         4           Tier         3         2         6         3         3         3         6         3         5         3         40           Totals                 4														
3. Generic K	nowledge a	nd At	oilities	3	Ca	at 1	Ca	at 2	Cat	3	Ca	nt 4			
						6	;	3	3			5	17		
Note: 1. E e tv 2. T tr d fi	nsure that al ach tier (i.e., vo). he point tota nat specified eviate by ±1 nal exam mu	t leas the ' l for ( in the from ist to	t two Tier each tabl that tal 10	topic Total grou e. T spec	cs fro s" in p and he fir ified i ints.	m ev each I tier aal po in the	ery K K/A in the bint to table	C/A ca categ e prop tal fo e bas	ategor jory sl posed or eacl sed on	y are nall i outl n gro NR	e san not b line n bup a C rev	nplec e less nust i ind tio visior	l within s than match er may is. The		
3. S ta 4. S 5. T 6.* T 7. C 7. C	<ul> <li>final exam must total 100 points.</li> <li>Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.</li> <li>Systems/evolutions within each group are identified on the associated outline.</li> <li>The shaded areas are not applicable to the category/tier.</li> <li>The generic 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.</li> <li>On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings for the SRO license level, and the point totals for each system and category. K/As below 2.5 should be justified on</li> </ul>														

the table above.

ES-401		Er	merge	ncy an	PWR S d Abno	RO Exar Irmal Pla	nination Outline For nt Evolutions - Tier 1/Group 1	m ES-401-:	3 (R8, S1)
E/APE # / Name / Safety Function	К1	К2	КЗ	A1	A2	G	K/A Topic(s)	lmp.	Points
000001 Continuous Rod Withdrawal / 1						4.11	AG2.4.11 Abnormal conditions procedure	3.4/3.6	
000003 Dropped Control Rod / 1	02						AK1.02 Effects of turbine-reactor power mismatch on rod control	3.1/3.4	
000005 Inoperable/Stuck Control Rod / 1				05			AA1.05 RPI	3.4/3.4	
000011 Large Break LOCA / 3			05				EK3.05 Injection into cold leg	4.0/4.1	
W/E04 LOCA Outside Containment / 3							EA2.1 Facility conditions and selection of appropriate procedures during abnormal and emergency operations	3.4/4.3	SRO
W/EO1 & E02 Rediagnosis & SI Termination / 3				1			EA1.1 Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	4.0/3.9	
000015/17 RCP Malfunctions / 4	01						AK1.01 Natural circulation in a nuclear power plant	4.4/4.6	
000015/17 RCP Malfunctions / 4				02			AA1.02 RCP oil reservoir level and alarm indicators	2.8/2.7	
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4						4.48	EG2.4.48 Interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions	3.5/3.8	
000024 Emergency Boration / 1					-02		AA2.02 When use of manual boration valve is needed	3.9/4.4	SRO
000026 Loss of Component Cooling Water / 8					02		AA2.02 The cause of possible CCW loss	2.9/3.6	S/R
000029 Anticipated Transient w/o Scram / 1						4.34	AG2.4.34 Knowledge of RO tasks performed outside the main control room during emergency operations including system geography and system implications	3.8/3.6	
000040 (BW/E05; CE/E05; <b>W/E12</b> ) Steam Line Rupture - Excessive Heat Transfer / 4	3						EK1.3 Annunciators and conditions indicating signals, and remedial actions associated with the (Uncontrolled Depressurization of all Steam Generators)	3.4/3.7	
CE/A11; W/E08 RCS Overcooling - PTS / 4					1		EA2.1 Facility conditions and selection of appropriate procedures during abnormal and emergency operations	3.4/4.2	SRO
000051 Loss of Condenser Vacuum / 4	1					1.08	AG2.1.8 Coordinate personnel activities outside the control room	3.8/3.6	
000051 Loss of Condenser Vacuum / 4					02		AA2.02 Conditions requiring reactor and/or turbine trip	3.9/4.1	SRO
000055 Station Blackout / 6			02				EK3.02 Actions contained in EOP for loss of offsite and onsite power	4.3/4.6	
000057 Loss of Vital AC Elec. Inst. Bus / 6				01			AA1.01 Manual inverter swapping	3.7/3.7	
000059 Accidental Liquid RadWaste Rel. / 9								ļ	
000062 Loss of Nuclear Service Water / 4					04		AA2.04 The normal values and upper limits for the temperatures of the components cooled by SWS	2.5/2.9	SRO
000067 Plant Fire On-site / 9	01						AK1.01 Fire classifications, by type	2.9/3.9	
000068 (BW/A06) Control Room Evac. / 8				31			AA1.31 ED/G	3.9/4.0	

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ES-401	ES-401 PWR SRO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1													
E/APE # / Name / Safety Function	К1	К2	КЗ	A1	A2	G	K/A Topic(s)	Imp.	Points					
000069 (W/E14) Loss of CTMT Integrity / 5		03					AK2.03 Personnel access hatch and emergency access hatch	2.8/2.9						
000074 (W/E06&E07) Inad. Core Cooling / 4		03					AK2.03 AFW pump	4.0/4.0						
BW/E03 Inadequate Subcooling Margin / 4		:							:					
000076 High Reactor Coolant Activity / 9					01		AA2.01 Location or process point that is causing an alarm	2.7/3.2						
BW/A02&A03 Loss of NNI-X/Y / 7														
K/A Category Totals:     4     2     3     4     7     4     Group Point Total:														

ES-401		E	nination Outline F nt Evolutions - Tier 1/Group 2	Form ES-401-3 (R8, S1)					
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			01				EK3.01 Actions contained in EOP for reactor trip	4.0/4.6	
BW/A01 Plant Runback / 1									
BW/A04 Turbine Trip / 4									
000008 Pressurizer Vapor Space Accident / 3		01					AK2.01 Valves	2.7/2.7	
000009 Small Break LOCA / 3				12			EA1.12 RPS	4.2/4.2	
BW/E08; W/E03 LOCA Cooldown - Depress. / 4			1				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	3.3/3.7	
W/E11 Loss of Emergency Coolant Recirc. / 4						4.18	EG2.4.18 Specific bases for EOPs	2.7/3.6	
000022 Loss of Reactor Coolant Makeup / 2					04		AA2.04 How long PZR level can be maintained within limits	2.9/3.8	
000025 Loss of RHR System / 4		02					AK2.02 LPI or decay heat removal/RHR pumps	3.2/3.2	
000027 Pressurizer Pressure Control System Malfunction / 3		03					AK2.03 Controllers and positioners	2.6/2.8	
000027 Pressurizer Pressure Control System Malfunction / 3					17		AA2.17 Allowable RCS temperature difference vs. reactor power	3.1/3.3	
000032 Loss of Source Range NI / 7				01			AA1.01 Manual restoration of power	3.1/3.4	
000033 Loss of Intermediate Range NI / 7									
000037 Steam Generator Tube Leak / 3					16		AA2.16 Pressure at which to maintain RCS during S/G cooldown	4.1/4.3	SRO
000038 Steam Generator Tube Rupture / 3						1.07	EG2.1.07 Evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation	3.7/4.4	
000054 (CE/E06) Loss of Main Feedwater / 4					01		AA2.01 Occurrence of reactor and/or turbine trip	4.3/4.4	SRO
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4							EA2.1 Facility conditions and selection of appropriate procedures during abnormal and emergency operations	3.4/4.4	SRO
000058 Loss of DC Power / 6						1.12	AG2.1.12 Apply technical specifications for a system	2.9/4.0	S
000060 Accidental Gaseous Radwaste Rel. / 9									
000061 ARM System Alarms / 7	01						AK1.01 Detector limitations	2.5/2.9	
W/E16 High Containment Radiation / 9									
000065 Loss of Instrument Air / 8									

K/A Category Point Totals:	1	3	2	2	6	2	Group Point Total:	 16

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ES-401 PWR SRO Examination Outline Form ES-401 Emergency and Abnormal Plant Evolutions - Tier 1/Group 3												
E/APE # / Name / Safety Function	К1	К2	КЗ	A1	A2	G	K/A Topic(s)	Imp.	Points			
000028 Pressurizer Level Malfunction / 2												
000036 (BW/A08) Fuel Handling Accident / 8				02			AA1.02 ARM system	3.1/3.5				
000056 Loss of Off-site Power / 6												
BW/E13&E14 EOP Rules and Enclosures												
BW/A05 Emergency Diesel Actuation / 6	ļ											
BW/A07 Flooding / 8	<u> </u>											
CE/A16 Excess RCS Leakage / 2												
W/E13 Steam Generator Over-pressure / 4					1		EA2.1 Facility conditions and selection of appropriate procedures during abnormal and emergency operations	2.9/3.4				
W/E15 Containment Flooding / 5			1				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	2.7/2.9 e				
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K/A Category Point Totals:			1	1	1		Group Point Total:		3			

ES-401 PWR SRO Examination Outline Form ES-401-3 (R8, S1) Plant Systems - Tier 2/Group 1														
System # / Name	K1	K2	КЗ	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
001 Control Rod Drive				20								K4.20 The permissives and interlocks associated with increase from zero power	3.2/3.4	
001 Control Rod Drive								09				A2.09 Station blackout	3.8/4.0	S/R
003 Reactor Coolant Pump								02				A2.02 Conditions which exist for abnormal S/D of a RCP in comparison to a normal S/D of a RCP	3.7/3.9	
003 Reactor Coolant Pump											1.20	G2.1.20 Execute procedure steps	4.3/4.2	S/R
004 Chemical and Volume Control	10											K1.10 Pneumatic valves and RHRS	2.7/2.9	
004 Chemical and Volume Control			08									K3.08 RCP seal injection	3.6/3.8	
013 Engineered Safety Features Actuation					01							K5.01 Definitions of safety train and ESF channel	2.8/3.2	
013 Engineered Safety Features Actuation											4.9	G2.4.9 Low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies	3.3/3.9	S/R
014 Rod Position Indication				03								K4.03 Rod bottom lights	3.2/3.4	
015 Nuclear Instrumentation						01						K6.01 Sensors, detectors, and indicators	2.9/3.2	
017 In-core Temperature Monitor						01						K6.01 Sensors and detectors	2.7/3.0	
022 Containment Cooling	01											K1.01 SWS/cooling system	3.5/3.7	
022 Containment Cooling	<u> </u>						03					A1.03 Containment humidity	3.1/3.4	
025 Ice Condenser														
026 Containment Spray										05		A4.05 Containment spray reset switches	3.5/3.5	
056 Condensate				_										
059 Main Feedwater														
061 Auxiliary/Emergency Feedwater						01						K6.01 Controllers and positioners	2.5/2.8	
063 DC Electrical Distribution		01										K2.01 Major DC loads 2.9/3.1		
068 Liquid Radwaste									02		L	A3.02 Automatic isolation	3.6/3.6	
071 Waste Gas Disposal											4.44	G2.4.44 Emergency plan protective action recommendations	2.1/4.0	s
072 Area Radiation Monitoring			01									K3.01 Containment ventilation isolation	3.2/3.4	

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K/A Category Point Totals:	2	2	2	1	3	1	2	1	2	3	Group Point Total:	19

ES-401	ES-401     PWR SRO Examination Outline Plant Systems - Tier 2/Group 2     Form ES-401-3 (R8, S1)													
System # / Name	К1	К2	КЗ	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	lmp.	Points
002 Reactor Coolant								04				A2.04 Loss of heat sinks	4.3/4.6	S/R
006 Emergency Core Cooling				14								K4.14 Cross-connection of HPI/LPI/SIP 3.9/4.2		
010 Pressurizer Pressure Control			03									K3.03 ESFAS	4.0/4.2	
011 Pressurizer Level Control									03			A3.03 Charging and letdown	3.2/3.3	
012 Reactor Protection					01							K5.01 DNB	3.3/3.8	
016 Non-nuclear Instrumentation										02		A4.02 Recorders	2.7/2.6	
027 Containment Iodine Removal														
028 Hydrogen Recombiner and Purge Control							01					A1.01 Hydrogen concentration	3.4/3.8	
029 Containment Purge			02									K3.02 Containment entry	2.9/3.5	
033 Spent Fuel Pool Cooling								03				A2.03 Abnormal spent fuel pool water level or loss of water level	3.1/3.5	S/R
034 Fuel Handling Equipment														
035 Steam Generator										01		A4.01 Shift of S/G controls between manual and automatic control, by bumpless transfer	3.7/3.6	
039 Main and Reheat Steam					05							K5.05 Bases for RCS cooldown limits	2.7/3.1	
055 Condenser Air Removal			01	<u> </u>								K3.01 Main condenser	2.5/2.7	
062 AC Electrical Distribution		01										K2.01 Major system loads	3.3/3.4	
064 Emergency Diesel Generator		02										K2.02 Fuel oil pumps	2.8/3.1	
073 Process Radiation Monitoring	01											K1.01 Those systems served by PRMs	3.6/3.9	
075 Circulating Water								01				A2.01 Loss of intake structure	3.0/3.2	
079 Station Air														<u> </u>
086 Fire Protection														
103 Containment							· ·		01			A3.01 Containment isolation	3.9/4.2	
				<u> </u>										
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K/A Category Point Totals:	1	2	3	1	2	1	3	2	2	Group Point Total:	17

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ES-401 PWR SRO Examination Outline Form ES-401-3 (R8, S Plant Systems - Tier 2/Group 3											For	3 (R8, S1)			
System # / Name	К1	К2	КЗ	К4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points	
005 Residual Heat Removal								04				A2.04 RHR valve malfunction	2.9/2.9	S/R	
007 Pressurizer Relief/Quench Tank															
008 Component Cooling Water															
041 Steam Dump/Turbine Bypass Control															
045 Main Turbine Generator							05					A1.05 Expected response of primary plant parameters (temperature and pressure) following T/G trip	3.8/4.1		
076 Service Water			05									K3.05 RHR components, controls, sensors, indicators, and alarms, including rad monitors	3.0/3.2		
078 Instrument Air										01		A4.01 Pressure gauges	3.1/3.1		
														<u> </u>	
K/A Category Point Totals:			1				1	1		1		Group Point Total:		4	
						Plant-Specific Priorities									
Svstem / Topic						Rec	comme	ended F	Replac	ement	for	Reason		Points	
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Plant-Specific Priority Total: (limit 10)										<u> </u>					

ES-401 Generic Knowledge and Abilities Outline (Tier 3)

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Form ES-401-5 (R8, S1)

Facility: Turke	ey Point	Date of Exam: 10/14/2002	Exam Le	vel: SRO			
Category	K/A #	Торіс	lmp.	Points			
	2.1.12	Apply technical specifications for a system	2.9/4.0	S/R			
	2.1.29	How to conduct and verify valve lineups	3.4/3.4				
Conduct of	2.1.32	Explain and apply all sys limits and precautions	3.4/3.8				
Operations	2.1.22	Determine mode of operation	2.8/3.3				
	2.1.06	Supervise and assume a management role during plant transients	2.1/4.3	SRO			
	2.1.09	Direct personnel activities inside the control room	2.5/4.0	SRO			
	Total			6			
	2.2.12	Surveillance procedures	3.0/3.4	S/R			
	2.2.11	Process for controlling temporary changes	2.5/3.4				
Equipment Control	2.2.01	Perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity	3.7/3.6				
	Total			3			
	2.3.01	10 CFR: 20 and related facility radiation control requirements	2.6/3.0				
	2.3.10	Perform procedures to reduce excessive levels of radiation and guard against personnel exposure	2.9/3.3	S/R			
Radiation	2.3.11	Control radiation releases	2.7/3.2				
OOTRIO	Total			3			
	2.4.41	Emer action level thresholds and classifications	2.3/4.1	SRO			
_	2.4.09	Low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies	3.3/3.9				
Emergency Procedures/	2.4.20	Operational implications of EOP warnings, cautions and notes	3.3/4.0				
	2,4.16	EOP implementation hierarchy and coordination with other support procedures	3.0/4.0	S/R			
	2.4.08	How the event based emergency/abnormal operating procedures are used in conjunction with symptom based EOPs	3.0/3.7	SRO			
	Total	· · · · · · · · · · · · · · · · · · ·	··	5			
Tier 3 Point Total (SRO)							