

Facility: <u>Callaway</u>		Date of Examination: <u>12/18/2000</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 / RIL Verification	Review Power Level and If Determine RIL Limits Are Exceeded G2.1.25                      (2.8 / 3.1)                      ILE-12/2000A5RO
	Conduct of Operations / Plant Parameter Verification	Review Channel Checks on Main Control Board Indicators G2.1.18                      (2.9 / 3.0)                      ILE-12/2000A2RO
A.2	Equipment Control / Tagging and Clearance	Review WPA to Determine Adequacy G2.2.13                      (3.6 / 3.8)                      ILE-12/2000A3RO
A.3	Radiation Control / Exposure Limits	Calculate Stay Time G2.3.4                      (2.5 / 3.1)                      ILE-12/2000A4
A.4	Emergency Procedures / Interpret Annunciators	Determine Status of Control Room Annunciators G2.4.48                      (3.5 / 3.8)                      ILE-12/2000A1RO

FACILITY REPRESENTATIVE: \_\_\_\_\_ DATE: \_\_\_\_\_

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Facility: <u>Callaway</u>		Date of Examination: <u>12/18/2000</u>
Examination Level: <u>SRO</u>		Operating Test Number: _____
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct of Operations / RIL Verification	Review Power Level and Determine If RIL Limits Are Exceeded G2.1.33 (3.4 / 4.0) ILE-12/2000A5SRO
	Conduct of Operations / Plant Parameter Verification	Review Channel Checks on Main Control Board Indicators G2.1.25 (2.8 / 3.1) ILE-12/2000A2SRO
A.2	Equipment Control / Tagging and Clearance	Review WPA to Determine Adequacy G2.2.13 (3.6 / 3.8) ILE-12/2000A3SRO
A.3	Radiation Control / Exposure Limits	Calculate Stay Time G2.3.4 (2.5 / 3.1) ILE-12/2000A4
A.4	Emergency Plan / Emergency Action Levels and Classifications	Classify Emergency Event Per EIP-ZZ-00101 G2.4.41 (2.3 / 4.1) ILE-12/2000A1SRO

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B.1 Control Room Systems		
System / JPM Title	Type Code *	Safety Function
a. Rod Control / Misaligned Control Rod 001A2.03 (3.5 / 4.2) ILE-12/2000-JPMS <b>S3</b>	N, S, L	1
b. RPS/Respond to a Failed Power Range Instrument 012A4.05 (3.6 / 3.6) ILE-12/2000-JPMS <b>S2</b>	D, S	7
c. ESFAS/Isolate a Ruptured Steam Generator 013A4.01 (4.5 / 4.8) ILE-12/2000-JPMC <b>C1</b>	M, C, A	2
d. Service Water System/ESW Low Flow Test 076A4.01 (2.9 / 2.9) ILE-12/2000-JPMS <b>S4</b>	N, S, L	4
e. CSS/Containment Spray System Operation 026A4.01 (4.5 / 4.3) ILE-12/2000-JPMS <b>S5</b>	N, S, A	5
f. Main Turbine/Main Turbine Mechanical O/S Trip Test 045A2.17 (2.7 / 2.9) ILE-12/2000-JPMS <b>S1</b>	D, S, A	4
g. ECCS/Raise Accumulator Level 006A4.07 (4.4 / 4.4) ILE-12/2000-JPMS <b>S6</b>	D, S	3
B/U CVCS/Swap Charging Pumps 004A4.08 (3.8 / 3.4) ILE-12/2000-JPMB/ <b>U</b>	D, S	2
a. Main Feedwater/Locally Operate a MFRV 059A2.11 (3.0 / 3.3) ILE-12/2000-JPMP <b>P2</b>	N, P	4
b. D/G/Locally Start a Diesel Generator (IPE/PRA) 064A4.01 (4.0 / 4.3) ILE-12/2000-JPMP <b>P1</b>	N, A, P	6
c. Spent Fuel Pool Cooling/Place RWST in Recirc 033A2.03 (3.1 / 3.5) ILE-12/2000-JPMP <b>P3</b>	N, R, P	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		

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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 / Misaligned Control Rod 001A2.03 (3.5 / 4.2) ILE-12/2000-JPMS <b>S3</b>	N, S, L	1
b. RPS/Respond to a Failed Power Range Instrument 012A4.05 (3.6 / 3.6) ILE-12/2000-JPMS <b>S2</b>	D, S	7
c. ESFAS/Isolate a Ruptured Steam Generator 013A4.01 (4.5 / 4.8) ILE-12/2000-JPMC <b>C1</b>	M, C, A	2
d. Service Water System/ESW Low Flow Test 076A4.01 (2.9 / 2.9) ILE-12/2000-JPMS <b>S4</b>	N, S, L	4
e. CSS/Containment Spray System Operation 026A4.01 (4.5 / 4.3) ILE-12/2000-JPMS <b>S5</b>	N, S, A	5
f. Main Turbine/Main Turbine Mechanical O/S Trip Test 045A2.17 (2.7 / 2.9) ILE-12/2000-JPMS <b>S1</b>	D, S, A	4
g. ECCS/Raise Accumulator Level 006A4.07 (4.4 / 4.4) ILE-12/2000-JPMS <b>S6</b>	D, S	3
B/U CVCS/Swap Charging Pumps 004A4.08 (3.8 / 3.4) ILE-12/2000-JPMB/ <b>U</b>	D, S	2
a. Main Feedwater/Locally Operate a MFRV 059A2.11 (3.0 / 3.3) ILE-12/2000-JPMP <b>P2</b>	N, P	4
b. D/G/Locally Start a Diesel Generator (IPE/PRA) 064A4.01 (4.0 / 4.3) ILE-12/2000-JPMP <b>P1</b>	N, A, P	6
c. Spent Fuel Pool Cooling/Place RWST in Recirc 033A2.03 (3.1 / 3.5) ILE-12/2000-JPMP <b>P3</b>	N, R, P	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		

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Facility: <u>Callaway</u>		Date of Examination: <u>12/18/2000</u>
Exam Level: <u>SRO(U)</u>		Operating Test No.: <u>          </u>
<b>B.1    Control Room Systems</b>		
System / JPM Title	Type Code *	Safety Function
a. Rod Control / Misaligned Control Rod 001A2.03                      (3.5 / 4.2)                      ILE-12/2000-JPMS <b>3</b>	N, S, L	1
b. RPS/Respond to a Failed Power Range Instrument 012A4.05                      (3.6 / 3.6)                      ILE-12/2000-JPMS <b>2</b>	D, S	7
c. Main Turbine/Main Turbine Mechanical O/S Trip Test 045A2.17                      (2.7/2.9)                      ILE-12/2000-JPMS <b>1</b>	D, S, A	4
d.		
e.		
f.		
g.		
B/U CVCS/Swap Charging Pumps 004A4.08                      (3.8/3.4)                      ILE-12/2000-JPMB/ <b>U</b>	D, S	2
a. Spent Fuel Pool Cooling/Place RWST in Recirc 033A2.03                      (3.1 / 3.5)                      ILE-12/2000-JPMP <b>3</b>	N, R, P	8
b. D/G/Locally Start a Diesel Generator (IPE/PRA) 064A4.01                      (4.0/4.3)                      ILE-12/2000-JPMP <b>1</b>	N, A, P	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		

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CHIEF EXAMINER: \_\_\_\_\_ DATE: \_\_\_\_\_

**REACTOR OPERATOR:   R1**

Scenario	Position	
	RO	BOP
<b>ILE-12/2000-DS1</b>	<b>X</b>	
<b>ILE-12/2000-DS2</b>		<b>X</b>

Applicant Type	Evolution Type	Minimum Number	Scenario Number		
			1	2	Total
RO	Reactivity	1	<b>A</b>	<b>0</b>	<b>1</b>
	Normal	1	<b>E</b>	<b>0</b>	<b>1</b>
	Instrument	2	<b>B</b>	<b>D</b>	<b>2</b>
	Component	2	<b>D, G, H</b>	<b>E, H, I</b>	<b>6</b>
	Major	1	<b>F</b>	<b>G</b>	<b>2</b>

Author: \_\_\_\_\_

Chief Examiner: \_\_\_\_\_

**REACTOR OPERATOR:   R2**

Scenario	Position	
	RO	BOP
<b>ILE-12/2000-DS1</b>	<b>X</b>	
<b>ILE-12/2000-DS2</b>		<b>X</b>

Applicant Type	Evolution Type	Minimum Number	Scenario Number		
			1	2	Total
RO	Reactivity	1	<b>A</b>	<b>0</b>	<b>1</b>
	Normal	1	<b>E</b>	<b>0</b>	<b>1</b>
	Instrument	2	<b>B</b>	<b>D</b>	<b>2</b>
	Component	2	<b>D, G, H</b>	<b>E, H, I</b>	<b>6</b>
	Major	1	<b>F</b>	<b>G</b>	<b>2</b>

Author: \_\_\_\_\_

Chief Examiner: \_\_\_\_\_

**REACTOR OPERATOR:   R3**

Scenario	Position	
	RO	BOP
<b>ILE-12/2000-DS1</b>	<b>X</b>	
<b>ILE-12/2000-DS2</b>		<b>X</b>

Applicant Type	Evolution Type	Minimum Number	Scenario Number		
			1	2	Total
RO	Reactivity	1	<b>A</b>	<b>0</b>	<b>1</b>
	Normal	1	<b>E</b>	<b>0</b>	<b>1</b>
	Instrument	2	<b>B</b>	<b>D</b>	<b>2</b>
	Component	2	<b>D, G, H</b>	<b>E, H, I</b>	<b>6</b>
	Major	1	<b>F</b>	<b>G</b>	<b>2</b>

Author: \_\_\_\_\_

Chief Examiner: \_\_\_\_\_



**REACTOR OPERATOR:   R4**

Scenario	Position	
	RO	BOP
<b>ILE-12/2000-DS1</b>		<b>X</b>
<b>ILE-12/2000-DS2</b>	<b>X</b>	

Applicant Type	Evolution Type	Minimum Number	Scenario Number		
			1	2	Total
RO	Reactivity	1	<b>0</b>	<b>A</b>	<b>1</b>
	Normal	1	<b>0</b>	<b>C</b>	<b>1</b>
	Instrument	2	<b>C</b>	<b>B</b>	<b>2</b>
	Component	2	<b>D, G, H</b>	<b>E, F, H, I</b>	<b>7</b>
	Major	1	<b>F</b>	<b>G</b>	<b>2</b>

Author: \_\_\_\_\_

Chief Examiner: \_\_\_\_\_

**INSTANT SENIOR REACTOR OPERATOR:   I1**

Scenario	Position		
	RO	SRO	BOP
<b>ILE-12/2000-DS1</b>		<b>X</b>	
<b>ILE-12/2000-DS2</b>	<b>X</b>		

Applicant Type	Evolution Type	Minimum Number	Scenario Number		
			1	2	Total
As RO	Reactivity	1	NA	A	1
	Normal	0	NA	C	1
	Instrument	1	NA	B	1
	Component	1	NA	E, F, H, I	4
	Major	1	NA	G	1
SRO-I					
	Reactivity	0	0	NA	0
	Normal	1	E	NA	1
	Instrument	1	B, C	NA	2
	Component	1	D, G, H	NA	3
As SRO	Major	1	F	NA	1

Author: \_\_\_\_\_

Chief Examiner: \_\_\_\_\_

**UPGRADE SENIOR REACTOR OPERATOR: U1**

Scenario	Position	
	SRO	BOP
<b>ILE-12/2000-DS1</b>	<b>X</b>	

Applicant Type	Evolution Type	Minimum Number	Scenario Number		
			1	2	Total
SRO-U	Reactivity	0	<b>0</b>	<b>NA</b>	<b>0</b>
	Normal	1	<b>E</b>	<b>NA</b>	<b>1</b>
	Instrument	1	<b>B, C</b>	<b>NA</b>	<b>2</b>
	Component	1	<b>D, G, H</b>	<b>NA</b>	<b>3</b>
	Major	1	<b>F</b>	<b>NA</b>	<b>1</b>

Author: \_\_\_\_\_

Chief Examiner: \_\_\_\_\_

Facility: Callaway		Date of Exam: November 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	3	4	4				5	4			4	24
	2	3	3	3				1	4			2	16
	3	0	0	1				2	0			0	3
	Tier Totals	6	7	8				8	8			6	43
2. Plant Systems	1	2	1	3	1	2	1	3	2	1	1	2	19
	2	2	1	1	2	1	1	2	1	2	2	2	17
	3	1	1	1	0	0	0	0	0	0	0	1	4
	Tier Totals	5	3	5	3	3	2	5	3	3	3	5	40
3. Generic Knowledge and Abilities					Cat 1		Cat 2		Cat 3		Cat 4		17
					4		5		4		4		
<p>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).</p> <p>2. Actual point totals must match those specified in the table.</p> <p>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.</p> <p>4. Systems/evolutions within each group are identified on the associated outline.</p> <p>5. The shaded areas are not applicable to the category/tier.</p> <p>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.</p> <p>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.</p>													

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E/APE # / Name / Safety Function		K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
000001	Continuous Rod Withdrawal / 1					X		AA2.03 Rod Withdrawal Actions	4.5/4.8	S001
000003	Dropped Control Rod / 1						X	G2.4.47 Dropped Rod Indications	3.4/3.7	R017
000005	Inoperable / Stuck Control Rod / 1	X						AK1.05 Required SDM Calculation	3.3/4.1	R001
000011	Large Break LOCA / 3				X			EA1.11 Long Term RCS Heat Removal (IPE/PRA)	4.2/4.2	R020
W/E04	LOCA Outside Containment / 3					X		EA2.1 EOP Actions	3.4/4.3	S002
W/E01&E02	Radiagnosis & SI Termination / 3						X	G2.4.12 Equipment Operation During SI	3.4/3.9	R023
000015/17	RCP Malfunctions / 4				X			AA1.22 RCP Seal Malfunction	4.0/4.2	R002
W/E09&E10	Natural Circ. / 4		X					EK2.2 Natural Circ Verification	3.6/3.9	R003
000024	Emergency Boration / 1				X			AA1.20 Required Emergency Boration	3.2/3.3	R004
000026	Loss of Component Cooling Water/8				X			AA1.03 Emergency M/U To CCW	3.6/3.6	R005
000029	Anticipated Transient w/o Scram / 1		X					EK2.06 BKR Affects On ATWS	2.9/3.1	S026
000040 (W/E12)	Steam Line Rupture – Excessive Heat Transfer / 4	X						EK1.2 ECA-2.1 Procedure Requirements	3.5/3.8	R007
W/E08	RCS Overcooling - PTS / 4			X				EK3.1 PTS Entry Conditions	3.4/3.9	R008
000051	Loss of Condenser Vacuum / 4			X				AK3.01 Steam Dump Ops w/ Low Vacuum	2.8/3.1	R009
000055	Station Blackout / 6			X				EK3.02 ECA-0.0 Depressurization Bases (IPE/PRA)	4.3/4.6	R010
000057	Loss of Vital AC Elec. Inst. Bus / 6					X		AA2.19 Plant Actions On NN Loss	4.0/4.3	R011
000059	Accidental Liquid RadWaste Rel. / 9			X				AK3.01 Termination Of Release	3.5/3.9	S003
000062	Loss of Nuclear Service Water / 4				X			AA1.03 SW As A B/U To ESW	3.6/3.6	S004
000067	Plant Fire On-site / 9						X	G2.4.26 Portable Fire Fighting Eqpt. Usage	2.9/3.3	R012
000068	Control Room Evac. / 8		X					AK2.07 Energize NB Bus	3.3/3.4	R013
000069 (W/E14)	Loss of CTMT Integrity / 5					X		AA2.01 Loss of CTMT Integrity	3.7/4.3	R014
000074 (W/E06&E07)	Inad. Core Cooling / 4		X					EK2.1 Establishing RCS Injection	3.6/3.8	R015
		X						EK1.02 Core Uncovery Indications	4.6/4.8	S005
000076	High Reactor Coolant Activity / 9						X	G2.2.25 Apply T/S For RCS Activity	2.5/3.7	R016

K/A Category Point Totals:	3	4	4	5	4	4	Group Point Total:	24
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Callaway November 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		EA2.06 Reactor Trip Verification	4.3/4.5	R018
000008 Pressurizer Vapor Space Accident/3	X						AK1.01 Thermodynamics Of Leaking Valve	3.2/3.7	R019
W/E03 LOCA Cooledown/Depress. / 4			X				EK3.3 Manipulating Plant Eqpt. During EOP	3.9/3.9	R021
W/E11 Loss of Emergency Coolant Recirc / 4	X						EK1.1 Emergency Make Up Sources	3.7/4.0	R022
000022 Loss of Reactor Coolant Makeup / 2				X			AA1.08 VCT Level Failure	3.4/3.3	R024
000025 Loss of RHR System / 4						X	G2.4.24 T-Boil During Loss Of Cooling	3.3/3.7	R025
000027 Pressurizer Pressure Control System Malfunction / 3					X		AA2.10 Master Pressure Controller Malfunction	3.3/3.6	R006
000032 Loss of Source Range NI / 7		X					AK2.01 Proper Switch Positions	2.7/3.1	R026
000033 Loss of Intermediate Range NI / 7					X		AA2.11 IR Comp Voltage Loss	3.1/3.4	R027
000037 Steam Generator Tube Leak / 3			X				AK3.05 Actions For S/G Tube Leak	3.7/4.0	R028
000038 Steam Generator Tube Rupture / 3						X	G2.3.11 Control SGTR Radiation Release	2.7/3.2	S006
000054 Loss of Main Feedwater / 4	X						AK1.01 Loss Of Main Feedwater Due To Break	4.1/4.3	R029
W/E05 Inadequate Heat Transfer – Loss of Secondary Heat Sink / 4		X					EK2.2 Heat Removal During FR-H.1 (IPE/PRA)	3.9/4.2	R030
000058 Loss of DC Power / 6			X				AK3.01 D/G Control Power Loss (IPE/PRA)	3.4/3.7	R031
000061 ARM System Alarms / 7		X					AK2.01 Interrelations Between The ARMs	2.5/2.6	R032
W/E16 High Containment Radiation / 9					X		EA2.2 Eqpt. Affected By High Radiation	3.0/3.3	R033
K/A Category Point Totals:	3	3	3	1	4	2	Group Point Total:		16

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Callaway November 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#
000036 Fuel Handling Accident / 8			X				AK3.03 Fuel Handling EOP Actions	3.7/4.1	R035
000056 Loss Of Off-Site Power / 6				X			AA1.12 CTMT Cooling	3.2/3.3	S007
W/E15 Containment Flooding / 5				X			EA1.1 SI Accumulator Isolation	2.9/3.0	R036
K/A Category Point Totals:	0	0	1	2	0	0	Group Point Total:		3



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Callaway November 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	G2.2.1 Rod Insertion Requirement	3.7/3.6	R038
003 Reactor Coolant Pump						X						K6.02 RCP Seal Indications	2.7/3.1	R039
004 Chemical and Volume Control			X									K3.02 Loss Of Charging	3.7/4.1	R041
013 Engineered Safety Feature Actuation										X		A4.03 ESFAS Initiations	4.5/4.7	R043
							X					A1.02 Design Limits And ESFAS	3.9/4.2	R044
014 Rod Position Indication					X							K5.02 RPI Independent Of Demand	2.8/3.3	S008
015 Nuclear Instrumentation	X											K1.01 IR NI Failure	4.1/4.2	R045
					X							K5.10 Excore Indication	2.8/3.0	R046
017 In-core Temperature Monitor											X	G2.1.27 Subcooling Monitor Function	2.8/2.9	R048
022 Containment Cooling							X					A1.04 CTMT Cooling Limits	3.2/3.3	R049
026 Containment Spray			X									K3.02 CSS Malf On Recirc	4.2/4.3	S009
056 Condensate								X				A2.04 Effects Of Loss Of Condensate Pumps	2.6/2.8	S010
059 Main Feedwater	X											K1.03 MFW Heaters	3.1/3.3	R053
061 Auxiliary/Emergency Feedwater		X										K2.02 AFP Power Supply	3.7/3.7	R054
				X								K4.02 AFP Auto Starts	4.5/4.6	R055
063 DC Electrical Distribution			X									K3.02 DC Loss Effects On Plant Eqpt.	3.5/3.7	R074
068 Liquid Radwaste									X			A3.02 LRS Auto Isolation	3.6/3.6	R056
071 Waste Gas Disposal								X				A2.09 Stuck Relief	3.0/3.5	R058
072 Area Radiation Monitoring							X					A1.01 ARM Parameters	3.4/3.6	R059
K/A Category Totals:	2	1	3	1	2	1	3	2	1	1	2	Group Point Total:		19

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Callaway November 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									K3.02 RCS Affect On Fuel	4.2/4.5	S011
006 Emergency Core Cooling		X										K2.01 ECCS Power Supply	3.6/3.9	R061
010 Pressurizer Pressure Control							X					A1.03 PRT Limits	2.9/3.2	S012
011 Pressurizer Level Control						X						K6.01 Effects Of Charging Malf	2.8/3.2	R063
012 Reactor Protection					X							K5.02 Backup RPS Trip	3.1/3.3	R064
016 Non-nuclear Instrumentation											X	G2.1.31 Determine Plant Conditions	4.2/3.9	R066
029 Containment Purge				X								K4.03 CTMT Purge Isolation	3.2/3.5	R068
035 Steam Generator										X		A4.08 Ability To Monitor S/G Rad Lvl's	4.1/4.4	R070
039 Main and Reheat Steam	X											K1.07 Main Steam And AFW	3.4/3.4	R071
055 Condenser Air Removal									X			A3.03 Securing CARS Exhaust	2.5/2.7	R072
062 AC Electrical Distribution								X				A2.01 De-energizing Plant Equipment	3.4/3.9	R073
064 Emergency Diesel Generator										X		A4.01 Local/Remote Operation	4.0/4.3	R075
073 Process Radiation Monitoring							X					A1.01 CTMT Radiation Mon	3.2/3.5	R076
075 Circulating Water				X								K4.01 Circ Water Heat Sink	2.5/2.8	R077
079 Station Air	X											K1.01 IAS And SAS Relationships	3.0/3.1	R078
086 Fire Protection											X	G2.4.27 Fire Classification	3.0/3.5	R079
103 Containment									X			A3.01 CIS 'A' Affect Cont Rad Mon	3.9/4.2	R087
K/A Category Totals:	2	1	1	2	1	1	2	1	2	2	2	Group Point Total:		17

ES-401

Callaway November 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#
007 Pressurizer Relief/Quench Tank											X	G2.2.25 Apply T/S For A System	2.5/3.7	S013
008 Component Cooling Water	X											K1.02 CCW Cooling Loads	3.3/3.4	R081
041 Steam Dump/Turbine Bypass Control			X									K3.04 Steam Dump Ops	3.5/3.4	R084
078 Instrument Air		X										K2.01 Compressor Power Supply	2.7/2.9	R086
K/A Category Point Totals:	1	1	1	0	0	0	0	0	0	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: November 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	3				3	3			2	16
	2	3	3	3				2	3			3	17
	3	1	0	1				1	0			0	3
	Tier Totals	6	6	7				6	6			5	36
2. Plant Systems	1	2	2	2	2	2	2	3	2	2	2	2	23
	2	2	1	1	2	2	2	2	2	2	2	2	20
	3	1	1	1	1	1	1	0	0	1	1	0	8
	Tier Totals	5	4	4	5	5	5	5	4	5	5	4	51
3. Generic Knowledge and Abilities					Cat 1		Cat 2		Cat 3		Cat 4		13
					4		3		3		3		
<p>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).</p> <p>2. Actual point totals must match those specified in the table.</p> <p>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.</p> <p>4. Systems/evolutions within each group are identified on the associated outline.</p> <p>5. The shaded areas are not applicable to the category/tier.</p> <p>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.</p> <p>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.</p>													

ES-401		Callaway November 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						AK1.05	Required SDM Calculation	3.3/4.1	R001
000015/17	RCP Malfunctions / 4				X			AA1.22	RCP Seal Malfunction	4.0/4.2	R002
W/E09&E10	Natural Circ. / 4		X					EK2.2	Natural Circ Verification	3.6/3.9	R003
000024	Emergency Boration / 1				X			AA1.20	Required Emergency Boration	3.2/3.3	R004
000026	Loss of Component Cooling Water/8				X			AA1.03	Emergency M/U To CCW	3.6/3.6	R005
000027	Pressurizer Pressure Control System Malfunction / 3					X		AA2.10	Master Pressure Controller Malfunction	3.3/3.6	R006
000040 (W/E12)	Steam Line Rupture – Excessive Heat Transfer / 4	X						EK1.2	ECA-2.1 Procedure Requirements	3.5/3.8	R007
W/E08	RCS Overcooling - PTS / 4			X				EK3.1	PTS Entry Conditions	3.4/3.9	R008
000051	Loss of Condenser Vacuum / 4			X				AK3.01	Steam Dump Ops w/ Low Vacuum	2.8/3.1	R009
000055	Station Blackout / 6			X				EK3.02	ECA-0.0 Depressurization Bases (IPE/PRA)	4.3/4.6	R010
000057	Loss of Vital AC Elec. Inst. Bus / 6					X		AA2.19	Plant Actions On NN Loss	4.0/4.3	R011
000067	Plant Fire On-site / 9						X	G2.4.26	Portable Fire Fighting Eqpt. Usage	2.9/3.3	R012
000068	Control Room Evac. / 8		X					AK2.07	Energize NB Bus	3.3/3.4	R013
000069 (W/E14)	Loss of CTMT Integrity / 5					X		AA2.01	Loss of CTMT Integrity	3.7/4.3	R014
000074 (W/E06&E07)	Inad. Core Cooling / 4		X					EK2.1	Establishing RCS Injection	3.6/3.8	R015
000076	High Reactor Coolant Activity / 9						X	G2.2.25	Apply T/S For RCS Activity	2.5/3.7	R016
K/A Category Point Totals:		2	3	3	3	3	2	Group Point Total:			16

ES-401		Callaway November 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#
000003	Dropped Control Rod / 1						X	G2.4.47 Dropped Rod Indications	3.4/3.7	R017
000007	Reactor Trip – Stabilization – Recovery / 1					X		EA2.06 Reactor Trip Verification	4.3/4.5	R018
000008	Pressurizer Vapor Space Accident/3	X						AK1.01 Thermodynamics Of Leaking Valve	3.2/3.7	R019
000011	Large Break LOCA / 3				X			EA1.11 Long Term RCS Heat Removal (IPE/PRA)	4.2/4.2	R020
W/E03	LOCA Cooldown/Depress. / 4			X				EK3.3 Manipulating Plant Eqpt. During EOP	3.9/3.9	R021
W/E11	Loss of Emergency Coolant Recirc / 4	X						EK1.1 Emergency Make Up Sources	3.7/4.0	R022
W/E01&E02	Rediagnosis & SI Termination / 3						X	G2.4.12 Equipment Operation During SI	3.4/3.9	R023
000022	Loss of Reactor Coolant Makeup / 2				X			AA1.08 VCT Level Failure	3.4/3.3	R024
000025	Loss of RHR System / 4						X	G2.4.24 T-Boil During Loss Of Cooling	3.3/3.7	R025
000032	Loss of Source Range NI / 7		X					AK2.01 Proper Switch Positions	2.7/3.1	R026
000033	Loss of Intermediate Range NI / 7					X		AA2.11 IR Comp Voltage Loss	3.1/3.4	R027
000037	Steam Generator Tube Leak / 3			X				AK3.05 Actions For S/G Tube Leak	3.7/4.0	R028
000054	Loss of Main Feedwater / 4	X						AK1.01 Loss Of Main Feedwater Due To Break	4.1/4.3	R029
W/E05	Inadequate Heat Transfer – Loss of Secondary Heat Sink / 4		X					EK2.2 Heat Removal During FR-H.1 (IPE/PRA)	3.9/4.2	R030
000058	Loss of DC Power / 6			X				AK3.01 D/G Control Power Loss (IPE/PRA)	3.4/3.7	R031
000061	ARM System Alarms / 7		X					AK2.01 Interrelations Between The ARMs	2.5/2.6	R032
W/E16	High Containment Radiation / 9					X		EA2.2 Eqpt. Affected By High Radiation	3.0/3.3	R033
K/A Category Point Totals:		3	3	3	2	3	3	Group Point Total:		17

ES-401

Callaway November 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						AK1.01 Pzr Reference Leg Failure	2.8/3.1	R034
000036 Fuel Handling Accident / 8			X				AK3.03 Fuel Handling EOP Actions	3.7/4.1	R035
W/E15 Containment Flooding / 5				X			EA1.1 SI Accumulator Isolation	2.9/3.0	R036
K/A Category Point Totals:	1	0	1	1	0	0	Group Point Total:		3

ES-401

Callaway November 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										K2.02 Power Supply To Trip Bkrs	3.6/3.7	R037
											X	G2.2.1 Rod Insertion Requirement	3.7/3.6	R038
003 Reactor Coolant Pump						X						K6.02 RCP Seal Indications	2.7/3.1	R039
										X		A4.03 RCP Lift Oil Pump	2.8/2.5	R040
004 Chemical and Volume Control			X									K3.02 Loss Of Charging	3.7/4.1	R041
						X						K6.01 Pzr Boron Charge With Power	3.1/3.3	R042
013 Engineered Safety Feature Actuation										X		A4.03 ESFAS Initiations	4.5/4.7	R043
							X					A1.02 Design Limits And ESFAS	3.9/4.2	R044
015 Nuclear Instrumentation	X											K1.01 IR NI Failure	4.1/4.2	R045
					X							K5.10 Excore Indication	2.8/3.0	R046
017 In-core Temperature Monitor					X							K5.03 Superheating Indications	3.7/4.1	R047
											X	G2.1.27 Subcooling Monitor Function	2.8/2.9	R048
022 Containment Cooling							X					A1.04 CTMT Cooling Limits	3.2/3.3	R049
									X			A3.01 Containment Cooler Speeds	4.1/4.3	R050
056 Condensate								X				A2.04 Relationship Between Condensate & MFW	2.6/2.8	R051
059 Main Feedwater			X									K3.03 FWIS Reset	3.5/3.7	R052
	X											K1.03 MFW Heaters	3.1/3.3	R053
061 Auxiliary/Emergency Feedwater		X										K2.02 AFP Power Supply	3.7/3.7	R054
				X								K4.02 AFP Auto Starts	4.5/4.6	R055
068 Liquid Radwaste									X			A3.02 LRS Auto Isolation	3.6/3.6	R056
071 Waste Gas Disposal				X								K4.04 GDT Release Isolation	2.9/3.4	R057
								X				A2.09 Stuck Relief	3.0/3.5	R058
072 Area Radiation Monitoring							X					A1.01 ARM Parameters	3.4/3.6	R059
K/A Category Totals:	2	2	2	2	2	2	3	2	2	2	2	Group Point Total:		23



ES-401

Callaway November 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							K5.17 RCS Temperature Mon	3.8/4.2	R060
006 Emergency Core Cooling		X										K2.01 ECCS Power Supply	3.6/3.9	R061
010 Pressurizer Pressure Control						X						K6.02 Pzr Press Malf Effects	3.2/3.5	R062
011 Pressurizer Level Control						X						K6.01 Effects Of Charging Malf	2.8/3.2	R063
012 Reactor Protection					X							K5.02 Backup RPS Trip	3.1/3.3	R064
014 Rod Position Indication								X				A2.01 Loss Of Power Effects	2.8/3.3	R065
016 Non-nuclear Instrumentation											X	G2.1.31 Determine Plant Conditions	4.2/3.9	R066
026 Containment Spray									X			A3.01 CSS Auto Operation	4.3/4.5	R067
029 Containment Purge				X								K4.03 CTMT Purge Isolation	3.2/3.5	R068
033 Spent Fuel Pool Cooling							X					A1.01 Emergency Make Up	2.7/3.3	R069
035 Steam Generator										X		A4.08 Ability To Monitor S/G Rad Lvl's	4.1/4.4	R070
039 Main and Reheat Steam	X											K1.07 Main Steam And AFW	3.4/3.4	R071
055 Condenser Air Removal									X			A3.03 Securing CARS Exhaust	2.5/2.7	R072
062 AC Electrical Distribution								X				A2.01 De-energizing Plant Equipment	3.4/3.9	R073
063 DC Electrical Distribution			X									K3.02 DC Loss Effects On Plant Eqpt.	3.5/3.7	R074
064 Emergency Diesel Generator										X		A4.01 Local/Remote Operation	4.0/4.3	R075
073 Process Radiation Monitoring							X					A1.01 CTMT Radiation Mon	3.2/3.5	R076
075 Circulating Water				X								K4.01 Circ Water Heat Sink	2.5/2.8	R077
079 Station Air	X											K1.01 IAS And SAS Relationships	3.0/3.1	R078
086 Fire Protection											X	G2.4.27 Fire Classification	3.0/3.5	R079
K/A Category Totals:	2	1	1	2	2	2	2	2	2	2	2	Group Point Total:		20

ES-401													Callaway November 2000 RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 2 / Group 3													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#											
005	Residual Heat Removal				X								K4.07	RHR Valve Interlocks	3.2/3.5	R080											
008	Component Cooling Water	X											K1.02	CCW Cooling Loads	3.3/3.4	R081											
027	Containment Iodine Removal					X							K5.01	Purpose Of Charcoal Filter	3.1/3.4	R082											
034	Fuel Handling Equipment						X						K6.02	Fuel Handling Problem Indications	2.6/3.3	R083											
041	Steam Dump/Turbine Bypass Control			X									K3.04	Steam Dump Ops	3.5/3.4	R084											
045	Main Turbine Generator										X		A4.02	Main Turbine Operation	2.7/2.6	R085											
078	Instrument Air		X										K2.01	Compressor Power Supply	2.7/2.9	R086											
103	Containment									X			A3.01	CIS 'A' Affect Cont Rad Mon	3.9/4.2	R087											
K/A Category Point Totals:		1	1	1	1	1	1	0	0	1	1	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: December 2000	Exam Level: RO	
Category	K/A #	Topic	Imp.	Q#
Conduct of Operations	2.1.12	Applying Technical Specifications	2.9/4.0	R088
	2.1.1	Conduct Of Operations	3.7/3.8	R089
	2.1.2	Refueling Admin Requirements	3.0/4.0	R090
	2.1.23	Performing Integrated System Ops	3.9/4.0	R091
	2.1.			
	2.1.			
	Total			4
Equipment Control	2.2.11	Temp Mods	2.5/3.4	R092
	2.2.13	Switching And Tagging Equipment	3.6/3.8	R093
	2.2.22	Knowledge Of Safety Limits	3.4/4.1	R094
	2.2.			
	2.2.			
	2.2.			
	Total			3
Radiation Control	2.3.2	Knowledge Of ALARA Program	2.5/2.9	R095
	2.3.10	Ability To Guard Against Personnel Exposure	2.9/3.3	R096
	2.3.1	Radiation Control Requirements	2.6/3.0	R097
	2.3.			
	2.3.			
	2.3.			
	Total			3
Emergency Procedures and Plan	2.4.4	EOP Entry Conditions	4.0/4.3	R098
	2.4.19	Knowledge Of EOP Symbols And Icons	2.7/3.7	R099
	2.4.29	Knowledge Of The E-Plan	2.6/4.0	R100
	2.4.			
	2.4.			
	2.4.			
	Total			3
Tier 3 Point Total RO				13

Facility: Callaway		Date of Exam: December 2000		Exam Level: SRO
Category	K/A #	Topic	Imp.	Q#
Conduct of Operations	2.1.12	Applying Technical Specifications	2.9/4.0	R088
	2.1.5	Procedures Related To Shift Staffing	2.3/3.4	S014
	2.1.7	Make Operational Judgements	3.7/4.4	S015
	2.1.33	Recognize T/S Entry Conditions	3.4/4.0	S016
	2.1.			
	2.1.			
	Total			4
Equipment Control	2.2.22	Knowledge Of Safety Limits	3.4/4.1	R094
	2.2.13	Knowledge Of Tagging Procedures	3.6/3.8	S017
	2.2.29	Knowledge Of SRO Fuel Handling Resp.	1.6/3.8	S018
	2.2.6	Knowledge Of Procedure Change Process	2.3/3.3	S019
	2.2.24	Affect Of Maintenance On LCO Status	2.6/3.8	S020
	2.2.			
	Total			5
Radiation Control	2.3.2	Knowledge Of ALARA Program	2.5/2.9	R095
	2.3.1	Radiation Control Requirements	2.6/3.0	R097
	2.3.10	Guard Against Personnel Exposure	2.9/3.3	S021
	2.3.7	Knowledge Of The RWP Process	2.0/3.3	S022
	2.3.			
	2.3.			
	Total			4
Emergency Procedures and Plan	2.4.29	Knowledge Of The E-Plan	2.6/4.0	R100
	2.4.6	EOP Mitigation Strategies	3.1/4.0	S023
	2.4.40	SRO RER Responsibilities	2.3/4.0	S024
	2.4.28	Procedures Relating To Sabotage	2.3/3.3	S025
	2.4.			
	2.4.			
	Total			4
Tier 3 Point Total SRO				17

Callaway Plant Initial License Exam – December 2000	
	SCENARIO # ILE-12/2000-DS B/U
EXAMINERS:	APPLICANTS:
INITIAL CONDITIONS:	60% Reactor Power. At Reduced Load After MFP Repair. TDAFP OOS
TURNOVER:	See Turnover Sheet

Event No.	Event Type *	Event Description	KA Number
A	N	Decrease Letdown Flow From 120 GPM to 75 GPM	004A4.06 (3.6/3.1)
B	I	S/G Level Channel Failure	035A2.03 (3.4/3.6)
C	I	VCT Level Channel Failure	016A2.01 (3.0/3.1)
D	C	RCP High Vibration	015/017AA1.23 (3.1/3.2)
E	R	Power Reduction to <48% Power	003A2.02 (3.7/3.9)
F	M	RCP Shaft Failure	015/017AA1.05 (3.8/3.8)
G	M	Auto/Man Reactor Trip Failure	029EA1.12 (4.1/4.0)
H	C	MDAFP Fails to Auto Start	061A3.01 (4.2/4.2)
I	I	Intermediate Range Gamma Compensation Failure	033AA2.02 (3.3/3.6)

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

FACILITY REPRESENTATIVE: \_\_\_\_\_ DATE: \_\_\_\_\_

CHIEF EXAMINER: \_\_\_\_\_ DATE: \_\_\_\_\_

Callaway Plant Initial License Exam – December 2000	
	SCENARIO # ILE-12/2000-DS 1
EXAMINERS:	APPLICANTS:
INITIAL CONDITIONS:	80% Reactor Power, Reducing Load to Repair MFP. CR Pressurization Fan OOS for PMs
TURNOVER:	See Turnover Sheet

Event No.	Event Type *	Event Description	KA Number
A	R	Reduce Reactor Power	004A4.01 (3.8/3.9)
B	I	SR HI Voltage Failure	032AA2.05 (2.9/3.2)
C	I	S/G MFRV Failure	059A2.12 (3.1/3.4)
D	C	Loss of Instrument Air	078K1.03 (3.3/3.4)
E	N	Place Excess Letdown in Service	011A2.07 (3.0/3.3)
F	M	Earthquake Causes Inter System LOCA RCS/RHR/Aux Bldg (IPE/PRA)	009EA2.02 (3.5/3.8)
G	C	Failure of the Reactor to Auto Trip	029EA1.08 (4.5/4.5)
H	C	CRVIS Auto Actuation Failure	013A4.01 (4.5/4.8)

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

FACILITY REPRESENTATIVE: \_\_\_\_\_ DATE: \_\_\_\_\_

CHIEF EXAMINER: \_\_\_\_\_ DATE: \_\_\_\_\_

<b>Callaway Plant Initial License Exam – December 2000</b>	
	<b>SCENARIO # ILE-12/2000-DS 2</b>
<b>EXAMINERS:</b>	<b>APPLICANTS:</b>
<b>INITIAL CONDITIONS:</b>	<b>10-8 amps ready to increase power</b>
<b>TURNOVER:</b>	<b>See Turnover Sheet</b>

Event No.	Event Type *	Event Description	KA Number
A	R	Raise Reactor Power	001A1.06 (4.1/4.4)
B	I	Pressurizer Level Channel Failure Low	011A2.11 (3.4/3.6)
C	N	Restore Normal Letdown	004A2.02 (3.9/4.2)
D	I	Steam Dump Failure	041A2.02 (3.6/3.9)
E	C	Loss of Plant Computer	G2.4.48 (3.5/3.8)
F	C	Dropped Control Rod	014A2.03 (3.6/4.1)
G	M	Feed break Inside CTMT (IPE/PRA)	054AK1.01 (4.1/4.3)
H	C	CCW Pump Trip with Auto Start Failure of Stby CCW Pump	006A3.04 (3.8/3.8)
I	C	CPIS Failure	103A3.01 (3.9/4.2)

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

FACILITY REPRESENTATIVE: \_\_\_\_\_ DATE: \_\_\_\_\_

CHIEF EXAMINER: \_\_\_\_\_ DATE: \_\_\_\_\_

## Callaway Examination Outline Comments - 12/00

Heavy emphasis on control rods and apparent double hits on same knowledge area. Emphasis should be justified or reduced. Double sampling should be eliminated. *Resolution: Agree with comment. Will replace written KA 000001AA2.03 and Admin task A.1.1. Written KA 014K5.02 is not rod control. The scenario dropped rod event is at full power and covers other considerations than written KA 000003G2.4.47.*

### Written Exam KA's

000001AA2.03 Rod Withdrawal Actions  
000003G2.4.47 Dropped Rod Indications  
000005AK1.05 Required SDM Calculation  
001G2.2.1 Rod Insertion Requirements  
014K5.02 RPI Independent of Demand

### Admin Tasks

A.1.1 Review Power Level and Determine if RIL Limits are Exceeded

### JPMs

Rod Control/ Misaligned Control Rod 001A2.03

### Scenarios

Scenario 2, Event F, Dropped Rod

#### Written

No specific comments other than sampling emphasis as noted above.

#### Admin

A.3 Calculate Stay Time - simplistic calculation of dose rate vs dose limit would be inadequate. *Resolution: Agree. Will replace with two questions.*

A.4 (RO) Determine Status of Control Room Annunciators - may not be complex enough to be considered an admin task. *Resolution: Authors believe it is sufficiently complex. Chief Examiner will verify during validation.*

#### JPMs

Tasks d. and f. (RO/SROI) both evaluate safety function 4 - per ES-301.D.3.a each of the JPMs in a subcategory (B1 or B2) should sample a different safety function. *Resolution: Agree. Will change one to safety function 8.*

#### Scenarios

Both scenarios have open-ended power changes for the reactivity events. These are likely to be unnecessarily long evolutions. The reactivity event should be condition driven and time sensitive or tightly focused to minimize dead time. *Resolution: Will give applicants specific instructions to ensure power changes are not too long.*



Scenario 1 event C, S/G MFRV Failure is shown as an instrument failure. This needs to be verified. *Resolution: Will change to feed flow channel failure.*

Scenarios do not appear to require significant analysis and prioritization of actions by the applicant in the command position. The backup scenario is the most challenging. *Resolution: Chief Examiner will verify difficulty during onsite validation. Authors believe DS1 is quite challenging in that the instrument air failure leads to loss of letdown and pressurizer pressure control, both which require actions by the SO in charge to prevent unacceptable deterioration of plant conditions. There will be no applicant in the command position for DS2.*