

FACILITY NAME: St Lucie

Section 1

REPORT NUMBER: 2009 - 302

## DRAFT ADMINISTRATIVE DOCUMENTS

### CONTENTS:

- ☒ Draft Written Exam sample plan (ES-401-1/2/3)
- ☒ Draft Administrative Topics Outline (ES-301-1)
- ☒ Draft Control Room Systems & Facility Walk-Through Test Outline (ES-301-2)

### Location of Electronic Files:

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Submitted By: R/Baldwin Verified By: \_\_\_\_\_

DRAFT

ES-401, Rev. 9

PWR Examination Outline

Form ES-401-2

Facility: <i>St Lucie</i>		Date of Exam: <i>October 2009 (REV.0)</i>																	
Tier	Group	RO K/A Category Points											SRO-Only Points						
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total			
1. Emergency & Abnormal Plant Evolutions	1	3	3	3	N/A			3	3	N/A			3	18	3	3	6		
	2	2	1	2				1	1				2	9	2	2	4		
	Tier Totals	5	4	5				4	4				5	27	5	5	10		
2. Plant Systems	1	3	2	3	3	1	1	2	3	3	3	4	28	3	2	5			
	2	1	1	1	1	1	1	0	1	1	1	1	10	1	1	3			
	Tier Totals	4	3	4	4	2	2	2	4	4	4	5	38	4	3	8			
3. Generic Knowledge and Abilities Categories					1		2		3		4		10		1	2	3	4	7
					3		2		2		3				2	2	1	2	

- 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  $\pm 1$  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 that are not included on the outline should be added. Refer to ES-401, Attachment 2, 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.
- 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.

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KA

NAME / SAFETY FUNCTION:

IR

K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G

TOPIC:

RO SRO

007EG2.1.19  
/ 1

Reactor Trip - Stabilization - Recovery

3.9 3.8 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒

Ability to use plant computer to evaluate system or component status.

008AA1.08

Pressurizer Vapor Space Accident / 3

3.8 3.8 ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ ☐

PRT level pressure and temperature

011EK3.14

Large Break LOCA / 3

4.1 4.2 ☐ ☐ ☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐

RCP tripping requirement

015AK2.08

RCP Malfunctions / 4

2.6 2.6 ☐ ☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

CCWS

022AA1.08

Loss of Rx Coolant Makeup / 2

3.4 3.3 ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ ☐

VCT level

025AK1.01

Loss of RHRS System / 4

3.9 4.3 ☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Loss of RHRS during all modes of operation

026AK3.02

Loss of Component Cooling Water / 8

3.6 3.9 ☐ ☐ ☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐

The automatic actions (alignments) within the CCWS resulting from the actuation of the ESFAS

027AK1.01

Pressurizer Pressure Control System Malfunction / 3

3.1 3.4 ☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Definition of saturation temperature

038EG2.4.18

Steam Gen. Tube Rupture / 3

3.3 4.0 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒

Knowledge of the specific bases for EOPs.

055EA1.06

Station Blackout / 6

4.1 4.5 ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ ☐

Restoration of power with one ED/G

056AK1.01

Loss of Off-site Power / 6

3.7 4.2 ☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Principle of cooling by natural convection

KA NAME / SAFETY FUNCTION: IR K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G TOPIC:

RO SRO

057AA2.01 Loss of Vital AC Inst. Bus / 6 3.7 3.8 ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ Safety injection tank pressure and level indicators058AK3.01 Loss of DC Power / 6 3.4 3.7 ☐ ☐ ☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Use of dc control power by D/Gs062AG2.1.7 Loss of Nuclear Svc Water / 4 4.4 4.7 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.065AA2.08 Loss of Instrument Air / 8 2.9 3.3 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ Failure modes of air-operated equipment077AA2.10 Generator Voltage and Electric Grid Disturbances / 6 3.6 3.8 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ Generator overheating and required actionsCE05EK2.1 Steam Line Rupture - Excessive Heat Transfer / 4 3.3 3.6 ☐ ☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.CE06EK2.1 Loss of Main Feedwater / 4 3.3 3.7 ☐ ☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
003AG2.1.28	Dropped Control Rod / 1	RO	SRO	4.1	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the purpose and function of major system components and controls.
028AK1.01	Pressurizer Level Malfunction / 2	2.8	3.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PZR reference leak abnormalities
032AK1.01	Loss of Source Range NI / 7	2.5	3.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Effects of voltage changes on performance
036AA1.02	Fuel Handling Accident / 8	3.1	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ARM system
037AK3.07	Steam Generator Tube Leak / 3	4.2	4.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actions contained in EOP for S/G tube leak
051AG2.4.3	Loss of Condenser Vacuum / 4	3.7	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to identify post-accident instrumentation.
060AA2.02	Accidental Gaseous Radwaste Rel / 9	3.1	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The possible location of a radioactive-gas leak with the assistance of PEO, health physics and chemistry personnel
061AK2.01	ARM System Alarms / 7	2.5	2.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Detectors at each ARM system location
CE09EK3.3	Functional Recovery / None	3.7	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Manipulation of controls required to obtain desired operating results during abnormal, and emergency situations.



KA NAME / SAFETY FUNCTION: IR K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G TOPIC:

RO SRO

012A3.03 Reactor Protection 3.4 3.5 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ Power supply013A2.03 Engineered Safety Features Actuation 4.4 4.7 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ Rapid depressurization013G2.2.42 Engineered Safety Features Actuation 3.9 4.6 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ Ability to recognize system parameters that are entry-level conditions for Technical Specifications022A2.05 Containment Cooling 3.1 3.5 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ Major leak in CCS026A1.01 Containment Spray 3.9 4.2 ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ ☐ Containment pressure039G2.4.2 Main and Reheat Steam 4.5 4.6 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.059A2.04 Main Feedwater 2.9 3.4 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ Feeding a dry S/G059A3.03 Main Feedwater 2.5 2.6 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ Feedwater pump suction flow pressure061K5.01 Auxiliary/Emergency Feedwater 3.6 3.9 ☐ ☐ ☐ ☐ ☒ ☐ ☐ ☐ ☐ ☐ Relationship between AFW flow and RCS heat transfer062G2.4.4 AC Electrical Distribution 4.5 4.7 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.063K2.01 DC Electrical Distribution 2.9 3.1 ☐ ☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Major DC loads

**TOPIC:**

D/G cooling water system

### Radioactive effluent releases

### Service water train separation

Air pressure

### Cross-over to other air systems

### Loss of containment integrity under normal operations





KA NAME / SAFETY FUNCTION: IR K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G TOPIC:

RO SRO

G2.1.19 Conduct of operations 3.9 3.8 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒

Ability to use plant computer to evaluate system or component status.

G2.1.34 Conduct of operations 2.7 3.5 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒

Knowledge of primary and secondary chemistry limits

G2.1.4 Conduct of operations 3.3 3.8 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒

Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55 etc.

G2.2.35 Equipment Control 3.6 4.5 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒

Ability to determine Technical Specification Mode of Operation

G2.2.43 Equipment Control 3.0 3.3 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒

Knowledge of the process used to track inoperable alarms

G2.3.13 Radiation Control 3.4 3.8 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒

Knowledge of radiological safety procedures pertaining to licensed operator duties

G2.3.6 Radiation Control 2.0 3.8 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒

Ability to approve release permits

G2.4.18 Emergency Procedures/Plans 3.3 4.0 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒

Knowledge of the specific bases for EOPs.

G2.4.3 Emergency Procedures/Plans 3.7 3.9 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒

Ability to identify post-accident instrumentation.

G2.4.6 Emergency Procedures/Plans 3.7 4.7 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒

Knowledge symptom based EOP mitigation strategies.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
007EG2.4.20	Reactor Trip - Stabilization - Recovery / 1	3.8	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of operational implications of EOP warnings, cautions and notes.
009EA2.14	Small Break LOCA / 3	3.8	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actions to be taken if PTS limits are violated
022AA2.04	Loss of Rx Coolant Makeup / 2	2.9	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	How long PZR level can be maintained within limits
058AG2.2.4	Loss of DC Power / 6	3.6	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(multi-unit) Ability to explain the variations in control board layouts, systems, instrumentation and procedural actions between units at a facility.
062AA2.05	Loss of Nuclear Svc Water / 4	2.4	2.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The normal values for SWS-header flow rate and the flow rates to the components cooled by the SWS
065AG2.4.50	Loss of Instrument Air / 8	4.2	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

RO SRO

KA NAME / SAFETY FUNCTION: IR K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G TOPIC:

RO SRO

033AA2.09 Loss of Intermediate Range NI / 7 3.4 3.7 ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ ☐ Conditions which allow bypass of an intermediate-range level trip switch

067AG2.4.21 Plant Fire On-site / 9 8 4.0 4.6 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ Knowledge of the parameters and logic used to assess the status of safety functions

074EG2.2.40 Inad. Core Cooling / 4 3.4 4.7 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ Ability to apply technical specifications for a system.

076AA2.04 High Reactor Coolant Activity / 9 2.6 3 ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ ☐ Process effluent radiation chart recorder

KA NAME / SAFETY FUNCTION: IR K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G TOPIC:

RO SRO

003G2.1.32 Reactor Coolant Pump 3.8 4.0 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ Ability to explain and apply all system limits and precautions.

010A2.01 Pressurizer Pressure Control 3.3 3.6 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ ☐ Heater failures

012G2.4.31 Reactor Protection 4.2 4.1 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ Knowledge of annunciators alarms, indications or response procedures

063A2.01 DC Electrical Distribution 2.5 3.2 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ ☐ Grounds

076A2.01 Service Water 3.5 3.7 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ ☐ Loss of SWS

KA NAME / SAFETY FUNCTION: IR K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G TOPIC:

RO SRO

027A2.01 Containment Iodine Removal 3.0 3.3 ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ ☐ High temperature in the filter system

029G2.4.18 Containment Purge 3.3 4.0 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ Knowledge of the specific bases for EOPs.

034K4.03 Fuel Handling Equipment 2.6 3.3 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Overload protection

KA

NAME / SAFETY FUNCTION:

IR

K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G

TOPIC:

RO SRO

G2.1.1	Conduct of operations	3.8	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of conduct of operations requirements.
G2.1.9	Conduct of operations	2.9	4.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to direct personnel activities inside the control room.
G2.2.17	Equipment Control	2.6	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the process for managing maintenance activities during power operations.
G2.2.43	Equipment Control	3.0	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the process used to track inoperable alarms
G2.3.11	Radiation Control	3.8	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to control radiation releases
G2.4.19	Emergency Procedures/Plans	3.4	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of EOP layout, symbols and icons.
G2.4.39	Emergency Procedures/Plans	3.9	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the RO's responsibilities in emergency plan implementation.

**DRAFT****ES-301****Administrative Topics Outline****Form ES-301-1**

Facility: St. Lucie Plant		Date of Examination: 01/ /10
Examination Level: RO <input type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: HLC-19A NRC
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	M, R	Determine Shutdown Margin Unit 2
Conduct of Operations	N, R	Determine Time to Boil on Loss of Shutdown Cooling
Equipment Control	N, S	(RO Part 1 only) Part 1: Obtain a Flux Log from the DCS and delete Incore(s) Detector(s) from the DCS. (SRO Part 1 and part 2) Part 2: Determine from deleted Incores, applicable Technical Specifications
Radiation Control	M, R	Evaluate Survey Map Data
Emergency Procedures/Plan (SRO)	N, R	Respond to Security Event
<p><b>NOTE:</b> All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.</p>		
<p>* Type Codes &amp; Criteria:</p> <p>(C)ontrol room, (S)imulator, or Class(R)oom  (D)irect from bank (<math>\leq 3</math> for ROs; <math>\leq 4</math> for SROs &amp; RO retakes)  (N)ew or (M)odified from bank (<math>\geq 1</math>)  (P)revious 2 exams (<math>\leq 1</math>; randomly selected)</p>		

**DRAFT**



**DRAFT****ADMINISTRATIVE JPM SUMMARY DESCRIPTION****CONDUCT OF OPERATION**

(RO/SRO) Determine Shutdown Margin, Unit 2

Unit 2 was at 100% power for 120 days, 3143 EFPH. An automatic reactor / turbine trip just occurred. CEA 8 did not drop and is at 132" withdrawn. Current RCS temperature is 532°F, RCS C<sub>b</sub> is 962 ppm, and current time is 0500. You are directed to verify shutdown margin for the current plant conditions.

**CONDUCT OF OPERATION**

(RO/SRO) Determine time to boil on loss of Shutdown cooling

Unit 1 is in a Refueling outage preparing to lift the Reactor Vessel head. RCS level is 35 feet. A loss of Shutdown Cooling occurs. Determine the time to boil and the flow to makeup for Boil-Off.

Given:

- RCS temperature is 95°F
- The Unit was tripped on Oct. 18, at 0000
- Loss of Shutdown Cooling occurred at: Oct 23, 0100

**EQUIPMENT CONTROL**

(RO/SRO)

(RO) Part 1 only: Obtain a Flux Log from the DCS and delete an Incore Detector from the DCS.

(SRO) Part 1 and

Part 2: Determine from deleted Incores, applicable Technical Specifications.

**RADIATION CONTROL**

(RO/SRO)

Using the Survey map, determine the radiological postings in each Unit 1 Charging pump room.

**DRAFT**

**(SRO) Response to Security Event**

Both Units are at 100% power. Unit 1, 1A Diesel Generator is running loaded for the 180 day surveillance test. Unit 2, 2C AFW pump is running for a surveillance test to satisfy post maintenance testing requirements.

At 0815, the Shift Manager receives a report from the NRC of an Airborne Threat. The estimated time to site arrival is 0855. A track of interest is verified by the NRC due to anomalous flight activity. The Shift Manager is to:

- Determine appropriate plant actions to take IAW Appendix D, "RESPONSE TO INFORMATIONAL AIRBORNE THREAT" of ONP-72.01, "Response to Security Events"
- Determine if the E-plan is to be implemented and if so, classify the event. (time critical action of 15 minutes from 0815)
- If classified, fill out the State of Florida notification form.

NOTE: the applicant will be given the entire procedure, ONP-72.01, "Response to Security Events" and Classification of Emergency procedures. They will be required to determine what appendix to implement, what actions to take and what classification to declare. They will also be required to fill out the State of Florida Notification form. The time critical portion of this JPM is to classify within 15 minutes of the 0815 time.

# DRAFT

**ES-301**

## Control Room/In-Plant Systems Outline

**Form ES-301-2**

Facility: St. Lucie Plant

Date of Examination: 01/05/2010

 Exam Level: RO ☐ SRO-I ☐ SRO-U ☐

Operating Test No.: HLC-19A NRC

 Control Room Systems<sup>@</sup> (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
S1 Alternate Charging flowpath to RCS through "A" HPSI header, Unit 2 (0821115)	S, A, M, L	2
S2 Manually actuate AFAS, Unit 2 (modified from 0821077)	S, A, M, L	4s
S3 Emergency Borate Unit 2	S, A, N, L	1
C7 Energize 1B3 4.16KV bus from Unit 2 SBO cross tie breaker (0821121T)	C, D, L	6
S4 Cool the Quench Tank, Unit 2	S, N	5
S5 Place the Pressurizer on Recirc. Unit 2	S, A, N	3
C8 (RO Only) Respond to CCW Excessive Activity - Unit 1 (0821030)	C, D	8
S6 Respond to Control Room OAI radiation alarms, Unit 2	S, A, N	7

 In-Plant Systems<sup>@</sup> (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)

P1 Align 1C Intake Cooling Water Pump to the "A" header (0821093)	D	4s
P2 Align emergency cooling water to the 1A Instrument air compressor (0821068)	D, E	8
P3 Blend to the VCT using local control Unit 1	R, M	2

<sup>@</sup> All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (EN)gineered safety feature (L)ow-Power / Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (R)CA (S)imulator	4-6 / 4-6 / 2-3  $\leq 9 / \leq 8 / \leq 4$ $\geq 1 / \geq 1 / \geq 1$ - / - / $\geq 1$ (control room system) $\geq 1 / \geq 1 / \geq 1$ $\geq 2 / \geq 2 / \geq 1$ $\leq 3 / \leq 3 / \leq 2$ (randomly selected) $\geq 1 / \geq 1 / \geq 1$

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**JPM SUMMARY DESCRIPTION**

S1: Alternate Charging flowpath to RCS through "A" HPSI header

Unit 2 is in 2-EOP-15, "Functional Recovery". Normal Charging flowpath is NOT available due to a Charging header break between V2429 and V2523. Appendix T, "Alternate Charging Flow Path to the RCS Through the 'A' HPSI Header" is required to be implemented in attempt to maintain Pressurizer Level 30 to 68% while the HPSI Pumps are throttled. The 2B Charging pump is out of service at turnover. When the applicant starts the 2A Charging pump, it trips 5 seconds later. The only available Charging pump is the 2C. The applicant should refer back to the procedure and use the 2C Charging pump to complete the lineup.

S2: Manually actuate AFAS, Unit 2

Unit 2 has experienced a SGTR on the 2B SG. The 2B SG has been isolated and AFW flow to the 2A SG has isolated on an AFAS lockout due to  $\Delta P$  between the 2A and 2B SG. AFAS-1 will be manually initiated. Upon manual initiation, MV-09-11 and MV-09-9 fail to open. When the applicant opens either valve it will trip 5 seconds later. (NOTE: both valves have this failure in but when either valve is placed to open it will clear the fault on the other valve, allowing the 2A OR the 2C AFW pump to feed the 2A SG).

S3: Emergency Borate Unit 2

Post trip actions are being performed with excessive cool down occurring. When Emergency boration is initiated. V2514 will not open. When the gravity feed valves are attempted to be open they also will not open. V2504, Refueling Water to the Charging pumps, among other manipulations will be required to successfully Emergency Borate.

S4: Cool the Quench Tank, Unit 2

Due to a weeping PORV V1474, the Quench tank is to be cooled IAW 2-NOP-01.07 Section 4.4 Lowering QT temperature by Feed and Bleed.

S5: Place the Pressurizer on Recirc. Unit 2

With the Unit at 100% power, direction is given to place the Pressurizer on recirc. As the heaters are energized and pressure setpoint lowered, the sprays valves will start to open. A malfunction in the controller will result in the spray valves going full open. Taking the controller to manual and lowering the output will close one of the spray valves, but the other valve sticks fully open, eventually requiring a manual trip prior to the automatic TMPL trip. The 2B2 Reactor coolant pump must be stopped or the Unit will depressurize to SIAS setpoint.

S6: Respond to Control Room OAI radiation alarms, Unit 2

Unit 1 is experiencing a LBLOCA with a breach in Containment integrity. As a result of this release, Unit 2 Control Room has gone on ventilation recirc due to high radiation in the outside air intakes. Compliance with the procedure requires verification of ventilation lineup IAW 2-ONP-25.02, "Ventilation Systems", Appendix B. As Appendix B is being followed, numerous damper and fan failures should be noted and corrective actions should be taken.

**JPM SUMMARY DESCRIPTION**

C7: Energize 1B3 4.16KV bus from Unit 2 SBO cross tie breaker

Unit 1 is in a station blackout and Unit 2 has both emergency buses being supplied by their Diesel Generators. Direction is given to cross tie the 1AB and 2AB 4.16KV Bus IAW 1-EOP-99, Appendix V, "Receiving AC Power from Unit 2 using the SBO Crosstie" This JPM is time critical.

C8: (RO Only) Respond to CCW Excessive Activity - Unit 1

CCW surge tank level is increasing causing Annunciator S-6 to alarm. Local indication reveals high level in the surge tank. The Unit supervisor had directed the actions of ONOP 1-0310030, "CCW Off Normal Operation" to determine the cause of the high surge tank level. The Pressurizer steam space sample heat exchanger (1C) will be leaking. Isolation of the heat exchanger will stop the leak.

P1: Align 1C Intake Cooling Water Pump to the "A" header

The 1A Intake Cooling Water pump is to be taken out of service for maintenance. The 1C Intake Cooling Water pump is to be aligned to take its place IAW 1-NOP-21.03C, section 4.1. The electrical lineup required to support taking the 1A out of service has already been performed.

P2: Align emergency cooling water to the 1A Instrument air compressor

A LOOP has occurred on Unit 1. Direction is given to align the Emergency Cooling System to the 1A Instrument Air Compressor and start the Compressor IAW 1-EOP-99, "Appendix H "Operation of the 1A and 1B Instrument Air Compressors.

P3: Blend to the VCT using local control Unit 1

A blend to the VCT is required on Unit 1. FCV-2161 is unable to be opened. As a result, Appendix A of 1-ONP-02.01, "Boron Concentration Control" is to be implemented to locally control addition of Boric acid and Primary water to blend to the VCT.

NOTE: A similar JPM to the above was performed during the 2008 NRC exam, but it was performed on the other unit, some different valve numbers, and entirely different valve locations. As a result this JPM is considered "Modified".

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