Facility: Nine Mile Point Date of Exam: 2013

Tier	Group	RO K/A Category Points												SRO-Only Points		
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	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	2	3	1	2	3	2	3	3	2	26	2	3	5
	2	1	1	1	1	1	1	1	1	2	1	1	12	0 / 1	2	3
	Tier Totals	4	3	3	4	2	3	4	3	5	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:
295001G2.1.7	Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	4.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.
295003G2.1.27	Partial or Complete Loss of AC / 6	3.9	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of system purpose and or function.
295004AA1.03	Partial or Total Loss of DC Pwr / 6	3.4	3.6	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	A.C. electrical distribution.....
295005AA2.08	Main Turbine Generator Trip / 3	3.2	3.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Electrical distribution status.....
295006AK3.03	SCRAM / 1	3.8	3.9	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Reactor pressure response.....
295016AA1.08	Control Room Abandonment / 7	4.0	4.0	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Reactor pressure.....
295018AK3.07	Partial or Total Loss of CCW / 8	3.1	3.2	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Cross-connecting with backup systems.....
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).....
295021AK2.01	Loss of Shutdown Cooling / 4	3.6	3.7	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Reactor water temperature.....
295023AA1.05	Refueling Acc Cooling Mode / 8	2.8	3.5	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Fuel transfer system: Plant-Specific.....
295024EK1.01	High Drywell Pressure / 5	4.1	4.2	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Drywell integrity: Plant-Specific.....

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295025EK3.01	High Reactor Pressure / 3	4.2	4.3	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Safety/relief valve opening.....
295026EA2.01	Suppression Pool High Water Temp. / 5	4.1	4.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Suppression pool water temperature.....
295028EK2.01	High Drywell Temperature / 5	3.7	4.1	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Drywell spray: Mark-I&II.....
295030EK1.02	Low Suppression Pool Wtr Lvl / 5	3.5	3.8	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Pump NPSH.....
295031EK1.02	Reactor Low Water Level / 2	3.8	4.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Natural circulation: Plant-Specific.....
295037EK2.13	SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	3.4	4.1	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Alternate boron injection methods: Plant-Specific....
295038G2.4.9	High Off-site Release Rate / 9	3.8	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.
600000AK1.02	Plant Fire On Site / 8	2.9	3.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Fire Fighting
700000AA1.03	Generator Voltage and Electric Grid Distrurbancecs	3.8	3.7	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Voltatge regulator controls

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295002AK2.02	Loss of Main Condenser Vac / 3	3.1	3.2	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Main turbine.....
295009AK1.05	Low Reactor Water Level / 2	3.3	3.4	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Natural circulation.....
295010AA1.06	High Drywell Pressure / 5	3.3	3.5	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Leakage detection systems.....
295022G2.2.38	Loss of CRD Pumps / 1	3.6	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of conditions and limitations in the facility license.
295029EK3.03	High Suppression Pool Wtr Lvl / 5	3.4	3.5	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Reactor SCRAM.....
295034EA1.02	Secondary Containment Ventilation High Radiation / 9	3.9	4.0	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Process radiation monitoring system.....
295036EA2.01	Secondary Containment High Sump/Area Water Level / 5	3.0	3.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Operability of components within the affected area..

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
203000A1.01	RHR/LPCI: Injection Mode	4.2	4.3	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Reactor water level
203000A1.04	RHR/LPCI: Injection Mode	3.6	3.6	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	System pressure
205000K3.05	Shutdown Cooling	2.6	2.7	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Fuel pool cooling assist: Plant-Specific
206000K2.02	HPCI	2.8	3.1	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	System pumps: BWR-2,3,4
209001K1.08	LPCS	3.2	3.3	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	A.C. electrical power
211000A3.01	SLC	3.5	3.5	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Pump discharge pressure: Plant-Specific
212000A2.09	RPS	4.1	4.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	High containment/drywell pressure
215003A4.04	IRM	3.1	3.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	?IRM back panel switches, meters, and indicating lights
215003A4.05	IRM	3.4	3.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Trip bypasses
215004G2.2.4	Source Range Monitor	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.
215005K4.01	APRM / LPRM	3.7	3.7	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Rod withdrawal blocks

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
217000K6.04	RCIC	3.5	3.5	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Condensate storage and transfer system
218000K4.02	ADS	3.8	4.0	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Allows manual initiation of ADS logic
218000K4.03	ADS	3.8	4.0	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	ADS logic control
223002K1.04	PCIS/Nuclear Steam Supply Shutoff	3.5	3.8	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	High pressure coolant injection: Plant-Specific
223002K1.08	PCIS/Nuclear Steam Supply Shutoff	3.4	3.5	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Shutdown cooling system/RHR
239002K2.01	SRVs	2.8	3.2	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	SRV solenoids
259002G2.2.40	Reactor Water Level Control	3.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to apply technical specifications for a system.
261000A1.01	SGTS	2.9	3.1	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	System flow
262001K5.02	AC Electrical Distribution	2.6	2.9	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Breaker control
262002K3.08	UPS (AC/DC)	2.7	2.8	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Computer operation: Plant-Specific
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:
264000A3.02	EDGs	3.1	3.1	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Minimum time for load pick up
264000A3.04	EDGs	3.1	3.1	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Operation of the governor control system on frequency and voltage control
300000A4.01	Instrument Air	2.6	2.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Pressure gauges
400000K6.05	Component Cooling Water	3.0	3.1	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Pumps

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
201002A2.04	RMCS	3.2	3.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Control rod block
215002A3.04	RBM	3.6	3.5	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Verification or proper functioning/ operability: BWR-3,4,5
216000A1.02	Nuclear Boiler Inst.	2.9	3.1	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Removing or returning a sensor (transmitter) to service
230000A4.04	RHR/LPCI: Torus/Pool Spray Mode	3.1	2.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Minimum flow valves
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
241000K6.06	Reactor/Turbine Pressure Regulator	3.8	3.9	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Reactor pressure
268000K3.04	Radwaste	2.7	2.8	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Drain sumps
272000A3.01	Radiation Monitoring	3.8	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Main steam isolation indications
286000G2.2.42	Fire Protection	3.9	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to recognize system parameters that are entry-level conditions for Technical Specifications
290002K1.12	Reactor Vessel Internals	3.4	3.5	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	SBLC

KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
290003K4.01	Control Room HVAC	3.1	3.2	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	System initiations/reconfiguration: Plant-Specific

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.
G2.1.27	Conduct of operations	3.9	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of system purpose and or function.
G2.1.8	Conduct of operations	3.4	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to coordinate personnel activities outside the control room.
G2.2.20	Equipment Control	2.6	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the process for managing troubleshooting activities.
G2.2.22	Equipment Control	4.0	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of limiting conditions for operations and safety limits.
G2.2.4	Equipment Control	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.
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
G2.4.20	Emergency Procedures/Plans	3.8	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of operational implications of EOP warnings, cautions and notes.
G2.4.45	Emergency Procedures/Plans	4.1	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to prioritize and interpret the significance of each annunciator or alarm.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295004AA2.01	Partial or Total Loss of DC Pwr / 6	3.2	3.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Cause of partial or complete loss of D.C. power.....
295016AA2.05	Control Room Abandonment / 7	3.8	3.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Drywell pressure.....
295018G2.1.27	Partial or Total Loss of CCW / 8	3.9	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of system purpose and or function.
295021G2.4.47	Loss of Shutdown Cooling / 4	4.2	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.
295023G2.1.7	Refueling Acc Cooling Mode / 8	4.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.
295024G2.1.31	High Drywell Pressure / 5	4.6	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to locate control room switches, controls and indications and to determine that they are correctly reflecting the desired plant lineup.
295028EA2.06	High Drywell Temperature / 5	3.4	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Torus/suppression chamber air space temperature: Plant-Specific.....

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295010G2.2.4	High Drywell Pressure / 5	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.
295014AA2.01	Inadvertent Reactivity Addition / 1	4.1	4.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Reactor power.....
295033G2.2.39	High Secondary Containment Area Radiation Levels / 9	3.9	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of less than one hour technical specification action statements for systems.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
203000A2.09	RHR/LPCI: Injection Mode	3.3	3.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Inadequate system flow
211000G2.1.7	SLC	4.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.
261000G2.2.4	SGTS	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.
263000G2.1.28	DC Electrical Distribution	4.1	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the purpose and function of major system components and controls.
400000A2.02	Component Cooling Water	2.8	3.0	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	High/low surge tank level

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
215001G2.4.2	Traversing In-core Probe	4.5	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.
216000A2.06	Nuclear Boiler Inst.	2.9	3.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loss of power supply
219000G2.4.41	RHR/LPCI: Torus/Pool Cooling Mode	2.9	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the emergency action level thresholds and classifications.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.41	Conduct of operations	2.8	3.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the refueling processes
G2.2.39	Equipment Control	3.9	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of less than one hour technical specification action statements for systems.
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
G2.4.40	Emergency Procedures/Plans	2.7	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the SRO's responsibilities in emergency plan implementation.
G2.4.45	Emergency Procedures/Plans	4.1	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to prioritize and interpret the significance of each annunciator or alarm.

Facility: Browns Ferry NPP Date of Examination: 6/7/2010

Examination Level: RO Operating Test Number: 1006

Administrative Topic (see Note)	Type Code *	Describe activity to be performed
Conduct of Operations	N	2.1.5 Evaluate Work Schedule against guidelines of SPP 1.5 Fatigue Management and Work Hour Limits (jpm551)
Conduct of Operations	N	2.1.36 Complete SRM operability surveillance and determine if acceptance criteria is met for core alterations. (jpm554)
Equipment Control	M	2.2.38 Drywell Leakage Calculation (jpm556)
Radiation Control	P	2.3.12 Locked High Radiation Area Entry requirements (jpm548)
Emergency Plan		

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

(D)irect from bank ($\leq$ 3 for ROs; $\leq$ 4 for SROs and RO retakes)

(N)ew or (M)odified from bank ($\geq$ 1)

(P)revious 2 exams ($\leq$ 1; randomly selected)

(S)imulator

1. Evaluate Work Schedule for compliance with new fatigue management guidelines
   - New
   - SPP 1.5 Fatigue Management and Work Hour Limits
   - 2.1.5 Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc. Importance RO 2.9

2. Complete SRM operability surveillance and determine if acceptance criteria is met for core alterations.
   - New
   - 1-SR-3.3.1.2.4 Source Range Monitor System Count Rate and Signal to Noise Ratio Check
   - 2.1.36 Knowledge of procedures and limitations involved in core alterations. Importance RO 3.0

3. Drywell Leakage calculations per 2-SR-2 and determination of acceptance criteria
   - Modified
   - 2-SR-2 Instrument Checks and Observations
   - Handout 2-SR-2
   - 2.2.38 Knowledge of conditions and limitations in the facility license. Importance RO 3.6

4. Locked High Radiation Area Entry requirements
   - Previous
   - Handout JPM 548 RWP and Survey Map
   - SPP 5.1 Radiological Controls
   - 2.3.12 Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc. Importance RO 3.2

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Examination Level: SRO Operating Test Number: 1006

Administrative Topic (see Note)	Type Code *	Describe activity to be performed
Conduct of Operations	N	2.1.5 Evaluate Work Schedule against guidelines of SPP 1.5 Fatigue Management and Work Hour Limits (jpm551sro)
Conduct of Operations	N	2.1.18 NRC Event Notification due to Reactor Scram (jpm553)
Equipment Control	N	2.2.40 Controlling a containment penetration to meet the isolation requirements of TS 3.6.1.3 (jpm555)
Radiation Control	P	2.3.12 Locked High Radiation Area Entry requirements (jpm548)
Emergency Plan	N	2.4.44 Protective Action Recommendation Evaluation (jpm552)

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

(D)irect from bank ($\leq$ 3 for ROs; $\leq$ 4 for SROs and RO retakes)

(N)ew or (M)odified from bank ($\geq$ 1)

(P)revious 2 exams ($\leq$ 1; randomly selected)

(S)imulator

1. Evaluate Work Schedule for compliance with new fatigue management guidelines
   - New
   - SPP 1.5 Fatigue Management and Work Hour Limits
   - 2.1.5 Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc. Importance SRO 3.9

2. NRC Event Notification due to Reactor Scram
   - New
   - SPP 3.5 Regulatory Reporting Requirements
   - 2.1.18 Ability to make accurate, clear, and concise logs, records, status boards and reports. Importance SRO 3.8

3. Controlling a containment penetration to meet the isolation requirements of TS 3.6.1.3
   - New
   - Technical Specification 3.6.1.3
   - Drawing 2-47E811-1
   - SPP 10.2 Clearance Procedure to Safely Control Energy
   - 2.2.40 Ability to apply Technical Specifications for a system. Importance SRO 4.7

4. Locked High Radiation Area Entry requirements
   - Previous
   - Handout JPM 548 RWP and Survey Map
   - SPP 5.1 Radiological Controls
   - 2.3.12 Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc. Importance SRO 3.7

5. Protective Action Recommendation Evaluation
   - New
   - EPIP-1 and 5 Emergency Classification Procedure and General Emergency
   - Completed Notification Handout
   - 2.4.44 Knowledge of emergency plan protective action recommendations. Importance SRO 4.4

Facility: Browns Ferry NPP Date of Examination: 6/7/2010

Exam Level: RO Operating Test No.: 1006

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**
a. Control Rod Exercise SR 3.1.3.2 (U2/U3)	M, A, S	1
b. Place a 2nd/3rd RFPT in service (U2/U3)	N, S	2
c. Close MSIV's during Power Operation (U2/U3)	N, S	3
d. Loss of Shutdown Cooling (U2/U3)	M, L, P, A, S	4
e. Returning an IRM to service from Bypass (U2/U3)	N, L, S	7
f. Return DW CAM to service after isolation (U2/U3)	EN, N, S	9
g. Secure Sys II from Suppression Pool Cooling (U2/U3)	N, S	5
h. Generator Synchronization and Load (U2/U3)	N, A, S	6
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Shutdown Unit 3 'A' DG at 4 KV Shutdown Board	N, E, A	6
j. Suppression Pool Water Inventory Removal App 18 (U1)	N, R, E	5
k. 0-SSI-2-1, ATTACHMENT 2	D, E, A	8

@ **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	

Control Room Systems:

a. Control Rod Exercise SR 3.1.3.3 (80)

- **M**odified / **S**imulator / **A**lternate Path
- 3-SR 3.1.3.3, Control Rod Test for Withdrawn Control Rods Rev. 28
- 3-AOI-85-5 Rod Drift In Rev 9
- 201002 Reactor Manual Control System A2.02 Ability to (a) predict the impacts of the following on the REACTOR MANUAL CONTROL SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Rod Drift Alarm IMPORTANCE: RO 3.2 SRO 3.3

b. Place RFPT 3C in Service (202)

- **N**ew / **S**imulator
- 3-OI-3 Reactor Feedwater System Rev 79, Section 5.7
- 259001 Reactor Feedwater System A4.02 Ability to manually operate and/or monitor in the Control Room: Manually start/control a RFP/TDRFP IMPORTANCE: RO 3.9 SRO 3.7

c. Close MSIV's during Power Operation (203)

- **N**ew / **S**imulator
- 3-OI-1 Main Steam System Rev 29 Section 8.2
- 239001 Main and Reheat Steam System A4.01 Ability to manually operate and/or monitor in the control room: MSIV's IMPORTANCE: RO 4.2 SRO 4.0

d. Loss of Shutdown Cooling (225)

- **M**odified from bank / **L**ow-Power / **S**imulator / **P**revious Exam / **A**lternate Path
- 3-AOI-74-1 Loss of Shutdown Cooling Rev 17
- 295021 Loss of Shutdown Cooling AA1.02 Ability to operate and/or monitor the following as they apply to Loss of Shutdown Cooling: RHR/shutdown cooling IMPORTANCE: RO 3.5 SRO 3.5

e. Returning an IRM to service from Bypass (207)

- **L**ow-Power / **S**imulator / **N**ew
- -OI-92A IRM Rev 15 section 6.2
- 215003 IRM System A2.02 Ability to (a) predict the impacts of the following on the IRM System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: IRM inop condition IMPORTANCE: RO 3.5 SRO 3.7

f. Return DW Cam to Service after isolation (208)

- **N**ew / **S**imulator / **En**gineered Safety Feature
- 3-AOI-100-1 Reactor Scram Rev 51 step 37
- 272000 Radiation Monitoring System A2.10 Ability to (a) predict the impacts of the following on the Radiation Monitoring System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: LOCA IMPORTANCE: RO 3.9 SRO 4.1

g. Secure System II from Suppression Pool Cooling (209)

- **New** / **S**imulator
- 3-EOI Appendix 17A RHR System Operation Suppression Pool Cooling, Rev 5
- 219000 RHR/LPCI: Torus Suppression Pool Cooling Mode A4.01 Ability to manually operate and/or monitor in the control room: Pumps IMPORTANCE: RO 3.8 SRO 3.7

h. Generator Synchronization and Load (210)

- **N**ew / **A**lternate Path / **S**imulator
- 3-OI-47 Turbine Generator System, Rev. 84, Section 5.5
- 3-ARP-9-7B 3-XA-55-7B Rev 22 Window 32
- 262001 AC Electrical Distribution A4.04 Ability to manually operate and/or monitor in the control room: Synchronizing and paralleling of different AC Supplies IMPORTANCE: RO 3.6 SRO 3.7

In-Plant Systems:

i. Shutdown Unit 3 A DG from the 4KV Shutdown Board (211)

- **N**ew / **E**mergency or Abnormal In-Plant / **A**lternate Path
- 3-OI-82, Standby Diesel Generator System, Rev. 88, Section 7.3 and 7.5
- 264000 Emergency Generators K4.07 Knowledge of Emergency Generators design features and/or interlocks for the following: Local operation and control IMPORTANCE: RO 3.3 SRO 3.4

j. Suppression Pool Water Inventory Removal 1-EOI-Appendix 18 (212)

- **N**ew / **R**CA Entry / **E**mergency or Abnormal In-Plant
- 1-EOI-Appendix 18, Rev. 0
- 295029 High Suppression Pool Water Level EK2.01 Knowledge of the interrelations between High Suppression Pool Water Level and the following: RHR/LPCI IMPORTANCE: RO 3.0 SRO 3.3

k. 0-SSI-2-1, ATTACHMENT 2 (127)

- Bank / **E**mergency or Abnormal In-Plant / **A**lternate Path
- 0-SSI-2-1 Rev 7
- 600000 Plant Fire on Site AA2.16 Ability to determine and interpret the following as the apply to Plant Fire on Site: Vital equipment and control systems to be maintained and operated during a fire IMPORTANCE: RO 3.0 SRO 3.5

Facility: Browns Ferry NPP Date of Examination: 6/7/2010

Exam Level: SRO-U Operating Test No.: 1006

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**
a. Control Rod Exercise SR 3.1.3.2 (U2/U3)	M, A, S	1
d. Loss of Shutdown Cooling (U2/U3)	M, L, P, A, S	4
f. Return DW CAM to service after isolation (U2/U3)	EN, N, S	9
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
j. Suppression Pool Water Inventory Removal App 18 (U1)	N, R, E	5
k. 0-SSI-2-1, ATTACHMENT 2	D, E, A	8

@ **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	

Control Room Systems:

a. Control Rod Exercise SR 3.1.3.3 (80)

- **M**odified / **S**imulator / **A**lternate Path
- 3-SR 3.1.3.3, Control Rod Test for Withdrawn Control Rods Rev. 28
- 3-AOI-85-5 Rod Drift In Rev 9
- 201002 Reactor Manual Control System A2.02 Ability to (a) predict the impacts of the following on the REACTOR MANUAL CONTROL SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Rod Drift Alarm IMPORTANCE: RO 3.2 SRO 3.3

d. Loss of Shutdown Cooling (225)

- **M**odified from bank / **L**ow-Power / **S**imulator / **P**revious Exam / **A**lternate Path
- 3-AOI-74-1 Loss of Shutdown Cooling Rev 17
- 295021 Loss of Shutdown Cooling AA1.02 Ability to operate and/or monitor the following as they apply to Loss of Shutdown Cooling: RHR/shutdown cooling IMPORTANCE: RO 3.5 SRO 3.5

f. Return DW Cam to Service after isolation (208)

- **N**ew / **S**imulator / **En**gineered Safety Feature
- 3-AOI-100-1 Reactor Scram Rev 51 step 37
- 272000 Radiation Monitoring System A2.10 Ability to (a) predict the impacts of the following on the Radiation Monitoring System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: LOCA IMPORTANCE: RO 3.9 SRO 4.1

In-Plant Systems:

j. Suppression Pool Water Inventory Removal 1-EOI-Appendix 18 (212)

- **N**ew / **R**CA Entry / **E**mergency or Abnormal In-Plant
- 1-EOI-Appendix 18, Rev. 0
- 295029 High Suppression Pool Water Level EK2.01 Knowledge of the interrelations between High Suppression Pool Water Level and the following: RHR/LPCI IMPORTANCE: RO 3.0 SRO 3.3

k. 0-SSI-2-1, ATTACHMENT 2 (127)

- Bank / **E**mergency or Abnormal In-Plant / **A**lternate Path
- 0-SSI-2-1 Rev 7
- 600000 Plant Fire on Site AA2.16 Ability to determine and interpret the following as the apply to Plant Fire on Site: Vital equipment and control systems to be maintained and operated during a fire IMPORTANCE: RO 3.0 SRO 3.5

Facility: Browns Ferry NPP Date of Examination: 6/7/2010

Exam Level: SRO-I Operating Test No.: 1006

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**
a. Control Rod Exercise SR 3.1.3.2 (U2/U3)	M, A, S	1
b. Place a 2nd/3rd RFPT in service (U2/U3)	N, S	2
c. Close MSIV's during Power Operation (U2/U3)	N, S	3
d. Loss of Shutdown Cooling (U2/U3)	M, L, P, A, S	4
e. Returning an IRM to service from Bypass (U2/U3)	N, L, S	7
f. Return DW CAM to service after isolation (U2/U3)	EN, N, S	9
h. Generator Synchronization and Load (U2/U3)	N, A, S	6
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Shutdown Unit 3 'A' DG at 4 KV Shutdown Board	N, E, A	6
j. Suppression Pool Water Inventory Removal App 18 (U1)	N, R, E	5
k. 0-SSI-2-1, ATTACHMENT 2	D, E, A	8

@ **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	

Control Room Systems:

a. Control Rod Exercise SR 3.1.3.3 (80)

- **M**odified / **S**imulator / **A**lternate Path
- 3-SR 3.1.3.3, Control Rod Test for Withdrawn Control Rods Rev. 28
- 3-AOI-85-5 Rod Drift In Rev 9
- 201002 Reactor Manual Control System A2.02 Ability to (a) predict the impacts of the following on the REACTOR MANUAL CONTROL SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Rod Drift Alarm IMPORTANCE: RO 3.2 SRO 3.3

b. Place RFPT 3C in Service (202)

- **N**ew / **S**imulator
- 3-OI-3 Reactor Feedwater System Rev 79, Section 5.7
- 259001 Reactor Feedwater System A4.02 Ability to manually operate and/or monitor in the Control Room: Manually start/control a RFP/TDRFP IMPORTANCE: RO 3.9 SRO 3.7

c. Close MSIV's during Power Operation (203)

- **N**ew / **S**imulator
- 3-OI-1 Main Steam System Rev 29 Section 8.2
- 239001 Main and Reheat Steam System A4.01 Ability to manually operate and/or monitor in the control room: MSIV's IMPORTANCE: RO 4.2 SRO 4.0

d. Loss of Shutdown Cooling (225)

- **M**odified from bank / **L**ow-Power / **S**imulator / **P**revious Exam / **A**lternate Path
- 3-AOI-74-1 Loss of Shutdown Cooling Rev 17
- 295021 Loss of Shutdown Cooling AA1.02 Ability to operate and/or monitor the following as they apply to Loss of Shutdown Cooling: RHR/shutdown cooling IMPORTANCE: RO 3.5 SRO 3.5

e. Returning an IRM to service from Bypass (207)

- **L**ow-Power / **S**imulator / **N**ew
- 3-OI-92A IRM Rev 15 section 6.2
- 215003 IRM System A2.02 Ability to (a) predict the impacts of the following on the IRM System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: IRM inop condition IMPORTANCE: RO 3.5 SRO 3.7

f. Return DW Cam to Service after isolation (208)

- **N**ew / **S**imulator / **En**gineered Safety Feature
- 3-AOI-100-1 Reactor Scram Rev 51 step 37
- 272000 Radiation Monitoring System A2.10 Ability to (a) predict the impacts of the following on the Radiation Monitoring System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: LOCA IMPORTANCE: RO 3.9 SRO 4.1

h. Generator Synchronization and Load (210)

- **N**ew / **A**lternate Path / **S**imulator
- 3-OI-47 Turbine Generator System, Rev. 84, Section 5.5
- 3-ARP-9-7B 3-XA-55-7B Rev 22 Window 32
- 262001 AC Electrical Distribution A4.04 Ability to manually operate and/or monitor in the control room: Synchronizing and paralleling of different AC Supplies IMPORTANCE: RO 3.6 SRO 3.7

In-Plant Systems:

i. Shutdown Unit 3 A DG from the 4KV Shutdown Board (211)

- **N**ew / **E**mergency or Abnormal In-Plant / **A**lternate Path
- 3-OI-82, Standby Diesel Generator System, Rev. 88, Section 7.3 and 7.5
- 264000 Emergency Generators K4.07 Knowledge of Emergency Generators design features and/or interlocks for the following: Local operation and control IMPORTANCE: RO 3.3 SRO 3.4

j. Suppression Pool Water Inventory Removal 1-EOI-Appendix 18 (212)

- **N**ew / **R**CA Entry / **E**mergency or Abnormal In-Plant
- 1-EOI-Appendix 18, Rev. 0
- 295029 High Suppression Pool Water Level EK2.01 Knowledge of the interrelations between High Suppression Pool Water Level and the following: RHR/LPCI IMPORTANCE: RO 3.0 SRO 3.3

k. 0-SSI-2-1, ATTACHMENT 2 (127)

- Bank / **E**mergency or Abnormal In-Plant / **A**lternate Path
- 0-SSI-2-1 Rev 7
- 600000 Plant Fire on Site AA2.16 Ability to determine and interpret the following as the apply to Plant Fire on Site: Vital equipment and control systems to be maintained and operated during a fire IMPORTANCE: RO 3.0 SRO 3.5