

Facility: <u>Callaway</u>		Date of Examination: <u>July 2000</u>
Examination Level: <u>RO</u>		Operating Test Number: <u> </u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct of Operations / Plant Parameter Verification	Perform a Quadrant Power Tilt Ratio Calculation G2.1.23 (3.9 / 4.0) ILE-7/2000-ADM1JPM
	Conduct of Operations / Reactor Plant Shutdown Requirements	Calculate Boron Addition For Plant S/D G2.1.25 (2.8 / 3.1) ILE-7/2000-ADM2JPM
A.2	Equipment Control / Tagging and Clearances	Determine WPA Requirements for Pump Maintenance G2.2.13 (3.6 / 3.8) ILE-7/2000-ADM3JPM
A.3	Radiation Control/ Perform Procedures To Guard Against Personnel Exposure	Determine Radiological Requirements To Enter A High Rad Area G2.3.10 (2.9 / 3.3) ILE-7/2000-ADM4JPM
A.4	Emergency Plan/ Emergency Response Duties	Augmentation of the Emergency Organization G2.4.29 (2.6 / 4.0) ILE-7/2000-ADM1QUE
		RO Actions During Declaration Of Plant Emergency G2.4.39 (3.3 / 3.1) ILE-7/2000-ADM2QUE

FACILITY REPRESENTATIVE: //EDWARD B. STEWART// DATE: 6/2/00 CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/2/00

Facility: <u>Callaway</u>		Date of Examination: <u>July 2000</u>
Examination Level: <u>SRO</u>		Operating Test Number: <u> </u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct of Operations / Shift Staffing Requirements	Demonstrate Ability to Conduct Valve Lineups G2.1.29 (3.4 / 3.3) ILE-7/2000-ADM5JPM
	Conduct of Operations / Plant Parameter Verification	Perform a Review of QPTR Calculation and Determine Any Required Technical Specification Actions G2.1.33 (3.4 / 4.0) ILE-7/2000-ADM6JPM
A.2	Equipment Control / Tagging and Clearances	Review WPA to Determine Adequacy for Pump Maintenance G2.2.13 (3.6 / 3.8) ILE-7/2000-ADM7JPM
A.3	Radiation Control/ Perform Procedures to Guard Against Personnel Exposure	Determine Radiological Requirements to Enter a High Rad Area G2.3.10 (2.9 / 3.3) ILE-7/2000-ADM4JPM
A.4	Emergency Plan/ Emergency Action Levels and Classifications	Classify Emergency Event Per EIP-ZZ-00101 G2.4.41 (2.3 / 4.1) ILE-7/2000-ADM8JPM

FACILITY REPRESENTATIVE: //EDWARD B. STEWART//DATE: 6/2/00CHIEF EXAMINER: //HOWARD F. BUNDY//DATE: 6/2/00

Facility: <u>Callaway</u>	Date of Examination: <u>July 2000</u>
Exam Level: <u>RO</u>	Operating Test No.: <u> </u>

B.1 Control Room Systems		
System / JPM Title	Type Code *	Safety Function
a. Rod Control / Rx Startup Control Rod Repositioning 001A4.03 (4.0 / 3.7) ILE-7/2000-JPM1	N, S, L	1
b. ESFAS / De-energize and Energize ESFAS Train 013A2.05 (3.7 / 4.2) ILE-7/2000-JPM2	D, C	2
c. ECCS / Raising Accumulator Level 006A1.13 (3.5 / 3.7) ILE-7/2000-JPM3	D, S, A	3
d. CCS / Start 'A' CTMT Cooler Fan 022A4.01 (3.6 / 3.6) ILE-7/2000-JPM4	D, S, A	5
e. EDG / Stop D/G After Actuation 064A4.06 (3.9 / 3.9) ILE-7/2000-JPM5	N, S	6
f. PRM System / Respond to Process Rad Monitor Alarm 073A4.02 (3.7 / 3.7) ILE-7/2000-JPM6	D, S	7
g. CCWS / Shift Non-Essential CCW Supply Loops 008A4.01 (3.3 / 3.1) ILE-7/2000-JPM7	D, S	8
B/U ESW / Manually Operate an ESW Train 076A4.04 (3.5 / 3.5) ILE-7/2000-JPM B/U	D, S	4
B.2 Facility Walk-Through		
a. MRSS / Operate 'B' S/G PORV 039A4.07 (2.8 / 2.9) ILE-7/2000-JPM8	M, P, R	4
b. AC Dist. / Manually Close a 4160V Breaker 062A4.04 (2.6 / 2.7) ILE-7/2000-JPM9	D, P, A	6
c. FPS / Maintain Fire System Pressure 086A4.01 (3.3 / 3.3) ILE-7/2000-JPM10	M, P, A	8
* 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, (P)lant		

FACILITY REPRESENTATIVE: //EDWARD B. STEWART// DATE: 6/2/00CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/2/00

Facility: <u>Callaway</u>	Date of Examination: <u>July 2000</u>
Exam Level: <u>SRO(I)</u>	Operating Test No.: <u> </u>

B.1 Control Room Systems		
System / JPM Title	Type Code *	Safety Function
a. Rod Control / Rx Startup Control Rod Repositioning 001A4.03 (4.0 / 3.7) ILE-7/2000-JPM1	N, S, L	1
b. ESFAS / De-energize and Energize ESFAS Train 013A2.05 (3.7 / 4.2) ILE-7/2000-JPM2	D, C	2
c. ECCS / Raising Accumulator Level 006A1.13 (3.5 / 3.7) ILE-7/2000-JPM3	D, S, A	3
d. CCS / Start 'A' CTMT Cooler Fan 022A4.01 (3.6 / 3.6) ILE-7/2000-JPM4	D, S, A	5
e. EDG / Stop D/G After Actuation 064A4.06 (3.9 / 3.9) ILE-7/2000-JPM5	N, S	6
f. PRM System / Respond to Process Rad Monitor Alarm 073A4.02 (3.7 / 3.7) ILE-7/2000-JPM6	D, S	7
g. CCWS / Shift Non-Essential CCW Supply Loops 008A4.01 (3.3 / 3.1) ILE-7/2000-JPM7	D, S	8
B/U ESW / Manually Operate an ESW Train 076A4.04 (3.5 / 3.5) ILE-7/2000-JPM B/U	D, S	4
B.2 Facility Walk-Through		
a. MRSS / Operate 'B' S/G PORV 039A4.07 (2.8 / 2.9) ILE-7/2000-JPM8	M, P, R	4
b. AC Dist. / Manually Close a 4160V Breaker 062A4.04 (2.6 / 2.7) ILE-7/2000-JPM9	D, P, A	6
c. FPS / Maintain Fire System Pressure 086A4.01 (3.3 / 3.3) ILE-7/2000-JPM10	M, P, A	8
* 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, (P)lant		

FACILITY REPRESENTATIVE: //EDWARD B. STEWART// DATE: 6/2/00CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/2/00

Facility: <u>Callaway</u>	Date of Examination: <u>July 2000</u>	
Exam Level: <u>SRO(U)</u>	Operating Test No.: <u> </u>	
B.1 Control Room Systems		
System / JPM Title	Type Code *	Safety Function
a. Rod Control / Rx Startup Control Rod Repositioning 001A4.03 (4.0 / 3.7) ILE-7/2000-JPM1	N, S, L	1
b. ESFAS / De-energize and Energize ESFAS Train 013A2.05 (3.7 / 4.2) ILE-7/2000-JPM2	D, C	2
c. CCS / Start 'A' CTMT Cooler Fan 022A4.01 (3.6 / 3.6) ILE-7/2000-JPM4	D, S, A	5
d.		
e.		
f.		
g.		
B/U ECCS / Raising Accumulator Level 006A1.13 (3.5 / 3.7) ILE-7/2000-JPM3	D, S, A	3
B.2 Facility Walk-Through		
a. MRSS / Operate 'B' S/G PORV 039A4.07 (2.8 / 2.9) ILE-7/2000-JPM8	M, P, R	4
b. AC Dist. / Manually Close a 4160V Breaker 062A4.04 (2.6 / 2.7) ILE-7/2000-JPM9	D, P, A	6
c.		
* 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, (P)lant		

FACILITY REPRESENTATIVE: //EDWARD B. STEWART// DATE: 6/2/00CHIEF EXAMINER: //H. F. BUNDY// DATE: 6/2/00

Callaway Plant Initial License Exam – July 2000	
	SCENARIO # ILE-7/2000-DS1
EXAMINERS:	APPLICANTS:
INITIAL CONDITIONS:	30% Reactor Power, 'A' MDAFP OOS
TURNOVER:	See Turnover Sheet on Page 6

Event No.	Event Type *	Event Description	KA Number
A t = 0	N (RO, SRO)	Swap Charging From NCP To CCP	004A4.08 (3.8 / 3.4)
B t = 10	I (RO, SRO)	Pressurizer Pressure Channel Failure High	027AA2.15 (3.7 / 4.0)
C t = 20	I (BOP, SRO)	Steam Flow Channel Failure On 'D' S/G	059A2.11 (3.0 / 3.3)
D t = 25	R (RO)	Steam Generator Tube Leak On 'D' S/G	037AK3.05 (3.7 / 4.0)
E t = 40	M (ALL)	Steam Generator Tube Rupture On 'D' S/G	038EA2.02 (4.5 / 4.8)
F PRE	C (ALL)	Failure Of Turbine To Automatically Trip	007EA1.01 (3.7 / 3.4)
G PRE	C (ALL)	Failure Of 'D' FWIV To Automatically Close	013A4.01 (4.5 / 4.8)
H t = 42	M (ALL)	S/G Safety Stuck Open On 'D' S/G	035A2.01 (4.5 / 4.6)

* (N) Normal (R) Reactivity (I) Instrument (C) Component (M) Major

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 6/1/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/1/00

Callaway Plant Initial License Exam – July 2000	
	SCENARIO # ILE-7/2000-DS2
EXAMINERS:	APPLICANTS:
INITIAL CONDITIONS:	80% Reactor Power, EGHV0101 OOS
TURNOVER:	See Turnover Sheet on Page 6

Event No.	Event Type *	Event Description	KA Number
A t = 0	N (RO, SRO)	Increase Letdown Flow From 75 To 120 GPM	004A4.06 (3.6 / 3.1)
B t = 10	R (RO)	Stator Cooling Water Turbine Runback	045K4.12 (3.3 / 3.6)
C t = 20	I (RO, SRO)	Reactor Coolant System RTD Failure	016A4.01 (2.9 / 2.8)
D t = 32	I (BOP, SRO)	Steam Header Pressure Channel Failure ***	041A4.05 (3.1 / 3.3)
E t = 37	C (ALL)	Annunciator Logic Power Supply Failure ***	G2.4.31 (3.3 / 3.4)
F t = 47	M (ALL)	Loss Of Coolant Accident (LOCA)	009EK3.21 (4.2 / 4.5)
G PRE	C (ALL)	NB02 Bus Lockout	055EA2.06 (3.7 / 4.1)
H PRE	C (ALL)	'A' Train LOCA Sequencer Failure	013A4.01 (4.5 / 4.8)
I PRE	C (ALL)	'A' Train CISA Failure	103A2.03 (3.5 / 3.8)

* (N) Normal (R) Reactivity (I) Instrument (C) Component (M) Major

*** These two failures were not administered to Crews 2 and 3.

FACILITY REPRESENTATIVE: //DAVID LANTZ// DATE: 6/1/00

CHIEF EXAMINER: //HOWARD F. BUNDY// DATE: 6/1/00

Facility: Callaway		Date of Exam: June 2000						Exam Level: RO					
Tier	Group	K/A Category Points											Point Total
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	
1. Emergency & Abnormal Plant Evolutions	1	2	3	4				2	3			2	16
	2	2	2	4				3	4			2	17
	3	0	0	1				1	1			0	3
	Tier Totals	4	5	9				6	8			4	36
2. Plant Systems	1	2	1	2	3	2	2	2	3	2	2	2	23
	2	3	1	1	3	2	1	1	1	2	3	2	20
	3	1	0	0	2	0	0	1	1	1	2	0	8
	Tier Totals	6	2	3	8	4	3	4	5	5	7	4	51
3. Generic Knowledge and Abilities					Cat 1		Cat 2		Cat 3		Cat 4		13
					4		4		2		3		
Note: 1. Ensure that at least two topics from every K/A category are sampled within each tier (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 priorities. Enter the tier totals for each category in the table above.													

ES-401		Callaway June 2000 RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1							Form ES-401-4		
E/APE # / Name / Safety Function		K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#	
000005	Inoperable / Stuck Control Rod / 1						X	G2.1.12 Apply Tech. Spec. For Stuck Rod	2.9/4.0	R001	
000015/17	RCP Malfunctions / 4				X			AA1.07 Loss Of Seal Injection (IPE/PRA)	3.5/3.4	R002	
W/E09&E10	Natural Circ. / 4		X					EK2.2 Failure Of Heat Removal (IPE/PRA)	3.6/3.9	R003	
000024	Emergency Boration / 1			X				AK3.02 Actions For Emergency Boration	4.2/4.4	R004	
000026	Loss of Component Cooling Water/8			X				AK3.03 Loss Of CCW To RCPs	4.0/4.2	R005	
000027	Pressurizer Pressure Control System Malfunction / 3				X			AA1.01 Pzr Pressure Channel Failure	4.0/3.9	R006	
000040 (W/E12)	Steam Line Rupture – Excessive Heat Transfer / 4	X						AK1.05 Effect On Shutdown Margin	4.1/4.4	R007	
W/E08	RCS Overcooling - PTS / 4	X						EK1.2 Actions During “Soak Period”	3.4/4.0	R008	
000051	Loss of Condenser Vacuum / 4					X		AA2.02 Turbine Trip Criteria	3.9/4.1	R009	
000055	Station Blackout / 6					X		EA2.03 Restoration Actions (IPE/PRA)	3.9/4.7	R010	
000057	Loss of Vital AC Elec. Inst. Bus / 6			X				AK3.01 Actions For Loss Of NN Bus	4.1/4.4	R011	
000067	Plant Fire On-site / 9					X		AA2.16 Effect On Emergency DG	3.3/4.0	R012	
000068	Control Room Evac. / 8		X					AK2.01 Aux Shutdown Panel Indications	3.9/4.0	R013	
000069 (W/E14)	Loss of CTMT Integrity / 5			X				AK3.01 Actions For High CTMT Pressure	3.8/4.2	R014	
000074 (W/E06&E07)	Inad. Core Cooling / 4						X	G2.4.22 Prioritizing Safety Functions	3.0/4.0	R015	
000076	High Reactor Coolant Activity / 9		X					AK2.01 Letdown Line High Radiation	2.6/3.0	R016	
K/A Category Point Totals:		2	3	4	2	3	2	Group Point Total:		16	

ES-401		Callaway June 2000 RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2							Form ES-401-4		
E/APE # / Name / Safety Function		K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#	
000001	Continuous Rod Withdrawal / 1	X						AK1.03 Indications Of Rod Withdrawal	3.9/4.0	R017	
000003	Dropped Control Rod / 1	X						AK1.04 Effects Of Uncoupled Rod	3.1/3.7	R018	
000007	Reactor Trip – Stabilization – Recovery /1					X		EA2.02 Turbine Trip Failure	4.3/4.6	R019	
000008	Pressurizer Vapor Space Accident/3				X			AA1.08 Failed Pzr Safety Valve	3.8/3.8	R020	
000009	Small Break LOCA / 3						X	G2.4.48 Interpret Indications Of LOCA (IPE/PRA)	3.5/3.8	R021	
000011	Large Break LOCA / 3			X				EK3.14 RCP Trip Criteria	4.1/4.2	R022	
W/E04	LOCA Outside Containment / 3				X			EA1.3 Indications Of Leak Isolation	3.8/4.0	R023	
W/E03	LOCA Cooldown/Depress. / 4			X				EK3.3 Operation Of RHR Pumps	3.9/3.9	R024	
W/E11	Loss of Emergency Coolant Recirc / 4		X					EK2.2 Operation Of CTMT Spray	3.9/4.3	R025	
000022	Loss of Reactor Coolant Makeup / 2				X			AA1.08 VCT Level Channel Failure	3.4/3.3	R026	
000025	Loss of RHR System / 4					X		AA2.04 RCS Leak Due To Loss Of RHR	3.3/3.6	R027	
000029	Anticipated Transient w/o Scram / 1					X		EA2.01 FR-S.1 Entry Conditions	4.4/4.7	R028	
000033	Loss of Intermediate Range NI / 7			X				AK3.02 IR Channel Failure During S/D	3.6/3.9	R029	
000037	Steam Generator Tube Leak / 3						X	G2.4.4 Shutdown Criteria For Tube Leak	4.0/4.3	R030	
000038	Steam Generator Tube Rupture / 3					X		EA2.02 Indications Of A SGTR	4.5/4.8	R031	
W/E05	Inadequate Heat Transfer – Loss of Secondary Heat Sink / 4			X				EK3.2 Basis For Securing RCPs	3.7/4.1	R032	
000060	Accidental Gaseous Radwaste Rel. / 9		X					AK2.01 Radiation Monitor Failure	2.6/2.9	R033	
K/A Category Point Totals:		2	2	4	3	4	2	Group Point Total:	17		

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Callaway June 2000 RO Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1 / Group 3

Form ES-401-4

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
000028 Pressurizer Level Malfunction / 2					X		AA2.02 Failed Tave Input To Pzr Level	3.4/3.8	R034
000056 Loss Of Off-Site Power / 6				X			AA1.07 ESW Pump Start	3.2/3.2	R035
000065 Loss Of Instrument Air / 8			X				AK3.03 Effects Of Loss Of Instrument Air	2.9/3.4	R036
K/A Category Point Totals:	0	0	1	1	1	0	Group Point Total:		3

ES-401		Callaway June 2000 RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 2 / Group 1													Form ES-401-4		
E/APE # / Name / Safety Function		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)		Imp.	Q#	
001	Control Rod Drive					X							K5.04	Rod Insertion Limits	4.3/4.7	R037	
			X										K2.01	Power Supply To MG Sets	3.5/3.6	R038	
003	Reactor Coolant Pump			X									K3.02	Effect On S/G Level	3.5/3.8	R039	
							X						K6.04	CTMT Isolation	2.8/3.1	R040	
004	Chemical and Volume Control								X				A2.06	Inadvertent Dilution	4.2/4.3	R041	
							X						K6.37	Demin Boron Loading	2.9/3.4	R042	
013	Engineered Safety Feature Actuation										X		A4.03	LOCA Sequencer	4.5/4.7	R043	
								X					A1.05	Low Steam Line Pressure	3.4/3.6	R044	
015	Nuclear Instrumentation				X								K4.01	P-10 Block Of SRHV	3.1/3.3	R045	
						X							K5.05	Indications Of Criticality	4.1/4.4	R046	
017	In-core Temperature Monitor							X					A1.01	Core Exit Temperature	3.7/3.9	R047	
									X				A2.01	Effect of Open CETC	3.1/3.5	R048	
022	Containment Cooling				X								K4.02	Fan Speed During SI	3.1/3.4	R049	
										X			A3.01	H2 Mixing Fans During SI	4.1/4.3	R050	
056	Condensate								X				A2.04	Loss Of Condensate Pumps	2.6/2.8	R051	
059	Main Feedwater									X			A3.06	Feedwater Isolation	3.2/3.3	R052	
				X									K3.03	S/G Feed Line Break	3.5/3.7	R053	
061	Auxiliary/Emergency Feedwater	X											K1.07	ESW Swapover	3.6/3.8	R054	
					X								K4.02	AFW Auto Starts	4.5/4.6	R055	
068	Liquid Radwaste	X											K1.07	Sources Of Liquid Waste	2.7/2.9	R056	
												X	G2.3.11	Control of Liquid Release	2.7/3.2	R057	
071	Waste Gas Disposal											X	G2.1.27	Waste Gas Influent	2.8/2.9	R058	
072	Area Radiation Monitoring										X		A4.03	ARM Check Source	3.1/3.1	R059	
K/A Category Totals:		2	1	2	3	2	2	2	3	2	2	2	Group Point Total:				23

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Callaway June 2000 RO Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 2 / Group 2

Form ES-401-4

E/APE # / Name / Safety Function	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Q#
002 Reactor Coolant										X		A4.02 Indication Of Natural Circ	4.3/4.5	R060
006 Emergency Core Cooling					X							K5.06 Securing ECCS Pumps	3.5/3.9	R061
010 Pressurizer Pressure Control		X										K2.01 Power Supply To Pzr Heaters	3.0/3.4	R062
011 Pressurizer Level Control								X				A2.02 Charging FCV Failure	3.2/3.2	R063
012 Reactor Protection						X						K6.10 P-7 Permissive	3.3/3.5	R064
014 Rod Position Indication							X					A1.02 DRPI Indications	3.2/3.6	R065
016 Non-nuclear Instrumentation			X									K3.03 Impulse Press Channel Fails	3.0/3.1	R066
026 Containment Spray									X			A3.01 CS Valve Alignment	4.3/4.5	R067
029 Containment Purge				X								K4.03 Effect Of CPIS	3.2/3.5	R068
033 Spent Fuel Pool Cooling									X			A3.01 Loss Of SFP Cooling	2.5/2.7	R069
035 Steam Generator	X											K1.11 Relationship w/ PRM System	3.1/3.1	R070
039 Main and Reheat Steam					X							K5.08 Affect On Reactivity	3.6/3.6	R071
062 AC Electrical Distribution											X	G2.1.11 Off-Site Source Verification	3.0/3.8	R072
063 DC Electrical Distribution	X											K1.03 Batteries and Chargers	2.9/3.5	R073
064 Emergency Diesel Generator										X		A4.01 Fuel Oil Transfer Pump Ops	4.0/4.3	R074
											X	G2.2.12 DG Acceptance Criteria	3.0/3.4	R075
073 Process Radiation Monitoring										X		A4.02 RM-11 Status Color	3.7/3.7	R076
075 Circulating Water				X								K4.01 Cooling Tower Operation	2.5/2.8	R077
079 Station Air	X											K1.01 IAS/SAS Loads	3.0/3.1	R078
086 Fire Protection				X								K4.05 Areas Protected By Halon	3.0/3.4	R079
K/A Category Totals:	3	1	1	3	2	1	1	1	2	3	2	Group Point Total:		20

ES-401														Callaway June 2000 RO Examination Outline														Form ES-401-4	
														Emergency and Abnormal Plant Evolutions - Tier 2 / Group 3															
E/APE # / Name / Safety Function														K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)		Imp.	Q#	
005 Residual Heat Removal																	X									K4.10 RHR Flow Control	3.1/3.1	R080	
007 Pressurizer Relief/Quench Tank																					X				A2.02 PRT Pressure Increase	2.6/3.2	R081		
008 Component Cooling Water																						X			A3.04 CCW Lineup During LOCA	2.9/3.2	R082		
027 Containment Iodine Removal														X											K1.01 Purpose Of TSP In CTMT	3.4/3.7	R083		
028 Hydrogen Recombiner & Purge Control																							X		A4.03 Operation Of H2 Sampling	3.1/3.3	R084		
034 Fuel Handling Equipment																	X								K4.01 Fuel Handling Interlocks	2.6/3.4	R085		
041 Steam Dump/Turbine Bypass Control																				X					A1.02 Effect Of Loss Of Vacuum	3.1/3.2	R086		
076 Service Water																							X		A4.02 Operation Of SWS Valves	2.6/2.6	R087		
K/A Category Point Totals:														1	0	0	2	0	0	1	1	1	2	0	Group Point Total:			8	
Plant-Specific Priorities																													
System / Topic														Recommended Replacement for					Reason				Points						
Plant-Specific Priority Total: (limit 10)																													

Facility: Callaway		Date of Exam: June 2000	Exam Level: RO	
Category	K/A #	Topic	Imp.	Q#
Conduct of Operations	2.1.1	At The Controls Area	3.7/3.8	R088
	2.1.12	RCS Leakage Tech Spec	2.9/4.0	R089
	2.1.3	Shift Turnover Practices	3.0/3.4	R090
	2.1.18	Log Entry Requirements	2.9/3.0	R091
	2.1.			
	2.1.			
	Total			4
Equipment Control	2.2.1	Effects On Estimated Critical Position	3.7/3.6	R092
	2.2.11	Temporary Changes To Procedures	2.5/3.4	R093
	2.2.13	Monthly WPA Audit	3.6/3.8	R094
	2.2.28	Fuel Transfer Operations	2.6/3.5	R095
	2.2.			
	2.2.			
	Total			4
Radiation Control	2.3.1	Radiological Posting Requirements	2.6/3.0	R096
	2.3.4	Calculating Stay Times	2.5/3.1	R097
	2.3.			
	2.3.			
	2.3.			
	2.3.			
	Total			2
Emergency Procedures and Plan	2.4.17	EOP Definitions	3.1/3.8	R098
	2.4.20	Applying EOP Notes	3.3/4.0	R099
	2.4.23	FRG Use During Loss Of All AC Power	2.8/3.8	R100
	2.4.			
	2.4.			
	2.4.			
	Total			3
Tier 3 Point Total RO				13

Facility: Callaway		Date of Exam: June 2000						Exam Level: SRO					
Tier	Group	K/A Category Points											Point Total
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	
1. Emergency & Abnormal Plant Evolutions	1	4	3	5				3	5			4	24
	2	1	2	4				3	3			3	16
	3	0	0	0				1	1			1	3
	Tier Totals	5	5	9				7	9			8	43
2. Plant Systems	1	1	1	2	3	0	1	3	2	2	2	2	19
	2	2	1	2	2	2	1	1	1	1	2	2	17
	3	0	0	0	0	0	0	1	1	1	0	1	4
	Tier Totals	3	2	4	5	2	2	5	4	4	4	5	40
3. Generic Knowledge and Abilities					Cat 1		Cat 2		Cat 3		Cat 4		17
					4		4		4		5		
Note: 1. Ensure that at least two topics from every K/A category are sampled within each tier (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 priorities. Enter the tier totals for each category in the table above.													

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Callaway June 2000 SRO Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-3

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
000001 Continuous Rod Withdrawal / 1	X						AK1.03 Indications Of Rod Withdrawal	3.9/4.0	R017
000003 Dropped Control Rod / 1	X						AK1.04 Effects Of Uncoupled Rod	3.1/3.7	R018
000005 Inoperable / Stuck Control Rod / 1						X	G2.1.12 Apply Tech Spec For Stuck Rod	2.9/4.0	R001
000011 Large Break LOCA / 3			X				EK3.14 RCP Trip Criteria	4.1/4.2	R022
W/E04 LOCA Outside Containment / 3				X			EA1.3 Indications Of Leak Isolation	3.8/4.0	R023
W/E01&E02 Rediagnosis & Si Termination / 3					X		EA2.1 Selection Of Recovery Guidelines	3.3/4.2	S001
000015/17 RCP Malfunctions / 4				X			AA1.07 Loss Of Seal Injection (IPE/PRA)	3.5/3.4	R002
W/E09&E10 Natural Circ. / 4		X					EK2.2 Failure Of Heat Removal (IPE/PRA)	3.6/3.9	R003
000024 Emergency Boration / 1			X				AK3.02 Actions For Emergency Boration	4.2/4.4	R004
000026 Loss of Component Cooling Water/8			X				AK3.03 Loss Of CCW To RCPs	4.0/4.2	R005
000029 Anticipated Transient w/o Scram / 1					X		EA2.01 FR-S.1 Entry Conditions	4.4/4.7	R028
						X	G2.4.16 SAMG Entry Criteria	3.0/4.0	S002
000040 Steam Line Rupture – Excessive Heat Transfer / 4 (W/E12)	X						AK1.05 Effect On Shutdown Margin	4.1/4.4	R007
W/E08 RCS Overcooling - PTS / 4	X						EK1.2 Actions During “Soak Period”	3.4/4.0	R008
000051 Loss of Condenser Vacuum / 4					X		AA2.02 Turbine Trip Criteria	3.9/4.1	R009
000055 Station Blackout / 6					X		EA2.03 Restoration Actions (IPE/PRA)	3.9/4.7	R010
						X	G2.4.20 Basis For Depressurizing (IPE/PRA)	3.3/4.0	S003
000057 Loss of Vital AC Elec. Inst. Bus / 6			X				AK3.01 Actions For Loss Of NN Bus	4.1/4.4	R011
000062 Loss of Nuclear Service Water / 4				X			AA1.02 Monitoring Control Room Loads	3.2/3.3	S004
000067 Plant Fire On-site / 9					X		AA2.16 Effect On Emergency DG	3.3/4.0	R012
000068 Control Room Evac. / 8		X					AK2.01 Aux Shutdown Panel Indications	3.9/4.0	R013
000069 Loss of CTMT Integrity / 5 (W/E14)			X				AK3.01 Actions For High CTMT Pressure	3.8/4.2	R014
000074 Inad. Core Cooling / 4 (W/E06&E07)						X	G2.4.22 Prioritizing Safety Functions	3.0/4.0	R015
000076 High Reactor Coolant Activity / 9		X					AK2.01 Letdown Line High Radiation	2.6/3.0	R016
K/A Category Point Totals:	4	3	5	3	5	4	Group Point Total:		24

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Callaway June 2000 SRO Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-3

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
000007 Reactor Trip – Stabilization – Recovery /1					X		EA2.02 Turbine Trip Failure	4.3/4.6	R019
000008 Pressurizer Vapor Space Accident/3				X			AA1.08 Failed Pzr Safety Valve	3.8/3.8	R020
000009 Small Break LOCA / 3						X	G2.4.48 Interpret Indications Of LOCA (IPE/PRA)	3.5/3.8	R021
W/E03 LOCA Cooldown/Depress. / 4			X				EK3.3 Operation Of RHR Pumps	3.9/3.9	R024
W/E11 Loss of Emergency Coolant Recirc / 4		X					EK2.2 Operation Of CTMT Spray	3.9/4.3	R025
000022 Loss of Reactor Coolant Makeup / 2				X			AA1.08 VCT Level Channel Failure	3.4/3.3	R026
000025 Loss of RHR System / 4					X		AA2.04 RCS Leak Due To Loss Of RHR	3.3/3.6	R027
000027 Pressurizer Pressure Control System Malfunction / 3				X			AA1.01 Pzr Pressure Channel Failure	4.0/3.9	R006
000032 Loss of Source Range NI / 7						X	G2.1.12 Tech Spec Actions During S/U	2.9/4.0	S005
000033 Loss of Intermediate Range NI / 7			X				AK3.02 IR Channel Failure During S/D	3.6/3.9	R029
000037 Steam Generator Tube Leak / 3						X	G2.4.4 Shutdown Criteria For Tube Leak	4.0/4.3	R030
000038 Steam Generator Tube Rupture / 3					X		EA2.02 Indications Of A SGTR	4.5/4.8	R031
W/E05 Inadequate Heat Transfer – Loss of Secondary Heat Sink / 4			X				EK3.2 Basis For Securing RCPs	3.7/4.1	R032
000058 Loss of DC Power / 6	X						AK1.01 T/S Actions For Loss of Charger	2.8/3.1	S006
000060 Accidental Gaseous Radwaste Rel. / 9		X					AK2.01 Radiation Monitor Failure	2.6/2.9	R033
000065 Loss Of Instrument Air / 8			X				AK3.03 Effects Of Loss Of Instrument Air	2.9/3.4	R036
K/A Category Point Totals:	1	2	4	3	3	3	Group Point Total:		16

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Callaway June 2000 SRO Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1 / Group 3

Form ES-401-3

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
000028 Pressurizer Level Malfunction / 2					X		AA2.02 Failed Tave Input To Pzr Level	3.4/3.8	R034
000036 Fuel Handling Accident / 8						X	G2.2.25 Basis For Source Range NIs	2.5/3.7	S007
000056 Loss Of Off-Site Power / 6				X			AA1.07 ESW Pump Start	3.2/3.2	R035
K/A Category Point Totals:	0	0	0	1	1	1	Group Point Total:		3

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Callaway June 2000 SRO Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 2 / Group 1

Form ES-401-3

E/APE # / Name / Safety Function	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Q#
001 Control Rod Drive		X										K2.01 Power Supply To MG Sets	3.5/3.6	R038
003 Reactor Coolant Pump			X									K3.02 Effect On S/G Level	3.5/3.8	R039
004 Chemical and Volume Control								X				A2.06 Inadvertent Dilution	4.2/4.3	R041
						X						K6.37 Demin Boron Loading	2.9/3.4	R042
013 Engineered Safety Feature Actuation										X		A4.03 LOCA Sequencer	4.5/4.7	R043
							X					A1.05 Low Steam Line Pressure	3.4/3.6	R044
014 Rod Position Indication							X					A1.02 DRPI Indications	3.2/3.6	R065
015 Nuclear Instrumentation				X								K4.01 P-10 Block Of SRHV	3.1/3.3	R045
017 In-core Temperature Monitor							X					A1.01 Core Exit Temperature	3.7/3.9	R047
022 Containment Cooling				X								K4.02 Fan Speed During SI	3.1/3.4	R049
									X			A3.01 H2 Mixing Fans During SI	4.1/4.3	R050
026 Containment Spray									X			A3.01 CS Valve Alignment	4.3/4.5	R067
056 Condensate								X				A2.04 Loss Of Condensate Pumps	2.6/2.8	R051
059 Main Feedwater			X									K3.03 S/G Feed Line Break	3.5/3.7	R053
061 Auxiliary/Emergency Feedwater	X											K1.07 ESW Swapover	3.6/3.8	R054
				X								K4.02 AFW Auto Starts	4.5/4.6	R055
068 Liquid Radwaste											X	G2.3.11 Liquid Rad Release	2.7/3.2	S008
071 Waste Gas Disposal											X	G2.1.27 Waste Gas Influent	2.8/2.9	R058
072 Area Radiation Monitoring										X		A4.03 ARM Check Source	3.1/3.1	R059
K/A Category Totals:	1	1	2	3	0	1	3	2	2	2	2	Group Point Total:		19

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Callaway June 2000 SRO Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 2 / Group 2

Form ES-401-3

E/APE # / Name / Safety Function	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Q#
002 Reactor Coolant										X		A4.02 Indication Of Natural Circ	4.3/4.5	R060
006 Emergency Core Cooling					X							K5.06 Securing ECCS Pumps	3.5/3.9	R061
010 Pressurizer Pressure Control		X										K2.01 Power Supply To Pzr Heaters	3.0/3.4	R062
011 Pressurizer Level Control								X				A2.02 Charging FCV Failure	3.2/3.2	R063
012 Reactor Protection				X								K4.06 T/S Required RPS Trips	3.2/3.5	S009
016 Non-nuclear Instrumentation			X									K3.03 Impulse Press Channel Fails	3.0/3.1	R066
027 Containment Iodine Removal	X											K1.01 Purpose Of TSP In CTMT	3.4/3.7	R083
028 Hydrogen Recombiner & Purge Control										X		A4.03 Operation Of H2 Sampling	3.1/3.3	R084
029 Containment Purge				X								K4.03 Effect Of CPIS	3.2/3.5	R068
033 Spent Fuel Pool Cooling										X		A3.01 Loss Of SFP Cooling	2.5/2.7	R069
034 Fuel Handling Equipment											X	G2.1.12 Fuel Storage	2.9/4.0	S010
035 Steam Generator							X					A1.01 S/G WR Level Requirements	3.6/3.8	S011
039 Main and Reheat Steam					X							K5.08 Affect On Reactivity	3.6/3.6	R071
062 AC Electrical Distribution											X	G2.1.11 Off-Site Source Verification	3.0/3.8	R072
064 Emergency Diesel Generator						X						K6.07 Starting Air Pressure	2.7/2.9	S012
079 Station Air	X											K1.01 IAS/SAS Loads	3.0/3.1	R078
103 Containment			X									K3.03 Loss Of CTMT Integrity	3.7/4.1	S013
K/A Category Totals:	2	1	2	2	2	1	1	1	1	2	2	Group Point Total:		17

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Callaway June 2000 SRO Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 2 / Group 3

Form ES-401-3

E/APE # / Name / Safety Function	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Q#
005 Residual Heat Removal											X	G2.1.12 Mode 6 RHR Requirements	2.9/4.0	S014
007 Pressurizer Relief/Quench Tank								X				A2.02 PRT Pressure Increase	2.6/3.2	R081
008 Component Cooling Water									X			A3.04 CCW Lineup During LOCA	2.9/3.2	R082
041 Steam Dump/Turbine Bypass Control							X					A1.02 Effect Of Loss Of Vacuum	3.1/3.2	R086
K/A Category Point Totals:	0	0	0	0	0	0	1	1	1	0	1	Group Point Total:		4

Plant-Specific Priorities

System / Topic	Recommended Replacement for	Reason	Points

Plant-Specific Priority Total: (limit 10)

Facility: Callaway		Date of Exam: June 2000		Exam Level: SRO
Category	K/A #	Topic	Imp.	Q#
Conduct of Operations	2.1.1	At The Controls Area	3.7/3.8	R088
	2.1.4	Staff Working Hour Limitations	2.3/3.4	S015
	2.1.10	Implementation Of 10CFR50.54X	2.7/3.9	S016
	2.1.11	S/G Temp / Press Limits	3.0/3.8	S017
	2.1.			
	2.1.			
	Total			4
Equipment Control	2.2.12	Action For Failed Surveillance	3.0/3.4	S018
	2.2.13	Monthly WPA Audit	3.6/3.8	R094
	2.2.17	Equipment Removal During Power Ops	2.3/3.5	S019
	2.2.25	Bases For AFW Tech Spec	2.5/3.7	S020
	2.2.			
	2.2.			
	Total			4
Radiation Control	2.3.1	Radiological Posting Requirements	2.6/3.0	R096
	2.3.2	Exceeding Admin Limits	2.5/2.9	S021
	2.3.4	Calculating Stay Times	2.5/3.1	R097
	2.3.10	Evaluating Respirator Usage	2.9/3.3	S022
	2.3.			
	2.3.			
	Total			4
Emergency Procedures and Plan	2.4.20	Applying EOP Notes	3.3/4.0	R099
	2.4.21	Safety Function Monitoring	3.7/4.3	S023
	2.4.23	FRG Use During Loss Of All AC Power	2.8/3.8	R100
	2.4.29	Emergency Coordinator Duties	2.6/4.0	S024
	2.4.44	Protective Action Recommendation	2.1/4.0	S025
	2.4.			
	Total			5
Tier 3 Point Total SRO				17