

ADMINISTRATIVE DOCUMENTS

(Yellow Paper)

- 1. Exam Preparation Checklist ES-201-1 ✓
- ✓2. Exam Outline Quality Checklist ES-201-2 ✓
- 3. Exam Security Agreement(s) ES-201-3 ✓
- ✓36 PRE SUBMITTAL LTR
- 4. Administrative Topics Outline (Final) ES-301-1 ✓
- W Blue sheet } 5. Control Room Systems & Facility Walk-through Test Outline (Final) ES-301-2 ✓
- ✓6. Operating Test Quality Check Sheet ES-301-3 ✓
- ✓7. Simulator Scenario Quality Check Sheet ES-301-4 ✓
- ✓8. Transient and Event Checklist ES-301-5 ✓
- ✓9. Competencies Checklist ES-301-6 ✓
- ✓40. Written Exam Quality Check Sheet ES-401-6 ✓
- ✓41. Written Exam Review Worksheet ES-401-9 ✓
- 12. Written Exam Grading Quality Checklist ES-403-1 ✓
- 13. Post-Exam Check Sheet ES-501-1 ✓
- ✓14. LTR (LR-PM-002-1107) DTD 11-19-07
 Facility Submittal Letter (LR-PM-006-1007) DTD 10-15-07
 LTR (LR-PM-001-0907) DTD 9-4-07

Additional QA

- ✓401-1 Exam outline DRAFT ✓
- ✓401-1 Exam outline FINAL ✓
- 401-4 BORUHO/KAS ✓

HATCH DECEMBER 2007 EXAM

05000321/2007301 AND 05000366/2007301

DECEMBER 3 - 6, 2007, AND
DECEMBER 10, 2007, (WRITTEN)

Facility: Hatch		Date of Examination: Dec 3, 2007
Examinations Developed by		WR: NRC OP: Facility
Target Date*	Task Description (Reference)	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a and b)	rfa
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	rfa
-120	3. Facility contact briefed on security and 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; Attachment 2)]	rfa
-75	6. Integrated examination outline(s) due, including Forms ES-201-2, ES-201-3, ES-301-1, ES-301-2, ES-301-5, ES-D-1's, ES-401-1/2, ES-401-3, and ES-401-4, as applicable (C.1.e and f; C.3.d)	rfa
-70	7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)	N/A
-45	8. Proposed examinations (including written, walk-through JPMs, and scenarios, as applicable), supporting documentation (including Forms ES-301-3, ES-301-4, ES-301-5, ES-301-6, and ES-401-6), and reference materials due (C.1.e, f, g and h; C.3.d)	rfa
-30	9. Preliminary license applications (NRC Form 398's) due (C.1.i; C.2.g; ES-202)	rfa
-14	10. Final license applications due and Form ES-201-4 prepared (C.1.i; C.2.i; ES-202)	rfa
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	rfa
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f and h; C.3.g)	rfa
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	rfa
-7	14. Final applications reviewed; examination approval and waiver letters sent (C.2.i; Attachment 4; ES-204)	rfa
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee (C.3.k)	rfa
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	rfa
<p>* 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.</p> <p>[] Applies only to examinations prepared by the NRC.</p>		

DRAV5

Facility:		Date of Examination:		
Item	Task Description	Initials		
		a	b*	c#
1. W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	NA	NA	
	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.	NA	NA	N/A
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	NA	NA	
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	NA	NA	
2. S I M U L A T O R	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.	CE	RK	4
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and that scenarios will not be repeated on subsequent days.	CE	RK	2
	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.	CE	RK	4
3. W / T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.	CE	RK	5
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations	CE	RK	5
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.	CE	RK	5
4. G E N E R A L	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	*CE	RK	4
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	*CE	RK	4
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	*CE	RK	4
	d. Check for duplication and overlap among exam sections.	*CE	RK	4
	e. Check the entire exam for balance of coverage.	*CE	RK	4
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	*CE	RK	4
a. Author	<u>Charles Edmund / Charles Edmund</u>	Printed Name/Signature		Date
b. Facility Reviewer (*)	<u>R S Grantham / R Grantham</u>			09/10/2007
c. NRC Chief Examiner (#)	<u>Rand S. 11/6</u>			9/11/07
d. NRC Supervisor	<u>Robert HAAG / Robert Haag</u>			9/11/07

Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.

* Simulator scenarios and JPMs only. written being prepared by the NRC.

* SEE ADDITIONAL COMMENTS Page 25 of 27 Attached

FINAL

Facility: <u>HOOCH</u>		Date of Examination: <u>12/10/00</u>		
Item	Task Description	Initials		
		a	b*	c#
1. W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	BAC		5
	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.	BAC	NA	5
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	BAC		5
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	BAC		5
2. S I M U L A T O R	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.	/		
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and that scenarios will not be repeated on subsequent days.			
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.			
3. W / T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.			A
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations			
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.			
4. G E N E R A L	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.			
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	BAC		5
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	BAC		5
	d. Check for duplication and overlap among exam sections.		NA	5
	e. Check the entire exam for balance of coverage.			5
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	BAC		5
Printed Name/Signature		Date		
a. Author	<u>BRUNO CABALLERO Bruno Caballero</u>	<u>5/4/07</u>		
b. Facility Reviewer (*)	<u>NA NA</u>	<u>NA</u>		
c. NRC Chief Examiner (#)	<u>[Signature] [Signature]</u>	<u>5/7/00</u>		
d. NRC Supervisor	<u>Robert HAAG Robert Haag</u>	<u>9/17/07</u>		
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.				

FINAL

Facility: <i>HATCH</i>		Date of Examination: <i>12/03/2007</i>		
Item	Task Description	Initials		
		a	b*	c#
1. W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	<i>NA</i>	<i>NA</i>	
	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.	<i>NA</i>	<i>NA</i>	<i>NA</i>
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	<i>NA</i>	<i>NA</i>	
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	<i>NA</i>	<i>NA</i>	
2. S I M U L A T O R	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.	<i>CE</i>	<i>RA</i>	<i>0</i>
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and that scenarios will not be repeated on subsequent days.	<i>CE</i>	<i>RA</i>	<i>0</i>
	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.	<i>CE</i>	<i>CE</i>	<i>0</i>
3. W / T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.	<i>CE</i>	<i>RA</i>	<i>0</i>
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations	<i>CE</i>	<i>RA</i>	<i>0</i>
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.	<i>CE</i>	<i>RA</i>	<i>0</i>
4. G E N E R A L	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	<i>CE</i>	<i>RA</i>	<i>0</i>
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	<i>CE</i>	<i>RA</i>	<i>0</i>
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	<i>CE</i>	<i>RA</i>	<i>0</i>
	d. Check for duplication and overlap among exam sections.	<i>CE</i>	<i>RA</i>	<i>0</i>
	e. Check the entire exam for balance of coverage.	<i>CE</i>	<i>RA</i>	<i>0</i>
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	<i>CE</i>	<i>RA</i>	<i>0</i>
a. Author	<i>CHARLES Edmund / Charles Edmund</i>	Printed Name/Signature		Date <i>11/19/2007</i>
b. Facility Reviewer (*)	<i>R S Grantham / R S Grantham</i>			<i>11/17/07</i>
c. NRC Chief Examiner (#)	<i>R IN Bello / R IN Bello</i>			<i>11/29/07</i>
d. NRC Supervisor	<i>WALCOURT VIDMARIA / Walcourt Vidmaria</i>			<i>11/29/07</i>
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.				

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 12/3/07 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of 12/3/07 - 12/10/07 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. <u>Charles Edmund</u>	<u>Plant Instructor / Exam writer</u>	<u>Charles Edmund</u>	<u>1/30/07</u>	<u>Charles Edmund</u>	<u>12/11/07</u>	
2. <u>David Gidden</u>	<u>Contract Instructor / Exam writer</u>	<u>David Gidden</u>	<u>7-30-07</u>	<u>David Gidden</u>	<u>12-11-07</u>	
3. <u>Robert S. Grantam</u>	<u>Supv Operations Training</u>	<u>Robert S. Grantam</u>	<u>7/11/07</u>	<u>Robert S. Grantam</u>	<u>1/10/08</u>	
4. <u>Jeff Lockmeyer</u>	<u>Simulator Engineer</u>	<u>Jeff Lockmeyer</u>	<u>9/14/07</u>	<u>Jeff Lockmeyer</u>	<u>12/10/07</u>	
5. <u>Wes Vaughn</u>	<u>Simulator Engineer</u>	<u>Wes Vaughn</u>	<u>9/21/07</u>	<u>Wes Vaughn</u>	<u>12/10/07</u>	
6. <u>Dana L. Stille</u>	<u>Simulator Technician</u>	<u>Dana L. Stille</u>	<u>9-24-07</u>	<u>Dana L. Stille</u>	<u>12-10-07</u>	
7. <u>Ben Smith</u>	<u>Plant Instructor / Config Ctrl</u>	<u>Ben Smith</u>	<u>092907</u>	<u>Ben Smith</u>	<u>12-10-2007</u>	
8. <u>Lonnie Tanner</u>	<u>Nuclear Plant Operator</u>	<u>Lonnie Tanner</u>	<u>10-2-07</u>	<u>Lonnie Tanner</u>	<u>1-16-08</u>	
9. <u>Steve A. Masley</u>	<u>Work Week Coordinator</u>	<u>Steve A. Masley</u>	<u>10-31-07</u>	<u>Steve A. Masley</u>	<u>12-10-07</u>	
10. <u>John L. Richter</u>	<u>Simulator Coordinator</u>	<u>John L. Richter</u>	<u>10-5-07</u>	<u>John L. Richter</u>	<u>12/10/07</u>	
11. <u>Ed Jones</u>	<u>PLANT INSTRUCTOR</u>	<u>Ed Jones</u>	<u>10/5/07</u>	<u>Ed Jones</u>	<u>12/10/07</u>	
12. <u>Chuck Goodman</u>	<u>Operations Supv.</u>	<u>Chuck Goodman</u>	<u>10/6/07</u>	<u>Chuck Goodman</u>	<u>12/10/07</u>	
13. <u>Gary M. Bankston</u>	<u>Nuclear Plant Operator</u>	<u>Gary M. Bankston</u>	<u>10/6/07</u>	<u>Gary M. Bankston</u>	<u>12/10/07</u>	
14. <u>PATRICK H. HARDISON</u>	<u>NPO</u>	<u>Patrick H. Hardison</u>	<u>10/6/2007</u>	<u>Patrick H. Hardison</u>	<u>12-10-2007</u>	
15. <u>ROBERT L. BURNS</u>	<u>NUCLEAR PLANT OPERATOR</u>	<u>Robert L. Burns</u>	<u>10/10/07</u>	<u>Robert L. Burns</u>	<u>12-10-07</u>	

NOTES:

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 12/03/07 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of 12/3/07 - 12/10/07. 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. <u>MC McLeod</u>	<u>NPO</u>	<u>MC McLeod</u>	<u>10/10/07</u>	<u>MC McLeod</u>	<u>01/16/08</u>
2. <u>A.M. WOLFG</u>	<u>OPS Supt</u>	<u>A Wolfe</u>	<u>10/20/07</u>	<u>A Wolfe</u>	<u>12/10/2007</u>
3. <u>E.M. Burkett</u>	<u>Shift Manager</u>	<u>E Burkett</u>	<u>11-02-07</u>	<u>E Burkett</u>	<u>12-20-07</u>
4. <u>J.W. Mercer</u>	<u>Instructor</u>	<u>J.W. Mercer</u>	<u>11-04-07</u>	<u>J.W. Mercer</u>	<u>12-10-07</u>
5. <u>R.S. PETERSEN</u>	<u>NPO</u>	<u>R. Petersen</u>	<u>11-6-07</u>	<u>R. Petersen</u>	<u>12-9-10-07</u> <u>R 12-10-07</u>
6. <u>R.L. Churchville</u>	<u>NPO</u>	<u>R.L. Churchville</u>	<u>11-6-07</u>	<u>R.L. Churchville</u>	<u>12-10-07</u>
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

NOTES:

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 12/3/2007 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of 12/03/07 - 12/10/07 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.	MARVIN GUNN	PLANT INSTRUCTOR	<i>Marvin Gunn</i>	12/3/07	<i>Marvin Gunn</i>	12/14/07
2.	B. K. Wainwright	Plant Instructor - Sr.	<i>B. K. Wainwright</i>	12/3/07	<i>B. K. Wainwright</i>	12/10/07
3.	ANTHONY BALL	PLANT INSTRUCTOR	<i>Anthony Ball</i>	12/3/07	<i>Anthony Ball</i>	1/14/08
4.	GREG JOHNSON	OPS MANAGER	<i>Greg Johnson</i>	12/3/07	<i>Greg Johnson</i>	12/14/07
5.	Arthur D. Yarn	Plant Instructor	<i>A. D. Yarn</i>	12/3/07	<i>A. D. Yarn</i>	12/10/07
6.	Rick Berry	Plant Instructor	<i>Rick Berry</i>	12/4/07	<i>Rick Berry</i>	12/10/07
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						

NOTES:

PRE

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 12/3/07 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of _____. 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. CHARLES EDMUND	PLANT INSTRUCTOR / EXAM WRITER	Charles Edmund	9/30/07		
2. David Gidden	Contract Instructor / exam writ	David Gidden	7-30-08		
3. Robert S. Grantham	Supv Operations Training	Robert S. Grantham	9/11/07		
4. Jeff Luckmeyer	Simulator Engineer	Jeff Luckmeyer	9/11/07		
5. Wes Vaughn	Simulator Engineer	Wes Vaughn	9/21/07		
6. Dana L. Stille	Simulator Technician	Dana L. Stille	9-24-07		
7. Ben Smith	Plant Instructor / Config Ctrl	Ben Smith	092907		
8. LONNIE TANNER	Nuclear Plant Operator	Lonnie Tanner	10-2-07		
9. Steve A. Mosley	Work Week Coordinator	Steve A. Mosley	10-3-07		
10. JOHN L. RICHIE	SIMULATOR COORDINATOR	John L. Richie	10-5-07		
11. Ed Jones	PLANT INSTRUCTOR	Ed Jones	10/5/07		
12. Chuck Goodman	Operations Supv.	Chuck Goodman	10/6/07		
13. Gary M. Bankston	Nuclear Plant Operator	Gary M. Bankston	10/6/07		
14. PATRICK H. HARRISON	NPO	Patrick H. Harrison	10/6/2007		
15. ROBERT L. BURNS	NUCLEAR PLANT OPERATOR	Robert L. Burns	10/10/07		

NOTES:

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 12/03/07 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of _____. 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.	<u>MC McLeod</u>	<u>NPO</u>	<u>MC McLeod</u>	<u>10/10/07</u>		
2.	<u>A.M. WOLFE</u>	<u>OPS Supt</u>	<u>A Wolfe</u>	<u>10/20/07</u>		
3.	<u>E.M. Burkett</u>	<u>Shift Manager</u>	<u>E Burkett</u>	<u>11-22-07</u>		
4.	<u>J.W. Mercer</u>	<u>Instructor</u>	<u>J.W. Mercer</u>	<u>11-04-07</u>		
5.	<u>R.S. PETERSEN</u>	<u>NPO</u>	<u>R. Petersen</u>	<u>11-6-07</u>		
6.	<u>R.L. Churchville</u>	<u>NPO</u>	<u>R.L. Churchville</u>	<u>11-6-07</u>		
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						

NOTES:

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 12/3/07 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of _____. 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.	Charles Edmund	Plant Instructor / Exam Writer	Charles Edmund	1/30/07			
2.	David Giddens	Contract Instructor / Exam Writer	David Giddens	1-30-07			
3.	Robert S Grantham	Supv Operations Training	Robert S Grantham	7/1/07			
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							

NOTES:

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 12/3/07 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of _____. 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. CHARLES EDMOND	PLANT INSTRUCTOR / EXAM WRITER	Charles Edmund	1/30/07		
2. David Giddens	Contract Instructor / Exam Writer	David Giddens	7-30-06		
3. Robert S. Grantham	Supv Operations Training	Robert S. Grantham	7/11/07		
4. Jeff Luckmeyer	Simulator Eng. NPP	Jeff Luckmeyer	9/11/07		
5. Wes Vaughn	Simulator Engineer	Wes Vaughn	9/21/07		
6. Dana L. Stille	Simulator Technician	Dana L. Stille	7-24-07		
7. Ben Smith	Plant Instructor / Config Control	Ben Smith	092907		
8. LONNIE TANNER	NUCLEAR PLANT OPERATOR	Lonnie Tanner	10-2-07		
9. Steve A. Mosley	Work Week Coordinator	Steve A. Mosley	10-30-07		
10. JOHN L. RICHIE	SIMULATOR COORDINATOR	John L. Richie	10-5-07		
11. Ed Jones	PLANT INSTRUCTOR	Ed Jones	10/5/07		
12. Chuck Goodman	Operations Supv.	Chuck Goodman	10/6/07		
13. Gary M. Bankston	Nuclear Plant Operator	Gary M. Bankston	10/6/07		
14. PATRICK H. HARDISON	NPO	Patrick H. Hardison	10/6/2007		
15. ROBERT L. BURNS	NUCLEAR PLANT OPERATOR	Robert L. Burns	10/10/07		

NOTES:

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 12/03/07 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of _____. 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.	<u>MC McLeod</u>	<u>NPO</u>	<u>MC McLeod</u>	<u>12/03/07</u>			
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							

NOTES:

DRAFT

Facility: Plant E. I. Hatch		Date of Examination: 10/31/2005 – 11/11/2005
Examination Level: RO/SRO		Operating Test Number: _____
<u>Administrative Topic</u> (see Note)	<u>Type Code*</u>	<u>Describe activity to be performed</u>
Conduct of Operations	M, R	(Based on JPM 25101) Determine the effect of the failure of a relay on system performance. G 2.1.24 (RO 2.8/ SRO 3.1)
Conduct of Operations SRO only	N, R	Given a set of conditions, Determine the current Reactor mode and if Core Alterations can be performed. (G2.1.22) (SRO 3.3)
Conduct of Operations RO only	D, S/R	JPM 2510 - Correct Reactor Water Level for high drywell temperatures. G 2.1.25 (RO 2.8/ SRO 3.1)
Equipment Control	N S/R	With the Unit preparing to change from Mode 4 to Mode 2 in 6 hours, Determine if selected sections of the Control Room Surveillance checks has been completed correctly for proceeding to Mode 2. G 2.2.12 (RO 3.0/SRO 3.4)
Radiation Control	P, R	Given a set of exposure conditions, determine the minimum level of authorization required to allow a worker to perform work which will exceed administrative exposure limits. G2.3.4 (RO 2.5/SRO 3.1)
Emergency Plan SRO only	M, S/R	Given Plant Conditions, Determine the Emergency Classification and complete the ENN Form (Based on NEI 99-01 EAL scheme.) G2.4.29 (SRO 4.0)
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.		
* Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 ; randomly selected)		

DRAFT

Facility: **Plant E.I Hatch** Date of Examination: **12/03/2007 – 12/10/2007**

Exam Level: RO SRO-I **SRO-U** Operating Test No.: _____

Control Room Systems[@] (8 for RO); (7 for SRO-I); (2 or 3 for **SRO-U**, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
Perform RC-1, Alternate path (Use ARI)	S A D	3.1 Reactivity Control – JPM 01.13A (10 min) KA 201001A2.04 (RO 3.8/SRO 3.9)
RCIC Start, with start pushbutton failure	S A D	3.2 Reactor Water Level Control – JPM 25022 (5 min) KA 217000A2.01 (RO 3.8/SRO 3.7)
Perform RC-3, Rx pressure control (Bypass valve stuck open)	S A N	3.3 Reactor Pressure Control – New – (10 min?) KA 241000A2.03 (RO 4.1/SRO 4.2)
Place HPCI in Pressure Control Mode	S N	3.4 Heat removal from Reactor Core – New - (10 min?) KA 206000A4.06 (RO 4.3/SRO 4.3)
Initiate Drywell Spray with a valve failure	S A D	3.5 Containment Integrity – JPM 25033 (10 minutes) KA 226001A2.11 (RO 3.0/SRO 3.0)
Withdraw Control Rods (rod uncouples)	S A N L	3.7 Instrumentation – New – (12 min?) KA 214000A2.03 (RO 3.6/SRO 3.9)
Verify an Automatic Secondary Containment Isolation	S M	3.9 Radioactivity Release – Modified from JPM 13.38 – (13Min) KA 288000A2.04
energize Startup Aux Transformer 2D (RO only)	S D	3.6 Electrical – JPM 27.49 (8 min) KA 262001A4.02 (RO 3.4/SRO 3.7)

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

Locally Start an Emergency Diesel Generator using the air start override	A D E	3.6 Electrical - JPM 28.24 (17 min) KA 264000A209 (RO 3.7/SRO 4.1)
Align Emergency Nitrogen to drywell Pneumatics	D R E	3.8 Plant Service Systems – JPM 25028 (16 min) KA 295019AA1.01 (RO 3.5/SRO 3.3)
Insert a SCRAM using the SDV level switches	D R E	3.1 Reactivity Control – JPM 10.18 (8 min) KA 295006AA1.01

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

* Type Codes

Criteria for RO / SRO-I / SRO-U

(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

DRAFT

Facility:		Date of Examination:		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).			CE	RA	✓
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.			CE	RA	✓
c.	The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)			CE	RA	✓
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.			CE	RA	✓
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.			CE	RA	✓
2. Walk-Through Criteria				--	--	--
a.	Each JPM includes the following, as applicable: <ul style="list-style-type: none"> • initial conditions • initiating cues • references and tools, including associated procedures • reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time-critical by the facility licensee • operationally important specific performance criteria that include: <ul style="list-style-type: none"> - detailed expected actions with exact criteria and nomenclature - system response and other examiner cues - statements describing important observations to be made by the applicant - criteria for successful completion of the task - identification of critical steps and their associated performance standards - restrictions on the sequence of steps, if applicable 			CE	RA	✓
b.	Ensure that any changes from the previously approved systems and administrative walk-through outlines (Forms ES-301-1 and 2) have not caused the test to deviate from any of the acceptance criteria (e.g., item distribution, bank use, repetition from the last 2 NRC examinations) specified on those forms and Form ES-201-2.			CE	RA	✓
3. Simulator Criteria				--	--	--
The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.				CE	RA	✓
Printed Name / Signature			Date			
a.	Author	Charles Edmund C. Hayes Edmund		10/13/2007		
b.	Facility Reviewer(*)	R. Stone / R. S. Grantham		10/13/2007		
c.	NRC Chief Examiner (#)	Renee A. Helle / [Signature] †		10/24/07		
d.	NRC Supervisor	[Signature] MARCOLL T. WIDMANN		10/24/07		
NOTE: * The facility signature is not applicable for NRC-developed tests. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.						

xx NOT complete or verified yet
† SEE ATTACHED COMMENTS

FINAL

Facility: <i>Hatch</i>		Date of Examination: <i>12/3/2007</i> 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).	<i>CE</i>	<i>RM</i>	<i>✓</i>
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	<i>CE</i>	<i>RM</i>	<i>✓</i>
c.	The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)	<i>CE</i>	<i>RM</i>	<i>✓</i>
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	<i>CE</i>	<i>RM</i>	<i>✓</i>
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	<i>CE</i>	<i>RM</i>	<i>✓</i>
2. Walk-Through Criteria		--	--	--
a.	Each JPM includes the following, as applicable: <ul style="list-style-type: none"> • initial conditions • initiating cues • references and tools, including associated procedures • reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time-critical by the facility licensee • operationally important specific performance criteria that include: <ul style="list-style-type: none"> – detailed expected actions with exact criteria and nomenclature – system response and other examiner cues – statements describing important observations to be made by the applicant – criteria for successful completion of the task – identification of critical steps and their associated performance standards – restrictions on the sequence of steps, if applicable 	<i>CE</i>	<i>RM</i>	<i>✓</i>
b.	Ensure that any changes from the previously approved systems and administrative walk-through outlines (Forms ES-301-1 and 2) have not caused the test to deviate from any of the acceptance criteria (e.g., item distribution, bank use, repetition from the last 2 NRC examinations) specified on those forms and Form ES-201-2.	<i>CE</i>	<i>RM</i>	<i>✓</i>
3. Simulator Criteria		--	--	--
The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.		<i>CE</i>	<i>RM</i>	<i>✓</i>
	Printed Name / Signature	Date		
a.	Author <i>Charles Edmund / Charles Edmund</i>	<i>11/19/2007</i>		
b.	Facility Reviewer(*) <i>R S Grantham / R Grant</i>	<i>11/19/2007</i>		
c.	NRC Chief Examiner (#) <i>R Aiello / [Signature]</i>	<i>11/29/07</i>		
d.	NRC Supervisor <i>Malcolm T. Wismann / [Signature]</i>	<i>11/29/07</i>		
NOTE: * The facility signature is not applicable for NRC-developed tests. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.				

** will reconfirm during exam wk.*

DRAFT

Facility: <i>Hatch</i>	Date of Exam: <i>12/3-5/2007</i>	Scenario Numbers: <i>1 / 2 / 3</i>	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.	<i>CE</i>	<i>RH</i>	<i>JD</i>	
2.	The scenarios consist mostly of related events.	<i>CE</i>	<i>RH</i>	<i>JD</i>	
3.	Each event description consists of <ul style="list-style-type: none"> the point in the scenario when it is to be initiated the malfunction(s) that are entered to initiate the event the symptoms/cues that will be visible to the crew the expected operator actions (by shift position) the event termination point (if applicable) 	<i>CE</i>	<i>RH</i>	<i>XX</i>	
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.	<i>CE</i>	<i>RH</i>	<i>JD</i>	
5.	The events are valid with regard to physics and thermodynamics.	<i>CE</i>	<i>RH</i>	<i>XX</i>	
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	<i>CE</i>	<i>RH</i>	<i>XX</i>	
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.	<i>CE</i>	<i>RH</i>	<i>JD</i>	
8.	The simulator modeling is not altered.	<i>CE</i>	<i>RH</i>	<i>JD</i>	
9.	The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.	<i>CE</i>	<i>RH</i>	<i>JD</i>	
10.	Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered in accordance with Section D.5 of ES-301.	<i>CE</i>	<i>RH</i>	<i>P</i>	
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	<i>CE</i>	<i>RH</i>	<i>XX</i>	
12.	Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).	<i>CE</i>	<i>RH</i>	<i>XX</i>	
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	<i>CE</i>	<i>RH</i>	<i>XX</i>	
Target Quantitative Attributes (Per Scenario; See Section D.5.d)		Actual Attributes	--	--	--
1.	Total malfunctions (5-8)	<i>8 / 8 / 7</i>	<i>CE</i>	<i>RH</i>	<i>JD</i>
2.	Malfunctions after EOP entry (1-2)	<i>1 / 2 / 2</i>	<i>CE</i>	<i>RH</i>	<i>JD</i>
3.	Abnormal events (2-4)	<i>5 / 2 / 2</i>	<i>CE</i>	<i>RH</i>	<i>JD</i>
4.	Major transients (1-2)	<i>1 / 2 / 1</i>	<i>CE</i>	<i>RH</i>	<i>JD</i>
5.	EOPs entered/requiring substantive actions (1-2)	<i>2 / 2 / 1</i>	<i>CE</i>	<i>RH</i>	<i>JD</i>
6.	EOP contingencies requiring substantive actions (0-2)	<i>0 / 1 / 1</i>	<i>CE</i>	<i>RH</i>	<i>JD</i>
7.	Critical tasks (2-3)	<i>2 / 2 / 3</i>	<i>CE</i>	<i>RH</i>	<i>XX</i>

XX will verify during prep wk

DRAFT

Facility: <i>HATCH</i>		Date of Exam: <i>12/03 → 05/2007</i>		Scenario Numbers: <i>41</i> /		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.	CE	RK	0			
2.	The scenarios consist mostly of related events.	CE	RK	0			
3.	Each event description consists of <ul style="list-style-type: none"> the point in the scenario when it is to be initiated the malfunction(s) that are entered to initiate the event the symptoms/cues that will be visible to the crew the expected operator actions (by shift position) the event termination point (if applicable) 	CE	RK	**			
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.	CE	RK	0			
5.	The events are valid with regard to physics and thermodynamics.	CE	RK	**			
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	CE	RK	**			
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.	CE	RK	0			
8.	The simulator modeling is not altered.	CE	RK	0			
9.	The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.	CE	RK	0			
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.	CE	RK	0			
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	CE	RK	**			
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).	CE	RK	**			
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	CE	RK	**			
Target Quantitative Attributes (Per Scenario; See Section D.5.d)		⁴ Actual Attributes					
1.	Total malfunctions (5-8)	7	/ /	CE RK 0			
2.	Malfunctions after EOP entry (1-2)	2	/ /	CE RK 0			
3.	Abnormal events (2-4)	2	/ /	CE RK 0			
4.	Major transients (1-2)	2	/ /	CE RK 0			
5.	EOPs entered/requiring substantive actions (1-2)	2	/ /	CE RK 0			
6.	EOP contingencies requiring substantive actions (0-2)	1	/ /	CE RK 0			
7.	Critical tasks (2-3)	2	/ /	CE RK **			

Final

Facility: <i>HATCH</i>		Date of Exam: <i>12/03/03</i>		Scenario Numbers: <i>11314</i>		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.	<i>CE</i>	<i>RK</i>	<i>0</i>	<i>0</i>		
2.	The scenarios consist mostly of related events.	<i>CE</i>	<i>RK</i>	<i>0</i>	<i>0</i>		
3.	Each event description consists of <ul style="list-style-type: none"> the point in the scenario when it is to be initiated the malfunction(s) that are entered to initiate the event the symptoms/cues that will be visible to the crew the expected operator actions (by shift position) the event termination point (if applicable) 	<i>CE</i>	<i>RK</i>	<i>0</i>	<i>0</i>		
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.	<i>CE</i>	<i>RK</i>	<i>0</i>	<i>0</i>		
5.	The events are valid with regard to physics and thermodynamics.	<i>CE</i>	<i>RK</i>	<i>0</i>	<i>0</i>		
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	<i>CE</i>	<i>RK</i>	<i>0</i>	<i>0</i>		
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.	<i>CE</i>	<i>RK</i>	<i>0</i>	<i>0</i>		
8.	The simulator modeling is not altered.	<i>CE</i>	<i>RK</i>	<i>0</i>	<i>0</i>		
9.	The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.	<i>CE</i>	<i>RK</i>	<i>0</i>	<i>0</i>		
10.	Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered in accordance with Section D.5 of ES-301.	<i>CE</i>	<i>RK</i>	<i>0</i>	<i>0</i>		
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	<i>CE</i>	<i>RK</i>	<i>0</i>	<i>0</i>		
12.	Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).	<i>CE</i>	<i>RK</i>	<i>0</i>	<i>0</i>		
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	<i>CE</i>	<i>RK</i>	<i>0</i>	<i>0</i>		
Target Quantitative Attributes (Per Scenario; See Section D.5.d)		Actual Attributes		-	-	-	
1.	Total malfunctions (5-8)	<i>8</i>	<i>1717</i>	<i>CE</i>	<i>RK</i>	<i>0</i>	
2.	Malfunctions after EOP entry (1-2)	<i>1</i>	<i>1212</i>	<i>CE</i>	<i>RK</i>	<i>0</i>	
3.	Abnormal events (2-4)	<i>5</i>	<i>1212</i>	<i>CE</i>	<i>RK</i>	<i>0</i>	
4.	Major transients (1-2)	<i>1</i>	<i>1112</i>	<i>CE</i>	<i>RK</i>	<i>0</i>	
5.	EOPs entered/requiring substantive actions (1-2)	<i>2</i>	<i>1112</i>	<i>CE</i>	<i>RK</i>	<i>0</i>	
6.	EOP contingencies requiring substantive actions (0-2)	<i>0</i>	<i>1111</i>	<i>CE</i>	<i>RK</i>	<i>0</i>	
7.	Critical tasks (2-3)	<i>2</i>	<i>1313</i>	<i>CE</i>	<i>RK</i>	<i>0</i>	

DRAFT

Facility: E. I. Hatch		Date of Exam: 12/03/2007						Operating Test No.:									
A P P L I C A N T	E V E N T T Y P E	Scenarios												T O T A L	M I N I M U M (*)		
		1			2			3			4						
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N						
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P		R	I	U
RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX		2			4			6			2		4	1	1	0
	NOR		1				1				2			4	1	1	1
	I/C		4,6	3,5,7		2,5,7	3,6		3,5,7	1,4		4,5,7	3,6	20	4	4	2
	MAJ		8A	8A		8A,9	8A,9		8	8		8A, 9A	8A, 9A	6	2	2	1
	TS		NA	NA		NA	NA		NA	NA		NA	NA	NA	0	2	2
RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX		2			4			6			2		4	1	1	0
	NOR		1											1	1	1	1
	I/C		4,6, 8B			2,5,7			3,5,7			4,5,7		12	4	4	2
	MAJ		8A			8A,9			8			8A, 9A		6	2	2	1
	TS		NA			NA			NA			NA		NA	0	2	2
RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX	2				4			6			2		4	1	1	0
	NOR	1				1			2			1		4	1	1	1
	I/C	3,4,5, 6,7			2,3,5, 6,7			1,3,4, 5,7				3,4,5, 6,7		20	4	4	2
	MAJ	8A			8A,9			8				8A, 9A		6	2	2	1
	TS	3,4, 7			2,3,6, 7			1,5,7				3,4		12	0	2	2
RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>	RX	2				4			6			2		4	1	1	0
	NOR	1				1			2			1		4	1	1	1
	I/C	3,4,5, 6,7			2,3,5, 6,7			1,3,4, 5,7				3,4,5, 6,7		20	4	4	2
	MAJ	8A			8A,9			8				8A, 9A		6	2	2	1
	TS	3,4, 7			2,3,6, 7			1,5,7				3,4		12	0	2	2

Instructions:

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

FINAL

Facility: E. I. Hatch		Date of Exam: 12/03/2007						Operating Test No.:									
A P P L I C A N T	E V E N T T Y P E	Scenarios												T O T A L	M I N I M U M (*)		
		1			3			4			CREW POSITION						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P		R	I	U
RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX		2			5			3				3	1	1	0	
	NOR		1				2			1			3	1	1	1	
	I/C		4,6	3,5,7		3,6,7	1,4		2,5,7	4,6			15	4	4	2	
	MAJ		8A	8A		8	8		8A, 9A	8A, 9A			4	2	2	1	
	TS		NA	NA		NA	NA		NA	NA			NA	0	2	2	
RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX		2			5			3				3	1	1	0	
	NOR		1										1	1	1	1	
	I/C		4,6			3,6,7			2,5,7				8	4	4	2	
	MAJ		8A			8			8A, 9A				4	2	2	1	
	TS		NA			NA			NA				NA	0	2	2	
RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX		2			5			3				3	1	1	0	
	NOR		1			2			1				3	1	1	1	
	I/C		3,4,5, 6,7			1,3,4, 6,7			2,4,5, 6,7				15	4	4	2	
	MAJ		8A			8			8A, 9A				4	2	2	1	
	TS		3,4,7			1,6,7			4,5,7				9	0	2	2	
RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>	RX		2			5			3				3	1	1	0	
	NOR		1			2			1				3	1	1	1	
	I/C		3,4,5, 6,7			1,3,4, 6,7			2,4,5, 6,7				15	4	4	2	
	MAJ		8A			8			8A, 9A				4	2	2	1	
	TS		3,4,7			1,6,7			4,5,7				9	0	2	2	

Instructions:

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

DRAFT

Facility: E. I. Hatch		Date of Examination: 12/03-05/2007 Operating Test No.:																		
Competencies	APPLICANTS																			
	RO <input checked="" type="checkbox"/>					RO <input type="checkbox"/>					RO <input type="checkbox"/>					RO <input type="checkbox"/>				
	SRO-I <input type="checkbox"/>					ATC SRO-I <input checked="" type="checkbox"/>					SRO-I <input checked="" type="checkbox"/>					SRO-I <input type="checkbox"/>				
	SRO-U <input type="checkbox"/>					SRO-U <input type="checkbox"/>					SRO-U <input type="checkbox"/>					SRO-U <input checked="" type="checkbox"/>				
SCENARIO					SCENARIO				SCENARIO				SCENARIO							
1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		
Interpret/Diagnose Events and Conditions					All	All	All	All		1,2, 4,6, 8	2,4, 5,7, 8,9	3,5, 6,7, 8	2,3, 5,7, 8,9		All	All	All	All		
Comply With and Use Procedures (1)					All	All	All	All		1,2, 4,6, 8	2,4, 5,7, 8,9	3,5, 6,7, 8	2,3, 5,7, 8,9		All	All	All	All		
Operate Control Boards (2)					All	All	All	All		1,2, 4,6, 8	2,4, 5,7, 8,9	3,5, 6,7, 8	2,3, 5,7, 8,9		NA	NA	NA	NA		
Communicate and Interact					All	All	All	All		1,2, 4,6, 8	2,4, 5,7, 8,9	3,5, 6,7, 8	2,3, 5,7, 8,9		All	All	All	All		
Demonstrate Supervisory Ability (3)					NA	NA	NA	NA		NA	NA	NA	NA		All	All	All	All		
Comply With and Use Tech. Specs. (3)					NA	NA	NA	NA		NA	NA	NA	NA		3,4, 7	3,6, 7	1,5, 7	4,5, 7		
Notes:																				
(1) Includes Technical Specification compliance for an RO.																				
(2) Optional for an SRO-U.																				
(3) Only applicable to SROs.																				

Instructions:

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

FINAL

Facility: E. I. Hatch Date of Examination: 12/03-05/2007 Operating Test No.:

Competencies	APPLICANTS															
	RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> ATC SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	1	3	4		1	3	4		1	3	4		1	3	4	
Interpret/Diagnose Events and Conditions	All	All	All		1,2, 4,6, 8	3,5, 6,7, 8	2,3, 5,7, 8,9		All	All	All		All	All	All	
Comply With and Use Procedures (1)	All	All	All		1,2, 4,6, 8	3,5, 6,7, 8	2,3, 5,7, 8,9		All	All	All		All	All	All	
Operate Control Boards (2)	All	All	All		1,2, 4,6, 8	3,5, 6,7, 8	2,3, 5,7, 8,9		NA	NA	NA		NA	NA	NA	
Communicate and Interact	All	All	All		1,2, 4,6, 8	3,5, 6,7, 8	2,3, 5,7, 8,9		All	All	All		All	All	All	
Demonstrate Supervisory Ability (3)	NA	NA	NA		NA	NA	NA	NA	All	All	All		All	All	All	
Comply With and Use Tech. Specs. (3)	NA	NA	NA		NA	NA	NA	NA	3,4, 7	1,6, 7	4,5, 7		3,4, 7	1,6, 7	4,5, 7	

- Notes:
- (1) Includes Technical Specification compliance for an RO.
 - (2) Optional for an SRO-U.
 - (3) Only applicable to SROs.

Instructions:

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

FINAL

Facility: Hatch		Date of Exam: 12/10/07		Exam Level: RO		
Item Description	Initial					
	a	b*	c#			
1. Questions and answers are technically accurate and applicable to the facility.	BK		B			
2. a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.	BK		B			
3. SRO questions are appropriate in accordance with Section D.2.d of ES-401	BK		B			
4. If more than four RO and two SRO questions are repeated from the last two NRC licensing exams, the facility licensee's sampling process was random and systematic.		NA				
5. Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: <input type="checkbox"/> the audit exam was systematically and randomly developed <input type="checkbox"/> the audit exam was completed before the license exam was started <input checked="" type="checkbox"/> the examinations were developed independently <input type="checkbox"/> the licensee certifies that there is no duplication <input type="checkbox"/> other (explain)	BK		B			
6. Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distribution(s) at right.	Bank	Modified	New	BK		B
	2	8	65			
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	BK		B
	31		44			
8. References/handouts provided do not give away answers or aid in the elimination of distractors.	BK					B
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.	BK					B
10. Question psychometric quality and format meet the guidelines in ES Appendix B.	BK					B
11. The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet. **	BK					B
a. Author <u>Bruno Caballero</u> / <i>B. Caballero</i> b. Facility Reviewer (*) _____ c. NRC Chief Examiner (#) <u>Ron Aiello</u> / _____ d. NRC Regional Supervisor <u>Malcolm T. Widmann</u> / <i>[Signature]</i>				Date <u>11/28/07</u> <u>11/28/07</u> <u>11/28/07</u>		
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 will generate cover sheet.

FINAL

Facility: Hatch		Date of Exam: 12/10/07		Exam Level: SRO		
Item Description				Initial		
				a	b*	c#
1.	Questions and answers are technically accurate and applicable to the facility.			BC		Ⓟ
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.			BC		Ⓟ
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401			BC		Ⓟ
4.	If more than four RO and two SRO questions are repeated from the last two NRC licensing exams, the facility licensee's sampling process was random and systematic.				NA	
5.	Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: <input type="checkbox"/> the audit exam was systematically and randomly developed <input type="checkbox"/> the audit exam was completed before the license exam was started <input checked="" type="checkbox"/> the examinations were developed independently <input type="checkbox"/> the licensee certifies that there is no duplication other (explain)			BC		Ⓟ
6.	Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distribution(s) at right.	Bank	Modified	New	BC	Ⓟ
		0	3	22		
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	BC	Ⓟ
		7		18		
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.			BC		Ⓟ
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.			BC		Ⓟ
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.			BC		Ⓟ
11.	The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet. **			BC		Ⓟ
a. Author		Bruno Caballero		Printed Name / Signature		Date
b. Facility Reviewer (*)		/ Bruno Caballero				11/28/07
c. NRC Chief Examiner (#)		Ronald F. Aiello				11/28/07
d. NRC Regional Supervisor		Malcolm T. Widmann				11/28/07
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 will generate cover sheet.

Hatch

Notes:

1. SRO Exam begins on page 43 of 56
2. RO Exam: 31 Fundamental + 44 Higher Order = 58.7% Higher Order

Q#	1.	2.	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation
	LOK (F/H)	LOD (1-5)	Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only		
1	H	4 3	√											E S	<p>201002K1.04-1 – Stem Focus –</p> <p>1- Added Unit 1 in bold.</p> <p>2- deleted /2 from procedure #.</p> <p>3.- "the" RBM insinuates we only have 1, Change the RBM to A RBM.</p> <p>4- Delete central control rod and state control rod # 22-35</p> <p>5- The RBM should null at 100 and not exceed the setpoint when a rod is selected. Also there is an upscale and downscale setpoint that can be exceeded. Added statement about nulling and RBM readings.</p> <p>6- Made stem and answer choices in present tense instead of past tense.</p> <p>BLC -Changed question to address RBM impact on RMCS while rod was being moved. 11/24/07</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only		
2	H	4 3	√				√								<p>E</p> <p>S</p> <p>202001A2.07-1 - Stem Focus -Partial 1- Add and bold Unit # (1) - References Unit 1, plausibility for "C" distractor Unit 2 (44%), "C" distractor Unit 1 (55%), Change plausibility for "C" distractor to 55% 2- Shorten stem to say the valve closes and the pump trips, since the 2nd paragraph of the stem insinuates the pump trips, since the pump restart actions are asked. 3- Add "some of the required recovery actions necessary prior to", since this is not all of the actions required to restart the pump. 4- To bullet proof "A" and "B" distractors, add that the PF lamp is flashing or not flashing to distractors "A" and "B", because the reason for depressing the runback pushbutton is to reset the flashing PF lamp. The pump will restart without depressing the runback. (Tested on Desktop Simulator) The licensee had concerns that the question scope was beyond the K/A because the question asked how speed mismatch affected the pump re-start process (vs a running pump). Question changes to address mismatch on a running pump.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only				
																See Hatch question mark-ups for suggested final question.
3	H	3													E S	202002K4.03-1 1- Bold Unit 1 2- Add a blank line and bold "No other alarms present on any Control Room Panels". Being next to the bolded, all caps, annunciator titles mask an important point. 3- Distractor "C" delete "Vital AC ", add Unit designator to R25-S064 Corrected
4	H	4													E S	203000K2.02-2 1- Bold Unit 1 2- Bullet conditions 3- To bullet proof - Add " subsequently lowers from 750 psig to 150 psi". If Rx pressure was below 449 psig before S018A was lost "A" would be a correct answer. Even though a small amount of injection may start to inject at 200 psig, our surveillance (34SV-E11-001-1) only requires 161 psid for full flow. Tech Spec requires full flow for a Rx, pressure of >20 psi. 4- Change Loop 1 and 2, to Loop A and B Corrected

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
5	H	2												S	205000K3.01-1 1- Bold Unit 2 2- Bullet conditions 3- Put MSIVs closed on separate line Corrected	
6	H	3												E S	206000A1.01-1 1- Add Unit 2 2- Add bullets to conditions 3- To bullet proof Change "Immediately" to "inject after 2E41-F006, HPCI Injection Valve, re-opens" in A and D. Takes several seconds for HPCI F001 to open, Then the F006 starts opening. There is some delay in injection after resetting the High Water Level Signal. 4- Underline NOT in B distractor to match NOT in C distractor Corrected	
7	F	3												S	206000K5.06-1 1- Add Unit # Corrected	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
8	H F	4 3												E S	209001G2.1.31-1 1- Deleted "/2" from procedure # to make it unit 1, same as the reference. Added Unit designator to valve #s. Changed to Unit 1 in bold. 2- Change 34SV-E21-001-1 (pump surv) to 34SV-E21-002-1(valve Surv). All these valves will actually be manipulated in the valve surv. and the same valve lineup is required as the pump surv. after completion. 3- Changed second party verifier to Hatch term Independent Verifier. 4- Added "while performing the Standby Lineup attachment of 34SO-E21-001-1, Core Spray System" 5- Bulleted conditions Corrected	
9	H	3												S	211000K2.01-1 1- Added Unit 2 in bold Corrected	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
10	F	2												S		212000K2.02-1 1- Added "On Unit 2 ," and "2H11-" to P925 panel Corrected

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only				
																See Hatch question mark-ups for suggested final question.
11	H F	3												U S	212000K4.07-1 1- Delete reference to Shorting Links in second half of distractors. Add that Unit 1 is in refuel and that the shorting links are removed. The number of shorting links is insignificant to how the logic operates. Adding "An INOP trip on IRM "A" will cause a Full(or half) reactor scram" is a much more significant point about the shorting links and more closely matches the K/A. 2- Add "Unit 1 is in Refuel." 3- Licensee had concerns that testing knowledge of the number of shorting links and testing how manual scram affected logic on U1 vs U2 was too difficult. Agreed with # of shorting links comments but disagreed with second portion. Removed # of shorting links and replaced with when rod block vs scram occurs.	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
12	H	4	√											U S	215003K4.06-1 – Stem focus – no correct answer. 1- Add Unit 2 , break into two sentences 2- Change 30 to 7 on the 0 - 40 Scale. 30 on range 5 (0-40 scale) is a rod block. Also the IRM would have been reading 300 on range 4, which would have already given a scram signal. With the IRM at 7 on range 5, the plausibility for distractors that indicate the amber light is illuminated on the 603 panel is increased, since the downscale is 10/125 of scale, 7 is a rodblock on range 6 and 4. Corrected items	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only				
13	H	3	√				√								U S	215004A1.01-1 – Stem Focus/Partial Multiple correct answers depending on assumptions. 1- Bold Unit 2, and add bullets to the conditions. 2- Delete "from a refueling outage" and "rx press at 200" 3- Too bullet proof - Change IRM range from "8 and 9" to " 5 and 6" so that the detectors are partially (90%) withdrawn. I'm not a 100% sure that the retract permit light will be illuminated if the SRM is fully withdrawn. 4- Add "SRM detectors are withdrawn 90% from Full-in" 5- Move " Assume that SRM/IRM detector selection power is still ON" to bulleted conditions Corrected
14	H	3													E	215005K3.08-1 1- Bold Unit 2 2- Delete "the" panel and add "2" to H11-P603 Corrected

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only				
																See Hatch question mark-ups for suggested final question.
15	H	3												E S	217000A3.03-1 1- Add "Unit 2 experienced", delete "after", change from rated power to 100% power, break into multiple sentences. 2- change stable to slowly decreasing for RWL. (CRD won't maintain stable level this soon after a loss of feedwater with no other system injecting.) 3- Add "HPCI is inoperable." (Will prevent questions from applicants on HPCI status.) 4- Bullet RCIC conditions 5- Change "injecting to the vessel" to "operating" because it is not injecting Corrected	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only			
16	H	4	√				√								U S 218000K6.02-1, Stem/Partial 1- Bold Unit 2 and T=0, break between first two sentences, bullet conditions 2- Add "and slowly decreasing" for drywell pressure because if DW press goes above 1.85 ADS will actuate 2 minutes later. 3- Change times from 13 to 12.7 and 2 to 1.7. This is to ensure that the student knows that we are not just using the old name for the timers (13 minute and 2 minute) and that we are using the real times (11 minutes and 102.5 secs.) 4- Change correct answer to A from C. It only takes 1 RHR or 1 CS pump to obtain the pressure permissive for ADS initiation. (Question used in reference had logic failure that did not have any ECCS pumps operating.) Also Changed "D" distractor to make incorrect. 5- Added 34AR-602-306-2, Auto Blowdown Timers Initiated and 34AR-602-305-2, ADS Low Water LVL ACTU Timers Initiated, to references. 6- Updated Plausibility statements Corrected

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
17	H	3	√					√								ES 219000A3.01-1 – stem focus - Partial 1- Add Unit 2 in Bold, change to 2H11, add 2 in front of valve #s, and bullet conditions 2- Change EHC controlling pressure at 840 psig to match EOP RCA/P requirements to lower pressure set to <845 psig 3- Bullet the conditions in the paragraph below the conditions and that SBLC is injecting, then delete the sentences containing those conditions. 4- change -150" to -130" because a compensated RWL of -150" (actual RWL) is right at 2/3rds core height indicated RWL and the 2/3rds core height override may be required. Corrected
18	H	3														ES 223002A2.09-2 1- Bold Unit 2 2- Add "total" to loss of vacuum to ensure the applicant knows that vacuum is at 0". 3- Break first paragraph into two sentences with bulleted conditions. Corrected

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
19	H	3														E S 223002K3.01-2 1- Bold Unit1, add full MPL #s to valves, bullet conditions. 2- Change "2B" RHR to "1B". Applicant may think Unit 2 "B" RHR, not 1E11-C002B. Corrected
20	F	2														E S 230000A4.03-1 1- Add "upstream of 2E11-F016 " to describe where the level drop is. The applicant could assume that the question is asking about the level and alarm in the section of piping between the two spray valves. 2- Add bold Unit #s, add Unit designator to all valves, captitalize and bold all NOTs Corrected

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
21	H	3					√								U S	<p>233000G2.4.50-1 – Partial – Incorrect answer</p> <p>1- Incorrect answer. The 1G41-F035 is closed under clearance prior to removing gates. This is the isolation valve to the instrument that causes the alarm. The alarm is NOT illuminated during an outage.</p> <p>2- Due to the indepth, specific knowledge of method for this valve line-up (clearance), it is beyond expectations for an operator to identify the correct answer from memory.</p> <p>3- K/A is for Fuel Pool Cooling and Cleanup system. Question was about Fuel Pool Gate Seals during an Outage. Wrote substitute question that more closely matches the K/A. See new question.</p> <p>4- Licensee's annunciator procedure needed updating to reflect item #2 above.</p> <p>Wrote a new question.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
22	F	2												E S	239002G2.4.22-1 1- Change Low Level Set to Low Low Set 2- Change backup electrical relief setpoint to electrical overpressure setpoint. 3- Licensee concerned w/ negatively worded stem Corrected	
23	H F	2												S	245000K3.05-1 1- Bold Unit 2 Corrected	
24	H	3												E S	259001K3.08-1 1- Change Level 2 to -45 inches to allow time for the Systems to align to provide the possible indications in the distractors. Corrected	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
25	H	4												E S	259002K4.10-1 1- Add (Note: The lights above each SELECT Switch is extinguished.) 2- Add (NOTE: The Green "A" light on each controller is illuminated.) 3- Change light color above Reactor Water Mode Select switch to match other select switch light. 4- Updated Plausibility Corrected	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
26	H	4 3				√										<p>See Hatch question mark-ups for suggested final question.</p> <p>259002K6.01-1</p> <p>1- Bold Unit 2, bullet conditions</p> <p>2- . Delete "FEEDWATER CONTROL SYSTEM TROUBLE" really has nothing to do with loss of air. To more closely match KA, Add to each distractor "Reactor Feedwater Pumps 2A and 2B speed will" (A & D) increase (B & C) remain the same "due to system minimum flow valves failing open (closed)".</p> <p>. Add to plausibility statement for B-D "Also plausible if applicant does not know the effect of loss of air to the condensate and condensate booster pumps min flow valves and the effect on the feedwater pump."</p> <p>3- Add to references - 34AB-P51-001-2, Loss of Air Abnormal procedure</p> <p>Corrected</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only		
27	H	4						√	√					U S	261000A1.05-2 – Job Link/Recall level without reference 1- The level of detail of the EOP flowcharts in original question is typically reserved for SROs, modified Stem and distractors for Normal Inerting. Kept same question structure and most of first half of each distractor. Added Percent O2 concentration requirement requiring applicant to know Tech Spec limit for O2. Corrected

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only				
																See Hatch question mark-ups for suggested final question.
28	H	3	√											E S	262001A2.03-1 Stem Focus 1- Whether or not a LOCA signal has been received on one or both units would change the correct answer to this question; therefore, added the following statement "Neither unit currently has a LOCA signal present" to the stem of the question in order to clarify this point. 2- Cap Only in C and D Corrected	
29	F	3												S	262002K3.15-1 1- Editorial changes: Made Unit 2 bold. Placed a space between two sentences of the stem. Capitalized Main Turbine. Added "Mark VI" in front of HMI	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only		
30	F	3												E S	<p>263000G2.1.29-1</p> <p>1- Add "for this breaker during performance of the electrical lineup". Makes statement specific for this case, not just the definition of independent verification.</p> <p>2- To bullet proof - Add "There is no allowance for waiving this requirement for this line-up." to A and C. (The SS can require independent verification if desired.)</p> <p>3- Added to plausibility statement "and knows that independent verification is required if manipulation is involved on a safety system, or at SS request."</p> <p>4- Added Verification is required or Not required to beginning of each statement to answer question asked in the stem.</p> <p>5- Much discussion because of flexibility for Shift Ops to determine verification req'ts on a case-by-case basis...re-wrote question to be specific to clearance activities on a safety related DC breaker for tech spec operability.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only		
31	H	3												S	264000A4.05-1 1- Editorial change: Made Unit 2 bold and placed bullets in front of plant conditions. 2- SAT 2C is the Alternate supply to the Emergency buses. Changed the word "normal" to "alternate" when referring to transferring the bus to SAT C. 3- Licensee was concerned that this question tested a not-well known case of a lightly loaded grid. Changed question slightly to reflect the normal synchroscope behavior . Corrected.
32	H	3												S	264000K3.01-1 1- Editorial: Made Unit 2 bold, added bullets to the plant parameters Corrected

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
	Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutiae	#/units	Backward	Q=K/A	SRO Only					
																See Hatch question mark-ups for suggested final question.
33	F	3														E S 271000K5.06-1 1- Editorial: Placed line returns on answer options for readability by students. 2- To bullet proof add "at 100% reactor power" to each distractor. (At very low pwer levels, because the temp is power dependent, the temp is much closer to 300 than 800 degrees.) Corrected
34	H	4					√									E S 272000G2.2.30-1 – Partial correct answer 1- Editorial: Made Unit 2 bold. Added line return following first sentence. Added bullets to rad monitors 2- Changed "core" to "reactor vessel". (A-D) (The bundle can only be placed in its proper in-core location.) Makes "D" hard to defend. 3- all caps "ONLY" (C & D) Corrected
35	H F	2														S 288000K1.03-1

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only				
																See Hatch question mark-ups for suggested final question.
36	H	3												S	290001K1.07-1 1- Bold Unit 1, Change An to A at beginning of question. 2- Cap first letter of : Group, Turbine Building (2 times) Corrected	
37	H	3												E S	295001AK1.01-1 1- Bold Unit 2, bulleted and reformatted to increase readability 2- Change Core Flow to 7.2 instead of 13.3. The recorder should indicate "B" flow minus "A" flow. Corrected	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
38	H	4													E S	295003AA1.04-1 1- Bold Unit 1 2- Added "RBCCW" pump motor 3- Add "after 15 minutes" the breaker for the (If the charger was out long enough the alternate would be carrying the bus. (From lessson Plan: If battery voltage drops below 208 VDC, the alternate power supply from 600 VAC Essential Bus "C" will automatically pick up the Vital AC Bus.)) Corrected
39	F	3													S	295004AA2.04-3 1- Bold Unit 2, add -"2"H11 2- add -"four" in front of power available, and "of the DC Control Power indicating lights " after top row to help describe the location of the extinguished light. 3- Delete "K" in KV Corrected

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
40	H	3													E S	295005AK3.03-4 1- Bold Unit 1, bullet conditions 2- Delete all of 1st paragraph except "Unit 1 is operating with the following conditions." All other parts are covered in the conditions or are irrelevant. 3- Delete "just" from manually trips turbine Corrected
41	H	3													E S	295006AK1.01-5 1- Bold Unit 2 2- Add - "within the normal level band for" the first 5 minutes..... 3-Add "controlling, varying " to B & D Corrected

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
42	H F	3					√								U S	<p>295007AA2.01-21 – No correct answer-</p> <p>1- This question is unsat due to RPV pressure can Not be read form the EHC panel. EHC is controlling throttle pressure (just prior to the stop valves). It has no direct connection with Rx pressure.</p> <p>2- Bolded Unit 2</p> <p>3- Added "Unit 2 is at 99% power ascending to rated....</p> <p>4- Added "and lower EHC Pressure Set from approximately 950 to 945 psig." for A & C</p> <p>5- Added "and lower EHC Pressure Set from approximately 1050 to 1045 psig." for B & D</p> <p>6- Revised distractor and plausibility statements Corrected.</p> <p>7- Licensee was concerned that asking the applicants to know alarm setpoint vs actual pressure set was too much recall. Not changed.</p>
43	H	4													S	<p>295012AK3.01-1</p> <p>1- Change Level 2 to -35 inches in stem</p> <p>2- bullet conditions and delete space between ###s and °F</p> <p>3- Licensee was concerned that question asked for too much recall. Not changed, but re-worded choices.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
44	H	5 3							√						U S	<p>295013AK1.03-1 – Too much recall</p> <p>This question, as written, is Unsat and is incorrect. Max run time in minutes = $[105 - Tinitial] * 2$ would be 50 minutes ($[105-80]*2 = 50$ minutes ($25 * 2 = 50$)).</p> <p>Also, this question as written, requires to much knowledge from memory: Calculation of torus temperature formulas due to an inoperable SPDS and recorder from a surveillance procedure attachment and the limitations associated with that calculation. Memory of inputs into a recorder.</p> <p>See new question and distractor and plausibility statements.</p> <p>Accepted new question.</p>
45	H	2	√												E S	<p>295014G2.1.30-1 –stem focus</p> <p>1- Bold Unit 1, bullet conditions</p> <p>2- Delete ensure and does not occur in stem, replace with "help avoid". Closing the valve is the right action to take, but it may not ensure a full scram does not occur, depending on readings on other IRMs.</p> <p>Corrected</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
46	H	3	√													<p>See Hatch question mark-ups for suggested final question.</p> <p>295015AK2.08-1</p> <p>1- Bold Unit 2, bullet conditons</p> <p>2- Add "Suppression Pool Temperature is 120°F" to conditions</p> <p>3- Add "[Reference Provided]" and provide Boron Injection Initiation Temperature Graph, Graph 5</p> <p>Agreed to reference</p>
47	F	4							√			√		U S	<p>295016AA1.06-6</p> <p>1- Recall too specific from memory. Weak tie to K/A - ability to operate/monitor reactor water level - question is memory of instruments on panel. (Replace)</p> <p>Accepted licensee's 1st replacement question. Then accepted another (2nd) replacement question following validation.</p>	
48	H	4 3							√					U S	<p>295017AK1.02-1</p> <p>1- Beyond RO memory knowledge</p> <p>2- Delete from Vent the Drywell (Torus) to end of sentence on all four distractors.</p> <p>Eliminated the portion of the question requiring knowledge of release line sizes.</p> <p>Corrected</p>	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only				
																See Hatch question mark-ups for suggested final question.
49	H	3												S		295018AK2.02-7 1- Bold Unit 1 and 2C
50	H	5 4							√					U S		295019AK2.11-8 Too specific from memory; Also two correct answers because leak location not provided (results from validation). Replace Accepted replacement question w/ embedded pic of leak location.
51	H	4					√							U S		295021AK2.07-1 Distractor partially correct Replace Question not replaced. Eliminated RWCU and only asked for coolant and RHR water temp response. Re-worded question to "B" loop in SDC'g

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only				
																See Hatch question mark-ups for suggested final question.
52	F	3													E S	295022AK2.07-1 Modified question to have inoperable accumulator. Remembering the exact breakdown of insertion times at specific reactor pressures requires too much memory recall. The modified question can be backed up by procedure actions (>900 compared to <900) and closely ties to the KA for reactor pressure scram assist. Modified question to reflect that accumulator is unavailable.
53	H	2													S	295023AK2.01-10

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only		
54	H	3													E S 295024EK1.01-11 1- Bold Unit 1, bullet conditions 2- Delete "limits" and "affected", replace with will be "less" to make completely accurate 3- Add "due to high drywell pressure" in B & C (You don't that these valves will due to some other reason that's not given 4- Add currently prior exist 5- Multiple correct answers during validation due to assumption that logic was keeping valves closed. Re-worded to eliminate possibility of "B" and "C" correct answers.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only		
55	H	4	√												E S 295025EK1.03-12 1- Bold Unit 1, add unit # to B21, bullet conditions and reactor pressures 2- Move that all systems responded as designed to new sentence and add all control rods did not insert in first sentence. Add reactor power is at 15% to conditions. (The only plausible way to keep two SRVs open after a scram and Rx pressure stable would to be generating about 16% power, therefore must be an ATWS.) 3- Change 875 to 870. (875 is only a 2 psig margin from closing setpoint on G SRV.) 4- Change 330 to 350 in A & B (closer to hatch number), change 450 to 550 in D. Makes number match plausibility statement. (Saturation temp at 1000psig.) 5-To bullet proof Add " Ten minutes after the lowest pressure was reached,"a delete currently 6- Add "deg F and stable to each distractor" and delete from question. 7- License was concerned that question required too much recall since units are different on the lift and seat pressures for low low set SRVs. Agreed to provide reference. Corrected

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
56	H F	2												S	295026EK1.02-14 1- Bold Unit 2 and bullet conditions 2- This question was identified to be double jeopardy with question #44. Chief examiner re-selected random K/A and new question written.	
57	F	3	√											E	295026G2.4.23-13 1- Capitalize letters in words for BIIT, Tech Spec, Cold and Hot Shutdown, and NOT all caps 2- To make C completely true Add " sloping portion of the Boron Injection Initiation Temperature (BIIT) limit curve". (The C answer is not correct for the horizontal line that is the limit on the lower part of the curve.) Corrected	
58	H	3												S	295028EK2.01-15 1- bullet conditions Corrected	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutiae #/units	Back- ward	Q= K/A	SRO Only				
																See Hatch question mark-ups for suggested final question.
59	H	4												S		295030EK1.01-16 1- bullet conditions 2- To bullet proof add to C & D " in pressure control mode" (eliminates using drains) Corrected
60	F	2												S		295031G2.4.45-17

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
61	H	4	√				√								U S	<p>See Hatch question mark-ups for suggested final question.</p> <p>295037EA1.07-18 stem focus / Partial Plausibility of question stem - by the time procedural actions to insert rods are started, power will be lower than 40%</p> <p>1- Bullet conditions</p> <p>2- Change RONOR to Normal Rod Movement Control Switch. The Emergency In position is one of the positions of the RONOR switch.</p> <p>3- Changed 40% power to 24% power. This is in between the RWM LPSP and LPAP.</p> <p>4- To bullet proof added "because the Mode Switch is in SHUTDOWN." to A and "because RWM is enforcing a Rod Block" to B & C. There may be other reasons that the actions would not happen that have not been considered or eliminated in the stem.</p> <p>5. To bullet proof and increase stem focus, Add "based on system design, NOT procedural limits" to end of question.</p> <p>6- Hatch procedures require MS in Refuel (not shutdown)</p> <p>Corrected by re-wording question w/ MS in Refuel.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
62	F	2												E		295038EK1.03-19 Wrong Answer 1- Change answer to B (wind direction meter reads in direction from, not towards) Corrected
63	F	3												S		300000K4.02-1

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only				
																See Hatch question mark-ups for suggested final question.
64	H	3					√								U S	400000K3.01-1 May be double jeopardy with Q #49 1-Change "Drywell" temperature will rise or remain the same to "Fuel Pool" for each distractor. (As written C is the correct answer because 2 drywell cooling fans will be lost based on 34SO-T47-001-1, Drywell Cooling System. The normal line-up has both fans running on 1T47-B008A and B. One fan on each cooling unit is powered indirectly (S012) from 600D. Since PSW supplies the coolers, makes the determining factor for answer not tied to KA.) Fuel pool temperature is plausible since the FPC HX is cooled by RBCCW. A Temp increase is incorrect because it is fed from 1R24-S015, Not 1R24-S012. 2- Updated plausibility statements Corrected by eliminating drywell temp (since cooled by PSW) and adding fuel pool temp

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
	Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only					
																See Hatch question mark-ups for suggested final question.
65	F	5 4							√					U S	600000AK2.01-20 Recall to specific 1- Question requires too much detailed memory of the location of the different types of fire systems in the plant, the actuation requirements of the system and the actions to take. It took an extended period of time to look the right answer up with all references available. Replace question - See replacement Did not replace question	
66	F	4												S	G2.1.2-1	
67	F	3												S	G2.1.25-1	
68	H F	4 3												E S	G2.2.11-1 1- Change B to read "A breaker is added to a local electrical panel to supply power for a welding machine." (Ensures applicant knows a new power supply is being introduced, Not just plugging in a welder.) 2- Change sandpiper to "pneumatic diaphragm pump" (terminology more familiar to plant)	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only		
															See Hatch question mark-ups for suggested final question.
69	F	3												S	G2.2.27-1 Job Link? 1- Bold Unit 2
70	F	5 3							√					U S	G2.2.4-1 Recall too specific Replace - Replace with new question New question more operationally oriented and important. An operator manipulating switches prior to going to EMER on Unit 2 will not operate equipment, while on Unit1 equipment would be operating. i.e. RCIC from RSDP lineup with RCIC operating or standby. Accepted replacement question

Q#	1.	2.	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.
	LOK (F/H)	LOD (1-5)	Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only	U/ E/ S	Explanation	
															See Hatch question mark-ups for suggested final question.
71	F	3												E S	G2.3.10-1 1- Bold Unit 1 2- Delete "in accordance with 40AC-ENG-014-0, Failed Fuel, Action Level 1". Adds length to stem without significant value. The applicant doesn't need to know the procedure that gives guidance for failed fuel action levels, just that it has failed and the actions have been taken, i.e. rod inserted. Corrected
72	F	2												S	G2.3.2-1 1- Change RadCon to "Health Physics (HP)" Corrected
73	F	3						√						U S	G2.4.29-1 1- Job Link as written not RO level 2- Replaced a question with a question that tests the candidates knowledge of radiation levels that correspond to release rates (from the Emergency Plan) 3- Changed Plausibility statements. 4- Licensee was concerned that asking RO to know E-plan designator was too much. Question replaced.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only				
																See Hatch question mark-ups for suggested final question.
74	F	3												E S	G2.4.45-1 1- To bullet proof add "on the 2H11-P601 panel" to stem. Our scram signal annunciators on the 603 panel also have a white box. Also, add "specific parameter point in tables 4 thru 6" in C. Because some of the white box alarms are caused by the conditions requiring entry into the SC flowchart. Corrected	
75	F	3												E S	G2.4.7-1 1- Change rapidly depressurizing the RPV to the Main Condenser to "Anticipating Emergency Depressurization" Corrected	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only		
76	H	5/4 3					✓			✓			✓		U S 201003A2.05-1 Replace question. KA match. Predictions regarding ball valve are not used to select correct procedure and control consequences. Recall required is too specific for closed reference. Requires memory of specific steps specified in SD procedure section that has not been used at used at Hatch for several years and is therefore considered too specific for closed reference. Two correct answers. Distracter "B" could be viewed as correct based on 1) the standard for "preferred" is not defined, and 2) entry conditions for scram procedure are met and actions for bypassing the trip and resetting scram are contained in scram procedure. Question re-developed and changes agreed upon by both parties.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only			
															See Hatch question mark-ups for suggested final question.
77	H	3													E S 204000G2.1.2-1 Add "on Unit 2 at rated conditions" to stem at the end of first sentence. Cap "NOT" in A, B and D Corrected
78	H	4												S	211000G2.1.14-2
79	H	5 4							✓					U S	212000A2.20-1 – Recall too specific Recall required is too specific for closed reference. Tests memory of a 3 page TS table for LCO. Kept question but provided Tech Specs

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only			
80	H	5 3							√					U S	215004A2.02-2 - Recall too specific 1- Provide reference: Unit 2 core map in 34FH-OPS-001-0 and Tech Spec section 3.3.1.2, Instrumentation Section 2- Level of detail from memory beyond knowledge needed for new SRO due to different detectors in same relative quadrant for the two units and tech specs. 3- Reformat to bulleted format and add specific Unit (2) Agreed to provide both units core map; however NOT provide tech specs.
81	H	3												S	245000A2.07-1 1- Bullet conditions, Bold Unit 1 Corrected

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
82	H	5 4										√		U S	262001A2.08-3 Replace question. Does not match KA. Replacement provided Question tests knowledge of trip features of a breaker with loss of control power, not the KA of predicting the impact of opening a disconnect under load and using procedures based on those predictions. Opening a breaker to control power is not the same as opening a disconnect under load. Question replaced w/ opening switchyard disconnect question vs opening 4KV brkr under load	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
83	H	5 4								√						<p>U S</p> <p>295003AA2.04-1 Recall required is too specific for closed reference.</p> <p>Provide reference. Provide single-line of Unit 1 230KV switchyard Provide single-line of Unit 1 230KV switchyard Bold Unit 1 and 2 Edit to replace "an active LCO" with "a RAS" Delete from each choice whether the acceptance criteria is met. Reason is that if acceptance criteria is met, then RAS is not active</p> <p>Disagreed. Keep question as is w/ minor edits. No single line provided.</p>
84	H	4 3														<p>S</p> <p>295004AA2.02-1 Bold Unit 2 Corrected</p>
85	H	3	√													<p>E S</p> <p>295014G2.4.31-1 Bold Unit # Edit to provide withdraw limits. Since limits were not provided, if candidate assumes limit is 48, rod would not be mispositioned</p> <p>Corrected</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only				
																See Hatch question mark-ups for suggested final question.
86	H	4														ES 295020AA2.04-1 Editorial Change initial pressure to 140 psig to be more realistic, since it is unlikely that HPCI would be placed in service with only a 2 psig margin to the isolation signal (within reset band of instrument). Also reformat to break up long paragraph into 3 separate lines for readability. Corrected to 170 psig initial pressure and other edits.
87	H	3														S 295025EA2.06-1

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
88	H	5 3	✓		✓					✓			✓		U S	<p>295026G2.1.28-1</p> <p>Edit or replace Replacement provided. Validate</p> <p>Questionable KA match: Test knowledge of inputs to a recorder and TS requirements for the instrument function rather than the KA knowledge of major system components and controls.</p> <p>Recall required is too specific for closed reference. Requires detailed memory of sheet 5 of a 7 page Table in TRM, and detailed memory of which sensors input into a specific recorder, neither of which are reasonable for closed reference.</p> <p>Because of level of memory required, the LOD is a 5, does not discriminate.</p> <p>As constructed, the question has weak stem focus and is a collection of T/F statements.</p> <p>KA match for SRO because recorder used to obtain bulk avg torus temp. Agreed to provide TRM sheets.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only		
															See Hatch question mark-ups for suggested final question.
89	H	4 3												E S	295028EA2.06-1 Editing and formatting Correct spelling of initial Since the question starts with an EOP step, the candidate may assume the second part of the question is asking for the reason for the 340F limit. Recommend separation of two questions with 1) and 2) and adding LCO to improve stem focus on what question is asking. Corrected.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only		
90	H	4 3				√									U S 295033G2.4.50-1 two distracters the same Answer incorrect because based on old EAL's. Edited to correct. Distracters B and C are the same. Edited as described below to correct. Provide correct "Unit 1" SCC Table 6 reference and correct EAL reference (Cold Chart, final draft 73EP-EIP-001 revision for new EAL) 1-Bold Unit 1 and Rad monitor numbers, bullet conditions 2- Edit question to provide readings below the SCC entry condition (consistent with information provided in original question) 3- Delete alarm "setpoint"s. The significance is with the alarm not the setpoint, even though the instrument is at the setpoint. Changes incorporated. Different reference provided.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
91	H	4					✓						?		U S	<p>295038G2.2.22-1</p> <p>Discuss Change A to: Offgas post-treatment rad monitors (D11-K615 A and B) and Off-Gas Post-Treatment Instrumentation TLCO 3.3.8</p> <p>Ad to refs: D11-PRM-LP-10007, Process Rad Monitors</p> <p>A. is also true</p> <p>ODCM 3.1.1 actions for inoperable monitor include performance of SR 3.7.6. which is contained in LCO 3.7.6. ODCM 3.1.1 also specifies that the actions may be met by entering LCO 3.7.6' i.e. "Otherwise, enter condition "A" of Tech Spec LCO 3.7.6"</p> <p>Change "and" to "or" between instrument MPL #s. It only takes one of the instruments, not both.</p> <p>KA tie to EPE 295038 is questionable: Although the alarm may indicate the potential for high offsite release, it does not indicate High offsite release rate</p> <p>This alarm is directly related to release rate. Re-worded choices to make only one correct answer.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
92	H	5 3								✓					U S	<p>400000A2.03-1 Edit to address recall too specific</p> <p>Recall required is too specific for closed reference for two reasons:</p> <ol style="list-style-type: none"> 1) both the valves listed in correct answer and distracters would lower RBCCW temp HX outlet temp. Noun names are descriptive of both valves. (service water discharge vs PSW discharge). 2) ODCM table is too detailed to expect recall in closed reference (8 instruments with 4 applicability footnotes and five action statements). <p>As such, Q. does not discriminate.</p> <p>Reworded question to remove knowledge of which valve is required. Reworded choices to require knowledge of when rad monitor is required operable, vs action statement knowledge.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only				
																See Hatch question mark-ups for suggested final question.
93	H	4 3							✓						*U S	600000G2.4.29-1 Provide reference Recall too specific for closed reference – not realistic to memorize EAL conditions Replace question due to same classification for a JPM Question changed from Fire EAL classification to Steam line break EAL classification. Agreed to provide Fission Product Barrier EAL reference.
94	F	3													S	G2.1.14-1 Added to plausibility description for D.
95	H	5 3							✓			✓			U S	G2.1.7-1 Edit or replace Does not match KA. No operational judgment required. Recall required is too specific for closed reference. As such, does not discriminate Question was dealing w/ thermal hydraulic instability, including req'd TS OPRM algorithms. Accepted licensee's replacement question dealing with power-to-flow map and APLHGR TS req'ts.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia #/units	Back- ward	Q= K/A	SRO Only				
96	F	5 2						✓	✓						U S	<p>See Hatch question mark-ups for suggested final question.</p> <p>G2.2.19-1 Replace question due to job link. Job-link weak. SRO has minimal involvement in documenting and classifying minor work. SRO not involved in tool pouch work documentation. Recall required is too specific for closed reference, esp. for an aspect with little SS involvement. As such, does not discriminate. Replacement question from licensee used.</p>
97	H	5 4							✓			✓			* S	<p>G2.2.34-1 Replace to improve KA match and address recall too specific. Does not match KA. KA interpreted by replacement KA in supplement 1. KA is based on 55.43 (6) and does not require 55.43 (2). Recall too specific for closed reference. Even if candidate can work through TS application, ability to answer depends on recall of a specific detail in basis. Licensee's replacement question (Feedwater heating) was not SRO-only. Original question does match KA: inoperable rods = internal reactivity effect for tech spec application. Keep question.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/ E/ S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back- ward	Q= K/A	SRO Only			
																See Hatch question mark-ups for suggested final question.
98	H	5 3								✓						U S G2.3.9-1 Edit question. Recall required is too specific for closed reference. Tests applicant memory of one or two samples being required. Need to edit plausibility distracter analysis. Re-worded question to require knowledge of prohibited inerting lineup (vs samples req'd to be collected). Also agreed to provide reference drawing.
99	H	3													S	G2.4.11-1
100	F	2													S	G2.4.26-1

Hatch

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
<p>Instructions</p> <p>[Refer to Section D of ES-401 and Appendix B for additional information regarding each of the following concepts.]</p> <ol style="list-style-type: none"> Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level. 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). Check the appropriate box if a psychometric flaw is identified: <ul style="list-style-type: none"> 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). Check the appropriate box if a job content error is identified: <ul style="list-style-type: none"> 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. 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). 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? At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met). 																
<p>RO/SRO Combined Question</p>																
<p>Generic: Change all cog levels from 1 and 2 to C or M [i.e. (C 3.4/3.8)] Completed</p>																
1	C	2					X		X				Y	N	E S	201002K1.04 The 2 nd part of "C" sticks out like a sore thumb. Put a plausible alarm in and say "ONLY." Added RBM upscale to "C" - this is plausible since RBM triggers this alarm-makes "C" look like other choices. RFA 09/24/07

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
2	C	3				X							Y	N	U S	<p>202001A2.07</p> <p>Distractors "C" and "D" are not plausible. If a speed signal failure alarm does NOT occur, it seems like the 2nd parts of "C" and "D" would be moot.</p> <p>Re-write C and D or justify plausibility. Re-wrote "C" and "D" to iterate on how the indicated speed demand value changes following a pump trip.</p> <p>RFA 09/24/07</p>
3	C	3					X						Y	N	E S	<p>202002K4.03</p> <p>I ruled out "A" without even looking at it. At Hatch, the master controller (in manual) is normally used to control the speed of both pumps. This makes "A" plausible.</p> <p>Distractor "A" is NOT plausible since the auto position is nonfunctional. Mix B,C, and D in each distractor and use ONLYs, ORs, and ANDs.</p> <p>RFA 09/24/07</p>
4	C	3	X						X				Y	N	E S	<p>203000K2.02</p> <p>B) Remove the i.e. statement - don't teach. Removed i.e. statement</p> <p>C) Change "and" to "but" Changed</p> <p>D) The way this is written sound awkward and will be rejected. Re-write: "Neither LPCI Loops will inject." Re-wrote "Neither LPCI Loop will inject."</p> <p>RFA 09/24/07</p>
5	C	3	X				X						Y	N	E S	<p>205000K3.01</p> <p>Typo in the "Which one" statement. Corrected</p> <p>Make this Q a fill in the blank. Done</p> <p>A) is not plausible because the mode cannot get any lower unless going into refueling. Replace second part of "A." Not true -- based on IC's, plant is in Mode 3. If pressure lowers, Mode 4 can be attained.</p> <p>RFA 09/24/07</p>

Q#/#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
6	C	3					X						Y	N	ES	206000A1.01 B) Not plausible. Change "B" to "... HPCI will re-start but NOT inject at this time." Disagree because initiation conditions do not current exist in the stem. It is plausible that HPCI will not re-start. Re-worded stem to ask for logic response. Now "B" is plausible. RFA 09/24/07
7	M	2							X				Y	N	ES	206000K5.06 The F006 what? Injection valve? Added injection valve to F006. RFA 09/24/07
8	C	3	X						X				Y	N	ES	209001G2.1.31 Stem: Remove the comma after Operability. Corrected A) not plausible. Replace distractor "A." I dumped this one right away. Added the following phrase to "A": "The min flow valve can be closed; however it will auto-open after it reaches the full closed position." . If you really want to mess with their heads, change the stem so "A" is the correct answer. Changed question to fundamental knowledge item (vs higher order) RFA 09/24/07
9	C	3	X						X				Y	N	ES	211000K2.01 Stem: Put comma after transition. Put a comma after "transient" We have a power supply failure! "D" is NOT plausible. Replace distractor "D." Unique to Hatch: 600VAC 2C supplies 2R24-S011 (SLC pump 2A breaker). 2R24-S011 supplies 2R25-S101 (ALL SLC instrumentation & indicating lights for BOTH systems). "D" is plausible if applicant thinks the other division powers instrumentation & indicating lights. Added this explanation in question feedback section. Also changed question to fundamental knowledge item (vs higher order) This would fly under Rev 8 but NOT Rev 9. RFA 09/24/07

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
10	M	2											Y	N	S	212000K2.02 RFA 09/24/07
11	M	2							X				Y	N	ES	212000K4.07 Remove underline from the "will's" in distractors "B" and "D." Removed underlines RFA 09/24/07
12	M	2							X				Y	N	ES	215003K4.06 Remove the space in the "B" distractor. Removed space RFA 09/25/07
13	C	3											Y	N	S	215004A1.01 RFA 09/25/07
14	C	4											Y	N	S	215005K3.08 RFA 09/25/07
15	C	3	X						X				Y	N	ES	217000A3.03 Stem: Add verbs (is, are, etc.) and make complete sentences. Corrected typo Remove "only" in C and D. I see no value in them. Removed "only". Re-worded "C" to ensure that the choice clarified the reason for immediately tripping RCIC. This may be a trick F___ Q. What is 10 psig converted to Hg"? Verify "C" is not a correct answer too. RCIC trips on 10" Hg VACUUM suction pressure. I added the word vacuum to the distractor analysis. "C" states 10 psig..which is not vacuum. RFA 09/25/07

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
16	C	3	X						X				Y	N	ES	218000K6.02 Stem: Since you told them that 2E and 2F were de-energized, we do NOT need to tell them that 2G is energized (TMI). Applicant MUST know the pump power supplies. Removed from stem. Remove "only" in "A" and "D." Not necessary. Removed RFA 09/25/07
17	C	3					X						Y	N	ES	219000A3.01 Put(i.e. statement) in parenthesis. Put i.e. statement inside parenthesis Remove parenthetic statement in distractor A and C. Do not want to teach. Parenthetic statement is clarifying the exact switch scenario..it is not teaching. It is needed to ensure applicant understands valve logic. Is the first statement in D plausible given the IC's? Consider modeling D after C. Changed "D" to be the opposite of "C". RFA 09/25/07
18	C	3											Y	N	S	223002A2.09 RFA 09/25/07
19	C	3					X						Y	N	ES	223002K3.01 Correction noted in hard copy. Corrected the stem question arrangement On "B" and "C" I would stop at "level will rise" and delete "to eventually fill the main steam line" Deleted portion of "B" and "C" as stated RFA 09/25/07

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
20	M	2				X			X				Y	N	U S	<p>230000A4.03</p> <p>I do not believe "normally drained" for RHR piping is plausible. Are any of the other safety systems drained?</p> <p>I think distractors "B" and "D" are not plausible. Convince me otherwise. Hatch drains this section of piping to avoid introducing water into the drywell when the valve stroke operability test is performed. The jockey pump keepfill system maintains the piping upstream of the F016 full; however, the piping section between the F016 and F021 will not be ensured full. (Already described in distractor analysis) Re-worded both "B" and "D" to state this section of piping is "not maintained full of water." (Vs previous wording of "normally drained.") Correct answer is that section of piping is normally not maintained full of water by the keep fill system.</p> <p>RFA 09/25/07</p>
21	M	2	X						X				Y	N	E S	<p>233000G2.4.50</p> <p>Stem: "... does this..." → "... does the following..."</p> <p>Changed stem</p> <p>RFA 09/25/07</p>
22	M	2	X						X				Y	N	E S	<p>239002G2.4.22</p> <p>Pen and inks on hard copy noted. Changed "A" and "B" distractors to include "due to" (vs "on")</p> <p>Put ["cycling" does NOT include] in the stem. No because the choices all contain two parts</p> <p>RE: the table 1 opening sequence. Ref does not support that! Please show/provide. Highlighted basis for table 1 opening sequence in the lesson plan reference already provided.</p> <p>RFA 09/25/07</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
23	C	3	X						X				Y	N	E S	<p>245000K3.05</p> <p>DON'T TEACH !!! Go hang your instructor hat up. Delete from the stem "such that "D" MSR...i.e. only one MSR is affected." This wording makes one of the distractors plausible, i.e., applicant needs to know turbine trip logic does not require multiple high levels.</p> <p>Delete (control valves) from 2nd part of stem. Deleted "poppet" after discussion.</p> <p>RFA 09/25/07</p>
24	C	3	X						X				Y	N	E S	<p>259001K3.08</p> <p>Pen and inks on hard copy noted. Changed -35" to "Level 2"</p> <p>Stem: change to "...power <i>with</i> all systems ..." Corrected typo</p> <p>RFA 09/25/07</p>
25	C	3				X			X				Y	N	U S	<p>259002K4.10</p> <p>Pen and inks on hard copy noted.</p> <p>Fill out 401-4, Rejected KA report to justify new KA. Already done.</p> <p>Does the system ever NOT auto-swap to the alternate input? If not, what makes C and D plausible? Re-wrote question to ask for how RPV level is affected if controller lever is repositioned. (instead of how system responds to over range high/low on input signal). Better question.</p> <p>U until question is answered.</p> <p>RFA 09/25/07</p>
26	C	3											Y	N	S	<p>259002K6.01</p> <p>RFA 09/25/07</p>
27	C	3							X				Y	N	E S	<p>261000A1.05</p> <p>Pen and inks on hard copy noted. Replaced "current status of" with "SBGT lineup" in the stem. Deleted last part of the stem question (in accordance with these procedures) because procedures already identified earlier in the stem.</p> <p>RFA 09/25/07</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only		
27	C	3						X				Y	N	E S	261000A1.05 Pen and inks on hard copy noted. Replaced "current status of" with "SBGT lineup" in the stem. Deleted last part of the stem question (in accordance with these procedures) because procedures already identified earlier in the stem. RFA 09/25/07
28	C	3				X						Y	N	U S	262001A2.03 Distractors B and D are not plausible (Station BO) because we did not give them any indication that the EDGs failed to start or that the vital buses were not available. Either modify / replace B and D distractors or add something to stem to validate B and D. Re-wrote question to test knowledge pertaining to swing diesel normal alignment following a complete loss of all offsite power. Station blackout is plausible if applicant knows that Unit 2 will not have swing diesel. RFA 09/25/07
29	C	3						X				Y	N	E S	262002K3.15 A and D) Put "The turbine will NOT trip" first to model B and C Changed B) remove the "i.e. statement" Teaching again !! Removed i.e. statement RFA 09/25/07
30	M	2	X					X				Y	N	E S	263000G2.1.29 Stem: Pen and inks on hard copy noted. Changed "comes to" to "reaches" in the stem. B) remove "since the is ...involved" Unnecessary and may lead applicant to this choice. He should just know that no independent verification is required based on the circumstances in the stem. Removed RFA 09/25/07
31	M	2										Y	N	S	264000A4.05 RFA 09/25/07

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only			
32	C	3				X							Y	N	U S	<p>264000K3.01</p> <p>Given the IC's it is obvious that CS pumps are running.</p> <p>Put the fact that CS pumps are running in the stem and put in a new distractor for CS pumps running / not running.</p> <p>Currently U because 2 nonplausable distractors.</p> <p>Re-wrote question to ask for initial status of 2C RHR pump with Drywell pressure at 1.9 psig and final status of 2C RHR pump following LOSP w/ swing diesel unavailable.</p> <p>RFA 09/25/07</p>
33	M	2	X						X				Y	N	E S	<p>271000K5.06</p> <p>A and B) In service offgas recombiner T is ~800 per the ref on page 28 of 66, 2.f. at the top. I think you were looking at off gas catalytic recombiner T on page 50 of 66, table 1. Please re-verify. Changed A) and B) to 800 deg</p> <p>OR change stem to read "... in service off gas catalytic recombiner..." Changed</p> <p>RFA 09/25/07</p>
34	C? C	3				X							Y	N	U S	<p>272000G2.2.30</p> <p>Either remove the non action from C and D or replace them with an action that is NOT correct. As is, distractors C and D are not plausible. Applicants will eliminate these because if there were no actions nothing would be stated.</p> <p>Re-wrote the question by adding items to C and D that restricts bundle being lowered into vessel and REQUIRES bundle to be lowered into fuel pool only (false but plausible). Fuel Handling procedure allows either location.</p> <p>No cog level is listed but I thing this is C. I agree and added.</p> <p>RFA 09/25/07</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			
35	C M	2	X						X				Y	N	E S	288000K1.03 Stem: Pen and inks on hard copy noted. Changed 25 mR/hr to 25-30 mR/hr to be more realistic. I think the cog level should be (C) not (M). This is a fundamental knowledge item. RFA 09/25/07
36	C	3	X						X				Y	N	E S	290001K1.07 See pen and ink changes on the draft. Changes incorporated. RFA 09/25/07
37	C	3											Y	N	S	295001AK1.01 RFA 06/12/07
38	C	3											Y	N	S	295003AA1.04 RFA 06/12/07
39	M	2							X				Y	N	E S	295004AA2.04 A: Change the word "All" to "None," Remove the word "not." Completed C: Same thing Completed RFA 06/12/07
40	C	2							X				Y	N	E S	295005AK3.03 Move "Feedwater temperature will" to the stem. Done. Explain in distractor analysis why FW temperature lowers, i.e. extraction steam valves close resulting in loss of preheating, etc. Added explanation to correct choice in distractor analysis. RFA 06/12/07

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only			
41	C?	3					X		X				Y	N	ES	<p>295006AK1.01</p> <p>No Source <i>New</i></p> <p>No Cog Level <i>Higher</i></p> <p>Finish plausibility statement <i>Done</i></p> <p>Distractors NOT balanced <i>Completed</i></p> <p>Make distractor "B" 50% open (let's discuss) Licensee ran this question on the stand alone simulator...we can discuss w/ licensee.</p> <p>Make distractor "D" 2 BPVs open (let's discuss) Licensee ran this question on the stand alone simulator...we can discuss w/ licensee</p> <p>RFA 06/12/07</p>
42	C	3							X				Y	N	ES	<p>295007AA2.01</p> <p>You will have to walk me through this one. I could not see how you arrived at the select control conclusion. <i>The Hatch digital EHC system has several different computer screen displays for the operator to adjust parameters. The correct display to remedy this high pressure condition is the psi-load display (vs the pressure transmitter display) This is not minutia because the operator only has the screen displays to adjust pressure setpoint.</i></p> <p>RFA 09/25/07</p>
43	C	3					X						Y	N	ES	<p>295012AK3.01</p> <p>First bullet: Re state as follows: CRD and RCIC are controlling level at 33" <i>Done</i></p> <p>Distractor D is not plausible with all diesels tied to their respective 4160v bus. Take some diesels out and this Q might fly. <i>Not necessary. The coolers have a feature which automatically locks them out following LOCA signal. Distractor D is plausible for this reason.</i></p> <p>RFA 09/25/07</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
44	C	3				X							Y	N	U S	<p>295013AK1.03</p> <p>Multiple non plausible distractors. Changed the stem to ask for the criteria used to determine when HPCI must FIRST be stopped. Therefore the subset issues are remedied.</p> <p>"D" is also a correct answer because it is within the envelope of "C."</p> <p>If "B" was correct, "A" would be also.</p> <p>Change stem "... identifies the limitation when HPCI"</p> <p>RFA 09/25/07</p>
45	C	3				X							Y	N	U S	<p>295014G2.1.30</p> <p>"A" and "B" contain no actions. Therefore 2 non plausible distractors. Changed "A" to close (vs verify closed)...this is an action. Also changed action "B" to say range the IRM up. Re-worded the stem to qualify which action would ensure a full scam does not occur.</p> <p>RFA 09/25/07</p>
46	C	3						X					Y	N	E S	<p>295015AK2.08</p> <p>See stem grammar errors on hard copy. Corrected</p> <p>RFA 09/25/07</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws				4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A			SRO Only
47	G? M	3	X									Y	N	U S	<p>295016AA1.06</p> <p>No Source New</p> <p>No Cog Level Fund</p> <p>Stem: "..... and shutdown from outside the control room is being implemented via 31-RS-OPS-001-1, PROCEDURE TITLE' Capitalized title</p> <p>Something doesn't make sense: You said in "A" that the fuel zone is used at the RSDP on Unit 1. The stem asked "...at Unit 1..." Should this be Unit 2 or 3? The stem and distractor analysis do not jive. Cleared up distractor analysis. Unit 1 uses the post accident range (i.e., fuel zone) instrument at the remote shutdown panel. Unit 2 uses the wide range instrument.</p> <p>Unsat until clarified (potentially no correct answers) "C" is the only correct answer. Question is sat.</p> <p>RFA 06/12/07</p>
48	C	3				X						Y	N	U S	<p>295017AK1.02</p> <p>0.57 should be 0.057 mR/hr See ref page 4 of 24. Two distractors affected. Corrected typo</p> <p>Why is 1 R/hr plausible in B and D? Because this value is used in path G-2 of the same procedure.</p> <p>RFA 09/25/07</p>
49	C	3						X				Y	N	E S	<p>295018AK2.02</p> <p>A scram is required if only one pump is running (page 3 of 34AB-P42-001-2). Distractor analysis for "C" indicates that 2 pumps are NOT running. Is "C" a potentially correct answer? Yes, "C" was potentially correct based on wording of the stem. It kind of looks like that the distractor analysis for "C" is wrong. Re-evaluate and let's talk. Changed "C" to include starting a standby RBCCW pump (which is not available) and also tightened the stem question by saying in accordance with..... Good comment.</p> <p>RFA 06/13/07</p>
50	M	2										Y	N	S	<p>295019AK2.11</p> <p>RFA 06/13/07</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
51	C	4											Y	N	S	295021AK2.07 Great Question!! RFA 06/13/07
52	M	2							X				Y	N	ES	295022AK2.07 A. Shorter, Pressurized, de-pressurized From 600 - 1200 reactor vessel pressure this is not true according to the reference. See the dashed line. Scram times increase then decrease. Please re-evaluate. "A" could be considered correct for the pressure range between 600 - 1200. Changed "A" and "B" wording to specifically identify two different pressures for comparison (vs saying pressurized/de-pressurized). RFA 09/26/07
53	C M	3	X										Y	N	ES	295023AK2.01 I do not think this is a (C) Q because it revolves around knowledge of the hoist interlocks. Change to (M). Changed to fundamental knowledge RFA 09/26/07
54	C	4											Y	N	S	295024EK1.01 Tough but a good Q. RFA 09/26/07
55	C	4	X						X				Y	N	ES	295025EK1.03 Stem: Change "... when SRVs lifting." To "...when the SRVs lifted." Unnecessary words...I removed them. Change bullet symbol to a dash or something. Agree..deleted bullet symbols. Make Q a fill in the blank. _____ tailpipe temperatures are ___ deg F and stable. Not necessary. RFA 09/26/07

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
56	C	4	X						X				Y	Y	E S	<p>295026EK1.02</p> <p>Change bullet symbol to a dash or something. Agree..deleted bullet symbols.</p> <p>Add to A and B "Terminate the HPCI test" Added.</p> <p>This Q may be getting into SRO only space. Reconsider. EOP entry conditions knowledge. OK.</p> <p>RFA 09/26/07</p>
57	M	2											Y	N	S	<p>295026G2.4.23</p> <p>RFA 09/26/07</p>
58	C	3				X							Y	N	U S	<p>295028EK2.01</p> <p>I get a different number (275 F) for re-initiation in C. "C" provides drywell temperature is 225 deg and rising. This is a fixed value provided and the applicant is required to evaluate whether this is safe in accordance with curve 8. (It is in the safe region.)</p> <p>Why do you think the second parts of B and D are plausible? Re-worded question in the stem to help w/ "B" and "D" plausibility, i.e., It is plausible that the applicant may not know the rules of usage for Curve 8 assessments. Re-worded B and D to help w/ plausibility by stating "Because curve 8 was already evaluated the first time sprays were initiated, sprays may be re-initiated a second time without re-evaluating temperature on curve 8." This helps w/ plausibility.</p> <p>Why is 300 plausible in distractor A? 300 degrees is in safe region on Curve 8 (for 7 psig pressure)</p> <p>Please re-visit this question and/or show me the money. Contacted licensee and verified 225 and 300 deg in SAFE region for both units.</p> <p>RFA 09/26/07</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only			
59	C	3							X				Y	N	U S	<p>295030EK1.01</p> <p>Mark correct answer. "C" marked.</p> <p>You will have to walk me through this one. I do not see the significance of the 57.5 torus water level. The lowest level on the graph is 80". The whole reference page makes no sense under these conditions. At torus levels below 57.5", the SRVs and HPCI cannot be used. Since the BOP buses are unavailable, the only system allowed is RCIC even though it also discharges into torus. This explanation added to distractor analysis.</p> <p>Re-worded stem question to make distractors more plausible.</p> <p>Removed bullets.</p> <p>U until I understand the logic.</p> <p>RFA 09/26/07</p>
60	M	2											Y	N	S	<p>295031G2.4.45</p> <p>RFA 09/26/07</p>
61	C	3				X							Y	N	U S	<p>205037EA1.07</p> <p>Is there any situation where the emergency in position will NOT work? Yes...emergency in would not work if RWM was enforcing, i.e., APRMs less than 22% power. If so, Distractors A and B are not plausible.</p> <p>Removed bullets.</p> <p>Please re-evaluate. U until re-evaluated.</p> <p>RFA 09/26/07</p>
62	M	2	X						X				Y	N	E S	<p>295038EK1.03</p> <p>Stem: Change :An plant" to "A plant" Corrected typo</p> <p>Change the second part of B and D to read: "90° means the winds are coming from the east." Corrected.</p> <p>RFA 09/26/07</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
63	M	2							X				Y	N	ES	300000K4.02 "B" is a true statement because it is a subset of "D." Add "only" to "B." "A" is a subset of "C." Add "only" to "A." Added "only" to both "A" and "B". RFA 09/26/07
64	C? M	2							X				Y	N	ES	400000K3.01 This is a trick F ___ Q but I like it. They have to know their PS. This is an (M) not (C) level question. Changed to fundamental. RFA 09/26/07
65	M	2	X						X				Y	N	ES	600000AK2.01 Remove "is" from stem second paragraph. Corrected typo The "Which one" statement does not read clean. Please adjust. Took "assuming one detector" up into first paragraph. Cap the "s" in sprinkler in all choices. Cap "C" something is missing in first part. I think it is "does not exist." Need an "a" after "if." Corrected typo The reference does not support the answer. Contacted licensee, will provide reference to state that RHR room is wet pipe sprinkler system. RFA 09/26/07
66	M	2											Y	N	S	G2.1.2 I guess we have to throw a bone every now and then. RFA 09/26/07

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only			
67	M	2							X				Y	N	ES	G2.1.25 Mark correct answer. Marked "B" RFA 09/26/07
68	M	2							X				Y	N	ES	G2.2.11 "B" Put "A" first (A power supply for a welding ...) then Change "ran" to "run." "C" and "D" Put "A" first. Put periods after all choices. Corrected all items listed above. RFA 09/26/07
69	M	2							X				Y	N	ES	G2.2.27 Do we need to label N, S, E, and W on the picture or should they know this information? Do not label, they should know this. Not even sure if directions are labeled in the actual building. I am thinking not since the bank Q did not have it. RFA 09/26/07
70	M	2											Y	N	S	G2.2.4 RFA 09/26/07
71	C	4	X						X				Y	N	ES	G2.3.10 Since you are not to place MCR HVAC in pressure mode, just delete that part. Same for 2 nd part of "D." It will be more plausible. They ARE required to place MCR HVAC in pressure mode. Answer wasn't marked. Leave as is. Stem: Change "actions" to "action(s)" Corrected. RFA 09/26/07

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
72	C	3	X						X				Y	N	E S	G2.3.2 I think "A" is not plausible. Let's put a number in here. Stem: Remove "if any." Changes made. Inserted "2 hours" verus none. Removed if any from the stem question. RFA 09/26/07
73	M	2							X				Y	N	E* S	G2.4.29 There is insufficient ref material to determine / confirm the correct answer. Please explain or provide additional ref material. Reference material is a big flowchart I have. RFA 09/26/07
74	M	1				X							Y	N	U	G2.4.45 Mark correct answer. This by itself has no discriminatory value. Add a bunch of colors forcing the applicant to recall more information. During my emergency exercise observation visit in August, I noticed these white frames. When back in the office, I asked licensee what significance was, and they could not tell me. I finally found the significance in the prompt offsite dose assessment procedure. Each distractor is plausible because it actually has a colored flag or dot. RFA 09/26/07
75	M	2											Y	N	S	G2.4.7 RFA 09/26/07

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
SRO ONLY																
76	M	2							X				Y	Y	E*	<p>201003A2.05</p> <p>S If "ONLY" is used in B and C, then both procedures should be listed in A and D. Add "ONLY" to A and D, list second procedure in A and D, remove the "ONLY" from B and D, or explain why. Re-worded stem to ask for the "preferred" procedure to use to bypass the discharge volume trip and reset the scram, since both procedures provide the guidance.</p> <p>Where in the reference supports the first part of A and B (Reactor pressure WILL...)? Added lesson plan reference that describes ball check valve.</p> <p>RFA 09/24/07</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only			
77	C	3							X				Y	Y	E	204000G2.12
															S	<p>If a normal reactor SD is in order, you do NOT have to tell them to NOT scram the reactor. Additionally, if a reactor scram is in order, you do not have to tell them to NOT do a normal SD.</p> <p>Suggestion:</p> <p>A) Delete "An immediate reactor scram is currently not required)</p> <p>B) Delete "Do not commence a reactor shutdown..." Add the scram procedure.</p> <p>C) Delete "Do not commence a reactor shutdown..." Add the scram procedure.</p> <p>D) Delete all of "Do not" statements. Add the operating procedure.</p> <p>Re-worded the choices to eliminate wording duplication while still ensuring no sub-set issues.</p> <p>RFA 09/24/07</p>
78	C	3							X				Y	Y	E	211000G2..1.14
															S	<p>Stem: change "An transient..." to "a transient..."</p> <p>Add "or" after last comma in "C"</p> <p>Both comments incorporated.</p> <p>RFA 09/24/07</p>

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
79	C	3				X							Y	Y	U S	<p>212000A2.20</p> <p>C) State "A high level scram has occurred." Delete the rest of that sentence, it teaches.</p> <p>C and D are ambiguous because you told them that the bypass switch is in Normal in the stem.</p> <p>Rewrite C and D.</p> <p>Re-worded the stem to ask for the operation of the RPS logic and then re-arranged the choices to require applicant to determine whether a scram has occurred; how the bypass switch logic works; and the tech spec requirements for the high level trip.</p> <p>RFA 09/24/07</p>
80	C	3				X							Y	Y	U S	<p>215004A2.02</p> <p>Stem: Change "The operability status ..." to "The SRM status is as follows:"<i>Re-worded stem with suggestion.</i> Also added clarification that the reload was spiral.</p> <p>Two nonplausible distractors. It is obvious that SRM "C" is inoperable. Remove the operability statement from each choice and re-write B or C. <i>Removed operability status for SRM "C" and re-wrote C. Added 10CFR55.43 as link to SRO -only basis. Modified "B" to eliminate the word "only."</i></p> <p>RFA 09/24/07</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
81	C	3							X				Y	Y	E S	<p>245000A2.07</p> <p>Change stem: "Which oneat this point. Which procedure is to be ..." Eliminated "at this point". Instead, both the prediction and the procedure are linked to the last portion of the stem, i.e., "at this current power level."</p> <p>D) Rewrite 2nd part: "Implement...after the turbine trips." Re-wrote both A and D to say "Enter" versus "Implement".</p> <p>What is the significance of 265 MW? 285 is in the stem. Licensee requested that stem be 285 MW(e) to ensure steam flow was greater than bypass valve capacity. Stem was changed, but the distractor analysis was inadvertently missed. Revised distractor analysis to refer to 285 MW(e).</p> <p>RFA 09/24/07</p>
82	M	2											Y	Y	S	<p>262001A2.08</p> <p>RFA 09/24/07</p>
83	C	3							X				Y	Y	E S	<p>295003AA2.04</p> <p>What is the acceptance criteria and why will it NOT be met? Furthermore, why perform the surveillance if the acceptance criteria will not be met? The breaker surveillance is REQUIRED to be performed per TS 3.8.1 anytime there is an offsite circuit that becomes inoperable. Even though the acceptance criteria will not be met (because one of the offsite circuits is inoperable) the surveillance ensures that the remaining offsite circuit is operable and that the breaker alignments are sat. Included the words "even though" to clarify.</p> <p>RFA 09/24/07</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
84	M	2							X				Y	Y	E* S	295004AA2.02 Define ATTS. Added parenthesis w/ acronymn to stem. RFA 09/24/07
85	C	3					X		X				Y	Y	E S	295014G2.4.31 Typo in stem. See hard copy pencil mark. Corrected Since the rod is considered mispositioned and the the Rod Out Block annunciator comes in, why is "A" wrong? "A" is wrong because TS 3.1.6 is only applicable at < 10% power. RFA 09/24/07
86	C	3											W	Y	U S	295020AA2.04 I fail to see the connection to inadvertent containment isolation! HPCI isolated at 128 psig. The crew should recognize that reactor pressure (125 psig) lowered below the HPCI isolation setpoint while they were equalizing across the MSIVs. Thus, an inadvertent containment isolation (Group 3) has occurred. This explanation added to question feedback field. KA: not met RFA 09/24/07

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
87	C	3											N	Y	U S	295025EA2.06 I fail to see the connection to high reactor pressure? EOPs require remaining pressurized following a loss of all high and low pressure injection systems and beginning steam cooling (@ -185") UNTIL an injection system is regained; then ED. In this case ED'g will eliminate the injection system (HPCI); and EOPs specifically exempt ED in this situation. The question satisfies KA because requires interpretation of RPV water level as it pertains to high reactor pressure, i.e. being in steam cooling. Added this explanation to question feedback section. KA: not met RFA 09/24/07
88	M	2											Y	Y	S	295026G2.1.28 RFA 09/24/07
89	M	2											N	Y	U S	295028EA2.06 The 2 nd part of the KA is not met (torus/suppression chamber air space temperature). This Q is written against the drywall not the torus. Per discussion w/ RFA on 9/25/07, Ability to differentiate between torus air space and drywell air space is implied. RFA 09/24/07

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
90	C	3							X				Y	Y	E S	<p>295033G2.4.50</p> <p>B) Why is (wrong) written in "B"? Inadvertently left in text during question construction. (Removed)</p> <p>D) Need a space between "NOT" and "meet" Corrected</p> <p>All choices: Change "this" to "the" preceding EXHAUST and AREA. Corrected</p> <p>All choices: Place a comma after "classification" and "accident." Corrected</p> <p>RFA 09/24/07</p>
91	C	3					X		X				Y	Y	E S	<p>295038G2.2.22</p> <p>Why are C and D plausible since we give then the OffGas annunciator? C and D are plausible because the annunciator engraving does not specify which rad monitor causes the alarm. The applicant must decide which rad monitor triggers the annual release exceeded alarm, since both rad monitor choices monitor offgas activity.</p> <p>Explain/reevaluate</p> <p>RFA 09/24/07</p>
92	C	3							X				Y	Y	E S	<p>400000A2.03</p> <p>Shorten "D." To many words make it suspicious. Boil down the second sentence. Re-worded "D" to conform with the other choices. Also shortened all choices by moving common items to the stem. Also clarified each choice by adding the minimum tech spec actions required.</p> <p>RFA 09/24/07</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
93	C	3							X				Y	Y	E S	600000G2.4.29 Boil the fru fru down in the stem. Use bullets for the time line. At 1000 this happened At 1010 this happened At 1012 this happened Re-arranged stem so that the time is listed first; also consolidated some of the wording so that the items are shorter. Which one ... CAF E-Plan revision RFA 09/24/07
94	M	2											Y	Y	S	G2.1.14 I think this Q is a "gimmie" but it is legal. RFA 09/24/07
95	C	3											Y	Y	S	G2.1.7 RFA 09/24/07
96	M	2											Y	Y	S	G2.2.19 I like it but I think the utility is going to complain about the complexity and "grayness" of this one - we'll see. RFA 09/24/07

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q=K/A	SRO Only			
97	C	3				X							Y	Y	U S	<p>G2.2.34</p> <p>The 2nd parts of C and D do not match. I think they should. The first parts of C and D do match. The 2nd parts do not match because the applicant is being required to know how the rod must be disarmed, i.e., either electrically or hydraulically. The Q is not balanced and the applicant most likely will rule out A and B. "A" is directly from TS 3.1.4 A. "B" is directly from TS 3.1.5A.</p> <p>Suggest a re-write. Re-worded stem to ask for "minimum" required actions. Also added words to both "A" and "B" to strengthen credibility. Shortened "C" and "D" by simply stating electrically/hydraulically versus describing amphenols, valves, etc.</p> <p>RFA 09/24/07</p>
98	C	3						X					Y	Y	E S	<p>G2.3.9</p> <p>Where does it say drywall and torus purging are NOT allowed to be performed concurrently? Added page 16 of 74 to notebook references (purging procedure); 34SO-T48-002-2, Section 7.1.4. Concern is that in mode 3, steam in DW could bypass the torus water (i.e., be introduced into torus air space) if both done simultaneously.</p> <p>Distractor "A" is potentially correct too. Add an "ONLY" in front of ONE in distractor "A" and "C." Added the word "only" to the items stating one sample. Added the words "at least" to the items stating two samples.</p> <p>Suggest making this Q a fill in the blank.</p> <p>RFA 09/24/07</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Backward	Q=K/A	SRO Only			
99	C	3							X				Y	Y	E S	<p>G2.4.11</p> <p>Typo in "A,B,C, and D" "is the is the" Removed typos</p> <p>A second typo in "B" "until the and the" Removed typo</p> <p>Mark "A" as the correct answer. Marked "A" correct.</p> <p>Why is the first part of "C" and "D" plausible? Specifically the time differential part? I could not find it in the reference. The "time differential" wording is located on page 11 of 22 in Attachment 1 of 34AB-E11-001-2 (see yellow sticky)</p> <p>RFA 09/24/07</p>
100	M	2							X				Y	Y	E S	<p>G2.4.26</p> <p>The 2nd part of each choice is NOT solicited. Restate the Q. Added "including their assignment limitations" to the stem question.</p> <p>RFA 09/24/07</p>

*

Independent of whether or not it met the KA, mis-classified WRT RO/SRO, or required grammar or *minor* enhancement.

Question Status	
S	Question is Sat with NO Comments
E	Editorial Changes Needed
E*	Questionable Editorial
U	Question is All Hosed Up
S?	Questionable
S*	Question and stem sat - editorial elsewhere
N*	Partially met KA

Facility

ES-401

Written Examination
DRAFT Review Worksheet

Form ES-401-9

Hatch

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation	
Stem Focus	Cues	T/F Cred. Dist.	Partial Job-Link	Minutia#/units	Back-ward	Q= SRO K/A Only	See Hatch question mark-ups for suggested final question.
1	H	4	√			E	201002K1.04-1 – Stem Focus – 1- Added Unit 1 in bold. 2- deleted /2 from procedure #. 3.- "the" RBM insinuates we only have 1, Change the RBM to A RBM. 4- Delete central control rod and state control rod # 22-35 5- The RBM should null at 100 and not exceed the setpoint when a rod is selected. Also there is an upscale and downscale setpoint that can be exceeded. Added statement about nulling and RBM readings. 6- Made stem and answer choices in present tense instead of past tense.

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation				
Q#	LOK	LOD								
(F/H)	(1-5)									
Stem Focus	Cues	T/F	Cred. Dist.	Partial Job-Link	Minutia#/units	Backward	Q=K/A	SRO Only		
2	H	4	√		√				E	<p>202001A2.07-1 - Stem Focus -Partial</p> <p>1- Add and bold Unit # (1) - References Unit 1, plausibility for "C" distractor Unit 2 (44%), "C" distractor Unit 1 (55%), Change plausibility for "C" distractor to 55%</p> <p>2- Shorten stem to say the valve closes and the pump trips, since the 2nd paragraph of the stem insinuates the pump trips, since the pump restart actions are asked.</p> <p>3- Add "some of the required recovery actions necessary prior to", since this is not all of the actions required to restart the pump.</p> <p>4- To bullet proof "A" and "B" distractors, add that the PF lamp is flashing or not flashing to distractors "A" and "B", because the reason for depressing the runback pushbutton is to reset the flashing PF lamp. The pump will restart without depressing the runback. (Tested on Desktop Simulator)</p>

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation			
Q#	LOK	LOD							
(F/H)	(1-5)								
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	
3	H	3							<p>See Hatch question mark-ups for suggested final question.</p> <p>E 202002K4.03-1</p> <p>1- Bold Unit 1</p> <p>2- Add a blank line and bold "No other alarms present on any Control Room Panels". Being next to the bolded, all caps, annunciator titles mask an important point.</p> <p>3- Distractor "C" delete "Vital AC ", add Unit designator to R25-S064</p>
4	H	4							<p>E 203000K2.02-2</p> <p>1- Bold Unit 1</p> <p>2- Bullet conditions</p> <p>3- To bullet proof - Add " subsequently lowers from 750 psig to 150 psi". If Rx pressure was below 449 psig before S018A was lost "A" would be a correct answer. Even though a small amount of injection may start to inject at 200 psig, our surveillance (34SV-E11-001-1) only requires 161 psid for full flow. Tech Spec requires full flow for a Rx, pressure of >20 psi.</p> <p>4- Change Loop 1 and 2, to Loop A and B</p>

Q#	1. LOK	2. LOD	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation		
	Stem Focus	Cues	T/F Cred. Dist.	Partial Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	See Hatch question mark-ups for suggested final question.
5	H	2						S	205000K3.01-1 1- Bold Unit 2 2- Bullet conditions 3- Put MSIVs closed on seperate line
6	H	3						E	206000A1.01-1 1- Add Unit 2 2- Add bullets to conditions 3- To bullet proof Change "Immediately" to "inject after 2E41-F006, HPCI Injection Valve, re-opens" in A and D. Takes several seconds for HPCI F001 to open, Then the F006 starts opening. There is some delay in injection after resetting the High Water Level Signal. 4- Underline NOT in B distractor to match NOT in C distractor
7	F	3						S	206000K5.06-1 1- Add Unit #

1. Q#	2. LOK	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation
(F/H) (1-5)		Stem Cues T/F Cred. Partial Job-Link Minutia#/units Back-ward		Q= SRO		See Hatch question mark-ups for suggested final question.
		Focus Dist.		K/A Only		
8	H	4			E	209001G2.1.31-1 1- Deleted "/2" from procedure # to make it unit 1, same as the reference. Added Unit designator to valve #s. Changed to Unit 1 in bold. 2- Change 34SV-E21-001-1 (pump surv) to 34SV-E21-002-1(valve Surv). All these valves will actually be manipulated in the valve surv. and the same valve lineup is required as the pump surv. after completion. 3- Changed second party verifier to Hatch term Independent Verifier. 4- Added "while performing the Standby Lineup attachment of 34SO-E21-001-1, Core Spray System" 5- Bulleted conditions
9	H	3			S	211000K2.01-1 1- Added Unit 2 in bold
10	F	2			S	212000K2.02-1 1- Added "On Unit 2 ," and "2H11-" to P925 panel

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6.	7.				
Q#	LOK	LOD			U/ E/ S	Explanation				
(F/H)	(1-5)									
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q=	SRO		
			Dist.				K/A	Only	See Hatch question mark-ups for suggested final question.	
11	H	3							S	212000K4.07-1 1- Delete reference to Shorting Links in second half of distractors. Add that Unit 1 is in refuel and that the shorting links are removed. The number of shorting links is insignificant to how the logic operates. Adding "An INOP trip on IRM "A" will cause a Full(or half) reactor scram" is a much more significant point about the shorting links and more closely matches the K/A. 2- Add " Unit 1 is in Refuel. "

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation			
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q=K/A	SRO Only	See Hatch question mark-ups for suggested final question.
12	H	4	√						U 215003K4.06-1 – Stem focus – no correct answer. 1- Add Unit 2 , break into two sentences 2- Change 30 to 7 on the 0 - 40 Scale. 30 on range 5 (0-40 scale) is a rod block. Also the IRM would have been reading 300 on range 4, which would have already given a scam signal. With the IRM at 7 on range 5, the plausibility for distractors that indicate the amber light is illuminated on the 603 panel is increased, since the downscale is 10/125 of scale, 7 is a rodblock on range 6 and 4.

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation				
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q=K/A	SRO Only		
13	H	3	√		√				U	<p>See Hatch question mark-ups for suggested final question.</p> <p>215004A1.01-1 – Stem Focus/Partial Multiple correct answers depending on assumptions.</p> <p>1- Bold Unit 2, and add bullets to the conditions.</p> <p>2- Delete "from a refueling outage" and "rx press at 200"</p> <p>3- Too bullet proof - Change IRM range from "8 and 9" to " 5 and 6" so that the detectors are partially (90%) withdrawn. I'm not a 100% sure that the retract permit light will be illuminated if the SRM is fully withdrawn.</p> <p>4- Add "SRM detectors are withdrawn 90% from Full-in"</p> <p>5- Move " Assume that SRM/IRM detector selection power is still ON" to bulleted conditions</p>
14	H	3							E	<p>215005K3.08-1</p> <p>1- Bold Unit 2</p> <p>2- Delete "the" panel and add "2" to H11-P603</p>

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation			
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q=	SRO	See Hatch question mark-ups for suggested final question.
		Dist.					K/A	Only	
15	H	3							E 217000A3.03-1 1- Add "Unit 2 experienced", delete "after", change from rated power to 100% power, break into multiple sentences. 2- change stable to slowly decreasing for RWL. (CRD won't maintain stable level this soon after a loss of feedwater with no other system injecting.) 3- Add "HPCI is inoperable." (Will prevent questions from applicants on HPCI status.) 4- Bullet RCIC conditions 5- Change "injecting to the vessel" to "operating" because it is not injecting

1. Q#	2. LOK	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation
(F/H) (1-5)		Stem Cues T/F Cred. Partial Job-Link Minutia#/units Back-ward Q= SRO				See Hatch question mark-ups for suggested final question.
		Focus Dist.				
16	H	4	√	√		U 218000K6.02-1, Stem/Partial 1- Bold Unit 2 and T=0, break between first two sentences, bullet conditions 2- Add "and slowly decreasing" for drywell pressure because if DW press goes above 1.85 ADS will actuate 2 minutes later. 3- Change times from 13 to 12.7 and 2 to 1.7. This is to ensure that the student knows that we are not just using the old name for the timers (13 minute and 2 minute) and that we are using the real times (11 minutes and 102.5 secs.) 4- Change correct answer to A from C. It only takes 1 RHR or 1 CS pump to obtain the pressure permissive for ADS initiation. (Question used in reference had logic failure that did not have any ECCS pumps operating.) Also Changed "D" distractor to make incorrect. 5- Added 34AR-602-306-2, Auto Blowdown Timers Initiated and 34AR-602-305-2, ADS Low Water LVL ACTU Timers Initiated, to references. 6- Updated Plausibility statements

1. Q#	2. LOK	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation	
(F/H) (1-5)		Stem Cues T/F Cred. Partial Job-Link Minutia#/units	Back-ward	Q= K/A	SRO Only		
17	H	3	√	√		E	<p>See Hatch question mark-ups for suggested final question.</p> <p>219000A3.01-1 – stem focus - Partial</p> <p>1- Add Unit 2 in Bold, change to 2H11, add 2 in front of valve #s, and bullet conditions</p> <p>2- Change EHC controlling pressure at 840 psig to match EOP RCA/P requirements to lower pressure set to <845 psig</p> <p>3- Bullet the conditions in the paragraph below the conditions and that SBLC is injecting, then delete the sentences containing those conditions.</p> <p>4- change -150" to -130" because a compensated RWL of -150" (actual RWL) is right at 2/3rds core height indicated RWL and the 2/3rds core height override may be required.</p>
18	H	3				E	<p>223002A2.09-2</p> <p>1- Bold Unit 2</p> <p>2- Add "total" to loss of vacuum to ensure the applicant knows that vacuum is at 0".</p> <p>3- Break first paragraph into two sentences with bulleted conditions.</p>

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation		
Stem Focus	Cues	T/F Cred. Dist.	Partial Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	See Hatch question mark-ups for suggested final question.
19	H	3						E 223002K3.01-2 1- Bold Unit1, add full MPL #s to valves, bullet conditions. 2- Change "2B" RHR to "1B". Applicant may think Unit 2 "B" RHR, not 1E11-C002B.
20	F	2						E 230000A4.03-1 1- Add "upstream of 2E11-F016 " to describe where the level drop is. The applicant could assume that the question is asking about the level and alarm in the section of piping between the two spray valves. 2- Add bold Unit #s, add Unit designator to all valves, captilize and bold all NOTs

Q#	1. LOK	2. LOD	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation			
Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia#/units	Back-ward	Q=K/A	SRO Only	See Hatch question mark-ups for suggested final question.
21	H	3					√			U 233000G2.4.50-1 – Partial – Incorrect answer 1- Incorrect answer. The 1G41-F035 is closed under clearance prior to removing gates. This is the isolation valve to the instrument that causes the alarm. The alarm is NOT illuminated during an outage. 2- Due to the indepth, specific knowledge of method for this valve line-up (clearance), it is beyond expectations for an operator to indentify the correct answer from memory. 3- K/A is for Fuel Pool Cooling and Cleanup system. Question was about Fuel Pool Gate Seals during an Outage. Wrote substitute question that more closely matches the K/A. See new question.
22	F	2								E 239002G2.4.22-1 1- Change Low Level Set to Low Low Set 2- Change backup electrical relief setpoint to electrical overpressure setpoint.

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation			
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q=K/A	SRO Only	See Hatch question mark-ups for suggested final question.
23	H	2							S 245000K3.05-1 1- Bold Unit 2
24	H	3							E 259001K3.08-1 1- Change Level 2 to -45 inches to allow time for the Systems to align to provide the possible indications in the distractors.
25	H	4							E 259002K4.10-1 1- Add (Note: The lights above each SELECT Switch is extinguished.) 2- Add (NOTE: The Green "A" light on each controller is illuminated.) 3- Change light color above Reactor Water Mode Select switch to match other select switch light. 4- Updated Plausibility

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6.	7.			
Q#	LOK	LOD			U/ E/ S	Explanation			
(F/H)	(1-5)								
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	
26	H	4			√				<p>E 259002K6.01-1</p> <p>1- Bold Unit 2, bullet conditions</p> <p>2- . Delete "FEEDWATER CONTROL SYSTEM TROUBLE" really has nothing to do with loss of air. To more closely match KA, Add to each distractor "Reactor Feedwater Pumps 2A and 2B speed will" (A & D) increase (B & C) remain the same "due to system minimum flow valves failing open (closed)".</p> <p>. Add to plausibility statement for B-D "Also plausible if applicant does not know the effect of loss of air to the condensate and condensate booster pumps min flow valves and the effect on the feedwater pump."</p> <p>3- Add to references - 34AB-P51-001-2, Loss of Air Abnormal procedure</p>

1. Q#	2. LOK	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation
(F/H) (1-5)		Stem Cues T/F Cred. Partial Job-Link Minutia#/units	Back-ward	Q= K/A	SRO Only	
27	H	4	√	√		U 261000A1.05-2 – Job Link/Recall level without reference 1- The level of detail of the EOP flowcharts in original question is typically reserved for SROs, modified Stem and distractors for Normal Inerting. Kept same question structure and most of first half of each distractor. Added Percent O2 concentration requirement requiring applicant to know Tech Spec limit for O2.
28	H	3	√			E 262001A2.03-1 Stem Focus 1- Whether or not a LOCA signal has been received on one or both units would change the correct answer to this question; therefore, added the following statement "Neither unit currently has a LOCA signal present" to the stem of the question in order to clarify this point. 2- Cap Only in C and D

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation				
Q#	LOK	LOD								
(F/H)	(1-5)									
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only		
29	F	3							S	<p>262002K3.15-1</p> <p>1- Editorial changes: Made Unit 2 bold. Placed a space between two sentences of the stem. Capitalized Main Turbine. Added "Mark VI" in front of HMI</p>
30	F	3							E	<p>263000G2.1.29-1</p> <p>1- Add "for this breaker during performance of the electrical lineup". Makes statement specific for this case, not just the definition of independent verification.</p> <p>2- To bullet proof - Add "There is no allowance for waiving this requirement for this line-up." to A and C. (The SS can require independent verification if desired.)</p> <p>3- Added to plausibility statement "and knows that independent verification is required if manipulation is involved on a safety system, or at SS request."</p> <p>4- Added Verification is required or Not required to beginning of each statement to answer question asked in the stem.</p>

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation			
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	See Hatch question mark-ups for suggested final question.
31	H	3							S 264000A4.05-1 1- Editorial change: Made Unit 2 bold and placed bullets in front of plant conditions. 2- SAT 2C is the Alternate supply to the Emergency buses. Changed the word "normal" to "alternate" when referring to transferring the bus to SAT C.
32	H	3							S 264000K3.01-1 1- Editorial: Made Unit 2 bold, added bullets to the plant parameters
33	F	3							E 271000K5.06-1 1- Editorial: Placed line returns on answer options for readability by students. 2- To bullet proof add "at 100% reactor power" to each distractor. (At very low pwer levels, because the temp is power dependent, the temp is much closer to 300 than 800 degrees.)

1. Q#	2. LOK	3. Psychometric Flaws LOD (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation			
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	See Hatch question mark-ups for suggested final question.
34	H	4							E 272000G2.2.30-1 – Partial correct answer 1- Editorial: Made Unit 2 bold. Added line return following first sentence. Added bullets to rad monitors 2- Changed "core" to "reactor vessel". (A-D) (The bundle can only be placed in its proper in-core location.) Makes "D" hard to defend. 3- all caps "ONLY" (C & D)
35	H	2							S 288000K1.03-1
36	H	3							S 290001K1.07-1 1- Bold Unit 1, Change An to A at beginning of question. 2- Cap first letter of : Group, Turbine Building (2 times)
37	H	3							E 295001AK1.01-1 1- Bold Unit 2, bulleted and reformatted to increase readability 2- Change Core Flow to 7.2 instead of 13.3. The recorder should indicate "B" flow minus "A" flow.

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation		
Stem Focus	Cues	T/F Cred. Dist.	Partial Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	See Hatch question mark-ups for suggested final question.
38	H	4						E 295003AA1.04-1 1- Bold Unit 1 2- Added "RBCCW" pump motor 3- Add "after 15 minutes" the breaker for the (If the charger was out long enough the alternate would be carrying the bus. (From lessson Plan: If battery voltage drops below 208 VDC, the alternate power supply from 600 VAC Essential Bus "C" will automatically pick up the Vital AC Bus.))
39	F	3						S 295004AA2.04-3 1- Bold Unit 2, add -"2"H11 2- add -"four" in front of power available, and "of the DC Control Power indicating lights " after top row to help describe the location of the extinguished light. 3- Delete "K" in KV

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation			
Q#	LOK	LOD							
(F/H)	(1-5)								
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q=K/A	SRO Only	
40	H	3							See Hatch question mark-ups for suggested final question. 295005AK3.03-4 1- Bold Unit 1, bullet conditions 2- Delete all of 1st paragraph except "Unit 1 is operating with the following conditions." All other parts are covered in the conditions or are irrelevant. 3- Delete "just" from manually trips turbine
41	H	3							295006AK1.01-5 1- Bold Unit 2 2- Add - "within the normal level band for" the first 5 minutes..... 3-Add " controlling, varying " to B & D

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6.	7.				
Q#	LOK	LOD			U/ E/ S	Explanation				
(F/H)	(1-5)									
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only		
42	H	3			√				U	<p>See Hatch question mark-ups for suggested final question.</p> <p>295007AA2.01-21 – No correct answer- 1- This question is unsat due to RPV pressure can Not be read form the EHC panel. EHC is controlling throttle pressure (just prior to the stop valves). It has no direct connection with Rx pressure. 2- Bolded Unit 2 3- Added "Unit 2 is at 99% power ascending to rated.... 4- Added "and lower EHC Pressure Set from approximately 950 to 945 psig." for A & C 5- Added "and lower EHC Pressure Set from approximately 1050 to 1045 psig." for B & D 6- Revised distractor and plausibility statements.</p>
43	H	4							S	<p>295012AK3.01-1 1- Change Level 2 to -35 inches in stem 2- bullet conditions and delete space between ###s and °F</p>

1. Q#	2. LOK	3. Psychometric Flaws LOD (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation			
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	
44	H	5			√				U 295013AK1.03-1 – Too much recall This question, as written, is Unsat and is incorrect. Max run time in minutes = [105 - Tinitial] * 2 would be 50 minutes ([105-80]*2 = 50 minutes (25 * 2 = 50). Also, this question as written, requires to much knowledge from memory: Calculation of torus temperature formulas due to an inoperable SPDS and recorder from a surveillance procedure attachment and the limitations associated with that calculation. Memory of inputs into a recorder. See new question and distractor and plausibility statements
45	H	2			√				E 295014G2.1.30-1 –stem focus 1- Bold Unit 1, bullet conditions 2- Delete ensure and does not occur in stem, replace with "help avoid". Closing the valve is the right action to take, but it may not ensure a full scram does not occur, depending on readings on other IRMs.

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation		
Stem Focus	Cues	T/F Cred. Dist.	Partial Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	See Hatch question mark-ups for suggested final question.
46	H	3	√					E 295015AK2.08-1 1- Bold Unit 2, bullet conditons 2- Add "Suppression Pool Temperature is 120°F" to conditions 3- Add "[Reference Provided]" and provide Boron Injection Initiation Temperature Graph, Graph 5
47	F	4		√		√		U 295016AA1.06-6 1- Recall too specific from memory. Weak tie to K/A - ability to operate/monitor reactor water level - question is memory of instruments on panel. (Replace)
48	H	4		√				U 295017AK1.02-1 1- Beyond RO memory knowledge 2- Delete from Vent the Drywell (Torus) to end of sentence on all four distractors.
49	H	3						S 295018AK2.02-7 1- Bold Unit 1 and 2C
50	H	5		√				U 295019AK2.11-8 To specific from memory Replace
51	H	4		√				U 295021AK2.07-1 Partial replace

minutia (circled)

flow on sim

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation			
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	
52	F	3							E 295022AK2.07-1 Modified question to have inoperable accumulator. Remembering the exact breakdown of insertion times at specific reactor pressures requires to much memory recall. The modified question can be backed up by procedure actions (>900 compared to <900) and closely ties to the KA for reactor pressure scram assist.
53	H	2							S 295023AK2.01-10
54	H	3							E 295024EK1.01-11 1- Bold Unit 1, bullet conditions 2- Delete "limits" and "affected", replace with will be "less" to make completely accurate 3- Add "due to high drywell pressure" in B & C (You don't that these valves will due to some other reason that's not given 4- Add currently prior exist

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation			
Q#	LOK	LOD							
(F/H)	(1-5)								
Stem Focus	Cues	T/F	Cred. Dist.	Partial Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	See Hatch question mark-ups for suggested final question.
55	H	4	√						E 295025EK1.03-12 1- Bold Unit 1, add unit # to B21, bullet conditions and reactor pressures 2- Move that all systems responded as designed to new sentence and add all control rods did not insert in first sentence. Add reactor power is at 15% to conditions. (The only plausible way to keep two SRVs open after a scram and Rx pressure stable would be generating about 16% power, therefore must be an ATWS.) 3- Change 875 to 870. (875 is only a 2 psig margin from closing setpoint on G SRV.) 4- Change 330 to 350 in A & B (closer to hatch number), change 450 to 550 in D. Makes number match plausibly statement. (Saturation temp at 1000psig.) 5-To bullet proof Add "Ten minutes after the lowest pressure was reached," a delete currently 6- Add "deg F and stable to each distractor" and delete from question.

Q#	1. LOK	2. LOD	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation		
(F/H) (1-5)	Stem Focus	Cues	T/F	Cred. Partial Job-Link	Minutia#/units	Back-ward	Q=K/A	SRO Only	See Hatch question mark-ups for suggested final question.
56	H	2							S 295026EK1.02-14 1- Bold Unit 2 and bullet conditions
57	F	3	√						E 295026G2.4.23-13 1- Capitalize letters in words for BIIT, Tech Spec, Cold and Hot Shutdown, and NOT all caps 2- To make C completely true Add "sloping portion of the Boron Injection Initiation Temperature (BIIT) limit curve". (The C answer is not correct for the horizontal line that is the limit on the lower part of the curve.)
58	H	3							S 295028EK2.01-15 1- bullet conditions
59	H	4							S 295030EK1.01-16 1- bullet conditions 2- To bullet proof add to C & D "in pressure control mode" (eliminates using drains)
60	F	2							S 295031G2.4.45-17

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6.	7.				
Q#	LOK	LOD			U/ E/ S	Explanation				
(F/H)	(1-5)									
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only		
61	H	4	√		√				U	<p>295037EA1.07-18 stem focus / Partial Plausibility of question stem - At Hatch, by the time procedural actions to insert rods are started, power will be lower than 40%. Changed 40% power to 24% power. This is in between the RWM LPSP and LPAP.</p> <p>1- Bullet conditions</p> <p>2- Change RONOR to Normal Rod Movement Control Switch. The Emergency In position is one of the positions of the RONOR switch.</p> <p>3- Changed 40% power to 24% power. This is in between the RWM LPSP and LPAP.</p> <p>4- To bullet proof added "because the Mode Switch is in SHUTDOWN." to A and "because RWM is enforcing a Rod Block" to B & C. There may be other reasons that the actions would not happen that have not been considered or eliminated in the stem.</p> <p>The question is just as challenging, but now the applicant knows exactly what we are asking.</p> <p>5. To bullet proof and increase stem focus, Add "based on system design, NOT procedural limits" to end of question.</p>

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation			
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	See Hatch question mark-ups for suggested final question.
62	F	2							E 295038EK1.03-19 Wrong Answer 1- Change answer to B (wind direction meter reads in direction from, not towards)
63	F	3							S 300000K4.02-1
64	H	3			√				U 400000K3.01-1 May be double jeopardy with Q #49 1-Change "Drywell" temperature will rise or remain the same to "Fuel Pool" for each distractor. (As written C is the correct answer because 2 drywell cooling fans will be lost based on 34SO-T47-001-1, Drywell Cooling System. The normal line-up has both fans running on 1T47-B008A and B. One fan on each cooling unit is powered indirectly (S012) from 600D. Since PSW supplies the coolers, makes the determining factor for answer not tied to KA.) Fuel pool temperature is plausible since the FPC HX is cooled by RBCCW. A Temp increase is incorrect because it is fed from 1R24-S015, Not 1R24-S012. 2- Updated plausibility statements

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation			
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	
65	F	5			√				U 600000AK2.01-20 Recall to specific 1- Question requires too much detailed memory of the location of the different types of fire systems in the plant, the actuation requirements of the system and the actions to take. It took an extended period of time to look the right answer up with all references available. Replace question - See replacement
66	F	4							S G2.1.2-1
67	F	3							S G2.1.25-1
68	H	4							E G2.2.11-1 1- Change B to read "A breaker is added to a local electrical panel to supply power for a welding machine." (Ensures applicant knows a new power supply is being introduced, Not just plugging in a welder.) 2- Change sandpiper to "pneumatic diaphragm pump" (terminology more familiar to plant)

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6.	7.				
Q#	LOK	LOD			U/ E/ S	Explanation				
(F/H)	(1-5)									
	Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	
69	F	3								S G2.2.27-1 Job Link? 1- Bold Unit 2
70	F	5				√				U G2.2.4-1 Recall too specific Replace - Repalce with new question New question more operationally oriented and important. An operator manipulating switches prior to going to EMER on Unit 2 will not operate equipment, while on Unit1 equipment would be operating. i.e. RCIC from RSDP lineup with RCIC operating or standby.
71	F	3								E G2.3.10-1 1- Bold Unit 1 2- Delete "in accordance with 40AC-ENG-014-0, Failed Fuel, Action Level 1". Adds length to stem without significant value. The applicant doesn't need to know the procedure that gives guidance for failed fuel action levels, just that it has failed and the actions have been taken, i.e. rod inserted.

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation				
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only		
72	F	2							S	G2.3.2-1 1- Change RadCon to "Health Physics (HP)"
73	F	3				√			U	G2.4.29-1 1- Job Link as written not RO level 2- Replaced a question with a question that tests the candidates knowledge of radiation levels that correspond to release rates (from the Emergency Plan) 3- Changed Plausibility statements.
74	F	3							E	G2.4.45-1 1- To bullet proof add "on the 2H11-P601 panel" to stem. Our scram signal annunciators on the 603 panel also have a white box. Also, add "specific parameter point in tables 4 thru 6" in C. Because some of the white box alarms are caused by the conditions requiring entry into the SC flowchart.

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation			
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	
75	F	3							E G2.4.7-1 1- Change rapidly depressurizing the RPV to the Main Condenser to "Anticipating Emergency Depressurization"
76	H	5/4	✓		✓		✓		U 201003A2.05-1 Replace question. KA match. Predictions regarding ball valve are not used to select correct procedure and control consequences. Recall required is too specific for closed reference. Requires memory of specific steps specified in SD procedure section that has not been used at used at Hatch for several years and is therefore considered too specific for closed reference. Two correct answers. Distracter "B" could be viewed as correct based on 1) the standard for "preferred" is not defined, and 2) entry conditions for scram procedure are met and actions for bypassing the trip and resetting scram are contained in scram procedure.

1. Q#	2. LOK (F/H)	3. Psychometric Flaws LOD (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation			
Stem Focus	Cues	T/F Cred. Dist.	Partial Job-Link	Minutia#/units	Back-ward	Q=K/A	SRO Only		
77	H	3						E	204000G2.1.2-1 Add "on Unit 2 at rated conditions" to stem at the end of first sentence. Cap "NOT" in A, B and D
78	H	4						S	211000G2.1.14-2
79	H	5						U	212000A2.20-1 – Recall too specific Recall required is too specific for closed reference. Tests memory of a 3 page TS table for LCO.
80	H	5						U	215004A2.02-2 -Recall too specific 1- Provide reference: Unit 2 core map in 34FH-OPS-001-0 and Tech Spec section 3.3.1.2, Instrumentation Section 2- Level of detail from memory beyond knowledge needed for new SRO due to different detectors in same relative quadrant for the two units and tech specs. 3- Reformat to bulleted format and add specific Unit (2)
81	H	3						S	245000A2.07-1 1- Bullet conditions, Bold Unit 1

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6.	7.	
Q#	LOK	LOD			U/ E/ S	Explanation	
(F/H)	(1-5)						
Stem Focus	Cues	T/F	Cred. Partial Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only
82	H	5			√	U	<p>262001A2.08-3 Replace question. Does not match KA. Replacement provided</p> <p>Question tests knowledge of trip features of a breaker with loss of control power, not the KA of predicting the impact of opening a disconnect under load and using procedures based on those predictions. Opening a breaker to control power is not the same as opening a disconnect under load.</p>
83	H	5		√		U	<p>295003AA2.04-1 Recall required is too specific for closed reference.</p> <p>Provide reference. Provide single-line of Unit 1 230KV switchyard Provide single-line of Unit 1 230KV switchyard Bold Unit 1 and 2 Edit to replace "an active LCO" with "a RAS" Delete from each choice whether the acceptance criteria is met. Reason is that if acceptance criteria is met, then RAS is not active</p>

1. Q#	2. LOK	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation
(F/H) (1-5)		Stem Cues T/F Cred. Partial Job-Link Minutia#/units	Back-ward	Q= K/A	SRO Only	
84	H	4				S 295004AA2.02-1 Bold Unit 2
85	H	3	√			E 295014G2.4.31-1 Bold Unit # Edit to provide withdraw limits. Since limits were not provided, if candidate assumes limit is 48, rod would not be mispositioned
86	H	4				E 295020AA2.04-1 Editorial Change initial pressure to 140 psig to be more realistic, since it is unlikely that HPCI would be placed in service signal with only a 2 psig margin to the isolation signal (within reset band of instrument). Also reformat to break up long paragraph into 3 separate lines for readability.
87	H	3				S 295025EA2.06-1

Q#	1. LOK	2. LOD	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation
(F/H) (1-5)	Stem Focus	Cues	T/F Cred. Dist.	Partial Job-Link	Minutia#/units	Backward	Q=K/A SRO Only
88	H	5	✓	✓	✓	✓	U 295026G2.1.28-1 Edit or replace Replacement provided. Validate Questionable KA match: Test knowledge of inputs to a recorder and TS requirements for the instrument function rather than the KA knowledge of major system components and controls. Recall required is too specific for closed reference. Requires detailed memory of sheet 5 of a 7 page Table in TRM, and detailed memory of which sensors input into a specific recorder, neither of which are reasonable for closed reference. Because of level of memory required, the LOD is a 5, does not discriminate. As constructed, the question has weak stem focus and is a collection of T/F statements.

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6.	7.			
Q#	LOK	LOD			U/ E/ S	Explanation			
(F/H)	(1-5)								
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q=K/A	SRO Only	
89	H	4							E 295028EA2.06-1 Editing and formatting Correct spelling of initial Since the question starts with an EOP step, the candidate may assume the second part of the question is asking for the reason for the 340F limit. Recommend separation of two questions with 1) and 2) and adding LCO to improve stem focus on what question is asking.

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6.	7.					
Q#	LOK	LOD			U/ E/ S	Explanation					
(F/H)	(1-5)										
Stem	Cues	T/F	Cred.	Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	See Hatch question mark-ups for suggested final question.	
Focus		Dist.									
90	H	4				√				U	<p>295033G2.4.50-1 two distracters the same Answer incorrect because based on old EAL's. Edited to correct. Distracters B and C are the same. Edited as described below to correct. Provide correct "Unit 1" SCC Table 6 reference and correct EAL reference (Cold Chart, final draft 73EP-EIP-001 revision for new EAL)</p> <p>1-Bold Unit 1 and Rad monitor numbers, bullet conditions 2- Edit question to provide readings below the SCC entry condition (consistent with information provided in original question) 3- Delete alarm "setpoint"s. The significance is with the alarm not the setpoint, even though the instrument is at the setpoint.</p>

1.	2.	3. Psychometric Flaws	4. Job Content Flaws	5. Other	6.	7.			
Q#	LOK	LOD			U/ E/ S	Explanation			
(F/H)	(1-5)								
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	See Hatch question mark-ups for suggested final question.
91	H	4			✓		?		U 295038G2.2.22-1 Discuss Change A to: Offgas post-treatment rad monitors (D11-K615 A and B) and Off-Gas Post-Treatment Instrumentation TLCO 3.3.8 Ad to refs: D11-PRM-LP-10007, Process Rad Monitors A. is also true ODCM 3.1.1 actions for inoperable monitor include performance of SR 3.7.6. which is contained in LCO 3.7.6. ODCM 3.1.1 also specifies that the actions may be met by entering LCO 3.7.6' i.e. "Otherwise, enter condition "A" of Tech Spec LCO 3.7.6" Change "and" to "or" between instrument MPL #s. It only takes one of the instruments, not both. KA tie to EPE 295038 is questionable: Although the alarm may indicate the potential for high offsite release, it does not indicate High offsite release rate

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/E/S	7. Explanation			
Stem Focus	Cues	T/F	Cred. Partial	Job-Link	Minutia#/units	Back-ward	Q=K/A	SRO Only	See Hatch question mark-ups for suggested final question.
92	H	5			✓				U 400000A2.03-1 Edit to address recall too specific Recall required is too specific for closed reference for two reasons: 1) both the valves listed in correct answer and distracters would lower RBCCW temp HX outlet temp. Noun names are descriptive of both valves. (service water discharge vs PSW discharge). 2) ODCM table is too detailed to expect recall in closed reference (8 instruments with 4 applicability footnotes and five action statements). As such, Q. does not discriminate.
93	H	4			✓				*U 600000G2.4.29-1 Provide reference Recall too specific for closed reference – not realistic to memorize EAL conditions Replace question due to same classification for a JPM
94	F	3							S G2.1.14-1 Added to plausibility description for D.

1. Q#	2. LOK	3. Psychometric Flaws (F/H) (1-5)	4. Job Content Flaws	5. Other	6. U/ E/ S	7. Explanation				
Stem Focus	Cues	T/F	Cred. Dist.	Partial Job-Link	Minutia#/units	Back-ward	Q=K/A	SRO Only		
95	H	5			✓		✓		U	<p>G2.1.7-1 Edit or replace Does not match KA. No operational judgment required. Recall required is too specific for closed reference. As such, does not discriminate</p>
96	F	5			✓	✓			U	<p>G2.2.19-1 Replace question due to job link. Job-link weak. SRO has minimal involvement in documenting and classifying minor work. SRO not involved in tool pouch work documentation. Recall required is too specific for closed reference, esp. for an aspect with little SS involvement. As such, does not discriminate.</p>
97	H	5			✓		✓		*	<p>G2.2.34-1 Replace to improve KA match and address recall too specific. Does not match KA. KA interpreted by replacement KA in supplement 1. KA is based on 55.43 (6) and does not require 55.43 (2). Recall too specific for closed reference. Even if candidate can work through TS application, ability to answer depends on recall of a specific detail in basis.</p>

1.	2.	3. Psychometric Flaws		4. Job Content Flaws		5. Other		6.	7.	
Q#	LOK	LOD						U/ E/ S	Explanation	
(F/H)	(1-5)									
	Stem Focus	Cues	T/F	Cred. Dist.	Partial Job-Link	Minutia#/units	Back-ward	Q= K/A	SRO Only	See Hatch question mark-ups for suggested final question.
98	H	5				✓				U G2.3.9-1 Edit question. Recall required is too specific for closed reference. Tests applicant memory of one or two samples being required. Need to edit plausibility distracter analysis.
99	H	3								S G2.4.11-1
100	F	2								S G2.4.26-1

Facility: Hatch		Date of Exam: 10 Dec 2007		Exam Level: SRO	
Item Description	Initials				
	a	b	c		
1. Clean answer sheets copied before grading	b/c	N/A	r/f		
2. Answer key changes and question deletions justified and documented SRO Q 86 was deleted	b/c	N/A	r/f		
3. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	b/c	N/A	r/f		
4. Grading for all borderline cases (80 ±2% overall and 70 or 80, as applicable, ±4% on the SRO-only) reviewed in detail	b/c	N/A	r/f		
5. All other failing examinations checked to ensure that grades are justified	b/c	N/A	r/f		
6. Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	b/c	N/A	r/f		
		Printed Name/Signature		Date	
a. Grader	Bruno Caballero / <i>B. Caballero</i>		1/4/08		
b. Facility Reviewer(*)	N/A				
c. NRC Chief Examiner (*)	Ronald F. Aiello / <i>Ronald F. Aiello</i>		1/4/08		
d. NRC Supervisor (*)	Malcolm T Widmann / <i>Malcolm T Widmann</i>		1/4/08		
(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.					

Facility: Hatch		Date of Exam: 10 Dec 2007		Exam Level: RO	
Item Description			Initials		
			a	b	c
1.	Clean answer sheets copied before grading		b/c	N/A	rfa
2.	Answer key changes and question deletions justified and documented		b/c	N/A	rfa
3.	Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)		b/c	N/A	rfa
4.	Grading for all borderline cases (80 ±2% overall and 70 or 80, as applicable, ±4% on the SRO-only) reviewed in detail		b/c	N/A	rfa
5.	All other failing examinations checked to ensure that grades are justified		b/c	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		b/c	N/A	rfa
			Printed Name/Signature		Date
a.	Grader	Bruno Caballero / <u>B. Caballero</u>			<u>1/4/08</u>
b.	Facility Reviewer(*)	<u>N/A</u>			
c.	NRC Chief Examiner (*)	Ronald F. Aiello / <u>Ronald F. Aiello</u>			<u>1/4/08</u>
d.	NRC Supervisor (*)	Malcolm T Widmann / <u>Malcolm T Widmann</u>			<u>1/4/08</u>
(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.					

Hatch 2007-301

Post-Examination Check Sheet	
Task Description	Date Complete
1. Facility written exam comments or graded exams received and verified complete	01/02/08
2. Facility written exam comments reviewed and incorporated and NRC grading completed, if necessary	12/27/07
3. Operating tests graded by NRC examiners	12/18/07
4. NRC chief examiner review of operating test and written exam grading completed	12/26/07
5. Responsible supervisor review completed	12/26/07
6. Management (licensing official) review completed	01/04/08
7. License and denial letters mailed	01/04/08
8. Facility notified of results	01/07/08
9. Examination report issued (refer to NRC MC 0612)	01/07/08
10. Reference material returned after final resolution of any appeals	NA

Ron,

Enclosed is the three Security Agreement forms (ES-201-3) that were used at Plant Hatch for the NRC Exam administered December 03, 2007 through December 10, 2007.

By my records, this should complete all the forms that are required to close out our exam package.

If you need anything else, please let me know.

I enjoyed working with you on the exam.

Thanks,

Charlie Edmund
(912) 366-2000 ext. 2844 (Plant Hatch)
(912) 240-2432 (cell)

D. R. Madison (Dennis)
Vice President - Hatch

**Southern Nuclear
Operating Company, Inc.**
Plant Edwin I. Hatch
11028 Hatch Parkway, North
Baxley, Georgia 31513

Tel 912.537.5859
Fax 912.366.2077



November 19, 2005
LR-PM-002-1107

Mr. Malcom T. Widmann
Operations Branch,
Division of Reactor Safety
U. S. Nuclear Regulatory Commission
Atlanta Federal Center
61 Forsyth Street SW, Suite 23T85
Atlanta, GA 30303

Subject: Transmittal of Final Initial License Operator Examination

Dear Mr. Widmann:

As previously discussed, we are transmitting the following forms and examination material for our upcoming Initial Operator Licensing Exam:

Number	Enclosure
17	Final Operating Examination Job Performance Measures
3	Final Operating Examination ES-D-1 Scenario Outline
3	Final Operating Examination ES-D-2 Required Operator Actions
1	ES-201-2, Examination Outline Quality Checklist
1	ES-201-3, Examination Security Agreement
1	ES-301-1, Administrative Topics Outline Form
1	ES-301-2, Control Room/In-Plant Systems Outline
1	ES-301-3, Operating Test Quality Checklist
1	ES-301-4, Simulator Scenario Quality Checklist
1	ES-301-5, Transient and Event Checklist
1	ES-301-6, Competencies Checklist
1	Written Examination Review Worksheet
1	Compact Disc containing JPMs, scenarios, and Written Examination Review Worksheet

As you know these documents are subject to examination security requirements and should not be released to the public until after our License Exam has been administered.

D. R. Madison (Dennis)
Vice President - Hatch

**Southern Nuclear
Operating Company, Inc.**
Plant Edwin I. Hatch
11028 Hatch Parkway, North
Baxley, Georgia 31513

Tel 912.537.5859
Fax 912.366.2077



October 15, 2007
LR-PM-006-1007

Mr. Malcom T. Widmann
Operations Branch,
Division of Reactor Safety
U. S. Nuclear Regulatory Commission
Atlanta Federal Center
61 Forsyth Street SW, Suite 23T85
Atlanta, GA 30303

Subject: Transmittal of Draft Operating Examination

Dear Mr. Widmann:

As required by our 120 day letter issued for our upcoming Initial Operator Licensing Exam, we are transmitting the following forms:

- 4 – Proposed Operating Examination ES-D-1 Scenario Outline
- 4 – Proposed Operating Examination ES-D-2 Required Operator Actions
- 17– Proposed Operating Examination JPM's
- 1 – ES-201-3, Examination Security Agreement
- 1 – ES-301-3, Operating Test Quality Checklist
- 1 – ES-301-4, Simulator Scenario Quality Checklist
- 1 – ES-301-5, Transient and Event Checklist
- 1 – ES-301-6, Competencies Checklist

As you know these examination documents are confidential and should not be released to the public until after our License Exam has been administered.

If you have any questions regarding this material, please contact Steve Grantham at 912-537-5916.

Sincerely,

A handwritten signature in black ink that reads "Dennis R. Madison". The signature is written in a cursive style with a large initial "D".

Dennis R. Madison
Vice President Nuclear Plant Site

D. R. Madison (Dennis)
Vice President - Hatch

**Southern Nuclear
Operating Company, Inc.**
Plant Edwin I. Hatch
11028 Hatch Parkway, North
Baxley, Georgia 31513

Tel 912.537.5859
Fax 912.366.2077



September 4, 2007

LR-PM-001-0907

Mr. Ron Aiello
NRC Chief Examiner
U. S. Nuclear Regulatory Commission
Region II
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Transmittal of Draft Operating Examination Outlines

Dear Mr. Aiello:

As required by our 120 day letter issued for our upcoming Initial Operator Licensing Exam, enclosed are the following forms:

- 1 - ES-201-2, Exam Outline Quality Checklist
- 1 - ES-201-3, Examination Security Agreement
- 1 - ES-301-1, Administrative Topics Outline Form
- 1 - ES-301-2, Control Room/In-Plant Systems Outline
- 1 - ES-301-5, Transient and Event Checklist
- 4 - ES-D-1, Scenario Outlines

As you know these documents are confidential and should not be released to the public until after our License Exam has been administered.

If you have any questions regarding this material, please contact Steve Grantham at 912-537-5916.

Sincerely,


for Dennis R. Madison
Vice President Nuclear Plant Site

Facility: HATCH - RO		FINAL															
Tier	Group	RO K/A Category Points												SRO-Only Points			
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total	
1. Emergency & Abnormal Plant Evolutions	1	7	6	1	N/A			3	1	N/A			2	20			
	2	2	2	1	N/A			0	1	N/A			1	7			
	Tier Totals	9	8	2	N/A			3	2	N/A			3	27			
2. Plant Systems	1	0	3	6	4	1	2	3	2	1	1	3	26				
	2	3	0	2	1	1	0	0	1	1	1	2	12				
	Tier Totals	3	3	8	5	2	2	3	3	2	2	5	38				
3. Generic Knowledge and Abilities Categories				1	2	3	4	10	1	2	3	4					
				2	3	2	3										

- Note:1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
- The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
 - Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.
 - Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
 - Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
 - Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
 - * The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
 - On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2. Use duplicate pages for RO and SRO-only exams.
 - For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO)						Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	x						K1.01 Natural Circulation	3.5	1
295003 Partial or Complete Loss of AC / 6				x			A1.04 DC Electrical Distribution	3.6	1
295004 Partial or Total Loss of DC Pwr / 6					x		A2.04 System Lineups	3.2	1
295005 Main Turbine Generator Trip / 3			x				K3.03 FW temperature decrease	2.8	1
295006 SCRAM / 1	x						K1.01 Decay Heat Generation & Removal	3.7	1
295016 Control Room Abandonment / 7				x			A1.06 Reactor Water Level	4.0	1
295018 Partial or Total Loss of CCW / 8		x					K2.02 Plant Operations	3.4	1
295019 Partial or Total Loss of Inst. Air / 8		x					K2.11 Radwaste	2.5	1
295021 Loss of Shutdown Cooling / 4		x					K2.07 Reactor Recirculation	3.1	1
295023 Refueling Acc / 8		x					K2.01 Fuel handling equipment	3.3	1
295024 High Drywell Pressure / 5	x						K1.01 Drywell Integrity	4.1	1
295025 High Reactor Pressure / 3	x						K1.03 Safety/relief valve tailpipe temp/press relationships	3.6	1
295026 Suppression Pool High Water Temp. / 5						x	G2.4.23 Knowledge of basis for prioritizing emerg proc implementation during emerg ops	2.8	1
295026 Suppression Pool High Water Temp. / 5	x						K1.02 Steam Condensation	3.5	1
295028 High Drywell Temperature / 5		x					K2.01 Drywell Spray: Mark I & II	3.7	1
295030 Low Suppression Pool Wtr Lvl / 5	x						K1.01 Steam Condensation	3.8	1
295031 Reactor Low Water Level / 2						x	G2.4.45 Ability to prioritize and interpret the significance of each annunciator or alarm	3.3	1
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1				x			A1.07 RMCS - Plant Specific	3.9	1
295038 High Off-site Release Rate / 9	x						K1.03 Meteorological effects on offsite release	2.8	1
600000 Plant Fire On Site / 8		x					K2.01 Sensors/detectors and valves	2.6	1
K/A Category Totals:									
	7	6	1	3	1	2	Group Point Total:		20

ES-401	BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO)							Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295002 Loss of Main Condenser Vac / 3									
295007 High Reactor Pressure / 3					x		A2.01 Reactor Pressure	4.1	
295008 High Reactor Water Level / 2									
295009 Low Reactor Water Level / 2									
295010 High Drywell Pressure / 5									
295011 High Containment Temp / 5									
295012 High Drywell Temperature / 5			x				K3.01 Increased DW Cooling	3.5	
295013 High Suppression Pool Temp. / 5	x						K1.03 Localized heating	3.0	
295014 Inadvertent Reactivity Addition / 1						x	G2.1.30 Ability to locate & operate components/including local controls	3.9	
295015 Incomplete SCRAM / 1		x					K2.08 Neutron Monitoring System	3.6	
295017 High Off-site Release Rate / 9	x						K1.02 Protection of the general public	3.8	
295020 Inadvertent Cont. Isolation / 5 & 7									
295022 Loss of CRD Pumps / 1		x					K2.07 Reactor Pressure (Scram Assist): Plant Specific	3.4	
295029 High Suppression Pool Wtr Lvl / 5									
295032 High Secondary Containment Area Temperature / 5									
295033 High Secondary Containment Area Radiation Levels / 9									
295034 Secondary Containment Ventilation High Radiation / 9									
295035 Secondary Containment High Differential Pressure / 5									
295036 Secondary Containment High Sump/Area Water Level / 5									
500000 High CTMT Hydrogen Conc. / 5									
K/A Category Point Totals:	2	2	1	0	1	1	Group Point Total:		7

ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 1 (RO)											Form ES-401-1													
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#												
203000 RHR/LPCI: Injection Mode		x										K2.02 Valves	2.5	1												
205000 Shutdown Cooling			x									K3.01 Reactor Pressure	3.3	1												
206000 HPCI							x					A1.01 Reactor Water Level: BWR-2,3,4	4.3	1												
206000 HPCI					x							K5.06 Turbine Speed Measurement BWR-2,3,4	2.6	1												
209001 LPCS											x	G2.1.31 Ability to locate control room switches/controls and indications and to determine that they are correctly reflecting the desired plant lineup	4.2	1												
211000 SLC		x										K2.01 SBLC Pumps	2.9	1												
212000 RPS				x								K4.07 Manual System activation (trip)	4.1	1												
212000 RPS		x										K2.02 Analog trip system cabinets	2.7	1												
215003 IRM				x								K4.06 Alarm seal-in	2.6	1												
215004 Source Range Monitor							x					A1.01 Detector Position	3.0	1												
215005 APRM / LPRM			x									K3.08 Core thermal calculations	3.0	1												
217000 RCIC									x			A3.03 System Pressure	3.7	1												
218000 ADS						x						K6.02 Low Pressure Core Spray System Pressure: Plant Specific	4.1	1												
223002 PCIS/Nuclear Steam Supply Shutoff								x				A2.09 System Initiation	3.6	1												
223002 PCIS/Nuclear Steam Supply Shutoff			x									K3.01 Reactor water level	3.7	1												
239002 SRVs											x	G2.4.22 Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations	3.0	1												
259002 Reactor Water Level Control				x								K4.02 Bypassing of the RWM: Plant Specific	2.8	1												
259002 Reactor Water Level Control						x						K6.01 Plant air systems	3.2	1												
261000 SGTS							x					A1.05 Primary Containment O2 level: Mark I & II	2.7	1												
262001 AC Electrical Distribution								x				A2.03 Loss of Offsite Power	3.9	1												
262002 UPS (AC/DC)			x									K3.15 Main Turbine Operation	2.6	1												
263000 DC Electrical Distribution											x	G2.1.29 Knowledge of how to conduct and verify valve lineups	3.4	1												
264000 EDGs										x		A4.05 Transfer to emergency generator (with load) to grid	3.6	1												
264000 EDGs			x									K3.01 Emergency Core Cooling Systems	4.2	1												
300000 Instrument Air				x								K4.02 Cross-over to other air systems	3.0	1												
400000 Component Cooling Water			x									K3.01 Loads cooled by CCWS	2.9	1												
K/A Category Point Totals:														0	3	6	4	1	2	3	2	1	1	3	Group Point Total:	26

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 2 (RO)													Form ES-401-1	
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#	
201001 CRD Hydraulic															
201002 RMCS	x											K1.04 Rod Block Monitor: Plant specific	3.5	1	
201003 Control Rod and Drive Mechanism															
201006 RWM															
202001 Recirculation								x				A2.07 Recirculation pump speed mismatch: Plant specific	3.1	1	
202002 Recirculation Flow Control				x								K4.03 Signal Failure Detection: Plant specific	3.0	1	
204000 RWCU															
214000 RPIS															
215001 Traversing In-core Probe															
215002 RBM															
216000 Nuclear Boiler Inst.															
219000 RHR/LPCI: Torus/Pool Cooling Mode									x			A3.01 Valve operation	3.3	1	
223001 Primary CTMT and Aux.															
226001 RHR/LPCI: CTMT Spray Mode															
230000 RHR/LPCI: Torus/Pool Spray Mode										x		A4.03 Keep fill system	3.1	1	
233000 Fuel Pool Cooling/Cleanup											x	G2.4.50 Ability to verify system alarm setpoints and operate controls identified in the alarm response manual	3.3		
234000 Fuel Handling Equipment															
239001 Main and Reheat Steam															
239003 MSIV Leakage Control															
241000 Reactor/Turbine Pressure Regulator															
245000 Main Turbine Gen. / Aux.			x									K3.05 Reactor feedwater pump: Plant Specific	2.7	1	
256000 Reactor Condensate															
259001 Reactor Feedwater			x									K3.08 RCIC	2.9	1	
268000 Radwaste															
271000 Offgas					x							K5.06 Catalytic Recombination	2.7	1	
272000 Radiation Monitoring											x	G2.2.30 Knowledge of RO CR duties during fuel handling: alarms from fuel handling area/communication w/ fuel storage facility/ systems operated from CR in support of fuel handling operations/ & supporting instrumentation.	3.5	1	
286000 Fire Protection															
288000 Plant Ventilation	x											K1.03 Standby Gas Treatment	3.7	1	
290001 Secondary CTMT	x											K1.07 Turbine building ventilation (steam tunnel): Plant specific	3.0	1	
290003 Control Room HVAC															
290002 Reactor Vessel Internals															
K/A Category Point Totals:	3	0	2	1	1	0	0	1	1	1	2	Group Point Total:		12	

Facility: HATCH - RO		FINAL		Date of Exam: December 10, 2007			
Category	K/A #	Topic	RO		SRO-Only		
			IR	#	IR	#	
1. Conduct of Operations	2.1.2	Knowledge of operator responsibilities during all modes of plant operation	3.0	1			
	2.1.25	Ability to obtain and interpret station reference materials such as graphs/monographs/and tables which contain performance data	2.8	1			
	Subtotal			2			
2. Equipment Control	2.2.4	Ability to explain the variations in control board layouts/systems/instrumentation and procedural actions between units at a facility.	2.8	1			
	2.2.11	Knowledge of process for controlling temporary changes	2.5	1			
	2.2.27	Knowledge of the refueling process	2.6	1			
	Subtotal			3			
3. Radiation Control	2.3.2	Knowledge of the facility ALARA program	2.5	1			
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure	2.9	1			
	Subtotal			2			
4. Emergency Procedures / Plan	2.4.7	Knowledge of event based EOP mitigation strategies	3.1	1			
	2.4.29	Knowledge of the emergency plan	2.6	1			
	2.4.45	Ability to prioritize and interpret the significance of each annunciator or alarm	3.3	1			
	Subtotal			3			
Tier 3 Point Total				10			

Facility: HATCH - SRO		FINAL																	
Tier	Group	RO K/A Category Points											SRO-Only Points						
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total			
1. Emergency & Abnormal Plant Evolutions	1															4	3	7	
	2					N/A					N/A					1	2	3	
	Tier Totals															5	5	10	
2. Plant Systems	1															4	1	5	
	2															2	1	3	
	Tier Totals															6	2	8	
3. Generic Knowledge and Abilities Categories					1	2	3	4							1	2	3	4	7
															2	2	1	2	

- Note:1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
- The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
 - Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.
 - Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
 - Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
 - Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
 - * The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
 - On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2. Use duplicate pages for RO and SRO-only exams.
 - For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (SRO)						Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4									
295003 Partial or Complete Loss of AC / 6					X		A2.04 System lineups	3.7	1
295004 Partial or Total Loss of DC Pwr / 6					X		A2.02 Extent of partial or complete loss of DC power	3.9	1
295005 Main Turbine Generator Trip / 3									
295006 SCRAM / 1									
295016 Control Room Abandonment / 7									
295018 Partial or Total Loss of CCW / 8									
295019 Partial or Total Loss of Inst. Air / 8									
295021 Loss of Shutdown Cooling / 4									
295023 Refueling Acc / 8									
295024 High Drywell Pressure / 5									
295025 High Reactor Pressure / 3					X		A2.06 Reactor water level	3.8	1
295026 Suppression Pool High Water Temp. / 5						X	G2.1.28 Knowledge of the purpose and function of major system components and controls	3.3	1
295028 High Drywell Temperature / 5					X		A2.06 torus/suppression chamber air space temperature: Plant specific	3.7	1
295030 Low Suppression Pool Wtr Lvl / 5									
295031 Reactor Low Water Level / 2									
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1									
295038 High Off-site Release Rate / 9						X	G2.2.22 Knowledge of LCO and safety limits	4.1	1
600000 Plant Fire On Site / 8						X	G2.4.49 Ability to perform w/o reference to procedures those actions that require immediate operation of system components and controls.	4.0	1
K/A Category Totals:					4	3	Group Point Total:		7

ES-401	BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (SRO)							Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295002 Loss of Main Condenser Vac / 3									
295007 High Reactor Pressure / 3									
295008 High Reactor Water Level / 2									
295009 Low Reactor Water Level / 2									
295010 High Drywell Pressure / 5									
295011 High Containment Temp / 5									
295012 High Drywell Temperature / 5									
295013 High Suppression Pool Temp. / 5									
295014 Inadvertent Reactivity Addition / 1						x	G2.4.31: Knowledge of annunciators, alarms, and indications/ and use of the response instructions	3.4	1
295015 Incomplete SCRAM / 1									
295017 High Off-site Release Rate / 9									
295020 Inadvertent Cont. Isolation / 5 & 7					x		A2.04 Reactor pressure	3.9	1
295022 Loss of CRD Pumps / 1									
295029 High Suppression Pool Wtr Lvl / 5									
295032 High Secondary Containment Area Temperature / 5									
295033 High Secondary Containment Area Radiation Levels / 9						x	G2.4.50: Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	3.3	1
295034 Secondary Containment Ventilation High Radiation / 9									
295035 Secondary Containment High Differential Pressure / 5									
295036 Secondary Containment High Sump/Area Water Level / 5									
500000 High CTMT Hydrogen Conc. / 5									
K/A Category Point Totals:					1	2	Group Point Total:		3

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 1 (SRO)											Form ES-401-1		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
203000 RHR/LPCI: Injection Mode														
205000 Shutdown Cooling														
206000 HPCI														
209001 LPCS														
211000 SLC											x	G2.1.14 Knowledge of system status criteria which require the notification of plant personnel	3.3	1
212000 RPS								x				A2.20 Full system activation (full scram)	4.2	1
215003 IRM														
215004 Source Range Monitor								x				A2.02 SRM inop condition	3.7	1
215005 APRM / LPRM														
217000 RCIC														
218000 ADS														
223002 PCIS/Nuclear Steam Supply Shutoff														
239002 SRVs														
259002 Reactor Water Level Control														
261000 SGTS														
262001 AC Electrical Distribution								x				A2.08 Opening a disconnect under load	3.6	1
262002 UPS (AC/DC)														
263000 DC Electrical Distribution														
264000 EDGs														
300000 Instrument Air														
400000 Component Cooling Water								x				A2.03 High/Low CCW temperature	3.0	1
K/A Category Point Totals:								4			1	Group Point Total:		5

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 2 (SRO)											Form ES-401-1		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
201001 CRD Hydraulic														
201002 RMCS														
201003 Control Rod and Drive Mechanism								x				A2.05 Reactor Scram	4.1	1
201006 RWM														
202001 Recirculation														
202002 Recirculation Flow Control														
204000 RWCU											x	G2.1.2 Knowledge of operator responsibilities during all modes of plant operation	4.0	1
214000 RPIS														
215001 Traversing In-core Probe														
215002 RBM														
216000 Nuclear Boiler Inst.														
219000 RHR/LPCI: Torus/Pool Cooling Mode														
223001 Primary CTMT and Aux.														
226001 RHR/LPCI: CTMT Spray Mode														
230000 RHR/LPCI: Torus/Pool Spray Mode														
233000 Fuel Pool Cooling/Cleanup														
234000 Fuel Handling Equipment														
239001 Main and Reheat Steam														
239003 MSIV Leakage Control														
241000 Reactor/Turbine Pressure Regulator														
245000 Main Turbine Gen. / Aux.								x				A2.07 Loss of reactor/turbine pressure control system: Plant specific	3.8	1
256000 Reactor Condensate														
259001 Reactor Feedwater														
268000 Radwaste														
271000 Offgas														
272000 Radiation Monitoring														
286000 Fire Protection														
288000 Plant Ventilation														
290001 Secondary CTMT														
290003 Control Room HVAC														
290002 Reactor Vessel Internals														
K/A Category Point Totals:								2			1	Group Point Total:		3

Facility: HATCH - SRO		FINAL		Date of Exam: December 10, 2007		
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.7	Ability to evaluate plant performance and make operational judgments based on operating characteristics/ reactor behavior/ and instrument interpretation. (43.5)			4.4	1
	2.1.14	Knowledge of system status criteria which require the notification of plant personnel. (43.5)			3.3	1
	Subtotal					2
2. Equipment Control	2.2.19	Knowledge of maintenance work order requirements (43.5)			3.1	1
	2.2.34	Knowledge of the process for determining the internal and external effects on core reactivity. (43.6)			3.2	1
	Subtotal					2
3. Radiation Control	2.3.9	Knowledge of the process for performing a containment purge. (43.4)			3.4	1
	Subtotal					1
4. Emergency Procedures / Plan	2.4.11	Knowledge of abnormal condition procedures (43.5)			3.6	1
	2.4.26	Knowledge of facility protection requirements including fire brigade and portable fire fighting equipment usage. (43.5)			3.3	1
	Subtotal					2
Tier 3 Point Total						7

DRAFT

Facility: HATCH - RO																	
Tier	Group	RO K/A Category Points											SRO-Only Points				
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total	
1. Emergency & Abnormal Plant Evolutions	1	7	6	1	N/A			3	1	N/A			2	20			
	2	2	2	1	N/A			0	1	N/A			1	7			
	Tier Totals	9	8	2	N/A			3	2	N/A			3	27			
2. Plant Systems	1	0	3	6	4	1	2	3	2	1	1	3	26				
	2	3	0	2	1	1	0	0	1	1	1	2	12				
	Tier Totals	3	3	8	5	2	2	3	3	2	2	5	38				
3. Generic Knowledge and Abilities Categories					1	2	3	4	10			1	2	3	4		
					2	3	2	3									

- Note:1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
- The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
 - Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.
 - Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
 - Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
 - Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
 - * The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
 - On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2. Use duplicate pages for RO and SRO-only exams.
 - For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

ES-401	BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO)							Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	x						K1.01 Natural Circulation	3.5	1
295003 Partial or Complete Loss of AC / 6				x			A1.04 DC Electrical Distribution	3.6	1
295004 Partial or Total Loss of DC Pwr / 6					x		A2.04 System Lineups	3.2	1
295005 Main Turbine Generator Trip / 3			x				K3.03 FW temperature decrease	2.8	1
295006 SCRAM / 1	x						K1.01 Decay Heat Generation & Removal	3.7	1
295016 Control Room Abandonment / 7				x			A1.06 Reactor Water Level	4.0	1
295018 Partial or Total Loss of CCW / 8		x					K2.02 Plant Operations	3.4	1
295019 Partial or Total Loss of Inst. Air / 8		x					K2.11 Radwaste	2.5	1
295021 Loss of Shutdown Cooling / 4		x					K2.07 Reactor Recirculation	3.1	1
295023 Refueling Acc / 8		x					K2.01 Fuel handling equipment	3.3	1
295024 High Drywell Pressure / 5	x						K1.01 Drywell Integrity	4.1	1
295025 High Reactor Pressure / 3	x						K1.03 Safety/relief valve tailpipe temp/press relationships	3.6	1
295026 Suppression Pool High Water Temp. / 5						x	G2.4.23 Knowledge of basis for prioritizing emerg proc implementation during emerg ops	2.8	1
295026 Suppression Pool High Water Temp. / 5	x						K1.02 Steam Condensation	3.5	1
295028 High Drywell Temperature / 5		x					K2.01 Drywell Spray: Mark I & II	3.7	1
295030 Low Suppression Pool Wtr Lvl / 5	x						K1.01 Steam Condensation	3.8	1
295031 Reactor Low Water Level / 2						x	G2.4.45 Ability to prioritize and interpret the significance of each annunciator or alarm	3.3	1
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1				x			A1.07 RMCS - Plant Specific	3.9	1
295038 High Off-site Release Rate / 9	x						K1.03 Meteorological effects on offsite release	2.8	1
600000 Plant Fire On Site / 8		x					K2.01 Sensors/detectors and valves	2.6	1
K/A Category Totals:	7	6	1	3	1	2	Group Point Total:		20

ES-401	BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO)							Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295002 Loss of Main Condenser Vac / 3									
295007 High Reactor Pressure / 3					x		A2.01 Reactor Pressure	4.1	
295008 High Reactor Water Level / 2									
295009 Low Reactor Water Level / 2									
295010 High Drywell Pressure / 5									
295011 High Containment Temp / 5									
295012 High Drywell Temperature / 5			x				K3.01 Increased DW Cooling	3.5	
295013 High Suppression Pool Temp. / 5	x						K1.03 Localized heating	3.0	
295014 Inadvertent Reactivity Addition / 1						x	G2.1.30 Ability to locate & operate components/including local controls	3.9	
295015 Incomplete SCRAM / 1		x					K2.08 Neutron Monitoring System	3.6	
295017 High Off-site Release Rate / 9	x						K1.02 Protection of the general public	3.8	
295020 Inadvertent Cont. Isolation / 5 & 7									
295022 Loss of CRD Pumps / 1		x					K2.07 Reactor Pressure (Scram Assist): Plant Specific	3.4	
295029 High Suppression Pool Wtr Lvl / 5									
295032 High Secondary Containment Area Temperature / 5									
295033 High Secondary Containment Area Radiation Levels / 9									
295034 Secondary Containment Ventilation High Radiation / 9									
295035 Secondary Containment High Differential Pressure / 5									
295036 Secondary Containment High Sump/Area Water Level / 5									
500000 High CTMT Hydrogen Conc. / 5									
K/A Category Point Totals:	2	2	1	0	1	1	Group Point Total:		7

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 1 (RO)													Form ES-401-1												
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#												
203000 RHR/LPCI: Injection Mode		x										K2.02 Valves	2.5	1												
205000 Shutdown Cooling			x									K3.01 Reactor Pressure	3.3	1												
206000 HPCI							x					A1.01 Reactor Water Level: BWR-2,3,4	4.3	1												
206000 HPCI					x							K5.06 Turbine Speed Measurement BWR-2,3,4	2.6	1												
209001 LPCS											x	G2.1.31 Ability to locate control room switches/controls and indications and to determine that they are correctly reflecting the desired plant lineup	4.2	1												
211000 SLC		x										K2.01 SBLC Pumps	2.9	1												
212000 RPS				x								K4.07 Manual System activation (trip)	4.1	1												
212000 RPS		x										K2.02 Analog trip system cabinets	2.7	1												
215003 IRM				x								K4.06 Alarm seal-in	2.6	1												
215004 Source Range Monitor							x					A1.01 Detector Position	3.0	1												
215005 APRM / LPRM			x									K3.08 Core thermal calculations	3.0	1												
217000 RCIC									x			A3.03 System Pressure	3.7	1												
218000 ADS						x						K6.02 Low Pressure Core Spray System Pressure: Plant Specific	4.1	1												
223002 PCIS/Nuclear Steam Supply Shutoff								x				A2.09 System Initiation	3.6	1												
223002 PCIS/Nuclear Steam Supply Shutoff			x									K3.01 Reactor water level	3.7	1												
239002 SRVs											x	G2.4.22 Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations	3.0	1												
259002 Reactor Water Level Control				x								K4.02 Bypassing of the RWM: Plant Specific	2.8	1												
259002 Reactor Water Level Control						x						K6.01 Plant air systems	3.2	1												
261000 SGTS							x					A1.05 Primary Containment O2 level: Mark I & II	2.7	1												
262001 AC Electrical Distribution								x				A2.03 Loss of Offsite Power	3.9	1												
262002 UPS (AC/DC)			x									K3.15 Main Turbine Operation	2.6	1												
263000 DC Electrical Distribution											x	G2.1.29 Knowledge of how to conduct and verify valve lineups	3.4	1												
264000 EDGs										x		A4.05 Transfer to emergency generator (with load) to grid	3.6	1												
264000 EDGs			x									K3.01 Emergency Core Cooling Systems	4.2	1												
300000 Instrument Air				x								K4.02 Cross-over to other air systems	3.0	1												
400000 Component Cooling Water			x									K3.01 Loads cooled by CCWS	2.9	1												
K/A Category Point Totals:														0	3	6	4	1	2	3	2	1	1	3	Group Point Total:	26

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 2 (RO)													Form ES-401-1	
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#	
201001 CRD Hydraulic															
201002 RMCS	x											K1.04 Rod Block Monitor: Plant specific	3.5	1	
201003 Control Rod and Drive Mechanism															
201006 RWM															
202001 Recirculation								x				A2.07 Recirculation pump speed mismatch: Plant specific	3.1	1	
202002 Recirculation Flow Control				x								K4.03 Signal Failure Detection: Plant specific	3.0	1	
204000 RWCU															
214000 RPIS															
215001 Traversing In-core Probe															
215002 RBM															
216000 Nuclear Boiler Inst.															
219000 RHR/LPCI: Torus/Pool Cooling Mode									x			A3.01 Valve operation	3.3	1	
223001 Primary CTMT and Aux.															
226001 RHR/LPCI: CTMT Spray Mode															
230000 RHR/LPCI: Torus/Pool Spray Mode										x		A4.03 Keep fill system	3.1	1	
233000 Fuel Pool Cooling/Cleanup											x	G2.4.50 Ability to verify system alarm setpoints and operate controls identified in the alarm response manual	3.3		
234000 Fuel Handling Equipment															
239001 Main and Reheat Steam															
239003 MSIV Leakage Control															
241000 Reactor/Turbine Pressure Regulator															
245000 Main Turbine Gen. / Aux.			x									K3.05 Reactor feedwater pump: Plant Specific	2.7	1	
256000 Reactor Condensate															
259001 Reactor Feedwater			x									K3.08 RCIC	2.9	1	
268000 Radwaste															
271000 Offgas					x							K5.06 Catalytic Recombination	2.7	1	
272000 Radiation Monitoring											x	G2.2.30 Knowledge of RO CR duties during fuel handling: alarms from fuel handling area/communication w/ fuel storage facility/ systems operated from CR in support of fuel handling operations/ & supporting instrumentation.	3.5	1	
286000 Fire Protection															
288000 Plant Ventilation	x											K1.03 Standby Gas Treatment	3.7	1	
290001 Secondary CTMT	x											K1.07 Turbine building ventilation (steam tunnel): Plant specific	3.0	1	
290003 Control Room HVAC															
290002 Reactor Vessel Internals															
K/A Category Point Totals:	3	0	2	1	1	0	0	1	1	1	2	Group Point Total:		12	

Facility: HATCH - RO		Date of Exam: December 10, 2007				
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.2	Knowledge of operator responsibilities during all modes of plant operation	3.0	1		
	2.1.25	Ability to obtain and interpret station reference materials such as graphs/monographs/and tables which contain performance data	2.8	1		
	Subtotal			2		
2. Equipment Control	2.2.4	Ability to explain the variations in control board layouts/systems/instrumentation and procedural actions between units at a facility.	2.8	1		
	2.2.11	Knowledge of process for controlling temporary changes	2.5	1		
	2.2.27	Knowledge of the refueling process	2.6	1		
	Subtotal			3		
3. Radiation Control	2.3.2	Knowledge of the facility ALARA program	2.5	1		
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure	2.9	1		
	Subtotal			2		
4. Emergency Procedures / Plan	2.4.7	Knowledge of event based EOP mitigation strategies	3.1	1		
	2.4.29	Knowledge of the emergency plan	2.6	1		
	2.4.45	Ability to prioritize and interpret the significance of each annunciator or alarm	3.3	1		
	Subtotal			3		
Tier 3 Point Total				10		

Facility: HATCH - SRO																		
Tier	Group	RO K/A Category Points											SRO-Only Points					
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total		
1. Emergency & Abnormal Plant Evolutions	1														4	3	7	
	2				N/A					N/A					1	2	3	
	Tier Totals													5	5	10		
2. Plant Systems	1														4	1	5	
	2														2	1	3	
	Tier Totals													6	2	8		
3. Generic Knowledge and Abilities Categories					1	2	3	4						1	2	3	4	7
														2	2	1	2	

- Note:1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
- The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
 - Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.
 - Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
 - Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
 - Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
 - * The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
 - On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2. Use duplicate pages for RO and SRO-only exams.
 - For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (SRO)						Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4									
295003 Partial or Complete Loss of AC / 6					X		A2.04 System lineups	3.7	1
295004 Partial or Total Loss of DC Pwr / 6					X		A2.02 Extent of partial or complete loss of DC power	3.9	1
295005 Main Turbine Generator Trip / 3									
295006 SCRAM / 1									
295016 Control Room Abandonment / 7									
295018 Partial or Total Loss of CCW / 8									
295019 Partial or Total Loss of Inst. Air / 8									
295021 Loss of Shutdown Cooling / 4									
295023 Refueling Acc / 8									
295024 High Drywell Pressure / 5									
295025 High Reactor Pressure / 3					X		A2.06 Reactor water level	3.8	1
295026 Suppression Pool High Water Temp. / 5						X	G2.1.28 Knowledge of the purpose and function of major system components and controls	3.3	1
295028 High Drywell Temperature / 5					X		A2.06 torus/suppression chamber air space temperature: Plant specific	3.7	1
295030 Low Suppression Pool Wtr Lvl / 5									
295031 Reactor Low Water Level / 2									
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1									
295038 High Off-site Release Rate / 9						X	G2.2.22 Knowledge of LCO and safety limits	4.1	1
600000 Plant Fire On Site / 8						X	G2.4.49 Ability to perform w/o reference to procedures those actions that require immediate operation of system components and controls.	4.0	1
K/A Category Totals:					4	3	Group Point Total:		7

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (SRO)						Form ES-401-1	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
295002 Loss of Main Condenser Vac / 3									
295007 High Reactor Pressure / 3									
295008 High Reactor Water Level / 2									
295009 Low Reactor Water Level / 2									
295010 High Drywell Pressure / 5									
295011 High Containment Temp / 5									
295012 High Drywell Temperature / 5									
295013 High Suppression Pool Temp. / 5									
295014 Inadvertent Reactivity Addition / 1						x	G2.4.31: Knowledge of annunciators, alarms, and indications/ and use of the response instructions	3.4	1
295015 Incomplete SCRAM / 1									
295017 High Off-site Release Rate / 9									
295020 Inadvertent Cont. Isolation / 5 & 7					x		A2.04 Reactor pressure	3.9	1
295022 Loss of CRD Pumps / 1									
295029 High Suppression Pool Wtr Lvl / 5									
295032 High Secondary Containment Area Temperature / 5									
295033 High Secondary Containment Area Radiation Levels / 9						x	G2.4.50: Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	3.3	1
295034 Secondary Containment Ventilation High Radiation / 9									
295035 Secondary Containment High Differential Pressure / 5									
295036 Secondary Containment High Sump/Area Water Level / 5									
500000 High CTMT Hydrogen Conc. / 5									
K/A Category Point Totals:									
				1	2	Group Point Total:			3

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 1 (SRO)											Form ES-401-1		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
203000 RHR/LPCI: Injection Mode														
205000 Shutdown Cooling														
206000 HPCI														
209001 LPCS														
211000 SLC											x	G2.1.14 Knowledge of system status criteria which require the notification of plant personnel	3.3	1
212000 RPS								x				A2.20 Full system activation (full scram)	4.2	1
215003 IRM														
215004 Source Range Monitor								x				A2.02 SRM inop condition	3.7	1
215005 APRM / LPRM														
217000 RCIC														
218000 ADS														
223002 PCIS/Nuclear Steam Supply Shutoff														
239002 SRVs														
259002 Reactor Water Level Control														
261000 SGTS														
262001 AC Electrical Distribution									x			A2.08 Opening a disconnect under load	3.6	1
262002 UPS (AC/DC)														
263000 DC Electrical Distribution														
264000 EDGs														
300000 Instrument Air														
400000 Component Cooling Water									x			A2.03 High/Low CCW temperature	3.0	1
K/A Category Point Totals:								4			1	Group Point Total:		5

ES-401	BWR Examination Outline Plant Systems - Tier 2/Group 2 (SRO)											Form ES-401-1		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
201001 CRD Hydraulic														
201002 RMCS														
201003 Control Rod and Drive Mechanism								x				A2.05 Reactor Scram	4.1	1
201006 RWM														
202001 Recirculation														
202002 Recirculation Flow Control														
204000 RWCU											x	G2.1.2 Knowledge of operator responsibilities during all modes of plant operation	4.0	1
214000 RPIS														
215001 Traversing In-core Probe														
215002 RBM														
216000 Nuclear Boiler Inst.														
219000 RHR/LPCI: Torus/Pool Cooling Mode														
223001 Primary CTMT and Aux.														
226001 RHR/LPCI: CTMT Spray Mode														
230000 RHR/LPCI: Torus/Pool Spray Mode														
233000 Fuel Pool Cooling/Cleanup														
234000 Fuel Handling Equipment														
239001 Main and Reheat Steam														
239003 MSIV Leakage Control														
241000 Reactor/Turbine Pressure Regulator														
245000 Main Turbine Gen. / Aux.								x				A2.07 Loss of reactor/turbine pressure control system: Plant specific	3.8	1
256000 Reactor Condensate														
259001 Reactor Feedwater														
268000 Radwaste														
271000 Offgas														
272000 Radiation Monitoring														
286000 Fire Protection														
288000 Plant Ventilation														
290001 Secondary CTMT														
290003 Control Room HVAC														
290002 Reactor Vessel Internals														
K/A Category Point Totals:								2			1	Group Point Total:		3

Facility: HATCH - SRO		Date of Exam: December 10, 2007				
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.7	Ability to evaluate plant performance and make operational judgments based on operating characteristics/ reactor behavior/ and instrument interpretation. (43.5)			4.4	1
	2.1.14	Knowledge of system status criteria which require the notification of plant personnel. (43.5)			3.3	1
	Subtotal					2
2. Equipment Control	2.2.19	Knowledge of maintenance work order requirements (43.5)			3.1	1
	2.2.34	Knowledge of the process for determining the internal and external effects on core reactivity. (43.6)			3.2	1
	Subtotal					2
3. Radiation Control	2.3.9	Knowledge of the process for performing a containment purge. (43.4)			3.4	1
	Subtotal					1
4. Emergency Procedures / Plan	2.4.11	Knowledge of abnormal condition procedures (43.5)			3.6	1
	2.4.26	Knowledge of facility protection requirements including fire brigade and portable fire fighting equipment usage. (43.5)			3.3	1
	Subtotal					2
Tier 3 Point Total						7