

# Administrative Documents

## WATTS BAR JULY 2004 EXAM 50-390/2004-301 JULY 23, & JULY 26-30, 2004

<del>1.</del> <sup>LA</sup>	Exam Preparation Checklist . . . . .	ES-201-1
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<del>4.</del>	Administrative Topics Outline (Final) . . . . .	ES-301-1
<del>5.</del>	Control Room Systems and Facility Walk-through Test Outline (Final) . . . . .	ES-301-2
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<del>7.</del>	Simulator Scenario Quality Check Sheet . . . . .	ES-301-4
<del>8.</del>	Transient and Event Checklist . . . . .	ES-301-5
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<del>10.</del>	Written Exam Quality Check Sheet . . . . . <i>DRAFT &amp; FINAL</i>	ES-401-6
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<del>14.</del>	<i>TVA TRANSMITTAL LETTER DATED JUNE 7, 2004 FROM P. L. PACE</i>	

Facility: WATTS BARRDate of Examination: 7/26-30/04Examinations Developed by:  Facility /  NRC (circle one)

Target Date*	Task Description / Reference	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a & b)	LM
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	LM
-120	3. Facility contact briefed on security & other requirements (C.2.c)	LM
-120	4. Corporate notification letter sent (C.2.d)	LM
[-90]	[5. Reference material due (C.1.e; C.3.c)]	LM
-75	6. Integrated examination outline(s) due (C.1.e & f; C.3.d)	LM
-70	7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)	LM
-45	8. Proposed examinations, supporting documentation, and reference materials due (C.1.e, f, g & h; C.3.d)	LM
-30	9. Preliminary license applications due (C.1.i; C.2.g; ES-202)	LM
-14	10. Final license applications due and assignment sheet prepared (C.1.i; C.2.g; ES-202)	LM
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	LM
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f & h; C.3.g)	LM
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	LM
-7	14. Final applications reviewed; assignment sheet updated; waiver letters sent (C.2.g, ES-204)	LM
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee and authorization granted to give written exams (if applicable) (C.3.k)	LM
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	LM

\* Target dates 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 to examinations prepared by the NRC.

Facility: <u>Watts Bar</u>		Date of Examination: <u>7/26-30/04</u>		
Item	Task Description	Initials		
		a	b*	c#
1. W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model per ES-401.	rw	rp	ca
	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.	rw	rp	ca
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	rw	rp	ca
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	rw	rp	ca
2. S I M	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, and major transients.	rw	rp	ca
	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; ensure 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 scenarios will not be repeated over successive on subsequent days.	rw	rp	ca
	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.	rw	rp	ca
3. W / T	a. Verify that: (1) the outline(s) contain(s) the required number of control room and in-plant tasks, (2) no more than 30% of the test material is repeated from the last NRC examination, (3)* no tasks are duplicated from the applicants' audit test(s), and (4) no more than 80% of any operating test is taken directly from the licensee's exam banks.	rw	rp	ca
	b. Verify that: (1) the tasks are distributed among the safety function groupings as specified in ES-301, (2) one task is conducted in a low power or shutdown condition, (3) 40% - 6 (2 - 3 for SRC-U) of the tasks require the applicant to implement an alternate path procedure, (4) one in-plant task tests the applicant's response to an emergency or abnormal condition, and (5) the in-plant walk-through requires the applicant to enter the RCA.	rw rp	rp	ca
	c. Verify that the required administrative topics are covered, with emphasis on performance-based activities.	rw	rp	ca
	d. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on successive-subsequent days.	rw	rp	ca
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 section.	rw	rp	ca
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	rw	rp	ca
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	rw	rp	ca
	d. Check for duplication and overlap among exam sections.	rw	rp	ca
	e. Check the entire exam for balance of coverage.	rw	rp	ca
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	rw	rp	ca
a. Author <u>Terry L. Newman</u> b. Facility Reviewer (*) <u>PAUL L PACE</u> c. NRC Chief Examiner (#) <u>R. Avella</u> d. NRC Supervisor <u>G.T. Hooper</u>		Printed Name / Signature <u>Terry L. Newman</u> <u>Paul L. Pace</u> <u>R. Avella</u> <u>G.T. Hooper</u>		Date <u>5/16/04</u> <u>5/6/04</u> <u>6/2/04</u> <u>7/24/04</u>
Note: * Not applicable for NRC-developed examinations. # Independent NRC reviewer initial items in Column "c," chief examiner concurrence required.				

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 7/19/04 & 7/26/04 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. 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 7/19/04 & 7/26/04. 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 NOe
1. Terry L. Newman	Lead Instructor / Author	<i>Terry L. Newman</i>	4/7/04	<i>Terry L. Newman</i>	7/30/04
2. MARK T. McFADDEN	OPS INSTRUCTOR / Author	<i>Mark T. McFadden</i>	4/7/04	<i>Mark T. McFadden</i>	7-29-04
3. Albert V. White	OPS Instructor / Author	<i>Albert V. White</i>	4/27/04	<i>Albert V. White</i>	7-29-04
4. PAUL L. PAGE	Mgr. w/ site licensing & Ins. Act.	<i>Paul L. Page</i>	5/6/04	<i>Paul L. Page</i>	7/30/04
5. RANOLPH H. EVANS	Reg. Operator Training	<i>R H Evans</i>	5/17/04	<i>R H Evans</i>	7/30/04
6. Edward J. Knoblach	Sign Svcs	<i>E Knoblach</i>	5/24/04	<i>E Knoblach</i>	7/29/04
7. JOE E. ROGERS, JR.	INSTR. INSTRUCTOR	<i>Joe E. Rogers Jr.</i>	5/25/04	<i>Joe E. Rogers Jr.</i>	7-30-4
8. WILLIAM J. HAHN	UNIT OPERATOR	<i>William J. Hahn</i>	5-25-4	<i>William J. Hahn</i>	7-30-4
9. Ron Gaiger	Unit Supervisor	<i>Ron Gaiger</i>	5-26-04	<i>Ron Gaiger</i>	7-30-04
10. John R. Manly	John R. Manly US	<i>John R. Manly</i>	6/3/04	<i>John R. Manly</i>	8/3/04
11. William G. Borgly	Sign Svcs	<i>William G. Borgly</i>	7/16/04	<i>William G. Borgly</i>	7/30/04
12. KEVIN D. GARRISON	Sign Svcs	<i>Kevin D. Garrison</i>	7/16/04	<i>Kevin D. Garrison</i>	8/3/04
13. Henry C. Chapman	Reg Ops Manager	<i>Henry C. Chapman</i>	7/15/04	<i>Henry C. Chapman</i>	7/30/04
14. JOHN B. ROOHN	TRAINING MANAGER	<i>John B. Roohn</i>	7/26/04	<i>John B. Roohn</i>	7/30/04
15. William H. Kinnear	LOR Lead Instructor	<i>William H. Kinnear</i>	7-26-4	<i>William H. Kinnear</i>	8.3-4

NOTES:

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 7/19/04 <sup>7/26/04</sup> 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. 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 7/19-04 <sup>7/26-04</sup>. 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.	Thomas P. Wallace	Ops. Mgr.	<i>Thomas P. Wallace</i>	7/26/04	<i>Richard A. Olsen</i>	7/30/04	
2.	Richard A. Olsen	OPS Supr	<i>Richard A. Olsen</i>	7/27/04	<i>Richard A. Olsen</i>	7-30-04	
3.							
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NOTES:

Facility: <u>WATTS BAR</u>		Date of Examination: <u>7/26 – 7/30/2004</u>
Examination Level (circle one): <u>RO</u> / SRO		Operating Test Number _____
Administrative Topic  (see Note)	Describe activity to be performed:	
Conduct of Operations	Calculate target boron concentration for load escalation using Appendix E of SOI-62.02. (NEW) [G 2.1.25, 2.8/3.1]	
Conduct of Operations	Determine Main Turbine roll and loading rates using SOI-47.02 graphs. (MOD) [G 2.1.25, 2.8/3.1]	
Equipment Control	Calculate QPTR using Surveillance instruction 1-SI-0-21. (MOD) [G 2.2.12, 3.0/3.4]	
Radiation Control	Evaluate RADCON survey map to determine posting requirements. (D) [G 2.3.1, 2.6/3.0]	
Emergency Plan		
NOTE: All items (5 total) are required for SRO's. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.		

Facility: <u>WATTS BAR</u>		Date of Examination: <u>7/26 – 7/30/2004</u>
Examination Level (circle one): <u>RO</u> / <u>SRO</u>		Operating Test Number _____
Administrative Topic  (see Note)	Describe activity to be performed:	
Conduct of Operations	Calculate target boron concentration for load escalation using Appendix E of SOI-62.02. (NEW) [G 2.1.25, 2.8/3.1]	
Conduct of Operations	Determine Main Turbine roll and loading rates using SOI-47.02 graphs. (MOD) [G 2.1.25, 2.8/3.1]	
Equipment Control	Calculate QPTR using Surveillance instruction 1-SI-0-21. (MOD) [G 2.2.12, 3.0/3.4]	
Radiation Control	Evaluate RADCON survey map to determine posting requirements. (D) [G2.3.1, 2.6/3.0]	
Emergency Plan	Classify the event in accordance with the Radiological Emergency Plan (REP). – (NEW) [G 2.4.38, 4.0]	
NOTE: All items (5 total) are required for SRO's. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.		

Facility: Watts Bar

Date of Examination: 7/26 - 7/30/2004

Exam Level (circle one): RO / SRO(I) / SRO(U)

Operating Test No.: \_\_\_\_\_

**Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)**

System / JPM Title	Type Code*	Safety Function
a. JPMR018A, Perform a Boration of RCS During ATWS per FR-S.1.	D, S, A	1
b. JPMR071A, Align SI Pumps for Hot Leg Recirculation per ES-1.4.	N, S	3
c.		
d.		
e. JPMR017, Isolate a ruptured Steam Generator (MSIV fails to close) per E-3.	D, S, A	4S
f.		
g.		
h.		

**In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)**

a. JPMA024, Isolate the RCP Seal Injection and Thermal Barrier per ECA-0.0.	D, R	2
b.		
c. JPMA001A, Perform Local Restart of Control and Service Air Compressors per AOI-10.	D, A	8

\* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA

Facility: <u>Watts Bar</u>		Date of Examination: <u>7/26 – 7/30/2004</u>
Exam Level (circle one): RO <u>(SRO(I))</u> / SRO(U)		Operating Test No.: _____
Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)		
System / JPM Title	Type Code*	Safety Function
a. JPMR018A, Perform a Boration of RCS During ATWS per FR-S.1.	D, S, A	1
b. JPMR022A, Place Excess Letdown In Service per SOI-62.01.	D, S	2
c. JPMR071A, Align SI Pumps for Hot Leg Recirculation per ES-1.4.	N, S	3
d. JPMR075, Remove 1 RCP from Service (<P-8) per AOI-5.	D, S, L	4P
e. JPMR017, Isolate a ruptured Steam Generator (MSiV fails to close) per E-3.	D, S, A	4S
f. JPM016A, Place RHR Spray In Service per FR-Z.1.	D, S, A	5
g. JPM002A, Transfer 6.9 KV Unit Board ( Normal to Alternate) per SOI-201.01	N, S, L	6
h.		
In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
a. JPMA024, Isolate the RCP Seal Injection and Thermal Barrier per ECA-0.0.	D, R	2
b. JPMA034, Reset the TDAFW Pump (after mechanical overspeed) per SOI-3.02.	D, R	4S
c. JPMA001A, Perform Local Restart of Control and Service Air Compressors per AOI-10.	D, A	8
* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA		

Facility: Watts BarDate of Examination: 7/26 - 7/30/2004Exam Level (circle one): RO / SRO(I) / SRO(U)

Operating Test No.: \_\_\_\_\_

## Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)

System / JPM Title	Type Code*	Safety Function
a. JPMR018A, Perform a Boration of RCS During ATWS per FR-S.1.	D, S, A	1
b. JPMR022A, Place Excess Letdown In Service per SOI-62.01.	D, S	2
c. JPMR071A, Align SI Pumps for Hot Leg Recirculation per ES-1.4.	N, S	3
d. JPMR075, Remove 1 RCP from Service (<P-8) per AOI-5.	D, S, L	4P
e. JPMR017, Isolate a ruptured Steam Generator (MSIV fails to close) per E-3.	D, S, A	4S
f. JPM016A, Place RHR Spray In Service per FR-Z.1.	D, S, A	5
g. JPM002A, Transfer 6.9 KV Unit Board ( Normal to Alternate) per SOI-201.01.	N, S, L	6
h. JPMR044, Align of the Upper Cntmt Monitor to the Lower Cntmt From the MCR.	D, S	7

## In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)

a. JPMA024, Isolate the RCP Seal Injection and Thermal Barrier per ECA-0.0.	D, R	2
b. JPMA034, Reset the TDAFW Pump (after mechanical overspeed) per SOI-3.02.	D, R	4S
c. JPMA001A, Perform Local Restart of Control and Service Air Compressors per AOI-10.	D, A	8

\* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA

Facility: <u>Randolph H. Evans/ WATS BAR</u>		Date of Examination: <u>7/26-7/30/04</u>		Operating Test Number:	
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).	TEW	RHE	LM	
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	TEW	RHE	LM	
c.	The operating test shall not duplicate items from the applicants' audit test(s) (see Section D.1.a).	TEW	RHE	LM	
d.	Overlap with the written examination and between different parts of the operating test categories is within acceptable limits.	TEW	RHE	LM	
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	TEW	RHE	LM	
2. WALK-THROUGH (CATEGORY A & B) CRITERIA		--	--	--	
a.	Each JPM includes the following, as applicable: <ul style="list-style-type: none"> <li>• initial conditions</li> <li>• initiating cues</li> <li>• references and tools, including associated procedures</li> <li>• reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time critical by the facility licensee</li> <li>• specific performance criteria that include:                         <ul style="list-style-type: none"> <li>- detailed expected actions with exact criteria and nomenclature</li> <li>- system response and other examiner cues</li> <li>- statements describing important observations to be made by the applicant</li> <li>- criteria for successful completion of the task</li> <li>- identification of critical steps and their associated performance standards</li> <li>- restrictions on the sequence of steps, if applicable</li> </ul> </li> </ul>	TEW	RHE	LM	
b.	The prescribed questions in Category A are predominantly open reference and meet the criteria in Attachment 1 of ES-301.				
c-b.	Repetition from operating tests used during the previous licensing examination is within acceptable limits (30% for the walk-through) and do not compromise test integrity.	TEW	RHE	LM	
d-c.	At least 20 percent of the JPMs on each test are new or significantly modified.	TEW	RHE	LM	
3. SIMULATOR (CATEGORY C) CRITERIA		--	--	--	
a.	The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.	TEW	RHE	LM	
Printed Name / Signature		Date			
a. Author	<u>Terry L Newman</u> <i>Terry L Newman</i>	<u>6/07/04</u>			
b. Facility Reviewer(*)	<u>Randolph H. Evans</u> <i>RHE</i>	<u>6/7/04</u>			
c. NRC Chief Examiner (#)	<u>LEE R. MILLER</u> <i>Lee R Miller</i>	<u>7/19/04</u>			
d. NRC Supervisor	<u>G.T. HOPPER</u> <i>G.T. Hopper</i>	<u>7/20/04</u>			
NOTE: * The facility signature is not applicable for NRC-developed tests. # Independent NRC reviewer initial items in Column "c;" chief examiner concurrence required.					

Facility: <b>Watts Bar</b>		Date of Exam: <b>7/26-7/30/04</b> Scenario Numbers: <b>1 / 2 / 3</b> Operating Test No.:			
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.	TEN	RHE	LM	
2.	The scenarios consist mostly of related events.	TEN	RHE	LM	
3.	Each event description consists of · 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)	TEN	RHE	LM	
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.	TEN	RHE	LM	
5.	The events are valid with regard to physics and thermodynamics.	TEN	RHE	LM	
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	TEN	RHE	LM	
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>No time compression used.</i>	TEN	RHE	LM	
8.	The simulator modeling is not altered.	TEN	RHE	LM	
9.	The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.	TEN	RHE	LM	
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.45 of ES-301.	TEN	RHE	LM	
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	TEN	RHE	LM	
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).	TEN	RHE	LM	
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	TEN	RHE	LM	
TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.4-B5.d)		Actual Attributes			
1.	Total malfunctions (5-8)	7 / 7 / 7	TEN	RHE	LM
2.	Malfunctions after EOP entry (1-2)	2 / 4 / 3	TEN	RHE	LM
3.	Abnormal events (2-4)	3 / 3 / 4	TEN	RHE	LM
4.	Major transients (1-2)	2 / 1 / 2	TEN	RHE	LM
5.	EOPs entered/requiring substantive actions (1-2)	3 / 3 / 1	TEN	RHE	LM
6.	EOP contingencies requiring substantive actions (0-2)	1 / 1 / 1	TEN	RHE	LM
7.	Critical tasks (2-3)	3 / 1 / 2	TEN	RHE	LM

Facility: <b>Watts Bar (spare)</b> Date of Exam: <b>7/26-7/30/04</b> Scenario Numbers: <b>4 / /</b> Operating Test No.:				
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.	TCW	RHE	LM
2.	The scenarios consist mostly of related events.	TCW	RHE	LM
3.	Each event description consists of · 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)	TCW	RHE	LM
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.	TCW	RHE	LM
5.	The events are valid with regard to physics and thermodynamics.	TCW	RHE	LM
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	TCW	RHE	LM
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>No time compression used.</i>	TCW	RHE	LM
8.	The simulator modeling is not altered.	TCW	RHE	LM
9.	The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.	TCW	RHE	LM
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.45 of ES-301.	TCW	RHE	LM
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	TCW	RHE	LM
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).	TCW	RHE	LM
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	TCW	RHE	LM
TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.4.B5.d)		Actual Attributes		
1.	Total malfunctions (5-8)	5	/	/
2.	Malfunctions after EOP entry (1-2)	1	/	/
3.	Abnormal events (2-4)	4	/	/
4.	Major transients (1-2)	1	/	/
5.	EOPs entered/requiring substantive actions (1-2)	3	/	/
6.	EOP contingencies requiring substantive actions (0-2)	0	/	/
7.	Critical tasks (2-3)	2	/	/

OPERATING TEST NO.:

Applicant Type	Evolution Type	Minimum Number	Scenario Number							
			1 (NEW)		2 (MOD)		3 (MOD)		4 (SPARE)	
			RO	BOP	RO	BOP	RO	BOP	RO	BOP
RO	Reactivity	1*	1		2		1		1	
	Normal	1*		1		1,2		1		1
	Instrument / Component	4*	3,5,6,8	3,4,6	3,5,7,9	3,8,4	2,3,4,5,7,8	4,5	2,3,5,6,7	4,6,8,9
	Major	1	9	9	6	6	6	6	10	10

As RO	Reactivity	1*	1	2	1	1
	Normal	0				
	Instrument / Component	2*	3,5,6,8	3,5,7,9	2,3,4,5,7,8	2,3,5,6,7
	Major	1	9	6	6	10
SRO-I	Reactivity	0				
	Normal	1*	1	2	1	1
	Instrument / Component	2*	2,3,4,5,6	3,4,5	3,4,5	2,3,4,5,6,7,8,9
	Major	1	9	6	6	10

SRO-U	Reactivity	0				
	Normal	1*	1	2	1	1
	Instrument / Component	2*	2,3,4,5,6	3,4,5	3,4,5	2,3,4,5,6,7,8,9
	Major	1	9	6	6	10

- Instructions:
- (1) Enter the operating test number and Form ES-D-1 event numbers for each evolution type.
  - (2) 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 evolution may be replaced with additional instrument or component malfunctions on a one-for-one basis.
  - (3) 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 requirement.

Author:

Albert V. White

NRC Reviewer:

Lu R. Hill

Competencies	SRO-Applicant #1 RO/SRO-I/SRO-U				RO-Applicant #2 RO/SRO-I/SRO-U				BOP-Applicant #3 RO/SRO-I/SRO-U			
	SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4
Understand and Interpret Annunciators and Alarms												
Interpret / Diagnose Events and Conditions	4,5,6,9	3-6,9	2-6	2-10	5,6,8,9	3,5,6,7,9	2-8	1,2,3,5,6,7,10	4,6,9	4,6,8	4-6	4,6,8,9,10
Understand Plant and System Response												
Comply With and Use Procedures (1)	1-6,9	2-6,9	1-6	1-7,10	1,3,5,6,9	2,3,5,6,9	1-6	1-3,5,7,10	1-4,6,9	1-6	1,4,5,6	1,4,6,10
Operate Control Boards (2)					1,5,6,7,8,9	2,3,5,6,7,9	1-6	1-3,5,6,7,10	1-4,6,9	1-6,8	1,4,5,6	1,4,6,8,9,10
Communicate and Interact With the Crew	All	All	All	All	1,3-9	2,3-9	All	All	1-4,6,9	1-6,8	1,4,5,6	1,4,6,8-10
Demonstrate Supervisory Ability (3)	All	All	All	All								
Comply With and Use Tech. Specs. (3)	2,5	3,4	3,4	4,5								
Notes:												
(1) Includes Technical Specification compliance for an RO.												
(2) Optional for an SRO-U.												
(3) Only applicable to SROs.												

Instructions:

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

Author:

Albert V White

NRC Reviewer:

Lee Mull

Facility: WATTS BAR - Draft RO Examination		Date of Exam: 7/23/2004		Exam Level: <u>RO/SRO</u>			
Item Description				Initial			
				a	b*	c#	
1.	Questions and answers technically accurate and applicable to facility	TLN	RHE	✓			
2.	a. NRC K/As referenced for all questions b. Facility learning objectives referenced as available	TLN	RHE	✓			
3.	RO/SRO overlap is no more than 75 percent, and SRO questions are appropriate per Section D.2.d of ES-401	N/A	N/A	N/A			
4.	Question selection and duplication from the last two NRC licensing exams appears consistent with a systematic sampling process						
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 checked="" type="checkbox"/> the examinations were developed independently; or <input type="checkbox"/> the licensee certifies that there is no duplication; or <input type="checkbox"/> other (explain)	TLN	RHE	✓			
6.	Bank use meets limits (no more than 75 percent from the bank at least 10 percent new, and the rest modified); enter the actual RO / SRO-only question distribution(s) at right:	Bank	Modified	New	TLN	RHE	✓
		36 /	3 /	36 /			
7.	Between 50 and 60 percent of the questions on the RO exam (including 10 new questions) are written at the comprehension/analysis level; the SRO exam may exceed 50 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right:	Memory	CIA		TLN	RHE	✓
		34 /	41 /				
8.	References/handouts provided do not give away answers	TLN	RHE	✓			
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	TLN	RHE	✓			
10.	Question psychometric quality and format meet ES, Appendix B, guidelines	TLN	RHE	✓			
11.	The exam contains 100; the required number of one-point, multiple choice items; the total is correct and agrees with value on cover sheet	TLN	RHE	✓			
		Printed Name / Signature			Date		
a. Author	Terry L. Newman	<i>Terry L. Newman</i>			5/28/04		
b. Facility Reviewer (*)	Randolph H. Evans	<i>Randolph H. Evans</i>			5/28/04		
c. NRC Chief Examiner (#)	RON ARELLANO	<i>Ron Arellano</i>			6/4/04		
d. NRC Regional Supervisor	G.T. Hoppa	<i>G.T. Hoppa</i>			6/4/04		
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.							

**DRAFT**

Facility: <b>WATTS BAR - SRO Draft Examination</b>				Date of Exam: <b>7/23/2004</b>		Exam Level: <b>RO(SRO)</b>			
Item Description				Initial					
				a	b*	c#			
1. Questions and answers technically accurate and applicable to facility				TEN	RHE	O			
2. a. NRC K/As referenced for all questions b. Facility learning objectives referenced as available				TEN	RHE	D			
3. RO/SRO overlap is no more than 75 percent, and SRO questions are appropriate per Section D.2.d of ES-401				TEN	RHE	D			
4. Question selection and duplication from the last two NRC licensing exams appears consistent with a systematic sampling process				TEN	RHE				
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 checked="" type="checkbox"/> the examinations were developed independently; or <input type="checkbox"/> the licensee certifies that there is no duplication; or <input type="checkbox"/> other (explain)				TEN	RHE	O			
6. Bank use meets limits (no more than 75 percent from the bank at least 10 percent new, and the rest modified); enter the actual RO / SRO-only question distribution(s) at right.				Bank	Modified	New	TEN	RHE	D
				41 /	3 /	56 /			
7. Between 50 and 60 percent of the questions on the RO exam (including 10 new questions) 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		TEN	RHE	D
				42 / 41	58 / 59				
8. References/handouts provided do not give away answers				TEN	RHE	D			
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				TEN	RHE	D			
10. Question psychometric quality and format meet ES, Appendix B, guidelines				TEN	RHE	O			
11. The exam contains 100 the required number of one-point, multiple choice items; the total is correct and agrees with value on cover sheet				TEN	RHE	D			
				Printed Name / Signature				Date	
a. Author				Terry L. Newman				6/07/04	
b. Facility Reviewer (*)				Randolph H. Evans				6/13/04	
c. NRC Chief Examiner (#)				R. A. J. L. L.				6/19/04	
d. NRC Regional Supervisor				G. T. Lopper				6/19/04	
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.					

*FINAL*

Facility: <b>WATTS BAR - RO Final Examination</b>				Date of Exam: <b>7/23/2004</b>		Exam Level: <b>RO/SRO</b>			
Item Description				Initial					
				a	b*	c*			
1.	Questions and answers technically accurate and applicable to facility			MTM	TRW	#			
2.	a. NRC K/As referenced for all questions b. Facility learning objectives referenced as available			MTM	TRW	#			
3.	RO/SRO overlap is no more than 75 percent, and SRO questions are appropriate per Section D.2.d of ES-401			N/A	N/A	#			
4.	Question selection and duplication from the last two NRC licensing exams appears consistent with a systematic sampling process			MTM	TRW	#			
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 checked="" type="checkbox"/> the examinations were developed independently; or <input type="checkbox"/> the licensee certifies that there is no duplication; or <input type="checkbox"/> other (explain)			MTM	TRW	#			
6.	Bank use meets limits (no more than 75 percent from the bank at least 10 percent new, and the rest modified); enter the actual RO / SRO-only question distribution(s) at right	Bank	Modified	New	MTM	TRW	#		
		37 /	3 /	35 /					
7.	Between 50 and 60 percent of the questions on the RO exam (including 10 new questions) 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		MTM	TRW	#		
		35 /	40 /						
8.	References/handouts provided do not give away answers			MTM	TRW	#			
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			MTM	TRW	#			
10.	Question psychometric quality and format meet ES, Appendix B, guidelines			MTM	TRW	#			
11.	The exam contains 400, the required number of one-point, multiple choice items; the total is correct and agrees with value on cover sheet			MTM	TRW	#			
				Printed Name / Signature			Date		
a. Author	Mark T. McFadden			<i>[Signature]</i>			7-6-04		
b. Facility Reviewer (*)	Terry L. Newman			<i>[Signature]</i>			7/6/04		
c. NRC Chief Examiner (#)	R. Arellano			<i>[Signature]</i>			7/2/04		
d. NRC Regional Supervisor	C. Hopper			<i>[Signature]</i>			7/9/04		
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.									

*Final*

Facility: <b>WATTS BAR - SRO Final Examination</b>		Date of Exam: <b>7/23/2004</b>		Exam Level: RO <b>(SRO)</b>			
Item Description				Initial			
				a	b*	c#	
1.	Questions and answers technically accurate and applicable to facility	MTM	TEN			✓	
2.	a. NRC K/As referenced for all questions b. Facility learning objectives referenced as available	MTM	TEN			✓	
3.	RO/SRO overlap is no more than 75 percent, and SRO questions are appropriate per Section D.2.d of ES-401	MTM	TEN			✓	
4.	Question selection and duplication from the last two NRC licensing exams appears consistent with a systematic sampling process	MTM	TEN			✓	
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 checked="" type="checkbox"/> the audit exam was completed before the license exam was started; or <input checked="" type="checkbox"/> the examinations were developed independently; or <input type="checkbox"/> the licensee certifies that there is no duplication; or <input type="checkbox"/> other (explain)	MTM	TEN			✓	
6.	Bank use meets limits (no more than 75 percent from the bank at least 10 percent new, and the rest modified); enter the actual RO / SRO-only question distribution(s) at right:	Bank	Modified	New	MTM	TEN	✓
		37 / 4	3 / 0	35 / 21			
7.	Between 50 and 60 percent of the questions on the RO exam (including 10 new questions) are written at the comprehension/analysis level; the SRO exam may exceed 80 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right:	Memory	CIA		MTM	TEN	✓
		35 / 7	40 / 18				
8.	References/handouts provided do not give away answers	MTM	TEN			✓	
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	MTM	TEN			✓	
10.	Question psychometric quality and format meet ES, Appendix B, guidelines	MTM	TEN			✓	
11.	The exam contains 100; the required number of one-point, multiple choice items; the total is correct and agrees with value on cover sheet	MTM	TEN			✓	

  

	Printed Name / Signature	Date
a. Author	Mark T. McFadden <i>[Signature]</i>	7-19-04
b. Facility Reviewer (*)	Terry L. Newman <i>[Signature]</i>	7-19-04
c. NRC Chief Examiner (#)	Ren Hottle <i>[Signature]</i>	7/20/04
d. NRC Regional Supervisor	G.T. Kopper <i>[Signature]</i>	7/20/04

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.
  - One or more distractors is not credible.
  - 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. Based on the reviewer's judgment, is the question as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
7. At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met).

**Watts Bar (rfa comments)**

RO/SRO Combined Question																
Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			
1	C	2											Y	N	S* S	008AK3.03 Distractor "D" is NOT in line with the distractor analysis.  <i>Comment accepted. Modified "D" distracter analysis to match "D" distracter.</i> <b>rfa: Accepted</b>
2	M	2											Y	N	S	009EK1.01 No Comment.
3	C	3											Y	N	S	011EK2.02 No Comment.
4	C	3											Y	N	S* S	017AA1.03 The distractor analysis for "C" does NOT match the distractor.  <i>Comment accepted. Distracter analysis for "A" and "C" were swapped to correctly match their respective distracters.</i> <b>rfa: Accepted</b>
5	C	3	X										Y	N	S* S	022G2.4.35 Does the Unit have to be tripped before the steps in AOI 15 can be implemented? The question does not address tripping of the reactor.  <i>Comment accepted. Included bullet in stem that states the reactor has been tripped in accordance with the proper procedure.</i> <b>rfa: Accepted</b>

6	C	2			X						Y	N	U S	025G2.1.33 Replace the question. Regardless of the correct answer, if the action in "C" is complete, then the problem goes away. This question has no discriminatory value as written because there can be only one correct answer.  <i>Comment accepted. Question was replaced with another bank question.</i> <b>rfa: Accepted</b>
7	C	2			X						Y	N	S* S	026AA1.06 Is the inability to adjust CCS outlet flow common knowledge? If so, distractors "A" and "B" are not plausible.  <i>Comment accepted. Modified all distractors to test knowledge of how excess letdown flow is controlled in order to maintain temperature within operating limits.</i> <b>rfa: Accepted</b>
8	C	3									Y	N	S	027AK2.03 No Comment.
9	C	2	X								Y	N	S* S	029EK2.06 Do the reactor trip breaker lights come off of the breaker or the coil? Given the initial conditions, one cannot infer that the reactor did NOT trip. Can the reactor be tripped if the trip breaker lights are on and/or if the if the shunt coils energize?  <i>Red light, shunt trip relay, and breaker position contacts are in series in the same circuit. If red light is lit shunt trip relay is good, and breaker indicates closed. Discussed with Ron Aiello on 6/22/04.</i> <b>rfa: Accepted</b>

10	M	3									Y	N	S	038EK3.01 Distractor analysis for "A" is not clear.  <i>Comment accepted. Distractor analysis clarified.</i> <b>rfa: Accepted</b>
11	M	2			X						Y	N	S	054AA1.02 If distractor "B" was correct, then "C" would also be correct for this abnormal condition. Therefore, distractors "B" and "C" will be eliminated because the applicant knows that there is only one correct answer.  Exam validators missed this question. Therefore, leave as is
12	C	2									Y	N	S	055EK1.02 No Comment.
13	C	3			X						Y	N	S*	056AA2.18 Psychometric analysis: Suggest distractor "C" read "This is abnormal because ..." S KA definition is incomplete. Need the AA2.18 part.  <i>Comment accepted. Added remainder of K/A definition. Changed distractor "C" to include "This is abnormal because...".</i> rfa questioned if distractor "C" was correct long term. Facility stated and reassured that "C" was incorrect. <b>rfa: Accepted</b>
14	C	3									Y	N	S	057AK3.01 No Comment.
15	M	3	X								Y	N	S*	062AA2.03 Stem: "... supply header <b>rupture</b> in the yard" S Fix distractor "D" alignment.  <i>Comment accepted. Requested changes made.</i> <b>rfa: Accepted</b>

16	C	2			X					Y	N	U	E04EA2.2 Distractors "A" and "C" are NOT plausible. If break is isolated, why would one transition to ECA 1.1?
												S	Replaced question with new question. rfa: Replace 4 <sup>th</sup> bullet with an RCS pressure trend. Facility agreed <b>rfa: Accepted</b>
17	M	2			X					Y	N	S*	E05EK1.1 Distractor "D" is NOT plausible. Given the IC, there is no indication that RCS pressure would ever drop unless a PORV stuck open due to over-pressurization due to loss of heat sink. That info was not provided.  Add "Feed and Bleed is anticipated."
												S	Typo in distractor analysis "D."  <i>Comment accepted. Incorporated all requested changes.</i> <b>rfa: Accepted</b>
18	C	3								Y	N	S	E112.4.21 No Comment.
19	C	3								Y	N	S*	005AK1.03 Please justify the distribution effects around the first hour. The reference did not support this.
												S	<i>Comment accepted. Provided requested reference from Tech Spec bases.</i> <b>rfa: Accepted</b>
20	M	2	X							Y	N	S*	024AK2.01 Manual boration using 1-ISV-62-929 is not supported by the reference.
												S	<i>Comment accepted. Provided requested reference. (AOI-34)</i> <b>rfa: Accepted</b>

21	C	3									Y	N	S	037AK3.06 No Comment.
22	M	2									Y	N	S	051AA2.02 No Comment.
23	M	2			X						Y	N	S* S	061G2.4.11 Distractor "A" is NOT an action unless "check" means to take the action if it has not occurred. Otherwise, replace distractor.  Change "check" to "ensure."  <i>Comment accepted. Changed "check" to "ensure" in distractor "A".</i> <b>rfa: Accepted</b>
24	C	2									Y	N	S* S	E01EA1.1 With #3 SG level rising, distractor "A" is NOT plausible. Replace distractor.  Need more indicators.  This question is a "C" NOT an "M."  <i>Comment accepted. Modified question significantly, answer changed. All distracters made plausible. Changed question level to "C".</i> <b>rfa: Accepted</b>
25	M	3	X								Y	N	S* S	E02EK1.1 Change the word "reason" in the stem to "basis per..." Otherwise distractor "A" could also be correct.  <i>Comment accepted. Stem modified to state "basis per..."</i> <b>rfa: Accepted</b>
26	M	3									Y	N	S	E08G2.4.2 No Comment.
27	M	2									Y	N	S	E15EK3.3 No Comment.

28	C	1									Y	N	S*	003K3.03 Distractor "A" is not consistent with the other choices. This question has very low discriminatory value. Very basic knowledge required to answer. Consider replacing the question.
													S	<i>Discussed discriminatory value of this question with Ron Aiello on 6/22/04. Question has marginal discriminatory value however examiner agreed to accept question with some modification of the distracters format.</i> <b>rfa: Accepted</b>
29	C	2				X					Y	N	S*	004K6.07 Distractor "D" is NOT plausible. If boron is removed that would not result in a minor boration.
													S	Replace distractor "D."  <i>Comment accepted. Distractor "D" modified and question balanced.</i> <b>rfa: Accepted</b>
30	C	2									Y	N	S*	005K6.03 The verb "is" is out of place in the stem.
													S	<i>Comment accepted and question modified.</i> <b>rfa: Accepted</b>
31	C	1									Y	N	U	006K5.09 With a large break LOCA, distractors A, B, and C are not plausible.
													S	Take out "Large break LOCA" in stem.  <i>Comment accepted, Large break LOCA, replaced with reactor trip and SI.</i> <b>rfa: Accepted</b>
32	C	2									Y	N	S	007K5.02 No Comment.

33	C	2									Y	N	S	008K1.04 No Comment.
34	C	3									Y	N	S* S	008G2.4.18 Since distractor "D" is a true statement, it could be arguable. Modify distractor "D" such that it is NOT a true statement.  Cap and Underline "BASIS."  <i>Comment accepted. Basis capitalized and underlined. Distractors B &amp; D modified to make distractor "D" incorrect and balance the question.</i> <b>rfa: Accepted</b>
35	C	3	X								Y	N	S* S	010K5.01 PRT pressure is the only bullet needed to answer this question. Consider cleaning up the question and deleting all other bullets.  <i>Comment accepted. Question stem modified as requested.</i> <b>rfa: Accepted</b>
36	M	2									Y	N	S	012K4.09 No Comment.
37	C	4									Y	N	S	013K3.02 Good question
38	C	2	X								Y	N	S* S	022A2.03 Why all the bullets? Why not just say containment T is 120 degrees and rising. "Which one of the following is the correct order for implementation of additional methods to cool lower containment per ARI ...."  <i>Question modified as suggested.</i> <b>rfa: Accepted</b>

39	M	2									Y	N	S*	025K6.01 The distractor analysis for distractor "D" is inconsistent. Distractor "D" deals with boron. Distractor "D" analysis deals with pH.  <i>Comment accepted, Distracter "D" changed to address born concentration.</i> <b>rfa: Accepted</b>
40	M	2	X								N	N	U	025G2.1.9 Re-write distractor "B" to make it completely wrong.  This KA is directing activities inside the control room. S This questions directs personnel outside the CR.  <i>Comment accepted. Question replaced to better match KA</i> rfa: Q still does NOT match KA. Cannot write to this KA @ Watts Bar. Change KA to 2.1.7. Facility agreed and kept new question. <b>rfa: Accepted</b>
41	C	3									Y	N	S	026K3.02 No Comment.
42	M	2									Y	N	S	039K4.06 No Comment.

43	C	3	X								Y	N	U S	056A2.04 Distractor a is ambiguous. It is part of the correct answer but without a condition. Move the transition part up to the stem and redesign all the distractors and answer to be just a condition.  Distractor "D" is missing words.  <i>Comment accepted, stem and distracters redesigned as requested. Condition added to distracter "A", distracter "D" clarified.</i> rfa: Need the word "only" in "C" Facility agreed <b>rfa: Accepted</b>
44	C	3									Y	N	S	059A3.02 No Comment.
45	C	3									Y	N	S	061K2.02 Good question, multiple knowledge required
46	M	2									Y	N	S	061K2.01 No Comment.
47	M	2									Y	N	S	061G2.1.2 No Comment.

48	M	2				X					N	N	U	<p>063A4.03 Distractor "D" is NOT incorrect. Replace with another procedure that is incorrect.</p> <p>S The KA states the ability to monitor (a meter or gage). This questions really deals with use of procedures.</p> <p>Facility justify the question in this manner.</p> <p><i>Comment accepted. Distractor "D" changed to AOI-35 which is completely incorrect.</i></p> <p><i>Question designed to address the operate option of the "operate and/or monitor" KA.</i></p> <p>rfa: Cannot apply the second part of KA @ Watts Bar. Randomly select new KA and rewrite question. Facility Agreed. New KA = 013A4.01</p> <p><b>rfa: Accepted</b></p>
49	C	3									Y	N	S*	<p>063A4.01 Distractor analysis for "D" states that the EDG has started. It does not state that directly or indirectly in the stem. Furthermore, if the EDG does receive a start signal then distractor D is also correct.</p> <p><i>Comment accepted. Added bullet that states all EDGs are running. Changed distractor "D" to ensure it is incorrect.</i></p> <p><b>rfa: Accepted</b></p>
50	M	2				X					Y	N	S*	<p>064A1.04 Do NOT teach in the question. Remove the first part of the stem.</p> <p>S</p> <p><i>Comment accepted, Modified stem to eliminate teaching.</i></p> <p><b>rfa: Accepted</b></p>

51	C	3			Y	N	S	073A2.01 No Comment.
52	C	3		X	Y	N	U S	076A1.02 Is distractor "C" potentially a correct answer even though it is not done at WB? Is it physically possible? Facility re-evaluate. <i>Comment accepted. Stem modified to include "Basis IAW procedure" as discussed with Ron Aiello.</i> <b>rfa: Accepted</b>
53	M	2	X		Y	N	S* S	078A3.01 Rebuild stem: "Which one of the following is the correct pressure ....." <i>Comment accepted. Stem rebuild as requested.</i> <b>rfa: Accepted</b>
54	M	1		X	Y	N	S* S	103K1.05 Very low discriminatory value. Consider replacing distractors "A" and "C." <i>Comment accepted. Distracter "A &amp; C" modified as directed.</i> rfa: Strike the second part of each choice. Question NOT plausible as is. Facility agreed and deleted the second part of each choice. <b>rfa: Accepted</b>
55	C	2	X		Y	N	U S	103A4.06 This question is a direct lookup and has no discriminatory value with a reference. Remove reference or redesign question. <i>Comment accepted. Reference removed.</i> <b>rfa: Accepted</b>
56	M	2			Y	N	S	001K2.01 No Comment.

57	C	3		Y	N	S	002A1.09 No Comment.
58	M	2		Y	N	S	014A4.01 No Comment.
59	M	2		Y	N	S	016K5.01 No Comment.
60	C	3		Y	N	S	028K3.01 No Comment.
61	M	2		Y	N	S	029A3.01 <del>S*</del> Typo in the stem. Remove the second "the" in the "Which ONE phrase." S <i>Comment accepted. Typo corrected.</i> <b>rfa: Accepted</b>
62	M	2	X	Y	N	S	035K4.05 <del>S*</del> Stem: Why not say "Which one of the following is the basis for the SG Water Level Low-Low Reactor Trip?" S Dump everything else since it is not relevant to the question. <i>Comment accepted. Stem modified as requested.</i> <b>rfa: Accepted</b>
63	M	2		Y	N	S	068K1.07 No Comment.

64	C 3 X	Y* N	<p>079A2.01</p> <p>S* Provide a pressurizer level less than 70% to allow the applicant to rule out distractor "D." Otherwise an unwarranted assumption or a question during the exam will arise.</p> <p>S</p> <p>The first part of the KA was not utilized. Justify.</p> <p><i>Comment accepted. Pressurizer level provided as "on program". First part of KA requires student to predict the impacts of the malfunction. The question requires the student to know how the plant and SAS will respond with air pressure stable at 76 psig. Students must know that the SAS will maintain letdown flow, MSIVs open, and pressurizer level on program.</i></p>
			<p>rfa: The first part of the KA is STILL not utilized. Facility Agreed. Question re-written. <b>rfa: Accepted</b></p>
65	C 3	Y N	<p>S* 086K6.04</p> <p>S Swap distractors "C" and "B."</p> <p><i>Comment accepted. Distracters swapped.</i></p> <p><b>rfa: Accepted</b></p>
66	M 2	Y N	<p>U G2.1.2</p> <p>Distractors "A" and "B" are NOT plausible because they are routine.</p> <p>S Replace distractors "A" and "B."</p> <p><i>Comment accepted. Revised "A" distracter and replaced "B".</i></p> <p><b>rfa: Accepted</b></p>
67	C 3	Y N	<p>S G2.1.25</p> <p>Good application of reference material.</p>

68	M	2	X		X	Y	N	S*	G2.1.27 Do NOT teach. Re-write the stem as follows: "Which one of the following is the design basis for the reactor trip above the P-8 permissive."
								S	Distractor "B is on the secondary side (non safety related) and is NOT plausible.  <i>Comment accepted. Stem modified as suggested. Distracter "B" replaced.</i> <b>rfa: Accepted</b>
69	C	3				Y	N	S*	G2.2.22 Typo in the stem. Move "rate to be 11.2 gpm" up one line.
								S	<i>Comment accepted. Typo corrected.</i> <b>rfa: Accepted</b>
70	M	2	X			Y	N	S*	G2.2.25 Do NOT teach. Question format is wrong. Redesign question to begin "Which one of the following..."
								S	<i>Comment accepted. Stem re-written as directed.</i> rfa: Change stem to the "Which one of the following" format. Facility agreed. <b>rfa: Accepted</b>
71	C	3				Y	N	S	G2.3.9 No Comment.
72	M	2	X			Y	N	U	G2.3.10 CVI is NOT plausible for this event. Replace distractors "A" and "B."
								S	<i>Comment accepted. Distracters modified to eliminate CVI as a possible choice.</i> <b>rfa: Accepted</b>
73	M	2				Y	N	S	G2.3.11 No Comment.

74	C	3	Y	N	S	G2.4.12 No Comment.
75	M	2	Y	N	S	G2.4.17 No Comment.

SRO ONLY

1	M	2				X					N	Y	U	007G2.1.34 The KA references chemistry following a reactor trip. The question is asking chemistry following a design basis accident. The answer is ambiguous: "D" is marked as correct but the DA states that "B" is correct. The correct answer is not supported by the reference material.  <i>Comment accepted. Question replaced with a better KA match.</i> <b>rfa: Accepted</b>
2	C	3			X						Y	Y	S*	015G2.4.45 Distractors "C" and "D" do NOT seem to me plausible. Please justify or replace.  <i>Discussed with Ron Aiello on 6/22/04. Agreed that distractors were plausible based upon the nature of the annunciators listed in the stem.</i> <b>rfa: Accepted</b>
3	C	3	X			X					Y	Y	S*	038EA2.08 The stem format is wrong needs to be "Which one of the following..." Psychometrics: The distractors are not balanced.  <i>Comment accepted. Stem modified as requested. Distractors balanced.</i> rfa: Q still NOT balance. Facility agreed and re-wrote the Q.. <b>rfa: Accepted</b>

4	C	3									Y	Y	S*	058AA2.01 The answer is ambiguous: "B" is marked as correct but the DA states that "A" is correct. S The correct answer is not intuitively obvious with the reference material  <i>Comment accepted. DA modified, references highlighted.</i> <b>rfa: Accepted</b>
5	C	3									Y	Y	S	062G2.4.4 No Comment.
6	C	3									Y	Y	S	065AA2.01 No Comment.
7	C	3				X					Y	Y	S*	E12EA2.1 Distractor "B" is NOT plausible because there is no information to draw a conclusion to a SGTR. S To make plausible, provide elevated SG radiation levels for all SGs.  <i>Comment accepted. Bullet added for S/G radiation high.</i> <b>rfa: Accepted</b>
8	M	2									Y	Y	S	003G2.1.14 No Comment.
9	C	3									Y	Y	S	033G2.1.22 No Comment.
10	M	2	X				X				Y	Y	U	067G2.4.30 In the stem, change the word "minimum" to Maximum," otherwise, distractors "A" and "B" are also correct. S <i>Comment accepted. Changed as required.</i> <b>rfa: Accepted</b>

11	C	2									Y	Y	S*	069AA2.01 This question should be a "C."
													S	<i>Comment accepted. Question changed to "C".</i> <b>rfa: Accepted</b>
12	C	2				X					Y	Y	S*	074EA2.01 Please qualify "accurate" vs "inaccurate." The reference is NOT clear.
													S	<i>Comment accepted. Accurate replaced with reliable, and references included.</i> <b>rfa: Accepted</b>
13	C	2			X						Y	Y	S*	004A2.07 The distractors need additional variables. The only thing really different is AOI-20 vs AOI-3.
													S	<i>Discussed with Ron Aiello on 6/22/04. Agreed that question was acceptable with some modification to the distractors.</i> <b>rfa: Accepted</b>
14	C	2	X			X					Y	Y	S*	061A2.05 The same thing can be said "Which one of the following describes how the TDAFW subsystem will be controlled following a fire in zones 142/143 (Aux Bldg el 737) to provide ...."
													S	Psychometrics: Distractors are NOT balanced. <i>Comment accepted. Stem modified, distractors balanced.</i> <b>rfa: Accepted</b>
15	M	2									Y	Y	S	073G2.4.4 No Comment.
16	M	2									Y	Y	S	076G2.2.22 No Comment.
17	C	3									Y	Y	S	011A2.04 No Comment.

18	C	2										Y	Y	S*	072G2.4.48 Distractors: Place a period after the word "required." The second half of each distractor/choice, begin a new sentence.
														S	<i>Comment accepted. Distractors modified as requested.</i> <b>rfa: Accepted</b>
19	M	2										Y	Y	S	G2.1.13 No Comment.
20	M	2										Y	Y	S	G2.1.34 No Comment.
21	C	2										Y	Y	S*	G2.2.14 The reference does NOT support the answer or the distractors.
														S	<i>Comment accepted. Question replaced.</i> <b>rfa: Accepted</b>
22	C	3										Y	Y	S	G2.3.3 No Comment.
23	C	2										Y	Y	S*	G2.3.8 Cannot find the correct response in the reference material.
														S	<i>Comment accepted. Highlighted correct reference material. Will walk examiner through references.</i> <b>rfa: Accepted</b>

24	C	2												Y	Y	S*	<p>G2.4.41 Psychometrics: Distractors are NOT balanced.</p> <p>S The answer is ambiguous: "B" is marked as correct but the DA states that "A" is correct.</p> <p><i>Comment accepted. Distractors balanced and correct answer marked.</i></p> <p>rfa: The Q is still NOT balance. Facility agreed and re-wrote distractors. <b>rfa: Accepted</b></p>
25	C	3												Y	Y	S	<p>G2.4.45 No Comment.</p>

Facility:	Watts Bar	Date of Exam:	8/23/04	Exam Level:	RO/SRO															
Item Description				Initials																
				a	b	c														
1.	Clean answer sheets copied before grading	GWL		LM																
2.	Answer key changes and question deletions justified and documented	GWL		LM																
3.	Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	GWL		LM																
4.	Grading for all borderline cases (80 +/- 2% overall and 70 +/- 4% on the SRO-only) reviewed in detail	GWL		LM																
5.	All other failing examinations checked to ensure that grades are justified	GWL		LM																
6.	Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	GWL		LM																
<table border="1"> <thead> <tr> <th></th> <th>Printed Name / Signature</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>a. Grader</td> <td>G.W. Laska / </td> <td>8/3/04</td> </tr> <tr> <td>b. Facility Reviewer(*)</td> <td>- N/A -</td> <td></td> </tr> <tr> <td>c. NRC Chief Examiner (*)</td> <td>L. R. Miller / </td> <td>8/3/04</td> </tr> <tr> <td>d. NRC Supervisor (*)</td> <td>G.T. Hopper / </td> <td>8/10/04</td> </tr> </tbody> </table>							Printed Name / Signature	Date	a. Grader	G.W. Laska / 	8/3/04	b. Facility Reviewer(*)	- N/A -		c. NRC Chief Examiner (*)	L. R. Miller / 	8/3/04	d. NRC Supervisor (*)	G.T. Hopper / 	8/10/04
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(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.																				

Watts Bar		7/23/04 and 7/26-30/04
Task Description		Date Complete
1.	Facility written exam comments or graded exams received and verified complete	8/3/04
2.	Facility written exam comments reviewed and incorporated and NRC grading completed, if necessary	N/A
3.	Operating tests graded by NRC examiners	8/12/04
4.	NRC Chief examiner review of written exam and operating test grading completed	8/12/04
5.	Responsible supervisor review completed	8/12/04
6.	Management (licensing official) review completed	8/12/04
7.	License and denial letters mailed	8/12/04
8.	Facility notified of results	8/12/04
9.	Examination report issued (refer to NRC MC 0612)	8/12/04
10.	Reference material returned after final resolution of any appeals	N/A



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

JUN 07 2004

10 CFR 55.40

Dr. William D. Travers  
Regional Administrator, NRC Region II  
Atlanta Federal Center  
61 Forsyth St., Suite 23T85  
Atlanta, Georgia 30303

Dear Dr. Travers:

In the Matter of the )  
Tennessee Valley Authority ) Docket No. 50-390

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - REACTOR AND SENIOR REACTOR  
OPERATOR INITIAL EXAMINATIONS - 50-390/2004-301

This letter submits information requested by NRC in a letter to TVA dated April 5, 2004. This letter identified that NRC will be administering written examinations beginning the week of July 19, 2004, with the operating tests being administered the week of July 26, 2004. Also in the April 5<sup>th</sup> letter, NRC indicated that TVA should provide the written and operating examinations by June 8, 2004. In support of this, TVA forwarded the written examination for the Reactor Operator (RO) candidates to Ronald Aiello, NRC Region II, on May 28, 2004. The exam was shipped via an overnight carrier to Mr. Aiello. The enclosure to this letter provides the operating examination for the RO candidates along with the written and operating examinations for the Senior Reactor Operator (SRO) candidates.

NRC's letter also indicated that the supporting materials identified in Attachment 2, "Reference Material Guidelines for Initial Licensing Examinations," of ES-201, "Initial Operator Licensing Examination Process," of NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," should be provided by June 8, 2004. In response to this request, TVA shipped the documentation to Mr. Aiello via an overnight carrier on June 7, 2004.

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This letter contains no new commitments and in accordance with 10 CFR 55.49 and NUREG 1021 appropriate measures have been taken to ensure examination integrity and security. Accordingly, it is requested that this letter and the enclosed documents be withheld from public disclosure until the examinations are completed later this year.

TVA's principal contact regarding the license examinations is Terry Newman, WBN Operations Training. Should you require additional information regarding this matter, please contact Mr. Newman at (423) 365-8967 or contact me at (423) 365-1824.

Sincerely,



P. L. Pace  
Manager, Site Licensing  
and Industry Affairs

Enclosure  
cc: Page 3

**JUN 07 2004**

Enclosure

cc (w/o Enclosure):

NRC Resident Inspector  
Watts Bar Nuclear Plant  
1260 Nuclear Plant Road  
Spring City, Tennessee 37381

Ms. M. H. Chernoff, Project Manager  
U.S. Nuclear Regulatory Commission  
MS 08G9  
One White Flint North  
11555 Rockville Pike  
Rockville, Maryland 20852-2738

Mr. M. M. Comar, Project Manager  
U.S. Nuclear Regulatory Commission  
MS 08G9  
One White Flint North  
11555 Rockville Pike  
Rockville, Maryland 20852-2738

U.S. Nuclear Regulatory Commission, Region II  
ATTN: Mr. Michael E. Ernstes  
Chief, Operator Licensing and Human Performance Branch  
Sam Nunn Atlanta Federal Center  
61 Forsyth St., Suite 23T85  
Atlanta, Georgia 30303