Facility: BRUNSWICK Date of Exam: December 2010

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

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.

ES-401, REV 9	T1G1 BWR EXAMINATION OUTLINE														FORM ES-401-1
KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
295001AK3.01	Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	3.4	3.6	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Reactor water level response.....
295003AK3.06	Partial or Complete Loss of AC / 6	3.7	3.7	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Containment isolation.....
295004AA1.03	Partial or Total Loss of DC Pwr / 6	3.4	3.6	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	A.C. electrical distribution.....
295005AA2.06	Main Turbine Generator Trip / 3	2.6	2.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Feedwater temperature.....
295006AK1.02	SCRAM / 1	3.4	3.7	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Shutdown margin.....
295016AK3.01	Control Room Abandonment / 7	4.1	4.2	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Reactor SCRAM.....
295018G2.1.32	Partial or Total Loss of CCW / 8	3.8	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to explain and apply all system limits and precautions.
295019AK2.11	Partial or Total Loss of Inst. Air / 8	2.5	2.6	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Radwaste.....
295021AK1.02	Loss of Shutdown Cooling / 4	3.3	3.4	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Thermal stratification.....
295023AK2.03	Refueling Acc Cooling Mode / 8	3.4	3.6	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Radiation monitoring equipment.....
295024EK3.01	High Drywell Pressure / 5	3.6	4.0	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Drywell spray operation: Mark-I&II.....

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295025EK1.04	High Reactor Pressure / 3	3.6	3.9	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Decay heat generation.....
295026EK2.02	Suppression Pool High Water Temp. / 5	3.6	3.8	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Suppression pool spray: Plant-Specific.....
295028EK2.01	High Drywell Temperature / 5	3.7	4.1	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Drywell spray: Mark-I&II.....
295030G2.4.30	Low Suppression Pool Wtr Lvl / 5	2.7	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of events related to system operations/status that must be reported to internal orginizations or outside agencies.
295031EA1.01	Reactor Low Water Level / 2	4.4	4.4	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Low pressure coolant injection (RHR): Plant-Specific.
295037EA2.01	SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	4.2	4.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Reactor power.....
295038EA1.07	High Off-site Release Rate / 9	3.6	3.8	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Control room ventilation: Plant-Specific.....
600000G2.4.6	Plant Fire On Site / 8	3.7	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge symptom based EOP mitigation strategies.
700000AA2.07	Generator Voltage and Electric Grid Distrurbancecs	3.6	4.0	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Operational status of engineered safety features

ES-401, REV 9 **T1G2 BWR EXAMINATION OUTLINE** **FORM ES-401-1**

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295008G2.1.25	High Reactor Water Level / 2	3.9	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to interpret reference materials such as graphs, monographs and tables which contain performance data.
295014AA1.06	Inadvertent Reactivity Addition / 1	3.3	3.4	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Reactor/turbine pressure regulating system.....
295015AK1.02	Incomplete SCRAM / 1	3.9	4.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Cooldown effects on reactor power.....
295020AA2.03	Inadvertent Cont. Isolation / 5 & 7	3.7	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Reactor power.....
295033EK3.02	High Secondary Containment Area Radiation Levels / 9	3.5	3.6	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Reactor SCRAM.....
295034EK3.05	Secondary Containment Ventilation High Radiation / 9	3.6	3.9	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Manual SCRAM and depressurization: Plant-Specific....
295036EK2.01	Secondary Containment High Sump/Area Water Level / 5	3.1	3.2	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Secondary containment equipment and floor drain system

ES-401, REV 9 **T2G1 BWR EXAMINATION OUTLINE** **FORM ES-401-1**

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
203000K2.01	RHR/LPCI: Injection Mode	3.5	3.5	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Pumps
203000K2.03	RHR/LPCI: Injection Mode	2.7	2.9	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Initiation logic
205000G2.2.44	Shutdown Cooling	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
206000A3.01	HPCI	3.6	3.5	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Turbine speed: BWR-2,3,4
206000A3.05	HPCI	4.3	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Reactor water level: BWR-2,3,4
209001K3.03	LPCS	2.9	3.0	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Emergency generators
211000K5.01	SLC	2.7	2.9	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Effects of the moderator temperature coefficient of reactivity on the boron
211000K5.06	SLC	3.0	3.2	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Tank level measurement
212000A4.07	RPS	4.0	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	System status lights and alarms
215003A2.02	IRM	3.5	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	IRM inop condition
215004G2.4.2	Source Range Monitor	4.5	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
215005K4.08	APRM / LPRM	2.7	3.1	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Sampling of overall core power in each APRM (accomplished through LPRM assignments and symmetrical rod patterns)
217000K6.04	RCIC	3.5	3.5	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Condensate storage and transfer system
218000K4.04	ADS	3.5	3.6	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Insures adequate air supply to ADS valves: Plant-Specific
223002K1.08	PCIS/Nuclear Steam Supply Shutoff	3.4	3.5	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Shutdown cooling system/RHR
239002K3.01	SRVs	3.9	4.0	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Reactor pressure control
239002K3.03	SRVs	4.3	4.4	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Ability to rapidly depressurize the reactor
259002A4.01	Reactor Water Level Control	3.8	3.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	All individual component controllers in the manual mode
259002A4.11	Reactor Water Level Control	3.5	3.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	High level lockout reset controls: Plant-Specific
261000A1.07	SGTS	2.8	2.9	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	SBGTS train temperature
262001K2.01	AC Electrical Distribution	3.3	3.6	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Off-site sources of power
262002A3.01	UPS (AC/DC)	2.8	3.1	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Transfer from preferred to alternate source

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
263000K5.01	DC Electrical Distribution	2.6	2.9	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Hydrogen generation during battery charging. . . . .
264000A1.09	EDGs	3.0	3.1	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Maintaining minimum load on emergency generator (to prevent reverse power)
300000K1.02	Instrument Air	2.7	2.8	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Service air
400000A2.01	Component Cooling Water	3.3	3.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loss of CCW pump

ES-401, REV 9	T2G2 BWR EXAMINATION OUTLINE															FORM ES-401-1
KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G		TOPIC:
		RO	SRO													
202002A4.01	Recirculation Flow Control	3.3	3.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		MG sets
204000K4.02	RWCU	2.7	2.9	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐		Piping over-pressurization protection: Plant-Specific
214000K3.03	RPIS	3.1	3.2	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐		RMCS: Plant-Specific
215002A2.04	RBM	2.7	2.8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐		Power supply losses: BWR-3,4,5
223001G2.2.4	Primary CTMT and Aux.	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.
226001A1.04	RHR/LPCI: CTMT Spray Mode	3.3	3.6	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐		Suppression pool temperature: Mark-I-II
230000K2.02	RHR/LPCI: Torus/Pool Spray Mode	2.8	2.9	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		Pumps
234000K6.01	Fuel Handling Equipment	2.7	3.2	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐		Electrical power
259001K3.04	Reactor Feedwater	2.5	2.5	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐		RWCU
271000K5.06	Offgas	2.7	2.7	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		Catalytic recombination
272000K1.08	Radiation Monitoring	3.6	3.9	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		Reactor protection system

ES-401, REV 9		T2G2 BWR EXAMINATION OUTLINE														FORM ES-401-1
KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G		TOPIC:
		RO	SRO													
288000A3.01	Plant Ventilation	3.8	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐		Isolation/initiation signals

ES-401, REV 9	T3 BWR EXAMINATION OUTLINE														FORM ES-401-1
KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
G2.1.43	Conduct of operations	4.1	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to use procedures to determine the effects on reactivity of plant changes
G2.1.7	Conduct of operations	4.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.
G2.2.2	Equipment Control	4.6	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.
G2.2.3	Equipment Control	3.8	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	(multi-unit license) Knowledge of the design, procedural and operational differences between units.
G2.3.11	Radiation Control	3.8	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to control radiation releases.
G2.3.12	Radiation Control	3.2	3.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiological safety principles pertaining to licensed operator duties
G2.3.13	Radiation Control	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiological safety procedures pertaining to licensed operator duties
G2.4.16	Emergency Procedures/Plans	3.5	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of EOP implementation hierarchy and coordination with other support procedures or guidelines.
G2.4.39	Emergency Procedures/Plans	3.9	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the RO's responsibilities in emergency plan implementation.
G2.4.6	Emergency Procedures/Plans	3.7	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge symptom based EOP mitigation strategies.

ES-401, REV 9 **SRO T1G1 BWR EXAMINATION OUTLINE** **FORM ES-401-1**

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295004AA2.04	Partial or Total Loss of DC Pwr / 6	3.2	3.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	System lineups.....
295006G2.1.27	SCRAM / 1	3.9	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of system purpose and or function.
295016G2.4.31	Control Room Abandonment / 7	4.2	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of annunciators alarms, indications or response procedures
295019G2.4.18	Partial or Total Loss of Inst. Air / 8	3.3	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the specific bases for EOPs.
295023G2.1.20	Refueling Acc Cooling Mode / 8	4.6	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to execute procedure steps.
295028EA2.01	High Drywell Temperature / 5	4.0	4.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Drywell temperature.....
295037EA2.05	SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	4.2	4.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Control rod position.....

ES-401, REV 9	SRO T1G2 BWR EXAMINATION OUTLINE														FORM ES-401-1
KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
295008G2.2.38	High Reactor Water Level / 2	3.6	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of conditions and limitations in the facility license.
295020G2.2.40	Inadvertent Cont. Isolation / 5 & 7	3.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to apply technical specifications for a system.
295034EA2.02	Secondary Containment Ventilation High Radiation / 9	3.7	4.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Cause of high radiation levels.....

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
203000G2.4.21	RHR/LPCI: Injection Mode	4.0	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the parameters and logic used to assess the status of safety functions
215005G2.1.20	APRM / LPRM	4.6	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to execute procedure steps.
261000A2.05	SGTS	3.0	3.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Fan trips
263000A2.02	DC Electrical Distribution	2.6	2.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loss of ventilation during charging
400000G2.1.25	Component Cooling Water	3.9	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to interpret reference materials such as graphs, monographs and tables which contain performance data.

ES-401, REV 9 **SRO T2G2 BWR EXAMINATION OUTLINE** **FORM ES-401-1**

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
233000G2.2.37	Fuel Pool Cooling/Cleanup	3.6	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to determine operability and/or availability of safety related equipment
239001G2.2.3	Main and Reheat Steam	3.8	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	(multi-unit license) Knowledge of the design, procedural and operational differences between units.
288000A2.01	Plant Ventilation	3.3	3.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	High drywell pressure: Plant-Specific

ES-401, REV 9 **SRO T3 BWR EXAMINATION OUTLINE** **FORM ES-401-1**

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.23	Conduct of operations	4.3	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to perform specific system and integrated plant procedures during all modes of plant operation.
G2.1.3	Conduct of operations	3.7	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of shift or short term relief turnover practices.
G2.2.23	Equipment Control	3.1	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to track Technical Specification limiting conditions for operations.
G2.2.43	Equipment Control	3.0	3.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the process used to track inoperable alarms
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
G2.3.5	Radiation Control	2.9	2.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to use radiation monitoring systems
G2.4.28	Emergency Procedures/Plans	3.2	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of procedures relating to emergency response to sabotage.

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

Facility: Brunswick Date of Examination: December 2010

Examination Level: RO ■ ***SRO-I*** ■ Operating Test Number: DRAFT

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	*R, M*	*Battery Ground Calculation*
Conduct of Operations	*R, M*	*Evaluate Overtime Eligibility*
Equipment Control	*R, M*	*Surveillance Acceptance Criteria Review*
Radiation Control	*R, M, P*	*Determine Stay Times in a High Radiation Area*
Emergency Procedures/Plan	***R, N***	***(SRO-I only) Protective Action Recommendations (PAR)***

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)

ES-301 **Control Room/In-Plant Systems Outline** **Form ES-301-2**

Facility: Brunswick Date of Examination: Dec 2010

Exam Level: RO ■ SRO-I ■ Operating Test No.: DRAFT

Control Room Systems@ (8 for RO); (7 for SRO-I)

System / JPM Title	Type Code*	Safety Function
a. Vent DW w/stack Rad Mon failure	S, P, A	9
b. SULCV in service after scram	S, P,M, L, A	2
c. Resetting CO-FIC-49	S, N	8
d. SLC Initiation w/RWCU failure	S, A, D, E	1
e. Crosstie 480V E-Busses	S, D, E	6
f. Reopen MSIVs using hard card	S, D	3
g. RCIC start in Pressure Control with isolation failure	S, N, A	4
h. (RO only) Reset Nitrogen Backup System	S, P	5
In-Plant Systems@ (3 for RO/SRO-I)		
i. SBGT Deluge Reset	R, D	8
j. Vent the Scram Air Header	R, A, E, D	1
k. Heater Drain Pump Injection	R, E, D	2

@ 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	