

FINAL FITZPATRICK RO OUTLINE

ES-401

BWR RO Examination Outline

Form ES-401-1

Facility: Fitzpatrick		Date of Exam: May 2010																
Tier	Group	RO K/A Category Points											SRO-Only Points					
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total		
1. Emergency & Abnormal Plant Evolutions	1	3	3	5	N/A			4	3	N/A			2	20	N/A	N/A	N/A	
	2	0	2	1				1	2				1	7	N/A	N/A	N/A	
	Tier Totals	3	5	6				5	5				3	27	N/A	N/A	N/A	
2. Plant Systems	1	4	1	1	3	3	5	2	3	2	1	1	26	N/A	N/A	N/A		
	2	2	1	2	1	0	1	0	0	2	2	1	12	N/A	N/A	N/A		
	Tier Totals	6	2	3	4	3	6	2	3	4	3	2	38	N/A	N/A	N/A		
3. Generic Knowledge and Abilities Categories				1		2		3		4		10		1	2	3	4	N/A
				3		2		2		3				N/A	N/A	N/A	N/A	N/A

- Note:**
1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
 2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
 3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems/evolutions that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.
 4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
 5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
 6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
 - 7.* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable K/As.
 8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
 9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

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Form ES-401-1

ES-401 2 Form ES-401-1

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4			X				AK3.02 Knowledge of the operational implications of Power/Flow distribution as it applies to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: REACTOR POWER RESPONSE	3.7 3.8	1.
295003 Partial or Complete Loss of AC / 6			X				AK3.01 Knowledge of the reasons for the following as they apply to PARTIAL OR COMPLETE LOSS OF AC POWER MANUAL AND AUTO BUS TRANSFER	3.3 3.5	2.
295004 Partial or Total Loss of DC Pwr / 6			X				AK3.03 Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER: REACTOR SCRAM	3.1 3.5	3.
295005 Main Turbine Generator Trip / 3						X	G2.1.32 Ability to explain and apply system limits and precautions to MAIN TURBINE GENERATOR TRIP	3.8 4.0	4.
295006 SCRAM / 1		X					AK2.03 Knowledge of the interrelations between SCRAM and the following: CRD HYDRAULIC	3.7 3.8	5.
295016 Control Room Abandonment / 7				X			AA1.05 Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT: D.C. ELECTRICAL DISTRIBUTION	2.8 2.9	6.
295018 Partial or Total Loss of CCW / 8				X			AA1.01 Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER: BACKUP SYSTEMS	3.3 3.4	7.
295019 Partial or Total Loss of Inst. Air / 8					X		AA2.02 Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR: STATUS OF SAFETY-RELATED INSTRUMENT AIR SYSTEM LOADS	3.6 3.7	8.
295021 Loss of Shutdown Cooling / 4				X			AA1.04 Ability to operate and/or monitor the following as they apply to LOSS OF SHUTDOWN COOLING: ALTERNATE HEAT REMOVAL METHODS	3.7 3.7	9.

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E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295023 Refueling Acc / 8	X						AK1.02 Knowledge of the operational implications of the following concepts as they apply to REFUELING ACCIDENTS: SHUTDOWN MARGIN	3.2 3.6	10.
295024 High Drywell Pressure / 5			X				EK3.01 Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE : Drywell spray operation	3.6 4.0	11.
295025 High Reactor Pressure / 3						X	G.2.2.22 Knowledge of limiting conditions for operations and safety limits: as it applies to High Reactor Pressure	4.0 4.7	12.
295026 Suppression Pool High Water Temp. / 5	X						EK1.01 Knowledge of the operational implications of the following concepts as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE : Pump NPSH	3.0 3.4	13.
295027 High Containment Temperature / 5							N/A BL	N/A	N/A
295028 High Drywell Temperature / 5					X		EA2.01 Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE : DRYWELL TEMPERATURE	4.0 4.1	14.
295030 Low Suppression Pool Water Level / 5		X					EK2.02 Knowledge of the interrelations between LOW SUPPRESSION POOL WATER LEVEL and the following: RCIC	3.7 3.8	15.
295031 Reactor Low Water Level / 2					X		EA2.02 Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL : Reactor Power	4.0 4.2	16.
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown/1	X						EK1.05 Knowledge of the operational implications of the following concepts as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Cold Shutdown Boron Weight	3.4 3.6	17.
295038 High Off-site Release Rate / 9			X				EK3.02 Knowledge of the reasons for the following responses as they apply to HIGH OFF-SITE RELEASE RATE: System Isolations	3.9 4.2	18.
600000 Plant Fire On Site / 8		X					AK2.01 Knowledge of the interrelations between PLANT FIRE ON SITE and the following: SENSORS/DETECTORS AND VALVES	2.6 2.7	19.

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E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
700000 Generator Voltage and Electric Grid Disturbances / 6				X			AA1.03 Ability to operate and/or monitor the following as they apply to GENERATOR VOLTAGE AND ELECTRICAL GRID DISTURBANCES: Voltage regulator controls	3.8 3.7	20.
K/A Category Totals:	3	3	5	4	3	2	Group Point Total:		20/7

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E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295002 Loss of Main Condenser Vacuum / 3									
295007 High Reactor Pressure / 3									
295008 High Reactor Water Level / 2						X	G.2.1.7 Ability to evaluate plant performance and make operational judgements as they apply to HIGH REACTOR WATER LEVEL: Reactor water level	3.7 3.7	21.
295009 Low Reactor Water Level / 2		X					AK2.03 Knowledge of the reasons for the following responses as they apply to LOW REACTOR WATER LEVEL: RECIRCULATION SYSTEM	3.1 3.2	22
295010 High Drywell Pressure / 5									
295011 High Containment Temp / 5							N/A BL		
295012 High Drywell Temperature / 5									
295013 High Suppression Pool Temp. / 5									
295014 Inadvertent Reactivity Addition / 1									
295015 Incomplete SCRAM / 1				X			AA1.03 Ability to operate and/ or monitor the following as they apply to INCOMPLETE SCRAM: RMCS	3.6 3.8	23.
295017 High Off-site Release Rate / 9									
295020 Inadvertent Cont. Isolation / 5 & 7									
295022 Loss of CRD Pumps / 1		X					AK2.03 Knowledge of the interrelations between LOSS OF CRD and the following: ACCUMULATOR PRESSURES	3.4 3.4	24.
295029 High Suppression Pool Water Level / 5			X				EK3.01 Knowledge of the reasons for the following responses as they apply to HIGH SUPPRESSION POOL WATER LEVEL: EMERGENCY DEPRESSURIZATION	3.5 3.9	25.
295032 High Secondary Containment Area Temperature / 5									
295033 High Secondary Containment Area Radiation Levels / 9					X		EA2.01 Ability to determine and/or interpret the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS: AREA RADIATION LEVELS	3.8 3.9	26.
295034 Secondary Containment Ventilation High Radiation / 9									

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E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295035 Secondary Containment High Differential Pressure / 5									
295036 Secondary Containment High Sump/Area Water Level / 5									
500000 High CTMT Hydrogen Conc. / 5					X		EA2.01 Ability to determine and/or interpret the following as they apply to HIGH PRIMARY CONTAINMENT HYDROGEN CONCENTRATIONS: HYDROGEN MONITORING SYSTEM AVAILABILITY	3.1 3.5	27
K/A Category Point Totals:	0	2	1	1	2	1	Group Point Total:		7/3

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ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 1 (RO)										Form ES-401-1		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
203000 RHR/LPCI: Injection Mode				X								K4.01 Knowledge of RHR/LPCI: INJECTION MODE design feature(s) and/or interlocks which provide for the following: AUTOMATIC SYSTEM INITIATION/INJECTION	4.2 4.2	28.
205000 Shutdown Cooling									X			A3.01 Ability to monitor automatic operations of the SHUTDOWN COOLING SYSTEM: VALVE OPERATION	3.2 3.1	29.
206000 HPCI										X		A4.09 Ability to manually operate and /or monitor in the control room: SUPPRESSION POOL LEVEL	3.8 3.7	30.
207000 Isolation (Emergency) Condenser												N/A BL	N/A	N/A
209001 LPCS											X	G.2.1.28 Knowledge of the purpose and function of major system components and controls. AUTOMATIC SYSTEM INITIATION	4.1 4.1	31.
209002 HPCS												N/A BL	N/A	N/A
211000 SLC					X							K5.04 Knowledge of STANDBY LIQUID CONTROL SYSTEM design feature(s) and / or interlocks which provide for the following: EXPLOSIVE VAVLE OPERATION	3.1 3.2	32.
212000 RPS						X						K6.04 Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR PROTECTION SYSTEM including: DC ELECTRICAL DISTRIBUTION	2.8 3.1	33.
215003 IRM						X						K6.02 Knowledge of the effect that a loss or malfunction of the following will have on the INTERMEDIATE RANGE MONITORS (IRM) SYSTEM: 24/48 VOLT D.C. POWER	3.6 3.8	34.
215004 Source Range Monitor							X					A1.02 Ability to predict and/or monitor changes in parameters associated with operating the SOURCE RANGE MONITOR (SRM) SYSTEM controls including: REACTOR POWER INDICATION	3.6 3.7	35.
215005 APRM / LPRM							X					A1.02 Ability to predict and/or monitor changes in parameters associated with operating the APRM controls including: RPS STATUS	3.9 4.0	36.

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System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
217000 RCIC						X						K6.01 Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC): ELECTRICAL POWER	3.4 3.5	37.
218000 ADS					X							K5.01 Knowledge of the operational implications of the following concepts as they apply to AUTOMATIC DEPRESSURIZATION SYSTEM: ADS LOGIC OPERATION	3.8 3.8	38.
223002 PCIS/Nuclear Steam Supply Shutoff								X				A2.05 Ability to predict (a) predict the impacts of the following on the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: NUCLEAR BOILER INSTRUMENTATION FAILURES	3.3 3.6	39.
239002 SRVs									X			A3.02 Ability to monitor automatic operations of the RELIEF/SAEFTY VALVES including: SRV OPERATION ON HIGH REACTOR PRESSURE	4.3 4.3	40.
259002 Reactor Water Level Control			X									K3.01 Knowledge of the effect that a loss or malfunction of the REACTOR WATER LEVEL CONTROL SYSTEM will have on the following: REACTOR WATER LEVEL	3.8 3.8	41.
261000 SGTS	X											K1.03 Knowledge of physical connection and/or cause-effect relationship between STANDBY GAS TREATMENT SYSTEM and the following: SUPPRESSION POOL	2.9 3.1	42.
262001 AC Electrical Distribution				X								K4.02 Knowledge of A.C. ELECTRICAL DISTRIBUTION design feature (s) and /or interlocks which provide for the following: CIRCUIT BREAKER AUTOMATIC TRIPS	2.9 3.3	43.
262002 UPS (AC/DC)						X						K6.01 Knowledge of the effect that a loss or malfunction of the following will have on the UNINTERRUPTABLE POWER SUPPLY (A.C. D.C.) A.C. ELECTRICAL POWER	2.7 2.9	44.
263000 DC Electrical Distribution	X											K1.02 Knowledge of the physical connections and/or cause-effect relationships between D.C. ELECTRICAL DISTRIBUTION and the following: BATTERY CHARGER AND BATTERY	3.2 3.3	45.

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System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
264000 EDGs	X											K1.04 Knowledge of the physical connections and/or cause- effect relationship between EMERGENCY GENERATORS (DIESEL/JET) and the following: EDG COOLING WATER SYSTEM	3.2 3.3	46.
300000 Instrument Air								X				A2.01 Ability to (a) predict the impacts of the following on the INSTRUMENT AIR SYSTEM and (B) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: AIR DRYER AND FILTER MALFUNCTIONS	2.9 2.8	47.
400000 Component Cooling Water								X				A2.02 Ability to (a) predict the impacts of the following on CCWS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: HIGH/LOW SURGE TANK LEVEL	2.8 3.0	48.
203000 RHR/LPCI: Injection Mode	X											K1.07 Knowledge of the physical connections and/or cause-effect relationships between RHR/LPCI: INJECTION MODE and the following: D.C. ELECTRICAL POWER	3.1 3.3	49.
206000 HPCI					X							K5.05 Knowledge of the operational implications of the following concepts as they apply to HIGH PRESSURE COOLANT INJECTION SYSTEM: TURBINE SPEED CONTROL	3.3 3.3	50.
212000 RPS		X										K2.01 Knowledge of electrical power supplies to the following: RPS motor-generator sets	3.2 3.3	51.
218000 ADS				X								K4.04 Knowledge of AUTOMATIC DEPRESSURIZATION SYSTEM design feature(s) and /or interlocks which provide for the following: Insures adequate air supply to ADS valves: Plant specific	3.5 3.6	52.
264000 EDGs						X						K6.01 Knowledge of the effect that a loss or malfunction of the following will have on the EMERGENCY DIESEL GENERATORS: STARTING AIR	3.8 3.9	53.
K/A Category Point Totals:	4	1	1	3	3	5	2	3	2	1	1	Group Point Total:		26/ 5

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ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 2 (RO)										Form ES-401-1		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#
201001 CRD Hydraulic		X										K2.02 Knowledge of electrical power supplies to the following: SCRAM VALVE SOLENOIDS	3.6 3.7	54.
201002 RMCS			X									K3.01 Knowledge of the effect that a loss or malfunction of the REACTOR MANUAL CONTROL SYSTEM will have on the following: ABILITY TO MOVE CONTROL RODS	3.4 3.4	55.
201006 RWM				X								K4.01 Knowledge of ROD WORTH MINIMIZER SYSTEM design features(s) and/or interlocks which provide for the following: INSERT BLOCKS/ERRORS	3.4 3.5	56
202002 Recirculation Flow Control										X		A4.01 Ability to manually operate and/or monitor in the control room: MG sets	3.3 3.1	57.
204000 RWCU						X						K6.05 Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR WATER CLEANUP SYSTEM : AC POWER	2.6 2.6	58.
215002 RBM									X			A3.04 Ability to monitor automatic operations of the ROD BLOCK MONITOR SYSTEM including: VERIFICATION OR PROPER FUNCTIONING/OPERABILITY OF ROD BLOCK MONITOR	3.6 3.5	59.
245000 Main Turbine Gen./Aux.											X	G2.1.28 Knowledge of the purpose and function of major system components and controls as it applies to Main Turbine Gen/Aux	4.1 4.1	60.
290003 Control Room HVAC											X	A4.04 Ability to manually operate and/or monitor in the control room: Environmental conditions	2.8 3.0	61.
233000 Fuel Pool Cooling/Cleanup			X									K3.01 Knowledge of the effect that a loss or malfunction of the FUEL POOL COOLING AND CLEANUP will have on the following: FUEL POOL TEMPERATURE	3.2 3.4	62.

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System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
201002 RMCS	X											K1.03 Knowledge of the physical connections and/or cause-effect relationship between REACTOR MANUAL CONTROL SYSTEM and the following: CONTROL ROD BLOCK INTERLOCKS/POWER OPERATION REFUELING	3.4 3.6	63.
214000 RPIS										X		A3.02 Ability to monitor automatic operations of the ROD POSITION INFORMATION SYSTEM including: Alarm and indicating lights	3.2 3.1	64.
201003 Control Rod and Drive Mechanism	X											K1.01 Knowledge of the physical connections and/or cause-effect relationships between CONTROL ROD AND DRIVE MECHANISM and the following: Control drive hydraulic system	3.2 3.3	65.
K/A Category Point Totals:	2	1	2	1	0	1	0	0	2	2	1	Group Point Total:		12/ 3

FINAL FITZPATRICK SRO Outline

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BWR Examination Outline

Form ES-401-1

Facility: Fitzpatrick											Date of Exam: May 2010					
Tier	Group	RO K/A Category Points											SRO-Only Points			
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total
1. Emergency & Abnormal Plant Evolutions	1	N/A											3	4	7	
	2	N/A											2	1	3	
	Tier Totals	N/A											5	5	10	
2. Plant Systems	1	N/A											2	3	5	
	2	N/A											0	2	1	3
	Tier Totals	N/A											4	4	8	
3. Generic Knowledge and Abilities Categories		1	2	3	4	N/A					1	2	3	4	7	
		NA	NA	NA	NA						2	2	1	2		
<p>Note:</p> <ol style="list-style-type: none"> 1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two). 2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ± 1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points. 3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems/evolutions that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements. 4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution. 5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively. 6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories. 7.* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable K/As. 8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams. 9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43. 																

FINAL FITZPATRICK SRO Outline

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E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4									
295003 Partial or Complete Loss of AC / 6						X	G.2.2.22 Knowledge of limiting conditions for operations and safety limits in regards to: PARTIAL OR COMPLETE LOSS OF AC	4.7	77.
295004 Partial or Total Loss of DC Pwr / 6									
295005 Main Turbine Generator Trip / 3						X	AA2.05 Ability to determine and/or interpret the following as they apply to MAIN TURBINE GENERATOR TRIP : REACTOR POWER	3.9	76.
295006 SCRAM / 1									
295016 Control Room Abandonment / 7						X	G.2.4.12 Knowledge of general operating crew responsibilities during emergency operations in regards to CONTROL ROOM ABANDONMENT	4.3	78.
295018 Partial or Total Loss of CCW / 8									
295019 Partial or Total Loss of Inst. Air / 8									
295021 Loss of Shutdown Cooling / 4						X	AA2.01 Ability to determine and/or interpret the following as they apply to LOSS OF SHUTDOWN COOLING: REACTOR WATER HEATUP/COOLDOWN RATE	3.6	79.
295023 Refueling Acc / 8						X	G.2.2.22 Knowledge of limiting conditions for operations and safety limits	4.7	80.
295024 High Drywell Pressure / 5									
295025 High Reactor Pressure / 3						X	EA2.05 Ability to determine and/or interpret the following as they apply to HIGH REACTOR PRESSURE: Decay heat generation	3.6	81.
295026 Suppression Pool High Water Temp. / 5									
295027 High Containment Temperature / 5	N/A								
295028 High Drywell Temperature / 5									
295030 Low Suppression Pool Water Level / 5						X	G.2.1.27 Knowledge of system purpose and/or function in regards to LOW SUPPRESSION POOL WATER LEVEL	4.0	82.
295031 Reactor Low Water Level / 2									
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1									
295038 High Off-site Release Rate / 9									

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E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
600000 Plant Fire On Site / 8									
700000 Generator Voltage and Electric Grid Disturbances / 6									
K/A Category Totals:					3	4	Group Point Total:		20/7

FINAL FITZPATRICK SRO Outline

ES-401	BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (SRO)							Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295002 Loss of Main Condenser Vacuum / 3						X	AA2.04 Ability to determine and/or interpret the following as they apply to LOSS OF MAIN CONDENSER VACUUM: OFFGAS SYSTEM FLOW	2.9	85.
295007 High Reactor Pressure / 3									
295008 High Reactor Water Level / 2									
295009 Low Reactor Water Level / 2									
295010 High Drywell Pressure / 5						X	AA2.06 Ability to determine and /or interpret the following as they apply to HIGH DRYWELL PRESSURE: DRYWELL TEMPERATURE	3.6	84.
295011 High Containment Temp / 5	N/A								
295012 High Drywell Temperature / 5									
295013 High Suppression Pool Temp. / 5									
295014 Inadvertent Reactivity Addition / 1									
295015 Incomplete SCRAM / 1						X	G.2.1.7 Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior and instrument interpretations as they apply to: INCOMPLETE SCRAM	4.7	88.
295017 High Off-site Release Rate / 9									
295020 Inadvertent Cont. Isolation / 5 & 7									
295022 Loss of CRD Pumps / 1									
295029 High Suppression Pool Water Level / 5									
295032 High Secondary Containment Area Temperature / 5									
295033 High Secondary Containment Area Radiation Levels / 9									
295034 Secondary Containment Ventilation High Radiation / 9									
295035 Secondary Containment High Differential Pressure / 5									
295036 Secondary Containment High Sump/Area Water Level / 5									
500000 High CTMT Hydrogen Conc. / 5									
K/A Category Point Totals:					2	1	Group Point Total:		7/3

FINAL FITZPATRICK SRO Outline

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 1 (SRO)													Form ES-401-1
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
203000 RHR/LPCI: Injection Mode														
205000 Shutdown Cooling														
206000 HPCI														
207000 Isolation (Emergency) Condenser	N/A													
209001 LPCS												X G.2.1.45 Ability to identify and interpret diverse indications to validate the response of another indication for LOW PRESSURE CORE SPRAY SYSTEM LINE BREAK PROTECTION	4.3	86.
209002 HPCS	N/A													
211000 SLC														
212000 RPS												X G.2.2.40 Ability to apply Technical Specifications for a system: RPS	4.7	87.
215003 IRM														
215004 Source Range Monitor												X G.2.1.40 Knowledge of refueling administrative requirements as they apply to SRM	4.2	83.
215005 APRM / LPRM														
217000 RCIC														
218000 ADS														
223002 PCIS/Nuclear Steam Supply Shutoff								X				A2.04 Ability to (a) predict the impacts of the following on the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: PROCESS RADIATION MONITORING SYSTEM FAILURES	3.2	90.
239002 SRVs														
259002 Reactor Water Level Control														
261000 SGTS														
262001 AC Electrical Distribution								X				A2.06 Ability to(a) predict the impacts of the following on the A.C. ELECTRICAL DISTRIBUTION ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: DE-ENERGIZING A PLANT BUS	2.9	89.

FINAL FITZPATRICK SRO Outline

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 1 (SRO)											Form ES-401-1		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
262002 UPS (AC/DC)														
263000 DC Electrical Distribution														
264000 EDGs														
300000 Instrument Air														
400000 Component Cooling Water														
K/A Category Point Totals:							2				3	Group Point Total:		26/ 5

FINAL FITZPATRICK SRO Outline

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 2 (SRO)											Form ES-401-1		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
201001 CRD Hydraulic														
201002 RMCS														
201003 Control Rod and Drive Mechanism							X					A2.10 Ability to(a) predict the impacts of the following on the CONTROL ROD AND DRIVE MECHANISM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: EXCESSIVE SCRAM TIME FOR A GIVEN DRIVE MECHANISM	3.4	91.
201004 RSCS	N/A													
201005 RCIS	N/A													
201006 RWM														
202001 Recirculation														
202002 Recirculation Flow Control														
204000 RWCU														
214000 RPIS														
215001 Traversing In-core Probe														
215002 RBM														
216000 Nuclear Boiler Inst.														
219000 RHR/LPCI: Torus/Pool Cooling Mode														
223001 Primary CTMT and Aux														
226001 RHR/LPCI:CTMT Spray Mode.														
230000 RHR/LPCI: Torus/Pool Spray Mode.														
233000 Fuel Pool cooling/Cleanup														
234000 Fuel Handling Equipment														
239001 Main and Reheat Steam														
239003 MSIV Leakage Control	N/A													

FINAL FITZPATRICK SRO Outline

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 2 (SRO)										Form ES-401-1			
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
241000 Reactor/Turbine Pressure Regulator								X				A2.04 Ability to(a) predict the impacts of the following on the REACTOR/TURBINE PRESSURE REGULATOR and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: FAILED OPEN/CLOSED CONTROL/GOVERNOR VALVE	3.8	93.
245000 Main Turbine Gen. / Aux.														
256000 Reactor Condensate														
259001 Reactor Feedwater														
268000 Radwaste														
271000 Offgas														
272000 Radiation Monitoring														
286000 Fire Protection														
288000 Plant Ventilation														
290001 Secondary CTMT														
290003 Control Room HVAC											X	G.2.2.38 Knowledge of conditions and limitations in the license.	4.5	92.
290002 Reactor Vessel Internals														
K/A Category Point Totals:							2				1	Group Point Total:		12/ 3

Facility:		Fitzpatrick		Date of Exam:			
Category	K/A #	Topic	RO		SRO-Only		
			IR	#	IR	#	
1. Conduct of Operations	2.1.5	Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.	2.9	66.	N/A	N/A	
	2.1.32	Ability to explain and apply system limits and precautions.	4.6	67.	N/A	N/A	
	2.1.20	Ability to interpret and execute procedure steps.	3.8	68.	N/A	N/A	
	Subtotal			3	N/A	N/A	
2. Equipment Control	2.2.38	Knowledge of conditions and limitations in the facility license	3.6	69.	N/A	N/A	
	2.2.1	Ability to perform pre-startup procedures for the facility/including operating those controls associated with plant equipment that could affect reactivity.	4.5	70.	N/A	N/A	
	Subtotal			2	N/A	N/A	
3. Radiation Control	2.3.12	Knowledge of radiological safety principles pertaining to licensed operator duties such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.	3.2	71.	N/A	N/A	
	2.3.11	Ability to Control Radiation Releases	3.8	72.	N/A	N/A	
	Subtotal			2	N/A	N/A	
4. Emergency Procedures/Plan	2.4.6	Knowledge of EOP mitigation strategies.	3.7	73.	N/A	N/A	
	2.4.17	Knowledge of EOP terms and definitions	3.9	74.	N/A	N/A	
	2.4.32	Knowledge of operator response to loss of all annunciators	3.6	75.	N/A	N/A	
	Subtotal			3		N/A	
Tier 3 Point Total				10		N/A	

FINAL FITZPATRICK SRO Outline

Facility:		Fitzpatrick	Date of Exam:		May 2010	Form ES-401-3	
Category	K/A #	Topic	SRO-Only				
			IR	#			
1. Conduct of Operations	2.1.35	Knowledge of the fuel handling responsibilities of SROs	3.9	94			
	2.1.4	Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc.	3.8	95			
	Subtotal			2			
2. Equipment Control	2.2.6	Knowledge of the process for making changes to procedures.	3.6	96			
	2.2.44	Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.	4.4	97			
	Subtotal			2			
3. Radiation Control	2.3.6	Ability to approve release permits.	3.8	98			
	Subtotal			1			
4. Emergency Procedures/Plan	2.4.29	Knowledge of the emergency plan.	4.4	99			
	2.4.41	Knowledge of the emergency action level thresholds and classifications.	4.6	100			
	Subtotal			2			
Tier 3 Point Total				7			

Tier / Group	Randomly Selected K/A	Reason for Rejection
2/2 Q63/RO	234000 Fuel Handling Equipment K5.02	During NRC review of proposed changes to question, determined that the question did not match the K/A as it applied to SROs only. K/A was changed to 201002 RMCS K1.03 Control rod block interlock/refueling (3.4)
3/1 Q67/RO	G.2.1.20	During NRC review of proposed changes to question, determined that the question did not match the K/A. K/A was changed to G.2.1.32.
3/1 Q68/RO	G.2.1.32	During NRC review of proposed changes to question, determined that the question did not match the K/A. K/A was changed to G.2.1.20.
1/2 Q85/SRO	500000 High Containment Hydrogen Concentration EA2.03	During NRC review of proposed changes to question, determined that the SRO only section of questions had been over-sampled with Technical Specification questions. K/A was changed to Loss of Condenser Vacuum. 295002;AA2.04
3/ Q94/SRO	G.2.1.34	During NRC review of proposed changes to question, determined that the SRO only section of questions had been over-sampled with Technical Specification questions. K/A was changed to Knowledge of the Fuel Handling responsibilities for SROs G.2.1.35.
3/ Q96/SRO	G.2.2.25	During NRC review of proposed changes to question, determined that the SRO only section of questions had been over-sampled with Technical Specification questions. K/A was changed to Knowledge of the process for making changes to procedures G.2.2.6.

Facility: James A. Fitzpatrick Date of Examination: May 2010
 Examination Level: RO Operating Test Number: 1

Administrative Topic (see Note)	Type Code *	Describe activity to be performed
Conduct of Operations A-1-1	N,R	Core Thermal Power Calculated Manually K/A: 2.1.18 IR:3.6
Conduct of Operations A-1-2	N,R	Work Hour Restrictions K/A: 2.1.5 IR: 2.9
Equipment Control A-2	N,R	Initiate a manual tagout K/A: 2.2.13 IR: 4.1
Radiation Control A-3	D,R	Liquid Radwaste Potentiometer Settings K/A: 2.3.11 IR: 3.8
Emergency Plan A-4		Not required for RO (only 4 out of 5 items necessary per note below)

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

* Type Codes & Criteria: (C)ontrol Room, (S)imulator, or Class(R)oom
 (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs and RO retakes)
 (N)ew or (M)odified from bank (≥ 1)
 (P)revious 2 exams (≤ 1; randomly selected)

Facility: James A.Fitzpatrick Date of Examination: May 2010
 Examination Level: SRO Operating Test Number: 1

Administrative Topic (see Note)	Type Code *	Describe activity to be performed
Conduct of Operations A1-1	N,R	Core Thermal Power Calculated Manually K/A: 2.1.18 IR: 3.8
Conduct of Operations A1-2	M, R	Determine Required Event Followup <i>CONTAINS SENSITIVE INFORMATION – NOT FOR PUBLIC DISCLOSURE</i> K/A: 2.1.20 IR: 4.6
Equipment Control A-2	N,R	Use station drawings to predict impact of component failure and evaluate technical specification implications K/A: 2.2.15 IR: 4.3
Radiation Control A-3	N,R	Determine Radiation Controls. K/A: 2.3.4 IR: 3.7 <i>ADMINISTER A-3 AND A-4 SRO JPMS AS A PAIR</i>
Emergency Plan A-4	M,R	Determine Protective Action Recommendations and Complete Event Notification Form K/A 2.4.38 IR: 4.4 <i>ADMINISTER A-3 AND A-4 SRO JPMS AS A PAIR</i>

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

* Type Codes & Criteria: (C)ontrol Room, (S)imulator, or Class(R)oom
 (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs and RO retakes)
 (N)ew or (M)odified from bank (≥ 1)
 (P)revious 2 exams (≤ 1; randomly selected)
 (S)imulator

Facility:	James A. Fitzpatrick	Date of Examination:	May 2010
Exam Level:	RO	Operating Test No.:	1
Control Room Systems [@] (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)			
	System / JPM Title	Type Code*	Safety Function
S-1	RCIC / Initiate RCIC in Pressure Control with Speed Failure	N,S,L,A	4 Heat Removal
S-2	HPCI / Full Flow Test	N,S,A,EN	2 Inventory
S-3	RPS / Reactor Scram With a Control Rod Insertion Failure	D,S,L,A	1 Reactivity
S-4	RHR / Spray the Drywell	N,S,L,A	5 Cntmt Integrity
S-5	RBVS / Manual Isolation and Verification of RB Ventilation	D,S,L	9 Rad Release
S-6	EDG / Perform Diesel Operability Test with Failure of ESW	N,S,A	6 Electrical
S-7	SRM / Perform SRM Signal to Noise Ratio Determination Test; ST-5H;	D,S,L	7 Instrumentation
S-8	FP / Perform RPV Isolation During Plant Fire	D,S	8 Plant System
In-Plant Systems [@] (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U))			
P-1	CRD / Change In-service CRD Pump Suction Filter	N,R	1 Reactivity
P-2	HPCI / EOP Isolation Interlock Overrides – HPCI System Isolation Valves on Low Steam Supply Pressure	D	4 Heat Removal
P-3	ADS / Alternate Depressurization using SRVs from Panel 02ADS-71	D,E,R	3 Pressure

<p>@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>	
* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Facility:	James A. Fitzpatrick	Date of Examination:	May 2010
Exam Level:	SRO-I	Operating Test No.:	1

Control Room Systems [@] (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)			
System / JPM Title		Type Code*	Safety Function
S-1	RCIC / Initiate RCIC in the Pressure Control with speed control failure	N,S,L,A	4 Heat Removal
S-2	HPCI / Full Flow Test	N,S,A,EN	2 Inventory
S-3	RPS / Reactor Scram With a Control Rod Insertion Failure	D,S,L,A	1 Reactivity
S-4	RHR / Spray the Drywell	N,S,L,A	5 Cntmt Integrity
S-5	RBVS / Manual Isolation and Verification of RB Ventilation	D,S,L	9 Rad Release
S-6	EDG / Perform Diesel Operability Test with Failure of ESW	N,S,A	6 Electrical
S-7	SRM / Perform SRM Signal to Noise Ratio Determination Test; ST-5H.	D,S,L	7 Instrumentation
S-8	RO ONLY		
In-Plant Systems [@] (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U))			
P-1	CRD / Change In-service CRD Pump Suction Filter	N,R	1 Reactivity
P-2	HPCI / EOP Isolation Interlock Overrides – HPCI System Isolation Valves on Low Steam Supply Pressure	D	4 Heat Removal
P-3	ADS / Alternate Depressurization using SRVs from Panel 02ADS-71	D,E,R	3 Pressure

<p>[@] All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>	
* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥1 (control room system)
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Facility:	James A. Fitzpatrick	Date of Examination:	May 2010
Exam Level:	SRO-U	Operating Test No.:	1
Control Room Systems [@] (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)			
	System / JPM Title	Type Code*	Safety Function
S-1	Not required for SRO-Upgrade		
S-2	HPCI / Full Flow Test	N,S,A,EN	2 Inventory
S-3	RPS / Reactor Scram With a Control Rod Insertion Failure	D,S,L,A	1 Reactivity
S-4	RHR / Spray the Drywell	N,S,L,A	5 Cntmt Integrity
S-5	Not required for SRO-Upgrade		
S-6	Not required for SRO-Upgrade		
S-7	Not required for SRO-Upgrade		
S-8	Not required for SRO-Upgrade		
In-Plant Systems [@] (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U))			
P-1	CRD / Change In-service CRD Pump Suction Filter	N,R	1 Reactivity
P-2	Not required for SRO-Upgrade		
P-3	ADS / Alternate Depressurization using SRVs from Panel 02ADS-71	D,E,R	3 Pressure

<p>@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>	
* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Facility: Fitzpatrick		Scenario No.: 1		Op-Test No.: 1	
Examiners: _____			Operators: _____		
_____			_____		
_____			_____		
Initial Conditions: Reactor startup is in progress with power at 90%. SWS pumps 46P-1A and 46P-1B are in service with 46P-1C in standby.					
Turnover: Continue power ascension to 100% IAW RAP-7.3.16. Maintenance is required on 46P-1A. Place 46P-1C in service.					
Event No.	Malf. No.	Event Type*	Event Description		
1.	N/A	N-SNO	Swap SWS pumps. Place 46P-1C in service and remove 46P-1A.		
2.	N/A	R-SNO	Raise power to 100% power using Rx recirc		
3.	RR23:A	I-ATC TS-CRS	'A' Recirc Flow unit failure. TS call		
4.	RR19:B	I-SNO2 TS-CRS	Upscale failure of 06LT-52B; FWLC level transmitter. TS call		
5.	FW01:B	R-ATC C-SNO2	Trip of 'B' RFPT; Rx Recirc runbacks to 44% speed.		
6.	RR15:A RP01AA RP01AB	M-ALL	Coolant leakage inside primary containment. Defeat Auto Scram Function		
7.	ED43:A ED43:B DG03:A DG03:C	M-ALL	Loss of offsite AC power. Failure of 'A' and 'C' EDG output breakers to close.		
8.	AD07:A	C-SNO2	'A' ADS fails to open		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

Facility: Fitzpatrick	Scenario No.: 2	Op-Test No.: 1	
Examiners: _____ _____	Operators: _____ _____		
Initial Conditions: Reactor is in Mode 1 with power at 80%. Power ascension on hold for CRD pump swap.			
Turnover: Swap CRD pumps. Place 'A' CRD pump in service and remove 'B' CRD pump from service.			
Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N-SNO2	Place 'A' CRD pump in service and remove 'B' CRD pump from service.
2	HP05	TS-SRO C-SNO2	Inadvertent HPCI initiation
3	FW13:A	R-ATC C-SNO2	33E-6A Feedwater Heater Tube Leak.
4	ED04:A	C-SNO2 TS-SRO	Inverter failure 71-INV-3A failure
5	MC01	C-ATC	Main condenser air In-leakage; Loss of condenser vacuum
6	RP01A RP01B RP09	M-ALL	Failure to scram; RPS is still energized, ARI fails to actuate.
7	SL01:A or B SL03:A or B	C-ATC	Trip of the in service SLC pump with SLC pump 'A' or 'B' relief 11-RV-39A or 11-39B lifts
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Facility: Fitzpatrick	Scenario No.: 4	Op-Test No.: 1	
Examiners: _____	Operators: _____	_____	
_____	_____	_____	
Initial Conditions: Reactor power is 60%. ST-3PA, 'A Core Spray Valve IST' is marked as complete up to step 8.2.			
Turnover: Power was lowered to 60% power to perform a rod pattern adjustment. Perform section 8.2 of ST-3PA for Core Spray Loop A Quarterly Operability Test (IST), and then perform rod pattern adjustment.			
Event No.	Mal. No.	Event Type*	Event Description
1	OVR 1	N-SNO2 TS-SRO	Perform ST-3PA Sect 8.2 only. A Core Spray Valve IST
2	RD11 :18 : 15	R-ATC C-ATC	Perform Rod Pattern adjustment and uncoupled control rod 18 :15
3	RD03:B	C-SNO2	B CRD Flow control valve fails partially closed. Swap to A valve.
4	RR22:A RPO1AA	TS-SRO I-SNO2	Reactor Level Transmitter 02-3LT-101A fails low with failure to half scram.
5	ED10 ED03:C	C-Crew	UPS Bus Failure causes loss of L15, L25 and UPS.
6	RX01	M-Crew	Fuel failure leads to High Rad. MSL.
7	MS05	M-Crew	MSL break. Enter Radioactivity Release Control EOP-6 and Emergency Depressurization.
8	MS08B:C MS08B:G	C-SNO2	Initiate Manual MSL isolation. One MSL fails to isolate
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			