

DRAFT

Facility: St. Lucie Plant		Date of Exam: July 21, 2008																
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	2	2	5	N/A			4	3	N/A			2	18	3	3	6	
	2	2	1	2				2	1				1	9	3	1	4	
	Tier Totals	4	3	7				6	4				3	27	6	4	10	
2. Plant Systems	1	2	1	3	5	2	1	2	3	3	4	2	28	2	3	5		
	2	1	1	1	1	0	1	1	1	1	1	10	2	1	3			
	Tier Totals	3	2	4	6	2	2	3	4	4	5	3	38	4	4	8		
3. Generic Knowledge and Abilities Categories					1		2		3		4		10	1	2	3	4	7
					3		2		2		3			3	2	1	1	

Note:

- 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).
- 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.
- 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.
- 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.
- 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.
- Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- * 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.
- 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.
- 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.

ES-401	St. Lucie USNRC License Exam PWR BOTH Written Examination Outline Emergency and Abnormal Plant Evolutions – Tier 1 Group 1	Form ES-401-2
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E/APE # / Name Safety Function	G	K1	K2	K3	A1	A2	Number	K/A Topic(s)	Imp.	Q#
EO2 / Reactor Trip Recovery / 1						X	EA2.1	Facility conditions and selection of appropriate procedures during abnormal and emergency operations.	3.7	76
011 / Large Break LOCA / 3	x						2.4.6	Emergency Procedures / Knowledge of EOP mitigation strategies.	4.7	77
026 / Loss of Component Cooling Water / 8	x						2.4.35	Emergency Procedures / Plan: Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects.	4.0	78
038 / Steam Generator Tube Rupture / 3						X	EA2.01	Ability to determine or interpret the following as they apply to a SGTR: When to isolate one or more steam generator.	4.7	79
058 / Loss of DC Power / 6	x						2.1.20	Conduct of Operations: Ability to interpret and execute procedure steps	4.6	80
065 / Loss of Instrument Air / 8						x	AA2.06	Ability to determine and interpret the following as they apply to the Loss of Instrument Air: When to trip reactor if instrument air pressure is de-creasing	4.2	81
EO2 / Reactor Trip Recovery / 1			x				EK2.1	Knowledge of the interrelations between the (Reactor Trip Recovery) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.	3.3	1
008 / Pressurizer Vapor Space Accident / 3					x		AA1.08	Ability to operate and / or monitor the following as they apply to the Pressurizer Vapor Space Accident: PRT level pressure and temperature.	3.8	2
009 / Small Break LOCA / 3				x			EK3.21	Knowledge of the reasons for the following responses as they apply to the small break LOCA Actions contained in EOP for small break LOCA / leak.	4.2	3
011 / Large Break LOCA / 3		x					EK1.01	Knowledge of the operational implications of the following concepts as they apply to the Large Break LOCA : Natural circulation and cooling, including reflux boiling.	4.1	4
015 / 17 / RCP Malfunctions / 4			x				AK2.10	Knowledge of the interrelations between the Reactor Coolant Pump Malfunctions (Loss of RC Flow) and the following: RCP indicators and controls.	2.8	5
022 / Loss of Rx Coolant Makeup / 2				x			AK3.02	Knowledge of the reasons for the following responses as they apply to the Loss of Reactor Coolant Makeup: Actions contained in SOPs and EOPs for RCPs, loss of makeup, loss of charging, and abnormal charging.	3.5	6
025 / Loss of RHR System / 4						x	AA2.06	Ability to determine and interpret the following as they apply to the Loss of Residual Heat Removal System: Existence of proper RHR overpressure protection.	3.2	7
026 / Loss of Component Cooling Water / 8					x		AA1.03	Ability to operate and / or monitor the following as they apply to the Loss of Component Cooling Water: SWS as a backup to the CCWS.	3.6	8

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E/APE # / Name Safety Function	G	K1	K2	K3	A1	A2	Number	K/A Topic(s)	Imp.	Q#
027 / Pressurizer Pressure Control System Malfunction / 3						x	AA2.04	Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunctions: Tech Spec limits for RCS Pressure.	3.7	9
038 / Steam Gen. Tube Rupture / 3				x			EK3.01	Knowledge of the reasons for the following responses as they apply to the SGTR: Equalizing pressure on primary and secondary side of the ruptured S/G.	4.1	10
CE/E05 / Excess Steam Demand / 4					x		EA1.3	Ability to operate and / or monitor the following as they apply to the (Excess Steam Demand): Desired operating results during abnormal and emergency situations.	3.4	11
CE/E06 / Loss of Feedwater / 4						x	EA2.1	Ability to determine and interpret the following as they apply to the (Loss of Feedwater): Facility conditions and selection of appropriate procedures during abnormal and emergency operations.	2.8	12
055 / Station Blackout / 6		x					EK1.01	Knowledge of the operational implications of the following concepts as they apply to the Station Blackout : Effects of battery discharge rates on capacity.	3.3	13
056 / Loss of Off-site Power / 6	x						2.1.28	Conduct of Operations / Knowledge of the purpose and function of major system components and controls.	4.1	14
057 / Loss of Vital AC Inst bus	x						2.2.44	Equipment Control / 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.	4.2	15
058 / Loss of DC Power / 6				x			AK3.02	Knowledge of the reasons for the following responses as they apply to the Loss of DC Power: Actions contained in EOP for loss of dc power.	4.0	16
062 / Loss of Nuclear Svc Water / 4				x			AK3.03	Knowledge of the reasons for the following responses as they apply to the loss of nuclear service water: Guidance actions contained in EOP for loss of nuclear service water.	4.0	17
077/ Generator Voltage and Electric Grid Disturbances / 6					x		AA2.04	Ability to determine and interpret the following as they apply to Generator Voltage and Electric Grid Disturbances: VARs outside the capability curve..	3.5	18
K/A Category Point Totals:	2/3	2	2	5	4	3/3	Group Point Total:			18/6

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PWR BOTH Written Examination Outline
Emergency and Abnormal Plant Evolutions – Tier 1 Group 2

Form ES-401-2

E/APE # / Name Safety Function	G	K1	K2	K3	A1	A2	Number	K/A Topic(s)	Imp.	Q#
024 / Emergency Boration / 1						X	AA2.05	Ability to determine and interpret the following as they apply to the Emergency Boration: Amount of boron to add to achieve adequate SDM.	3.9	82
036 / Fuel Handling Accident / 8						x	AA2.01	Ability to determine and interpret the following as they apply to the Fuel Handling Incidents: ARM system indications.	3.2	83
067 / Plant Fire Onsite / 8	X						2.2.37	Ability to determine operability and / or availability of safety related equipment	4.6	84
069 / Loss of Containment Integrity / 5						X	AA2.02	Ability to determine and interpret the following as they apply to the Loss of Containment Integrity: Verification of automatic and manual means of restoring integrity.	4.4	85
003 / Dropped Control Rod / 1				X			AK3.04	Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod: Actions contained in EOP for dropped control rod.	3.8	19
028 / Pressurizer Level Control Malfunction / 2						x	AA2.01	Ability to determine and interpret the following as they apply to the Pressurizer Level Control Malfunctions: PZR level indicators and alarms.	3.4	20
032 / Loss of Source Range NI / 7	x						2.2.40	Equipment Control / Ability to apply Technical Specifications for a system.	3.4	21
037 / Steam Generator Tube Leak / 3					x		AA1.13	Ability to operate and / or monitor the following as they apply to the Steam Generator Tube Leak: S/G blowdown radiation monitors.	3.9	22
068 / Control Room Evac / 8					x		AA1.21	Ability to operate and / or monitor the following as they apply to the control room evacuation: transfer of controls from the control room to shutdown panel or local control.	3.9	23
076 / High Reactor Coolant Activity / 5				x			AK3.06	Knowledge of the reasons for the following as they apply to the High Reactor Coolant Activity: Actions contained in EOP for high reactor coolant activity.	3.2	24
CE/A13 / Natural Circulation / 4			x				AK2.2	Knowledge of the interrelations between the (Natural Circulation Operations) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.	3.4	25
CE/A16 / Excessive RCS Leakage / 2		x					AK1.3	Knowledge of the operational implications of the following concepts as they apply to the (Excess RCS Leakage): Annunciators and conditions indicating signals and remedial action associated with the (Excess RCS Leakage)	3.2	26

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PWR BOTH Written Examination Outline
Emergency and Abnormal Plant Evolutions – Tier 1 Group 2

Form ES-401-2

E/APE # / Name Safety Function	G	K1	K2	K3	A1	A2	Number	K/A Topic(s)	Imp.	Q#
CE/E09 / Functional Recovery		x					EK1.2	Knowledge of the operational implications of the following concepts as they apply to the (Functional Recovery): Normal, abnormal and emergency operating procedures associated with Functional Recovery	3.2	27
K/A Category Point Total:	1/1	2	1	2	2	1/3	Group Point Total:			9/4

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System #/Name	G	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	Number	K/A Topics	Imp.	Q#
005 / Residual Heat Removal	x											2.1.25	Ability to interpret reference materials, such as graphs, curves, tables, etc.	4.2	86
022 / Containment Cooling	x											2.2.37	Equipment Control / Ability to determine operability and/or availability of safety related equipment.	4.6	87
026 / Containment Spray	x											2.2.42	Ability to recognize system parameters that are entry level conditions for Technical Specifications.	4.6	88
064 / Emergency Diesel Generator									x			A2.16	Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of offsite power during full-load testing of ED/G.	3.7	89
076 Service Water									x			A2.01	Ability to (a) predict the impacts of the following malfunctions or operations on the SWS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of SWS.	3.7	90
003 Reactor Coolant Pump		x										K1.03	Knowledge of the physical connections and/or cause-effect relationships between the RCPS and the following systems: RCP seal system.	3.3	28
003 Reactor Coolant Pump							x					K6.14	Knowledge of the effect of a loss or malfunction on the following will have on the RCPS Starting requirements.	2.6	29
004 Chemical and Volume Control						x						K5.16	Knowledge of the operational implications of the following concepts as they apply to the CVCS: Source of T-ave and T-ref signals to control and RPS	3.2	30
004 Chemical and Volume Control											x	A4.15	Ability to manually operate and / or monitor in the control room: boron concentration	3.6	31
005 Residual Heat Removal				x								K3.01	Knowledge of the effect that a loss or malfunction of the RHRS will have on the following: RCS.	3.9	32
005 Residual Heat Removal	x											2.1.32	Conduct of Operations / Ability to explain and apply system limits and precautions	3.8	33
006 Emergency Core Cooling					x							K4.08	Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following: Recirculation flowpath of reactor building sump.	3.2	34
007 Pressurizer Relief/Quench Tank									x			A2.01	Ability to (a) predict the impacts of the following malfunctions or operations on the P S; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Stuck-open PORV or code safety.	3.9	35

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System #/Name	G	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	Number	K/A Topics	Imp.	Q#
008 Component Cooling Water					x							K4.01	Knowledge of CCWS design feature(s) and/or interlock(s) which provide for the following: Automatic start of standby pump.	3.1	36
008 Component Cooling Water										x		A3.05	Ability to monitor automatic operation of the CCWS, including: Control of the electrically operated, automatic isolation valves in the CCWS.	3.0	37
010 Pressurizer Pressure Control											x	A4.01	Ability to manually operate and/or monitor in the control room: PZR spray valve.	3.7	38
012 Reactor Protection				x								K3.01	Knowledge of the effect that a loss or malfunction of the RPS will have on the following: CRDS.	3.9	39
012 Reactor Protection									x			A2.02	Ability to (a) predict the impacts of the following malfunctions or operations on the RPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of instrument power.	3.6	40
013 Engineered Safety Features Actuation										x		A3.01	Ability to monitor automatic operation of the ESFAS including: Input channels and logic.	3.7	41
022 Containment Cooling											x	A4.01	Ability to manually operate and/or monitor in the control room: CCS fans.	3.6	42
026 Containment Spray					x							K4.09	Knowledge of CSS design feature(s) and/or interlock(s) which provide for the following: Prevention of path for escape of radioactivity from containment to the outside (interlock on RWST isolation after swapover)	3.7	43
039 Main and Reheat Steam										x		A3.02	Ability to monitor automatic operation of the MRSS, including: Isolation of the MRSS.	3.1	44
059 Main Feedwater				x								K3.04	Knowledge of the effect that a loss or malfunction of the MFW will have on the following: RCS.	3.6	45
059 Main Feedwater									x			A2.12	Ability to (a) predict the impacts of the following malfunctions or operations on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of feedwater regulating valves.	3.1	46
061 Auxillary/Emergency Feedwater								x				A1.01	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the AFW controls including: S/G level.	3.9	47
061 Auxillary/Emergency Feedwater						x						K5.01	Knowledge of the operational implications of the following concepts as they apply to the AFW: Relationship between AFW flow and RCS heat transfer.	3.6	48

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System #/Name	G	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	Number	K/A Topics	Imp.	Q#
062 AC Electrical Distribution					x							K4.05	Knowledge of ac distribution system design feature(s) and/or interlock(s) which provide for the following: Paralleling of ac sources (synchroscope).	2.7	49
063 DC Electrical Distribution											x	A4.01	Ability to manually operate and/or monitor in the control room: Major breakers and control power fuses.	2.8	50
064 Emergency Diesel Generator					x							K4.02	Knowledge of ED/G system design feature(s) and/or interlock(s) which provide for the following: Trips for ED/G while operating (normal or emergency).	3.9	51
073 Process Radiation Monitoring								x				A1.01	073 Process Radiation Monitoring Ability to predict changes in parameters (to prevent exceeding design limits) associated with operating the PRM system controls including: radiation levels.	3.2	52
076 Service Water			X									K2.01	Knowledge of bus power supplies to the following: Service water	2.7	53
078 Instrument Air		x										K1.02	Knowledge of the physical connections and/or cause-effect relationships between the IAS and the following systems: Service Air.	2.7	54
103 Containment	x											2.2.25	Equipment Control / Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.	3.2	55
K/A Category Point Totals:	2/3	2	1	3	5	2	1	2	3/2	3	4	Group Point Total:			28/5

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System #/Name	G	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	Number	K/A Topics	Imp.	Q#
075 Circulating Water									X			A2.02	Ability to predict the impacts of the following malfunctions or operations on the circulating water system; and (b) based on those predictions use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of circulating water pumps.	2.5	65
K/A Category Point Totals:	1/1	1	1	1	1	0	1	1	1/2	1	1	Group Point Total:			10/3

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System #/Name	G	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	Number	K/A Topics	Imp.	Q#
017 / Incore Temperature Monitor									x			A2.02	Ability to (a) predict the impacts of the following malfunctions or operations on the ITM system; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those malfunctions or operations: Core damage.	4.1	91
033 Spent Fuel Pool Cooling									X			A2.02	Ability to (a) predict the impacts of the following malfunctions or operations on the Spent Fuel Pool Cooling System ; and (b) based those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of SFPCS.	3.0	92
072 / Area Radiation Monitoring	X											2.1.20	Ability to interpret and execute procedure steps.	4.6	93
001 / Control Rod Drive					x							K4.03	Knowledge of CRDS design feature(s) and/or interlock(s) which provide for the following: Rod control logic.	3.5	56
002 Reactor Coolant								x				A1.04	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RCS controls including: Subcooling Margin.	3.9	57
011 Pressurizer Level Control			x									K2.02	Knowledge of bus power supplies to the following: Pressurizer Heaters.	3.1	58
015 / Nuclear Instrumentation							x					K6.01	Knowledge of the effect of a loss or malfunction on the following will have on the NIS: Sensors, detectors and indicators.	2.9	59
029 / Containment Purge										x		A3.01	Ability to monitor automatic operation of the Containment Purge System including: CPS isolation.	3.8	60
041 Steam Dump/Turbine Bypass Control											x	A4.05	Ability to manually operate and/or monitor in the control room: Main steam header pressure.	3.1	61
045 / Main Turbine Generator	x											2.4.49	Emergency Procedures / Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4.6	62
055 Condenser Air Removal				x								K3.01	Knowledge of the effect that a loss or malfunction of the CARS will have on the following: Main condenser.	2.5	63
056 / Condensate		x										K1.03	Knowledge of the physical connections and/or cause-effect relationships between the Condensate System and the following systems: MFW.	2.6	64

Facility:	St. Lucie NRC Exam	Date of Exam:	7/2008			
Category	K/A #	Topic	RO		SRO-Only	
			IR	Q#	IR	Q#
1. Conduct of Operations	2.1.7	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.			4.7	94
	2.1.34	Knowledge of primary and secondary plant chemistry limits.			3.5	95
	2.1.32	Ability to explain and apply system limits and precautions.			4.0	96
	2.1.2	Knowledge of operator responsibilities during all modes of plant operation.	4.1	66		
	2.1.26	Knowledge of industrial safety procedures (such as rotating equipment, electrical, high temperature, high pressure, caustic, chlorine, oxygen and hydrogen).	3.4	67		
	2.1.37	Knowledge of procedures, guidelines, or limitations associated with reactivity management.	4.3	68		
	Subtotal			3		3
2. Equipment Control	2.2.14	Knowledge of the process for controlling equipment configuration or status.			4.3	97
	2.2.21	Knowledge of pre- and post-maintenance operability requirements.			4.1	98
	2.2.3	Knowledge of the design, procedural, and operational differences between units.	3.8	69		
	2.2.12	Knowledge of surveillance procedures.	3.7	70		
	Subtotal			2		2
3. Radiation Control	2.3.6	Ability to approve release permits.			3.8	99
	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions.	3.2	71		
	2.3.13	Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.	3.4	72		
	Subtotal			2		1
4. Emergency Procedures / Plan	2.4.29	Knowledge of the emergency plan.			4.4	100
	2.4.13	Knowledge of crew responsibilities during EOP usage.	4.0	73		
	2.4.22	Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.	3.6	73		
	2.4.31	Knowledge of annunciator alarms, indications, or response procedures.	4.2	75		
	Subtotal			3		1
Tier 3 Point Total				10		7

Tier / Group	De-selected KA	Reason for Rejection
1/1 (008)	AA1.04	Not applicable to St. Lucie Operate / Monitor Feedwater Pumps during Pzr. Vapor space accident
1/1 (009)	EK3.02, EK3.27	Not applicable to St. Lucie 3.02 Knowledge of opening excess letdown isolation valves during SBLOCA 3.27 Manual depress, or HPI recirc for sustained high pressure
1/1 (027)	AA2.13	Not applicable to St. Lucie PZR PCS malfunction, ability to interpret Seal return flow
1/1 (038)	EK3.07	Not applicable to St. Lucie SGTR RCS loop isolation valves
1/2 (003)	AK3.01, AK3.02, Ak3.03	Not applicable to St. Lucie 3.01 Dropped CEA when ICS logic has failed 3.02 Dropped CEA reactor runback 3.03 Dropped CEA turbine runback
1/2 (028)	AA2.03, AA2.05	Not applicable to St. Lucie 2.03 Pzr Level control malfunction ability to determine Charging subsystem flow ind. And controller 2.05 Pzr Level control malfunction ability to determine flow control valve isolation valve indicator
1/2 (068)	AA1.09, AA1.22	Not applicable to St. Lucie 1.09 CR Evacuation, ability to operate / monitor synch. Key 1.22 Flow control valve for RCS charging header
1/2 (076)	AK3.03	Not applicable to St. Lucie High RCS activity, knowledge of reasons, orifice controls for minimum letdown
2/1 (004)	A4.20	Not applicable to St. Lucie CVCS, deborating demin. Selector valve and control switch
2/1 (006)	K4.22, K4.29	Not applicable to St. Lucie 4.22 ECCS, interlocks between RCP seal flow rate and standby HPI pp 4.29 ECCS, BIT recirculation
2/1 (059)	A2.06, A2.07	Not applicable to St. Lucie 2.06 MFW, loss of steam flow 2.07 MFW, tripping of MFW pump turbine
2/1 (076)	K2.04	Not applicable to St. Lucie SWS, power supply to reactor building closed cooling water
2/2 (041)	A4.01	Not applicable to St. Lucie SDS, ICS voltage inverter

Sample Plan Development

1. K/A Category selection

To ensure equal distribution of K/A categories, the first column on Form ES-401-2 Examination Outline sheets was covered so that the specific subject could not be seen. The total number of questions for each sheet was written on the top of the page. X's were placed in the K/A boxes at random, ensuring that distribution of Knowledge and Ability items was fairly equal and the total number of boxes checked matched the number written on the top of the page. Items not related to CE plants (such as Westinghouse, B&W E/APs, Ice Condenser, Loss of Intermediate Range NIs, etc.) were initially blacked out (prior to concealing the subjects) to prevent them from being selected. On the SRO portion of the exam, all KAs except Generic and A2s were initially blacked out to prevent them from being selected. Generic K/A categories for Tier 1 and 2 were randomly selected using tokens numbered 1, 2 and 4. (no generic K/A's for 2.3.... were chosen as per ES-401 page 4) Generic K/A categories for Tier 3 were selected using tokens numbered 1 through 4.

2. Individual Topics

Once the category selection was completed, individual topics for each Knowledge or Ability were selected using tokens. When selecting topics, K/As that were <2.5 and any topics that were not applicable to St. Lucie Plant were deselected from the category prior to drawing tokens from the can (See attached matrix). For example, if the category was K1 and there were 15 topics, then tokens 1 through 15 were used. If item K1.06 was less than 2.5, token 6 was not used. If item K1.11 was not plant specific to St. Lucie, token 11 was not used. If a generic K/A was chosen for tiers 1 and 2, then only the specified numbers in ES-401, page 4 of 33 were used. On tier 3, all numbers in the specified generic category were used.

Summary

The sample plan was randomly generated and, by using the above described methodology, no KAs that were initially selected had to be deselected.

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ES-301

Administrative Topics Outline

Form ES-301-1

Facility: St. Lucie Date of Examination: July 2008
Examination Level (circle one): RO/SRO Operating Test Number: **NRC**

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N, R	Determine Fuel Preconditioning Guidelines and Severity of Reactivity Event K/A 2.1.37 (4.6)
Conduct of Operations	N, R	Determine QSPDS Values when Plasma Display is Out Of service, Unit 2. K/A 2.1.25 (3.9/4.2)
Equipment Control	N, R	Determine SDM criteria. K/A 2.2.39 (4.5)
Radiation Control	N, R	Use a survey map, determine Radiological hazards. K/A 2.3.7 (3.5/3.6)
Emergency Plan	N, S	Evaluate E-Plan Based on Loss of Annunciation K/A 2.4.29 (4.4)

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

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

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ADMINISTRATIVE JPM SUMMARY

A1-1: Determine Fuel Preconditioning Guidelines and Classification of Reactivity Event. The Candidate will be given a set of conditions to determine if Fuel preconditioning guidelines are being met. The guidelines will not be met and due to set of conditions NAP-402 requires the event to be classified as a noteworthy Reactivity event.

A2: Determine QSPDS Values when Plasma Display is Out Of service, Unit 2. Using Appendix B from 2-1150020 Qualified Safety Parameter Display Operation the Operator will calculate the parameters requested from the Que. sheet.

A3-2 Determine Shutdown Margin Criteria. Applicant will calculate SDM IAW 2-NOP-100.04, "Surveillance Requirements for Shutdown Margin; Modes 2,3,4,and 5 (Subcritical)" and determine SDM not met. Direct emergency boration to meet T.S. 3.1.1.1

A4: Using a survey map, determine Radiological Hazards. The Candidate will be given a radiation survey map of the Unit 2 Charging Pump rooms. His stated task will be to determine Radiological hazards in each of the Charging Pump rooms.

A5: Evaluate E-Plan Based on Loss of Annunciation. The Candidate will be given a set of conditions and directed to implement 1-ONP-100.03 Partial or Complete Loss of Annunciators. They will be required to calculate the percentage of annunciators lost and refer to EPIP-01 Classification of Emergencies. The event should be classified as Unusual event due to >75% of annunciators lost for >15 minutes.

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ES-301

Control Room/In-Plant Systems Outline

Form ES-301-2

Facility: St. Lucie Date of Examination: July 2008
 Exam Level (circle one): RO, SRO(I), SRO(U) Operating Test No.: ***NRC***

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 All	Restore AFW flow to the 2A SG using 2C AFW pump	N, A, S, L	4 _s
S-2 All	Respond to loss of RCP Controlled Bleed Off and failed RCP Seals	E, N, A, S	4 _p
S-3 All	Align ECCS for Hot and Cold Leg Injection	M, E, A, S	2
S-4	Establish Alternate Charging flowpath to RCS through 'A' HPSI Header.	D, S, E	1
S-5	Respond to alarms on Spent Fuel Monitors	P, E, A, S, D	7
C-6	Place LTOP In Service Unit 1	P, C, D, E	3
S-7	Align 2C CCW pump to supply the 'B' CCW header	N, E, S	8

In-Plant Systems[®] (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)

P-1 All	Local Operation of Boron Concentration Control Unit - 2	E, N, R	1
P-2	Align Unit 2 CST to supply the 1C AFW pump	D, E	4 _s
P-3 All	Disconnect 1B Instrument Inverter from Service Unit -1	D	6

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@ All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.	
* 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	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(L)ow-Power	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

JPM SUMMARY DESCRIPTION

S-1 New. At low power, the Applicant will be required to start and initiate AFW flow from the 2C AFW pump to the 2A SG and remove the 2A AFW pump from service. Upon starting the 2C AFW pump, it will trip on electrical overspeed. The Candidate will be required to reset the overspeed trip and initiate flow to the 2A SG. Alternate path

S-2 S-2 New. Respond to loss of RCP Controlled Bleed Off and failed RCP Seals. The Applicant will be directed to respond to loss of RCP controlled seal bleed off at 100% power. Candidate will be required to recognize V2505 is closed and will be required to open V 2507, to the QT. Upon opening V2507 three seals will fail requiring a manual Reactor trip and stopping the RCP post trip. Alternate path.

S-3 Modified Bank #0821158. The Applicant is required to align the 'B' train for Hot and Cold leg Injection. V3523 will not open and the 'A' train will be required for lineup for Hot and Cold leg injection.

S-4 Bank #0821115. Candidate will line-up 2A Charging pump to the 'A' HPSI header for emergency boration post trip.

S-5 Bank # 0821117A (2004 NRC Exam). Respond to alarms on Spent Fuel Monitors. Spent Fuel Pool radiation monitors go into high alarm during refueling operations. Candidate is required to verify ventilation system. Alternate path.

C-6 Bank #0821021. (2004 NRC exam) Unit 1 Control Room. Unit 1 is experiencing a LOCA. 1-EOP-03 is being implemented. RCS temperature is 290 degrees and pressure is 500 psia. The Applicant is directed to place LTOP in service IAW 1-GOP-305.

S-7 New. Applicant will be required to align the 2C CCW to the 'B' CCW header. Prior to starting the 2C CCW the AB 4.16KV bus is required to be aligned to the B side.

S-8 Bank #0821143. Using 2-EOP-99 Appendix M, Applicant will place Hydrogen Recombiner in service during LOCA with Hydrogen >2.5% in Containment.

P-1 New. A blend is to be performed to the VCT. Proper flow rates cannot be achieved from the control room. The Applicant is required to use Appendix A to locally blend to the VCT with communication to the control room.

P-2 Bank #0821062. During a Unit 1 total loss of feedwater, Applicant will align the Unit 2 Condensate Storage Tank to supply Unit 1 'C' AFW pump.

P-3 Bank #0821067. The 1B 120V Instrument Inverter is to be removed from service for maintenance. The Applicant is instructed to place the bus on maintenance bypass.

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