

Facility: Browns Ferry NPP

Date of Examination: 5/7/2012

Examination Level: RO/SRO

Operating Test Number: 1205

Administrative Topic (see Note)	Type Code *	Describe activity to be performed
Conduct of Operations SRO/RO A1a	D	2.1.31 Verification of Off Site Power Availability to 4.16 kV Shutdown Boards
Conduct of Operations RO A1b	P	2.1.19 ICS Logs
SRO A1b	N	2.1.18 NRC event notification due to HPCI valve failure
Equipment Control RO A2	N	2.2.12 Complete Primary Containment Nitrogen Leakage and Consumption Surveillance and evaluate Acceptance Criteria
SRO A2	N	2.2.12 Complete Primary Containment Nitrogen Leakage and Consumption Surveillance, evaluate Acceptance Criteria, and determine Technical Specifications
Radiation Control SRO/RO A3	N	2.3.11 Calculate Airborne Effluent Release Rate iaw 0-SI-4.8.b.1.a.1
Emergency Plan SRO A4	M	2.4.41 Classify an Event

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 (≤ 3 for ROs; ≤ 4 for SROs and RO retakes)
- (N)ew or (M)odified from bank (≥ 1)
- (P)revious 2 exams (≤ 1 ; randomly selected)
- (S)imulator

Reactor Operator

1. Verification of Off Site Power Availability to 4.16 kV Shutdown Boards

- Direct
- 0-SR-3.8.1.A.1
- Marks 500KV and 161KV Sources as Qualified. Completes Attachment 1 for Unit 3 accurately, records indicated voltages for step 7.2[5] and does not sign acceptance criteria, does not sign acceptance criteria for 7.4[1], and marks acceptance criteria satisfied on Surveillance Task Sheet as NO.
- 2.1.31 Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup. Importance RO 4.6

2. ICS Logs

- Previous
- 2-SR-2 or 3-SR-2
- Perform Operator logs using ICS screens in accordance with 2-SR-2 Instrument Checks and Observations for log tables 1.1, 1.6, 1.25, and 1.30. Verify acceptance criteria are satisfied in accordance with notes.
- 2.1.19 Ability to use plant computers to evaluate system or component status. RO 3.9

3. Complete Primary Containment Nitrogen Leakage and Consumption Surveillance and evaluate Acceptance Criteria

- New
- 3-SI-4.7.A.2.A, Primary Containment Nitrogen Leakage and Consumption
- Completes Surveillance and determines that it does not meet acceptance criteria. Determines that an LCO must be entered and informs the Unit Supervisor.
- 2.2.12 Knowledge of surveillance procedures. RO 3.7

4. Calculate Airborne Effluent Release Rate iaw 0-SI-4.8.b.1.a.1

- New
- 0-SI-4.8.B.1.a.1, 2-EOI Appendix-12
- Calculate Stack Release Rate and Total Site Release Fraction determine it does not meet Acceptance Criteria, and determine that vent flowrate must be reduced in accordance with 2-EOI Appendix-12.
- 2.3.11 Ability to control radiation releases RO 3.8

Senior Reactor Operator

1. Verification of Off Site Power Availability to 4.16 kV Shutdown Boards

- Direct
- 0-SR-3.8.1.A.1
- Marks 500KV and 161KV Sources as Qualified. Completes Attachment 1 for Unit 3 accurately, records indicated voltages for step 7.2[5] and does not sign acceptance criteria, does not sign acceptance criteria for 7.4[1], and marks acceptance criteria satisfied on Surveillance Task Sheet as NO.
- 2.1.31 Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup. Importance SRO 4.3

2. NRC event notification due to HPCI Valve Failure

- New
- NPG-SPP-03.5, Regulatory Reporting Requirements
- Determine NRC event notification requirements, as the Shift Manager due to a failure of the HPCI Pump Injection Valve. Determines Technical Specification actions required.
- 2.1.18 Ability to make accurate, clear, and concise logs, records, status boards, and reports. Importance SRO 3.8

3. Complete Primary Containment Nitrogen Leakage and Consumption Surveillance, evaluate Acceptance Criteria, and determine Technical Specifications

- New
- 3-SI-4.7.A.2.A, Primary Containment Nitrogen Leakage and Consumption
- Completes Surveillance, recognizes that it does not meet acceptance criteria, and determines Technical Specification actions required.
- 2.2.12 Knowledge of surveillance procedures. SRO 4.1

4. Calculate Airborne Effluent Release Rate iaw 0-SI-4.8.b.1.a.1

- New
- 0-SI-4.8.B.1.a.1, 2-EOI Appendix-12
- Calculate Stack Release Rate and Total Site Release Fraction determine it does not meet Acceptance Criteria, and determine that vent flowrate must be reduced in accordance with 2-EOI Appendix-12.
- 2.3.11 Ability to control radiation releases SRO 4.3

5. Classify an Event

- Modified
- EPIP-1 and 3 Emergency Classification Procedure and Alert
- The event is classified as an Alert 1.1-A2 and the Initial Notification appendix is completed with the correct information. Event is classified within 15 minutes and Initial Notification is completed within 15 minutes of classification.
- 2.4.41 Knowledge of emergency action level thresholds and classifications. Importance SRO 4.6

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ES-201 Examination Outline Quality Checklist Form ES-201-2

Facility: <u>Brown's Ferry 2012-301 Exam</u>		Date of Examination: <u>5/2012</u>		
Item	Task Description	Initials		
		a	b*	c#
1. W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	NK	NS	lab
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.	S	↓	lab
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	ES	↓	lab
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	NK	↓	lab
2. S I M U L A T O R	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.	N/A	N/A	N/A
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and that scenarios will not be repeated on subsequent days.			
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.			
3. W / T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.			
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations			
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.	↓	↓	↓
4. G E N E R A L	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	S	N/A	lab
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	S	↓	lab
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	S	↓	lab
	d. Check for duplication and overlap among exam sections.	S	↓	lab
	e. Check the entire exam for balance of coverage.	S	↓	lab
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	S	↓	lab
a. Author	<u>Kenneth D Schmitt</u> / <u>[Signature]</u>		Printed Name/Signature	
b. Facility Reviewer (*)	<u>N/A</u>		Date	
c. NRC Chief Examiner (#)	<u>Richard S Baldwin</u> / <u>[Signature]</u>		<u>10-11-11</u>	
d. NRC Supervisor	<u>Michael A. Jones</u> / <u>[Signature]</u>		<u>10-12-11</u> <u>K'DH</u>	
Note:	# Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required. * Not applicable for NRC-prepared examination outlines			

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{PRIVATE } Facility: Browns Ferry		Date of Exam: 2012																	
Tier	Group	RO K/A Category Points												SRO-Only Points					
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total			
1. Emergency & Abnormal Plant Evolutions	1	3	4	3	N/A						3	3	N/A		4	20	3	4	7
	2	1	2	1							1	1			1	7	1	2	3
	Tier Totals	4	6	4							4	4			5	27	4	6	10
2. Plant Systems	1	3	3	2	2	3	2	3	2	2	2	2	26	2	3	5			
	2	2	1	1	1	1	1	1	1	1	1	1	12	0	1	3			
	Tier Totals	5	4	3	3	4	3	4	3	3	3	3	38	3	5	8			
3. Generic Knowledge and Abilities Categories				1	2	3	4	10	1	2	3	4	7						
				2	2	3	3		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	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295001AA2.03	Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	3.3	3.3	<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"/>	Actual core flow.....
295003AK3.04	Partial or Complete Loss of AC / 6	3.0	3.2	<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"/>	Ground isolation.....
295004AK1.02	Partial or Total Loss of DC Pwr / 6	3.2	3.4	<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"/>	Redundant D.C. power supplies: Plant-Specific.....
295005G2.2.39	Main Turbine Generator Trip / 3	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. ?
295006AA2.03	SCRAM / 1	4.0	4.2	<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"/>	Reactor water level.....
295016AA1.04	Control Room Abandonment / 7	3.1	3.2	<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"/>	A.C. electrical distribution.....
295018AK1.01	Partial or Total Loss of CCW / 8	3.5	3.6	<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"/>	Effects on component/system operations.....
295019AA1.02	Partial or Total Loss of Inst. Air / 8	3.3	3.1	<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"/>	Instrument air system valves: Plant-Specific.....
295021AK3.03	Loss of Shutdown Cooling / 4	2.9	2.9	<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"/>	Increasing drywell cooling.....
295023AK2.05	Refueling Acc Cooling Mode / 8	3.5	3.7	<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"/>	Secondary containment ventilation.....
295024EK2.05	High Drywell Pressure / 5	3.9	4.0	<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"/>	RPS.....

IN

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295025EK3.02	High Reactor Pressure / 3	3.9	4.1	<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"/>	Recirculation pump trip: Plant-Specific.....
295026EK1.02	Suppression Pool High Water Temp. / 5	3.5	3.8	<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"/>	Steam condensation.....
295028EK2.01	High Drywell Temperature / 5	3.7	4.1	<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"/>	Drywell spray: Mark-I&II.....
295030G2.2.22	Low Suppression Pool Wtr Lvl / 5	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.
295031EK2.15	Reactor Low Water Level / 2	3.2	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"/>	A.C. distribution: Plant-Specific.....
295037EA2.06	SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	4.0	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"/>	Reactor pressure.....
295038G2.4.46	High Off-site Release Rate / 9	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.
600000G2.2.40	Plant Fire On Site / 8	3.4	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 apply technical specifications for a system.
700000AA1.05	Generator Voltage and Electric Grid Disturbancecs	3.9	4.0	<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"/>	Engineered Safety Features

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KA	NAME / SAFETY FUNCTION:	IR	RO	SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295007AA1.05	High Reactor Pressure / 3	3.7	3.8	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor/turbine pressure regulating system.....
295008AK2.10	High Reactor Water Level / 2	2.7	2.8	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	RHR (ability to drain): Plant-Specific.....
295022G2.4.1	Loss of CRD Pumps / 1	4.6	4.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of EOP entry conditions and immediate action steps.
295029EK2.09	High Suppression Pool Wtr Lvl / 5	3.1	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"/>	<input type="checkbox"/>	<input type="checkbox"/>	RCIC: Plant-Specific.....
295033EK3.01	High Secondary Containment Area Radiation Levels / 9	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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency depressurization.....
295034EK1.02	Secondary Containment Ventilation High Radiation / 9	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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Radiation releases.....
295036EA2.03	Secondary Containment High Sump/Area Water Level / 5	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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cause of the high water level.....

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KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
203000K2.01	RHR/LPCI: Injection Mode	3.5	3.5	<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"/>	Pumps
203000K3.04	RHR/LPCI: Injection Mode	4.6	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"/>	Adequate core cooling
205000A2.06	Shutdown Cooling	3.4	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SDC/RHR pump trips
206000A2.08	HPCI	3.9	4.2	<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"/>	†High suppression pool temperature: BWR-2,3,4
209001G2.4.46	LPCS	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.
211000K2.01	SLC	2.9	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"/>	SBLC pumps
212000A1.01	RPS	2.8	2.9	<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"/>	RPS motor-generator output voltage
215003G2.4.2	IRM	4.5	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 system set points, interlocks and automatic actions associated with EOP entry conditions.
215003K2.01	IRM	2.5	2.7	<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"/>	IRM channels/detectors
215004A1.04	Source Range Monitor	3.5	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Control rod block status
215005K4.01	APRM / LPRM	3.7	3.7	<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"/>	Rod withdrawal blocks

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KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
217000K5.07	RCIC	3.1	3.1	<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"/>	Assist core cooling
218000A4.07	ADS	3.5	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 checked="" type="checkbox"/>	<input type="checkbox"/>	ADS valve acoustical monitor noise: Plant-Specific
223002K6.03	PCIS/Nuclear Steam Supply Shutoff	2.9	3.1	<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"/>	Process radiation monitoring system
239002K1.07	SRVs	3.6	3.8	<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"/>	Suppression pool
239002K5.04	SRVs	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"/>	Tail pipe temperature monitoring
259002A1.05	Reactor Water Level Control	2.9	2.9	<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"/>	FWRV/startup level control position: Plant-Specific .
259002K4.02	Reactor Water Level Control	2.8	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"/>	Bypassing of the RWM: Plant-Specific
261000K1.03	SGTS	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"/>	Suppression pool
262001A3.01	AC Electrical Distribution	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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Breaker tripping
262002K3.17	UPS (AC/DC)	2.9	3.1	<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"/>	Process monitoring: Plant-Specific
263000K1.03	DC Electrical Distribution	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"/>	Battery ventilation

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KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
284000A3.05	EDGs	3.4	3.5	<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"/>	Load shedding and sequencing
284000K5.06	EDGs	3.4	3.5	<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"/>	Load sequencing
300000A4.01	Instrument Air	2.6	2.7	<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"/>	Pressure gauges
400000K6.07	Component Cooling Water	2.7	2.8	<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"/>	Breakers, relays, and disconnects

Z

KA	NAME / SAFETY FUNCTION:	IR		K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G												TOPIC:					
		RO	SRO																		
201002G2.1.25	RMCS	3.9	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to interpret reference materials such as graphs, monographs and tables which contain performance data.
201006A3.01	RWM	3.2	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	System window and light indication: P-Spec(Not-BWR6).				
214000A4.02	RPIS	3.8	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Control rod position					
219000K3.01	RHR/LPCI: Torus/Pool Cooling Mode	3.9	4.1	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Suppression pool temperature control					
230000K2.02	RHR/LPCI: Torus/Pool Spray Mode	2.8	2.9	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pumps					
256000K1.18	Reactor Condensate	2.9	3.0	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circulating water system					
259001A2.07	Reactor Feedwater	3.7	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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor water level control system malfunctions					
271000A1.15	Offgas	2.7	2.8	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Steam supply pressures					
272000K6.02	Radiation Monitoring	2.5	2.7	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	D.C. power					
288000K4.03	Plant Ventilation	2.8	2.9	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Automatic starting and stopping of fans					
290001K5.01	Secondary CTMT	3.3	3.4	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vacuum breaker operation: BWR-4					

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KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
290003K1.03	Control Room HVAC	2.8	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"/>	Remote air intakes: Plant-Specific

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KA	NAME / SAFETY FUNCTION:	IR		K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G												TOPIC:					
		RO	SRO																		
G2.1.15	Conduct of operations	2.7	3.4	<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 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 administrative requirements for temporary management directives such as standing orders, night orders, Operations memos, etc.
G2.1.38	Conduct of operations	3.7	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the stations requirements for verbal communication when implementing procedures
G2.2.3	Equipment Control	3.8	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(multi-unit license) Knowledge of the design, procedural and operational differences between units.
G2.2.6	Equipment Control	3.0	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the process for making changes to procedures
G2.3.15	Radiation Control	2.9	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiation monitoring systems
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 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
G2.3.5	Radiation Control	2.9	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 use radiation monitoring systems
G2.4.2	Emergency Procedures/Plans	4.5	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 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 system set points, interlocks and automatic actions associated with EOP entry conditions.
G2.4.22	Emergency Procedures/Plans	3.6	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 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 bases for prioritizing safety functions during abnormal/emergency operations.
G2.4.6	Emergency Procedures/Plans	3.7	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 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 symptom based EOP mitigation strategies.

KA	NAME / SAFETY FUNCTION:	IR		K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G												TOPIC:				
		RO	SRO																	
295001AA2.04	Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	3.0	3.1	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Individual jet pump flows: Not-BWR-1&2.....			
295005AA2.03	Main Turbine Generator Trip / 3	3.1	3.1	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Turbine valve position.....				
295018G2.4.9	Partial or Total Loss of CCW / 8	3.8	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.				
295021AA2.05	Loss of Shutdown Cooling / 4	3.4	3.5	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor vessel metal temperature				
295026G2.1.30	Suppression Pool High Water Temp. / 5	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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to locate and operate components, including local controls.				
295028G2.2.25	High Drywell Temperature / 5	3.2	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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.				
295038G2.2.12	High Off-site Release Rate / 9	3.7	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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of surveillance procedures.				

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KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295008G2.4.18	High Reactor Water Level / 2	3.3	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 the specific bases for EOPs.
295013AA2.02	High Suppression Pool Temp. / 5	3.2	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Localized heating/stratification.....
295020G2.2.37	Inadvertent Cont. Isolation / 5 & 7	3.6	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 determine operability and/or availability of safety related equipment

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KA	NAME / SAFETY FUNCTION:	IR													TOPIC:
		RO	SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	
206000A2.17	HPCI	3.9	4.3	<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"/>	<input type="checkbox"/>	HPCI inadvertent initiation: BWR-2,3,4
211000G2.2.38	SLC	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 type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of conditions and limitations in the facility license.
215003G2.1.27	IRM	3.9	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 type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of system purpose and or function.
223002G2.4.20	PCIS/Nuclear Steam Supply Shutoff	3.8	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of operational implications of EOP warnings, cautions and notes.
239002A2.04	SRVs	4.1	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ADS actuation

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KA	NAME / SAFETY FUNCTION:	IR		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO												
202002A2.03	Recirculation Flow Control	2.6	2.7	<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"/>	<input type="checkbox"/>	Loss of D.C.
214000G2.2.42	RPIS	3.9	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 type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to recognize system parameters that are entry-level conditions for Technical Specifications
233000G2.2.39	Fuel Pool Cooling/Cleanup	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 type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of less than one hour technical specification action statements for systems.

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KA	NAME / SAFETY FUNCTION:	IR K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G														TOPIC:
		RO	SRO													
G2.1.17	Conduct of operations	3.9	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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to make accurate, clear and concise verbal reports.
G2.2.14	Equipment Control	3.9	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the process for controlling equipment configuration or status
G2.2.4	Equipment Control	3.6	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(multi-unit) Ability to explain the variations in control board layouts, systems, instrumentation and procedural actions between units at a facility.
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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiological safety principles pertaining to licensed operator duties
G2.3.15	Radiation Control	2.9	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiation monitoring systems
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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of annunciators alarms, indications or response procedures
G2.4.37	Emergency Procedures/Plans	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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the lines of authority during implementation of an emergency plan.

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Facility: <u>Browns Ferry NPP</u>		Date of Examination: <u>5/7/2012</u>
Exam Level: <u>RO/SROI/SROU</u>		Operating Test No.: <u>1205</u>
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. Recirc Pump trip, power oscillations and loss of ability to insert rods require manual reactor scram	A, N, S	1
b. Remove RFPT 'A' from service	A, N, S	2
c. Rapid Depressurization with Turbine Bypass Valves EOI Appendix-11H	L, N, S	3
d. EHC Auto Cooldown	L, N, S	4
e. EOI Appendix-13 Emergency Venting Primary Containment	A, EN, P, S	5
f. OI-82 Parallel D/G with Off-Site Power	D, S	6
g. Off-Gas Post-Treatment Radiation HI-HI-HI	A, D, L, S	9
h. Returning an IRM to service from Bypass	D, L, S	7(RO only)
In-Plant Systems[@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Vent and Re-pressurize the Scram Pilot Air Header	D, E, R	1
j. 3-AOI-100-2, Attachment 3, Part A- Start RCIC from outside the Control Room	D, E, R	7
k. 0-SSI-2-1, Attachment 2	A, D, E	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	4-6/2-3 (5)(5)(3)
(C)ontrol room	
(D)irect from bank	$\leq 9/\leq 8/\leq 4$ (6)(5)(2)
(E)mergency or abnormal in-plant	$\geq 1/\geq 1/\geq 1$ (3)(3)(2)
(EN)gineered safety feature	- / - / ≥ 1 (control room system) (1)(1)(1)
(L)ow-Power / Shutdown	$\geq 1/\geq 1/\geq 1$ (4)(3)(1)
(N)ew or (M)odified from bank including 1(A)	$\geq 2/\geq 2/\geq 1$ (4)(4)(2)
(P)revious 2 exams	$\leq 3/\leq 3/\leq 2$ (randomly selected) (1)(1)(1)
(R)CA	$\geq 1/\geq 1/\geq 1$ (2)(2)(1)
(S)imulator	(8)(7)(3)

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Control Room Systems:

- a. Recirc Pump trip, power oscillations and loss of RPIS require manual reactor scram**
- Alternate Path/New/Simulator
 - 2/3-AOI-68-1A, Recirc Pump Trip/Core Flow Decrease OPRMs Operable.
 - 295001 Partial or Complete Loss of Forced Core Flow Circulation, AA2.02 Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION : Neutron monitoring.
IMPORTANCE: RO 3.1 SRO 3.2
 - The operator will perform the actions of 2/3-AOI-68-1A, Recirc Pump Trip/Core Flow Decrease OPRMs Operable. This will direct the operator to insert control rods to less than 92.5% load line to suppress power oscillations. After the operator has inserted at least one control rod, a failure of Rod Control Power will occur. Power oscillations will ramp in and the following alarm will come in, "OPRM Pre-Trip Condition," 2-9-5A window 18. With power oscillations present, the ARP will direct the operator to manually scram the reactor in these conditions.
- b. Remove RFPT 'A' from Service (Unit 2 or 3)**
- Alternate Path/New/Simulator
 - 2/3-OI-3, Reactor Feedwater System
 - 259001 Reactor Feedwater System A4.04 Ability to manually operate and/or monitor in the Control Room: System valves. IMPORTANCE: RO 3.1 SRO 2.9
 - Operator will be directed remove the 2A/3A RFPT from service in accordance with 2/3-OI-3, Reactor Feedwater System. The operator will identify that the RFPT A discharge check valve fails to close and take actions in accordance with 2/3-OI-3
- c. Rapid Depressurization with Turbine Bypass Valves, EOI Appendix-11H (Unit 2 or 3)**
- Low Power/New/Simulator
 - 2/3-EOI Appendix-11H, Alternate RPV Pressure Control Systems – Main Condenser
 - 241000 Reactor/Turbine Pressure Regulating System A4.06 Ability to manually operate and/or monitor in the control room: Bypass valves IMPORTANCE: RO 3.9 SRO 3.9
 - Operator is directed to perform operations necessary to establish the Main Condenser as an Alternate RPV pressure control system for Rapid Depressurization as directed by 2-EOI Appendix-11H
- d. EHC Auto Cooldown (Unit 2 or 3)**
- Low-Power/New/Simulator
 - 2/3-OI-47, Turbine Generator System
 - 239001 Main and Reheat Steam System A4.09 Ability to manually operate and/or monitor in the control room: Reactor Pressure IMPORTANCE: RO 3.9 SRO 3.3

- Operator is directed to commence an Auto Cooldown with EHC in accordance with 2/3-OI-47, Turbine Generator System. Operator must utilize the Human Machine Interface (HMI) of the EHC system to commence a cooldown as well as adjust final target pressure.
- e. EOI Appendix-13 Emergency Venting Primary Containment (Unit 2 or 3)**
- Alternate Path /ENGINEERED Safety Feature /PREVIOUS /SIMULATOR
 - 2/3-EOI Appendix-13, Emergency Venting Primary Containment
 - 295024 High Drywell Pressure EA2.01 Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE: Drywell Pressure IMPORTANCE: RO 4.2 SRO 4.4
 - Operator is directed to emergency vent Primary Containment to restore and maintain Drywell Pressure below 55 psig as directed by 2/3-EOI Appendix-13, Emergency Venting Primary Containment. Emergency Venting of the Suppression Chamber through the Hardened Wetwell Vents will be unsuccessful and the operator will vent the Drywell to Secondary Containment via Primary Containment vent duct failure.
- f. OI-82 Parallel D/G with Off-Site Power Source (Unit 2 or 3)**
- Direct from bank/Simulator
 - 0/3-OI-82, Standby Diesel Generator System
 - 264000 Emergency Generators (Diesel/Jet) A4.04 Ability to manually operate and/or monitor in the control room: Manual start, loading, and stopping of emergency generator IMPORTANCE: RO 3.7 SRO 3.7
 - Operator will perform actions necessary to parallel the A/3A Diesel Generator (DG) with the Off-Site power source in accordance with 0/3-OI-82, Standby Diesel Generator System.
- g. Off-Gas Post-Treatment Radiation HI-HI-HI (Unit 2 or 3)**
- Alternate Path/Direct from bank/LOW power/Simulator
 - 2/3-ARP-9-4C, Window 35 and 2/3-AOI-66-2, Offgas Post-Treatment Radiation HI-HI-HI
 - 271000 Offgas System A2.04 Ability to (a) predict the impacts of the following on the OFFGAS SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Offgas system high radiation IMPORTANCE: RO 3.5 SRO 3.8
 - Operator is directed to respond to Offgas Post-Treatment Radiation HI-HI-HI alarm in accordance with 2/3-ARP-9-4C Window 35. Operator will determine that the Offgas Isolation valve 2/3-FCV-66-28 failed to close; operator will close the valve then refer to 2/3-AOI-66-2, Offgas Post-Treatment Radiation HI-HI-HI, and perform the actions of 2/3-AOI-66-2 insert a core flow runback and reactor scram. Operator will then shut the MSIVs.

h. Returning an IRM to service from Bypass (Unit 2 or 3) (RO only)

- Direct from bank/Low-Power/Simulator
- 2/3-OI-92A Intermediate Range Monitors
- 215003 Intermediate Range Monitor 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
- Operator is directed to return a bypassed IRM to service in accordance with 2/3-OI-92A, Intermediate Range Monitors. Operator must fully insert the IRM and then range the IRM to the proper scale to prevent a half scram when un-bypassed.

In-Plant Systems:**i. Vent and Re-pressurize the Scram Pilot Air Header**

- Direct from bank/Emergency or Abnormal In-Plant/RCA Entry
- 1-EOI Appendix-1B, Venting and Re-pressurizing the Scram Pilot Air Header
- 295015 Incomplete SCRAM AA1.01 Ability to operate and/or monitor the following as they apply to INCOMPLETE SCRAM: CRD hydraulics IMPORTANCE: RO 3.8 SRO 3.9
- Operator will simulate the component manipulations required to vent and subsequently re-pressurize the Scram Pilot Air Header as directed by 1-EOI Appendix 1B, Venting and Re-pressurizing the Scram Pilot Air Header.

j. 3-AOI-100-2, Attachment 3, Part A- Start RCIC from outside the Control Room

- Direct from bank/Emergency or Abnormal In-Plant/RCA Entry
- 3-AOI-100-2, Control Room Abandonment, Attachment 3, Part A
- 295016 Control Room Abandonment AA1.07 Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT: Control room/local control transfer mechanisms IMPORTANCE: RO 4.2 SRO 4.3
- Operator will simulate performing operations necessary to align RCIC from outside the Control Room as directed by 3-AOI-100-2, Control Room Abandonment.

k. 0-SSI-2-1, Attachment 2

- Alternate Path/Direct from bank/Emergency or Abnormal In-Plant
- 0-SSI-2-1, Unit 2 Reactor Building Fire EL' 519 through 565 West of Column Line R11
- 600000 Plant Fire on Site AA2.16 Ability to determine and interpret the following as they 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

- Time Critical JPM for an operator to simulate performing designated steps of an SSI as directed by the Unit 2 Unit Supervisor and 0-SSI-2-1. Operator will have to simulate starting the 2D RHR pump using the manual breaker close pushbutton after the breaker fails to close.