

Facility: Watts BarrDate of Examination: 11/30

Facility

Examinations Developed by:

Written / Operating Test

Target Date*	Task Description (Reference)	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a and b)	<i>EL</i>
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	<i>EL</i>
-120	3. Facility contact briefed on security and other requirements (C.2.c)	<i>EL</i>
-120	4. Corporate notification letter sent (C.2.d)	<i>EL</i>
[-90]	[5. Reference material due (C.1.e; C.3.c; Attachment 2)]	<i>EL</i>
{-75}	6. Integrated examination outline(s) due, including Forms ES-201-2, ES-201-3, ES-301-1, ES-301-2, ES-301-5, ES-D-1's, ES-401-1/2, ES-401-3, and ES-401-4, as applicable (C.1.e and f; C.3.d)	<i>EL</i>
{-70}	{7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)}	<i>EL</i>
{-45}	8. Proposed examinations (including written, walk-through JPMs, and scenarios, as applicable), supporting documentation (including Forms ES-301-3, ES-301-4, ES-301-5, ES-301-6, and ES-401-6), and reference materials due (C.1.e, f, g and h; C.3.d)	<i>EL</i>
-30	9. Preliminary license applications (NRC Form 398's) due (C.1.i; C.2.g; ES-202)	<i>EL</i>
-14	10. Final license applications due and Form ES-201-4 prepared (C.1.i; C.2.i; ES-202)	<i>EL</i>
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	<i>EL</i>
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f and h; C.3.g)	<i>EL</i>
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	<i>EL</i>
-7	14. Final applications reviewed; 1 or 2 (if >10) applications audited to confirm qualifications / eligibility; and examination approval and waiver letters sent (C.2.i; Attachment 4; ES-202, C.2.e; ES-204)	<i>EL</i>
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee (C.3.k)	<i>EL</i>
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	<i>EL</i>

* Target dates are generally based on facility-prepared examinations and are keyed to the examination date identified in the corporate notification letter. They are for planning purposes and may be adjusted on a case-by-case basis in coordination with the facility licensee.
 [Applies only] {Does not apply} to examinations prepared by the NRC.

Final

Facility: Watts Bar		Date of Examination: 11/30/2009		
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.	RA	SRS	EL
	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.	RA	SRS	EL
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	RA	SRS	EL
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	RA	SRS	EL
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.	RA	SRS	EL
	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.	RA	SRS	EL
	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.	RA	SRS	EL
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.	RA	SRS	EL
	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	RA	SRS	EL
	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.	RA	SRS	EL
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.	RA	SRS	EL
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	RA	SRS	EL
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	RA	SRS	EL
	d. Check for duplication and overlap among exam sections.	RA	SRS	EL
	e. Check the entire exam for balance of coverage.	RA	SRS	EL
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	RA	SRS	EL
a. Author		Darrell Hensley / <i>Darrell Hensley</i>		Date
b. Facility Reviewer (*)		Steve R. Smith / <i>SR Smith</i>		11/12/09
c. NRC Chief Examiner (#)		Edwin Lee, Jr. / <i>Edwin Lee, Jr.</i>		11/20/09
d. NRC Supervisor		MALCOLM T. WILKINSON / <i>Malcolm T. Wilkison</i>		11/23/09
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required. * Not applicable for NRC-prepared examination outlines				

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of Nov. 09 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of Nov-Dec 09 from the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1. Darrell Hensley	Exam Lead	<i>Darrell Hensley</i>	2/13/09	<i>Darrell Hensley</i>	12/17/09	
2. Dale Hoffman	Developer	<i>Dale Hoffman</i>	2/13/09			
3. JOHN B. RADER	Developer	<i>John B. Rader</i>	1/20/09	<i>John B. Rader</i>	12/17/09	
4. William G. Boegly	Simulator Services	<i>William G. Boegly</i>	5/15/09	<i>William G. Boegly</i>	12/17/09	
5. NORMAN GOOD	SIMULATOR SERVICES	<i>Norm Good</i>	5/15/09			
6. EDWARD KNOBLAUCH	Simulator Engineer	<i>Ed Knoblach</i>	6/2/09	<i>Ed Knoblach</i>	12/17/09	
7. STEVE HEDRICK	SIMUL	<i>Steve Hedrick</i>	6/8/09	<i>Steve Hedrick</i>	12/18/09	
8. Steve Smith	OPERATIONS	<i>Steve Smith</i>	6-29-09	<i>Steve Smith</i>	12-17-09	
9. M. Hoy	OPS	<i>M. Hoy</i>	7-11-9			
10. P. Stawich	RO/OPS	<i>P. Stawich</i>	8/6/9	<i>P. Stawich</i>	12-17-9	
11. RE Crews	OTM/OPS	<i>RE Crews</i>	8/7/9	<i>RE Crews</i>	12/17/09	
12. RW Dorman	SD/VALIDATOR	<i>RW Dorman</i>	8/15/09	<i>RW Dorman</i>	12/17/09	
13. Gary Thompson	RO/validator	<i>Gary Thompson</i>	11/15/09	<i>Gary Thompson</i>	12-17-09	
14. JF Hrb	RO/validator	<i>JF Hrb</i>	8/16/9	<i>JF Hrb</i>	12-17-09	
15. CHRIS RICE	SD/ NRC EXAM VALIDATION	<i>Chris Rice</i>	09/09/09			

NOTES:

1. Pre-Examination

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE NOTE
1.	Jeff Krcil	Unit Supervisor	<i>[Signature]</i>	9-4-09	<i>[Signature]</i>	12-18-09
2.	Kevin S. Elam	RXE	<i>[Signature]</i>	9/4/09		
3.	Timothy D. Taylor	SRO / Validator	<i>[Signature]</i>	9/9/09		
4.	Sean M. Mobley	RO	<i>[Signature]</i>	9/9/09		
5.	VINCENT SUMNER	RO	<i>[Signature]</i>	9/9/09	<i>[Signature]</i>	12/18/09
6.	Pedro A. Williams	SRO / VALIDATOR	<i>[Signature]</i>	9/9/9		
7.	SHAWN C. HARVEY	SRO / VALIDATOR	<i>[Signature]</i>	12-20-09		12-20-09
8.	Adam Newport	UO Validator	<i>[Signature]</i>	10/24/09	<i>[Signature]</i>	12/18/09
9.	KR SKUBISZ	SRO VALIDATOR	<i>[Signature]</i>	11/6/09	<i>[Signature]</i>	12/17/09
10.	Scott E. O'Rourke	UO TRN / VALIDATOR	<i>[Signature]</i>	11/12/09		
11.	Jeremy R. Thompson	Ops Spec / Validator	<i>[Signature]</i>	11/12/09		
12.	Kevin A. Stuber	Ops Spec / Validator	<i>[Signature]</i>	11/12/09		
13.	Victoria Rodde	Proctor	<i>[Signature]</i>	11-12-09	<i>[Signature]</i>	12-18-09
14.	William Thompson	SITE TRNG Director	<i>[Signature]</i>	11/13/09	<i>[Signature]</i>	12/18/09
15.	William E. Sprinkle	SRO VALIDATOR	<i>[Signature]</i>	11/17/09		

NOTES:

1. Pre-Examination

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PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE NOTE
1. BRIAN S. MCILWAIN	SM	<i>Brian S. McIlwain</i>	11/17/09		
2. Gregory A. Wallace	US/STP	<i>Gregory A. Wallace</i>	11-19-9		
3. Steven R. Taylor	Instructor (OPS)	<i>Steven R. Taylor</i>	11-23-09	<i>St Taylor</i>	12/17/09
4. Clyde T. Denton	SRO INST	<i>Clyde T. Denton</i>	11-29-9		
5. Ray Esposito	Ops Support	<i>Ray Esposito</i>	11-30-09	<i>Ray Esposito</i>	12/18/09
6. Harry Voiles	Trng Support	<i>Harry J. Voiles</i>	11-30-09	<i>H. J. Voiles</i>	12/17/09
7. Josh Bowman	Instructor OPS	<i>Josh Bowman</i>	11/30/9		12/17/09
8. J. M. CARLES	OPS TRNG	<i>J. M. Carles</i>	11/30/09	<i>J. M. Carles</i>	12/18/09
9. Catherine Morgan	<i>Catherine Morgan</i>	<i>Catherine Morgan</i>	11/30	<i>Catherine Morgan</i>	12/17/09
10.					
11.					
12.					
13.					
14.					
15.					

NOTES:

*Final*Facility: **Watts Bar**Date of Examination: 11/30/2009Examination Level: RO ☒ SRO ☐Operating Test Number: 1

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	M, R	G 2.1.1 Knowledge of conduct of operations requirements. 3.8 / 4.2 JPM: Determine License Status.
Conduct of Operations	N, R	G 2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc. 3.9 / 4.2 JPM: Perform RCS Deboration Calculation.
Equipment Control	N, R	G 2.2.12 Knowledge of surveillance procedures. 3.7 / 4.1 JPM: Perform 1-SI-0-2A-03, "1900-0700 Shift and Daily Surveillance Log Mode Three.
Radiation Control	D, R	G 2.3.4 Knowledge of radiation exposure limits under normal or emergency conditions. 3.2 / 3.7 JPM: Determine Potential Dose for Valve Alignment.
Emergency Procedures / Plan	--	N/A

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

* Type Codes & Criteria:

(C)ontrol room, (S)imulator, or Class(R)oom

(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)(N)ew or (M)odified from bank (≥ 1)(P)revious 2 exams (≤ 1 ; randomly selected)

Facility: <u>Watts Bar</u>		Date of Examination: <u>11/30/2009</u>
Examination Level: RO <input type="checkbox"/> SRO <input checked="" type="checkbox"/>		Operating Test Number: <u>1</u>
Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	M, R	G 2.1.1 Knowledge of conduct of operations requirements. 3.8 / 4.2 JPM: Determine License Status.
Conduct of Operations	D, R	G 2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc. 3.9 / 4.2 JPM: Review of Estimated Critical Position Calculation.
Equipment Control	N, R	G 2.2.12 Knowledge of surveillance procedures. 3.7 / 4.1 JPM: Review 1-SI-0-2A-03, "1900-0700 Shift and Daily Surveillance Log Mode Three."
Radiation Control	D, R	G 2.3.4 Knowledge of radiation exposure limits under normal or emergency conditions. 3.2 / 3.7 JPM: Determine Potential Dose for Valve Alignment.
Emergency Procedures / Plan	M, R	G 2.4.40 Knowledge of SRO responsibilities in emergency plan implementation. 2.5 / 3.3 G 2.4.41 Knowledge of the emergency action level thresholds and classifications. 2.9 / 4.6 JPM: Classify the Event and Determine PAR.
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.		
* Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 ; randomly selected)		

*Final*Facility: **Watts Bar**Date of Examination: **Nov-Dec 2009**Exam Level: RO ☒ SRO-I ☒ **SRO-U** ☒

Operating Test Number: 1

(Bolded JPMs are SRO-U.)*(Italicized JPM is RO only.)*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. Exercise Control Rods per 1-SI-85-2.	N	1
b. Perform FR-I.1,"High Pressurizer Level."	A,M,L	2
c. Align RHR for Hot Leg Recirculation.	A,D,EN	3
d. Place Standby Main Feedwater Pump in service for Periodic Operation with Main Feedwater Pumps.	A, N	4S
e. Align CRDM Coolers.	N	5
f. Reinstate Source Range following a Reactor Trip.	A, M	7
g. Transfer 6.9 KV RCP Board 1D from Alternate to Normal per SOI-202.01.	M	6
<i>h. Swap CCS Pumps (place 1B in service, remove 1A from service).(RO Only)</i>	A, N	8

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

i. Isolate The RCP Seal Injection And Thermal Barrier Per ECA-0.0.	D,E,L,R	2
j. Align High Pressure Fire Protection (HPFP) to Centrifugal Charging Pump 1A-A Lube Oil Coolers.	D,EN,R	8
k. Align the Upper Containment Monitor to Lower Containment Locally.	D,R	7

[@] All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

*Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥ 1
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Final

Facility: Watts Bar		Date of Examination: Nov 2009		Operating Test Number: 1	
1. General Criteria		Initials			
		a	b*	c#	
a.	The operating test conforms with the previously approved outline; changes are consistent with sampling requirements (e.g., 10 CFR 55.45, operational importance, safety function distribution).	RA	SR	EL	
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	RA	SR	EL	
c.	The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)	RA	SR	EL	
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	RA	SR	EL	
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	RA	SR	EL	
2. Walk-Through Criteria		--	--	--	
a.	Each JPM includes the following, as applicable: <ul style="list-style-type: none"> • initial conditions • initiating cues • references and tools, including associated procedures • reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time-critical by the facility licensee • operationally important specific performance criteria that include: <ul style="list-style-type: none"> — detailed expected actions with exact criteria and nomenclature — system response and other examiner cues — statements describing important observations to be made by the applicant — criteria for successful completion of the task — identification of critical steps and their associated performance standards — restrictions on the sequence of steps, if applicable 	RA	SR	EL	
b.	Ensure that any changes from the previously approved systems and administrative walk-through outlines (Forms ES-301-1 and 2) have not caused the test to deviate from any of the acceptance criteria (e.g., item distribution, bank use, repetition from the last 2 NRC examinations) specified on those forms and Form ES-201-2.	RA	SR	EL	
3. Simulator Criteria		--	--	--	
The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.		RA	SR	EL	
Printed Name / Signature		Date			
a. Author	Darrell D. Hensley / <i>Darrell D. Hensley</i>	11/12/09			
b. Facility Reviewer(*)	Steve R. Smith / <i>SR Smith</i>	11/12/09			
c. NRC Chief Examiner (#)	Edwin Lee, Jr. / <i>Edwin Lee, Jr.</i>	11/19/2009			
d. NRC Supervisor	ALCOA T. WOODMAN / <i>ALCOA T. WOODMAN</i>	11/23/09			
NOTE: * The facility signature is not applicable for NRC-developed tests. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.					

Final

Facility: Watts Bar Date of Exam: 12/09 Scenario Numbers: 1 / 2 / 3 Operating Test No.: 1				
QUALITATIVE ATTRIBUTES		Initials		
		a	b*	c#
1.	The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.	<i>DA</i>	<i>SRS</i>	<i>ES</i>
2.	The scenarios consist mostly of related events.	<i>DA</i>	<i>SRS</i>	<i>ES</i>
3.	Each event description consists of <ul style="list-style-type: none"> the point in the scenario when it is to be initiated the malfunction(s) that are entered to initiate the event the symptoms/cues that will be visible to the crew the expected operator actions (by shift position) the event termination point (if applicable) 	<i>DA</i>	<i>SRS</i>	<i>ES</i>
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.	<i>DA</i>	<i>SRS</i>	<i>ES</i>
5.	The events are valid with regard to physics and thermodynamics.	<i>DA</i>	<i>SRS</i>	<i>ES</i>
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	<i>DA</i>	<i>SRS</i>	<i>ES</i>
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>
8.	The simulator modeling is not altered.	<i>DA</i>	<i>SRS</i>	<i>ES</i>
9.	The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.	<i>DA</i>	<i>SRS</i>	<i>ES</i>
10.	Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered in accordance with Section D.5 of ES-301.	<i>DA</i>	<i>SRS</i>	<i>ES</i>
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	<i>DA</i>	<i>SRS</i>	<i>ES</i>
12.	Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).	<i>DA</i>	<i>SRS</i>	<i>ES</i>
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	<i>DA</i>	<i>SRS</i>	<i>ES</i>
Target Quantitative Attributes (Per Scenario; See Section D.5.d)		Actual Attributes		
1.	Total malfunctions (5-8)	6 / 6 / 7	<i>DA</i>	<i>SRS</i>
2.	Malfunctions after EOP entry (1-2)	2 / 1 / 2	<i>DA</i>	<i>SRS</i>
3.	Abnormal events (2-4)	4 / 4 / 4	<i>DA</i>	<i>SRS</i>
4.	Major transients (1-2)	1 / 2 / 2	<i>DA</i>	<i>SRS</i>
5.	EOPs entered/requiring substantive actions (1-2)	2 / 2 / 2	<i>DA</i>	<i>SRS</i>
6.	EOP contingencies requiring substantive actions (0-2)	1 / 1 / 1	<i>DA</i>	<i>SRS</i>
7.	Critical tasks (2-3)	3 / 2 / 4	<i>DA</i>	<i>SRS</i>

Facility: Watts Bar		Date of Exam: Nov. 2009		Operating Test No.: 1															
A P P L I C A N T	E V E N T T Y P E	Scenarios - for CREW ONE																	
		Scenario 1			Scenario 2									T O T A L	M I N I M U M(*) R I U				
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION								
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P						
		RO	RX	-					-										
SRO-I	NOR	5					1									2	1	1	1
SRO-U	I/C	123					35									5	4	4	2
	MAJ	6					67									3	2	2	1
	TS	23					-									2	0	2	2
RO	RX		5		-											1	1	1	0
SRO-I	NOR		-		1											1	1	1	1
	I/C		2,4		2345											6	4	4	2
SRO-U	MAJ		6		67											3	2	2	1
	TS		-		24											2	0	2	2
RO	RX			-		1										1	1	1	0
SRO-I	NOR			5		-										1	1	1	1
	I/C			1378		24										6	4	4	2
SRO-U	MAJ			6		67										3	2	2	1
	TS			-		-										-	0	2	2
RO	RX																1	1	0
SRO-I	NOR																1	1	1
	I/C																4	4	2
SRO-U	MAJ																2	2	1
	TS																0	2	2

Instructions:

- Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
- Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
- Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: Watts Bar		Date of Exam: Nov. 2009		Operating Test No.: 1														
A P P L I C A N T	E V E N T T Y P E	Scenarios - for CREW TWO													T O T A L	M I N I M U M (*)		
		Scenario 1			Scenario 2													
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION							
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P					
		R	I	U														
RO	RX	-			1									1	1	1	0	
SRO-I	NOR	5			-									1	1	1	1	
	I/C	123			24									5	4	4	2	
SRO-U	MAJ	6			67									3	2	2	1	
	TS	23			-									2	0	2	2	
RO	RX		5		-									1	1	1	0	
SRO-I	NOR		-		1									1	1	1	1	
	I/C		24		2345									6	4	4	2	
SRO-U	MAJ		6		67									3	2	2	1	
	TS		-		24									2	0	2	2	
RO	RX														1	1	0	
SRO-I	NOR														1	1	1	
	I/C														4	4	2	
SRO-U	MAJ														2	2	1	
	TS														0	2	2	
RO	RX														1	1	0	
SRO-I	NOR														1	1	1	
	I/C														4	4	2	
SRO-U	MAJ														2	2	1	
	TS														0	2	2	

Instructions:

- Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
- Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
- Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Final

Facility: Watts Bar		Date of Examination: Nov 2009				Operating Test No.: 1						
Competencies	APPLICANTS											
	RO X SRO-I SRO-U				RO SRO-I X SRO-U				RO SRO-I SRO-U X			
	SCENARIO				SCENARIO				SCENARIO			
	1	2			1	2			1	2		
Interpret/Diagnose Events and Conditions	246	24			23467	3456			13	3456		
Comply With and Use Procedures (1)	25	246			ALL	ALL			13 56	ALL		
Operate Control Boards (2)	245	124			245	124						
Communicate and Interact	1345 6	ALL			ALL	ALL			ALL	ALL		
Demonstrate Supervisory Ability (3)					1456	1356			14 56	1356		
Comply With and Use Tech. Specs. (3)					23	24			23	24		
Notes: (1)Includes Technical Specification compliance for an RO. (2)Optional for an SRO-U. (3)Only applicable to SROs.												

Instructions:

Check the applicants' license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Facility: Watts Bar		Date of Exam: Nov 2009																			
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				3	3				3	18	3	3	6				
	2	1	1	2				2	1				2	9	2	2	4				
	Tier Totals	4	4	5				5	4				5	27	5	5	10				
2. Plant Systems	1	3	2	3	3	2	2	2	3	2	3	3	28	3	2	5					
	2	1	0	1	1	1	1	1	1	1	1	1	10	2	1	3					
	Tier Totals	4	2	4	4	3	3	3	4	3	4	4	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			

- 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).
- 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.
- 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.
- 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.
- 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.
- Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- *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.
- 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.
- 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											
007EG2.4.21	Reactor Trip - Stabilization - Recovery / 1	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
009EA2.20	Small Break LOCA / 3	2.6	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"/>	Containment vent damper position indicator
011EK1.01	Large Break LOCA / 3	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"/>	Natural circulation and cooling, including reflux boiling.
015AK1.03	RCP Malfunctions / 4	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"/>	The basis for operating at a reduced power level when one RCP is out of service
022AA1.02	Loss of Rx Coolant Makeup / 2	3	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"/>	CVCS charging low flow alarm, sensor and indicator
025AK2.05	Loss of RHR System / 4	2.6	2.6	<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"/>	Reactor building sump
026AK3.02	Loss of Component Cooling Water / 8	3.6	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"/>	The automatic actions (alignments) within the CCWS resulting from the actuation of the ESFAS
027AK2.03	Pressurizer Pressure Control System Malfunction / 3	2.6	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"/>	Controllers and positioners
029EK1.05	ATWS / 1	2.8	3.2	<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"/>	definition of negative temperature coefficient as applied to large PWR coolant systems
038EA2.11	Steam Gen. Tube Rupture / 3	3.7	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"/>	Local radiation reading on main steam lines
040AA1.23	Steam Line Rupture - Excessive Heat Transfer / 4	3.6	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"/>	All pressure gauges per steam generator (for pressure drop)

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
054AK3.03	Loss of Main Feedwater / 4	3.8	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"/>	Manual control of AFW flow control valves
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
057AG2.1.23	Loss of Vital AC Inst. Bus / 6	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.
058AG2.4.34	Loss of DC Power / 6	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 RO tasks performed outside the main control room during an emergency and the resultant operational effects
065AK3.04	Loss of Instrument Air / 8	3	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"/>	Cross-over to backup air supplies
077AK2.03	Generator Voltage and Electric Grid Disturbances / 6	3.0	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"/>	Sensors, detectors, indicators
WE04EA1.3	LOCA Outside Containment / 3	3.8	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"/>	Desired operating results during abnormal and emergency situations.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
024AA2.02	Emergency Boration / 1	3.9	4.4	<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"/>	When use of manual boration valve is needed
028AK3.05	Pressurizer Level Malfunction / 2	3.7	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"/>	Actions contained in EOP for PZR level malfunction
036AG2.4.2	Fuel Handling Accident / 8	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 checked="" type="checkbox"/>	<input type="checkbox"/>	Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.
059AK3.01	Accidental Liquid RadWaste Rel. / 9	3.5	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"/>	Termination of a release of radioactive liquid
067AK1.01	Plant Fire On-site / 9 8	2.9	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"/>	Fire classifications by type
069AA1.01	Loss of CTMT Integrity / 5	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"/>	Isolation valves, dampers and electropneumatic devices.
WE01EA1.3	Rediagnosis / 3	3.4	3.8	<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"/>	Desired operating results during abnormal and emergency situations.
we13EG2.1.31	Steam Generator Over-pressure / 4	4.6	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 locate control room switches, controls and indications and to determine that they are correctly reflecting the desired plant lineup.
WE15EK2.2	Containment Flooding / 5	2.7	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"/>	Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems and relations between the proper operation of these systems to the operation of the facility.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
003A1.09	Reactor Coolant Pump	2.8	2.8	<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"/>	Seal flow and D/P
004K5.36	Chemical and Volume Control	2.5	2.8	<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"/>	Solubility of boron in water; temperature effect
005G2.1.23	Residual Heat Removal	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 checked="" type="checkbox"/>	<input type="checkbox"/>	Ability to perform specific system and integrated plant procedures during all modes of plant operation.
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
006K5.09	Emergency Core Cooling	3.3	3.6	<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"/>	Thermodynamics of water and steam, including subcooled margin, superheat and saturation
007A4.01	Pressurizer Relief/Quench Tank	2.7	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"/>	PRT spray supply valve
007A4.09	Pressurizer Relief/Quench Tank	2.5	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"/>	Relationships between PZR level and changing levels of the PRT and bleed holdup tank
008K1.05	Component Cooling Water	3.0	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"/>	Sources of makeup water
010A4.03	Pressurizer Pressure Control	4.0	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"/>	PORV and block valves
012A3.03	Reactor Protection	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"/>	Power supply
012G2.1.30	Reactor Protection	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 checked="" type="checkbox"/>	<input type="checkbox"/>	Ability to locate and operate components, including local controls.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
013K6.01	Engineered Safety Features Actuation	2.7	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"/>	Sensors and detectors
022K2.02	Containment Cooling	2.5	2.4	<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"/>	Chillers
026K4.08	Containment Spray	4.1	4.3	<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"/>	Automatic swapover to containment sump suction for recirculation phase after LOCA (RWST low-low level alarm)
039K1.02	Main and Reheat Steam	3.3	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"/>	Atmospheric relief dump valves
059K3.04	Main Feedwater	3.6	3.8	<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"/>	RCS
059K4.02	Main Feedwater	3.3	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"/>	Automatic turbine/reactor trip runback
061A2.08	Auxiliary/Emergency Feedwater	2.7	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"/>	Flow rates expected from various combinations of AFW pump discharge valves
062A2.09	AC Electrical Distribution	2.7	3.0	<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 exceeding current limitations
062A2.10	AC Electrical Distribution	3.0	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"/>	Effects of switching power supplies on instruments and controls
063K3.01	DC Electrical Distribution	3.7	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"/>	ED/G
063K4.01	DC Electrical Distribution	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"/>	Manual/automatic transfers of control

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
064A1.04	Emergency Diesel Generator	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"/>	Crankcase temperature and pressure
064K1.03	Emergency Diesel Generator	3.6	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"/>	Diesel fuel oil supply system
073K3.01	Process Radiation Monitoring	3.6	4.2	<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"/>	Radioactive effluent releases
076K2.01	Service Water	2.7	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"/>	Service water
078A3.01	Instrument Air	3.1	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"/>	Air pressure
103G2.4.30	Containment	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.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
001A1.13	Control Rod Drive	4.0	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"/>	"Prepower dependent insertion limit" and power dependent insertion limit, determined with metroscope
002A4.05	Reactor Coolant	2.8	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"/>	The HPI system when it is used to refill the refueling cavity
016G2.2.38	Non-nuclear Instrumentation	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 checked="" type="checkbox"/>	<input type="checkbox"/>	Knowledge of conditions and limitations in the facility license.
027K1.01	Containment Iodine Removal	3.4	3.7	<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"/>	CSS
033A3.01	Spent Fuel Pool Cooling	2.5	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"/>	Temperature control valves
035K6.01	Steam Generator	3.2	3.6	<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"/>	MSIVs
045K4.46	Main Turbine Generator	2.5	2.8	<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"/>	Defeat of reactor trip by overspeed trip test lever
055K3.01	Condenser Air Removal	2.5	2.7	<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"/>	Main condenser
071A2.02	Waste Gas Disposal	3.3	3.6	<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"/>	Use of waste gas release monitors, radiation, gas flow rate and totalizer
086K5.04	Fire Protection	2.9	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"/>	Hazards to personnel as a result of fire type and methods of protection

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.
G2.1.30	Conduct of operations	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.
G2.1.6	Conduct of operations	3.8	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 checked="" type="checkbox"/>	Ability to manage the control room crew during plant transients.
G2.2.41	Equipment Control	3.5	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 checked="" type="checkbox"/>	Ability to obtain and interpret station electrical and mechanical drawings
G2.2.42	Equipment Control	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 checked="" type="checkbox"/>	Ability to recognize system parameters that are entry-level conditions for Technical Specifications
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
G2.3.6	Radiation Control	2.0	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"/>	Ability to approve release permits
G2.4.12	Emergency Procedures/Plans	4.0	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"/>	Knowledge of general operating crew responsibilities during emergency operations.
G2.4.21	Emergency Procedures/Plans	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
G2.4.39	Emergency Procedures/Plans	3.9	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 the RO's responsibilities in emergency plan implementation.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
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
029EG2.2.22	ATWS / 1	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.
038EG2.2.4	Steam Gen. Tube Rupture / 3	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 checked="" type="checkbox"/>	(multi-unit) Ability to explain the variations in control board layouts, systems, instrumentation and procedural actions between units at a facility.
058AA2.02	Loss of DC Power / 6	3.3	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"/>	125V dc bus voltage, low/critical low, alarm
077AA2.07	Generator Voltage and Electric Grid Disturbances / 6	3.6	4.0	<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 engineered safety features
we05EG2.4.3	Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	3.7	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 checked="" type="checkbox"/>	Ability to identify post-accident instrumentation.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
033AG2.2.40	Loss of Intermediate Range NI / 7	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.
067AA2.12	Plant Fire On-site / 9 8	2.9	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"/>	Location of vital equipment within fire zone
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.
WE09EA2.1	Natural Circ. / 4	3.1	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"/>	Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
008G2.2.25	Component Cooling Water	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 checked="" type="checkbox"/>	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.
010A2.02	Pressurizer Pressure Control	3.9	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"/>	Spray valve failures
026A2.03	Containment Spray	4.1	4.4	<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"/>	Failure of ESF
063G2.4.20	DC Electrical Distribution	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 checked="" type="checkbox"/>	Knowledge of operational implications of EOP warnings, cautions and notes.
103A2.03	Containment	3.5	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"/>	Phase A and B isolation

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
028A2.01	Hydrogen Recombiner and Purge Control	3.4	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"/>	Hydrogen recombinder power setting, determined by using plant data book
068A2.03	Liquid Radwaste	2.5	2.6	<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"/>	Insufficient sampling frequency of the boric acid in the evaporator bottoms
071G2.4.9	Waste Gas Disposal	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.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
G2.1.41	Conduct of operations	2.8	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 the refueling processes
G2.2.22	Equipment Control	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.
G2.2.37	Equipment Control	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
G2.3.6	Radiation Control	2.0	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"/>	Ability to approve release permits
G2.3.7	Radiation Control	3.5	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 checked="" type="checkbox"/>	Ability to comply with radiation work permit requirements during normal or abnormal conditions
G2.4.18	Emergency Procedures/Plans	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.
G2.4.3	Emergency Procedures/Plans	3.7	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 checked="" type="checkbox"/>	Ability to identify post-accident instrumentation.

Tier/ Group	Randomly Selected K/A	Reason for Rejection
1/1	015 AK1.03	Reactor Coolant Pump (RCP) Malfunctions Knowledge of the operational implications of the following concepts as they apply to Reactor Coolant Pump Malfunctions (Loss of RC Flow): AK1.03 The basis for operating at a reduced power level when one RCP is out of service. Replaced because Watts Bar procedures do not allow this operating configuration. Replaced by Chief Examiner on <u>08/04/09</u> with KA <u>AK1.02</u>
2/2	027 K1.01	Containment Iodine Removal System (CIRS) Knowledge of the physical connections and/or cause effect relationships between the CIRS and the following systems: CSS Replaced - Watts Bar CSS has no interface with the iodine removal function. Replaced by Chief Examiner on <u>08/04/09</u> with KA <u>K5.01</u>
2/2	033 A3.01	Spent Fuel Pool Cooling System (SFPCS) Ability to monitor automatic operation of the Spent Fuel Pool Cooling System including: Temperature control valves Replaced because Watts Bar design is using manual valves only; there are no automatic temperature control valves for SFP cooling. Replaced by Chief Examiner on <u>08/04/09</u> with KA <u>A2.03</u>
3	G 2.3.6	Ability to approve release permits. Replaced - per alignment with Chief Examiner, it is not feasible to write an operationally valid question for an RO to approve release permits. Replaced by Chief Examiner on <u>08/04/09</u> with KA <u>G2.3.4</u>

Tier / Group	Randomly Selected K/A	Reason for Rejection
1/1	038 EG 2.2.4	<p>Steam Generator Tube Rupture (multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.</p> <p>Replaced because WBN is currently a single unit site and does not have multi-unit licenses.</p> <p>Replaced by Chief Examiner on <u>08/04/09</u> with KA <u>G2.2.44</u></p>
2/2	068 A2.03	<p>Liquid Radwaste System (LRS) Ability to (a) predict the impacts of the following malfunctions or operations on the Liquid Radwaste System ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Insufficient sampling frequency of the boric acid in the evaporator bottoms</p> <p>Replaced because WBN does not use boric acid evaporators.</p> <p>Replaced by Chief Examiner on <u>08/04/09</u> with KA <u>A2.04</u></p>
2/2	071 G 2.4.9	<p>Waste Gas Disposal System (WGDS) Knowledge of low power/shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.</p> <p>Replaced - per alignment with Chief Examiner, not feasible to write an operationally valid question to match the K/A.</p> <p>Replaced by Chief Examiner on <u>08/04/09</u> with KA <u>G2.4.8</u></p>

Final

Facility: Watts Bar		Date of Exam: Nov/Dec 2009		Exam Level: RO X SRO X		
Item Description				Initial		
				a	b*	c#
1. Questions and answers are technically accurate and applicable to the facility.				RA		EL
2. a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available..				RA		EL
3. SRO questions are appropriate in accordance with Section D.2.d of ES-401				RA		EL
4. The sampling process was random and systematic (If more than 4 RO or 2 SRO questions were repeated from the last 2 NRC licensing exams, consult the NRR OL program office).						EL
5. Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: <input type="checkbox"/> the audit exam was systematically and randomly developed; or <input type="checkbox"/> the audit exam was completed before the license exam was started; or <input type="checkbox"/> the examinations were developed independently; or <input checked="" type="checkbox"/> the licensee certifies that there is no duplication; or <input type="checkbox"/> other (explain)				RA		EL
6. Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distribution(s) at right.		Bank	Modified	New	RA	EL
		20% / 8%	25% / 28%	55% / 64%		
7. Between 50 and 60 percent of the questions on the RO exam are written at the comprehension/analysis level; the SRO exam may exceed 60 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.		Memory		C/A	RA	EL
		47% / 36%		53 / 64%		
8. References/handouts provided do not give away answers or aid in the elimination of distractors.				RA		EL
9. Question content conforms with specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.				RA		EL
10. Question psychometric quality and format meet the guidelines in ES Appendix B.				RA		EL
11. The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet.				RA		EL
Printed Name / Signature				Date		
a. Author		Darrell D. Hensley		11/12/09		
b. Facility Reviewer (*)		Steve R. Smith / <i>[Signature]</i>		11/12/09		
c. NRC Chief Examiner (#)		Edwin Lee, Jr. / <i>[Signature]</i>		11/24/09		
d. NRC Regional Supervisor		William J. Williams / <i>[Signature]</i>		11/23/09		
Note: * The facility reviewer's initials/signature are not applicable for NRC-developed examinations. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.						

Instructions

[Refer to Section D of ES-401 and Appendix B for additional information regarding each of the following concepts.]

1. Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.
2. Enter the level of difficulty (LOD) of each question using a 1 – 5 (easy – difficult) rating scale (questions in the 2 – 4 range are acceptable).
3. Check the appropriate box if a psychometric flaw is identified:
 - The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
 - The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).
 - The answer choices are a collection of unrelated true/false statements.
 - The distractors are not credible; single implausible distractors should be repaired, more than one is unacceptable.
 - One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem).
4. Check the appropriate box if a job content error is identified:
 - The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content).
 - The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory).
 - The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
 - The question requires reverse logic or application compared to the job requirements.
5. Check questions that are sampled for conformance with the approved K/A and those that are *designated SRO-only* (K/A and license level mismatches are unacceptable).
6. Enter question source: (B)ank, (M)odified, or (N)ew. Check that (M)odified questions meet criteria of ES-401 Section D.2.f.
7. Based on the reviewer's judgment, is the question as written (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
8. At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met).

ES-401

2

Form ES-401-9

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only				
RO QUESTIONS																	
1	H	2												M	S	(OK)	
2	H	3	X	X										N	E	Stem uses valves and the distractors use dampers. Identify correct term. The distractors use Green in one and Red in three. Use green in a second distractor. (MODIFIED DISTRACTORS AS REQUESTED) (OK)	
3	F	2		X										M	S/E	No need to provided assumption (REMOVED ASSUMPTION) (OK)	
4	F	2												M	S	(OK)	
5	H	2	X											N	S/E	Consider changing the stem to read as a two part question (1 & 2). WOOTF identifies how (1).... And (2) (MODIFIED STEM AND DISTRACTOR – MINOR) (OK)	
6	H	3												N	S	(OK)	
7	F	2												N	S	(OK)	
8	F	2				X								M	E	Distractor D is not plausible. What is “continue to throttle?” Open/Close? Fully open/Fully close? (MODIFIED STEM AND DISTRACTORS) (OK)	
9	H	3												N	S	(OK)	
10	H	2												N	S	(OK)	
11	H	3												N	S	(OK)	
12	H	3	X			X								N	U/E	Missing words in stem and distractors (grammar). Based on the information provided, I am not sure there is a correct answer. Look at actions identified in steps 8 & 9. What conclusion would the applicant come too based on the information provided? (CHANGES WORDS IN BOTH STEM AND DISTRACTORS) (OK)	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only				
RO QUESTIONS																	
13	13	3												N	U	If a SBO has occurred, then why would distractors A and B be credible? If the 161 KV system is the normal offsite.supply, then by the definition of an SBO you have already told the applicant that the 161 KV system is not available. (CHANGED STEM AND DISTRACTORS) (OK)	
14	H	2												M	S	(OK)	
15	H	3												B	S	(OK)	
16	F	2	X											B	S/E	Question is difficult to read. Consider writing stem to ask two part question and revise distractors to reflect two part answer. (CHANGED DISTRACTORS) (OK)	
17	F	3												N	S	(OK)	
18	H	3												M	S	(OK)	
19	H	3	X											B	E	Stem is not clear. Check grammar. Need additional information to show plausibility of distractors valve lineups. Explain why closing selected valves would be plausible. ((CHANGES MADE TO DISTRACTOR/STEM) (OK)	
20	H	2												B	S	(OK)	
21	H	3	X									X		N	U	Explain why you consider this a K/A match. Does actuation of the alarms constitute entry into the EOPs? (SHOULD NOT HAVE BEEN A U KA MATCHES ---MODIFIED STEM – LOTS OF DISCUSSION ON THIS QUESTION) (OK)	
22	F	2	X											N	S/E	Consider rewriting stem. Unit ? is a 100% power with a LRRIP.. when the following alarm(s) are received (DETERMINE THAT K/A DID NOT MATCH 11/3) 11/4 WROTE NEW QUESTION) (OK).....	
23	F	2												N	S	(OK)	
24	F	3												N	S	(OK)	
25	H	3	X											N	S?	The conditions in the stem (RCS pressure at 1630 psig and PZR Level at 11%) do not seem consistent with an inadvertent SI. Would you expect to have low RCS pressure and low PZR level with an inadvertent SI? (MADE CHANGES TO THE STEM AND DISTRACTORS) (OK)	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only				
RO QUESTIONS																	
26	H	3		X		X								N	U	Wrong procedure number in stem (FR-H.2 –vs- FR-H.3). According to ES—0.1, 1-HS-3-45, MFW Mode Switch only gets placed in “LONG CYCLE RECIRC” position if AFW flow is established to the SGs. Don’t understand why applicants would think the second part of choices C and D would be plausible since AFW flow would already be established with MFW in Long Cycle Recirc. Unable to locate a procedural action/step which states “Supply AFW into the steam space.” Is this an RO question – action (s) very specific and located deep into procedure? (MADE SHANGES TO THE STEM AS SUGGESTED) (OK)	
27	H	3	X			X								M	U	Improve stem. Appears to be confusing. There also appear to be two correct answers B & D. (STEM DID NOT HAVE TWO CORRECT ANSERS. MADE CHANGES TO DISTRACTOR) *OK)	
28	F	3												M	S	(OK)	
29	H	3	X			X								N	S/E	Consider rewording 2 nd half of ‘C’ and ‘D’. As written it appears confusing. Consider: “Letdown temperature will NOT change because the failure results in blocking the input to the valve controller. (MADE MINOR CHANGES) (OK)	
30	F	2	X			X								M	E	Consider rewording the stem and revising distractors to better match K/A. In the stem consider asking the applicant to provide the procedure and add procedures to the distractors. (REWORDED STEM AND DISTRACTORS) (OK)	
31	H	2												N	S	(OK)	
32	H	2				X								N	U	Explain why “Subcooling remain constant” is plausible after stopping a pump. (SHOUND NOT HAVE BEEN A U CHANGED STEM) (OK)	
33	F	1				X								N	E	LOD. Distractor D is the only distractor that does not have 0-L-2 panel identified. Consider rewriting the question such that the applicant is given a set of condition and must take actions or identify the actions that should be taken and where the actions are performed. (MADE MINOR CHANGES TO THE DISTRACTORS (OK)	
34	F	2												N	S	(OK)	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only				
RO QUESTIONS																	
35	F	2	X	X		X								N	E	Is there an alarm received? If an alarm is received, what actions will the operator be directed to take. At what level will the alarm come in? Will it come in before the auto action occurs?..... Consider identifying the alarm in the stem. The fact that "on low level in Surge Tank" in choices "A" and "B" is not included, could possibly cue the applicant to exclude them. Consider moving "on low level in Surge Tank" into the stem after the first fill-in-the-blank and remove from choices "C" and "D". (MINOR CHANGES) (OK)	
36	F	2												N	S	(OK)	
37	F	2												N	S	(OK)	
38	F	2	X											N	E	The stem is confusing. Consider asking the applicant what could cause the alarm. How and where would you go to determine what caused the alarm? (CHANGED AS SUGGESTED) (OK)	
39	H	3												N	S	(OK)	
40	F	2												N	S	(OK)	
41	F	2				X								M	E	D not plausible. The word operated instead of opened or closed has the potential to make all 4 answers incorrect. If FCV-72-40 were partially open for whatever reason, can I close it with the suction valve from the RWST open? (CHANGED DISTRACTOR, MINOR CHANGE TO STEM) (OK)	
42	H	2				X								M	U	With RCS temp comparable to about 370 psig, Stm Line Low Pressure causing an isolation (when it hasn't already) is not plausible. This x2 is unsat. Will an open PORV reduce pressure at 100/50 sec when at 370 psig? Rec: Make RCS pressure ~ 1900 psig? (MADE CHANGES TO PRESSURE AND TEMP) (OK)	
43	H	2				X								M	U	Tc and power changing in the same direction is not plausible x2 is unsat. Rec; Does COLR have a power that your not allowed above without a negative αT_{mod} (like 80% or so). If so, make this question immediately after a refueling outage to add the potential of being overmoderated OR maybe after stabilizing, power will be: Pzr level will be: Power will be:.....(SHOULD NOT HAVE BEEN A U – ONLY MINOR CHANGES NEEDED) (OK)	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			
RO QUESTIONS																
44	F	2												N	S	Verify that: As power is increasing, the STBY MFW pump autostart is armed at 67% and the MFW pump auto runback is armed at 85%. (PROVIDED PROOF) (O)
45	H	2										X		N	U/E	What procedure is being used to correct, control or mitigate per the K/A? Do I need SG levels? What levels does AFW maintain in this condition? (MINOR CHANGES) (OK)
46	F	2				X								N	U/E	B & D not plausible. My choices are electrical trouble or a fire. It would not make sense to start more fans on either. Need better 2 nd half for B & D. (MADE MINOR CHANGES TO STEM) (OK)
47	H	2										X		N	U	What procedure is being used to correct, control or mitigate per the K/A? Rec: State what procedure is used to mitigate this event. The procedure provided: SOI-211.04 states 0-FCV-67-152 MAY reposition. It needs to have a component that will reposition or not reposition, i.e. no gray space. (ONLY MINOR CHANGES REQUIRED – SHOULD NOT HAVE BEEN IDENTIFIED AS UNSAT) (OK)
48	H	2												B	S	(OK)
49	F	2				X								M	U/E	Why would I think that a loss of power to DC Batt Bd 2 (A & B) would cause DC TB Dist Bd 1 to switch? X2 = unsat. (MADE MINOR CHANGES MADE TO DISTRACTOR) (OK)
50	F	1										X		B	U	It doesn't predict or monitor anything. It asks a trip setpt. Rec: Give some condition that will lead to some type of trip. (CHANGED WORDING IN STEM AND DISTRACTORS) (OK)
51	F	2				X								B	U/E	Explain how manual is plausible. Rec: Ask about the pump and level or a leak and makeup capacity. Something more along the line of cause and effect.(DECIDED TO USE A BACKUP QUESTION) (OK)
52	F	2										X		M	U	The KA asks for the effect of a malfunction on a Rad Release. The question states the effect and asks how to restore. Rec: Drop the last two bullets and ask about valve repositioning. (REWROTE QUESTION) (OK)
53	F	2												N	E	Should state: an ERCW pump that can be selected to start. (REWORDED STEM) (OK)

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only				
RO QUESTIONS																	
54	H	2				X								B	U/E	Explain why the spray valve failing open is plausible. Something more than "other valves fail open". This is real close to a subset issue. Rec: Can we give a pressure and ask for valve position? (REWROTE QUESTION TO ADDRESS CONCERNS) (OK)	
55	F	2												N	S	(OK)	
56	H	3												N	E	No reference for rod insertion limit? Change "drops" to lowers or decreases... . (MADE CHANGES AS DISCUSSED) (OK)	
57	H	2												N	E	Should state IAW AOI 29. Should state the level (something less than 748') (MADE MINOR CHANGES TO THE STEM) (OK).	
58	F	3						X						N	E	Make sure that "spent fuel shuffles being conducted in the Spent Fuel Pit". Is the same as the TS applicability "during movement of irradiated fuel assemblies" RO's are typically not required to know information below the line unless < 1 HR TS. Is this an RO objective? C should be "either" instead of "both". (LICENSEE STATED THAT THIS IS AN RO QUESTION) (OK)	
59	F	2				X								M	U	Distractors C and D are not plausible. (CHANGED FIRST PART OF DISTRACTORS C&D) (OK)	
60	H	2	X											N	U	As written there could be two correct answers " A or B. (PROVIDED INFORMATION WHICH INDICATED THAT DISTRACTOR A WOULD NOT BE CORRECT. SHOULD NOT BE A U. SHOULD HAVE BEEN GIVEN AN S) (OK)"	
61	H	2													S	(OK)	
62	H	2													S	(OK)	
63	H	2	X			X								M	U	Will the alarm result in a decrease in condenser vacuum? Potentially no correct answers. If no operator actions are taken, would the 1B pump not trip? If it trips, distractor A is correct. Is there sufficient information in the stem? (MADE MINOR CHANGES) (OK)	
64	H	2	X												S/E	What type of malfunction? Do you need to identify a malfunction? (ADDED INSTRUMENT MALFUNCTION) (OK)	
65	F	2											X	N	U	K/A mismatch. K/A ask for hazards to personnel as a result of fire type and methods of protection. (CONVENED US THAT THE QUESTION DID MATCH THE K/A) (K/A)	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws					5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only				
RO QUESTIONS																	
66	F	2												B	S	(OK)	
67	F	2	X			X								M	S/E	The stem does not match all of the distractors. The stem ask the applicant to identify two components. TD AFW speed is not a component. (MODIFIED – REMOVE SPEED AS A COMPONENT) (OK)	
68	H	2												B	S	(OK)	
69	F	2				X								N	U/E	Is there a correct answer? I could not locate a CC in your procedure. The second half of the distractors is week. Rewrite.(4 TVA GUYS STATED THAT IS "CC" AND "AC" IS USED AT THE PLANT – WILL PROVIDE INFORMATION AT SITE) (OK)	
70	H	2												M	S	(OK)	
71	H	2	X			X								N	S/E	Consider rewording the stem to read: ...which ONE of the following describes: (1) why the sump pumps will be operated locally and (2) if..... Remove "Operated locally" form A-D. (Explain why 1 st part of C&D is plausible) (MADE CHANGES TO THE QUESTION) (OK)	
72	F	2										X		B	U/E	Weak K/A match. Write the question to show that the applicant has a knowledge/understanding of the various limits. There is no evident what limit the applicant has to have knowledge of to answer this question. For the given condition, would you expect anyone else to make decisions about authorizing/giving final decision to allow additional exposure to perform the job. (REWROTE QUESTION) (OK)	
73	F	1												B	S/E	LOD. Consider revising question. (REVISED QUESTION) (OK)	
74	F	2												B	S	(OK)	
75	F	2												N	S	(OK)	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only				
SRO QUESTIONS																	
76	H		X											N	E	Consider rewriting the stem. Identify the annunciators that are lit and have the applicant determine how the system should respond and have them identify what procedure to select. You can also ask why the procedure is selected. REWORDED STEM IN OFFICE (OK)	
77			X			X								N	E	Check grammar in the stem and the distractors. (had existed for but...) (MADE TO STEM –MUCH MOR E READIBLE) (OK)	
78		X				X								B	U/E	Check grammar in the stem. Distractor A is not plausible and distractor D C may be a correct answer. (CHANGED DISTRACTOR C) (OK)	
79	F	2	X											M	E	Consider rewriting the stem. If stem is rewritten, write distractors to match. Example: “In accordance with Technical Specification BASES, based on the given plant conditions which ONE of the following identifies (1) why the 125V DC Vital Battery Channel II in INOPERABLE, AND (2) how long Battery II is designed to be able to maintain greater than the minimum terminal voltage for the given plant conditions?” Delete the “Declare Battery Channel II INOPERABLE because of ... “ statements from all distractors; the WOOTF already states that the battery is inoperable. (CHANGED INFORMATION IN STEM AND DISTRACTORS) (OK)	
80	H	3												N	S	Check grammar in the stem. (CORRECTED GRAMMAR) (OK)	
81	F	2	X									X	X	N	E	Stem is confusing. Explain K/A match. Not SRO-level knowledge; first part of question is systems knowledge, second part of question can be eliminated by knowing ECA-0.0 entry conditions (major EOP entry conditions RO-level knowledge). Four non-plausible distractors; it is common knowledge that narrow range S/G levels go offscale low on every trip from 100% power; it is common knowledge that narrow range S/G level instrumentation is used throughout the EOPs/post-accident conditions. Question is UNSAT based on above discussions. (REWROTE STEM – EXPLAINED K/A MATCH) (OK)	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only				
SRO QUESTIONS																	
82	H	3				X								N	S/E	Explain why performing a risk assessment is plausible as used in distractors C and D. (CHANGED WORDING IN THE STEM AND THE DISTRACTORS) (OK)	
83	F	2	X			X								N	U/E	Stem says that there is an impact. The answer B and distractor D state "no impact." Rewrite stem to match distractor/answer. Make sure A and C are not correct. (RE WORDED STEM AND CORRECTED DISTRACTOR) (OK).	
84	F	2												M	S	(OK)	
85	F	2				X								N	U	Distractors A is also correct based on 20.f.RNO of ES-0.2 (WROTE NEW QUESTION) (OK).	
86			X			X							X	N	U	Reword the stem such that it ask for the bases as identified in the K/A. Based on the current plant conditions, which LCO should be entered, identify the actions that should be taken and the bases for taking the actions. Make sure that there is a direct tie to bases. (QUESTION WAS DETERMINED TO BE SAT, ONLY MINOR CHANGES WERE MADE) (OK).	
87	H	2				X									U	There appear to be two correct answers. Both A and B. If your can not established pressure control with the PORV, you are required to implement ECA-3.3 (MADE MINOR CHANGES TO THE QUESTION – AND DECIDED THAT QUESTION SHOULD NOT BE A UNSAT.) (OK)	
88	H		X			X									E	Stem needs to be re worded (check gramma). Consider using the following distractors: A. PDT-30-43 is required to be placed in the TRIPPED position; Subsequent testing of PDT-30-44 will still allow a valid automatic Containment Spray actuation to occur B. PDT-30-43 is required to be placed in the TRIPPED position; Subsequent testing of PDT-30-44 will prevent a valid automatic Containment Spray actuation from occurring. C. PDT-30-43 is required to be placed in the BYPASS position; Subsequent testing of PDT-30-44 will still allow a valid automatic Containment Spray actuation to occur D. PDT-30-43 is required to be placed in the BYPASS position; Subsequent testing of PDT-30-44 will prevent a valid automatic Containment Spray actuation from occurring. (MADE MODIFICATIONS) (OK)	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only				
SRO QUESTIONS																	
89	F	2											X	B	U	Not SRO only question. Appears that question can be answered with system only knowledge. <u>(DECIDET TO ACCEPT QUESTION BASED ON THE FACT THAT ACTIONS ARE ONLY TAKEN AT THE DIRECTION OF THE SRO. MADE MINOR CHANGES TO THE STEM) (OK)</u>	
90	H	2											X	N	U	It appears that the question can be answered with system knowledge only and the fact that the RO would know that LCO 3.6.12 is not applicable for the current mode. Suggest testing the applicant knowledge of which surveillance test is allowed to be conducted ["B" Phase test] and any associated action statements that are required to conduct the surveillance test. [i.e., link question to Tech Specs versus procedure selection.] (WROTE NEW QUESTIONS) (OK)	
91	H	2												N	S	(MADE MINOR CHANGES TO THE STEM) (OK)	
92	F	1	X									X		N	U	LOD. Could not locate information which indicated that release would auto terminate. Can not see how this is a K/A match. Explain how making a notification meets the requirement of using procedures to correct, control, or mitigate the consequences? <u>(MADE CHANGES TO DISTRACTORS) (OK) SHOULD NOT HAVE BEEN A U. TAKE A LOOK AT THIS QUESTION</u>	
93	H	2	X			X								N	U/E	Distractors poorly written. Unnecessary words. Consider re-writing the stem. Ask for status of the release and what procedure should be implemented based on the given conditions. Please identify the alarm number. Need to determine if there are any automatic actions associated with the condition. There may be two correct answers, C and D. (MADE CHANGES TO DISTRACTORS; DID NOT HAVE TWO CORRECT ANSWERS) SHOULD NOT HAVE BEEN A U/E (OK)	
94	H	2											X	M	U	It appears that this question can be answered with system knowledge only. If a support system of the operating train is declared inoperable, would you not expect the RO to know that work in progress should be stopped to evaluate conditions? <u>(CONVENSED US THAT THIS WAS AN SRO ONLY QUESTION. SHOULD NOT HAVE BEEN IDENTIFIED AS UNSAT) (OK)</u>	
95	H	2												M	S	(OK)	
96	H	3	X											M	E/S	Question is OK. Consider rewording the stem (IMPROVED THE STEM) (OK)	

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Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only				
SRO QUESTIONS																	
97	H	2	X			X							X	M	U/E	Who is responsible for performing this procedure? I am not sure this is SRO only. What must be done if 0-RM is inoperable – is this not common knowledge? (CONVENSED US THAT IS SRO - SHOULD BE AN "E") (OK)	
98	H	2	X			X								N	U	Parts of distractors C and D do not appear to be plausible. It appears that the stem is cueing that correct answer should have include a time requirement. On two distractors have time limitations. Who is responsible for performing (CHANGED STEM AND DISTRACTORS) (OK)	
99			X			X								M	E	In stem (1) identify maximum rate of depressurization. Reword distractors to match stem. This appears to be three part question. Distractors should reflect questions asked. Use 15% instead of 10%. (MADE MINOR CHANGES TO THE STEM AND CHANGED NUMBERS IN DISTRACTORS) (OK)	
100	F		X											N	S/E	Re-write stem. Stem is confusing (ENHANCED STEM) (OK)	

Facility: <u>Watts Bar</u>		Date of Exam: <u>12/17/2009</u>		Exam Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>	
Item Description		Initials			
		a	b	c	
1.	Clean answer sheets copied before grading	<u>JS</u>	<u>N/A</u>	<u>EL</u>	
2.	Answer key changes and question deletions justified and documented	<u>N/A</u>	<u>JS</u>	<u>N/A</u>	
3.	Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	<u>JS</u>	<u>JS</u>	<u>EL</u>	
4.	Grading for all borderline cases (80 \pm 2% overall and 70 or 80, as applicable, \pm 4% on the SRO-only) reviewed in detail	<u>N/A</u>	<u>JS</u>	<u>N/A</u>	
5.	All other failing examinations checked to ensure that grades are justified	<u>JS</u>	<u>JS</u>	<u>EL</u>	
6.	Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	<u>JS</u>	<u>JS</u>	<u>EL</u>	
Printed Name/Signature		Date			
a. Grader	<u>KENNETH SCHAAF / Kenneth D. SchAAF</u>	<u>1-5-10</u>			
b. Facility Reviewer(*)	<u>N/A</u>				
c. NRC Chief Examiner (*)	<u>Edwin Lee, Jr. / Edwin Lee, Jr.</u>	<u>1/6/2010</u>			
d. NRC Supervisor (*)	<u>Harold T. Widmann / Harold T. Widmann</u>	<u>01/06/2010</u>			
(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.					