ES-401, Rev. 9 **BWR Examination Outline** **Form ES-401-1**

Draft

Facility Hatch **Date of Exam: 2012**

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	4	3	3	N/A			4	3	N/A		3	20	3	4	7
	2	1	1	1				2	1			1	7	1	2	3
	Tier Totals	5	4	4				6	4			4	27	4	6	10
2. Plant Systems	1	3	2	3	2	3	2	3	2	2	2	2	26	2	3	5
	2	1	1	1	1	1	1	1	1	1	2	1	12	0 / 1	2	3
	Tier Totals	4	3	4	3	4	3	4	3	3	4	3	38	3	5	8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7
		3			3			2			2			1	2	2	2	

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

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295001AK2.05	Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	3.2	3.6	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	LPCI loop select logic: Plant-Specific.....
295003AK1.03	Partial or Complete Loss of AC / 6	2.9	3.2	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Under voltage/degraded voltage effects on electrical loads.....
295004G2.4.11	Partial or Total Loss of DC Pwr / 6	4.0	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of abnormal condition procedures.
295005AK3.06	Main Turbine Generator Trip / 3	3.3	3.3	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Realignment of electrical distribution.....
295006AA1.01	SCRAM / 1	4.2	4.2	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	RPS.....
295016AA2.07	Control Room Abandonment / 7	3.2	3.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Suppression chamber pressure.....
295018AK3.06	Partial or Total Loss of CCW / 8	3.3	3.3	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Increasing cooling water flow to heat exchangers.....
295019AA2.02	Partial or Total Loss of Inst. Air / 8	3.6	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Status of safety-related instrument air system loads (see AK2.1 - AK2.19).....
295021G2.2.40	Loss of Shutdown Cooling / 4	3.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to apply technical specifications for a system.
295023AA1.04	Refueling Acc Cooling Mode / 8	3.4	3.7	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Radiation monitoring equipment.....
295024EA2.06	High Drywell Pressure / 5	4.1	4.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Suppression pool temperature.....

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295025G2.1.27	High Reactor Pressure / 3	3.9	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of system purpose and or function.
295026EK3.04	Suppression Pool High Water Temp. / 5	3.7	4.1	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	SBLC injection.....
295028EA1.03	High Drywell Temperature / 5	3.9	3.9	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Drywell cooling system.....
295030EK1.02	Low Suppression Pool Wtr Lvl / 5	3.5	3.8	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Pump NPSH.....
295031EA1.02	Reactor Low Water Level / 2	4.5	4.5	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	High pressure (feedwater) coolant injection: Plant-Specific.....
295037EK2.01	SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	4.2	4.3	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	RPS.....
295038EK1.02	High Off-site Release Rate / 9	4.2	4.4	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Protection of the general public.....
600000AK1.02	Plant Fire On Site / 8	2.9	3.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Fire Fighting
700000AK2.07	Generator Voltage and Electric Grid Distrurbancecs	3.6	3.7	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Turbine / Generator control

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295009AA1.03	Low Reactor Water Level / 2	3.0	3.1	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Recirculation system: Plant-Specific.....
295010G2.4.18	High Drywell Pressure / 5	3.3	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the specific bases for EOPs.
295013AK2.01	High Suppression Pool Temp. / 5	3.6	3.7	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Suppression pool cooling.....
295020AK1.05	Inadvertent Cont. Isolation / 5 & 7	3.3	3.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Loss of drywell/containment cooling.....
295032EA1.05	High Secondary Containment Area Temperature / 5	3.7	3.9	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Affected systems so as to isolate damaged portions....
295035EA2.02	Secondary Containment High Differential Pressure / 5	2.8	4.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Off-site release rate: Plant-Specific.....
500000EK3.07	High CTMT Hydrogen Conc. / 5	3.1	3.7	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Operation of drywell vent

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
203000G2.4.41	RHR/LPCI: Injection Mode	2.9	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the emergency action level thresholds and classifications.
205000K5.02	Shutdown Cooling	2.8	2.9	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Valve operation
206000K5.06	HPCI	2.6	2.6	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Turbine speed measurement: BWR-2,3,4
209001K1.12	LPCS	2.9	3.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	ECCS room coolers
209001K5.01	LPCS	2.6	2.7	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Indications of pump cavitation
211000K4.02	SLC	3.0	3.2	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Component and system testing
212000A2.08	RPS	4.1	4.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Low reactor level
212000K3.03	RPS	3.3	3.4	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Local power range monitoring system: Plant-Specific
215003A1.06	IRM	3.3	3.2	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Lights and alarms
215004K6.02	Source Range Monitor	3.1	3.3	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	24/48 volt D.C. power
215005A1.01	APRM / LPRM	4.0	4.0	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Reactor power indication

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
215005A4.03	APRM / LPRM	3.2	3.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	?APRM back panel switches, meters and indicating lights
217000K2.04	RCIC	2.6	2.6	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Gland seal compressor (vacuum pump)
218000K1.04	ADS	3.9	4.2	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Drywell/containment pressure: Plant-Specific
223002K3.10	PCIS/Nuclear Steam Supply Shutoff	2.9	3.1	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Reactor water cleanup
239002A3.02	SRVs	4.3	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	SRV operation on high reactor pressure
259002A4.07	Reactor Water Level Control	3.8	3.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	All individual component controllers when transferring from automatic to manual mode
261000A1.01	SGTS	2.9	3.1	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	System flow
261000K3.02	SGTS	3.6	3.9	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Off-site release rate
262001G2.4.47	AC Electrical Distribution	4.2	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.
262002A3.01	UPS (AC/DC)	2.8	3.1	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Transfer from preferred to alternate source
263000A2.02	DC Electrical Distribution	2.6	2.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loss of ventilation during charging

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
264000K4.06	EDGs	2.6	2.7	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Governor control
300000K1.02	Instrument Air	2.7	2.8	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Service air
300000K6.04	Instrument Air	2.6	2.5	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Service air refusal valve
400000K2.02	Component Cooling Water	2.9	2.9	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	CCW valves

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
201001K1.11	CRD Hydraulic	2.8	2.8	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Reactor water cleanup pumps: Plant-Specific
202001A1.02	Recirculation	3.4	3.4	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Jet pump flow
202002K3.03	Recirculation Flow Control	3.3	3.4	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Reactor water level
204000K4.01	RWCU	2.5	2.5	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Pump protection
215002K6.04	RBM	2.8	3.0	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	APRM reference channel: BWR-3,4,5
216000A4.01	Nuclear Boiler Inst.	3.3	3.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Recorders
223001A3.04	Primary CTMT and Aux.	4.2	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Containment/drywell response during LOCA
233000K2.02	Fuel Pool Cooling/Cleanup	2.8	2.9	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	RHR pumps
234000K5.02	Fuel Handling Equipment	3.1	3.7	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Fuel handling equipment interlocks
241000A2.23	Reactor/Turbine Pressure Regulator	2.6	2.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Turbine high eccentricity
268000A4.01	Radwaste	3.4	3.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Sump integrators

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
286000G2.4.9	Fire Protection	3.8	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.2	Conduct of operations	3	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of operator responsibilities during all modes of plant operation.
G2.1.21	Conduct of operations	3.5	3.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability verify the controlled procedure copy.
G2.1.6	Conduct of operations	3.8	4.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to manage the control room crew during plant transients.
G2.2.23	Equipment Control	3.1	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to track Technical Specification limiting conditions for operations.
G2.2.37	Equipment Control	3.6	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to determine operability and/or availability of safety related equipment
G2.2.44	Equipment Control	4.2	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	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
G2.3.13	Radiation Control	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiological safety procedures pertaining to licensed operator duties
G2.3.14	Radiation Control	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities
G2.4.26	Emergency Procedures/Plans	3.1	3.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of facility protection requirements including fire brigade and portable fire fighting equipment usage.
G2.4.32	Emergency Procedures/Plans	3.6	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of operator response to loss of all annunciators.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295005G2.2.4	Main Turbine Generator Trip / 3	3.6	3.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	(multi-unit) Ability to explain the variations in control board layouts, systems, instrumentation and procedural actions between units at a facility.
295006AA2.05	SCRAM / 1	4.6	4.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Whether a reactor SCRAM has occurred.....
295025G2.4.2	High Reactor Pressure / 3	4.5	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.
295026EA2.01	Suppression Pool High Water Temp. / 5	4.1	4.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Suppression pool water temperature.....
295030EA2.03	Low Suppression Pool Wtr Lvl / 5	3.7	3.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Reactor pressure.....
295031G2.4.20	Reactor Low Water Level / 2	3.8	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of operational implications of EOP warnings, cautions and notes.
600000G2.2.12	Plant Fire On Site / 8	3.7	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of surveillance procedures.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295015G2.1.27	Incomplete SCRAM / 1	3.9	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of system purpose and or function.
295022AA2.03	Loss of CRD Pumps / 1	3.1	3.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	CRD mechanism temperatures.....
295033G2.4.49	High Secondary Containment Area Radiation Levels / 9	4.6	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
203000G2.4.20	RHR/LPCI: Injection Mode	3.8	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of operational implications of EOP warnings, cautions and notes.
215004G2.4.47	Source Range Monitor	4.2	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.
215005A2.07	APRM / LPRM	3.2	3.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Recirculation flow channels flow mismatch
261000G2.2.37	SGTS	3.6	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to determine operability and/or availability of safety related equipment
400000A2.01	Component Cooling Water	3.3	3.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loss of CCW pump

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
230000G2.4.45	RHR/LPCI: Torus/Pool Spray Mode	4.1	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to prioritize and interpret the significance of each annunciator or alarm.
259001A2.02	Reactor Feedwater	3.1	3.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Feedwater heater isolation
290002G2.2.12	Reactor Vessel Internals	3.7	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of surveillance procedures.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.25	Conduct of operations	3.9	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to interpret reference materials such as graphs, monographs and tables which contain performance data.
G2.2.42	Equipment Control	3.9	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to recognize system parameters that are entry-level conditions for Technical Specifications
G2.2.43	Equipment Control	3.0	3.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the process used to track inoperable alarms
G2.3.11	Radiation Control	3.8	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to control radiation releases
G2.3.13	Radiation Control	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiological safety procedures pertaining to licensed operator duties
G2.4.23	Emergency Procedures/Plans	3.4	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations.
G2.4.29	Emergency Procedures/Plans	3.1	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the emergency plan.

Facility: **PLANT E. I. HATCH HLT 7** Date of Examination: 06/18/2012
Exam Level: RO ☑ SRO-I ☐ SRO-U ☐ Operating Test No.: 2012-301

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations Admin 2	M, R	U1 - Correct Reactor Water Level for high drywell temperatures. **G2.1.35** (3.9 4.2) **ALL**
Conduct of Operations Admin 3	M, R	Determine if plant conditions allow a "Quick Restart" of a Recirculation Pump (15 min). **G2.1.20** (4.3 4.2) **RO ONLY**
Equipment Control Admin 4	N, R	Review HPCI Pump Operability Surveillance (25 min) **G2.2.12 ALL**
Radiation Control Admin 5	D, R	Given a set of exposure conditions, determine the minimum level of authorization required to allow a worker to perform work which will exceed administrative exposure limits. **G2.3.4** (2.5 3.1) **ALL**

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

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

4/25/12

Facility: **PLANT E. I. HATCH HLT 7** Date of Examination: 06/18/2012
Exam Level: RO ☐ SRO-I ☑ SRO-U ☐ Operating Test No.: 2012-301

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations Admin 1	D, R	Verify Fuel Movements **G2.1.35** (3.9) **SRO ONLY**
Conduct of Operations Admin 2	M, R	U1 - Correct Reactor Water Level for high drywell temperatures. **G2.1.35** (3.9 4.2) **ALL**
Equipment Control Admin 4	N, R	Review HPCI Pump Operability Surveillance (25 min) **G2.2.12 ALL**
Radiation Control Admin 5	D, R	Given a set of exposure conditions, determine the minimum level of authorization required to allow a worker to perform work which will exceed administrative exposure limits. **G2.3.4** (2.5 3.1) **ALL**
Emergency Procedures/Plan Admin 6	D, S, R	Given Plant Conditions, Determine the Emergency, Classification and complete the ENN Form. **G2.4.29** (4.0) **SRO ONLY**

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

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Facility: **PLANT E. I. HATCH HLT 7** Date of Examination: 06/18/2012
Exam Level: RO ☐ SRO-I ☑ SRO-U ☐ Operating Test No.: 2012-301

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
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Conduct of Operations Admin 2	M, R	U1 - Correct Reactor Water Level for high drywell temperatures. **G2.1.35** (3.9 4.2) **ALL**
Equipment Control Admin 4	N, R	Review HPCI Pump Operability Surveillance (25 min) **G2.2.12 ALL**
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Facility: **PLANT E. I. HATCH HLT 7** Date of Examination: 06/18/2012
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Administrative Topic (see Note)	Type Code*	Describe activity to be performed
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(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1; randomly selected)

Facility: **PLANT E. I. HATCH HLT 7** Date of Examination: 06/18/2012

Exam Level: RO ☑ SRO-I ☑ SRO-U ☐ Operating Test No.: 2012-301

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

System / JPM Title	Type Code*	Safety Function
CR/SIM 1 – Withdraw control rods and one Rod becomes uncoupled.	A, D, S	SF-1 Reactivity 201003A2.02 (3.7/3.8) **ALL**
CR/SIM 2 – Place 2nd RFPT in service with RFPT already at 2100 rpm.	D, S	SF-2 Reactor Water Level Control 259001A4.02 (3.8/3.7) **ALL**
CR/SIM 3 – Override and Open MSIVs in an Emergency.	D, S	SF-3 Reactor Pressure Control 239001A4.01 (4.2/4.0) **ALL**
CR/SIM 4 – Place HPCI in Pressure Control Mode, after BPVs close.	A, M, S	SF-4 Heat Removal From The Core 206000A4.06 (4.3/4.3) **ALL**
CR/SIM 5 – RHR/LPCI: Containment Spray System Mode / Initiate Drywell spray with a valve failure.	A, D, S	SF-5 Containment Integrity 226001A2.11 (3.0/3.0) **ALL**
CR/SIM 6 – 4160 VAC / Transfer an Emergency 4160 VAC F from Normal to Alternate Power Supply.	D, S	SF-6 Electrical 262001A4.01 (3.6/3.7) **RO ONLY**
CR/SIM 7 – Crosstie RHRSW.	D, L, S	SF-8 Plant Service System 219000A2.15 (RO 3.3/SRO 3.4) **ALL**
CR/SIM 8 – Using the Override Switches, Vent the Torus with the CAD System.	A, M, S	SF-9 Radiation Release 295038EK1.02 (4.2/4.4) **ALL**
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
PLANT 1 – SBLC / From Outside the Control Room, Inject Boron using the SBLC System with failure of first pump to start.	A, D, E, L, R	SF-1 Reactivity 211000A2.01 (3.5/3.8) **ALL**
PLANT 2 – Emergency Generators / Locally close output breaker by flashing field and lowering Hz then raising to ~60Hz.	A, N, E	SF-6 Electrical 26400A3.04 (3.1/3.1) **ALL**
PLANT 3 – During a loss of air, isolate the Fire Protection Sprinklers on Unit 2.	D, E, R	SF-8 Plant Service System 286000A2.10 (2.6/2.7) **ALL**

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@	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	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥1 (control room system)
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Facility: **PLANT E. I. HATCH HLT 7** Date of Examination: 06/18/2012

Exam Level: RO ☑ SRO-I ☑ SRO-U ☐ Operating Test No.: 2012-301

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System / JPM Title	Type Code*	Safety Function
CR/SIM 1 – Withdraw control rods and one Rod becomes uncoupled.	A, D, S	SF-1 Reactivity 201003A2.02 (3.7/3.8) **ALL**
CR/SIM 2 – Place 2nd RFPT in service with RFPT already at 2100 rpm.	D, S	SF-2 Reactor Water Level Control 259001A4.02 (3.8/3.7) **ALL**
CR/SIM 3 – Override and Open MSIVs in an Emergency.	D, S	SF-3 Reactor Pressure Control 239001A4.01 (4.2/4.0) **ALL**
CR/SIM 4 – Place HPCI in Pressure Control Mode, after BPVs close.	A, M, S	SF-4 Heat Removal From The Core 206000A4.06 (4.3/4.3) **ALL**
CR/SIM 5 – RHR/LPCI: Containment Spray System Mode / Initiate Drywell spray with a valve failure.	A, D, S	SF-5 Containment Integrity 226001A2.11 (3.0/3.0) **ALL**
CR/SIM 6 – 4160 VAC / Transfer an Emergency 4160 VAC F from Normal to Alternate Power Supply.	D, S	SF-6 Electrical 262001A4.01 (3.6/3.7) **RO ONLY**
CR/SIM 7 – Crosstie RHRSW.	D, L, S	SF-8 Plant Service System 219000A2.15 (RO 3.3/SRO 3.4) **ALL**
CR/SIM 8 – Using the Override Switches, Vent the Torus with the CAD System.	A, M, S	SF-9 Radiation Release 295038EK1.02 (4.2/4.4) **ALL**

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

PLANT 1 – SBLC / From Outside the Control Room, Inject Boron using the SBLC System with failure of first pump to start.	A, D, E, L, R	SF-1 Reactivity 211000A2.01 (3.5/3.8) **ALL**
PLANT 2 – Emergency Generators / Locally close output breaker by flashing field and lowering Hz then raising to ~60Hz.	A, N, E	SF-6 Electrical 26400A3.04 (3.1/3.1) **ALL**
PLANT 3 – During a loss of air, isolate the Fire Protection Sprinklers on Unit 2.	D, E, R	SF-8 Plant Service System 286000A2.10 (2.6/2.7) **ALL**

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(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	