Final Submittal

FARLEY EXAM
50-348 & 50-364/2003-301

MAY 19 - 26, 2003

FINAL SAMPLE PLANS / OUTLINES

Facility: Farley Nuclear Plant Date of Exam: 5/19/03

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	K	A	A 2	G *	Total
1. Emergency & Abnormal Plant Evolutions	1	2	2	2				3	5			4	18	1	-	3	3	7
	2	1	2	4				2	-			-	9	-	-	3	2	5
	Tier Totals	3	4	6				5	5			4	27	1	-	6	5	12
2. Plant Systems	1	1	4	3	4	2	1	3	3	2	3	2	28	-	-	2	2	4
	2	3	-	-	1	2	1	-	-	1	1	1	10	-	-	1	1	2
	Tier Totals	4	4	3	5	4	2	3	3	3	4	3	38	-	-	3	3	6
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7
		3			3			2			2			2	1	2	2	

Note:
1. Ensure that at least two topics from every K/A category are sampled within each tier of the RO outline (i.e., the "Tier Totals" in each K/A category shall not be less than two). Refer to Section D.1.c for additional guidance regarding SRO sampling.
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. Select topics from many systems and evolutions; avoid selecting more than two K/A topics from a given system or evolution unless they relate to plant-specific priorities.
4. Systems/evolutions within each group are identified on the associated outline.
5. The shaded areas are not applicable to the category/tier.
6.* The generic (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. The SRO K/As must also be linked to 10 CFR 55.43 or an SRO-level learning objective.
7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IR) 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; summarize all the SRO-only knowledge and non-A2 ability categories in the columns labeled "K" and "A." Use duplicate pages for RO and SRO-only exams.
h. For Tier 3, enter the K/A numbers, descriptions, importance ratings, and point totals on Form ES-401-3.
i. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO / SRO)							Form ES-401-2	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1									
000008 Pressurizer Vapor Space Accident / 3		R					008AK2.02	2.7/2.7	
000009 Small Break LOCA / 3					S		009EA2.15	3.3/3.4	
000011 Large Break LOCA / 3				R			011EA1.03	4.0/4.0	
000015/17 RCP Malfunctions / 4					S		015/017AA2.08	3.4/3.5	
000015/17 RCP Malfunctions / 4						R	015/017AG2.4.50	3.3/3.3	
000022 Loss of Rx Coolant Makeup / 2				R			022AA1.02	3.0/2.9	
000025 Loss of RHR System / 4					R		025AA2.04	3.1/3.5	
000026 Loss of Component Cooling Water / 8			R				026AK3.02	3.6/3.9	
000027 Pressurizer Pressure Control System Malfunction / 3		R					027AK2.03	2.6/2.8	
000027 Pressurizer Pressure Control System Malfunction / 3						S	027AG2.2.22	3.4/4.1	
000029 ATWS / 1					R		029EA2.07	4.2/4.3	
000038 Steam Gen. Tube Rupture / 3						R	038EG2.4.04	4.0/4.3	
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4						R	040AG2.1.23	3.9/4.0	
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4	S						040AK1.05	4.1/4.4	
000054 (CE/E06) Loss of Main Feedwater / 4					R		054AA2.01	4.3/4.4	
000054 (CE/E06) Loss of Main Feedwater / 4						S	054AG2.2.20	4.3/4.2	
000055 Station Blackout / 6					R		055EA2.04	3.7/4.1	
000056 Loss of Off-site Power / 6			R				056AK3.01	3.5/3.9	
000057 Loss of Vital AC Inst. Bus / 6				R			057AA1.04	3.5/3.6	
000058 Loss of DC Power / 6	R						058AK1.01	2.8/3.1	
000062 Loss of Nuclear Svc Water / 4						R	062AG2.1.20	4.3/4.2	
000065 Loss of Instrument Air / 8					R		065AA2.06	3.6/4.2	
W/E04 LOCA Outside Containment / 3									
W/E11 Loss of Emergency Coolant Recirc. / 4						S	W/E11EG2.1.02	3.0/4.0	
W/E11 Loss of Emergency Coolant Recirc. / 4	R						W/E11EK1.2	3.6/4.1	
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4					S		W/E05EA2.2	3.7/4.3	

K/A Category Totals:	2 1	2 0	2 0	3 0	5 3	4 3	Group Point Total:	18/ 7

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO / SRO)							Form ES-401-2
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000001 Continuous Rod Withdrawal / 1									
000003 Dropped Control Rod / 1				R			003AA1.05	4.1/4.1	
000005 Inoperable/Stuck Control Rod / 1					S		005AA2.03	3.5/4.4	
000024 Emergency Boration / 1									
000028 Pressurizer Level Malfunction / 2									
000032 Loss of Source Range NI / 7			R				032AK3.02	3.7/4.1	
000033 Loss of Intermediate Range NI / 7									
000036 (BW/A08) Fuel Handling Accident / 8					S		036AA2.02	3.4/4.1	
000037 Steam Generator Tube Leak / 3	R						037AK1.01	2.9/3.3	
000051 Loss of Condenser Vacuum / 4			R				051AK3.01	2.8/3.1	
000059 Accidental Liquid RadWaste Rel. / 9									
000060 Accidental Gaseous Radwaste Rel. / 9									
000061 ARM System Alarms / 7									
000067 Plant Fire On-site / ~~9~~8			R				067AK3.04	3.3/4.1	
000068 (BW/A06) Control Room Evac. / 8					S		068AA2.07	4.1/4.3	
000069 (W/E14) Loss of CTMT Integrity / 5									
000074 (W/E06&E07) Inad. Core Cooling / 4						S	074EG2.4.21	3.7/4.3	
000076 High Reactor Coolant Activity / 9									
W/EO1 & E02 Rediagnosis & SI Termination / 3						S	W/E02EG2.1.14	2.5/3.3	
W/E13 Steam Generator Over-pressure / 4									
W/E15 Containment Flooding / 5									
W/E16 High Containment Radiation / 9		R					W/E16EK2.2'	2.6/3.0	
BW/A01 Plant Runback / 1									
BW/A02&A03 Loss of NNI-X/Y / 7									
BW/A04 Turbine Trip / 4									
BW/A05 Emergency Diesel Actuation / 6									
BW/A07 Flooding / 8									
BW/E03 Inadequate Subcooling Margin / 4									
BW/E08; W/E03 LOCA Cooldown - Depress. / 4			R				W/E03EK3.4	3.5/3.9	
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4		R					W/E09EK2.2	3.6/3.9	
BW/E13&E14 EOP Rules and Enclosures									
CE/A11; W/E08 RCS Overcooling - PTS / 4				R			W/E08EA1.3	3.6/4.0	
CE/A16 Excess RCS Leakage / 2									

CE/E09 Functional Recovery									
K/A Category Point Totals:	10	20	40	20	03	02	Group Point Total:		9/5

ES-401	PWR Examination Outline Plant Systems - Tier 2/Group 1 (RO / SRO)												Form ES-401-2	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#
003 Reactor Coolant Pump							R					003A1.01	2.9/2.9	
004 Chemical and Volume Control									R			004A3.01	3.5/3.7	
004 Chemical and Volume Control					R							004K5.04	2.8/3.2	
005 Residual Heat Removal		R										005K2.01	3.0/3.2	
006 Emergency Core Cooling				R								006K4.06	2.7/3.1	
006 Emergency Core Cooling						R						006K6.02	3.4/3.9	
007 Pressurizer Relief/Quench Tank											R	007G2.1.28	3.2/3.3	
008 Component Cooling Water							R					008A1.03	2.7/2.9	
008 Component Cooling Water											S	008G2.1.11	3.0/3.8	
010 Pressurizer Pressure Control										R		010A4.01	3.7/3.5	
010 Pressurizer Pressure Control				R								010K4.01	2.7/2.9	
012 Reactor Protection					R							012K5.01	3.3/3.8	
013 Engineered Safety Features Actuation			R									013K3.01	4.4/4.7	
022 Containment Cooling		R										022K2.01	3.0/3.1	
025 Ice Condenser														
026 Containment Spray								S				026A2.07	3.6/3.9	
026 Containment Spray				R								026K4.05	2.8/3.3	
039 Main and Reheat Steam										R		039A4.07	2.8/2.9	
056 Condensate											R	056G2.4.31	3.3/3.4	
059 Main Feedwater										R		059A4.03	2.9/2.9	
059 Main Feedwater			R									059A2.07	3.0/3.3	
061 Auxiliary/Emergency Feedwater								R				061A2.07	3.4/3.5	
061 Auxiliary/Emergency Feedwater		R										061K2.02	3.7/3.7	
062 AC Electrical Distribution											S	062G2.4.06	3.1/4.0	
062 AC Electrical Distribution		R										062K2.01	3.3/3.4	
063 DC Electrical Distribution	R											063K1.02	2.7/3.2	
063 DC Electrical Distribution				R								063K4.02	2.9/3.2	
064 Emergency Diesel Generator							R					064A1.01	3.0/3.1	
073 Process Radiation Monitoring								R				073A2.02	2.7/3.2	
076 Service Water			R									076K3.07	3.7/3.9	

078 Instrument Air								R			078A3.01	3.1/3.2	
103 Containment							S				103A2.03	3.5/3.8	
103 Containment			R								103K3.02	3.8/4.2	
K/A Category Point Totals:	10	40	40	40	20	10	30	22	20	30	22	Group Point Total:	28/4

ES-401	PWR-Examination Outline Plant Systems - Tier 2/Group 2 (RO / SRO)											Form ES-401-2	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#
001 Control Rod Drive														
002 Reactor Coolant											R	002G2.2.12	3.0/3.4	
011 Pressurizer Level Control						R						011K6.04	3.1/3.1	
014 Rod Position Indication														
015 Nuclear Instrumentation								S				015A2.02	3.1/3.5	
016 Non-nuclear Instrumentation	R											016K1.06	3.6/3.5	
017 In-core Temperature Monitor														
027 Containment Iodine Removal	R											027K1.01	3.4/3.7	
028 Hydrogen Recombiner and Purge Control										R		028A4.03	3.1/3.3	
029 Containment Purge														
033 Spent Fuel Pool Cooling											S	033G2.4.11	3.4/3.6	
034 Fuel Handling Equipment														
035 Steam Generator														
041 Steam Dump/Turbine Bypass Control									R			041A3.02	3.3/3.4	
045 Main Turbine Generator														
055 Condenser Air Removal														
068 Liquid Radwaste														
071 Waste Gas Disposal					R							071K5.04	2.5/3.1	
072 Area Radiation Monitoring				R								072K4.03	3.2/3.6	
075 Circulating Water	R											075K1.01	2.5/2.5	
079 Station Air														
086 Fire Protection					R							086K5.04	2.9/3.5	

K/A Category Point Totals:	3 0	0 0	0 0	1 0	2 0	1 0	0 0	0 1	1 0	1 0	1 1	Group Point Total:	10/ 2

ES-401	Generic Knowledge and Abilities Outline (Tier 3)			Form ES-401-3	
Facility:		Date of Exam:			
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.08		3.8/3.6			
	2.1.13				2.0/2.9	
	2.1.16		2.9/2.8			
	2.1.22		2.8/3.3			
	2.1.32				3.4/3.8	
	2.1.					
	Subtotal		3		2	
2. Equipment Control	2.2.10				1.9/3.3	
	2.2.11		2.5/3.4			
	2.2.13		3.6/3.8			
	2.2.23		2.6/3.8			
	2.2.					
	2.2.					
	Subtotal		3		1	
3. Radiation Control	2.3.08				2.3/3.2	
	2.3.06				2.1/3.1	
	2.3.01		2.6/3.0			
	2.3.10		2.9/3.3			
	2.3.					
	2.3.					
	Subtotal		2		2	
4. Emergency Procedures / Plan	2.4.03		3.5/3.8			
	2.4.04		4.0/4.3			
	2.4.36				2.0/2.8	
	2.4.46				3.5/3.6	
	2.4.					
	2.4.					
	Subtotal		2		2	
Tier 3 Point Total			10	10	7	7