Facility: WCGS Date of Examination: 12/10/2001

Examination Level (circle one): (RO) / SRO Operating Test Number: 1

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	2.1.23 Integrated Plant Procedures	**RO Admin A.1** (CFR 45.2/45.6, RO 3.9) Given the plant data, Calculate an RCS Leak Rate. Changed due to new C.O. process released.
	2.1.20 Execute Procedure Steps	**(RO Admin A-2)** (CFR 41.10/43.5/45.12, RO 4.3) Given the Data and procedure, Calculate QPTR. (Previously used as an SRO Admin. JPM)
A.2	2.2.22 LCO's and Safety Limits	**(RO Admin A-3.1)** (CFR 43.2/45.2, RO 3.4) Question (Open Reference): Given a combination of Power, RCS Pressure and Tavg, determine if a Safety Limit has been violated.
	2.2.25 Bases for LCO's and Safety Limits	**(RO Admin A-3.2)** (CFR 43.2, RO 2.5) Question (Open Reference): T.S. LCO Bases. During Surveillance Testing it is determined that the motor on BG HV-8357A is shorted and the valve will not open. How does this affect the Operability of "A" CCP.
A.3	2.3.2 ALARA Program	**(RO Admin A-4)** (CFR 41.12/43.4/45.9/45.10 RO 2.5) While performing the in plant RCA JPM provide a Survey Map and have the applicant determine the allowed stay time and protective clothing requirements for a task.
A.4	2.4.32, Knowledge of operator response to a loss of all annunciator	**(RO Admin A-5)** (CFR 41.10/43.5/45.13, RO 3.0) The Control Room Supervisor suspects a loss of annunciators. The Shift Manger request you to determine if Annunciator's are affected and what % has been lost.

Rev 02 11/2001

R Acree 11-27-01

Robert Acree
WCGS Exam Author DATE

11-30-01

Howard Bundy
NRC Chief Examiner DATE

Facility: WGCS Date of Examination: 12/10/2001

Examination Level (circle one): RO / (SRO) Operating Test Number: 1

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	2.1.23 Integrated Plant Procedures	**(SRO Admin A.1)** (CFR 45.2/45.6, SRO 4.0) Given the plant data, Calculate an RCS Leak Rate.
	2.1.25 Obtain and Interpret Station Reference Material	**(SRO Admin A.2)** (CFR 41.10/43.5/45.12, SRO 3.1) 9 days into a Refueling Outage, Mode 6 with RCS level 3.5 feet below the flange. "A" RHR pump tripped on overcurrent. Attempts to place "B" Train RHR in service have been unsuccessful. Determine the Time to Boiling and Time to Core Uncovery. (Modified from an RO Admin. JPM)
A.2	2.2.23 Ability to track LCO's.	**(SRO Admin A.3)** (CFR 43.2/45.13, SRO 3.8) Given a sequence of events, Determine the end time of an LCO including any extensions.
A.3	2.3.2 ALARA	**(SRO Admin A.4)** CFR 41.12/43.4/45.9/45.10, SRO 2.9) While performing the in plant RCA JPM provide a Survey Map and have the applicant determine the allowed stay time and protective clothing requirements for a task.
A.4	2.4.41 Classify an Event	**(SRO Admin A.5)** (CFR 43.5/45.11, SRO 4.1) Following a Dynamic Scenario, make the E-plan Classification and Protective Action Recommendation.

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R. Acree 11-27-01

Robert Acree
WCGS Exam Author DATE

11-30-01

Howard Bundy
NRC Chief Examiner DATE

Facility: WCGS Date of Examination: 12/10/2001
Exam Level (circle one): **RO** / **SRO(I)** Operating Test No.: 1

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. LRW Release Control Room C-0158A (S-1)	NAS	SF9
b. Swap CCW supply to the Service Loop C-048 (S-2)	DS	SF8
c. Start H2 Analyzers Post LOCA C-079 (S-3)	DSL	SF5
d. Increase ECCS Accumulator Pressure C-029 (S-4)	DSL	SF3
e. Shift Charging Pumps (Used on Previous Exam) C-026 (S-5)	DAS	SF2
f. Start up an RHR pump C-041 (S-6)	DAS	SF4
g. Perform Hydrogen Recombiner Startup C-057 (C-1)	DC	SF7

B.2 Facility Walk-Through

a. Isolate ESW Drains (OFN SG-003) T-157 (P-1)	N	SF4
b. Swap Vital Instrument Bus to the SOLA Xfmr. T-116 (P-2)	D	SF6
c. Perform Actions for Local Emergency Borate T-133A (P-3)	DAR	SF1

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

Exam Author 11-27-01 Date Chief Examiner 11-30-01 Date

Facility: WCGS Date of Examination: 12/10/2001
Exam Level (circle one): **SRO(U)** Operating Test No.: 1

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. LRW Release Control Room C-0158A (S-1)	NAS	SF9
b.		
c. Start H2 Analyzers Post LOCA C-079 (S-3)	DSL	SF5
d.		
e.		
f.		
g.		

B.2 Facility Walk-Through

a. Isolate ESW Drains (OFN SG-003) T-157 (P-1)	N	SF4
b. Swap Vital Instrument Bus to the SOLA Xfmr. T-116 (P-2)	D	SF6
c. Perform Actions for Local Emergency Borate T-133A (P-3)	DAR	SF1

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

Exam Author 11-27-01 Date Chief Examiner 11-30-01 Date

Facility: WCGS Scenario No.: 1 Op-Test No.: 1

Examiners: _____ Operators: _____

See Examiner/Operator assignment sheet. This Scenario will be seen by multiple crews.

Initial Conditions: 100% Power, MOL, "A" CCW pump OOS for PM's.

Turnover: Continue plant operations, make preps to return "A" CCW pump to service. System Ops reports Grid Stability problems. Weekday Nightshift.

Event No.	Malf. No.	Event Type*	Event Description
1 T+1.0	mPCS 02A	I (All)	AB PT-505 (T-Ref) fails low, Rods begin Inserting, BOP verifies no Turbine Runback in progress.
2 T+14.0	mMSS 01D2	I -BOP I-CRS	AB PT-545 fails low, affects Steam Flow Channel AB FT-543. BOP take manual Control of "D" SG FRV.
3 T+25.0	mEPS 03A	R-RO N-BOP N-CRS	La Cygne Line in the switchyard opens, System Ops request expedite load reduction due to Grid problems. Load reduction commences to less than 968 Mwe per OFN AF-15. Using OFN MA-038.
4 T+34.0	mMSS 11	C-All	Steam Leak commences in Turbine Building large enough to affect downpower.
5 T+40.0	mMSS 11	M-All	CRS should direct a Reactor Trip, Upon the trip the leak becomes a MSLB. MSIV's will not close.
6 T+43.0		C-RO C-CRS	SI fails to actuate in Automatic. Manual Available. RO/CRS must recognize that an SI will be required or the setpoint has already been reached and SI did not actuate.

Uncontrolled de-pressurization of all SG's will require entry into EMG C-21. Scenario terminates after crew establishes 30K Aux Feedwater flow to each SG or at Lead Examiner discretion.

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

R. Acree / 11-30-01

Robert Acree
WCGS Exam Author DATE

H. Bundy / 11-30-01

Howard Bundy
NRC Chief Examiner DATE

Appendix D Scenario Outline Form ES-D-1 (R8, S1)

Facility: WCGS Scenario No.: 2 Op-Test No.: 1

Examiners: _____ Operators: _____

See Examiner/Operator assignment sheet. This Scenario will be seen by multiple crews.

Initial Conditions: The core age is Middle of Life (MOL). The plant has been operating at or near 100% power for the last 42 days. The "B" train Emergency Diesel Generator (EDG) and Centrifugal Charging Pump(CCP) are out of service (OOS) for preventative maintenance. The "D" SG atmospheric relief valve is isolated due to seat leakage. "B" MFP has abnormal vibration.

Turnover: Normal Shift Activities , Weekday Night Shift

Event No.	Malf. No.	Event Type*	Event Description
1 T+1.0		N(SRO) R(RO) N(BOP)	Downpower maneuver to remove the MFP from service.
2 T+7.0	mCVL-01	C(SRO) C(RO)	VCT divert valve LCV112A-control failure If the operator has begun to borate it will take 6 minutes to reach the low level alarm(first indication). If boration has not commenced an auto makeup will be his first indication within 1-2 minutes.
3 T+17.	mNIS-03A	I(SRO) I(RO)	Power Range NI-41 fails high
4 T+30	mFWM-03C	I(SRO) I(BOP)	Steam Generator "C" level controller fails in automatic causing the feed reg. valve to begin closing. Manual is available.
5 T+38	mRCS-06A	M(SRO) M(RO) M(BOP)	RCS loop A 300 gpm leak
6 T+38.5	mPCS-08A&B	C(SRO) C(RO) C(BOP)	The reactor will not trip in manual or automatic. EMG FR-S1 is used to make the reactor subcritical.
7 T+58	P19046 D (8) 1 P19046 C (8) 0	C(SRO) C(RO)	Loss of CCW to the RCPs

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

R. Acree 11-27-01

Robert Acree
WCGS Exam Author DATE

11-30-01

Howard Bundy
NRC Chief Examiner DATE

Facility: WCGS Scenario No.: 3 Op-Test No.: 1

Examiners: _____ Operators: _____

See Examiner/Operator assignment sheet. This Scenario will be seen by multiple crews.

Initial Conditions: Reduction from 100% power in progress. Currently at 48% Power. "B" Main Feed Pump Tagged out for maintenance on control valve linkage. Severe Thunderstorm Watch in effect for Coffey County.

Turnover: Continue power reduction to 33% (400MWe) to remove all heater strings. OFN AF-025 is in effect

Event No.	Malf. No.	Event Type*	Event Description
1 T+0		R-RO N-BOP N-CRS	Continue Power reduction to 33% at ½ % per minute.
2 T+7	mRCS 01I	I-RO I-CRS	Loop 1 Thot fails high causing a rod insertion.
3 T+17	mFWM 02B3	I-BOP I-CRS	"B" SG Level AE LT-529 fails high.
4 T+23	mEPS0 1A and 1B	M-All	Sequential Loss of Offsite Power, Reactor Trips due to low RCS flow. NB01 "A" Emergency Bus has a bus Lock Out.
5 T+23	mWAT 03A	C-RO C-CRS	"B" ESW pump fails to start. RO/CRS must get "B" ESW pump started prior to the EDG overheating causing entry into EMG C-0.
6 T+33	mMSS 07E	C-BOP C-CRS	"A" SG ARV fails open.

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

Revision 1 11/27/2001

R. Acree 11-27-01

Robert Acree
WCGS Exam Author DATE

11-30-01

Howard Bundy
NRC Chief Examiner DATE

Appendix D Scenario Outline Form ES-D-1 (R8, S1)

Facility: WCGS Scenario No.: 4(Spare) Op-Test No.: 1

Examiners: _____ Operators: _____

Initial Conditions: The plant is at MOL. Unit startup is in progress after a 7 day outage to resolve a voltage regulator problem. Reactor power is at E^{-8} Amps, Rod control in manual, Startup Feedpump in service, GEN 00-003 is complete through step 6.24.

Turnover: All systems normal, resume startup at step 6.25 of Gen 00-003.

Event No.	Malf. No.	Event Type*	Event Description
1 T+0		N (SRO) R (RO)	Increase reactor power to 1%
2 T+11	mPRS 01B	I (SRO) I (RO)	PZR pressure channel BB PT-457 fails high
3 T+25	mFW M02B 3	C (SRO) C(BOP)	"B" SG Level Channel AE LT-529 Fails Low
4 T+35	mPRS 10A	C (SRO) C (RO)	PORV BB PCV-455A excessive seat leakage. Block valve BB HV-8000A is isolated.
5 T+47	mMSS 03B	M (SRO) M (RO) M (BOP)	S/G "B" faulted inside containment
6 T+48	mMSS 02E-H	C (SRO) C (BOP)	MSIV's Fail to close in Automatic
7 T+53	mPCS 10A & 10B	C (SRO) C (RO)	Failure of containment isolation phase A

Terminate after stabilization of RCS after Steam Generator blowdown.

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

Revision 1, 11/27/2001

R. Acree 11-27-01

Robert Acree
WCGS Exam Author DATE

H G Bundy 11-30-01

Howard Bundy
NRC Chief Examiner DATE

Tier / Group	Randomly Selected K/A	Reason for Rejection
1/1	040 AK3.03	Both Exams. WCNOC does not use non-return valves. Changed to AK3.02.
1/2	007 EA2.03	SRO Exam, Not tied to 55.43 SRO topic. 007 Reactor Trip does not have any 55.43 ties. Randomly selected 038 SGTR, EA2.06
1/2	037 AA1.06	Both Exams, WCNOC does not have Steam Line Rad Monitors that would detect a tube leak. Randomly selected KA 037 AA2.12 to replace
2/1	013 K1.03	Both Exams. Replaced to balance exam. Containment Cooling system is tested under KA 011 EA2.06. Changed to K1.05 for CTMT Spray System.
2/1	026 2.1.34	SRO Exam. KA not applicable to CTMT Spray system. Changed to 2.1.33
2/2	086 K5.03	Both Exams. Automatic Electrical System responses to Fire Protection System at WCNOC have been deleted. Changed to K5.04
1/2	001 AA2.02	RO Exam. N/A to WCNOC for Continuous Rod Withdrawal accident. Changed to AA2.03.
2/1	017 A3.01	Typographical Error occurred on original outline. Should be K3.01 vice A3.01.

Facility: WCGS Form ES-401-4

Exam Date: 12/07/2001 **Exam Level:** RO

Tier	Group	K/A Category Points											Point Total
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	
1. Emergency & Abnormal Plant Evolutions	1	3	3	3				4	2			1	16
	2	4	4	3				2	3			1	17
	3	1	1	0				0	1			0	3
	Totals Tier	8	8	6				6	6			2	36
2. Plant Systems	1	2	2	1	2	3	2	2	3	2	2	2	23
	2	1	2	3	2	2	1	2	1	3	2	1	20
	3	1	0	1	1	1	1	0	1	1	1	0	8
	Tier Totals	4	4	5	5	6	4	4	5	6	5	3	51
3. Generic Knowledge And Abilities		Cat 1			Cat 2			Cat 3			Cat 4		
		3			3			4			3		13

Note:
1. Ensure that at least two topics from every K/A category are sampled within each teir (i.e., the "Tier Totals" in each K/A category shall not be less than two).
2. Actual point totals must match those specified in the table.
3. 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.
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 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.
7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings for the RO license level, and the point totals for each system and category. K/As below 2.5 should be justified on the basis of plant-specific priorites. Enter the tier totals for each category in the table above.

Facility: WCGS

PWR RO Examination Outline

Printed: 12/13/2001

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1** **Form ES-401-4**

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
005	Inoperable/Stuck Control Rod / 1	X						AK1.04 - Definitions of axial imbalance, neutron error, power demand, actual power tracking mode, ICS tracking	3.0*	1
005	Inoperable/Stuck Control Rod / 1		X					AK2.02 - Breakers, relays, disconnects, and control room switches	2.5	1
015	Reactor Coolant Pump (RCP) Malfunctions / 4		X					AK2.10 - RCP indicators and controls	2.8*	1
017	Reactor Coolant Pump (RCP) Malfunctions (Loss of RC Flow) / 4				X			AA1.03 - Reactor trip alarms, switches, and indicators	3.7*	1
027	Pressurizer Pressure Control (PZR PCS) Malfunction / 3	X						AK1.01 - Definition of saturation temperature	3.1	1
040	Steam Line Rupture / 4			X				AK3.02 - ESFAS initiation	4.4	1
057	Loss of Vital AC Electrical Instrument Bus / 6				X			AA1.04 - RWST and VCT valves	3.5	1
068	Control Room Evacuation / 8		X					AK2.07 - ED/G	3.3	1
069	Loss of Containment Integrity / 5				X			AA1.03 - Fluid systems penetrating containment	2.8	1

Facility: WCGS

PWR RO Examination Outline

Printed: 12/13/2001

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1** **Form ES-401-4**

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
074	Inadequate Core Cooling / 4					X		EA2.08 - The effect of turbine bypass valve operation on RCS temperature and pressure	3.8	1
074	Inadequate Core Cooling / 4						X	2.4.21 - Knowledge of the parameters and logic used to assess the status of safety functions including: 1. Reactivity control; 2. Core cooling and heat removal; 3. Reactor coolant system integrity; 4. Containment conditions; 5. Radioactivity release control.	3.7	1
076	High Reactor Coolant Activity / 9					X		AA2.01 - Location or process point that is causing an alarm	2.7	1
E07	Saturated Core Cooling / 4			X				EK3.1 - Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics	3.1	1
E08	Pressurized Thermal Shock / 4	X						EK1.1 - Components, capacity, and function of emergency systems	3.5	1
E09	Natural Circulation Operations / 4			X				EK3.1 - Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics	3.3	1
E10	Natural Circulation with Steam Void in Vessel with/without RVLIS / 4				X			EA1.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.8	1

K/A Category Totals: 3 3 3 4 2 1 **Group Point Total:** 16

Facility: WCGS

PWR RO Examination Outline

Printed: 12/13/2001

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-4

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
001	Continuous Rod Withdrawal / 1		X					AK2.08 - Individual rod display lights and indications	3.1	1
001	Continuous Rod Withdrawal / 1					X		AA2.03 - Proper actions to be taken if automatic safety functions have not taken place	4.5	1
003	Dropped Control Rod / 1	X						AK1.10 - Definitions of core quadrant power tilt	2.6	1
008	Pressurizer (PZR) Vapor Space Accident (Relief Valve Stuck Open) / 3	X						AK1.02 - Change in leak rate with change in pressure	3.1	1
008	Pressurizer (PZR) Vapor Space Accident (Relief Valve Stuck Open) / 3		X					AK2.02 - Sensors and detectors	2.7*	1
009	Small Break LOCA / 3					X		EA2.10 - Airborne activity	3.1	1
022	Loss of Reactor Coolant Makeup / 2				X			AA1.02 - CVCS charging low flow alarm, sensor, and indicator	3.0	1
025	Loss of Residual Heat Removal System (RHRS) / 4		X					AK2.03 - Service water or closed cooling water pumps	2.7	1
029	Anticipated Transient Without Scram (ATWS) / 1	X						EK1.02 - Definition of reactivity	2.6	1
033	Loss of Intermediate Range Nuclear Instrumentation / 7			X				AK3.02 - Guidance contained in EOP for loss of intermediate-range instrumentation	3.6	1

Facility: WCGS

PWR RO Examination Outline

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ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2** **Form ES-401-4**

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
037	Steam Generator (S/G) Tube Leak / 3					X		AA2.12 - Flow rate of leak	3.3	1
054	Loss of Main Feedwater (MFW) / 4	X						AK1.02 - Effects of feedwater introduction on dry S/G	3.6	1
054	Loss of Main Feedwater (MFW) / 4			X				AK3.01 - Reactor and/or turbine trip, manual and automatic	4.1	1
058	Loss of DC Power / 6						X	2.2.25 - Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	2.5	1
E02	SI Termination / 3				X			EA1.2 - Operating behavior characteristics of the facility	3.6	1
E05	Loss of Secondary Heat Sink / 4		X					EK2.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.7	1
E11	Loss of Emergency Coolant Recirculation / 4			X				EK3.1 - Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics	3.3	1

K/A Category Totals: **4** **4** **3** **2** **3** **1** **Group Point Total:** **17**

Facility: WCGS

PWR RO Examination Outline

Printed: 12/13/2001

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 3** **Form ES-401-4**

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
028	Pressurizer (PZR) Level Control Malfunction / 2		X					AK2.03 - Controllers and positioners	2.6	1
056	Loss of Offsite Power / 6	X						AK1.01 - Principle of cooling by natural convection	3.7	1
065	Loss of Instrument Air / 8					X		AA2.07 - Whether backup nitrogen supply is controlling valve position	2.8*	1

K/A Category Totals: 1 1 0 0 1 0 **Group Point Total:** 3

Facility: WCGS

PWR RO Examination Outline

Printed: 12/13/2001

ES - 401 **Plant Systems - Tier 2 / Group 1** **Form ES-401-4**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
001	Control Rod Drive System / 1									X			A3.06 - RCS temperature and pressure	3.9	1
003	Reactor Coolant Pump System (RCPS) / 4		X										K2.02 - CCW pumps	2.5*	1
003	Reactor Coolant Pump System (RCPS) / 4					X							K5.03 - Effects of RCP shutdown on T-ave., including the reason for the unreliability of T-ave. in the shutdown loop	3.1	1
004	Chemical and Volume Control System (CVCS) / 1				X								K4.15 - Interlocks associated with operation of orifice isolation valves	3.0*	1
004	Chemical and Volume Control System (CVCS) / 1										X		A4.09 - PZR spray and heater controls	3.5	1
013	Engineered Safety Features Actuation System (ESFAS) / 2								X				A2.01 - LOCA	4.6	1
013	Engineered Safety Features Actuation System (ESFAS) / 2	X											K1.05 - CSS	4.1	1
015	Nuclear Instrumentation System / 7						X						K6.03 - Component interconnections	2.6	1
015	Nuclear Instrumentation System / 7											X	2.2.23 - Ability to track limiting conditions for operations.	2.6	1
017	In-Core Temperature Monitor (ITM) System / 7					X							K5.01 - Temperature at which cladding and fuel melt	3.1	1
017	In-Core Temperature Monitor (ITM) System / 7			X									K3.01 - Natural circulation indications	3.5*	1

Facility: WCGS

PWR RO Examination Outline

Printed: 12/13/2001

ES - 401 **Plant Systems - Tier 2 / Group 1** **Form ES-401-4**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
022	Containment Cooling System (CCS) / 5							X					A1.03 - Containment humidity	3.1	1
056	Condensate System / 4								X				A2.04 - Loss of condensate pumps	2.6	1
059	Main Feedwater (MFW) System / 4				X								K4.16 - Automatic trips for MFW pumps	3.1*	1
059	Main Feedwater (MFW) System / 4									X			A3.02 - Programmed levels of the S/G	2.9	1
061	Auxiliary / Emergency Feedwater (AFW) System / 4					X							K5.03 - Pump head effects when control valve is shut	2.6	1
061	Auxiliary / Emergency Feedwater (AFW) System / 4		X										K2.02 - AFW electric driven pumps	3.7*	1
068	Liquid Radwaste System (LRS) / 9	X											K1.07 - Sources of liquid wastes for LRS	2.7	1
068	Liquid Radwaste System (LRS) / 9						X						K6.10 - Radiation monitors	2.5	1
071	Waste Gas Disposal System (WGDS) / 9								X				A2.09 - Stuck-open relief valve	3.0*	1
071	Waste Gas Disposal System (WGDS) / 9											X	2.1.27 - Knowledge of system purpose and or function.	2.8	1
072	Area Radiation Monitoring (ARM) System / 7							X					A1.01 - Radiation levels	3.4	1

Facility: WCGS

PWR RO Examination Outline

Printed: 12/13/2001

ES - 401 **Plant Systems - Tier 2 / Group 1** **Form ES-401-4**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
072	Area Radiation Monitoring (ARM) System / 7										X		A4.02 - Major components	2.5*	1

K/A Category Totals: 2 2 1 2 3 2 2 3 2 2 2 **Group Point Total:** 23

Facility: WCGS

PWR RO Examination Outline

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ES - 401 **Plant Systems - Tier 2 / Group 2** **Form ES-401-4**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
002	Reactor Coolant System (RCS) / 2			X									K3.02 - Fuel	4.2	1
006	Emergency Core Cooling System (ECCS) / 2					X							K5.10 - Theory of thermal stress	2.5	1
006	Emergency Core Cooling System (ECCS) / 2							X					A1.09 - Pump amperage, including start, normal and locked	2.8	1
010	Pressurizer Pressure Control System (PZR PCS) / 3				X								K4.01 - Spray valve warm-up	2.7	1
012	Reactor Protection System / 7		X										K2.01 - RPS channels, components, and interconnections	3.3	1
012	Reactor Protection System / 7									X			A3.02 - Bistables	3.6	1
026	Containment Spray System (CSS) / 5			X									K3.02 - Recirculation spray system	4.2*	1
026	Containment Spray System (CSS) / 5											X	2.1.2 - Knowledge of operator responsibilities during all modes of plant operation.	3.0	1
029	Containment Purge System (CPS) / 8				X								K4.03 - Automatic purge isolation	3.2*	1
035	Steam Generator System (S/GS) / 4										X		A4.06 - S/G isolation on steam leak or tube rupture/leak	4.5	1
035	Steam Generator System (S/GS) / 4						X						K6.02 - Secondary PORV	3.1	1

Facility: WCGS

PWR RO Examination Outline

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ES - 401

Plant Systems - Tier 2 / Group 2

Form ES-401-4

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
039	Main and Reheat Steam System (MRSS) / 4			X									K3.04 - MFW pumps	2.5*	1
055	Condenser Air Removal System (CARS) / 4	X											K1.06 - PRM system	2.6	1
062	A.C. Electrical Distribution System / 6		X										K2.01 - Major system loads	3.3	1
063	D.C. Electrical Distribution System / 6									X			A3.01 - Meters, annunciators, dials, recorders, and indicating lights	2.7	1
063	D.C. Electrical Distribution System / 6										X		A4.03 - Battery discharge rate	3.0*	1
064	Emergency Diesel Generator (ED/G) System / 6							X					A1.01 - ED/G lube oil temperature and pressure	3.0	1
079	Station Air System (SAS) / 8								X				A2.01 - Cross-connection with IAS	2.9	1
086	Fire Protection System (FPS) / 8									X			A3.03 - Actuation of fire detectors	2.9	1
086	Fire Protection System (FPS) / 8					X							K5.04 - Hazards to personnel as a result of fire type and methods of protection	2.9	1

K/A Category Totals: 1 2 3 2 2 1 2 1 3 2 1

Group Point Total: 20

Facility: WCGS

PWR RO Examination Outline

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ES - 401 **Plant Systems - Tier 2 / Group 3** **Form ES-401-4**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
007	Pressurizer Relief Tank/Quench Tank System (PRTS) / 5			X									K3.01 - Containment	3.3	1
008	Component Cooling Water System (CCWS) / 8									X			A3.08 - Automatic actions associated with the CCWS that occur as a result of a safety injection signal	3.6*	1
028	Hydrogen Recombiner and Purge Control System (HRPS) / 5						X						K6.01 - Hydrogen recombiners	2.6	1
034	Fuel Handling Equipment System (FHES) / 8										X		A4.01 - Radiation levels	3.3	1
041	Steam Dump System (SDS) and Turbine Bypass Control / 4								X				A2.03 - Loss of IAS	2.8	1
045	Main Turbine Generator (MT/G) System / 4					X							K5.23 - Relationship between rod control and RCS boron concentration during T/G load increases	2.7	1
076	Service Water System (SWS) / 4				X								K4.01 - Conditions initiating automatic closure of closed cooling water auxiliary building header supply and return valves	2.5*	1
103	Containment System / 5	X											K1.02 - Containment isolation/containment integrity	3.9	1

K/A Category Totals: 1 0 1 1 1 1 0 1 1 1 0 **Group Point Total:** 8

Generic Knowledge and Abilities Outline (Tier 3)

Printed: 12/13/2001

PWR RO Examination Outline

Form ES-401-5

Facility: WCGS

Generic Category	KA	KA Topic	Imp.	Points
Conduct of Operations	2.1.19	Ability to use plant computer to obtain and evaluate parametric information on system or component status.	3.0	1
	2.1.23	Ability to perform specific system and integrated plant procedures during all modes of plant operation.	3.9	1
	2.1.30	Ability to locate and operate components, including local controls.	3.9	1
			Category Total:	**3**
Equipment Control	2.2.2	Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.	4.0	1
	2.2.13	Knowledge of tagging and clearance procedures.	3.6	1
	2.2.33	Knowledge of control rod programming.	2.5	1
			Category Total:	**3**
Radiation Control	2.3.2	Knowledge of facility ALARA program.	2.5	1
	2.3.4	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.	2.5	1
	2.3.9	Knowledge of the process for performing a containment purge.	2.5	1
	2.3.11	Ability to control radiation releases.	2.7	1
			Category Total:	**4**
Emergency Procedures/Plan	2.4.2	Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions. Note: The issue of setpoints and automatic safety features is not specifically covered in the systems sections.	3.9	1
	2.4.10	Knowledge of annunciator response procedures.	3.0	1
	2.4.23	Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations.	2.8	1
			Category Total:	**3**
			Generic Total:	**13**

Facility: WCGS Form ES-401-3

Exam Date: 12/07/2001 **Exam Level:** SRO

Tier	Group	K/A Category Points											Point Total
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	
1. Emergency & Abnormal Plant Evolutions	1	4	4	3				5	6			2	24
	2	3	3	3				1	4			2	16
	3	1	1	0				0	0			1	3
	Tier Totals	8	8	6				6	10			5	43
2. Plant Systems	1	2	2	2	2	1	2	2	2	1	2	1	19
	2	1	1	2	2	2	1	2	1	2	1	2	17
	3	0	0	1	0	1	0	0	1	1	0	0	4
	Tier Totals	3	3	5	4	4	3	4	4	4	3	3	40
3. Generic Knowledge And Abilities		Cat 1			Cat 2			Cat 3			Cat 4		
		4			4			4			5		17

Note:
1. Ensure that at least two topics from every K/A category are sampled within each teir (i.e., the "Tier Totals" in each K/A category shall not be less than two).
2. Actual point totals must match those specified in the table.
3. 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.
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 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.
7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings for the RO license level, and the point totals for each system and category. K/As below 2.5 should be justified on the basis of plant-specific priorites. Enter the tier totals for each category in the table above.

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PWR SRO Examination Outline

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ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-3

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
001	Continuous Rod Withdrawal / 1		X					AK2.08 - Individual rod display lights and indications	3.0	1
003	Dropped Control Rod / 1	X						AK1.10 - Definitions of core quadrant power tilt	2.9	1
005	Inoperable/Stuck Control Rod / 1	X						AK1.04 - Definitions of axial imbalance, neutron error, power demand, actual power tracking mode, ICS tracking	3.4*	1
005	Inoperable/Stuck Control Rod / 1		X					AK2.02 - Breakers, relays, disconnects, and control room switches	2.6	1
011	Large Break LOCA / 3					X		EA2.06 - That fan is in slow speed and dampers are in accident mode during LOCA	4.0*	1
015	Reactor Coolant Pump (RCP) Malfunctions / 4		X					AK2.10 - RCP indicators and controls	2.8	1
017	Reactor Coolant Pump (RCP) Malfunctions (Loss of RC Flow) / 4				X			AA1.03 - Reactor trip alarms, switches, and indicators	3.8	1
026	Loss of Component Cooling Water (CCW) / 8						X	2.2.21 - Knowledge of pre- and post-maintenance operability requirements.	3.5	1
029	Anticipated Transient Without Scram (ATWS) / 1	X						EK1.02 - Definition of reactivity	2.8	1
040	Steam Line Rupture / 4			X				AK3.02 - ESFAS initiation	4.4	1

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-3

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
055	Loss of Offsite and Onsite Power (Station Blackout) / 6					X		EA2.03 - Actions necessary to restore power	4.7	1
057	Loss of Vital AC Electrical Instrument Bus / 6				X			AA1.04 - RWST and VCT valves	3.6	1
057	Loss of Vital AC Electrical Instrument Bus / 6					X		AA2.05 - S/G pressure and level meters	3.8	1
068	Control Room Evacuation / 8		X					AK2.07 - ED/G	3.4	1
069	Loss of Containment Integrity / 5					X		AA2.02 - Verification of automatic and manual means of restoring integrity	4.4	1
069	Loss of Containment Integrity / 5				X			AA1.03 - Fluid systems penetrating containment	3.0	1
E02	SI Termination / 3				X			EA1.2 - Operating behavior characteristics of the facility	3.8	1
E04	LOCA Outside Containment / 3					X		EA2.1 - Facility conditions and selection of appropriate procedures during abnormal and emergency operations	4.3	1
E06	Degraded Core Cooling / 4					X		EA2.1 - Facility conditions and selection of appropriate procedures during abnormal and emergency operations	4.2	1

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-3

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
E07	Saturated Core Cooling / 4			X				EK3.1 - Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics	3.7	1
E08	Pressurized Thermal Shock / 4	X						EK1.1 - Components, capacity, and function of emergency systems	3.8	1
E09	Natural Circulation Operations / 4			X				EK3.1 - Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics	3.6	1
E10	Natural Circulation with Steam Void in Vessel with/without RVLIS / 4				X			EA1.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.6	1
E14	High Containment Pressure / 5						X	2.4.10 - Knowledge of annunciator response procedures.	3.1	1

K/A Category Totals: 4 4 3 5 6 2

Group Point Total: 24

Facility: WCGS

PWR SRO Examination Outline

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Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-3

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
008	Pressurizer (PZR) Vapor Space Accident (Relief Valve Stuck Open) / 3	X						AK1.02 - Change in leak rate with change in pressure	3.7	1
008	Pressurizer (PZR) Vapor Space Accident (Relief Valve Stuck Open) / 3		X					AK2.02 - Sensors and detectors	2.7	1
009	Small Break LOCA / 3					X		EA2.10 - Airborne activity	3.7	1
022	Loss of Reactor Coolant Makeup / 2				X			AA1.02 - CVCS charging low flow alarm, sensor, and indicator	2.9	1
025	Loss of Residual Heat Removal System (RHRS) / 4		X					AK2.03 - Service water or closed cooling water pumps	2.7	1
027	Pressurizer Pressure Control (PZR PCS) Malfunction / 3	X						AK1.01 - Definition of saturation temperature	3.4	1
033	Loss of Intermediate Range Nuclear Instrumentation / 7			X				AK3.02 - Guidance contained in EOP for loss of intermediate-range instrumentation	3.9	1
037	Steam Generator (S/G) Tube Leak / 3					X		AA2.12 - Flow rate of leak	4.1	1
038	Steam Generator Tube Rupture (SGTR) / 3					X		EA2.06 - Shutdown margins and required boron concentrations	4.4	1

Facility: WCGS

PWR SRO Examination Outline

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E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
054	Loss of Main Feedwater (MFW) / 4	X						AK1.02 - Effects of feedwater introduction on dry S/G	4.2	1
054	Loss of Main Feedwater (MFW) / 4			X				AK3.01 - Reactor and/or turbine trip, manual and automatic	4.4	1
058	Loss of DC Power / 6						X	2.2.25 - Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.7	1
060	Accidental Gaseous Radwaste Release / 9					X		AA2.04 - The effects on the power plant of isolating a given radioactive-gas leak	3.4*	1
E03	LOCA Cooldown and Depressurization / 4						X	2.4.21 - Knowledge of the parameters and logic used to assess the status of safety functions including: 1. Reactivity control; 2. Core cooling and heat removal; 3. Reactor coolant system integrity; 4. Containment conditions; 5. Radioactivity release control.	4.3	1
E05	Loss of Secondary Heat Sink / 4		X					EK2.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.9	1
E11	Loss of Emergency Coolant Recirculation / 4			X				EK3.1 - Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics	3.9	1

K/A Category Totals: 3 3 3 1 4 2 **Group Point Total:** 16

Facility: WCGS

PWR SRO Examination Outline

Printed: 12/13/2001

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Emergency and Abnormal Plant Evolutions - Tier 1 / Group 3

Form ES-401-3

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
028	Pressurizer (PZR) Level Control Malfunction / 2		X					AK2.03 - Controllers and positioners	2.9	1
056	Loss of Offsite Power / 6	X						AK1.01 - Principle of cooling by natural convection	4.2	1
E13	Steam Generator Overpressure / 4						X	2.4.6 - Knowledge symptom based EOP mitigation strategies.	4.0	1

K/A Category Totals: 1 1 0 0 0 1 **Group Point Total:** 3

Facility: WCGS

PWR SRO Examination Outline

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ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-3

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
003	Reactor Coolant Pump System (RCPS) / 4		X										K2.02 - CCW pumps	2.6*	1
003	Reactor Coolant Pump System (RCPS) / 4					X							K5.03 - Effects of RCP shutdown on T-ave., including the reason for the unreliability of T-ave. in the shutdown loop	3.5	1
004	Chemical and Volume Control System (CVCS) / 1				X								K4.15 - Interlocks associated with operation of orifice isolation valves	3.4	1
013	Engineered Safety Features Actuation System (ESFAS) / 2	X											K1.05 - CSS	4.4	1
015	Nuclear Instrumentation System / 7						X						K6.03 - Component interconnections	3.0	1
017	In-Core Temperature Monitor (ITM) System / 7			X									K3.01 - Natural circulation indications	3.7*	1
022	Containment Cooling System (CCS) / 5							X					A1.03 - Containment humidity	3.4	1
026	Containment Spray System (CSS) / 5			X									K3.02 - Recirculation spray system	4.3	1
026	Containment Spray System (CSS) / 5											X	2.1.33 - Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	4.0	1
056	Condensate System / 4								X				A2.04 - Loss of condensate pumps	2.8*	1

Facility: WCGS

PWR SRO Examination Outline

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ES - 401 **Plant Systems - Tier 2 / Group 1** **Form ES-401-3**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
059	Main Feedwater (MFW) System / 4				X								K4.16 - Automatic trips for MFW pumps	3.2*	1
061	Auxiliary / Emergency Feedwater (AFW) System / 4		X										K2.02 - AFW electric driven pumps	3.7	1
063	D.C. Electrical Distribution System / 6									X			A3.01 - Meters, annunciators, dials, recorders, and indicating lights	3.1	1
063	D.C. Electrical Distribution System / 6										X		A4.03 - Battery discharge rate	3.1	1
068	Liquid Radwaste System (LRS) / 9	X											K1.07 - Sources of liquid wastes for LRS	2.9	1
068	Liquid Radwaste System (LRS) / 9						X						K6.10 - Radiation monitors	2.9	1
071	Waste Gas Disposal System (WGDS) / 9								X				A2.09 - Stuck-open relief valve	3.5*	1
072	Area Radiation Monitoring (ARM) System / 7							X					A1.01 - Radiation levels	3.6	1
072	Area Radiation Monitoring (ARM) System / 7										X		A4.02 - Major components	2.5	1

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

Facility: WCGS

PWR SRO Examination Outline

Printed: 12/13/2001

ES - 401 **Plant Systems - Tier 2 / Group 2** **Form ES-401-3**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
002	Reactor Coolant System (RCS) / 2											X	2.4.10 - Knowledge of annunciator response procedures.	3.1	1
002	Reactor Coolant System (RCS) / 2			X									K3.02 - Fuel	4.5	1
006	Emergency Core Cooling System (ECCS) / 2					X							K5.10 - Theory of thermal stress	2.9*	1
006	Emergency Core Cooling System (ECCS) / 2							X					A1.09 - Pump amperage, including start, normal and locked	3.2	1
010	Pressurizer Pressure Control System (PZR PCS) / 3				X								K4.01 - Spray valve warm-up	2.9	1
012	Reactor Protection System / 7		X										K2.01 - RPS channels, components, and interconnections	3.7	1
012	Reactor Protection System / 7									X			A3.02 - Bistables	3.6	1
028	Hydrogen Recombiner and Purge Control System (HRPS) / 5						X						K6.01 - Hydrogen recombiners	3.1	1
029	Containment Purge System (CPS) / 8				X								K4.03 - Automatic purge isolation	3.5	1
035	Steam Generator System (S/GS) / 4										X		A4.06 - S/G isolation on steam leak or tube rupture/leak	4.6	1
039	Main and Reheat Steam System (MRSS) / 4			X									K3.04 - MFW pumps	2.6*	1

Facility: WCGS

PWR SRO Examination Outline

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ES - 401 **Plant Systems - Tier 2 / Group 2** **Form ES-401-3**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
055	Condenser Air Removal System (CARS) / 4	X											K1.06 - PRM system	2.6	1
064	Emergency Diesel Generator (ED/G) System / 6							X					A1.01 - ED/G lube oil temperature and pressure	3.1	1
073	Process Radiation Monitoring (PRM) System / 7											X	2.4.4 - Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.3	1
079	Station Air System (SAS) / 8								X				A2.01 - Cross-connection with IAS	3.2	1
086	Fire Protection System (FPS) / 8									X			A3.03 - Actuation of fire detectors	3.3	1
086	Fire Protection System (FPS) / 8					X							K5.04 - Hazards to personnel as a result of fire type and methods of protection	3.5*	1

K/A Category Totals: 1 1 2 2 2 1 2 1 2 1 2 **Group Point Total:** 17

Facility: WCGS

PWR SRO Examination Outline

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ES - 401 **Plant Systems - Tier 2 / Group 3** **Form ES-401-3**

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
007	Pressurizer Relief Tank/Quench Tank System (PRTS) / 5			X									K3.01 - Containment	3.6	1
008	Component Cooling Water System (CCWS) / 8									X			A3.08 - Automatic actions associated with the CCWS that occur as a result of a safety injection signal	3.7*	1
041	Steam Dump System (SDS) and Turbine Bypass Control / 4								X				A2.03 - Loss of IAS	3.1	1
045	Main Turbine Generator (MT/G) System / 4					X							K5.23 - Relationship between rod control and RCS boron concentration during T/G load increases	2.8	1
K/A Category Totals:		**0**	**0**	**1**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**		**Group Point Total:**	**4**

Generic Knowledge and Abilities Outline (Tier 3)

Printed: 12/13/2001

PWR SRO Examination Outline

Form ES-401-5

Facility: WCGS

Generic Category	KA	KA Topic	Imp.	Points
Conduct of Operations	2.1.11	Knowledge of less than one hour technical specification action statements for systems.	3.8	1
	2.1.20	Ability to execute procedure steps.	4.2	1
	2.1.22	Ability to determine Mode of Operation.	3.3	1
	2.1.30	Ability to locate and operate components, including local controls.	3.4	1
			Category Total:	**4**
Equipment Control	2.2.13	Knowledge of tagging and clearance procedures.	3.8	1
	2.2.19	Knowledge of maintenance work order requirements.	3.1	1
	2.2.25	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.7	1
	2.2.33	Knowledge of control rod programming.	2.9	1
			Category Total:	**4**
Radiation Control	2.3.1	Knowledge of 10 CFR: 20 and related facility radiation control requirements.	3.0	1
	2.3.2	Knowledge of facility ALARA program.	2.9	1
	2.3.3	Knowledge of SRO responsibilities for auxiliary systems that are outside the control room (e.g., waste disposal and handling systems).	2.9	1
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	3.3	1
			Category Total:	**4**

Generic Knowledge and Abilities Outline (Tier 3)

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PWR SRO Examination Outline

Form ES-401-5

Facility: WCGS

Generic Category	KA	KA Topic	Imp.	Points
Emergency Procedures/Plan	2.4.2	Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions. Note: The issue of setpoints and automatic safety features is not specifically covered in the systems sections.	4.1	1
	2.4.10	Knowledge of annunciator response procedures.	3.1	1
	2.4.11	Knowledge of abnormal condition procedures.	3.6	1
	2.4.16	Knowledge of EOP implementation hierarchy and coordination with other support procedures.	4.0	1
	2.4.23	Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations.	3.8	1

Category Total: 5

Generic Total: 17