

Facility: ROBINSON		Date of Exam: FEBRUARY 2016																
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	1	2	2				1	2				1	9	2	2	4	
	Tier Totals	4	5	5				4	5				4	27	5	5	10	
2. Plant Systems	1	3	3	2	2	3	2	2	3	3	3	2	28	3	2	5		
	2	1	1	1	1	1	1	1	1	0	1	1	10	0	2	3		
	Tier Totals	4	4	3	3	4	3	3	4	3	4	3	38	5	3	8		
3. Generic Knowledge and Abilities Categories				1		2		3		4		10		1	2	3	4	7
				3		2		2		3				1	2	2	2	

Note: 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). (One Tier 3 Radiation Control K/A is allowed if the K/A is replaced by a K/A from another Tier 3 Category).

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 with justification; operationally important, site-specific systems/evolutions that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.

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. Refer to Section D.1.b of ES-401 for the applicable K/As.

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 a category 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.

G* Generic K/As

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
RO SRO														
007EK2.02	Reactor Trip - Stabilization - Recovery / 1	2.6	2.8	<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"/>	Breakers, relays and disconnects
008AG2.1.30	Pressurizer Vapor Space Accident / 3	4.4	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 locate and operate components, including local controls.
009EA1.10	Small Break LOCA / 3	3.8	3.9	<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"/>	Safety parameter display system
011EK3.15	Large Break LOCA / 3	4.3	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"/>	Criteria for shifting to recirculation mode
022AA2.03	Loss of Rx Coolant Makeup / 2	3.1	3.6	<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"/>	Failures of flow control valve or controller
025AG2.4.47	Loss of RHR System / 4	4.2	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 checked="" type="checkbox"/>	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.
027AK2.03	Pressurizer Pressure Control System Malfunction / 3	2.6	2.8	<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"/>	Controllers and positioners
029EK2.06	ATWS / 1	2.9	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"/>	Breakers, relays, and disconnects.
038EK1.04	Steam Gen. Tube Rupture / 3	3.1	3.3	<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"/>	Reflux boiling
040AK1.05	Steam Line Rupture - Excessive Heat Transfer / 4	4.1	4.4	<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"/>	Reactivity effects of cooldown
054AA1.03	Loss of Main Feedwater / 4	3.5	3.7	<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"/>	AFW auxiliaries, including oil cooling water supply

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
055EK3.02	Station Blackout / 6	4.3	4.6	<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"/>	Actions contained in EOP for loss of offsite and onsite power
056AA2.11	Loss of Off-site Power / 6	2.9	2.9	<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"/>	Operational status of service water booster pump
057AA2.06	Loss of Vital AC Inst. Bus / 6	3.2	3.7	<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"/>	AC instrument bus alarms for the inverter and alternate power source
058AA1.02	Loss of DC Power / 6	3.1	3.1	<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"/>	Static inverter dc input breaker, frequency meter, ac output breaker and ground fault detector
we04EG2.4.4	LOCA Outside Containment / 3	4.2	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 checked="" type="checkbox"/>	Ability to verify that the alarms are consistent with the plant conditions.
WE05EK3.4	Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	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"/>	RO or SRO function within the control room team as appropriate to the assigned position, in such a way that procedures are adhered to and the limitations in the facilities license and amendments are not violated.
WE11EK1.1	Loss of Emergency Coolant Recirc. / 4	3.7	4.0	<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"/>	Components, capacity, and function of emergency systems.

KA	NAME / SAFETY FUNCTION:	TOPIC:												
		IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	
		RO	SRO											
005AK2.02	Inoperable/Stuck Control Rod / 1	2.5	2.6	<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"/>	Breakers, relays, disconnects and control room switches
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
032AA2.02	Loss of Source Range NI / 7	3.6	3.9	<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"/>	Expected change in source range count rate when rods are moved
033AK3.01	Loss of Intermediate Range NI / 7	3.2	3.6	<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"/>	Termination of startup following loss of intermediate-range instrumentation
060AK2.01	Accidental Gaseous Radwaste Rel. / 9	2.6	2.9	<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"/>	ARM system, including the normal radiation-level indications and the operability status
067AA1.09	Plant Fire On-site / 8	3	3.3	<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"/>	<input type="checkbox"/>	Plant fire zone panel (including detector location)
068AK3.12	Control Room Evac. / 8	4.1	4.5	<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"/>	Required sequence of actions for emergency evacuation of control room
076AA2.04	High Reactor Coolant Activity / 9	2.6	3	<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"/>	Process effluent radiation chart recorder
we09EG2.1.20	Natural Circ. / 4	4.6	4.6	<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"/>	Ability to execute procedure steps.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
003A3.01	Reactor Coolant Pump	3.3	3.2	<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"/>	Seal injection flow
003K4.07	Reactor Coolant Pump	3.2	3.4	<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"/>	Minimizing RCS leakage (mechanical seals)
004K2.06	Chemical and Volume Control	2.6	2.7	<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"/>	Control instrumentation
005A2.02	Residual Heat Removal	3.5	3.7	<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"/>	Pressure transient protection during cold shutdown
005K6.03	Residual Heat Removal	2.5	2.6	<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"/>	<input type="checkbox"/>	RHR heat exchanger
006A1.13	Emergency Core Cooling	3.5	3.7	<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"/>	Accumulator pressure (level, boron concentration)
006K5.01	Emergency Core Cooling	2.8	3.3	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Effects of temperatures on water level indications
007K3.01	Pressurizer Relief/Quench Tank	3.3	3.6	<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"/>	Containment
008A4.03	Component Cooling Water	2.7	2.5	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Throttling of the CCW pump discharge valve
010K6.04	Pressurizer Pressure Control	2.9	3.2	<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"/>	<input type="checkbox"/>	PRT
012A3.06	Reactor Protection	3.7	3.7	<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"/>	Trip logic

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
012K1.05	Reactor Protection	3.8	3.9	<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"/>	ESFAS
013K5.02	Engineered Safety Features Actuation	2.9	3.3	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety system logic and reliability
022A4.04	Containment Cooling	3.1	3.2	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	Valves in the CCS
026A2.08	Containment Spray	3.2	3.7	<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"/>	Safe securing of containment spray when it can be done)
039A1.10	Main and Reheat Steam	2.9	3.0	<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"/>	Air ejector PRM
059K4.02	Main Feedwater	3.3	3.5	<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"/>	Automatic turbine/reactor trip runback
061K5.01	Auxiliary/Emergency Feedwater	3.6	3.9	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Relationship between AFW flow and RCS heat transfer
062K1.04	AC Electrical Distribution	3.7	4.2	<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"/>	Off-site power sources
062K2.01	AC Electrical Distribution	3.3	3.4	<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"/>	Major system loads
063A3.01	DC Electrical Distribution	2.7	3.1	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Meters, annunciators, dials, recorders and indicating lights
064A2.18	Emergency Diesel Generator	2.6	2.7	<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"/>	Consequences of premature opening of breaker under load

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
064K2.02	Emergency Diesel Generator	2.8	3.1	<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"/>	Fuel oil pumps
073A4.01	Process Radiation Monitoring	3.9	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 checked="" type="checkbox"/>	<input type="checkbox"/>	Effluent release
073G2.4.9	Process Radiation Monitoring	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 checked="" type="checkbox"/>	Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.
076K1.15	Service Water	2.5	2.6	<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"/>	FPS
078K3.03	Instrument Air	3.0	3.4	<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"/>	Cross-tied units
103G2.1.7	Containment	4.4	4.7	<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 evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
001K6.13	Control Rod Drive	3.6	3.7	<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"/>	<input type="checkbox"/>	Location and operation of RPIS
002K4.01	Reactor Coolant	2.7	3.0	<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"/>	Filling and draining the RCS
011A1.02	Pressurizer Level Control	3.3	3.5	<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"/>	<input type="checkbox"/>	Charging and letdown flows
014K5.01	Rod Position Indication	2.7	3.0	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reasons for differences between RPIS and step counter
017A4.01	In-core Temperature Monitor	3.8	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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual in-core temperatures
027K2.01	Containment Iodine Removal	3.1	3.4	<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"/>	Fans
029G2.1.23	Containment Purge	4.3	4.4	<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 perform specific system and integrated plant procedures during all modes of plant operation.
033K3.02	Spent Fuel Pool Cooling	2.8	3.2	<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"/>	Area and ventilation radiation monitoring systems
035A2.05	Steam Generator	3.2	3.4	<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"/>	Unbalanced flows to the 5/Gs
068K1.07	Liquid Radwaste	2.7	2.9	<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"/>	Sources of liquid wastes for LRS

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
G2.1.29	Conduct of operations	4.1	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"/>	Knowledge of how to conduct system lineups, such as valves, breakers, switches, etc.
G2.1.36	Conduct of operations	3.0	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 checked="" type="checkbox"/>	Knowledge of procedures and limitations involved in core alterations
G2.1.45	Conduct of operations	4.3	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"/>	Ability to identify and interpret diverse indications to validate the response of another indication
G2.2.38	Equipment Control	3.6	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 checked="" type="checkbox"/>	Knowledge of conditions and limitations in the facility license.
G2.2.39	Equipment Control	3.9	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 checked="" type="checkbox"/>	Knowledge of less than one hour technical specification action statements for systems.
G2.3.13	Radiation Control	3.4	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 checked="" type="checkbox"/>	Knowledge of radiological safety procedures pertaining to licensed operator duties
G2.3.4	Radiation Control	3.2	3.7	<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 radiation exposure limits under normal and emergency conditions
G2.4.11	Emergency Procedures/Plans	4.0	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 checked="" type="checkbox"/>	Knowledge of abnormal condition procedures.
G2.4.25	Emergency Procedures/Plans	3.3	3.7	<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 fire protection procedures.
G2.4.31	Emergency Procedures/Plans	4.2	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 checked="" type="checkbox"/>	Knowledge of annunciators alarms, indications or response procedures

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
029EA2.06	ATWS / 1	3.8	3.9	<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"/>	Main turbine trip switch position indication
038EG2.4.47	Steam Gen. Tube Rupture / 3	4.2	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 checked="" type="checkbox"/>	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.
054AG2.4.9	Loss of Main Feedwater / 4	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 checked="" type="checkbox"/>	Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.
055EA2.06	Station Blackout / 6	3.7	4.1	<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"/>	Faults and lockouts that must be cleared prior to re-energizing buses
058AG2.2.22	Loss of DC Power / 6	4.0	4.7	<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 limiting conditions for operations and safety limits.
077AA2.03	Generator Voltage and Electric Grid Disturbances / 6	3.5	3.6	<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"/>	Generator current outside the generator capability curve

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
001AA2.02	Continuous Rod Withdrawal / 1	4.2	4.2	<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"/>	Position of emergency boration valve
051AG2.4.35	Loss of Condenser Vacuum / 4	3.8	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"/>	Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects
061AA2.03	ARM System Alarms / 7	3	3.3	<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"/>	Setpoints for alert and high alarms
we06EG2.1.23	Degraded Core Cooling / 4	4.3	4.4	<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 perform specific system and integrated plant procedures during all modes of plant operation.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
012A2.03	Reactor Protection	3.4	3.7	<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"/>	Incorrect channel bypassing
039A2.03	Main and Reheat Steam	3.4	3.7	<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"/>	Indications and alarms for main steam and area radiation monitors (during SGTR)
076G2.1.7	Service Water	4.4	4.7	<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 evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.
078A2.01	Instrument Air	2.4	2.9	<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"/>	Air dryer and filter malfunctions
103G2.4.35	Containment	3.8	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"/>	Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
015A2.04	Nuclear Instrumentation	3.3	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"/>	Effects on axial flux density of control rod alignment and sequencing, xenon production and decay, and boron vs. control rod reactivity changes
068A2.02	Liquid Radwaste	2.7	2.8	<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"/>	Lack of tank recirculation prior to release
071G2.4.21	Waste Gas Disposal	4.0	4.6	<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"/>	Knowledge of the parameters and logic used to assess the status of safety functions

KA	NAME / SAFETY FUNCTION:	TOPIC:												
		IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	
		RO	SRO											
G2.1.45	Conduct of operations	4.3	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"/>	Ability to identify and interpret diverse indications to validate the response of another indication
G2.2.21	Equipment Control	2.9	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 checked="" type="checkbox"/>	Knowledge of pre- and post-maintenance operability requirements.
G2.2.36	Equipment Control	3.1	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 checked="" type="checkbox"/>	Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions of operations
G2.3.12	Radiation Control	3.2	3.7	<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 radiological safety principles pertaining to licensed operator duties
G2.3.14	Radiation Control	3.4	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 checked="" type="checkbox"/>	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities
G2.4.30	Emergency Procedures/Plans	2.7	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 checked="" type="checkbox"/>	Knowledge of events related to system operations/status that must be reported to internal organizations or outside agencies.
G2.4.46	Emergency Procedures/Plans	4.2	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 checked="" type="checkbox"/>	Ability to verify that the alarms are consistent with the plant conditions.

Facility: HB Robinson		Date of Examination: 2/2016
Examination Level: RO		Operating Test Number: N16-1
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	D, R	2.1.7 (4.4) Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.
		JPM: Calculate QPTR
Conduct of Operations	N, R	2.1.4 (3.3) Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc.
		JPM: Determine License Status
Equipment Control	D, P, R	2.2.41 (3.5) Ability to obtain and interpret station electrical and mechanical drawings.
		JPM: Determine Proper Equipment Boundaries
Radiation Control	N, R	2.3.7 (3.5) Ability to comply with radiation work permit requirements during normal or abnormal conditions.
		JPM: Evaluate Stay Time with Lowered SFP Level
<p>NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.</p>		
<p>*Type Codes & Criteria:</p> <p>(C)ontrol room, (0) (S)imulator, (0) or Class(R)oom (4)</p> <p>(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (2)</p> <p>(N)ew or (M)odified from bank (≥ 1) (2)</p> <p>(P)revious 2 exams (≤ 1; randomly selected) (1)</p>		

RO Admin JPM Summary

- A1a This is a modified Bank JPM. The operator will be told that the plant is operating at 60% power and that ERFIS is OOS. The operator will be provided with Power Range Excore Nuclear Instrumentation indicated and normalizing detector currents, and directed to manually calculate Quadrant Power Tilt Ratio, and identify whether or not any limitations have been exceeded. The operator will be expected to calculate QPTR in accordance with FMP-007, Quadrant Power Tilt, and identify that Technical Specification LCO 3.2.4, Quadrant Power Tilt Ratio (QPTR), is NOT met.
- A1b This is a new JPM. The operator will be told that they are a Licensed Reactor Operator who was assigned to the day shift staff for a special project, and not routinely standing watch in the Control Room. They will be provided with a work history and various qualification dates, and then directed to identify any requirements that must be met prior to the end of the quarter that are required to maintain their license ACTIVE; and any additional requirements that are required to maintain their qualification to stand watch in the Control Room. The operator will be expected to evaluate their work history and identify that four 12-hour shifts must be completed as either the RO or the BOP prior to the end of the quarter to maintain their license ACTIVE, and that an SCBA quantitative and qualitative fit test must be completed prior to standing watch in the Control Room again.
- A2 This is a Bank JPM. The operator will be told that the plant is in Mode 1 at 100%, Charging Pump "A" suction relief valve CVC-2080 has failed open, and that the operating crew has entered AOP-016, Excessive Primary Plant Leakage, to control the plant. The operator will be provided with the EDPs, and the P&IDs, and directed to use all available resources to identify the pump boundary valves needed to be closed to isolate the leak, and identify the motor breaker to electrically isolate the pump motor. The operator will be expected to identify that the leak can be isolated by closing three valves; CVC-270, CVC-290 and CVC-291, and that the pump motor can be electrically isolated by opening Breaker 52/34B. This JPM was previously used on the 2014 NRC Exam, randomly selected for use on the 2016 Exam.
- A3 This is a new JPM. The operator will be told that a station wide accident has occurred due to an Earthquake, that the plant is in Mode 6 with a full core off-load, that the Spent Fuel Pool level has lowered to 10 feet above the top of the fuel, and has stabilized at this level, and that the crew is implementing AOP-036 (SFP Events). The operator will be provided with an R-5 reading, a dose limit of 25 mrem, and the assignment of a repetitive task within AOP-036 which will require entry into the Spent Fuel Building for 3 minutes, before exiting; and will be directed to estimate how many times the operator can perform this repetitive task before they must be replaced by another operator. The operator will be expected to determine that the dose rate around the Spent Fuel Pool area is 193 mrem/hour and based on this the operator will determine that the repetitive task can be performed 2 times before another operator will need to perform the task.

Facility: H B Robinson		Date of Examination: 2/2016
Examination Level: SRO		Operating Test Number: N16-1
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	D, R	2.1.7 (4.7) Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.
		JPM: Calculate QPTR
Conduct of Operations	N, R	2.1.4 (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.
		JPM: Determine License Status
Equipment Control	D, R	2.2.38 (4.5) Knowledge of conditions and limitations in the facility license.
		JPM: Determine if Mode Change is Permissible
Radiation Control	N, R	2.3.8 (3.7) Ability to approve release permits.
		JPM: Approve a Waste Gas Release Permit
Emergency Plan	D, R	2.4.41 (4.4) Knowledge of the emergency action level thresholds and classifications.
		JPM: Emergency Classification
<p>NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.</p>		
<p>*Type Codes & Criteria:</p> <p>(C)ontrol room, (0) (S)imulator, (0) or Class(R)oom (5)</p> <p>(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (3)</p> <p>(N)ew or (M)odified from bank (≥ 1) (2)</p> <p>(P)revious 2 exams (≤ 1; randomly selected) (0)</p>		

SRO Admin JPM Summary

- A1a This is a modified Bank JPM. The operator will be told that the plant is operating at 100% power and that ERFIS is OOS. The operator will be provided with Power Range Excore Nuclear Instrumentation indicated and normalized detector currents, and directed to calculate Quadrant Power Tilt Ratio, identify whether or not any limitations have been exceeded, and if so, what, if any ACTION, is required. The operator will be expected to calculate QPTR in accordance with FMP-007, Quadrant Power Tilt, identify that Technical Specification LCO 3.2.4, Quadrant Power Tilt Ratio (QPTR), is NOT met, and identify that all six ACTIONS (A.1-A.6) must be taken for Condition A of LCO 3.2.4, including the maximum permitted power level of 91.3%.
- A1b This is a new JPM. The operator will be told that they are a Licensed Senior Reactor Operator who was assigned to the day shift staff for a special project, and not routinely standing watch in the Control Room. They will be provided with a work history and various qualification dates, and then directed to identify any requirements that must be met prior to the end of the quarter that are required to maintain their license ACTIVE; and any additional requirements that are required to maintain their qualification to stand watch in the Control Room. The operator will be expected to evaluate their work history and identify that four 12-hour shifts must be completed as either the SM, CRS, RO or the BOP prior to the end of the quarter to maintain their license ACTIVE, and that an SCBA quantitative and qualitative fit test must be completed prior to standing watch in the Control Room again.
- A2 This is a Bank JPM. The operator will be told that the plant is in Mode 5, returning from a refueling outage, that the RCS temperature is 165°F and there is a bubble in the PZR, and that RHR Loop "A" is maintaining RCS temperature. The operator will be provided with an Inoperable Equipment List and directed to complete the attached OMM-001-12, MINIMUM EQUIPMENT LIST AND SHIFT RELIEF, Attachment 2, 200°F to 350°F (MODE 4) MEL, that was started on the previous shift and to determine if any Mode 4 restrictions exists. The operator will be expected to complete Attachment 2 and determine that the Mode change cannot occur with current plant conditions, per the attached KEY.
- A3 This is a new JPM. The operator will be told that the plant is in Mode 1 at 100% power, and that a Waste Gas Release Permit for the "A" WGDT has been presented to the Shift Manager for review and approval. The operator will be provided with a WGDT Release Permit and directed to review and approve the Waste Gas Release Permit, or to identify all issues found which would prevent approval. The operator will be expected to review the WGDT Release Permit and identify that it cannot be approved because (1) it has been written for the wrong WGDT and (2) the R14C setpoint is less conservative than required.
- A4 This is a Bank JPM. The operator will be given an initial set of plant conditions. The operator will be directed to classify the event in accordance with the Robinson Nuclear Plant Emergency Action Level Matrix. The operator will be expected to declare an ALERT based on HA4.1, Confirmed Security event in a plant Protected Area or notification of either an airborne attack threat or hostile threat within the Owner Controlled Area, within 15 minutes. Then, the operator must prepare an Emergency

Notification Form for this event in accordance with EPCLA-01 (Emergency Control), also within 15 minutes.

Facility:	Robinson	Date of Examination:	2/2016
Exam Level (circle one):	<i>RO (only)</i> / SRO(I) / SRO (U)	Operating Test No.:	N16-1
Control Room Systems® (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)			
System / JPM Title		Type Code*	Safety Function
A.	062 AC Electrical Distribution System [062 A2.08 (3.6/3.4)] Operation With High Switchyard Voltage	S, P, D, A	6
B.	045 Main Turbine Generator System [045 A4.1 (3.1/2.9)] High Vibration on Main Turbine	S, N, A	4S
C.	007 Pzr Relief Tank/Quench Tank System [007 A1.01 (2.9/3.1)] Restore PRT to Normal Operating Conditions	S, D, A	5
D.	001 Control Rod Drive System [001 A1.06 (4.1/4.4)] Reactor Startup with Ejected Control Rod	S, N, A, L	1
E.	011 Large Break LOCA [EPE 011 EA1.11 (4.2/4.2)] Transfer to Long Term Recirculation	S, D, A, EN	3
F.	006 Emergency Core Cooling System [006 A4.02 (4.0/3.8)] Fill a Safety Injection Accumulator	S, P, D, EN	2
G.	015 Nuclear Instrumentation System [015 A4.03 (3.8/3.9)] Remove Source Range Channel N-31 From Service	S, D, L	7
H.	<i>003 Reactor Coolant Pump System [003 A4.03 (2.8/2.5)]</i> <i>Start a Reactor Coolant Pump</i>	<i>S, D, L</i>	<i>4P</i>
In-Plant Systems® (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)			
I.	APE 055 Loss of Offsite and Onsite Power [EPE 055 EA2.01 (3.4/3.7)] Locally Establish AFW Flow from the SDAFW Pump and Control S/G Levels and Pressures	D, P, E	6
J.	065 Loss of Instrument Air [065 AA1.04 (3.5/3.4)] Respond to a Loss of Instrument Air	D, R, E	8

K. APE 062 Loss of Service Water [APE 062 AA2.01 (2.9/3.5)] Loss of North SW Header in the Auxiliary Building	D, R, E	4S
@ 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 (5) / 4-6 (5) / 2-3 (3) ≤ 9 (9) / ≤ 8 (8) / ≤ 4 (4) ≥ 1 (3) / ≥ 1 (3) / ≥ 1 (2) ≥ 1 (2) / ≥ 1 (2) / ≥ 1 (2) (Control Room System) ≥ 1 (3) / ≥ 1 (2) / ≥ 1 (1) ≥ 2 (2) / ≥ 2 (2) / ≥ 1 (1) ≤ 3 (3) / ≤ 3 (3) / ≤ 2 (2) (Randomly Selected) ≥ 1 (2) / ≥ 1 (2) / ≥ 1 (1)	

JPM Summary

JPM A This is a Bank JPM. The operator will be told that the plant is at 100% power, that due to abnormal conditions on the Grid, 480V Bus E-2 currently has exceeded 505 volts, that AOP-031, Operation with High Switchyard Voltage, has been completed up to step 21, and other preliminary information. The operator will be directed to continue with AOP-031 until 480V Bus E-2 voltage is restored to less than 505 Volts. The operator will be expected to transfer 4KV Bus 4 & 5 from the UAT to the SUT (via 4KV Bus 3) in an effort to lower Switchyard Voltage; and when Breaker 50/20 fails to automatically OPEN (**Alternate Path**), the operator will manually open it per AOP-31. This JPM was previously used on the 2013 NRC Exam, randomly selected for use on the 2016 Exam.

JPM B This is a New JPM. The operator will be told that plant is stabilized at 35% power and directed to monitor the plant and respond as required. The operator will be expected to recognize that the Main Turbine must be tripped and attempt to manually trip the Main Turbine; and then (**Alternate Path**) manually runback the Main Turbine until the Turbine Governor Valves are closed, all the while the reactor remains critical.

JPM C This is a Bank JPM The operator will be told that the plant is at 100% power, that APP-003-D3, PRT HI/LO LEVEL, has alarmed, that the cause of the low level is known leakage from the PRT to the RCDT, and that the PRT level is stable at 67%. The operator will be directed to restore PRT level to normal IAW OP-103, Pressurizer Relief Tank Control System. The operator will be expected to refill the PRT in accordance with Section 8.2.2 of OP-103; and then diagnose and relieve the hydraulic lock on RC-519B (**Alternate Path**) in accordance with Section 8.4.1 of OP-103.

JPM D This is a New JPM. The operator will be told that the plant is at 10^{-8} amps in the Intermediate Range, that the RCS is at normal operating temperature and pressure, and that a plant startup is in progress IAW GP-003, Normal Plant Startup From Hot Shutdown to Critical, and complete through Step 8.4.6. The operator will be directed to pull control

rods to the POAH and stabilize reactor power between 3-5% by continuing with Step 8.4.7 of GP-003. The operator will raise reactor power to the POAH and then stabilize power between 3-5%. When reactor power reaches 3%, Control Rod H-8 will be ejected from the core (**Alternate Path**). The operator will raise reactor power to the POAH and then stabilize power between 3-5%. Then, the operator will manually trip or respond to an automatic reactor trip following the ejected rod and manually actuate Safety Injection by depressing both SI pushbuttons.

JPM E This is a Bank JPM. The operator will be told that a large break LOCA has occurred, and that the plant is currently on Cold Leg Recirculation IAW EOP-ES-1.3, Transfer to Cold Leg Recirculation. The operator will be directed to transfer to Long Term Recirculation IAW EOP-ES-1.4, Transfer to Long Term Recirculation. The operator will be expected to align for Long Term Recirculation per EOP-ES-1.4, and align only the B RHR Pump for operation when it is determined that SI-863A has failed to OPEN (**Alternate Path**).

JPM F This is a Bank JPM. The operator will be told that the plant is at 100% power, that the SI ACCUM C HI/LO LVL (APP-002-E4) alarm has been received and actions have been reviewed by the RO, that OP-202, Section 5.2.1.1 Initial Conditions have been completed, and other preliminary information. The operator will be directed to fill SI Accumulator "C" to reset the low level alarm IAW OP-202, Section 5.2.1. The operator will be expected to refill SI Accumulator "C" to reset the low level alarm without exceeding specified limits. This was previously used on the 2013 NRC Exam, randomly selected for use on the 2016 Exam.

JPM G This is a Bank JPM. The operator will be told that the plant is shutdown 36 hours after a trip from 100% power, and that SR Channel N-31 has just failed low. The operator will be directed to remove SR Channel N-31 from service IAW OWP-011, Nuclear Instrumentation. The operator will be expected to remove SR Channel N-31 from service IAW NI-5 of OWP-011.

JPM H This is a Bank JPM. The operator will be told that the plant is shutdown at normal operating temperature and pressure, that the "B" RCP was stopped 7 hours earlier for motor inspection, that Section 8.1 of OP-101, Reactor Coolant System and Reactor Coolant Pump Startup and Operation, has been completed through Step 8.1.1.2.y in preparation for starting the Reactor Coolant Pump, and that it is intended to bypass the Degraded Grid Protection prior to the RCP start and return it to service after the RCP is started per OP-101, and an AO is standing by to assist in this process. The operator will be directed to start the B Reactor Coolant Pump by continuing with Step 8.1.1.2.z of OP-101. The operator will be expected to start the B RCP IAW OP-101.

JPM I This is a Bank JPM. The operator will be told that the Plant has experienced a loss of onsite and offsite power, that EOP-ECA-0.0, Loss of All AC Power, has been implemented, that Wide Range levels in all three SGs are 55%, that Steam Generator pressures are 1075 psig, and that the SDAFW Pump has just been started. The operator will be directed to locally perform Attachment 4, Local Control Of S/G Level And Pressure, of EOP-ECA-0.0. The operator will be expected to control AFW flow to the Steam Generators and align the Nitrogen System to the SG PORVs IAW Attachment 4 of EOP-ECA-0.0. This was previously used on the 2014 NRC Exam, randomly selected for use on the 2016 Exam.

JPM J This is a Bank JPM. The operator will be told that the IA Header Pressure is 75 PSIG and lowering, that AOP-017, Loss Of Instrument Air, has been entered, that the Station Air Compressor is under clearance and disassembled, and that the Station Air Receiver is depressurized and vented. The operator will be directed to perform AOP-017 Step 8. The operator will be expected to start IA Compressors "A" and "B" and align their discharge to supply air to the Instrument Air Header in accordance with Step 8 of AOP-017.

JPM K This is a Bank JPM. The operator will be told that the plant is at 100% power, that the North SW header has ruptured inside the Auxiliary Building, and that the Control Room has implemented AOP-022 (Loss of Service Water) for a leak in the North header. The operator will be directed to perform the local subsequent actions IAW Attachment 6 of AOP-022. The operator will be expected to isolate the intact SW header from the ruptured header, isolate the leak, and align cooling water to critical loads IAW Attachment 6 of AP-022.