

NRC-PREPARED OUTLINE

FOR THE FERMI INITIAL EXAMINATION - JUNE 2001

Facility:		Date of Examination: 6/4/01		
Item	Task Description	Initials		
		a	b*	c#
1. W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model per ES-401.	DM	DP	N/A MEB
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.	DM	DP	MEB
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	DM	DP	MEB
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	DM	DP	MEB
2. S I M	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, and major transients.	DM	JH	MEB
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity; ensure each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s)*, and scenarios will not be repeated over successive days.	DM	JH	MEB
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.	DM	JH	MEB
3. W / T	a. Verify that: (1) the outline(s) contain(s) the required number of control room and in-plant tasks, (2) no more than 30% of the test material is repeated from the last NRC examination, (3)* no tasks are duplicated from the applicants' audit test(s), and (4) no more than 80% of any operating test is taken directly from the licensee's exam banks.	DM	JH	MEB
	b. Verify that: (1) the tasks are distributed among the safety function groupings as specified in ES-301, (2) one task is conducted in a low-power or shutdown condition, (3) 40% of the tasks require the applicant to implement an alternate path procedure, (4) one in-plant task tests the applicant's response to an emergency or abnormal condition, and (5) the in-plant walk-through requires the applicant to enter the RCA.	DM	JH	MEB
	c. Verify that the required administrative topics are covered, with emphasis on performance-based activities.	DM	JH	MEB
	d. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on successive days.	DM	JH	MEB
4. G E N E R A L	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.	DM	JH	MEB
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	DM	JH	MEB
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	DM	JH	MEB
	d. Check for duplication and overlap among exam sections.	DM	JH	MEB
	e. Check the entire exam for balance of coverage.	DM	JH	MEB
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	DM	JH	MEB
a. Author	<i>David L. Pelton</i> DAVID L. PELTON	Printed Name / Signature JAY HICKINS		Date 5-10-01
b. Independent Reviewer (*)	N/A			N/A
c. NRC Chief Examiner (#)	Michael E. Bickley / Michael F. Bulthé			5/10/01
d. NRC Supervisor	Drill R. McNeil / Drill R. McNeil (for DEH)			06/01/01
Note:	* Not applicable for NRC-developed examinations. # Independent NRC reviewer initial items in Column "c;" chief examiner concurrence required.			

Facility: <u>Fermi 2</u>		Date of Examination: <u>June 2001</u>
Examination Level (circle one): RO / SRO		Operating Test Number: <u>2001-1</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Plant Parameter Verification	Perform Core Thermal Limit Verification (find out of spec data) JPM - K/A 2.1.19, Ability to use plant computer to obtain and evaluate parametric information on system or component status. {04/06/1998 NRC Exam} RO 3.0 SRO 3.0
	Interpret Drawings	Determine the effect of relay G33A-K3B failure. JPM - K/A 2.1.24, Ability to obtain and interpret station electrical and mechanical drawings. RO 2.8 SRO 3.1 {New}
A.2	Surveillance Test	Perform SR 3.8.1.1 for OPERABLE offsite circuit(s) due to an inoperable EDG. JPM - K/A 2.2.12, Knowledge of surveillance procedures. RO 3.0 SRO 3.4 {New}
A.3	Radiation Work Permit	Calculate Maximum Radiological Stay Time. JPM - K/A Generic 2.3.4, Knowledge of radiation exposure limits and contamination control / including permissible levels in excess of those authorized. RO 2.5
A.4	Emergency Com - munications	Perform actions as Emergency communicator during declaration of a General Emergency. JPM - K/A 2.4.43, Knowledge of emergency communications systems and techniques. RO 2.8

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	Interpret Drawings	Determine the effect of relay G33A-K3B failure. JPM - K/A 2.1.24, Ability to obtain and interpret station electrical and mechanical drawings. RO 2.8 SRO 3.1 {New}
A.2	Surveillance Test	Perform SR 3.8.1.1 for OPERABLE offsite circuit(s) due to an inoperable EDG. JPM - K/A 2.2.12, Knowledge of surveillance procedures. RO 3.0 SRO 3.4 {New}
A.3	Determine Excess Exposure	Given a list of workers and their exposure, determine which ones may perform a specific task in a high radiation area. JPM - K/A 2.3.4, Knowledge of radiation exposure limits and contamination control / including permissible levels in excess of those authorized. SRO 3.1
A.4	Emergency action levels and classifications	Determine Emergency Classification and PARs JPM - K/A 2.4.41, Knowledge of the emergency action level thresholds and classifications. SRO 4.1

Facility: <u>Fermi 2</u>		Date of Examination: <u>June 2001</u>	
Exam Level (circle one): RO / SRO(I) / SRO(U)		Operating Test No.: <u>2001-1</u>	
B.1 Control Room Systems			
System / JPM Title		Type Code*	Safety Function
a. RR MG SET Startup with Reactor not Shutdown under all Conditions IAW 23.138.01 202001 - A4. Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) - A4.01, Recirculation pumps 3.7/3.7 & A4.02, System valves 3.5/3.4		N/A/S	1
b. Transfer from 1 Element Level Control to Startup Level Control Mode 259002 - K4. - Knowledge of REACTOR WATER LEVEL CONTROL SYSTEM design feature(s) and/or interlocks which provide for the following:(CFR: 41.7) - K4.08, TDRFP speed control: 2.9/3.0; K4.09, Single element control 3.1/3.1 & K4.12, Manual and automatic control of the system 3.5/3.4 A4. - Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) - A4.01, All individual component controllers in the manual mode 3.8/3.6 & A4.07, All individual component controllers when transferring from automatic to manual mode 3.8/3.6		N/S	2
c. Operate RCIC in Test Mode for Pressure Control IAW 23.206 EPE: 295025 High Reactor Pressure - EA1. Ability to operate and/or monitor the following as they apply to HIGH REACTOR PRESSURE: (CFR: 41.7 / 45.6) - EA1.05 RCIC: 3.7/3.7		N/A/S	3
d. Alternate Reactor Coolant Circulation and Decay Heat Removal - Core Spray or RHR IAW 23.800.05 295021 Loss of Shutdown Cooling - AA1. Ability to operate and/or monitor the following as they apply to LOSS OF SHUTDOWN COOLING: (CFR: 41.7 / 45.6) - AA1.04, Alternate heat removal methods 3.7/3.7		N/A/S/L	4
e. Vent the Torus Irrespective of Offsite Release Rates IAW 29.ESP.07 223001 - A4.07, Ability to manually operate and/or monitor Drywell pressure in the control room. 4.2/4.1		D/S/L {1998 NRC}	5
f. Restore Offsite Power to an ESF Bus IAW 23.321 262001 AC Electrical Distribution - K1.01 Knowledge of the physical connections and/or cause-effect relationships between A.C. ELECTRICAL DISTRIBUTION and Off-site power 3.8/4.3 & A2.03 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 a Loss of Offsite power. 3.9/4.3		D/S	6
g. Perform Division 1 Testable MSIV Leakage Control System valve full travel cycle test IAW 24.137.016. 239003 - A4., Ability to manually operate / monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) - A4.02,†Surveillance testing: 2.5/2.8		N/S	9
B.2 Facility Walk-Through			
a. Defeat of all MSIV and Main Steam Line Drain Valve Isolation Signals IAW 29.ESP.12 295037 EK3.06 Maintaining heat sinks external to the containment 3.8 / 4.1 & 295037 EA2.07 Containment conditions/ isolations 4.1 / 4.2 & 223002 K4.08 Manual defeat of selected isolations during emergency conditions 3.3 / 3.7		D/L {ESF} {1998 NRC}	5
b. Startup of RPS MG Sets and Alternate Transformers IAW 23.316 212000 - K2.01, 3.2/3.3 Knowledge of Power Supply to RPS MG sets & K4.03, 3.0/3.1 Design features/interlocks which provide prevention of supplying power to a given RPS bus from multiple sources simultaneously & K4.04, 3.1/3.1 Design features/interlocks which provide prevention of supplying both RPS buses simultaneously from the alternate power source & A1.01, 2.8/2.9 Monitor changes in RPS MG output voltage & A1.02, 2.8/2.9 Monitor changes in RPS MG output amps		M/A	7
c. RBCCW/EECW Manual Temperature Control IAW 23.127 400000 - A2., Ability to (a) predict the impacts of the following on the CCWS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: (CFR: 41.5 / 45.6) - A2.03, High/low CCW temperature 2.9/3.0		N/R	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			

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B.1 Control Room Systems		
System / JPM Title	Type Code*	Safety Function
a.		
b. Transfer from 1 Element Level Control to Startup Level Control Mode 259002 - K4. - Knowledge of REACTOR WATER LEVEL CONTROL SYSTEM design feature(s) and/or interlocks which provide for the following:(CFR: 41.7) - K4.08, TDRFP speed control: 2.9/3.0; K4.09, Single element control 3.1/3.1 & K4.12, Manual and automatic control of the system 3.5/3.4 A4. - Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) - A4.01, All individual component controllers in the manual mode 3.8/3.6 & A4.07, All individual component controllers when transferring from automatic to manual mode 3.8/3.6	N/S	2
c.		
d. Alternate Reactor Coolant Circulation and Decay Heat Removal - Core Spray or RHR IAW 23.800.05 295021 Loss of Shutdown Cooling - AA1. Ability to operate and/or monitor the following as they apply to LOSS OF SHUTDOWN COOLING: (CFR: 41.7 / 45.6) - AA1.04, Alternate heat removal methods 3.7/3.7	N/A/S/L	4
e.		
f.		
g.		
B.2 Facility Walk-Through		
a. Defeat of all MSIV and Main Steam Line Drain Valve Isolation Signals IAW 29.ESP.12 295037 EK3.06 Maintaining heat sinks external to the containment 3.8 / 4.1 & 295037 EA2.07 Containment conditions/ isolations 4.1 / 4.2 & 223002 K4.08 Manual defeat of selected isolations during emergency conditions 3.3 / 3.7	D/L {ESF} {1998 NRC}	5
b. Startup of RPS MG Sets and Alternate Transformers IAW 23.316 212000 - K2.01, 3.2/3.3 Knowledge of Power Supply to RPS MG sets & K4.03, 3.0/3.1 Design features/interlocks which provide prevention of supplying power to a given RPS bus from multiple sources simultaneously & K4.04, 3.1/3.1 Design features/interlocks which provide prevention of supplying both RPS buses simultaneously from the alternate power source & A1.01, 2.8/2.9 Monitor changes in RPS MG output voltage & A1.02, 2.8/2.9 Monitor changes in RPS MG output amps	M/A	7
c. RBCCW/EECW Manual Temperature Control IAW 23.127 400000 - A2., Ability to (a) predict the impacts of the following on the CCWS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: (CFR: 41.5 / 45.6) - A2.03, High/low CCW temperature 2.9/3.0	N/R	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		

Facility: FERMI 2 Scenario No.: A Op-Test No.: 2001

Examiners: _____

Operators: _____

Initial Conditions: Plant is at 25% power with a startup in progress in accordance with GOP 22.000.03, POWER OPERATION 25% TO 100% TO 25%

Turnover: Continue plant Startup. Severe thunder storm warnings for area later in the day. HPCI is out of service for oil change, estimated return to service is 12 hours. Perform 24.402.01 Drywell and Suppression Chamber Vacuum Breaker Operability Test, beginning at step 5.1.26. TWMS in service in CLEANUP MODE.

Event No.	Malf. No.	Event Type*	Event Description
1		R (RO)	Increase power from 25% to approximately 30%
2	MF0100	C (RO)	Control Rod 02-35 uncoupled
3		N (BOP)	24.402.01, Drywell and Suppression Chamber Vacuum Breaker Operability Test
4	RF0736	C (BOP)	G5100-F611, TWMS Cond to Torus Makeup Vlv, fail closed.
5	MF3573	C (BOP)	CCHVAC, T4100C031, Return Air Fan trip.
6	Panel Override	I (RO)	Auto-Manual flow controller FH/A-R600 {fail flow indication high}
6	MF0069		Control Air Failure to C11-F002A
7		ALL	Thunder Storm/Tornado Watch - Lightening Strike
7	MF3385	C (RO)	Turbine Bypass Valve East N11-F059A Failure @ 100% Open on 60 second ramp.
7	MF3126	ALL	Cycle of 120 kV Breaker GM in 120kV Switchyard {Lightening Strike}
8	RF1711 RF1712 RF1709 RF1710	M(ALL)	Turbine Generator Load Rejection/ATWS Breaker CM Disconnect CO, Breaker CM Disconnect CK, Breaker CF Disconnect CD & Breaker CF Disconnect CH
8	MF3595 MF3671	M (ALL)	Total Scram Failure All Rods Stuck, variable density @ 5%
8	MF3604	C (RO)	SLC Pump A – TRIP
9	RF1424	M (ALL)	Loss of Div II Offsite Power/Partial Loss of Div II Onsite Power Brownstown #2 345kV Disconnects OPEN
9	MF3513	C (BOP)	EDG 14 Fails to Start
9	MF1419	C (BOP)	C002B, RHR Pump B Trip {Trigger for 1 minute after started}

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

Facility: <u>FERMI 2</u>	Scenario No.: <u>B spare</u>	Op-Test No.: <u>2001</u>	
Examiners: _____ _____	Operators: _____ _____		
Initial Conditions: <u>Plant is at 88% power following 24.110.05, RPS-TURBINE CONTROL AND STOP VALVE FUNCTIONAL TEST</u>			
Turnover: <u>Return to full power in accordance with GOP 22.000.03, POWER OPERATION 25% TO 100% TO 25%. HPCI is out of service for oil change, estimated return to service is 12 hours.</u>			
Event No.	Malfunction No.	Event Type*	Event Description
1		R (RO)	Report from field that North Reactor Feed Pump outboard pump bearing has oil leak. Perform Rapid Power Reduction (23.623) to <65% power. {Insert Cram Array to reduce power (prevent Recirc Manual Runback)}
2		N (BOP)	Shutdown North Reactor Feed Pump IAW 23.107
3	MF1181	C (RO)	A CRD Hydraulic Pump Trip
4	MF0025	C (BOP)	Failed Safety Relief Valve B21-F013K
5	MF0065 MF0066 RF0048 MF0251 MF0341 MF0533	C (RO)	RR Seal Failure / ATWS Recirc Seal Failure Pump B Lower Recirc Seal Failure Pump B Upper ATWS with ARI Insertion Control Rod 14-19 STUCK Control Rod 18-23 STUCK Control Rod 26-31 STUCK
5	RF0036	C (RO)	MOV B3105-F023B Breaker OPEN {fail after dual indication during isolation of B RR Pump}
6	MF0068	M (ALL)	Small Break LOCA with reduced mitigation capabilities. B Recirculation Loop Rupture
6	RF0571	C (BOP)	MOV E1150-F048A Breaker fail open
6	MF1425	C (BOP)	RHR SW Pump D Trip
6	VO0177	C (BOP)	RHR CNMT Spray Otbd Isol Vlv Fail as Is E11-F016B {Fail Full OPEN}

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

Facility: FERMI 2 Scenario No.: C Op-Test No.: _____

Examiners: _____ Operators: _____

Initial Conditions: At approximately 75% power following an emergency power reduction due to a loss of feedwater heating.

Turnover: Withdraw Cram Array and return to full power. HPCI oil change complete and system fill and vent is complete, return to standby mode in accordance with SOP 23.202 High Pressure Coolant Injection. Set up HPCI for PMT run.

Event No.	Malf. No.	Event Type*	Event Description
1		R (RO)	Withdraw Cram Array
2	MF0803	C (RO)	Control Rod difficult to withdraw
3	MF3662		Fuel Cladding Failure
4		N (BOP)	Return HPCI to Standby Mode IAW 23.202
5	MF1428 RF0647 MF1435 Panel Override MF1708	I (BOP)	HPCI Spurious Isolation with failure to isolate HPCI Logic B Spurious Isolation. MOV E4150-F003 Breaker - OPEN. HPCI Turbine Trip - TRIPPED. E4100-F028, HPCI Stm Sply Drn Pot Inbd Iso - OPEN. E4100-F029, HPCI Stm Sply Drn Pot Otbd Iso - OPEN. H30-2D77, HPCI Turbine Inlet Drain Pot Level High - In Alarm
6	MF1451	C (RO)	RWCU Non-Regenerative Heat Exchanger Tube Leak {5% over 5 minutes}
7	VO1309	C (SRO)	Trip of 72B-3A MCC Main Feed Breaker Trip
8	MF2469 MF3338	M (ALL)	06D069 Seismic System Event/Trouble with Feedwater Line Rupture Outside Containment {0-15% break ramped in over 5 minutes}
9	MF2469 MF3571	M (ALL)	06D069 Seismic Event with RHR Suction Line Break Downstream of F004A, {0-100% ramp}
9	MF0020 MF0024	C (BOP)	Failure of ADS SRVs during emergency Depressurization MAIN STEAM SRV FAILURE B21-F013E 0% MAIN STEAM SRV FAILURE B21-F013J 0%

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

Facility: Fermi		Date of Exam: June, 2001				Exam Level: Reactor Operator							
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	1	1				3	3			2	13
	2	3	4	2				3	4			3	19
	3	1	1	1				1					4
	Tier Totals	7	6	4				7	7			5	36
2. Plant Systems	1	3	2	2	2	3	2	3	3	3	3	2	28
	2	2	2	2	2	1	2	1	1	2	2	2	19
	3			1		1	1				1		4
	Tier Totals	5	4	5	4	5	5	4	4	5	6	4	51
3. Generic Knowledge and Abilities					Cat 1		Cat 2		Cat 3		Cat 4		13
					3		3		3		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>													

ES-401

BWR RO Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1

Form ES-401-2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
(001) 295005 Main Turbine Generator Trip / 3						x	2.1.2 Knowledge of operator responsibilities during all modes of plant operation. (CFR: 41.10 / 45.13) {3.0/4.0}	3.0	1
(002) 295006 SCRAM / 1				02			operate/monitor the Rx water level control system as applies to SCRAM: (CFR: 41.7 / 45.6) 3.9/3.8	3.9	1
(003)					01		Ability to determine and/or interpret the following (Reactor power 4.5*/4.6*) as they apply to SCRAM: (CFR: 41.10 / 43.5 / 45.13)	3.5	1
(004) 295007 High Reactor Pressure / 3			06				reasons for following responses as apply to Hi Rx Press: (CFR: 41.5 / 45.6).....Reactor/turbine pressure regulating system operation 3.7/3.8	3.7	1
(005) 295009 Low Reactor Water Level / 2	02						operational implications of following concepts as apply to Lo Rx WATER LEVEL: (CFR: 41.8 to 41.10)..RR pump net positive suction head: 3.0/3.1	3.0	1
(006) 295010 High Drywell Pressure / 5		02					interrelations between Hi DW Press and following: (CFR: 41.7 / 45.8).....DW/suppression chamber differential pressure: Mark-I&II 3.3/3.5	3.3	1
(007) 295014 Inadvertent Reactivity Addition / 1						x	2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics / reactor behavior / and instrument interpretation. (CFR: 43.5 / 45.12 / 45.13) {3.7/ 4.4}	3.7	1
(008) 295015 Incomplete SCRAM / 1				02			operate and/or monitor following as apply to INCOMPLETE SCRAM: (CFR:41.7/45.6) RPS 4.0/4.2	4.0	1
(009) 295024 High Drywell Pressure / 5					04		Ability to determine and/or monitor Suppression chamber pressure as applies to Hi DW PRESS {4.1/4.1}	4.1	1
(010) 295025 High Reactor Pressure / 3				03			Ability to operate and/or monitor SRVs as they apply to HI Rx PRESS. {4.4/4.4}	4.4	1
(011) 295031 Reactor Low Water Level / 2	01						operational implications of following concepts as apply to Rx Lo WATER LEVEL: (CFR: 41.8 to 41.10)....Adequate core cooling 4.6/4.7	4.6	1
(012) 295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	06						operational implications of following concepts as apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: (CFR: 41.8 to 41.10) Cooldown effects on reactor power 4.0*/4.2*	4.2	1
(013) 500000 High Containment Hydrogen Conc. / 5					03		Determine/interpret (Combustible limits for drywell 3.3/3.8) as applies to Hi Pri Cnmt H2 Concentrations: (CFR: 41.10 / 43.5 / 45.13)	3.3	1
K/A Category Totals:	3	1	1	3	3	2	Group Point Total:		13

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
(014) 295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4				06			operate/monitor following as apply to Partial/Complete Loss of Forced Core Flow Circ: (CFR: 41.7 / 45.6)...Neutron monitoring system...3.3/3.4	3.3	1
(015) 295002 Loss of Main Condenser Vacuum / 3					04		determine/interpret following as apply to Loss of Main Condenser Vacuum: (CFR: 41.10 / 43.5 / 45.13).....Offgas system flow..2.8/2.9	2.8	1
(016) 295003 Partial or Complete Loss of AC Pwr / 6						x	2.1.23 Ability to perform specific system and integrated plant procedures during different modes of plant operation. (CFR: 45.2 / 45.6) {3.9/4.0}	3.9	1
(017) 295004 Partial or Complete Loss of DC Pwr / 6	05						operational implications of following concepts as apply to Partial/Complete Loss of D.C. Power: (CFR: 41.8-41.10).....Loss of breaker protection.....3.3/3.4	3.3	1
(018) 295008 High Reactor Water Level / 2			08				reasons for following responses as apply to Hi Rx Water Level: (CFR: 41.5 / 45.6).....RCIC steam supply valve closure: 3.4/3.5	3.4	1
295011 High CTMT Temperature / 5	---	---	---	---	---	---	Mark III only		
(019) 295012 High Drywell Temperature / 5		02					interrelations between Hi DW Temp and the following: (CFR: 41.7 / 45.8).....Drywell cooling...3.6/3.7	3.6	1
(020) 295013 High Suppression Pool Temp. / 5		01					interrelations between Hi Supp Pool Temp and the following: (CFR: 41.7 / 45.8)....Suppression pool cooling...3.6/3.7	3.6	1
295016 Control Room Abandonment / 7	---	---	---	---	---	---	Randomly de-selected		
(021) 295017 High Off-site Release Rate / 9				08			operate/monitor following as apply to HIGH OFF-SITE RELEASE RATE: (CFR: 41.7 / 45.6).....MSIV leakage control: 3.1/3.4	3.1	1
(022) 295018 Partial or Complete Loss of CCW / 8						x	2.4.24 Knowledge of loss of cooling water procedures. (CFR: 41.10 / 45.13) {3.3/3.7}	3.3	1
295019 Part. or Comp. Loss of Inst. Air / 8	---	---	---	---	---	---	Randomly de-selected		
(023) 295020 Inadvertent Cont. Isolation / 5 & 7					01		determine/interpret following as apply to INADVERTENT CNMT ISOL: (CFR: 41.10 / 43.5 / 45.13).....DW/CNMT pressure.3.6/3.7	3.6	1
(024) 295022 Loss of CRD Pumps / 1	01						operational implications of following concepts as apply to Loss of CRD Pumps: (CFR: 41.8-41.10).....Rx press vs. rod insertion capability3.3/3.4	3.3	1
(025) 295026 High Suppression Pool Water Temp. / 5			04				"Know of reasons for the SBLC injection responses as applies to SUPP POOL HI WATER TEMP." {3.7/4.1}	3.7	1
295027 High Containment Temperature / 5	---	---	---	---	---	---	Mark III only		
(026) 295028 High Drywell Temperature / 5						x	2.1.33 Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications. (CFR: 43.2 / 43.3 / 45.3) {3.4/4.0}	3.4	1
Page Point Totals:	2	2	2	2	2	3			13

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
(027) 295029 High Suppression Pool Water Level / 5	01						operational implications of following concepts as apply to Hi Supp Pool Water Level: (CFR: 41.8 to 41.10)....CNMT integrity 3.4/3.7	3.4	1
(028) 295030 Low Suppression Pool Water Level / 5				01			operate/monitor following as apply to Lo Supp Pool Water Level: (CFR: 41.7 / 45.6)....ECCS sys (NPSH considerations): 3.6/3.8	3.6	1
(029) 295033 High Sec. Cont. Area Rad. Levels / 9		01					Know of interrelations between HI SEC Cnmt AREA RAD LEVELS and the Area radiation monitoring system. {3.8/4.0}	3.8	1
(030) 295034 Sec. Cont. Ventilation High Rad. / 9					01		determine &/or interpret Vent rad levels as they apply to Sec Cnmt Vent Hi RAD. {3.8/4.2}	3.8	1
(031) 295038 High Off-site Release Rate / 9		03					"Know of interrelationships between Hi Off-site Release Rate and Plant vent sys's." {3.6/3.8}	3.6	1
(032) 600000 Plant Fire On Site / 8					13		Ability to determine and interpret following as apply to PLANT FIRE ON SITE:.....Need for emergency plant shutdown 3.2/3.8	3.2	1
Page Point Totals	1	2	0	1	2	0			6
Previous Page Point Totals	2	2	2	2	2	3			13
K/A Category Point Totals:	3	4	2	3	4	3	Group Point Total:		19

ES-401

BWR RO Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1/Group 3

Form ES-401-2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
295021 Loss of Shutdown Cooling / 4	---	---	---	---	---	---	Randomly De-selected		
(RO Only 033) 295023 Refueling Accidents / 8			02				reasons for following responses as apply to REFUELING ACCIDENTS: (CFR: 41.5 / 45.6).....Interlocks associated with fuel handling equipment 3.4/3.8	3.4	1
(034) 295032 High Secondary Containment Area Temperature / 5	03						operational implications of following concepts as apply to Hi Sec Cnmt Area Temp: (CFR: 41.8-41.10).....Sec cnmt leakage detection: 3.5/3.9	3.5	1
(035) 295035 Secondary Containment High Differential Pressure / 5				02			operate/monitor following as apply to Sec Cnmt Hi Diff Press: (CFR: 41.7 / 45.6)...SBGT/FRVS. 3.8/3.8	3.8	1
(036) 295036 Secondary Containment High Sump/Area Water Level / 5		03					interrelations between Sec Cnmt Hi SUMP/AREA WATER LEVEL and the following: (CFR: 41.7 / 45.8)...Radwaste...2.8/3.1	2.8	1
K/A Category Point Totals:	1	1	1	1	0	0	Group Point Total:		4

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
(037) 201001 CRD Hydraulic		03										Know electrical power supplies to: (CFR: 41.7)..Backup SCRAM solenoids 3.5/3.6	3.5	1
(RO Only 038) 201002 RMCS			02									effect that a loss/malf of RMCS will have on: (CFR: 41.7/45.4)...Rod block monitor: 2.9/3.2	2.9	1
201005 RCIS	---	---	---	---	---	---	---	---	---	---	---	BWR-6 Only		
(RO Only 039) 202002 Recirculation Flow Control											05	manually operate/monitor in control room: (CFR: 41.7/45.5-45.8)..Reactor level 3.4/3.4	3.4	1
(040) 203000 RHR/LPCI: Injection Mode (2)							08					predict/monitor changes in parameters associated w/ operating RHR/LPCI: INJ MODE controls including: (CFR: 41.5/45.5)...E D/G loading 3.7/3.8	3.7	1
(041)											07	manually operate/monitor in control room: (CFR: 41.7/45.5-45.8)...Rx water level 4.5/4.5	4.5	1
(RO Only 042) 206000 HPCI											x	2.2.25 Knowledge of bases in TS for LCO's and safety limits. (CFR: 43.2) (2.5/3.7)	2.5	1
207000 Isolation (Emerg.) Condenser	---	---	---	---	---	---	---	---	---	---	---	Not Applicable to Fermi		
(043) 209001 LPCS (2)		03										Know electrical power supplies to: (CFR: 41.7)...Initiation logic 2.9/3.1	2.9	1
(044)							08					predict/monitor changes in parameters associated w/ operating the LPCS Sys controls including: (CFR: 41.5 / 45.5)..System lineup 3.3/3.2	3.3	1
209002 HPCS	---	---	---	---	---	---	---	---	---	---	---	Not Applicable to Fermi		
(045) 211000 SLC	05											physical connections &/or cause-effect relationships between SLC Sys and: (CFR:41.2-41.9 / 45.7-45.8)...RWCU 3.4/3.6	3.4	1
(046) 212000 RPS				03								Know RPS design feature(s)/ interlocks which provide for the: (CFR: 41.7) prevention of supplying power to a given RPS bus from multiple sources simultaneously 3.0*/3.1*	3.0	1
(047) 215003 IRM						02						effect that a loss/malf 24/48 volt D.C. power 3.6/3.8) will have on the IRM Sys: (CFR: 41.7 / 45.7)...	3.6	1
(RO ONLY 048) 215004 SRM								03				predict impacts of (Stuck detector 3.0/3.3) on SRM Sys; & based on predictions, use procedures to correct, control, or mitigate consequences of abn conditions or operations: (CFR: 41.5 / 45.6)...	3.0	1
(049) 215005 APRM / LPRM									05			monitor auto ops of APRM/LPRM Sys including: (CFR: 41.7 / 45.7)....Flow converter/comparator alarms 3.3/3.3	3.3	1
Page Point Totals	1	2	1	1	0	1	2	1	1	2	1			13

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
(RO Only 050) 216000 Nuclear Boiler Instrumentation											x	2.1.28 Know purpose/function of major sys components/controls. (CFR: 41.7) (3.2/3.3)	3.2	1
(051) 217000 RCIC					02							operational implications of {Flow indication 3.1/3.1} concepts as apply to RCIC:	3.1	1
(052) 218000 ADS					01							operational implications of {ADS logic ops 3.8/3.8} concepts as apply to ADS Sys:	3.8	1
(053) 223001 Primary CTMT and Auxiliaries				03								Pri Cnmt Sys/Aux. design feature(s) &/or interlocks which provide for..Cnmt/DW isolation 3.7/3.8	3.7	1
(054)					08							operational implications of following concepts as apply to Pri Cnmt Sys & AUX..{Pressure measurement 2.7/2.8	2.7	1
(RO Only 055) 223002 PCIS/Nuclear Steam Supply Shutoff									02			monitor auto ops of the PRI CNMT ISOL Sys/NSSS including: .Valve closures 3.5/3.5	3.5	1
(056) 239002 SRVs (2)						04						Know effect a loss/malf of {D.C. power 3.0/3.2} will have onSRV's:	3.0	1
(RO Only 057)								03				predict impacts of {Stuck open SRV 4.1/4.2*} on SRV's: & based on predict's, use procedures to correct, control, or mitigate consequences of those abn conditions or operations: (CFR: 41.5 / 45.6)...	4.1	1
(058) 241000 Reactor/Turbine Pressure Regulator	08											physical connections/cause-effect relationships between Rx/TURB PRESS REG Sys and: (CFR: 41.2-41.9 / 45.7-45.8)...Control/governor valves 3.6/3.7	3.6	1
(059) 259001 Reactor Feedwater							04					predict/monitor changes in parameters associated with ops Rx FW Sys controls including: (CFR:41.5/ 45.5)...TDRFP turbine speed: Only 2.8/2.7	2.8	1
(060) 259002 Reactor Water Level Control									06			monitor auto ops of Rx Water Level Control Sys including: (CFR: 41.7/45.7)...Reactor water level setpoint setdown following a reactor scram 3.0/3.0	3.0	1
(061) 261000 SGTS (2)	07											physical connections/ cause- effect relationships between SGBT and: (CFR: 41.2-41.9 / 45.7-45.8)...Elevated release stack 3.1/3.2	3.1	1
(RO Only 062)										04		manually operate/monitor in control room: .Pri cnmt press 3.3/3.4	3.3	1
This Page Point Totals	2	0	0	1	3	1	1	1	2	1	1			13
Total Previous page	1	2	1	1	0	1	2	1	1	2	1			13
Sub-Total	3	2	1	2	3	2	3	2	3	3	2			26

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
(063) 264000 EDGs (2) (RO Only 064)			01									effect that a loss or malof of the EMERG D/G's will have on following: (CFR: 41.7 / 45.4)...ECCS systems 4.2/4.4	4.2	1
								09				predict impacts of following on EmergD/G's ; & based on predictions, use procedures to correct, control, or mitigate consequences of those abn conditions of operations: (CFR: 41.5 / 45.6)...Loss of A.C. power 3.7/4.1	3.7	1
Point Totals This Page	0	0	1	0	0	0	0	1	0	0	0			2
Previous Sub-Total	3	2	1	2	3	2	3	2	3	3	2			26
K/A Category Point Totals:	3	2	2	2	3	2	3	3	3	3	2	Group Point Total:		28

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BWR RO Examination Outline Plant Systems - Tier 2/Group 2													Form ES-401-2		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points	
ES-401															
201003 Control Rod and Drive Mechanism	---	---	---	---	---	---	---	---	---	---	---	De-selected			
201004 RSCS	---	---	---	---	---	---	---	---	---	---	---	De-selected			
(RO Only 065) 201006 RWM											x	2.2.33 Knowledge of control rod programming. (CFR: 43.6) (2.5/2.9)	2.5	1	
(066) 202001 Recirculation									07			monitor auto ops of RR Sys including: (CFR: 41.7 / 45.7)...Pump trips: 3.3/3.3	3.3	1	
(RO Only 067) 204000 RWCU									04			monitor auto ops of RWCU Sys including: (CFR: 41.7 / 45.7)...Response to interlocks & trips designed to protect sys components 3.4/3.5	3.4	1	
(068) 205000 Shutdown Cooling			02									Know of effect that a loss/malf of the RHR Shutdown Cooling Mode will have on following: (CFR: 41.7 / 45.4)...Reactor temperatures (Reactor water level: 3.2/3.3)	3.2	1	
(RO Only 069) 214000 RPIS			03									Knowledge of effect that a loss or malf of the RPIS Sys will have on following: (CFR: 41.7 / 45.4)...RMCS: 3.1/3.2	3.1	1	
(RO Only 070) 215002 RBM											x	2.1.27 Knowledge of system purpose and or function. (CFR: 41.7) (2.8/2.9)	2.8	1	
(RO Only 071) 219000 RHR/LPCI: Torus/Pool Cooling Mode					04							Know of the operational implications of the (Heat exchanger operation) concepts as they apply to RHR/LPCI: TORUS/SUP POOL COOLING MODE: (CFR: 41.5 / 45.3) 2.9/2.9	2.9	1	
(072) 226001 RHR/LPCI: CTMT Spray Mode	02											Know physical connections/cause-effect relationships between RHR/LPCI: Cnmt Spray Sys Mode and (LPCI/RHR piping 3.5/3.7); (CFR: 41.2 to 41.9 / 45.7 to 45.8)	3.5	1	
(RO Only 073) 230000 RHR/LPCI: Torus/Pool Spray Mode								05				predict the impacts of (A.C. electrical failures 3.3/3.6) on RHR/LPCI: Torus Spray Mode & based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6)	3.3	1	
(074) 239001 Main and Reheat Steam		01										Knowledge of electrical power supplies to the following: (CFR: 41.7)...Main steam isolation valve solenoids 3.2/3.3	3.2	1	
Total Points on Page	0	1	2	1	1	0	0	1	2	0	2				

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
245000 Main Turbine Gen. and Auxiliaries	---	---	---	---	---	---	---	---	---	---	---	De-selected		
(RO Only 075) 256000 Reactor Condensate					07							ops implications of (Level controller operation 2.7/2.7) concepts as apply to Rx COND SYS : (CFR: 41.5 / 45.3)...	2.7	1
(076) 262001 AC Electrical Distribution										02		manually op/monitor in cont room: (CFR: 41.7 / 45.5 to 45.8)...Sync-scope, including understand of running/incoming volts 3.4/3.4	3.4	1
(077) 262002 UPS (AC/DC)										01		manually op/monitor in control room: (CFR: 41.7 / 45.5 to 45.8)...Transfer from alternative to preferred source 2.8/3.1	2.8	1
263000 DC Electrical Distribution	---	---	---	---	---	---	---	---	---	---	---	De-selected		
(078) 271000 Offgas							12					predict/monitor changes in parameters operating the OFFGAS SYS controls including: (CFR: 41.5 / 45.5)...Process rad monitoring indications 3.1/3.5	3.1	1
(RO Only 079) 272000 Radiation Monitoring						01						Knowledge effect loss/ malfunction of (Reactor protection system) have on RAD MONITOR SYS: 3.0/3.2 (CFR: 41.7 / 45.7)	3.0	1
(080) 286000 Fire Protection		02										Know electrical power supplies to the Pumps 2.9/3.1: (CFR: 41.7)...	2.9	1
(081) 290001 Secondary CTMT	02											physical connections/cause- effect relationships between Sec Cnmt and: (CFR: 41.2-41.9 / 45.7- 45.8)...Pri cnmt sys: 3.4/3.6	3.4	1
(082) 290003 Control Room HVAC				01								Control Room HVAC design feature(s) &/or interlocks which provide for: (CFR: 41.7)...Sys initiations/reconfiguration: 3.1/3.2	3.1	1
(083) 300000 Instrument Air	03											connections/cause effect relationships between INST AIR SYS and : (CFR: 41.2 to 41.9 / 45.7 to 45.8)...Cnmt air 2.8/2.9	2.8	1
400000 Component Cooling Water	---	---	---	---	---	---	---	---	---	---	---	De-selected		
Total Point on page	2	1	0	1	1	1	1	0	0	2	0			
Total Point Previous	0	1	2	1	0	1	0	1	2	0	2			
K/A Category Point Totals:	2	2	2	2	1	2	1	1	2	2	2	Group Point Total:		19

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BWR RO Examination Outline
Plant Systems - Tier 2/Group 3

Form ES-401-2

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
215001 Traversing In-core Probe	---	---	---	---	---	---	---	---	---	---	---	De-selected		
(084) 233000 Fuel Pool Cooling and Cleanup											05	manually operate and/or monitor in control room: (CFR: 41.7 / 45.5 to 45.8)...Pool temperature 2.7/3.1	2.7	1
(RO Only 085) 234000 Fuel Handling Equipment			03									effect that a loss or malfunction of the FUEL HANDLING EQUIP will have on following: (CFR: 41.7 / 45.4)...Fuel handling operations 3.1/3.8	3.1	1
239003 MSIV Leakage Control	---	---	---	---	---	---	---	---	---	---	---	De-selected		
268000 Radwaste	---	---	---	---	---	---	---	---	---	---	---	De-selected		
(086) 288000 Plant Ventilation						03						effect that a loss or malof of the following will have on the PLANT VENT SYS'S: (CFR: 41.7 / 45.7)...Plant air systems 2.7/2.7	2.7	1
(087) 290002 Reactor Vessel Internals					05							operational implications of the following concepts as they apply to Rx VESSEL INTERNALS: (CFR: 41.5 / 45.3)...Brittle fracture 3.1/3.3	3.1	1
K/A Category Point Totals:														4

Plant-Specific Priorities

System / Topic	Recommended Replacement for...	Reason	Points

Plant-Specific Priority Total: (limit 10)

Facility: Fermi Date of Exam: June, 2001 Exam Level: Reactor Operator				
Category	K/A #	Topic	Imp.	Points
Conduct of Operations	(088) 2.1.1	RO Only Knowledge of conduct of operations requirements. (CFR: 41.10 / 45.13 {3.7/3.8})	3.7	1
	(089) 2.1.32	Ability to explain and apply system limits and precautions (CFR:41.10 / 43.2 / 45.12) {3.4/3.8}	3.4	1
	(090) 2.1.25	RO Only Ability to obtain and interpret station reference materials such as graphs / monographs / and tables which contain performance data. (CFR: 41.10 / 43.5 / 45.12) {2.8/3.1}	2.8	1
	Total			
Equipment Control	(091) 2.2.22	Knowledge of limiting conditions for operations and safety limits. (CFR: 43.2 / 45.2) {3.4/4.1}	3.4	1
	(092) 2.2.30	RO Only Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area / communication with fuel storage facility / systems operated from the control room in support of fueling operations / and supporting instrumentation. (CFR: 45.12) {3.5/3.3}	3.5	1
	(093) 2.2.34	RO Only Knowledge of the process for determining the internal and external effects on core reactivity. (CFR: 43.6) {2.8/3.2}	2.8	1
	Total			
Radiation Control	(094) 2.3.1	Knowledge of 10 CFR: 20 and related facility radiation control requirements. (CFR: 41.12 / 43.4. 45.9 / 45.10) {2.6/3.0}	2.6	1
	(095) 2.3.2	RO Only Knowledge of facility ALARA program. (CFR: 41.12 / 43.4 / 45.9 / 45.10) {2.5/2.9}	2.5	1
	(096) 2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure. (CFR: 43.4 / 45.10) {2.9/3.3}	2.9	1
	Total			
Emergency Procedures/ Plan	(097) 2.4.6	RO Only Knowledge symptom based EOP mitigation strategies. (CFR: 41.10 / 43.5 / 45.13) {3.1/4.0}	3.1	1
	(098) 2.4.10	Knowledge of annunciator response procedures. (CFR: 41.10 / 43.5 / 45.13) {3.0/3.1}	3.0	1
	(099) 2.4.17	Knowledge of EOP terms and definitions. (CFR: 41.10 / 45.13) {3.1/3.8}	3.1	1
	(100) 2.4.34	Knowledge of RO tasks performed outside the main control room during emergency operations including system geography and system implications. (CFR: 43.5 / 45.13) {3.8/3.6}	3.8	1
	Total			
Tier 3 Point Total (RO/SRO)				13/17

Record of Rejected K/As – Form ES-401-10 (substitute)

Tier/Group	Randomly Selected K/A	Reason for Rejection
1/1	295006 AK3.02	Original K/A was reason for power decrease on a scram - difficult to write a discriminating question with LOD >1.
1/1	295006 A2.06	difficult to write a discriminating question with LOD >1.
1/1	295015 EA1.06	Fermi 2 does not have RSCS system, removed 10 years ago.
1/1	295024 EA2.05	The EOPs do not direct an operator to take any actions in response to suppression pool air-space nor is this parameter used as a basis for an EOP action.
1/1	295025 EA1.05	RCIC operation is independent of drywell pressure and is not addressed in lesson plans or procedures. Only viable question might be RCIC operation in MANUAL and simple effect of high pressure with no operator action (flow would decrease).
1/1	295031 EA2.02	difficult to write a discriminating question with LOD >1.
1/1	295037 EK1.03	difficult to write a discriminating question with LOD >1.
1/1	500000 EK2.06	difficult to write a discriminating question with LOD >1.
1/2	295026 EK3.03	The EOPs do not direct an operator to utilize suppression pool (torus) sprays to mitigate suppression pool high water temperature. Torus sprays are used to decrease torus pressure, if necessary.
1/2	295033 EK2.04	The standby gas treatment (SBGT) system does not receive an automatic initiation signal or isolation signal from secondary containment area radiation monitoring equipment. Also, there are no EOP actions relating the SBGT to area radiation levels.
1/2	295034 EA2.02	The EOP basis specifically states that EOPs were not developed in order for an operator to diagnose the cause of problems.
1/2	295038 EK3.03	The Fermi control center HVAC system does not isolate due to high radiation levels. It only "isolates" in response to the detection of chlorine.
2/1	212000 K4.10	No plant technical data, operational or industry experience that can be related to facility on the interface between these 2 systems that would allow a question that would distinguish a competent operator to base a licensing decision.
2/1	215003 K6.06	Not applicable to Fermi 2 systems
2/1	217000 K5.04	Not applicable to Fermi 2 systems
2/1	239002 A2.06	No testable procedure driven operator actions to allow development of a discriminating question with a LOD >1.
2/1	259002 A3.07	Not applicable to Fermi 2 systems
2/2	201004 G.2.2.33	Fermi 2 does not have RSCS system, removed 10 years ago.
2/2	205000 K3.03	Reviewed all applicable system procedures and lesson plans plus, ARP, and AOP actions for this K/A, could not find material to develop above a L1 difficulty for K/A - discussed with Chief Examiner
2/2	219000 K6.04	Conflict with 2/2 230000 A2.05 K/A
2/2	226001 K4.03	Reviewed all applicable system procedures and lesson plans plus, ARP, and AOP actions for this K/A, could not find material to develop above a L1 difficulty for K/A - discussed with Chief Examiner

Record of Rejected K/As – Form ES-401-10 (substitute)

Tier/Group	Randomly Selected K/A	Reason for Rejection
2/2	256000 K5.10	No plant technical data, operational or industry experience that can be related to facility on the interface between these 2 systems that would allow a question that would distinguish a competent operator to base a licensing decision. Reviewed LPs & P&Ls Cd/OG/SU and INPO bank. Talked with facility. Discussed with other senior examiners.
2/2	272000 A2.11	Reviewed all applicable system, ARP, AOP and EOP actions for this K/A, could not find material to develop above a L1 difficulty for B part of K/A - discussed with Chief Examiner
3 RO	2.1.11	NO FACILITY TASK/OBJ REQUIRING KNOWLEDGE OF ITS <1 HR
3 SRO	2.38	The station does not perform planned gaseous radioactive releases, the K/A is not applicable to Fermi 2 Station.

Facility: Fermi		Date of Exam:		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	3	2				5	8			5	26
	2	4	3	1				2	4			3	17
	Tier Totals	7	6	3				7	12			8	43
2. Plant Systems	1	5	1	1	2	3	1	2	2	2	2	2	23
	2	1	2	1	1	0	1	2	2	1	1	1	13
	3	0	1	0	0	1	1	0	0	0	1	0	4
	Tier Totals	6	4	2	3	4	3	4	4	3	4	3	40
3. Generic Knowledge and Abilities					Cat 1		Cat 2		Cat 3		Cat 4		17
					4		4		3		6		
<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 SRO 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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BWR SRO Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1

Form ES-401-1

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
(Both 016) 295003 Partial or Complete Loss of AC Pwr / 6						x	2.1.23 Ability to perform specific system and integrated plant procedures during different modes of plant operation. (CFR: 45.2 / 45.6) {3.9/4.0}	4.0	1
(Both 002) 295006 SCRAM / 1				02			operate/monitor the Rx water level control system as applies to SCRAM: (CFR: 41.7 / 45.6) 3.9/3.8	3.8	1
(Both 003)					01		Ability to determine and/or interpret the following (Reactor power 4.5*/4.6*) as they apply to SCRAM: (CFR: 41.10 / 43.5 / 45.13)	4.6	1
(Both 004) 295007 High Reactor Pressure / 3			06				reasons for following responses as apply to Hi Rx Press: (CFR: 41.5 / 45.6).....Reactor/turbine pressure regulating system operation 3.7/3.8	3.8	1
(Both 005) 295009 Low Reactor Water Level / 2 SRO ONLY #1	02					01	operational implications of following concepts as apply to Lo Rx WATER LEVEL: (CFR: 41.8 to 41.10)..RR pump net positive suction head: 3.0/3.1 Ability to determine and/or interpret the following (Reactor water level 4.2/4.2) as they apply to LOW REACTOR WATER LEVEL: (CFR: 41.10 / 43.5 / 45.13)	3.1 4.2	1 1
(Both 006) 295010 High Drywell Pressure / 5 SRO ONLY #2		02				03	interrelations between Hi DW Press and following: (CFR: 41.7 / 45.8).....DW/suppression chamber differential pressure: Mark-I&II 3.3/3.5 Ability to determine and/or interpret the following (Drywell radiation levels 3.3/3.6) as they apply to HIGH DRYWELL PRESSURE: (CFR: 41.10 / 43.5 / 45.13)	3.5 3.6	1 1
(Both 020) 295013 High Suppression Pool Temp. / 5		01					interrelations between Hi Supp Pool Temp and the following: (CFR: 41.7 / 45.8).....Suppression pool cooling...3.6/3.7	3.7	1
(Both 007) 295014 Inadvertent Reactivity Addition / 1 SRO ONLY #3						x 03	2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics / reactor behavior / and instrument interpretation. (CFR: 43.5 / 45.12 / 45.13) {3.7/ 4.4} Ability to determine and/or interpret the following (Cause of reactivity addition 4.0/4.3) as they apply to INADVERTENT REACTIVITY ADDITION: (CFR: 41.10 / 43.5 / 45.13)	4.4 4.3	1 1
(Both 008) 295015 Incomplete SCRAM / 1 SRO ONLY #4				02		x	operate and/or monitor following as apply to INCOMPLETE SCRAM: (CFR:41.7/45.6) RPS 4.0/4.2 2.4.17 Knowledge of EOP terms and definitions. (CFR: 41.10 / 45.13) {3.1/3.8}	4.2 3.8	1 1
295016 Control Room Abandonment / 7									
(Both 021) 295017 High Off-site Release Rate / 9 SRO ONLY #5				08		x	operate/monitor following as apply to HIGH OFF-SITE RELEASE RATE: (CFR: 41.7 / 45.6).....MSIV leakage control: 3.1/3.4 2.4.18 Knowledge of the specific bases for EOPs. (CFR: 41.10 / 45.13) {2.7/3.6}	3.4 3.6	1 1
295023 Refueling Accidents Cooling Mode / 8									
(Both 009) 295024 High Drywell Pressure / 5					04		Ability to determine and/or monitor Suppression chamber pressure as applies to Hi DW PRESS {4.1/4.1}	4.1	1
	1	2	1	3	5	4			16

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	Tier 1/Group 1 K/A Topic(s)	Imp.	Points
(Both 010) 295025 High Reactor Pressure / 3				03			Ability to operate and/or monitor SRVs as they apply to HI Rx PRESS. (4.4/4.4)	4.4	1
(Both 025) 295026 Suppression Pool High Water Temp. / 5			04				"Know of reasons for the SBLC injection responses as applies to SUPP POOL HI WATER TEMP." (3.7/4.1)	4.1	1
295027 High Containment Temperature / 5							Mark III only		
(Both 028) 295030 Low Suppression Pool Water Level / 5				01			operate/monitor following as apply to Lo Supp Pool Water Level: (CFR: 41.7 / 45.6)....ECCS sys (NPSH considerations): 3.6/3.8	3.8	1
SRO ONLY #6						x	2.4.20 Knowledge of operational implications of EOP warnings / cautions / and notes. (CFR: 41.10 / 45.13) (3.3/4.0)	4.0	1
(Both 011) 295031 Reactor Low Water Level / 2	01						operational implications of following concepts as apply to Rx Lo WATER LEVEL: (CFR: 41.8 to 41.10)....Adequate core cooling 4.6/4.7	4.7	1
SRO ONLY #7						04	determine/interpret the Adequate core cooling as applies to REACTOR LOW WATER LEVEL: (CFR: 41.10 / 43.5 / 45.13), 4.6*/4.8*	4.8	1
(Both 012) 295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	06						operational implications of following concepts as apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: (CFR: 41.8 to 41.10) Cooldown effects on reactor power 4.0*/4.2*	4.2	1
(Both 031) 295038 High Off-site Release Rate / 9		03					"Know of interrelationships between Hi Off-site Release Rate and Plant vent sys's." (3.6/3.8)	3.8	1
SRO ONLY #8						03	Ability to determine and/or interpret the following (+Radiation levels 3.5*/4.3*) as they apply to HIGH OFF-SITE RELEASE RATE: (CFR: 41.10 / 43.5 / 45.13)	4.3	1
(Both 013) 500000 High Containment Hydrogen Conc. / 5						03	Determine/interpret (Combustible limits for drywell 3.3/3.8) as applies to Hi Pri Cnmt H2 Concentrations: (CFR: 41.10 / 43.5 / 45.13)	3.8	1
	2	1	1	2	3	1			10
	1	2	1	3	5	4			16
	3	3	2	5	8	5			26
K/A Category Totals:	3	3	2	5	8	5	Group Point Total:		26

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BWR SRO Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2

Form ES-401-1

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
(Both 014) 295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4				06			operate/monitor following as apply to Partial/Complete Loss of Forced Core Flow Circ: (CFR: 41.7 / 45.6)...Neutron monitoring system...3.3/3.4	3.4	1
(Both 015) 295002 Loss of Main Condenser Vacuum / 3					04		determine/interpret following as apply to Loss of Main Condenser Vacuum: (CFR: 41.10 / 43.5 / 45.13).....Offgas system flow..2.8/2.9	2.9	1
(Both 017) 295004 Partial or Total Loss of DC Pwr / 6	05						operational implications of following concepts as apply to Partial/Complete Loss of D.C. Power: (CFR: 41.8-41.10).....Loss of breaker protection.....3.3/3.4	3.4	1
(Both 001) 295005 Main Turbine Generator Trip / 3						x	2.1.2 Knowledge of operator responsibilities during all modes of plant operation. (CFR: 41.10 / 45.13) {3.0/4.0}	4.0	1
(Both 018) 295008 High Reactor Water Level / 2			08				reasons for following responses as apply to Hi Rx Water Level: (CFR: 41.5 / 45.6).....RCIC steam supply valve closure: 3.4/3.5	3.5	1
295011 High Containment Temperature / 5							Mark III only		
(Both 019) 295012 High Drywell Temperature / 5		02					interrelations between Hi DW Temp and the following: (CFR: 41.7 / 45.8).....Drywell cooling...3.6/3.7	3.7	1
(Both 022) 295018 Partial or Total Loss of CCW / 8						x	2.4.24 Knowledge of loss of cooling water procedures. (CFR: 41.10 / 45.13) {3.3/3.7}	3.7	1
295019 Partial or Total Loss of Inst. Air / 8									
(Both 23) 295020 Inadvertent Cont. Isolation / 5 & 7					01		determine/ interpret following as apply to INADVERTENT CNMT ISOL: (CFR: 41.10 / 43.5 / 45.13).....DW/CNMT pressure.3.6/3.7	3.7	1
295021 Loss of Shutdown Cooling / 4									
(Both 24) 295022 Loss of CRD Pumps / 1	01						ops implications of (Rx press vs rod insert capability 3.3/3.4) as apply to Loss of RD Pmps (CFR 41.8-41.10)	3.4	1
(Both 026) 295028 High Drywell Temperature / 5						x	2.1.33 Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications. (CFR: 43.2 / 43.3 / 45.3) {3.4/4.0}	4.0	1
(Both 027) 295029 High Suppression Pool Water Level / 5	01						operational implications of following concepts as apply to Hi Supp Pool Water Level: (CFR: 41.8 to 41.10)....CNMT integrity 3.4/3.7	3.7	1
(Both 034) 295032 High Secondary Containment Area Temperature / 5	03						operational implications of following concepts as apply to Hi Sec Cnmt Area Temp: (CFR: 41.8-41.10).....Sec cnmt leakage detection: 3.5/3.9	3.9	1
(Both 029) 295033 High Secondary Containment Area Radiation Levels / 9		01					Know of interrelations between HI SEC Cnmt AREA RAD LEVELS and the Area radiation monitoring system. {3.8/4.0}	4.0	1
(Both 030) 295034 Secondary Containment Ventilation High Radiation / 9					01		determine &/or interpret Vent rad levels as they apply to Sec Cnmt Vent Hi RAD. {3.8/4.2}	4.2	1
	4	2	1	1	3	3			14

E/APE # / Name / Safety Function	K1	K2	K2	A1	A2	G	Tier 1/Group 2 K/A Topic(s)		
(Both 035) 295035 Secondary Containment High Differential Pressure / 5				02			operate/monitor following as apply to Sec Cnmt Hi Diff Press: (CFR: 41.7 / 45.6)...SGBT/FRVS. 3.8/3.8	3.8	1
(Both 036) 295036 Secondary Containment High Sump/Area Water Level / 5		03					interrelations between Sec Cnmt Hi SUMP/AREA WATER LEVEL and the following: (CFR: 41.7 / 45.8)...Radwaste...2.8/3.1	3.1	1
(Both 032) 600000 Plant Fire On Site / 8					13		Ability to determine and interpret following as apply to PLANT FIRE ON SITE:.....Need for emergency plant shutdown 3.2/3.8	3.8	1
	0	1	0	1	1	0			3
	4	2	1	1	3	3			14
	4	3	1	2	4	3			17
K/A Category Point Totals:	4	3	1	2	4	3	Group Point Total:		17

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BWR SRO Examination Outline
Plant Systems - Tier 2/Group 1

Form ES-401-1

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
201005 RCIS												BWR-6 only		
202002 Recirculation Flow Control														
(Both 040) 203000 RHR/LPCI: Injection Mode (Both 041)							08					predict/monitor changes in parameters associated w/ operating RHR/LPCI: INJ MODE controls including: (CFR: 41.5/45.5)...E D/G loading 3.7/3.8	3.8	1
										07		manually operate/monitor in MCR: (CFR: 41.7/45.5-45.8)...Rx water level 4.5/4.5	4.5	1
SRO ONLY #9 206000 HPCI											x	2.2.25 Knowledge of bases in TS for LCO's and safety limits. (CFR: 43.2) (2.5/3.7)	3.7	1
207000 Isolation (Emergency) Condenser												Not Applicable to Fermi		
(Both 043) 209001 LPCS (Both 044)		03					08					Know electrical power supplies to: (CFR: 41.7)...Initiation logic 2.9/3.1	3.1	1
												predict/monitor changes in parameters associated w/ operating the LPCS Sys controls including: (CFR: 41.5 / 45.5)...System lineup 3.3/3.2	3.2	1
209002 HPCS												Not Applicable to Fermi		
RO 045 211000 SLC	05											physical connections/cause-effect relationships between SLC Sys and: (CFR:41.2-41.9 / 45.7-45.8)...RWCU 3.4/3.6	3.6	1
(Both 046) 212000 RPS				03								Know RPS design feature(s)/ interlocks which provide for the: (CFR: 41.7) prevention of supplying power to a given RPS bus from multiple sources simultaneously 3.0*/3.1*	3.1	1
215004 Source Range Monitor														
(Both 049) 215005 APRM / LPRM											05	monitor auto ops of APRM/LPRM Sys including: (CFR: 41.7 / 45.7)...Flow converter/comparator alarms 3.3/3.3	3.3	1
SRO ONLY #10 216000 Nuclear Boiler Instrumentation											x	2.4.21 Knowledge of the parameters and logic used to assess the status of safety functions including: 1. Reactivity control, 2. Core cooling/heat removal, 3. RCS integrity, 4. Containment conditions, 5. Radioactivity release control. (CFR: 43.5 / 45.12) (3.7/4.3)	4.3	1
(Both 051) 217000 RCIC					02							ops implications of (Flow indication 3.1/3.1) concepts as apply to RCIC: (CFR:41.5/45.3)	3.1	1
(Both 052) 218000 ADS					01							operational implications of (ADS logic ops 3.8/3.8) concepts as apply to ADS Sys: (CFR: 41.5 / 45.3)...	3.8	1
	1	1	0	1	2	0	2	0	1	1	2			11

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Imp	Points	
(Both 053) 223001 Primary CTMT and Auxiliaries				03								Pri Cnmt Sys/Aux. design feature(s) &/or interlocks which provide for: (CFR:41.7) ...Cnmt/DW isolation 3.7/3.8	3.8	1
(Both 054)					08							operational implications of following concepts as apply to Pri Cnmt Sys & AUX. : (CFR: 41.5 / 45.3)...(Pressure measurement 2.7/2.8	2.8	1
223002 PCIS/Nuclear Steam Supply Shutoff														
(Both 072) 226001 RHR/LPCI: CTMT Spray Mode	02											Know physical connections/cause-effect relationships between RHR/LPCI: Cnmt Spray Sys Mode and (LPCI/RHR piping 3.5/3.7): (CFR: 41.2 to 41.9 / 45.7 to 45.8)	3.7	1
(Both 056) 239002 SRVs						04						Know effect a loss/malf of (D.C. power 3.0/3.2) will have on SRV's: (CFR: 41.7/ 45.7)...	3.2	1
SRO ONLY #11								06				predict impacts of (Reactor high pressure 4.1/4.3) on SRV's; & based on predict's, use procedures to correct, control, or mitigate consequences of those abn conditions or operations: (CFR: 41.5 / 45.6)...	4.3	1
(Both 058) 241000 Reactor/Turbine Pressure Regulator	08											physical connections/cause-effect relationships between Rx/TURB PRESS REG Sys and: (CFR: 41.2-41.9 / 45.7-45.8)...Control/governor valves 3.6/3.7	3.7	1
(Both 060) 259002 Reactor Water Level Control									06			monitor auto ops of Rx Water Level Control Sys including: (CFR: 41.7/45.7)...Reactor water level setpoint setdown following a reactor scram 3.0/3.0	3.0	1
(Both 061) 261000 SGTS	07											physical connections/ cause- effect relationships between SGBT and: (CFR: 41.2-41.9 / 45.7-45.8)...Elevated release stack 3.1/3.2	3.2	1
(Both 076) 262001 AC Electrical Distribution										02		manually op/monitor in cont room: (CFR: 41.7 / 45.5 to 45.8)...Sync-scope, including understand of running/incoming volts 3.4/3.4	3.4	1
(Both 063) 264000 EDGs			01									effect that a loss or malf of the EMERG D/G's will have on following: (CFR: 41.7 / 45.4)...ECCS systems 4.2/4.4	4.4	1
SRO ONLY # 12								09				predict impacts of following on Emergd/G's ; & based on predictions, use procedures to correct, control, or mitigate consequences of those abn conditions or operations: (CFR: 41.5 / 45.6)...Loss of A.C. power 3.7/4.1	4.1	1
	3	0	1	1	1	1	0	2	1	1	0		11	

(Both 081) 290001 Secondary CTMT	02											physical connections/cause- effect relationships between Sec Cnmt and: (CFR: 41.2-41.9 / 45.7- 45.8)...Pri cnmt sys: 3.4/3.6	3.6	1
THIS PAGE	1													1
1 ST PAGE	1	1	0	1	2	0	2	0	1	1	2			11
2 ND PAGE	3	0	1	1	1	1	0	2	1	1	0			11
K/A Category Point Totals:	5	1	1	2	3	1	2	2	2	2	2	Group Point Total:		23

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BWR SRO Examination Outline
Plant Systems - Tier 2/Group 2

Form ES-401-1

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
(Both 037) 201001 CRD Hydraulic		03										Know electrical power supplies to; (CFR: 41.7)..BackupSCRAM solenoids 3.5/3.6	3.6	1
201002 RMCS														
201004 RSCS												BWR-6 Only		
SRO ONLY #13 201006 RWM								06				Ability to (a) predict the impacts of the following {Loss of reactor water level control input: 2.9/3.3} on the ROD WORTH MINIMIZER SYSTEM (RWH) (PLANT SPECIFIC) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6)	3.3	1
(Both 066) 202001 Recirculation										07		monitor auto ops of RR Sys including: (CFR: 41.7 / 45.7)...Pump trips: 3.3/3.3	3.3	1
204000 RWCU														
(Both 068) 205000 Shutdown Cooling			02									Know of effect that a loss/malf of the RHR Shutdown Cooling Mode will have on following: (CFR: 41.7 / 45.4)...Reactor temperatures (Reactor water level: 3.2/3.3)	3.3	1
214000 RPIS														
215002 RBM														
(Both 047) 215003 IRM							02					effect that a loss/malf 24/48 volt D.C. power 3.6/3.8) will have on the IRM Sys: (CFR: 41.7 / 45.7)...	3.8	1
219000 RHR/LPCI: Torus/Pool Cooling Mode														
SRO ONLY #14 230000 RHR/LPCI: Torus/Pool Spray Mode								05				predict the impacts of {A.C. electrical failures 3.3/3.6} on RHR/LPCI: Torus Spray Mode & based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6)	3.6	1
234000 Fuel Handling Equipment														
239003 MSIV Leakage Control														
245000 Main Turbine Gen. and Auxiliaries														
	0	1	1	0	0	1	0	2	1	0	0			6

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G			
(Both 059) 259001 Reactor Feedwater							04					predict/monitor changes in parameters associated with ops Rx FW Sys controls including: (CFR:41.5/ 45.5)...TDRFP turbine speed: Only 2.8/2.7	2.7	1
(Both 077) 262002 UPS (AC/DC)										01		manually op/monitor in control room: (CFR: 41.7 / 45.5 to 45.8)...Transfer from alternative to preferred source 2.8/3.1	3.1	1
263000 DC Electrical Distribution														
(Both 078) 271000 Offgas							12					predict/monitor changes in parameters operating the OFFGAS SYS controls including: (CFR: 41.5 / 45.5)...Process rad monitoring indications 3.1/3.5	3.5	1
SRO ONLY #15 272000 Radiation Monitoring								11				predict impacts of (Leakage/breaks from contaminated sys's to atmosphere or other process sys's 3.4/3.7) on the Rad Mon Sys; & based on predictions, use procedures to correct, control, or mitigate the conseq's of abn conditions or ops: (CFR: 41.5 / 45.6)...	3.7	1
(Both 080) 286000 Fire Protection		02										Know electrical power supplies to the Pumps 2.9/3.1: (CFR: 41.7)...	3.1	1
(Both 082) 290003 Control Room HVAC				01								Control Room HVAC design feature(s) &/or interlocks which provide for: (CFR: 41.7)...Sys initiations/reconfiguration: 3.1/3.2	3.2	1
(Both 083) 300000 Instrument Air	03											connections/cause effect relationships between INST AIR SYS and : (CFR: 41.2 to 41.9 / 45.7 to 45.8)...Cnmt air 2.8/2.9	2.9	1
	1	1	0	1	0	0	2	1	0	1	0			7
	0	1	1	0	0	1	0	2	1	0	0			6
K/A Category Point Totals:	1	2	1	1	0	1	2	3	1	1	0	Group Point Total:		13

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BWR SRO Examination Outline
Plant Systems - Tier 2/Group 3

Form ES-401-1

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
201003 Control Rod and Drive Mechanism														
215001 Traversing In-core Probe														
(Both 084) 233000 Fuel Pool Cooling and Cleanup										05		manually operate and/or monitor in control room: (CFR: 41.7 / 45.5 to 45.8)...Pool temperature 2.7/3.1	3.1	1
(Both 074) 239001 Main and Reheat Steam		01										Knowledge of electrical power supplies to the following: (CFR: 41.7)...Main steam isolation valve solenoids 3.2/3.3	3.3	1
256000 Reactor Condensate														
268000 Radwaste														
(Both 086) 288000 Plant Ventilation						03						effect that a loss or malf of the following will have on the PLANT VENT SYS'S: (CFR: 41.7 / 45.7)...Plant air systems 2.7/2.7	2.7	1
(Both 087) 290002 Reactor Vessel Internals					05							operational implications of the following concepts as they apply to Rx VESSEL INTERNALS: (CFR: 41.5 / 45.3)...Brittle fracture 3.1/3.3	3.3	1
	0	1	0	0	1	1	0	0	0	1	0			4
K/A Category Point Totals:												Group Point Total:		4
Plant-Specific Priorities														
System / Topic							Recommended Replacement for...					Reason		Points
Plant-Specific Priority Total (limit 10):														

Facility: Fermi Date of Exam: June, 2001 Exam Level: Senior Reactor Operator				
Category	K/A #	Topic	Imp.	Points
Conduct of Operations	(089) 2.1.32	BOTH Ability to explain and apply system limits and precautions (CFR:41.10 / 43.2 / 45.12) {3.4/3.8}	3.4	1
	2.1.25	SRO ONLY #16 Ability to obtain and interpret station reference materials such as graphs / monographs / and tables which contain performance data. (CFR: 41.10 / 43.5 / 45.12) {2.8/3.1}	3.1	1
	2.1.4	SRO ONLY #17 Knowledge of shift staffing requirements. (CFR: 41.10 / 43.2) {2.3/3.4}	3.4	1
	2.1.14	SRO ONLY #18 Knowledge of system status criteria which require the notification of plant personnel. (CFR: 43.5 / 45.12) {2.5/3.3}	3.3	1
	Total			
Equipment Control	(091) 2.2.22	BOTH Knowledge of limiting conditions for operations and safety limits. (CFR: 43.2 / 45.2) {3.4/4.1}	3.4	1
	2.2.11	SRO ONLY #19 Knowledge of the process for controlling temporary changes. (CFR: 41.10 / 43.3 / 45.13) {2.5/3.4}	3.4	1
	2.2.26	SRO ONLY #20 Knowledge of refueling administrative requirements. (CFR: 43.5 / 45.13) {2.5/3.7}	3.7	1
	2.2.29	SRO ONLY #21 Knowledge of SRO fuel handling responsibilities. (CFR: 43.6 / 45.12) {1.6/3.8}	3.8	1
	Total			
Radiation Control	(094) 2.3.1	BOTH Knowledge of 10 CFR: 20 and related facility radiation control requirements. (CFR: 41.12 / 43.4. 45.9 / 45.10) {2.6/3.0}	3.0	1
	(096) 2.3.10	BOTH Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure. (CFR: 43.4 / 45.10) {2.9/3.3}	3.3	1
	2.3.9	SRO ONLY #22 Knowledge of the process for performing a containment purge.	3.4	1
	Total			

Emergency Procedures/ Plan	2.4.6	SRO ONLY #23 Knowledge symptom based EOP mitigation strategies. (CFR: 41.10 / 43.5 / 45.13) {3.1/4.0}	4.0	1
	(098) 2.4.10	BOTH Knowledge of annunciator response procedures. (CFR: 41.10 / 43.5 / 45.13) {3.0/3.1}	3.1	1
	(099) 2.4.17	BOTH Knowledge of EOP terms and definitions. (CFR: 41.10 / 45.13) {3.1/3.8}	3.8	1
	(100) 2.4.34	BOTH Knowledge of RO tasks performed outside the main control room during emergency operations including system geography and system implications. (CFR: 43.5 / 45.13) {3.8/3.6}	3.6	1
	2.4.22	SRO ONLY #24 Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations. (CFR: 43.5 / 45.12) {3.0/4.0}	4.0	1
	2.4.42	SRO ONLY #25 Knowledge of emergency response facilities. (CFR: 45.11) {2.3/3.7}	3.7	1
	Total			
Tier 3 Point Total (RO/SRO)				13/17