Facility: South Te	Exas Project Date of Examination: 8/18/03
Examination Level: RO	Operating Test Number: <u>1</u>
Administrative Topic	Describe activity to be performed:
(see Note)	
	(A.1) Perform QPTR
Conduct of Operations	K/A 2.1.33 (3.4) Ability to recognize indications for system
	operating parameters which are entry level conditions for technical specifications.
	Modified to include determination of TS action
	(A.2) Perform Instrumentation Channel Checks
Conduct of Operations	K/A 2.1.20 (4.3) Ability to execute procedure steps
	New
	(A.3) Review completed surveillance
Equipment Control	K/A 2.2.12 (3.0) Knowledge of surveillance procedures
	Bank
	(A4) Determine radiological requirements to enter a high radiation area
Radiation Control	K/A = 3 = 10 (3 = 3) Ability to perform procedures to reduce
	excessive levels of radiation and guard against personnel
	exposure. Bank
	ΝΑ
Emergency 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.

Facility: <u>South Te</u>	xas Project Date of Examination:							
<u>8/18/2003</u> Examination Level: SRO	Operating Test Number: <u>1</u>							
Administrative Topic (see Note)	Describe activity to be performed:							
Conduct of Operations	(A5) Review RCS Inventory and determine Tech Spec applicability							
	K/A 2.1.7: (4.4) Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior and instrument response.							
	(A6) Determine Shift Staffing Requirements							
Conduct of Operations	K/A 2.1.5 (3.4) Ability to locate and use procedures and directives related to shift staffing							
	(A7) Review ESF Power Availability Results (Modified)							
Equipment Control	K/A 2.1.33 (4.0) Ability to recognize indications for system operating parameters which are entry level conditions for Tech Specs.							
	(A4) Determine radiological requirements to enter a high radiation area							
Radiation Control	K/A 2.3.10 (3.3) Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.							
	(A8) Declare an Emergency Action Level (Modified)							
Emergency Plan	K/A 2.4.41 (4.1) Knowledge of the emergency action level thresholds and classification.							
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.								

Facility: <u>South Texas Project</u> Date of Examination: <u>8/18/03</u>

Exam Level: RO / SRO(I) Operating Test No.: <u>1</u>

Control Room Systems (8 for RO; 7 for SROI;2 or 3 for SROU)

System / JPM Title	Type Code*	Safety Function
a. (S1) Recover a Dropped Control Rod	S, D	I
b. (S2) Establish RCP Seals with the PDP	S, N	II
c. (S3) Manually Energize an ESF Bus	S, N, A, E	VI
d. (S4) Isolate SI Accumulators	S, A, D, L, E	
e. (S5) Power Range NI Failure	S, D	VII
f. (S6) Establish Supplementary Purge	S, D, L	VIII
g. (C1) Determine/Establish CS Requirements	C, D, A, L, E	V
h. (C2) Respond to RCB High Radiation (RO ONLY)	C, N, L	IX (APE)
In-Plant Systems (3 for RO; 3 for SROI; 3 or 2 for SROU)		

i. (P1) Perform Local Channel Check and Source Check of RT-8038	P, M, R	IX
j. (P2) Place a Battery Charger in Service	P, D	VI
k. (P3) Place Rod Control MG Set in Service	P, D, A, L	Ι

* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)Iternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA, (P)Iant, (E)SF

NOTE: The following are designed to be run concurrent:

S1/S3 S2/S5 S4/S6

Facility: <u>South Texas Project</u> Date of E	xamination:	8/18/03								
Exam Level: SRO(U) Operating Test No.: <u>1</u>										
Control Room Systems (8 for RO; 7 for SROI;2 or 3 for SROU)										
System / JPM Title	Type Code*	Safety Function								
a. (S4) Isolate SI Accumulators	S, A, D, L, E	Ш								
b. (S6) Establish Supplementary Purge	S, D, L	VIII								
In-Plant Systems (3 for RO; 3 for SROI; 3 or 2 for SROU)										
i. (P1) Perform Local Channel Check and Source Check of RT-8038	P, M, R	IX								
j. (P2) Place a Battery Charger in Service	P, D	VI								
k. (P3) Place Rod Control MG Set in Service	P, D, A, L	II								
* Type Codes: (D)irect from bank, (M)odified from bank, (N)e room, (S)imulator, (L)ow-Power, (R)CA, (P)lant, (E)SF	ew, (A)lternate pa	th, (C)ontrol								

NOTE: The following simulator JPMs are designed to be done concurrent:

S4 and S6

Facility: South Texas Project NRC Scenario No.: 1

Source:

New _____ Bank - Significantly Modified _____ Bank - Initial Condition Change _____ X

Op-Test No.: 1

See page 3 for Examiner/student assignments

Initial Conditions: 100% power, BOL

Turnover: Maintain current power. Shift Centrifugal Charging Pumps for upcoming maintenance.

Event	Malf.	Event	Event
No.	No.	Type*	Description
1 (0 min)	N/A	RO (N) SRO (N)	Shift Centrifugal Charging Pumps.
2	03-09-02	RO (C)	1B Centrifugal Charging Pump trips – after CCP's are swapped (should be within 10 min.)
(10 min)	(True)	SRO (C)	
3	08-15-03	BOP (I)	1C Steam Generator controlling Feedwater flow channel fails low – after TS are addressed for CCP failure or 10 minutes
(20 min)	(True)	SRO (I)	
4	50-BM-01	RO (I)	VCT level transmitter LT-113 fails high – after 1C MFRV in auto or 10 min.
(30 min)	(1.0)	SRO (I)	
5	05-03-02	ALL (M)	1B Steam Generator Tube Rupture (15 min. ramp) – after LD Divert
(37 min)	(0.1)		Valve is re-positioned to the VCT or 7 minutes
6	05-07-02	BOP (C)	Steam Generator 1B Main Steam Isolation Valve fails to close. Can be closed locally – integral to scenario. Apparent approx. 20-25 min after reactor trip
(67 min)	(True)	SRO (C)	
7	08-03-01	BOP (C)	Aux Feedpump #11 trips – occurs automatically 20 min after reactor trip
(67 min)	(True)	SRO (C)	
8 (57 min)	01-35-02 (True)	RO (C) SRO (C)	Intermediate Range Channel N36 failure of compensating voltage – integral to scenario, will be apparent approx. 10-15 minutes after reactor trip

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

Facility: South Texas Project NRC Scenario No.: 2

Op-Test No.: 1

Source:

New X Bank - Significantly Modified Bank - Initial Condition Change

See page 3 for Examiner/student assignments

Initial Conditions: 80% power at BOL, power escalation in progress following a shutdown for turbine blade inspection.

Turnover: 80% power, power escalation in progress. Currently at step 7.33 of 0POP03-ZG-0005. Boric Acid Tanks are at 7300 ppm

Event	Malf.	Event	Event
No.	No.	Type*	Description
1	05-17-01	BOP (I)	1A SG PORV Pressure Transmitter PT-7411 fails high – 2 minutes after crew assumes watch
(2 min)	(1.0)	SRO (I)	
2	08-23-01	BOP (C)	Loss of Condensate Pump 11 – after T.S. addressed for PORV or after 9 minutes
(11 min)	(True)	SRO (C)	
3	01-07-01	RO (C)	Dropped Control Rod C9 – after DA Level Control returned to Auto.
(22 min)	(True)	SRO (C)	or after 11 min.
4 (32 min)	NA	RO (R) BOP (R) SRO (R)	Power Reduction due to dropped rod – crew should begin power reduction approx. 10 min following dropped rod.
5 (42 min)	50-LI-53 (True)	BOP (C) RO (C) SRO (C)	Second Dropped Control Rod G3, Manual Reactor– after power reduction of 2-3% (approx. 10 minutes after power reduction started).
6 (NA)	01-12-01 01-12-02 (True)	RO (C) BOP (C) SRO (C)	ATWS-reactor fails to trip automatically or manually. Can be tripped by opening LC breakers from the control room – integral to scenario
7	02-01-01	All (M)	RCS break develops into a LBLOCA (upon ES01 entry) – 5 min. ramp
(54 min)	(1.0)		– after ES01 entered or 12 minutes after EO00 entered.

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

Note: Once SI is initiated it will take approximately 23 minutes to reach the point of swapover to SI recirculation

Facility: South Texas Project NRC Scenario 3

Op-Test No.: 1

Source:

New _____ Bank - Significantly Modified _____ Bank - Initial Condition Change _____ X

See page 3 for Examiner/student assignments

Initial Conditions: 60% power. Power decrease is on hold to allow a SG Feedpump to be secured.

Turnover: 60% power. Power decrease is on hold to allow SG Feedpump # 12 to be secured. Maintain current power level.

Event	Malf. No.	Event	Event
No.		Type*	Description
1 (0 min)	NA	BOP (N) SRO (N)	Secure SGFPT # 12
2	02-26-02	RO (I)	Loop 'B' T-Cold TT-420B fails high – after SUFP returned to Auto or after 12 minutes.
(12 min)	(1.0)	SRO (I)	
3	05-12-03	BOP (I)	1C Steam Generator level transmitter LT-539 fails low -
(22 min)	(0.0)	SRO (I)	after T.S. addressed for TT-420B or after 10 minutes
4 (32 min)	08-16-03 (0.0)	BOP (C) SRO (C)	SG 1C Feedwater Regulating Valve (FCV-553) fails closed resulting in a reactor trip - after Feedwater regulating valve is returned to auto or after 10 minutes
5 (47 min)	02-12-01 (0.8) 02-04-01 (0.1)	All (M)	Pzr Steam Space Break (after entry into ES01) – at step 6 of ES01 or after 15 minutes. Note: 02-04-01 will be removed after 6 min.
6	10-02-01	RO (C)	Loss of power to ESF Bus '1A', ESF DG #11 fails to load – at EO10
(72 min)	LA10M1-D-3	SRO (C)	Step 3 or 5 minutes after entering EO10.

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

Facility: South Texas Project NRC Backup Scenario Op-Test No.: 1

Source:

New _____ Bank - Significantly Modified _____ Bank - Initial Condition Change _____

See page 3 for Examiner/student assignments

Initial Conditions: 40% power, shutdown in progress for turbine blade inspection. The National Weather Service has issued a Severe Weather Warning in effect until 2000 hrs.

Turnover: 40% power. Plant shutdown in progress to allow turbine blade inspection. Plant shutdown is on hold to allow FW Booster Pump #11 to be secured. The National Weather Service has issued a Severe Weather Warning in effect until 2000 hrs.

Event	Malf.	Event	Event
No.	No.	Type*	Description
1 (0 min)	NA	BOP (N) SRO (N)	Secure Feedwater Booster Pump #11
2	03-17-02	RO (C)	Boric Acid Pump 'B' trips during first boration of the power reduction
(15 min)	(True)	SRO (C)	– (within approximately 5 minutes of starting power reduction).
3	03-06-01	BOP (C)	Letdown Pressure Control Valve PCV-0135 fails closed – after T.S. consulted for BA Pump or after 10 minutes
(25 min)	(0.0)	SRO (C)	
4	05-14-01	BOP (I)	Steam Header Pressure Instrument PT-557 fails low – after Letdown flush started or after 10 minutes.
(35 min)	(0 .6)	SRO (I)	
5	05-02-04	All (M)	Steam Break on SG 1D inside Containment (ramped over 5 min.) –
(47 min)	(0.5)		after FW-0002 exited or after 12 minutes.
6 (NA)	01-12-04A 01-12-04B 01-12-04C (True)	RO (C) SRO (C)	Phase 'A' Containment Isolation fails to actuate – integral to scenario

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

E

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Facility:	STP	Date of Exam: 8/18/03																
			RO K/A Category Points SRO-Only Points 1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G* Total K A A2 G* Total													nts		
Tier	Group	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	Total	к	А	A2	G*	Total
1. Emorgonav	1	3	2	3				7	3			0	18	1	2	2	2	7
Abnormal	2	2	2	2				1	0			2	9	0	0	2	3	5
Plant Evolutions	Tier Totals	5	4	5				8	3			2	27	1	2	4	5	12
	1	2	2	2	3	2	3	3	2	3	4	2	28	0	0	2	2	4
2. Plant	2	3	0	1	0	2	0	1	1	2	0	0	10	0	1	1	0	2
Systems	Tier Totals	5	2	3	3	4	3	4	3	5	4	2	38	0	1	3	2	6
3. Generic	Knowled	dge	and		1		2	2	3	3	4	1		1	2	3	4	_
Abilitie	s Catego	ries			2		2	2	2	2	4	4 10		2	1	2	2	7
Note: 1. 2. 3. 4. 5. 6. 7. 8.	Abilities Categories 1 2 3 4 10 1 2 3 4 7 Note: 1. Ensure that at least two topics from every K/A category are sampled within each tier of the RO outline (i.e., the "Tier Totals" in each K/A category shall not be less than two). Refer to Section D.1.c for additional guidance regarding SRO sampling. 7 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. Select topics from many systems and evolutions; avoid selecting more than two K/A topics from a given system or evolution unless they relate to plant-specific priorities. 4. Systems/evolutions within each group are identified on the associated outline. 5. The shaded areas are not applicable to the category/tier. 6. 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. The SRO K/As must also be linked to 10 CFR 55.43 or an SRO-level learning objective. 7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IR) 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; summarize all the SRO-only knowledge and non-A2 ability																	
9.	on Forn Refer to inappro	n ES o ES pria	5-40 6-40 te K	1-3. 1, A /A s	ttac tate	hme mer	ent 2 nts.	2, fo	r gu	idar	ice r	ega	rding the e	elimina	ation	of		

ES-401 PWR Examination Outline Form ES-401 Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO)										
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	IR	#	
000007 (BW/E02&E10 CE/E02) Reactor Trip - Stabilization - Recovery / 1									0	
000008 Pressurizer Vapor Space Accident / 3					1		008.AA2.01 Determine and interpret RCS Press. and Temp. indicators and alarms as applied to	3.9	1	
000009 Small Break LOCA / 3	2						009.EK1.01 Knowledge of operational implications of Natural Circ. and cooling, including reflux boiling as applies to	4.2	1	
000011 Large Break LOCA / 3				3			011.EA1.13 Operate and monitor SI components during	4.1	1	
000015/17 RCP Malfunctions / 4				4			015/017.AA1.21 Operate/monitor development of NC flow	4.4	1	
000022 Loss of Rx Coolant Makeup / 2	L								0	
000025 Loss of RHR System / 4									0	
000026 Loss of Component Cooling Water / 8			5				026.AK3.04 Know. of reasons for the effects onthe CCW flow header of Loss of CCW	3.5	1	
000027 Pressurizer Pressure Control System Malfunction / 3		6					027.AK2.03 Interrelations between controllers and positioners and	2.6	1	
000029 ATWS / 1									0	
000038 Steam Gen. Tube Rupture / 3				7			038.EA1.36 Operate/monitor cooldown of RCS to specified temp	4.3	1	
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4			8				040.AK3.04 Reasons for actions contained in EOPs for SLR	4.5	1	
000054 (CE/E06) Loss of Main Feedwater / 4	9						054.AK1.02 Operational implications of effects of feedwater introduction on dry S/G	3.6	1	
000055 Station Blackout / 6	10						055.EK1.01 Op. implications of battery discharge rates on capacity	3.3	1	
000056 Loss of Off-site Power / 6				11			056.AA1.09 Operate/monitor CCW pump during LOOP	3.3	1	
000057 Loss of Vital AC Inst. Bus / 6				12			057.AA1.02 Operate/monitor manual control of PZR level	3.8	1	
000058 Loss of DC Power / 6					13		058.AA2.03 Determine/Interpret DC loads lost and impact on ability to operate and monitor plant systems	3.5	1	
000062 Loss of Nuclear Svc Water / 4					14		062.AA2.04 Determine/Interpret normal and upper limit values for Temp of SWS cooled components	2.5	1	
000065 Loss of Instrument Air / 8			15				065.AK3.08 Reasons for actions contained in EOP for	3.7	1	
W/E04 LOCA Outside Containment / 3		16					E04.EK2.1 Interrelations btwn LOCA outside ctmnt and: components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.	, 3.5	1	
W/E11 Loss of Emergency Coolant Recirc. / 4				17			E11.EA1.02 Operate/monitor operating behavior characteristics of the facility as relates to	3.5	1	
BW/E04; W/E05 Inadequate Heat Trans- fer - Loss of Secondary Heat Sink / 4				18			E05.EA1.1 Operate/monitor components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	4.1	1	
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K/A Category Totals:	3	2	3	7	3	0	Group Point Total:	<u> </u>	18/7	

ES-401 Emergency and	P Abn	WR orm	Exa al P	amir Iant	natic Evc	on O olutic	Putline F ons - Tier 1/Group 2 (RO)	orm ES	S-401-2
E/APE # / Name / Safety Function	K1	K2	КЗ	A1	A2	G	K/A Topic(s)	IR	#
000001 Continuous Rod Withdrawal / 1									0
000003 Dropped Control Rod / 1									0
000005 Inoperable/Stuck Control Rod / 1									0
000024 Emergency Boration / 1		19					024.AK2.03 Interrelationship btwn Controllers/positioners	2.6	1
000028 Pressurizer Level Malfunction / 2									0
000032 Loss of Source Range NI / 7									0
000033 Loss of Intermediate Range NI / 7			20				033.AK3.02 Reasons for guidance contained in EOP for	3.6	1
000036 (BW/A08) Fuel Handling Accident / 8									0
000037 Steam Generator Tube Leak / 3				21			037.AA1.08 Operate/monitor charging flow indicator	3.3	1
000051 Loss of Condenser Vacuum / 4									0
000059 Accidental Liquid RadWaste Rel. / 9									0
000060 Accidental Gaseous Radwaste Rel. / 9									0
000061 ARM System Alarms / 7						22	061.G2.3.4 Rad. Exposure limits and contamination control, including permissible levels in excess of auth	2.5	1
000067 Plant Fire On-site / 8									0
000068 (BW/A06) Control Room Evac. / 8									0
000069 (W/E14) Loss of CTMT Integrity / 5									0
000074 (W/E06&E07) Inad. Core Cooling / 4		23					074.EK2.03 Knowledge of interrelations between AFW pump and	4.0	1
000076 High Reactor Coolant Activity / 9						24	076.G2.4.10 Annunciator response procedures	3.0	1
W/EO1 & E02 Rediagnosis & SI Termination / 3	25						E02.EK1.2 Normal, abnormal, and EOPs	3.4	1
W/E13 Steam Generator Over-pressure / 4									0
W/E15 Containment Flooding / 5	26						E15.EK1.3 Op. Implications of Annunciators and conditions indicating signals, and remedial actions	2.8	1
W/E16 High Containment Radiation / 9									0
BW/A01 Plant Runback / 1									0
BW/A02&A03 Loss of NNI-X/Y / 7									0
BW/A04 Turbine Trip / 4									0
BW/A05 Emergency Diesel Actuation / 6									0
BW/A07 Flooding / 8									0
BW/E03 Inadequate Subcooling Margin / 4									0
BW/E08; W/E03 LOCA Cooldown - Depress. / 4									0
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4									0
BW/E13&E14 EOP Rules and Enclosures									0
CE/A11; W/E08 RCS Overcooling - PTS / 4			27				E08.EK3.3 Reasons for control manipulations required to obtain desired results during abnormal and emergency	3.7	1
CE/A16 Excess RCS Leakage / 2									0
CE/E09 Functional Recovery	<u> </u>								0
K/A Category Point Totals:	2	2	2	1	0	2	Group Point Total:		9/5

ES-401 PWR Examination Outline Form ES-40 Plant Systems - Tier 2/Group 1 (RO)								S-401-2						
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#
003 Reactor Coolant Pump				28								003.K4.07 Design features/interlocks for minimizing 3.2		1
004 Chemical and Volume Control										29		004.A4.18 Operate/Monitor emergency borate valve in the control room	4.3	1
005 Residual Heat Removal						30	31					005.K6.03 Effects of loss of RHR HX on RHR sys 005.A1.01 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) including: heatup and cooldown rates associated w/	2.5 3.5	2
006 Emergency Core Cooling					32			33				006.K5.09 Thermodynamics of H2O/STM, including subcooled margin, superheat, and saturation 006.A2.03 Predict impact of and respond appropriately to system leakage	3.3 3.3	2
007 Pressurizer Relief/Quench Tank	34											007.K1.03 Physical connections/relationships btwn PRTS and RCS	3.0	1
008 Component Cooling Water			35									008.K3.03 Effects of Loss of CCW on RCP	4.1	1
010 Pressurizer Pressure Control										36		010.A4.01 Operate/monitor PZR spray valve in CR	3.7	1
012 Reactor Protection						37				38		012.K6.06 Effects of loss of Sensors/detectors 012.A4.05 Operate/monitor channel defeat controls	2.7 3.6	2
013 Engineered Safety Features Actuation						39			40			013.K6.01 Effects of loss of Sensors/detectors 013.A3.01 Monitor automatic operation of Input channels and logic	2.7 3.7	2
022 Containment Cooling				41								022.K4.05 Design features/interlocks which provide for CCS after LOCA destroys ventilation ducts	2.6	1
025 Ice Condenser														0
026 Containment Spray		42							43			026.K2.01 Power Supplies to CSS pumps 026.A3.01 Ability to monitor automatic pump starts and MOV positioning	3.4 4.3	2
039 Main and Reheat Steam								44				039.A2.01 Predict flow paths of stm during LOCA	3.1	1
056 Condensate	45										46	056.K1.03 Connections/relationships with MFW 056.G2.2.2 Manipulate the controls btwn shutdown and design power levels	2.6 4.0	2
059 Main Feedwater										47		059.A4.01 Operate/monitor MFW turbine trip ind	3.1	1
061 Auxiliary/Emergency Feedwater				48								061.K4.01 Knowledge of design features and/or interlocks which provide for: Water sources and priority of use	4.1	1
062 AC Electrical Distribution											49	062.G2.4.6 Symptom based EOP mitigation strategie	^₅ 3.1	1
063 DC Electrical Distribution			50									063.K3.02 Loss of DC effects on DC control power components	3.5	1
064 Emergency Diesel Generator							51					064.A1.03 Predict/Monitor Operating voltages, currents, and temperatures	3.2	1
073 Process Radiation Monitoring					52							073.K5.03 Relationship btwn radiation intensity and exposure limits as they apply to PRM system	2.9	1
076 Service Water									53			076.A3.02 Monitor automatic operation of SWS as relates to Emergency heat loads	3.7	1
078 Instrument Air		54										078.K2.02 Power Supplies to Emergency Air Comp.	3.3	1
103 Containment							55					103.A1.01 Predict/monitor containment pressure, temperature, and humidity	3.7	1
K/A Category Point Totals:	2	2	2	3	2	3	3	2	3	4	2	Group Point Total:		28/4

ES-401 PWR Examination Outline Form ES-4 Plant Systems - Tier 2/Group 2 (RO)							5-401-2							
System # / Name	K1	K2	КЗ	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#
001 Control Rod Drive			56									001.K3.01 Effects of CRDS malfunction on CVCS	2.9	1
002 Reactor Coolant									57			002.A3.01 Monitor automatic operation of Reactor Coolant Leak Detection system	3.7	1
011 Pressurizer Level Control														0
014 Rod Position Indication														0
015 Nuclear Instrumentation														0
016 Non-nuclear Instrumentation	58											016.K1.09 Connections/relationship with ESFAS	3.7	1
017 In-core Temperature Monitor														0
027 Containment Iodine Removal														0
028 Hydrogen Recombiner and Purge Control														0
029 Containment Purge														0
033 Spent Fuel Pool Cooling														0
034 Fuel Handling Equipment														0
035 Steam Generator					59							035.K5.13 Knowledge of Operational implications of effects of secondary parameters, pressure, and temperature on reactivity as applied to	3.4	1
041 Steam Dump/Turbine Bypass Control								60				041.A2.03 Predict/respond to Loss of IAS as relates to SDS	2.8	1
045 Main Turbine Generator														0
055 Condenser Air Removal	61											055.K1.06 Connections/relationship to PRM system	2.6	1
068 Liquid Radwaste									62			068.A3.02 Monitor automatic isolation of LRS	3.6	1
071 Waste Gas Disposal														0
072 Area Radiation Monitoring							63					072.A1.01 Predict/Monitor radiation levels	3.4	1
075 Circulating Water	64											075.K1.02 Knowledge of physical connections with liquin radwaste discharge system	2.9	1
079 Station Air														0
086 Fire Protection					65							086.K5.04 Hazards to personnel as a result of fire type and methods of protection	2.9	1
K/A Category Point Totals:	3	0	1	0	2	0	1	1	2	0	0	Group Point Total:		10/2

ES-401 PWR Examination Outline Form ES-401-2 Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (SRO)										
E/APE # / Name / Safety Function	K1	K2	КЗ	A1	A2	G	K/A Topic(s)	IR	#	
000007 (BW/E02&E10 CE/E02) Reactor Trip - Stabilization - Recovery / 1									0	
000008 Pressurizer Vapor Space Accident / 3									0	
000009 Small Break LOCA / 3									0	
000011 Large Break LOCA / 3									0	
000015/17 RCP Malfunctions / 4									0	
000022 Loss of Rx Coolant Makeup / 2									0	
000025 Loss of RHR System / 4									0	
000026 Loss of Component Cooling Water / 8										
000027 Pressurizer Pressure Control System Malfunction / 3									0	
000029 ATWS / 1					77		029.EA2.01 Determine/interpret nuclear inst. as applicable to ATWS	4.7	1	
000038 Steam Gen. Tube Rupture / 3									0	
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4									0	
000054 (CE/E06) Loss of Main Feedwater / 4									0	
000055 Station Blackout / 6				78			055.EA1.05 Operate/monitor battery, when apporaching fully discharged	3.6	1	
000056 Loss of Off-site Power / 6						79	056.G2.4.30 Which events should be reported to outside agencies	3.6	1	
000057 Loss of Vital AC Inst. Bus / 6						80	057.G2.4.45 Prioritize/interpret annunciator alarms	3.6	1	
000058 Loss of DC Power / 6									0	
000062 Loss of Nuclear Svc Water / 4			76				062.AK3.02 Knowledge of auto alignment within nuclear service water resulting from ESFAS	3.9	1	
000065 Loss of Instrument Air / 8									0	
W/E04 LOCA Outside Containment / 3				81			E04.EA1.3 Operate/monitor desired operating results during abnormal and emergency situations	4.0	1	
W/E11 Loss of Emergency Coolant Recirc. / 4									0	
BW/E04; W/E05 Inadequate Heat Trans- fer - Loss of Secondary Heat Sink / 4					82		E05.EA2.1Determine/interpret facility conditions and selection of appropriate procedures during abnormal and emergency operations	4.4	1	
K/A Category Totals:	0	0	1	2	2	2	Group Point Total:		18/7	

ES-401 Emergency and a	P Abnc	WR	Exa Exal Pla	amii ant	natic Evol	on O lutio	Dutline Fo ns - Tier 1/Group 2 (SRO)	orm ES	5-401-2
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	IR	#
000001 Continuous Rod Withdrawal / 1									0
000003 Dropped Control Rod / 1									0
000005 Inoperable/Stuck Control Rod / 1					83		005.AA2.03 Required actions if more than one rod stuck	4.4	1
000024 Emergency Boration / 1									0
000028 Pressurizer Level Malfunction / 2									0
000032 Loss of Source Range NI / 7		-							0
000033 Loss of Intermediate Range NI / 7						84	033.G2.4.11 Abnormal condition procedures	3.6	1
000036 (BW/A08) Fuel Handling Accident / 8									0
000037 Steam Generator Tube Leak / 3		-			85		037.AA2.12 Determine/interpret flow rate of leak	4.1	1
000051 Loss of Condenser Vacuum / 4		-							0
000059 Accidental Liquid RadWaste Rel. / 9		-							0
000060 Accidental Gaseous Radwaste Rel. / 9									0
000061 ARM System Alarms / 7									0
000067 Plant Fire On-site / 8		-							0
000068 (BW/A06) Control Room Evac. / 8						86	068.G2.4.11 Knowledge of abnormal condition procedures	3.6	1
000069 (W/E14) Loss of CTMT Integrity / 5									0
000074 (W/E06&E07) Inad. Core Cooling / 4									0
000076 High Reactor Coolant Activity / 9									0
W/EO1 & E02 Rediagnosis & SI Termination / 3									0
W/E13 Steam Generator Over-pressure / 4									0
W/E15 Containment Flooding / 5									0
W/E16 High Containment Radiation / 9						87	E16.G2.3.10 Procedures to reduce excessive levels of radiation and guard against personnel exposure	3.3	1
BW/A01 Plant Runback / 1									0
BW/A02&A03 Loss of NNI-X/Y / 7									0
BW/A04 Turbine Trip / 4									0
BW/A05 Emergency Diesel Actuation / 6									0
BW/A07 Flooding / 8									0
BW/E03 Inadequate Subcooling Margin / 4		-							0
BW/E08; W/E03 LOCA Cooldown - Depress. / 4									0
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4									0
BW/E13&E14 EOP Rules and Enclosures									0
CE/A11; W/E08 RCS Overcooling - PTS / 4									0
CE/A16 Excess RCS Leakage / 2									0
CE/E09 Functional Recovery									0
K/A Category Point Totals:	0	0	0	0	2	3	Group Point Total:		9/5

ES-401				F	Plan	PV t Sy	VR ster	Exa ns -	imin Tiei	ation · 2/Gr	Outlii oup 1	ne I 1 (SRO)	Form ES	S-401-2
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#
003 Reactor Coolant Pump								91				003.A2.01 Predict/respond to problems with RCP seal leakoff	3.9	1
004 Chemical and Volume Control														0
005 Residual Heat Removal														0
006 Emergency Core Cooling														0
007 Pressurizer Relief/Quench Tank														0
008 Component Cooling Water														0
010 Pressurizer Pressure Control														0
012 Reactor Protection											88	012.G.2.1.32 Explain/apply all limits/precautions	3.8	1
013 Engineered Safety Features Actuation														0
022 Containment Cooling														0
025 Ice Condenser														0
026 Containment Spray														0
039 Main and Reheat Steam														0
056 Condensate														0
059 Main Feedwater														0
061 Auxiliary/Emergency Feedwater														0
062 AC Electrical Distribution														0
063 DC Electrical Distribution								89				063.A2.01 Predict/respond to grounds	3.2	1
064 Emergency Diesel Generator											90	064.G.2.1.11 TS less-than-1-hour action statements	3.8	1
073 Process Radiation Monitoring														0
076 Service Water														0
078 Instrument Air														0
103 Containment														0
K/A Category Point Totals:	0	0	0	0	0	0	0	2	0	0	2	Group Point Total:		28/4

ES-401					Plan	PV t Sy	VR ster	Exa ns -	ımin Tiei	atio 2/0	n Ou Grou	utline F p 2 (SRO)	orm ES	5-401-2
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#
001 Control Rod Drive														0
002 Reactor Coolant														0
011 Pressurizer Level Control														0
014 Rod Position Indication														0
015 Nuclear Instrumentation														0
016 Non-nuclear Instrumentation														0
017 In-core Temperature Monitor														0
027 Containment Iodine Removal														0
028 Hydrogen Recombiner and Purge Control														0
029 Containment Purge														0
033 Spent Fuel Pool Cooling														0
034 Fuel Handling Equipment								92				034.A2.01 Predict/respond to dropped fuel element	4.4	1
035 Steam Generator														0
041 Steam Dump/Turbine Bypass Control														0
045 Main Turbine Generator														0
055 Condenser Air Removal														0
068 Liquid Radwaste														0
071 Waste Gas Disposal														0
072 Area Radiation Monitoring														0
075 Circulating Water														0
079 Station Air														0
086 Fire Protection							93					086.A1.02 Predict/monitor changes in parameters associated with Fire Prot including fire water storage tanl level	3.2	1
K/A Category Point Totals:	0	0	0	0	0	0	1	1	0	0	0	Group Point Total:		10/2

ES-401		Generic Knowledge and Abilities Outline (Tier 3)			Form ES	6-401-3
Facility:	STP	Date of Exam:	8/18/03	3		
Category	K/A #	Торіс	R	0	SRO	-Only
			IR	#	IR	#
	2.1.27	66-Purpose and function of major system components/controls	3.2	1		
1. Conduct of Operations	2.1.32	67-Explain/apply all system limits and precautions	3.4	1		
	2.1.					
	2.1.					
	2.1.					
	2.1.					
	Subtota					
	2.2.12	68-Knowledge of Surveillance Procedures	3.0	1		
	2.2.13	69- Tagging and clearance procedures	3.6	1		
2.	2.2.					
Equipment Control	2.2.					
	2.2.					
	2.2.					
	Subtota					
	2.3.1	70-10 CFR 20 and related facility radiation control requirements	2.6	1		
	2.3.2	71-Facility ALARA program	2.5	1		
3.	2.3.					
Radiation	2.3.					
Control	2.3.					
	2.3.					
	Subtota	I				
	2.4.49	72-Perform immediate actions without reference to procedure	4.0	1		
4	2.4.1	73-EOP entry conditions and immediate action steps	4.3	1		
4. Emergency	2.4.7	74-Event based EOP mitigation strategies	3.1	1		
Procedures / Plan	2.4.2	75-Knowledge of set points, interlocks and automatic actions associated with EOP entry conditions	3.9	1		
	2.4.					
	2.4.					
	Subtota	1				
Tier 3 Point T	otal			10		7

ES-401		Generic Knowledge and Abilities Outline (Tier 3)			Form ES	6-401-3
Facility:		Date of Exam:				
Category	K/A #	Торіс	F	NO	SRO	-Only
			IR	#	IR	#
	2.1.4	94-Shift staffing requirements			3.4	1
1. Conduct of Operations	2.1.7	95-Evaluate plant performance and make operational iudgements			4.4	1
	2.1.					
	2.1.					
	2.1.					
	2.1.					
	Subtota	I				
	2.2.5	96-Process for making changes to facility IAW FSAR			2.7	1
	2.2.					
2.	2.2.					
Equipment	2.2.					
Control	2.2.					
	2.2.					
	Subtota	I				
	2.3.4	97-Knowledge of rad exp limits, including permissible levels in excess of those authorized			3.1	1
	2.3.9	98-Process for performing containment purge			3.4	1
3. Radiation	2.3.					
Control	2.3.					
	2.3.					
	2.3.					
	Subtota	1				
	2.4.16	99-EOP implementation heirarchy and coordination w/ other proc.			4.0	1
4.	2.4.27	100-Fire in the plant procedure			3.5	1
Emergency	2.4.					
/ Plan	2.4.					
	2.4.					
	2.4.					
	Subtota	I				
Tier 3 Point T	otal			10		7

Tier/Group	Randomly Selected K/A	Reason for Rejection
RO: 1 / 2	028.AK2.03	Too many K/A's related to the pressurizer
RO: 2 / 1	010.A1.03	Too many K/A's related to the pressurizer
RO: 2 / 2	011.K5.13	Too many K/A's related to the pressurizer
SRO: 2 / 1	010.G.2.1.32	Too many K/A's related to the pressurizer
RO: 2 / 1	061.K4.12	Too many K/A's related to Natural Circulation
RO: 2 / 1	008.K3.02	Does not apply to STP
RO: 2 / 2	002.A3.02	Does not apply to STP
RO: 2 / 2	075.K1.01	Does not apply to STP
RO: 3	2.1.11	Does not relate to an RO written exam item from 10CFR55.41
RO: 3	2.1.19	Does not relate to an RO written exam item from 10CFR55.41
RO: 3	2.2.26	Does not relate to an RO written exam item from 10CFR55.41
RO: 3	2.2.25	Does not relate to an RO written exam item from 10CFR55.41
RO: 3	2.4.45	Does not relate to an RO written exam item from 10CFR55.41
SRO:1/2	APE068.G.2.4.1	Control room evacuation is not an EOP entry condition. Replaced with G.2.4.11, "knowldge of abnormal condition procedure."
SRO:2/2	086.A2.04	Predict/respond to failure to actuate the FPS when required, resulting in fire damage. Unable to write SRO level question. Replaced with A1.02.
SRO:2/1	078.A2.01	Predict/respond to air dryer and filter malfunction. Unable to write SRO level question. Replaced with 003.A2.01.
RO: 1 / 1	038.EA1.29	Could not generate a relevant question to match the K/A.
SRO:1/1	015/017.AA2.02	Over sampled RCP malfunctions. Replaced with APE 062.AK3.02
RO: 1 / 1	022.AK3.05	Unable to generate a relevant question to match the K/A. Licensee indicated that the K/A Safety Function was of low safety significance at STP, and that there was no procedure or guidance available on that system relating to the K/A.
SRO:1/1	APE026.AA2.04	Determine/interpret normal values and upper limits for temps of components cooled by CCW. Unable to write SRO level question. Replaced with 029.EA2.01.
SRO:1/2	APE005.AA2.01	Determine/interpret stuck or inoperable control rod from in-core and ex-core NIS Unable to write an SRO only level question. Replace with similar K/A APE004.AA2.03.
RO: 2 / 1	026.K3.02	Could not generate a relevant question to match the K/A
SRO: 3/2	2.3.6	Unable to write an SRO level question. SRO's have little responsibility for release permits now - this responsibility has been shifted to chemistry. Replaced with 2.3.4.
RO: 2 / 1	064.A1.02	Could not gererate a relevant questions to match the K/A