Administrative Documents

BROWNS FERRY EXAM
50-259, 50-260, &
50-296/2004-301

April 23 - 30, 2004

Facility: **Browns Ferry** Date of Examination: WR 04/23/04 OP 04/26/04

Examinations Developed by: OP= Facility / WR= NRC

Target Date*	Task Description / Reference	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a & b)	rfa
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	rfa
-120	3. Facility contact briefed on security & other requirements (C.2.c)	rfa
-120	4. Corporate notification letter sent (C.2.d)	rfa
[-90]	[5. Reference material due (C.1.e; C.3.c)]	rfa
-75	6. Integrated examination outline(s) due (C.1.e & f; C.3.d)	02/18/04
-70	7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)	
-45	8. Proposed examinations, supporting documentation, and reference materials due (C.1.e, f, g & h; C.3.d)	03/18/04
-30	9. Preliminary license applications due (C.1.l; C.2.g; ES-202)	03/30/04
-14	10. Final license applications due and assignment sheet prepared (C.1.l; C.2.g; ES-202)	
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	04/09/04
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f & h; C.3.g)	
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	04/13/04
-7	14. Final applications reviewed; assignment sheet updated; waiver letters sent (C.2.g, ES-204)	
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee and authorization granted to give written exams (if applicable) (C.3.k)	
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	

* 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.

Draft Operating

Facility: **BROWNS FERRY** Date of Examination: WR 04/23/04 OP 04/26/04

Item	Task Description	Initials a	b*	c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model per ES-401.			
	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.		N/A	
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.			
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.			
2. S/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.	R	[illegible]	[illegible]
	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 on subsequent days.	R	[illegible]	[illegible]
	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.	R	[illegible]	[illegible]
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.	R	[illegible]	[illegible]
	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) 4 - 6 (2 - 3 for SRO-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.	R	[illegible]	[illegible]
	c. Verify that the required administrative topics are covered.	R	[illegible]	[illegible]
	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 subsequent days.	R	[illegible]	[illegible]
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.	R	[illegible]	[illegible]
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	N/A	N/A	N/A
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5. %	R	[illegible]	[illegible]
	d. Check for duplication and overlap among exam sections. %	R	[illegible]	[illegible]
	e. Check the entire exam for balance of coverage. %	R	[illegible]	[illegible]
	f. Assess whether the exam fits the appropriate job level (RO or SRO). %	R	[illegible]	[illegible]

Printed Name / Signature — Date

a1. Author Written
a2. Author Operating — R.W. Mays / R. Ryman — 2-17-04
b1. Facility Reviewer — T. Cullum / [illegible] — 2/19/04
b2. NRC Reviewer Operating — T.C. Kelly / [illegible] — 2-20-04
c. NRC Chief Examiner (#) — R. Aiello — 2/20/04
d. NRC Supervisor — Michael Evans / [illegible] — 2/20/04

Note: * Not applicable for NRC-developed examinations.
Independent NRC reviewer initial items in Column "c;" chief examiner concurrence required.

% OPERATING TEST ONLY

DRAFT WRITTEN

Facility: **BROWNS FERRY** Date of Examination: WR 04/23/04 OP 04/26/04

Item	Task Description	Initials a	b*	c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model per ES-401.			
	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.			
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.			
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.			
2. SIM	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.			
	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 on subsequent days.			
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.			
3. W/T	a. Verify that: (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.			
	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) 4 - 6 (2 - 3 for SRO-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.			
	c. Verify that the required administrative topics are covered.			
	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 subsequent days.			
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.			
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.			
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.			
	d. Check for duplication and overlap among exam sections.			
	e. Check the entire exam for balance of coverage.			
	f. Assess whether the exam fits the appropriate job level (RO or SRO).			

	Printed Name / Signature	Date
a1. Author Written	T. Kolb	10/17/03
a2. Author Operating		
b1. Facility Reviewer Written		
b2. NRC Reviewer Operating	T. Kolb	3/29/04
c. NRC Chief Examiner (#)	R. Aiello	12/01/03
d. NRC Supervisor	M. Ernstes	1/31/2003

Note: * Not applicable for NRC-developed examinations.
Independent NRC reviewer initial items in Column "c;" chief examiner concurrence required.

Final Operating

Facility: **BROWNS FERRY** Date of Examination: WR 04/23/04 OP 04/26/04

Item	Task Description	Initials a	b*	c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model per ES-401.			
	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.		N/A	
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.			
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.			
2. SIM	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.	R	RW	
	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 on subsequent days.	R	RW	
	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.	R	RW	
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.	R	RW	
	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, 77% (3) 4 - 6 (2 - 3 for SRO-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.	R	RW	
	c. Verify that the required administrative topics are covered.	R	RW	
	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 subsequent days.	R	RW	
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.	R	RW	
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	R	RW	
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	R	RW	
	d. Check for duplication and overlap among exam sections.	R	RW	
	e. Check the entire exam for balance of coverage.	R	RW	
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	R	RW	

Printed Name / Signature — Date

a1. Author Written — RW Moye/RWMoye — 4/14/04
a2. Author Operating — RW Moye/RWMoye — 4/14/04
b1. Facility Reviewer — [illegible] — 4/14/04
b2. NRC Reviewer Operating
c. NRC Chief Examiner (#) — R Quille — 4/19/04
d. NRC Supervisor — MICHAEL E. EARNIES — 4/19/04

Note: * Not applicable for NRC-developed examinations.
Independent NRC reviewer initial items in Column "c;" chief examiner concurrence required.

Final Written Only

Facility: **BROWNS FERRY** Date of Examination: WR 04/23/04 OP 04/26/04

Item	Task Description	Initials a	b*	c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model per ES-401.			
	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.			
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.			
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.			
2. SIM	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.			
	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 on subsequent days.			
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.			
3. W/T	a. Verify that: (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.			
	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) 4 - 6 (2 - 3 for SRO-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.			
	c. Verify that the required administrative topics are covered.			
	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 subsequent days.			
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.			
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.			
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.			
	d. Check for duplication and overlap among exam sections.			
	e. Check the entire exam for balance of coverage.			
	f. Assess whether the exam fits the appropriate job level (RO or SRO).			

	Printed Name / Signature	Date
a1. Author Written	T.C. Kolb /	4/16/04
b. Facility Reviewer Written	N/A	N/A
c. NRC Chief Examiner (#)	R. Baron /	4/20/04
d. NRC Supervisor	M.E. Ernstes /	4/20/04

Note: * Not applicable for NRC-developed examinations.
Independent NRC reviewer initial items in Column "c;" chief examiner concurrence required.

Final Operating

Facility: BROWNS FERRY for JPM 48F only Date of Examination: WR 04/23/04 OP 04/26/04

Item	Task Description	Initials a	Initials b*	Initials c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model per ES-401.	N/A	N/A	N/A
	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.	N/A	N/A	N/A
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	N/A	N/A	N/A
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	N/A	N/A	N/A
2. SIM	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.	N/A	N/A	N/A
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity; 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 on subsequent days.	N/A	N/A	N/A
	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.	N/A	N/A	N/A
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.	R	RK	
	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) 4 - 6 (2 - 3 for SRO-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.	R	RK	
	c. Verify that the required administrative topics are covered.	R	RK	
	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 subsequent days.	R	RK	
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.	R	RK	
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	R	RK	
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	R	RK	
	d. Check for duplication and overlap among exam sections.	R	RK	
	e. Check the entire exam for balance of coverage.	R	RK	
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	R	RK	

Printed Name / Signature — Date

a1. Author Written — R.W. Monk / R.W. Monk — 4/29/2004
a2. Author Operating — R.E. Knight / R.E. Knight — 4/29/2004
b1. Facility Reviewer — N/A
b2. NRC Reviewer Operating — T. Cox / T.C. Cox — 4/25/04
c. NRC Chief Examiner (#) — [illegible] — 4/26/04
d. NRC Supervisor — [illegible] — 4/26/04

Note: * Not applicable for NRC-developed examinations.
Independent NRC reviewer initial items in Column "c;" chief examiner concurrence required.

ES-201 Examination Security Agreement Form ES-201-3

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 4/26/04 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 _____. 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. R W Moye	SRO Instructor	R W Moye	1/26/04	R W Moye	4/29/04	
2. J F Throckmorton	SRO Instructor	J F Throckmorton	2/13/04	J F Throckmorton	4/29/04	
3. R S Burrows	SRO Instructor	R S Burrows	2/13/04	R S Burrows	4/29/04	
4. T L Chinn	Operations Training Manager	T L Chinn	2/18/04	T L Chinn	4/29/04	
5. Dan Miller	Simulator Services	Dan Miller	2/26/04	Dan Miller	4/29/04	
6. Daniel Snare	Simulator Services	Daniel M Snare	2/26/04	Daniel M Snare	4/29/04	
7. Pat Arundel	Simulator Services	Patrick Arundel	2/26/04	Patrick Arundel	4/29/04	
8. Tommy Albright	Simulator Services Manager	Thomas S Albright	2/26/04	Thomas S Albright	4/29/04	R 2/26/04
9. Michael Merritt	SRO INST	Michael Merritt	2/25/04			
10. Freddie R. Champion	Simulator Services	Freddie R Champion	2/27/04	Freddie R Champion	4/29/04	
11. C. Whitworth	U.T. operator	C Whitworth	2-27-4	C Whitworth	4-29-04	

NOTES:

JUN 1 2004

ES-201 Examination Security Agreement Form ES-201-3

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 4/26/04 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 _____. 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. L. E. NICKLES	U.O		2/27/04		5/21/04	
2. J. KELLY RANGE	SRO		2-27-04		5-24-04	
3. RANDY KNIGHT	SRO / INSTRUCTOR		3/23/04		4/29/04	
4. JOE E. KELLER	RCSS		3-24-04		5/21/04	
5. JOHNNY URBANOWSKI	PT-Facilities x3570		3-31-04		5-18-04	
6. DENNY W. CAMPBELL	SRO / Surrogate		4/26/04		4/29/04	
7. PHILIP CHAMBERLAIN	OPS MANAGEMENT		4/27/04		4/29/04	
8.						
9.						
10.						
11.						

NOTES:

JUN 1 2004

DRAFT (R1)

Facility: BFN Examination Level (circle one): RO / SRO	Date of Examination: _____ Operating Test Number: ____
Administrative Topic See Note:	**Describe Activity to be Performed**
Conduct of Operations	Review the Primary Containment Nitrogen Consumption SI and make appropriate ITS call based on results. Readings will be given to candidates and they will perform leakage calculation and determine appropriate actions.
Conduct of Operations	Review the SRM operability SR during refueling and determine the quadrants in which fuel handling is allowed. Candidate reviews Signal/Noise ratio SR and when failure is found, determines allowed quadrants for core alterations.
Equipment Control	When informed of a Control Rod stuck at position 48, determine the appropriate actions per Tech Specs and verify the Clearance being placed to allow troubleshooting has the correct components and sequencing.
Radiation Control	Review a Radiological Survey map. Candidate will use a survey map and expected times for performance of a valve lineup to determine if the lineup can be completed without exceeding exposure limits.
Emergency Plan	Classify the event per the REP. Candidate will be given plant conditions detailed enough to allow the declaration of a specific REP event and perform the appropriate notifications and recommendations as required by the EPIP.
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.	

OLD DRAFT

Facility: BFN Date of Examination: _____
Examination Level (circle one): RO / SRO Operating Test Number: ____

Administrative Topic See Note:	Describe Activity to be Performed
Conduct of Operations	Review the Primary Containment Nitrogen Consumption SI and make appropriate ITS call based on results. Readings will be given to candidates and they will perform leakage calculation and determine appropriate actions.
Conduct of Operations	Determine appropriate actions when informed of failure of RWM during Rx startup. RE informs candidate of software failure of RWM. Candidate must determine required Mode switch to Shutdown action from ITS. Delete. Should know 1 hr TS from memory.
Equipment Control	Review the SRM operability SR during refueling and determine the quadrants in which fuel handling is allowed. Candidate reviews Signal/Noise ratio SR and when failure is found, determines allowed quadrants for core alterations. Replace with tagout procedure. Move to Conduct of OPS
Radiation Control	Review a Radiological Survey map. Candidate will use a survey map and expected times for performance of a valve lineup to determine if the lineup can be completed without exceeding exposure limits. Use a real survey map with the JPM.
Emergency Plan	Classify the event per the REP. Candidate will be given plant conditions detailed enough to allow the declaration of a specific REP event and perform the appropriate notifications and recommendations as required by the EPIP.

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.

DRAFT

Facility: BFN	Date of Examination:_____
Examination Level (circle one): RO / SRO	Operating Test Number:____

Administrative Topic See Note:	**Describe Activity to be Performed**
Conduct of Operations	Review the Primary Containment Nitrogen Consumption SI and make appropriate ITS call based on results. Readings will be given to candidates and they will perform leakage calculation and determine appropriate actions.
Conduct of Operations	Determine appropriate actions when informed of failure of RWM during Rx startup. RE informs candidate of software failure of RWM. Candidate must determine required Mode switch to Shutdown action from ITS.
Equipment Control	Review the SRM operability SR during refueling and determine the quadrants in which fuel handling is allowed. Candidate reviews Signal/Noise ratio SR and when failure is found, determines allowed quadrants for core alterations.
Radiation Control	Review a Radiological Survey map. Candidate will use a survey map and expected times for performance of a valve lineup to determine if the lineup can be completed without exceeding exposure limits.
Emergency Plan	Classify the event per the REP. Candidate will be given plant conditions detailed enough to allow the declaration of a specific REP event and perform the appropriate notifications and recommendations as required by the EPIP.

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.

Final Submittal

Facility: BFN Examination Level (circle one): RO / SRO	Date of Examination: 04/26-30/04 Operating Test Number: 1
Administrative Topic See Note:	**Describe Activity to be Performed**
Conduct of Operations	Review the Primary Containment Nitrogen Consumption SI and make appropriate ITS call based on results. Readings will be given to candidates and they will perform leakage calculation and determine appropriate actions.
Conduct of Operations	Review the SRM operability SR during refueling and determine the quadrants in which fuel handling is allowed. Candidate reviews Signal/Noise ratio SR and when failure is found, determines allowed quadrants for core alterations.
Equipment Control	Candidate must determine correct actions for a Control Rod with a leaking scram inlet valve. Determine appropriate valves for isolation and the required PMT after maintenance is complete.
Radiation Control	Review a Radiological Survey map. Candidate will use a survey map and expected times for performance of a valve lineup to determine if the lineup can be completed without exceeding exposure limits.
Emergency Plan	Classify the event per the REP. Candidate will be given plant conditions detailed enough to allow the declaration of a specific REP event and perform the appropriate notifications and recommendations as required by the EPIP.
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.	

DRAFT (R1)

Facility: BFN	Date of Examination: 04/26-30/09
Exam Level (circle one): RO / SRO-I / **SRO-U**	Operating Test Number: 1

Control Room Systems (6 for RO; 7 for SRO-I; 2 or 3 for SRO-U)		
System / JPM Title	Type Code*	Safety Function
a 116F- Swap SJAE with failure of the alternate SJAE to initiate properly.	M, A, S	9
b 14F-EOI Appendix 5A Condensate/Feedwater with High Pressure Heaters isolated	D, A, S, L	2
c **23F-EOI Appendix 6E Injection Subsystem Lineup-CS Loop II**	**D, A, S, L**	**4**
d **340-Restore a 4kv Shutdown Bd to normal alignment per 0-OI-82.**	**N, S**	**6**
e 90-Start a Recirc Pump during power operation	M, S	1
f 126-Respond to High DW Pressure and Temp	M, A, S	5
g **133F-EOI Appendix 11B Alternate Pressure Control RCIC in Test Mode**	**M, A, S, L**	**3**
h		
In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i **79-Start RCIC from outside Control Room**	**M, L, R**	**2**
j 86-Place a 250v Battery Charger in service	D	6
k **305- Restore RPS bus 3B after loss of the MG set**	**D**	**7**

* 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

NEW JPM STILL BEING WORKED BY FACILITY

ES-301 Control Room/In Plant Systems Outline Form ES-301-2

OLD DRAFT

Facility: BFN Exam Level (circle one): RO / SRO-I / **SRO-U**	Date of Examination:_____ Operating Test Number:_____	
Control Room Systems (6 for RO; 7 for SRO-I; 2 or 3 for SRO-U)		
System / JPM Title	Type Code*	Safety Function
~~7- EOI Appendix 7D - Alternate RPV Injection System Lineup - Standby Coolant~~ Replace with Alternate path JPM.	D, S, L	~~X~~ 2
14F-EOI Appendix 5A Condensate/Feedwater with High Pressure Heaters isolated	D, A, S, L	2
23F-EOI Appendix 6E Injection Subsystem Lineup-CS Loop II	**D, A, S, L**	**4**
340-Restore a 4kv Shutdown Bd to normal alignment per 0-OI-82.	**N, S**	**6**
90-Start a Recirc Pump during power operation	M, S	1
126F-Respond to High DW Pressure and Temp Not alternate path. (OK) SCENARIO 1 EVENT 7 (check)	M, ~~A~~, S	5
133F-EOI Appendix 11B Alternate Pressure Control RCIC in Test Mode	**M, A, S, L**	**3**
In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
79-Start RCIC from outside Control Room	**M, L, R**	**2**
86-Place a 250v Battery Charger in service	D	6
~~**193F-Place ECCS ATU in service**~~ Replace with JPM from function 1, 5, 7, 8 or 9.	**D**	6 ~~X~~
* 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		

(OK) *JPM 126F - ARP response is different actions than EOI response.

DRAFT

Facility: BFN	Date of Examination:_____
Exam Level (circle one): RO / SRO-I / **SRO-U**	Operating Test Number:_____

Control Room Systems (6 for RO; 7 for SRO-I; 2 or 3 for SRO-U)		
System / JPM Title	Type Code*	Safety Function
7- EOI Appendix 7D - Alternate RPV Injection System Lineup - Standby Coolant	D, S, L	8
14F-EOI Appendix 5A Condensate/Feedwater with High Pressure Heaters isolated	D, A, S, L	2
23F-EOI Appendix 6E Injection Subsystem Lineup-CS Loop II	**D, A, S, L**	**4**
340-Restore a 4kv Shutdown Bd to normal alignment per 0-OI-82.	**N, S**	**6**
90-Start a Recirc Pump during power operation	M, S	1
126F-Respond to High DW Pressure and Temp (OK) SCENARIO 1 EVENT 7 (CHECK)	M, A, S	5
133F-EOI Appendix 11B Alternate Pressure Control RCIC in Test Mode	**M, A, S, L**	**3**
In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
79-Start RCIC from outside Control Room	**M, L, R**	**2**
86-Place a 250v Battery Charger in service	D	6
193F-Place ECCS ATU in service	**D**	**7**

* 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

(OK) *JPM 126F - ARP response is different actions than EOI response.

FINAL

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

Date of Examination: 4/29/07
Operating Test Number: _____

Control Room Systems (6 for RO; 7 for SRO-I; 2 or 3 for SRO-U)		
System / JPM Title	Type Code*	Safety Function
116F- Swap SJAE with failure of the alternate SJAE to initiate properly.	M, A, S	9
14F-EOI Appendix 5A Condensate/Feedwater with High Pressure Heaters isolated	D, A, S, L	2
23F-EOI Appendix 6E Injection Subsystem Lineup-CS Loop II	**D, A, S, L**	**4**
340-Restore a 4kv Shutdown Bd to normal alignment per 0-OI-82.	**N, S**	**6**
90-Start a Recirc Pump during power operation	M, S	1
126-Respond to High DW Pressure and Temp	M, A, S	5
133F-EOI Appendix 11B Alternate Pressure Control RCIC in Test Mode	**M, A, S, L**	**3**
48F-EOI Appendix 11F RFPT on Minimum flow	**D A,S,L**	**3**
In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
79-Start RCIC from outside Control Room	**M, L, R**	**2**
86-Place a 250v Battery Charger in service	D	6
305- Restore RPS bus 3B after loss of the MG set	**D**	**7**

* 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

Final Submittal

Facility: BFN Exam Level (circle one): RO / SRO-I / **SRO-U**	Date of Examination:04/26-30/04 Operating Test Number: 1	
Control Room Systems (6 for RO; 7 for SRO-I; 2 or 3 for SRO-U)		
System / JPM Title	Type Code*	Safety Function
116F- Swap SJAE with failure of the alternate SJAE to initiate properly.	M, A, S	9
14F-EOI Appendix 5A Condensate/Feedwater with High Pressure Heaters isolated	D, A, S, L	2
23F-EOI Appendix 6E Injection Subsystem Lineup-CS Loop II	**D, A, S, L**	**4**
340-Restore a 4kv Shutdown Bd to normal alignment per 0-OI-82.	**N, S**	**6**
90-Start a Recirc Pump during power operation	M, S	1
126-Respond to High DW Pressure and Temp	M, A, S	5
133F-EOI Appendix 11B Alternate Pressure Control RCIC in Test Mode	**M, A, S, L**	**3**
In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for **SRO-U**)		
79-Start RCIC from outside Control Room	**M, L, R**	**2**
86-Place a 250v Battery Charger in service	D	6
305- Restore RPS bus 3B after loss of the MG set	**D**	**7**
* 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		

PASS second BEAUDIT

Facility: BFN	Date of Examination: 4/26/04	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).	R	gle	
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	R	gle	
c.	The operating test shall not duplicate items from the applicants' audit test(s)(see Section D.1.a).	R	gle	
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	N/A	N/A	
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	R	gle	
	2. WALK-THROUGH	--	--	--
a.	Each JPM includes the following, as applicable: • 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 • specific performance criteria that include: - 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	R	gle	
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.	R	gle	
c.	At least 20 percent of the JPMs on each test are new or significantly modified.	R	gle	
	3. SIMULATOR CRITERIA	--	--	--
a.	The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.	R	gle	

	Printed Name / Signature	Date
a. Author	RW Moye RW Moye	3/4/04
b. Facility Reviewer(*)	TERRY L. CHING	3/4/04
c. NRC Chief Examiner (#)	T.C. Kobb / R.F. Gallo	
d. NRC Supervisor	M Easter / M Easter	3/29/04

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: BFN Date of Examination: 4/26/04 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).	R	JHC	
b. There is no day-to-day repetition between this and other operating tests to be administered during this examination.	R	JHC	
c. The operating test shall not duplicate items from the applicants' audit test(s)(see Section D.1.a).	R	JHC	
d. Overlap with the written examination and between different parts of the operating test is within acceptable limits.	R	JHC	
e. It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	R	JHC	
2. WALK-THROUGH	--	--	--
a. Each JPM includes the following, as applicable: - 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 - specific performance criteria that include: - 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	R	JHC	
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.	R	JHC	
c. At least 20 percent of the JPMs on each test are new or significantly modified.	R	JHC	
3. SIMULATOR CRITERIA	--	--	--
a. The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.	R	JHC	

	Printed Name / Signature	Date
a. Author	R W Moye / RWMoye	4-14-04
b. Facility Reviewer(*)	T Cleary / TCleary	4/14/04
c. NRC Chief Examiner (#)	R Aiello /	4-11-9/04
d. NRC Supervisor	MICHAEL E. ERNSTES / Michael E. Ernstes	4/19/04

NOTE: * The facility signature is not applicable for NRC-developed tests.
Independent NRC reviewer initial items in Column "c;" chief examiner concurrence required.

ES-301 Operating Test Quality Checklist Form ES-301-3

FINAL

Facility: BFN Date of Examination: 04/29/2004 Operating Test Number:

for JPM 48F only

1. GENERAL CRITERIA	Initials a	b*	c#
a. The operating test conforms with the previously approved outline; changese consistent with sampling requirements (e.g., 10 CFR 55.45, operational importance, safety function distribution).	R	RK	TDR
b. There is no day-to-day repetition between this and other operating tests to be administered during this examination.	R	RK	TDR
c. The operating test shall not duplicate items from the applicants' audit test(s)(see Section D.1.a).	R	RK	TDR
d. Overlap with the written examination and between different parts of the operating test is within acceptable limits.	R	RK	TDR
e. It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	R	RK	TDR
2. WALK-THROUGH	--	--	--
a. Each JPM includes the following, as applicable: • 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 • specific performance criteria that include: - 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	R	RK	TDR
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.	R	RK	TDR
c. At least 20 percent of the JPMs on each test are new or significantly modified.	R	RK	TDR
3. SIMULATOR CRITERIA	--	--	--
a. The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.	N/A	N/A	N/A

	Printed Name / Signature	Date
a. Author	R.W. Moye / R.W. Moye	4/29/04
b. Facility Reviewer(*)	R.E. KNIGHT / R.E. Knight	4/29/04
c. NRC Chief Examiner (#)	T.C. Kolb / T.C. Kolb	4/29/04
d. NRC Supervisor	R. Aquila / R. Aquila	4/29/04

NOTE: * The facility signature is not applicable for NRC-developed tests.
Independent NRC reviewer initial items in Con "c;" chief examiner concurrence required.

Facility: BFN Date of Exam: 4/26/04 Scenario Numbers: 04NRC1/ 04NRC2/ 04NRC3 Operating Test No.: HLT 021 2 # 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.	R	gc	
2.	The scenarios consist mostly of related events.	R	gc	
3.	Each event description consists of a. the point in the scenario when it is to be initiated a. the malfunction(s) that are entered to initiate the event a. the symptoms/cues that will be visible to the crew a. the expected operator actions (by shift position) a. the event termination point (if applicable)	R	gc	
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.	R	gc	
5.	The events are valid with regard to physics and thermodynamics.	R	gc	
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	R	gc	
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.	R	gc	
8.	The simulator modeling is not altered.	R	gc	
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.	R	gc	
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.	R	gc	
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	R	gc	
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).	R	gc	
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	R	gc	
TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d)		Actual Attributes	--	--	--
1.	Total malfunctions (5-8)	8/6/4	R	gc	
2.	Malfunctions after EOP entry (1-2)	4/2/2	R	gc	
3.	Abnormal events (2-4)	2/2/2	R	gc	
4.	Major transients (1-2)	2/1/2	R	gc	
5.	EOPs entered/requiring substantive actions (1-2)	2/1/3	R	gc	
6.	EOP contingencies requiring substantive actions (0-2)	1/1/2	R	gc	
7.	Critical tasks (2-3)	3/3/4	R	gc	

ES-301 Simulator Scenario Quality Checklist Form ES-301-4

FINAL

Facility: BFN	Date of Exam: 4/26/04	Scenario Numbers: 2/3/5	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.	R	MC	D
2. The scenarios consist mostly of related events.	R	MC	D
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)	R	MC	D
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.	R	MC	D
5. The events are valid with regard to physics and thermodynamics.	R	MC	D
6. Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	R	MC	D
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.	N/A	N/A	D
8. The simulator modeling is not altered.	R	MC	D
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.	R	MC	D
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.	R	MC	D
11. All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	R	MC	D
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).	R	MC	D
13. The level of difficulty is appropriate to support licensing decisions for each crew position.	R	MC	D

TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d)	Actual Attributes	--	--	--
1. Total malfunctions (5-8)	5/6/8	R	MC	D
2. Malfunctions after EOP entry (1-2)	1/2/3	R	MC	D
3. Abnormal events (2-4)	2/3/3	R	MC	D
4. Major transients (1-2)	1/2/2	R	MC	D
5. EOPs entered/requiring substantive actions (1-2)	3/2/2	R	MC	D
6. EOP contingencies requiring substantive actions (0-2)	1/2/1	R	MC	D
7. Critical tasks (2-3)	2/3/2	R	MC	D

Applicant Type	Evolution Type	Minimum Number	Scenario Number							
			1		2		3		4	
			RO	BOP	RO	BOP	RO	BOP	RO	BOP
RO	Reactivity	1*								
	Normal	1*								
	I/C	4*								
	Major	1								
As RO	Reactivity	1*	1-1		2-1		3-1			
	Normal	0								
	I/C	2*	1-2 1-4	1-3	2-2 2-4		3-3 3-4			
	Major	1	1-5		2-6		3-5 3-6			
SRO-I										
	Reactivity	0								
	Normal	1*	1-1		2-1		3-1			
	I/C	2*	1-2 1-4	1-3 1-6	2-2 2-3		3-2 3-3			
	Major	1	1-5	1-7	2-6		3-5 3-6			
As SRO										
	Reactivity	0								
	Normal	1*	1-1		2-1		3-1			
	I/C	2*	1-2 1-4	1-3 1-6	2-2 2-3		3-2 3-3			
	Major	1	1-5	1-7	2-6		3-5 3-6			
SRO-U										
	Reactivity	0								
	Normal	1*	1-1		2-1		3-1			
	I/C	2*	1-2 1-4	1-3 1-6	2-2 2-3		3-2 3-3			
	Major	1	1-5	1-7	2-6		3-5 3-6			

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.
(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: R W Moye

NRC Reviewer: T Ball / [signature]

FINAL

ES 301 Transient and Event Checklist Form ES-301-5

Operating Test Number:

BFN 4/14/04

Applicant Type	Evolution Type	Minimum Number	Scenario Number 1 RO	1 BOP	2 RO	2 BOP	3 RO	3 BOP	4 RO	4 BOP
RO	Reactivity	1*								
	Normal	1*				N/A				
	I/C	4*								
	Major	1								
As RO	Reactivity	1*	2-1		3-1		5-1			
	Normal	0	2-1							
	I/C	2*	2-2 2-4		3-3 3-4		5-2 5-3			
	Major	1	2-6 2-5		3-5 3-6		~~5-6~~ ~~5-6~~	5-6 5-7		
SRO-I										
As SRO	Reactivity	0	2-1		3-1		5-1			
	Normal	1*	2-1		~~3-1~~		~~5-1~~			
	I/C	2*	2-2 2-3		3-2 3-4		5-3 5-4	5-5 5-2		
	Major	1	2-6 2-5		3-5 3-6		~~5-6~~ ~~5-6~~	5-6 5-7		
SRO-U	Reactivity	0	2-1		3-1		5-1			
	Normal	1*	2-1		~~3-1~~		~~5-1~~			
	I/C	2*	2-2 2-3		3-2 3-4		5-3 5-4	5-5 5-2		
	Major	1	2-6		3-5 3-6		~~5-6~~ ~~5-6~~	5-6 5-7		

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.
(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: RW Moye / RW Moye

NRC Reviewer: R Aiello /

DRAFT

Competencies	SRO				RO				BOP			
	SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4
Interpret / Diagnose Events and Conditions	1-5 1-7	2-2 2-6	3-2 3-3 3-5		1-2 1-4 1-5	2-2 2-4 2-6	3-2 3-3 3-4					
Comply With and Use Procedures (1)	1-5 1-7	2-5 2-6	3-1 3-5		1-1	2-1 2-2 2-4	3-1 3-3 3-4					
Operate Control Boards (2)	N/A	→	→	→	1-2 1-4 1-5	2-1 2-2 2-4 2-5	3-1 3-3 3-4 3-5					
Communicate and Interact	1-1 1-4 1-5 1-6	2-1 2-5 2-6	3-1 3-2 3-4		1-1 1-2 1-5	2-1 2-2 2-4 2-5	3 3 3-4 3 5					
Demonstrate Supervisory Ability (3)	1-5 1-6 1-7	2-2 2-4 2-4	3-2 3-3 3-4 3-5		N/A	→	→	→				
Comply With and Use Tech. Specs. (3)	1-2 1-3 1-4	2-2 2-3 2-4	3-2 3-4		N/A	→	→	→				

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: R W Moyer

NRC Reviewer:

FINAL

ES-301 Competencies Checklist Form ES-301-6

BFN 4/14/04

Competencies	SRO				RO				BOP			
	SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4
Interpret / Diagnose Events and Conditions	2-2 2-4 2-5 2-6	3-2 3-3 3-4 3-6	5-2 5-3 5-4 5-5		2-2 2-4 2-5 2-6	3-2 3-3 3-4	5-3 5-3 5-6 5-7					
Comply With and Use Procedures (1)	2-2 2-4	3-1 3-3 3-6	5-1 5-3 5-6 5-7		2-1 2-2 2-4 2-6	3-1 3-3	5-1 5-3 5-4 5-6					
Operate Control Boards (2)	N/A	→	→	→	2-1 2-2 2-4 2-6	3-1 3-3 3-4 3-6	5-1 5-3 5-4 5-5					
Communicate and Interact	2-1 2-3 2-4 2-5	3-1 3-3 3-4 3-5 3-6	5-1 5-2 5-4 5-6 5-7		2-4 2-3 2-6	3-1 3-2 3-3 3-4	5-2 5-3 5-4 5-6 5-7					
Demonstrate Supervisory Ability (3)	2-1 2-5 2-6	3-1 3-3 3-4 3-5 3-6	5-2 5-3 5-4 5-5 5-7		N/A	→	→	→				
Comply With and Use Tech. Specs. (3)	2-2 2-3	3-2 3-4	5-3 5-4 6-5		N/A	→	→	→				

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: R W Moye / R W Moye

NRC Reviewer: R Aiello /

Facility: Browns Ferry	Date of Exam: 04/23/04			Exam Level: SRO
		Initial		
	Item Description	a	b*	c*
1.	Questions and answers technically accurate and applicable to facility	TRK	N/A	✓
2.	a. NRC K/As referenced for all questions b. Facility learning objectives referenced as available	TRK	N/A	✓
3.	SRO questions are appropriate per Section D.2.d of ES-401	TRK	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: __ the audit exam was systematically and randomly developed; or __ the audit exam was completed before the license exam was started; or X the examinations were developed independently; or __ the licensee certifies that there is no duplication; or __ other (explain)	TRK	N/A	N/A
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: 22 /6 — Modified: 6 /1 — New: 47/18	TRK	N/A	✓
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: 50.6% / 68% 37 / 8 — 38 / 17	TRK	N/A	✓
8.	References/handouts provided do not give away answers	TRK	N/A	✓
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	TRK	N/A	✓
10.	Question psychometric quality and format meet ES, Appendix B, guidelines	TRK	N/A	✓
11.	The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with value on cover sheet	TRK	N/A	✓

	Printed Name / Signature	Date
a. Author	T. Kolb / TRK	3-18-04
b. Facility Reviewer (*)		
c. NRC Chief Examiner (#)	R. Aiello / RA	3/30/04
d. NRC Regional Supervisor	Michael E. Ernstes / Michael E. Ernstes	4/1/04

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.

Facility: Browns Ferry Date of Exam: 04/23/04 Exam Level: SRO

	Item Description	Initial a	Initial b*	Initial c#
1.	Questions and answers technically accurate and applicable to facility	TMK	N/A	✓
2.	a. NRC K/As referenced for all questions b. Facility learning objectives referenced as available	TMK	N/A	✓
3.	SRO questions are appropriate per Section D.2.d of ES-401	TMK	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: ___ the audit exam was systematically and randomly developed; or ___ the audit exam was completed before the license exam was started; or X the examinations were developed independently; or ___ the licensee certifies that there is no duplication; or ___ other (explain)	TMK	N/A	✓
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: 22 /5 — Modified: 6 /1 — New: 47/19	TMK	N/A	✓
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: 37 / 8 — C/A: 38 / 17 (50.6% / 68%)	TMK	N/A	
8.	References/handouts provided do not give away answers	TMK	N/A	✓
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	TMK	N/A	✓
10.	Question psychometric quality and format meet ES, Appendix B, guidelines	TMK	N/A	✓
11.	The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with value on cover sheet	TMK	N/A	✓

	Printed Name / Signature	Date
a. Author	T. Kolb / TMK	4-14-04
b. Facility Reviewer (*)	N/A	
c. NRC Chief Examiner (#)	R. Aiello	4/4/04
d. NRC Regional Supervisor	MICHAEL E. ERNSTES / Michael E. Ernstes	4/14/04

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.

Browns Ferry

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation

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).

RO/SRO Combined Question

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
1	C	3					X					Y	N	~~S*~~ **S**	201003A2.10 Is "CR to be declared "slow" or an Engineering Evaluation performed" a TS issue? rfa 02/20/04 **3/22/04 TCK** Yes, this is the Tech Spec required action. At this temperature you either have to declare the CR "slow" and enter 3.1.4 or perform an Engineering evaluation which will allow you not to enter 3.1.4. rfa 03/29/04 - OK Facility - Change rod designation to 30-31 vice H-8. 4/1/04 **4/1/04 TCK** Change made.
2	C	3	X									Y	N	~~E~~ **S**	203000K5.01 Move "A" RHR System up to the stem of the question rfa 02/20/04 **3/22/04 TCK** Changes made as requested. rfa 03/29/04 - OK Facility – Changed "A" RHR Loop to RHR Loop II. 4/1/04 **4/1/04 TCK** Change made.
3	M	2	X									Y	N	~~E~~ **S**	205000K2.01 The question stem does NOT read or flow well. Something is missing or mis-worded. rfa 02/20/04 **3/22/04 TCK** Shortened stem to make it clear what was needed. rfa 03/29/04 - OK Facility – editorial change. 4/1/04 **4/1/04 TCK** Change made.
4	M	3										Y	N	S	206000K2.01 rfa 02/20/04 Facility – editorial change. 4/1/04 **4/1/04 TCK** Change made.
5	C	3				X						Y	N	~~U~~ **S**	209001A2.06 If Disrtactor "C" was correct, Distractor "B" would be also. Rebuild either "B" or "C" distractor. rfa 02/20/04 **3/22/04 TCK** Reworded the stem question to select the "required action" and reworded choices A,Band C. rfa 03/29/04 - OK Facility – Remove Core Spray Hi disch pressure alarm from stem. Cannot physically get that high of a pressure due to Core Spray pump running dead headed. **4/1/04 TCK** Change made.

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
6	C	3				X						Y	N	~~S*~~ **S**	211000G2.2.1 If distractor "D" is performed, would it be incorrect? I think distractor "D" is also correct. Please reevaluate. rfa 02/20/04 **3/22/04 TCK** Question is asking what is required to be performed. Increasing tank volume is not required, which makes it wrong. Editorial change to stem. rfa 03/29/04 - OK Facility – Revised distractor "A" to "Place tank heaters in service and raise tank temperature to ≥ 65°F. **4/1/04 TCK** Change made.
7	C	3										Y	N	S	286000K3.01 rfa 02/20/04 Facility – Requested reference be supplied. **4/1/04 TCK** Change made. Allowed reference.
8	M	2				X						Y	N	~~S*~~ **S**	212000K4.03 RPS "A" and "B" either can or cannot be powered simultaneously. Applicant will have to choose between "B" or "C." Re-write distractor "B." rfa 03/01/04 **3/24/04 TCK** Left as is. Distractor B is talking about simultaneously supplying both RPS buses for Bus 1B and Answer C is talking about simultaneously supplying power from the MG set and alternate power. rfa 03/29/04 - OK
9	M	2				X						Y	N	~~U~~ **S**	215002K2.03 If distractor "D" was correct, "B" would be also. Rewrite either "B" or "D." Move "RPS A supplies power to..." to the stem. rfa 03/01/04 **3/24/03 TCK** Revised distractor A and D to ensure only one correct answer and the distractors don't eliminate each other. rfa 03/29/04 - OK Facility – Changed RBM Channel to RBM interface panel. **4/1/04 TCK** Change made.
10	C	3										Y	N	S	215003A3.03 rfa 03/01/04

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
11	M	2				X						Y	N	~~S*~~ **S**	215004K1.01 The distractors are NOT balanced. Make another one a full scram. Consider B to read Full scram on any IRM Hi-Hi and a minimum of 2 out of 4 twice on logic. Add something similar to "A" but with a ½ scram. rfa 03/03/04 **3/24/04 TCK** Revised distractor B to balance the answers. rfa 03/29/04 - OK
12	M	2										Y	N	S	215005A4.05 rfa 03/03/04 Facility-Not really sure what this is asking, rk4.4.04 **4/6/04 TCK** This new question accepted as a replacement. Changed to C/A.
13	C	3	X									Y	N	~~S*~~ **S**	215005K6.05 Stem: I think The mode switch position should read Start-up/Hot Stby. The words "most likely" can be ambiguous. Suggest changing the words to "initial. " rfa 03/03/04 **3/24/04 TCK** Left the Mode Switch position as written because this is how it reads in the plant. Revised the stem to ask for which signal caused the scram. rfa 03/29/04 - OK
14	M	2										Y	N	S	295005AK2.04 rfa 03/29/04
15	M	2										Y	N	S	217000K2.03 rfa 03/03/04
16	M	2					X					Y	N	~~S*~~ **S**	218000A1.04 Change distractor "C" to read "When reactor pressure drops below 150 psig." rfa 03/03/04 **3/24/04 TCK** Requested change made. rfa 03/29/04 - OK
17	M	2										Y	N	S	223001K1.03 rfa 03/03/04

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
18	C											Y	N	S	223002G2.1.8 rfa 03/03/04 Facility -- 2-OI-1 is not used to restore MSIVs. Would use Appendix 8B. **4/2/04 TCK** Changed "perform 2-OI-1, Main Steam System, Section 5.2 to open the Inboard MSIV's" to "Perform Appendix 8B, Reopening MSIV's Following Group 1 Isolation."
19	C	3					X					Y	N	~~S*~~ **S**	226001A3.05 Stem: System is misspelled Put the verbs in the distractors. rfa 03/03/04 **3/24/04 TCK** Requested changes made. rfa 03/29/04 - OK Facility – Requested no operator action in the stem. **4/2/04 TCK** Changes made.
20	C	3	X			X						Y	N	~~U~~ **S**	239002A4.01 Stem: re-write: Which one of the following is correct regarding the maximum number of SRVs that could be open... Distractor "A" is not plausible. Change answers to simply 2,4,5,8. Delete the fru fru. rfa 03/03/04 **3/24/04 TCK** Requested changes made. rfa 03/29/04 - OK Facility – requested reference for TS 3.4.3. **4/2/04 TCK** Reference provided.
21	C	3										Y	N	S	259002K4.11 rfa 03/22/04
22	C	3	X									Y	N	~~E~~ **S**	261000A3.02 Place "a" before 480v in the stem. Move "SGT trains A & B trip and" to the stem rfa 03/22/04 **3/24/04 TCK** Requested changes made. rfa 03/29/04 - OK

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
23	C	3	X									Y	N	~~E~~ **S**	261000K1.11 Put Torus pressure somewhere below 2.4, drywell pressure should still be greater than 2.48. rfa 03/22/04 **3/24/04 TCK** Requested changes made. rfa 03/29/04 - OK Facility-Suggest putting something in the stem such as " Drywell Pressure Unknown", suggest replacing monitor with detector, also table is messed up,rk4/4/4 **4/6/04 TCK** Revised to place detector numbers in stem. Added leak in Drywell in stem to minimize confusion with Torus pressure.
24	C	3										Y	N	~~S*~~ **S**	212000A2.03 This question appears to be SRO only in nature due to the TS involvement. rfa 03/01/04 **3/29/04 TCK** Ros should be required to know 1 Hr Tech Spec actions. Left as RO.
25	M	2	X			X						Y	N	~~E~~ **S**	262001K6.03 To make the distractors plausible, put "The generator breaker opens" in the stem. Put "and" at the beginning distractors A, C, and D. Change "B" to read "with no further bus transfers." rfa 03/22/04 **3/24/04 TCK** Requested changes made. rfa 03/29/04 - OK
26	M	2					X					Y	N	~~E~~ **S**	288000K6.01 List the 480V boards first then the 4KV. It makes it easier to read the question rfa 03/23/04 **3/24/04 TCK** Requested changes made. rfa 03/29/04 - OK Facility, suggest you change electrical board losses to "electrical boards being de-energized", also all to (Assume **normal alignment** and no board transfers) rk4/4/4 **4/6/04 TCK** Added "assume normal alignment and no board transfers".
27	C	3										Y	N	S	295001AA2.02 rfa 03/23/04

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
28	M	3				X						Y	N	~~S*~~ **S**	223002K3.03 Distractor "B" could be correct unless we give them a time frame. What if it is voided for a day, then reflooded? rfa 03/22/04 **3/24/04 TCK** Revised stem to say that all low pressure ECCS systems worked as designed and level maintained at +40". rfa 03/29/04 - OK
29	M	2	X									Y	N	~~E~~ **S**	230000G2.3.9 Put "supply to" up in the stem and finish with a ": " rfa 03/22/04 **3/24/04 TCK** Requested changes made. rfa 03/29/04 - OK
30	M	3	X									Y	N	~~E~~ **S**	239001A4.01 Change distractor "A" to start off with "A half scram will occur." Put "A half scram will occur" in the stem Put a space between the stem and the distractors. rfa 03/22/04 **3/24/04 TCK** Requested changes made. rfa 03/29/04 - OK Facility - Need something in the stem to simulate the other valve not full open **4/6/04 TCK** Revised stem to state that a fuse was removed to simulate closure of another MSIV.
31	C	3							X			Y	N	~~S*~~ **S**	295028EA1.04 Evaluate if distractor "A" would not also be correct because of "B." rfa 03/23/04 **3/24/04 TCK** Distractor A is incorrect because the level in the Torus is too low to draw water into the Drywell. rfa 03/29/04 - OK
32	M	3										Y	N	S	241000K4.10 rfa 03/22/04

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
33	C	2				X						Y	N	~~S*~~ **S**	256000A1.08 Distractor "D" is a bit shaky as far as plausibility rfa 03/22/04 **3/24/04 TCK** Increased oxygen could be a cause for an increase in N-16 which would cause an increase in MSL radiation. rfa 03/29/04 - OK
34	M	2										Y	N	S	259001K5.02 rfa 03/22/04
35	M	3										Y	N	S	262002A1.02 rfa 03/22/04
36	C	3				X						Y	N	~~U~~ **S**	263000K1.02 Electrical separation is common knowledge. Distractor "C" is NOT plausible. Replace Distractor "C." rfa 03/22/04 **3/24/04 TCK** The 250 VDC system has an alternate power supply. The 125 VDC is fed from its own battery. Most electrical systems have alternate power supplies so this makes the distractors plausible. Did change swap to "preferred system". rfa 03/29/04 - OK
37	M	3										Y	N	S	263000K3.02 rfa 03/22/04 Facility – requested change to answer D to make it correct pump.\ **4/02/04 TCK** – change made.
38	C	3										Y	N	S	295003AA2.02 rfa 03/23/04 Facility - Need to modify, possibly unit preferred and exploit the effects on control rod movement and RFP PDA **4/6/04 TCK** Question revised as suggested above.
39	C	3				X						Y	N	~~S*~~ **S**	264000K3.02 Distractor "D" is also a correct answer since "C" is correct.. Modify distractor "D." rfa 03/22/04 **3/29/04 TCK** Left as-is. Distractor "D" indicates the pump starts 7 seconds after the initiation signal. This is incorrect. rfa 03/29/04 - OK

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
40	M	3										Y	N	~~E~~ **S**	286000K1.07 Add "Plant Preferred ____" to the stem rfa 03/22/04 **3/29/04 TCK** Left as-is since this is the way the plant indicates the system and the stem indicates Unit 1. rfa 03/29/04 - OK
41	M	3										Y	N	S	295004AK3.02 rfa 03/23/04 Facility would not lose process computer. consider revising C and D choices. Also, validation comment, did 9-9-6 auto transfer? Consider adding a reason for inserting control rods, such as entry into region 2 or power oscillations of 12% peak to peak. rk 4/5/4 **4/6/04 TCK** Revised stem and choices as suggested above.
42	C	3										Y	N	S	295006AK1.01 rfa 03/23/04 Facility - Suggest adding something wrong in the B choice, such as taking "recirculation" out of the choice. or adding something in stem such as DWP at 2.6 psig. rk 4/5/4 **4/6/04 TCK** Revised stem to add DW pressure at 2.6 psig so that distractor B is incorrect.
43	M	2										Y	N	~~E~~ **S**	295006AK3.01 Emphasize the word "initially" in the stem. rfa 03/23/04 **3/29/04 TCK** Suggested change made. rfa 03/29/04 - OK
44	C	2				X						Y	N	~~U~~ **S**	295007AA1.03 In this situation RCIC would always be available. Since there is only one correct answer, all of the distractors become moot. Insert an initial condition such that the applicant may question the availability or operability of the RCIC system. rfa 03/23/04 **3/29/04 TCK** Revised stem to indicate that RCIC is still available but doesn't have an initiation signal yet. rfa 03/29/04 - OK
45	M	2										Y	N	S	295008AK2.08 rfa 03/23/04

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
46	M	3										Y	N	S	259009AK1.03 Good distractors rfa 03/23/04 Facility - Suggest changing C to "Automatic recirc pump runback to 28% if total Feedwater Flow drops below 19%" rk 4/5/4 **4/6/04 TCK** Changes made.
47	C	3										Y	N	~~E~~ **S**	295014AA2.03 Remove the space after the "A" distractor. rfa 03/23/04 **3/29/04 TCK** Suggested change made. rfa 03/29/04 - OK
48	M	2				X						Y	N	~~U~~ **S**	295016AK3.01 "A" is correct regardless. Rewrite "A" utilizing the "bottling up phenomena." rfa 03/23/04 **3/29/04 TCK** Answer "A" has been revised as suggested. rfa 03/29/04 - OK
49	M	1										Y	N	S	295017AK1.02 This question is not very discriminating, however, I cannot think of a better one rfa 03/23/04
50	M	2										Y	N	~~E~~ **S**	295018G2.4.10 Are "A" and "B" potentially correct? Add 2-ARP-9-20A to the stem. Cog level is missing from the data section. rfa 03/23/04 **3/29/04 TCK** Suggested changes made. Distractors A and B are not potentially correct due to the de-energized bus given in the stem. rfa 03/29/04 - OK Facility - Add "2" to "A" on stem and answer C.rk 4/5/4 **4/6/04 TCK** Changes made.
51	M	2										Y	N	S	295019AA1.04 rfa 03/23/04

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
52	C	3							X			Y	N	~~E~~ **S**	295021AA1.04 Delete the second sentence in "A", "B", and "C." The stem does NOT solicit them. rfa 03/23/04 **3/29/04 TCK** Left information in the distractors since this clarifying information prevents more than one answer. rfa 03/29/04 - OK Facility - If group 2 isolation in, 74- 47, 48 and 53 are closed by this, therefore initiation of another units RHR for SDC would not be possible. **4/6/04 TCK** Question modified to determine which system is NOT available.
53	M	2										Y	N	S	295022AK3.02 rfa 03/23/04 Facility - 2A and 1B CRD pumps, are you talking about the scram outlet valve in C? **4/6/04 TCK** Added numbers and changed distractor C to scram outlet valve.
54	C	3				X						Y	N	~~U~~ **S**	295023AK1.03 Distractor "A" is NOT plausible. Change distractor "A" to read "immediately terminate fuel movement and evacuate the refuel floor." rfa 03/23/04 **3/29/04 TCK** Suggested changes made. rfa 03/29/04 - OK
55	C	4										Y	N	~~E~~ **S**	295024G2.4.1 Remove the word "subsequently" from the stem. Place a colon (not ....) after "and" in the stem. rfa 03/23/04 **3/29/04 TCK** Left "subsequently" in the stem to ensure that the applicant knows that EOI-1 has already been entered once. Made other changes as requested. rfa 03/29/04 - OK

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
56	M	3										**N**	N	~~U~~ **S**	295025G2.3.11 The KA is ability to control radiation releases. There is no release to control. Replace or modify question to involve a release rfa 03/23/04 Facility not sure it meets k/a This is a memory level question, suggest the replacing the question. **4/6/04 TCK** Revised question as requested. I don't think this meets the K/A but Chief Examiner does.
57	M	3				X						Y	N	~~S*~~ **S**	295026EK2.05 Distractor "C" can be arguably correct. If Drywell pressure goes up, drywell temperature can also go up. Albeit not much, but it will. Re-evaluate distractor "C." rfa 03/23/04 **3/29/04 TCK** Distractor "C" left as-is. The suppression chamber temperature increasing does not affect the temperature in the Drywell since they do not communicate directly. rfa 03/29/04 - OK
58	M	2										~~?~~	N	~~S*~~ **S**	295030EA2.01 How does this meet the KA? The question is asking for a TS entry condition for SC water level. The KA states to interpret suppression pool water level as it applies to low suppression pool water level. Re-evaluate. The KA sounds a little hosed and may need to be replaced. rfa 03/23/04 **3/29/04 TCK** Since the K/A says to interpret Suppression Pool Level as it applies to Low Suppression Pool Level then this meets the K/A because the applicant has to interpret the actions of low suppression pool level based on the Mode he is in. rfa 03/29/04 - OK Facility - Need reference to answer this question, this is a CA question? **4/6/04 TCK** Provided reference.

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
59	C	3										Y	N	~~E~~ **S**	295031EK2.02 Rewrite question to include in stem "Indicated level will be ___ than actual level due to a ___ Dp signal from the transmitter. rfa 03/23/04 **3/29/04 TCK** Suggested change made. rfa 03/29/04 - OK
60	M	2										Y	N	S	295033G2.3.1 rfa 03/23/04
61	C	4										Y	N	~~S*~~ **S**	295037EK1.02 Resolve KA discrepancy in KA notes rfa 03/23/04 **3/29/04 TCK** Requested change made. rfa 03/23/04
62	M	3										Y	N	S	295038EK1.02 rfa 03/23/04
63	C	4										Y	N	S	300000K5.01 Excellent question rfa 03/23/04 Facility - Added 480 to Shutdown Bd 1A in stem. rk 4/5/4 **4/6/04 TCK** Approved.
64	C	3										~~?~~	N	~~S*~~ **S**	400000K4.01 KA is Closed Cooling Water System (CCWS). Is this the same as RCW? Re-evaluate KA rfa 03/23/04 **3/29/04 TCK** The K/A is for "Component Cooling Water". Raw cooling water is component cooling water. No changes made and meets K/A.
65	C	2										Y	N	S	600000AK2.04 rfa 03/23/04 Facility - Add "all" to electrically driven fire pumps in stem. Also, add electrically driven to fire pumps in the question line. Actions in the LOP AOI have the operator start the channel diesel fire pump due to the potential lockout of electric fire pumps from antipump relay. Consider revising B choice due to this reason. rk 4/4/5 **4/6/04 TCK** Added "all" to stem.

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
66	M	2										Y	N	S*	G2.1.16 CAF correct channel rfa 03/23/04 Replace possibly with another KA, we can write a new question. Could not verify information with plant references. **4/6/04 TCK** Question re-written by facility. Meets all requirements. K/A stayed the same.
67	C	2				X						Y	N	~~U~~ **S**	G.2.1.22 Distractor "C" is NOT plausible. Replace distractor "C." rfa 03/23/04 **3/29/04 TCK** Revised distractor "C" to include the Mode Switch in Start/Hot Stby for testing. Reactor remains in Mode 4. rfa 03/29/04 - OK
68	M	2										Y	N	S	G2.1.28 rfa 03/23/04
69	C	3										Y	N	~~S*~~ **S**	G2.2.11 The fundamental basis is similar to 241000G2.2.11 rfa 03/23/04 **3/29/04 TCK** This is true but attacks if from a different angle. rfa 03/29/04 - OK
70	M	1				X						Y	N	~~U~~ **S**	G2.2.12 This question has no discriminatory value. Replace Question rfa 03/24/04 **3/29/04 TCK** This question has the same discriminatory value as asking a power supply question. The Operator needs to know who performs what function so that if something is needed on shift then they know who is responsible. rfa 03/30/04 - OK
71	M	2										Y	N	S	G2.2.3 rfa 03/24/04 Facility - No longer have low scram air header pressure scram on units 2 & 3, this makes A and B correct. Consider revising B choice. rk 4/5/4 **4/6/04 TCK** Revised to ensure correct answer applies to Unit 1 only.

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
72	C	2	X									Y	N	~~S*~~ **S**	G2.2.30 This question can be answered without the first part of the stem. This is a memory level question. Change to M. rfa 03/24/04 **3/29/04 TCK** Added that the answer should be IAW the alarm procedure. Changed the Cog Level to MEM. rfa 03/29/04 - OK
73	M	2										Y	N	S	G2.3.11 rfa 03/24/04
74	C	2										Y	N	~~S*~~ **S**	G2.3.9 This question can be answered without the knowledge of the initial conditions. This question is memory level. Change to M or involve IC's. This question is NOT SRO only. Change to RO rfa 03/24/04 **3/29/04 TCK** Left question as written. Need to know condition of system prior to going to RUN which is given in stem. rfa 03/30/04 - OK
75	M	3										Y	N	S	G2.4.49 rfa 03/24/04
SRO ONLY															
1	M	2										Y	Y	S	262001G2.3.3 The first time I read this I concluded that ALL answers were potentialiy correct. (I.e. cannot the Shift Manager approve B,C, and D as well?). However, after re-reading the stem I think it would be cleaner if you CAP the word "requires" in the stem. rfa 03/22/04 **3/24/04 TCK** Capped and bolded "requires". rfa 03/29/04 - OK

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
2	C	3				X						Y	Y	~~U~~ **S**	215002A2.05 Distractor "D" is not plausible. Suggest "Continue with the procedure and notify the Shift manager after completing steps 7.7.17 through 7.7.22 for the "B" RBM." rfa 03/22/04 **3/29/04 TCK** Requested change made. rfa 03/30/04 - OK Facility - This SI has been superceded, need to print and reference new SR, will probably require changing of steps in stem. rk 4/5/4 **4/6/04 TCK** Question updated to new procedure.
3	C	3				X						Y	Y	~~S*~~ **S**	215003A2.02 Distractor "B" re-writre second part: *IRM "A" must be declared inoperable. Restore either IRM "A" or "G" prior to entering Mode 2.* Reason: "G" is already declared inop. Telling them to do something that has already been done invalidates the distractor. rfa 03/22/04 **3/29/04 TCK** Distractor "B" is telling them that IRM A and G must be declared OPERABLE prior to continuing on. The stem says that one is already INOPERABLE and thestudent must determine that the other one is INOPERABLE. Left as-is. rfa 03/30/04 - OK Facility - After Startup is commenced this would be true, GOI for startup would not allow startup initiation with IRM inop Also the trip on IRM G would place a rod block on RMCS, thus preventing strartup.rk 4/5/4 Consider revising. **4/6/04 TCK** Revised to make answer B correct since a rod block would have been inserted for the previous answer.
4	M	2				X						Y	Y	~~U~~ **S**	241000G2.2.11 Distractor "A" is NOT plausible. Replace distractor "A." rfa 03/22/04 **3/29/04 TCK** Requested change made. Distractor now says to control the jumper by logging it and writing a work order. rfa 03/30/04 - OK Facility – requested distractor "D" be revised to make it more incorrect. **4/2/04 TCK** Change made.

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
5	M	2				X						Y	Y	~~U~~ **S**	264000A2.09 Distractor "B" has nothing to do with the stem of the question? Replace distractor "B." rfa 03/22/04 **3/29/04 TCK** Requested change made. Revised to say that running D/G at low RPM causes buildup in the exhaust piping. rfa 03/30/04 - OK
6	C	3										Y	Y	~~E~~ **S**	295001AA2.01 Put a comma after 3-OI-68 rfa 02/20/04 **3/29/04 TCK** Requested change made. rfa 03/30/04 - OK Facility – Need to update question due to changes in plant equipment. **4/2/04 TCK** Changed 3B Recirc MG Set to VFD.
7	C	2										Y	Y	S	295002AA2.02 rfa 03/23/04 Facility - Suggest changing "Governor" to "Control" in distractor C. rk 4/5/4 **4/6/04 TCK** Changes made.
8	M	2										Y	Y	~~E~~ **S**	295004G2.4.11 Change: "Also, *the* affected..." rfa 03/23/04 **3/29/04 TCK** Requested change made. rfa 03/30/04 - OK Facility - Change "solid" to "illuminated" in stem. **4/6/04 TCK** changes made.
9	C	4										Y	Y	S	295005AA2.04 Distractor "D" is an ***excellent*** distractor rfa 03/23/04 Facility - Consider revising to raise the power a bit and open more bypass valves, possible 1,2,3 bypass valves open with reactor power at 35%. Testing on simulator has indicated that there is a gray area around 30-35%. rk 4/5/4 **4/6/04 TCK** Revised stem for 3 bypass valves open and rx power at 35%. Also revised distractors as necessary.
10	C	4										Y	Y	S	295008G2.1.7 rfa 03/23/04 Facility - Change stem to make HPCI high level trip occur. **4/6/04 TCK** Revised as suggested above.

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
11	M	2				X						Y	Y	~~U~~ **S**	295015AA2.01 If distractor "B" was correct, distractor "C" would be also. Applicant will automatically eliminate distractor "B." Reconfigure "B" and "V." rfa 03/23/04 **3/29/04 TCK** Requested change made. Revised distractor B. rfa 03/30/04 - OK
12	C	3										Y	Y	S	295018AA2.04 rfa 03/23/04 Facility - Change B answer to "Trip of RBCCW pump without closure of 70-48"rk 4/5/4 **4/6/04 TCK** Added above suggestion and removed note in stem.
13	M	3							X			Y	Y	~~E~~ **S**	295020G2.4.11 Distractor "A" : Either "due to a major loss of load" or "due to major loss of loads" I think all 4 distractors should be split into 2 sentences rfa 03/23/04 **3/29/04 TCK Requested changs made.** rfa 03/30/04 - OK Facility - Consider revising question as noted. **4/6/04 TCK** Changed question as shown above due to not being required to know current question from memory.
14	C	4										Y	Y	S	295025G2.3.10 rfa 03/23/04 Facility - Reference (rad table from EOI3, if this used then provide RM UNID) or provide information about the indications being in two different areas as defined in the EOIs **4/6/04 TCK** Revised distractor A so that a normal cooldown was not an option.

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
15	C	3	X									**N**	Y	~~U~~ **S**	295028EA2.02 The KA has to do with Torus/suppression chamber pressure. The question stem and subject matter have to do with reactor pressure and ED. Replace Question rfa 03/23/04 **3/29/04 TCK** The K/A was changed and documented on ES 401-4 prior to you reviewing it. I forgot to change it. The K/A is for Reactor Pressure. rfa 03/30/04 - OK
16	C	4										Y	Y	S	295031G2.2.23 rfa 03/23/04
17	C	4										Y	Y	S	295037G2.2.22 rfa 03/23/04 Facility - Consider revising B choice, it asks an unanswered question, what mode are you in during an ATWS. The distractor analysis states that this is definitely an electrical ATWS, this is not necessarily true. Consider revising B to "LCO requiurement for mode change restriction (3.0.4) rk **4/6/04 TCK** Revised to address all Safety Limits.
18	C	4										Y	Y	S	G2.1.12 rfa 03/23/04 Facility - reference? steam table or table out of OI 68? **4/6/04 TCK** Steam table will be provided.
19	C	3										Y	Y	S	G2.1.4 rfa 03/24/04 Facility - reference? Also think the correct answer is 5, see 5.2.2.a A non-licensed operator shall be assigned to each reactor containing fuel and an additional non-licensed operator shall be assigned for each control room from which a reactor is operating in MODES 1, 2, or 3. Three units fueled, one in Mode 1 and one in Mode 3 total 5. rk 4/5/4 **4/6/04 TCK** Changed answer to be 5. Had the control rooms mixed up.

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
20	M	2										**N**	Y	~~U~~ **S**	G2.2.14 I do not see what this question has to do with the knowledge of the process for making configuration changes. Re-evaluate/replace the question. rfa 03/24/04 **3/29/04 TCK** This question tests the knowledge of how to resolve a problem with a system. It has to take into account the configuration of the system. Left as-is. rfa 03/30/04 - OK
21	C	3										Y	Y	~~S*~~ **S**	G2.4.16 This question is SRO only (EOP implementation, CFR 43.5). Change to SRO only rfa 03/24/04 **3/29/04 TCK** Requested changes made. rfa 03/30/04 - OK
22	C	3										Y	Y	S	G2.4.1 rfa 03/24/04
23	M	2										Y	Y	~~S*~~ **S**	G2.4.22 In the notes: Replace irregardless with regardless. Irregardless is NOT a word. rfa 03/24/04 **3/29/04 TCK** Requested change made. rfa 03/30/04 - OK
24	C	3										Y	Y	~~S*~~ **S**	G2.4.44 Make sure we are NOT doing a PAR on the Admin exam. rfa 03/24/04 **3/29/04 TCK** No PAR on the Admin Exam. rfa 03/30/04 - OK Facility - Suggest only giving the PAR flowchart from EPIP 5, EPIP 5 would answer another question on the test. rk 4/5/4 **4/6/04 TCK** Only supply flowchart.

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	U/E/S	Explanation
25	C	3					X					N	N	~~U~~ **S**	217000G2.4.30 Put a comma after the word "test." The K/A states which events require outside agency notification. There are no requirements for notification in this question. If the stem focus is changed it should resolve this delima. rfa 03/03/04 **3/24/04 TCK** Inserted the comma. The question is asking which notifications must be made. RCIC is a common error that people make because it is a "single train" system. It still requires the knowledge to evaluate that a call does not need to be made. rfa 03/29/04 - OK

Facility: Browns Ferry Date of Exam: 04/23/04 Exam Level: SRO

Item Description	Initials a	b	c
1. Clean answer sheets copied before grading	tck	N/A	rfa
2. Answer key changes and question deletions justified and documented	N/A	N/A	N/A
3. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	tck	N/A	rfa
4. Grading for all borderline cases (80 +/- 2% overall and 70 +/- 4% on the SRO-only) reviewed in detail	tck	N/A	rfa
5. All other failing examinations checked to ensure that grades are justified	tck	N/A	rfa
6. Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	tck	N/A	rfa

	Printed Name / Signature	Date
a. Grader	T. Kolb T. Kolb	05/02/04
b. Facility Reviewer(*)	N/A	N/A
c. NRC Chief Examiner (*)	R. Aiello	05/03/04
d. NRC Supervisor (*)	M. Ernstes/M. Ernstes	05/13/04

(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.

Browns Ferry

	Task Description	Date Complete
1.	Facility written exam comments or graded exams received and verified complete	04/30/04
2.	Facility written exam comments reviewed and incorporated and NRC grading completed, if necessary	05/12/04
3.	Operating tests graded by NRC examiners	05/12/04
4.	NRC Chief examiner review of written exam and operating test grading completed	05/12/04
5.	Responsible supervisor review completed	05/13/04
6.	Management (licensing official) review completed	05/13/04
7.	License and denial letters mailed	5/13/2004 AND 6/14/2004
8.	Facility notified of results	05/13/04
9.	Examination report issued (refer to NRC MC 0612)	5-20-2004
10.	Reference material returned after final resolution of any appeals	N/A