

FACILITY NAME: HATCH

Section 7

REPORT NUMBER: 05000321/2009302 AND 05000366/2009302

FINAL ADMINISTRATIVE DOCUMENTS

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Location of Electronic Files:

O:\Hatch Examinations\Initial Exam 2009-302

Submitted By: Bruno Caballero

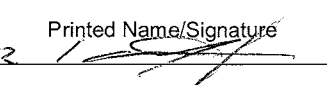
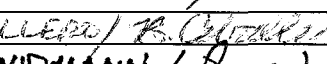
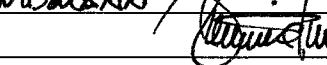
Verified By: Mark J. Richer

Facility: <u>HATCH</u>		Date of Examination: <u>10/26/09</u>
Developed by: Written - Facility <input checked="" type="checkbox"/> NRC <input type="checkbox"/> // Operating - Facility <input checked="" type="checkbox"/> NRC <input type="checkbox"/>		
Target Date*	Task Description (Reference)	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a and b)	BN
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	BN
-120	3. Facility contact briefed on security and other requirements (C.2.c)	BN
-120	4. Corporate notification letter sent (C.2.d) <u>June 4, 2009</u>	BN
[-90]	[5. Reference material due (C.1.e; C.3.c; Attachment 3)] <u>Sept 4, 2009</u>	BN
{-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) <u>Aug 14, 2009</u>	BN
{-70}	{7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)} <u>July 24, 2009</u>	BN
{-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 any Form ES-201-3 updates), and reference materials due (C.1.e, f, g and h; C.3.d) <u>Sept 4, 2009</u>	BN
-30	9. Preliminary license applications (NRC Form 398's) due (C.1.i; C.2.g; ES-202) <u>Sept 24/09</u>	BN
-14	10. Final license applications due and Form ES-201-4 prepared (C.1.i; C.2.i; ES-202) <u>Oct 12, 2009</u>	BN
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	N/A
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f and h; C.3.g)	BN
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h) <u>Oct 20, 2009</u>	BN
-7	14. Final applications reviewed; 1 or 2 (if >10) applications audited to confirm qualifications / eligibility; and examination approval and waiver letters sent (C.2.i; Attachment 5; ES-202, C.2.e; ES-204) <u>10/9/09</u>	BN
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee (C.3.k)	BN
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	BN
<p>* Target dates are generally based on facility-prepared examinations and are keyed to the examination date identified in the corporate notification letter. They are for planning purposes and may be adjusted on a case-by-case basis in coordination with the facility licensee.</p> <p>[Applies only] {Does not apply} to examinations prepared by the NRC.</p>		

Facility: <u>HATCH</u>		Date of Examination: <u>10/26/2009</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.	AB		BN
	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.	X NA		BN
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	AB		BN
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	X NA		BN
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.	AB	CE	BN
	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.	AB	CE	BN
	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.	AB	CE	BN
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.	AB	CE	BN
	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	AB	CE	BN
	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.	AB	CE	BN
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.	AB	CE	BN
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	AB	CE	BN
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	AB	CE	BN
	d. Check for duplication and overlap among exam sections.	AB	CE	BN
	e. Check the entire exam for balance of coverage.	AB	CE	BN
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	AB	CE	BN
a. Author		Printed Name/Signature		Date
b. Facility Reviewer (*)		Anthony Ball / <u>Anthony Ball</u>		10/15/09
c. NRC Chief Examiner (#)		Charles Edmund / <u>Charles Edmund</u>		10/15/2009
d. NRC Supervisor		Bruno Caballero / <u>B. Caballero</u>		10/20/2009
		Nicolai T. Widmann / <u>Nicolai T. Widmann</u>		10/26/09
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required. * Not applicable for NRC-prepared examination outlines				

* NRC PREPARED OUTLINE

10/26/09

Facility: HATCH		Date of Examination: Oct/Nov 2009		
Item	Task Description	Initials		
		a	b*	c#
1. W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	CLL	N/A	BKL
	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.	CLL		BKL
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	CLL		BKL
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	CLL		BKL
2. S I M U L A T O R	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.	N/A	N/A	N/A
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and that scenarios will not be repeated on subsequent days.			
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.			
3. W / T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.			
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations			
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.	N/A	N/A	N/A
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.	CLL		
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	CLL		BKL
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	CLL		BKL
	d. Check for duplication and overlap among exam sections.	CLL		BKL
	e. Check the entire exam for balance of coverage.	CLL	N-1	N-1
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	BKL	N/A	BKL
a. Author		Printed Name/Signature		Date
b. Facility Reviewer (*)		Craig Kuntz / 		5/7/09
c. NRC Chief Examiner (#)		BRUNO CABALLERO / 		5/7/09
d. NRC Supervisor		MALCOLM T. WIDMANN / 		05/07/09
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required. * Not applicable for NRC-prepared examination outlines				

N-1: This Form ES-201-2 only documents the written outline on this date of signatures.

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 10/24/09 - 11/12/09 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of 10/24/09 - 11/12/09. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1. Anthony Ball	Plant Ops Instructor	<i>Anthony Ball</i>	5/11/09	<i>Anthony Ball</i>	11/16/09	
2. Frank Fagan	Exam Writer	<i>Frank Fagan</i>	5/11/09	<i>Frank Fagan</i>	11/16/09	
3. CHARLIE EDMUND	PLANT-INSTRUCTOR - lead	<i>Charlie Edmund</i>	5/19/09	<i>Charlie Edmund</i>	11/16/09	
4. A.M. WOLFE	ops Supt / ops REP	<i>Alan Wolfe</i>	7/10/09	<i>Alan Wolfe</i>	11/12/09	
5. GARY BROWN	NUCLEAR PLANT OPERATOR	<i>Gary Brown</i>	8/3/09	<i>Gary Brown</i>	11/16/09	
6. Monty Davis	NUCLEAR PLANT OPERATOR	<i>Monty Davis</i>	8/3/09	<i>Monty Davis</i>	11/12/09	
7. CHRISTOPHER T. BURKE	SHIFT SUPPORT SUPV.	<i>Christopher T. Burke</i>	8/3/09	<i>Christopher T. Burke</i>	11/16/09	
8. Jason Jordan	Shift Support Supv.	<i>Jason Jordan</i>	8/3/09	<i>Jason Jordan</i>	11/12/09	
9. JOHN R. RICKTER	SIMULATOR COORDINATOR	<i>John R. Richter</i>	8/26/09	<i>John R. Richter</i>	11/12/09	
10. Dana L. Stille	Sr. IAC Tech. / Simulator	<i>Dana L. Stille</i>	8-26-09	<i>Dana L. Stille</i>	11-12-09	
11. Joff Lackmeyer	Simulator Engineer	<i>Joff Lackmeyer</i>	8/26/09	<i>Joff Lackmeyer</i>	11/14/09	
12. GLENN W. DURHAM	NUCLEAR PLANT OPERATOR	<i>Glenn W. Durham</i>	9-19-09	<i>Glenn W. Durham</i>	11-17-09	
13. Al Manning	SHIFT SUPV	<i>Al Manning</i>	9-19-09	<i>Al Manning</i>	11-13-09	
14. CHARLES DAWKINS	REACTOR OPERATOR	<i>Charles Dawkins</i>	10-1-09	<i>Charles Dawkins</i>	11-12-09	
15. CHUCK VONIER	SHIFT SUPERVISOR	<i>Chuck Vonier</i>	10-1-09	<i>Chuck Vonier</i>	11/12/09	

NOTES:

1. Pre-Examination

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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 10/26/09 - 11/12/09. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1. <u>ALLAN CARROLL</u>	<u>SSS</u>	<u>Allan Carroll</u>	<u>10-01-09</u>	<u>Allan Carroll</u>	<u>11-12-09</u>	
2. <u>Allen Durrence</u>	<u>NPD</u>	<u>Allen Durrence</u>	<u>10-1-09</u>	<u>Allen Durrence</u>	<u>11-12-09</u>	
3. <u>MARVIN CARTER</u>	<u>NPD</u>	<u>Marvin Carter</u>	<u>10-5-09</u>	<u>Marvin Carter</u>	<u>11-12-09</u>	
4. <u>GUY GRIFFIS</u>	<u>SS</u>	<u>Guy Griffis</u>	<u>10-5-09</u>	<u>Guy Griffis</u>	<u>11-12-09</u>	
5. <u>Jeff Mercer</u>	<u>Instruct</u>	<u>Jeff Mercer</u>	<u>10-5-09</u>	<u>Jeff Mercer</u>	<u>11-12-09</u>	
6. <u>T. F. PHILLIPS</u>	<u>CONSOLE OPERATOR</u>	<u>T. F. Phillips</u>	<u>10/25/09</u>	<u>T. F. Phillips</u>	<u>11-16-09</u>	
7. <u>BEN SMITH</u>	<u>Instructor</u>	<u>Ben Smith</u>	<u>10-5-09</u>	<u>Ben Smith</u>	<u>11-13-2009</u>	
8. <u>Macan Brand</u>	<u>Instructor</u>	<u>Macan Brand</u>	<u>10-26-09</u>	<u>Macan Brand</u>	<u>11-13-09</u>	
9. <u>Tony Spring</u>	<u>Ops Superintendent</u>	<u>Tony Spring</u>	<u>10/26/09</u>	<u>Tony Spring</u>	<u>11/16/09</u>	
10. <u>DAVID L. SINGER</u>	<u>SSG</u>	<u>DAVID L. SINGER</u>	<u>10-26-09</u>	<u>DAVID L. SINGER</u>	<u>11-16-09</u>	
11. <u>B.K. WAINWRIGHT</u>	<u>INSTRUCTOR-Lead</u>	<u>B.K. Wainwright</u>	<u>10/25/09</u>	<u>B.K. Wainwright</u>	<u>11-16-09</u>	
12. <u>ATB Genereny</u>	<u>Instructor</u>	<u>ATB Genereny</u>	<u>10/25/09</u>	<u>ATB Genereny</u>	<u>11-16-09</u>	
13. <u>MARVIN GUNN</u>	<u>PLANT INSTRUCTOR</u>	<u>Marvin Gunn</u>	<u>10/26/09</u>	<u>Marvin Gunn</u>	<u>11/23/09</u>	
14. <u>DERWOOD TOOTLE</u>	<u>OPS TRNG SUPV.</u>	<u>Derwood Tootle</u>	<u>10/28/09</u>	<u>Derwood Tootle</u>	<u>11/16/09</u>	
15. <u>Greg Crosby</u>	<u>Instructor</u>	<u>Greg Crosby</u>	<u>10/28/09</u>	<u>Greg Crosby</u>	<u>11/12/09</u>	

NOTES:

1. Pre-Examination

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2. Post-Examination

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	<u>ADYAN</u>	<u>Instructor</u>	<u>ADYAN</u>	<u>10/30/09</u>	<u>ADYAN</u>	<u>11/12/09</u>	
2.							
3.							
4.							
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9.							
10.							
11.							
12.							
13.							
14.							
15.							

NOTES:

NRC Final**ES-301****Administrative Topics Outline****Form ES-301-1**

Facility: <u>HATCH</u>		Date of Examination: <u>Oct 26, 2009</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>		Operating Test Number: <u>2009-302</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Admin 1 Conduct of Operations	N, R	Diesel Fuel Oil and Confined Space ALL 2.1.26 (3.4/3.6)
Admin 2 Conduct of Operations	D, R	Determine Minimum Crew Staffing SRO Only 2.1.5 (3.9/4.2)
Admin 3 Equipment Control	M, R	Determine Drywell Floor Drain Leak Rate 2.2.12 (3.7) RO Only
Admin 4 Equipment Control	M, R	Review/Approve Equipment Danger Tagout 2.2.13 (4.3) SRO Only
Admin 5 Radiation Control	N, R	Evaluate a Radiation Work Permit (RWP) and Survey Map 2.3.7 (3.5/3.6) ALL
Admin 6 Emergency Procedures/Plan	D, R	Perform a Prompt Offsite Dose Assessment 2.4.39 (3.9) RO Only
Admin 7 Emergency Procedures/Plan	D, R	Determine a Protective Action Recommendation (PAR) 2.4.9 (4.0) SRO Only
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)		

W. C. 10/20/09

Facility: <u>HATCH</u>	Date of Examination: <u>Oct 26, 2009</u>	
Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	Operating Test No.: <u>2009-302</u>	
Control Room Systems® (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
Normal Start of Recirc ASD	A, L, M, S	SF-1 202001 Recirc System K6.02 (3.1/3.2)
Restore RWL With RHRSW	D, S	SF-2 295031 Reactor Low Water Level A1.08 (3.8/3.9)
ED Using Head Vents	M, S	SF-3 295025 High Reactor Pressure A1.01 (2.9/3.0)
Roll the Main Turbine	A, L, M, S	SF-4 245000 Main Turbine Gen. A4.06 (2.7/2.6)
Lower Torus Water Level	N, S	SF-5 223001A2.11 Primary Containment System and Auxiliaries A2.11 (3.6/3.8)
Re-Energize Bus with Diesel Generator	A, M, S	SF-6 295003 Partial or Complete Loss of AC A1.02 (4.2/4.3)
Rod Worth Minimizer Functional Test (RO ONLY)	A, M, L, S	SF-7 201006 Rod Worth Minimizer System A3.02 (3.5/3.4)
Loss of Air Actions for Rx Bldg Ventilation	A, N, S	SF-8 295019 Partial or Total Loss of Inst. Air K2.08 (2.8/2.9)

Facility: <u>HATCH</u>		Date of Examination: <u>Oct 26, 2009</u>
Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U		Operating Test No.: <u>2009-302</u>
In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
System / JPM Title	Type Code*	Safety Function
Vent the Scram Air Header	M, E, R	SF-1 295015 Incomplete SCRAM K2.11 (3.5/3.7)
Locally Start 1B PSW Pump Breaker Without Control Power	A, E, M	SF-6 295004 Partial or Total Loss of DC A1.07 (3.3/3.3)
Start RPS MG Set	D, R	SF-7 212000 Reactor Protection System A1.01 (2.8/2.9)
<p>@ 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.</p>		
* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (EN)gineered safety feature (L)ow-Power / Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (R)CA (S)imulator	4-6 / 4-6 / 2-3 $\leq 9 / \leq 8 / \leq 4$ $\geq 1 / \geq 1 / \geq 1$ - / - / ≥ 1 (control room system) $\geq 1 / \geq 1 / \geq 1$ $\geq 2 / \geq 2 / \geq 1$ $\leq 3 / \leq 3 / \leq 2$ (randomly selected) $\geq 1 / \geq 1 / \geq 1$	

Facility: <u>E.I. HATCH</u>		Date of Examination: <u>10/26/2009</u>		Operating Test Number: <u>2009-302</u>	
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).	AB	CE	BM	
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	AB	CE	BM	
c.	The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)	AB	CE	BM	
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	AB	CE	BM	
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	AB	CE	BM	
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 	AB	CE	BM	
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.	AB	CE	BM	
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.			AB	CE	BM
Printed Name / Signature		Date			
a.	Author <u>Anthony Ball / Anthony Ball</u>	<u>10/15/2009</u>			
b.	Facility Reviewer(*) <u>Charles Edmund / Charles Edmund</u>	<u>10/15/2009</u>			
c.	NRC Chief Examiner (#) <u>BRUNO CABALLERO / Bruno Caballero</u>	<u>10/20/2009</u>			
d.	NRC Supervisor <u>WILCOULT WIDMANN / Wilcoult Widmann</u>	<u>10/20/09</u>			
NOTE: * The facility signature is not applicable for NRC-developed tests. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.					

Facility: E. I. HATCH		Date of Exam: 10/26/2009		Scenario Numbers: 1 / 2 / 4		Operating Test No.: 2009-302		
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.	AB	CE	BM				
2.	The scenarios consist mostly of related events.	AB	CE	BM				
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) 	AB	CE	BM				
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.	AB	CE	BM				
5.	The events are valid with regard to physics and thermodynamics.	AB	CE	BM				
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	AB	CE	BM				
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.	AB	CE	BM				
8.	The simulator modeling is not altered.	AB	CE	BM				
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.	AB	CE	BM				
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.	AB	CE	BM				
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	AB	CE	BM				
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).	AB	CE	BM				
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	AB	CE	BM				
Target Quantitative Attributes (Per Scenario; See Section D.5.d)					Actual Attributes			
1.	Total malfunctions (5-8)	6	7	7	AB	CE	BM	
2.	Malfunctions after EOP entry (1-2)	2	1	2	AB	CE	BM	
3.	Abnormal events (2-4)	3	3	4	AB	CE	BM	
4.	Major transients (1-2)	1	1	1	AB	CE	BM	
5.	EOPs entered/requiring substantive actions (1-2)	2	2	2	AB	CE	BM	
6.	EOP contingencies requiring substantive actions (0-2)	1	0	0	AB	CE	BM	
7.	Critical tasks (2-3)	2	2	2	AB	CE	BM	

Rec'd
10/26/09

Facility: E. I. HATCH		Date of Exam: 10/26/2009		Scenario Numbers: 5		Operating Test No.: 2009-302	
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.	AB	CE	BN			
2.	The scenarios consist mostly of related events.	AB	CE	BN			
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) 	AB	CE	BN			
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.	AB	CE	BN			
5.	The events are valid with regard to physics and thermodynamics.	AB	CE	BN			
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	AB	CE	BN			
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.	AB	CE	BN			
8.	The simulator modeling is not altered.	AB	CE	BN			
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.	AB	CE	BN			
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.	AB	CE	BN			
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	AB	CE	BN			
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).	AB	CE	BN			
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	AB	CE	BN			
Target Quantitative Attributes (Per Scenario; See Section D.5.d)		Actual Attributes		--	--	--	
1.	Total malfunctions (5-8)	7	AB	CE	BN		
2.	Malfunctions after EOP entry (1-2)	2	AB	CE	BN		
3.	Abnormal events (2-4)	2	AB	CE	BN		
4.	Major transients (1-2)	1	AB	CE	BN		
5.	EOPs entered/requiring substantive actions (1-2)	2	AB	CE	BN		
6.	EOP contingencies requiring substantive actions (0-2)	1	AB	CE	BN		
7.	Critical tasks (2-3)	3	AB	CE	BN		

Facility: Plant E. I. Hatch			Date of Exam: October 26th, 2009			Operating Test No.: 2009-302												
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			4			5 (Spare)							
		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					
RO <input type="checkbox"/>	RX	2							2						2	1	1	0
<input type="checkbox"/> SRO-I X	NOR	1					1								2	1	1	1
<input type="checkbox"/> SRO-U	I/C	3,4, 5,6					2,5		4,5						8	4	4	2
<input type="checkbox"/>	MAJ	7					8		7						3	2	2	1
	TS	3,5,6													3	0	2	2
RO <input type="checkbox"/>	RX		2			7									2	1	1	0
<input type="checkbox"/> SRO-I X	NOR					1				1					2	1	1	1
<input type="checkbox"/> SRO-U	I/C		4,6			2,4, 5,6				3,6					8	4	4	2
<input type="checkbox"/>	MAJ		7			8				7					3	2	2	1
	TS					2,3									2	0	2	2
RO <input type="checkbox"/>	RX					7			2						2	1	1	0
<input type="checkbox"/> SRO-I X	NOR			1					1						2	1	1	1
<input type="checkbox"/> SRO-U	I/C			3,5		4,6			3,4, 5,6						8	4	4	2
<input type="checkbox"/>	MAJ			7		8			7						3	2	2	1
	TS								4,6						2	0	2	2
RO <input type="checkbox"/>	RX											2	2		1	1	1	0
<input type="checkbox"/> SRO-I <input type="checkbox"/>	NOR											1		1	1	1	1	1
<input type="checkbox"/> SRO-U	I/C											3,4, 5,6	3,6	4,5	4	4	4	2
<input type="checkbox"/>	MAJ											7	7	7	1	2	2	1
	TS											3,5			2	0	2	2

Instructions:

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

Facility: **Plant E. I. Hatch**Date of Exam: **October 26th, 2009**Operating Test No.: **2009-302**

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			4			5 (Spare)								
		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															
Sanford (I4)	RO	RX	2				7			2					3	1	1	0	
	<input type="checkbox"/> SRO-I	NOR	1						1						2	1	1	1	
	<input checked="" type="checkbox"/> X	I/C	3,4, 5,6				4,6			3,4, 5,6					10	4	4	2	
	<input type="checkbox"/> SRO-U	MAJ	7				8			7					3	2	2	1	
		TS	3,5,6							4,6					5	0	2	2	
Lyon (I5)	RO	RX		2		7									2	1	1	0	
	<input type="checkbox"/> SRO-I	NOR				1					1				2	1	1	1	
	<input checked="" type="checkbox"/> X	I/C		4,6		2,4, 5,6					3,6				8	4	4	2	
	<input type="checkbox"/> SRO-U	MAJ		7		8					7				3	2	2	1	
		TS				2,3									2	0	2	2	
Costa (R1)	RO	RX							2						1	1	1	0	
	<input checked="" type="checkbox"/> X	NOR			1			1							2	1	1	1	
	<input type="checkbox"/> SRO-I	I/C			3,5			2,5		4,5					6	4	4	2	
	<input type="checkbox"/> SRO-U	MAJ			7			8		7					3	2	2	1	
		TS													N/A	0	2	2	
	RO	RX										2	2		1	1	1	0	
	<input type="checkbox"/> SRO-I	NOR										1		1	1	1	1	1	
	<input type="checkbox"/> SRO-U	I/C										3,4, 5,6	3,6	4,5	4	4	4	2	
		MAJ										7	7	7	1	2	2	1	
		TS										3,5			2	0	2	2	

Instructions:

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

Facility: **Plant E. I. Hatch** Date of Examination: **10/26/2009** Operating Test No.: **2009-302**

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

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

Instructions:

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

Facility: HATCH		Date of Exam: OCT/NOV 2009																
Tier	Group	RO K/A Category Points												SRO-Only Points				
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total		
1. Emergency & Abnormal Plant Evolutions	1	4	3	3	N/A			4	3	N/A			3	20	4	3	7	
	2	1	1	1				2	1				1	7	2	1	3	
	Tier Totals	5	4	4				6	4				4	27	6	4	10	
2. Plant Systems	1	3	2	3	2	2	3	3	3	2	1	2	26	3	2	5		
	2	1	1	1	1	1	1	2	1	1	1	1	12	0	2	3		
	Tier Totals	4	3	4	3	3	4	5	4	3	2	3	38	5	3	8		
3. Generic Knowledge and Abilities Categories					1		2		3		4		10	1	2	3	4	7
					3		3		2		2		2	2	1	2		

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

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO/GRG)							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		R					R295001 AK2.07	R3.4		
295003 Partial or Complete Loss of AC / 6	R						R295003 AK1.04	R3.1		
295004 Partial or Total Loss of DC Pwr / 6						R	R295004 G2.4.9	R3.8		
295005 Main Turbine Generator Trip / 3			R				R295005 AK3.07	R3.8		
295006 SCRAM / 1				R			R295006 AA1.02	R3.9		
295016 Control Room Abandonment / 7					R		R295016 AA2.06	R3.3		
295018 Partial or Total Loss of CCW / 8			R				R295018 AK3.06	R3.3		
295019 Partial or Total Loss of Inst. Air / 8					R		R295019 AA2.02	R3.6		
295021 Loss of Shutdown Cooling / 4						R	R295021 G2.2.4b	R3.4		
295023 Refueling Acc / 8				R			R295023 AA1.04	R3.4		
295024 High Drywell Pressure / 5					R		R295024 EA2.02	R3.9		
295025 High Reactor Pressure / 3						R	R295025 G2.1.23	R4.3		
295026 Suppression Pool High Water Temp. / 5			R				R295026 EK3.01	R3.8		
295027 High Containment Temperature / 5										
295028 High Drywell Temperature / 5				R			R295028 EA1.03	R3.9		
295030 Low Suppression Pool Wtr Lvl / 5	R						R295030 EK1.02	R3.5		
295031 Reactor Low Water Level / 2				R			R295031 EA1.05	R4.3		
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1		R					R295037 EK2.07	R4.0		
295038 High Off-site Release Rate / 9	R						R295038 EK1.03	R2.8		
600000 Plant Fire On Site / 8	R						R600000 AK1.02	R2.9		
700000 Generator Voltage and Electric Grid Disturbances / 6		R					R700000 AK2.07	R3.6		
K/A Category Totals:	4	3	3	4	3	3	Group Point Total:		20/2	

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295003AK1.04	Partial or Complete Loss of AC / 6	3.1	3.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Electrical bus divisional separation.....
295004G2.4.9	Partial or Total Loss of DC Pwr / 6	3.8	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.
295005AK3.07	Main Turbine Generator Trip / 3	3.8	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bypass valve operation.....
295006AA1.02	SCRAM / 1	3.9	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor water level control system.....
295018AK3.06	Partial or Total Loss of CCW / 8	3.3	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Increasing cooling water flow to heat exchangers.....
295019AA2.02	Partial or Total Loss of Inst. Air / 8	3.6	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Status of safety-related instrument air system loads (see AK2.1 - AK2.19).....
295021G2.2.40	Loss of Shutdown Cooling / 4	3.4	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to apply technical specifications for a system.
295023AA1.04	Refueling Acc Cooling Mode / 8	3.4	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Radiation monitoring equipment.....
295025G2.1.23	High Reactor Pressure / 3	4.3	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to perform specific system and integrated plant procedures during all modes of plant operation.
295026EK3.01 5	Suppression Pool High Water Temp. / 5	3.8	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency/normal depressurization.....
295028EA1.03	High Drywell Temperature / 5	3.9	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Drywell cooling system.....

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295030EK1.02	Low Suppression Pool Wtr Lvl / 5	3.5	3.8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pump NPSH.....
295031EA1.05	Reactor Low Water Level / 2	4.3	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor core isolation system: Plant-Specific.....
295037EK2.07	SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	4.0	4.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Neutron monitoring system.....
700000AK2.07	Generator Voltage and Electric Grid Disturbancecs	3.6	3.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Turbine / Generator control
295001AK2.07	Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	3.4	3.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Core flow indication.....
295016AA2.06	Control Room Abandonment / 7	3.3	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cooldown rate.....
295024EA2.02	High Drywell Pressure / 5	3.9	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Drywell temperature.....
295038EK1.03	High Off-site Release Rate / 9	2.8	3.8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Meteorological effects on off-site release.....
600000AK1.02	Plant Fire On Site / 8	2.9	3.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fire Fighting

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO/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				R			R295010 AA1.05	R31		
295011 High Containment Temp / 5										
295012 High Drywell Temperature / 5										
295013 High Suppression Pool Temp. / 5						R	R295013 G2.4.1	R46		
295014 Inadvertent Reactivity Addition / 1										
295015 Incomplete SCRAM / 1				R			R295015 AA1.02	R40		
295017 High Off-site Release Rate / 9										
295020 Inadvertent Cont. Isolation / 5 & 7					R		R295020 AA2.03	R37		
295022 Loss of CRD Pumps / 1										
295029 High Suppression Pool Wtr Lvl / 5										
295032 High Secondary Containment Area Temperature / 5	R						R295032 EK1.02	R36		
295033 High Secondary Containment Area Radiation Levels / 9										
295034 Secondary Containment Ventilation High Radiation / 9										
295035 Secondary Containment High Differential Pressure / 5			R				R295035 EK3.02	R33		
295036 Secondary Containment High Sump/Area Water Level / 5										
500000 High CTMT Hydrogen Conc. / 5	R						R500000 EK2.06	R38		
K/A Category Point Totals:	1	1	1	2	1	1	Group Point Total:	75		

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295010AA1.05	High Drywell Pressure / 5	3.1	3.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Drywell/suppression vent and purge.....
295013G2.4.1	High Suppression Pool Temp. / 5	4.6	4.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Knowledge of EOP entry conditions and immediate action steps.
295015AA1.02	Incomplete SCRAM / 1	4.0	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RPS.....
295020AA2.03	Inadvertent Cont. Isolation / 5 & 7	3.7	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor power.....
295032EK1.02	High Secondary Containment Area Temperature / 5	3.6	4.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Radiation releases..... (e.g., Temperature leg of SCC flowchart limits HVAC operation if rad alarms present.)
295035EK3.02	Secondary Containment High Differential Pressure / 5	3.3	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Secondary containment ventilation response.....
500000EK2.06	High CTMT Hydrogen Conc. / 5	3.0	3.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Wetwell Spray system

ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 1 (RO/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											R	R203000 G2.1.31	R4.6		
205000 Shutdown Cooling					R							R205000 K5.03	R2.8		
206000 HPCI					R							R206000 K5.05	R3.3		
207000 Isolation (Emergency) Condenser												—			
209001 LPCS	R	R										R209001 K1.09, R209001 K1.13	R3.2 R2.2		
209002 HPCS												—			
211000 SLC				R								R211000 K4.03	R3.8		
212000 RPS							R	R				R212000 A2.16, R212000 A2.19	R4.0 R3.8		
215003 IRM							R					R215003 A1.04	R3.4		
215004 Source Range Monitor						R						R215004 K6.01	R3.2		
215005 APRM / LPRM							R					R215005 A1.04, R215005 A1.05	R4.1 R3.3		
217000 RCIC		R										R217000 K2.03	R2.7		
218000 ADS	R											R218000 K1.06	R3.9		
223002 PCIS/Nuclear Steam Supply Shutoff			R									R223002 K3.21	R2.6		
239002 SRVs									R			R239002 A3.05	R4.1 R3.8		
259002 Reactor Water Level Control						R			R			R259002 A4.03, R259002 K6.04	R3.1		
261000 SGTS			R									R261000 K3.01, R261000 K3.06	R3.3 R3.0		
262001 AC Electrical Distribution											R	R262001 G2.2.44	R4.2		
262002 UPS (AC/DC)									R			R262002 A3.01	R2.8		
263000 DC Electrical Distribution								R				R263000 A2.01	R2.8		
264000 EDGs				R								R264000 K4.04	R2.6		
300000 Instrument Air						R						R300000 K6.07	R2.5		
400000 Component Cooling Water		R										R400000 K2.02	R2.9		
K/A Category Point Totals:	3	2	3	2	2	3	3	3	2	1	2	Group Point Total:		26/5	

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
203000G2.1.31	RHR/LPCI: Injection Mode	4.6	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to locate control room switches, controls and indications and to determine that they are correctly reflecting the desired plant lineup.
205000K5.03	Shutdown Cooling	2.8	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Heat removal mechanisms
206000K5.05	HPCI	3.3	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Turbine speed control: BWR-2,3,4
209001K1.09	LPCS	3.2	3.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Nuclear boiler instrumentation
209001K1.13	LPCS	2.8	3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Leak detection
211000K4.03	SLC	3.8	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Keeping sodium pentaborate in solution
212000A2.16	RPS	4.0	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Changing mode switch position
212000A2.19	RPS	3.8	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Partial system activation (half-SCRAM)
215003A1.04	IRM	3.4	3.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Control rod block status
215004K6.01	Source Range Monitor	3.2	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RPS
215005A1.04	APRM / LPRM	4.1	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SCRAM and rod block trip setpoints

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
215005A1.05	APRM / LPRM	3.3	3.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lights and alarms
217000K2.03	RCIC	2.7	2.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RCIC flow controller
218000K1.06	ADS	3.9	3.9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety/relief valves
223002K3.21	PCIS/Nuclear Steam Supply Shutoff	2.6	2.7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Traversing in-core probe system
239002A3.05	SRVs	4.1	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Suppression pool temperature
259002A4.03	Reactor Water Level Control	3.8	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All individual component controllers when transferring from manual to automatic modes
259002K6.04	Reactor Water Level Control	3.1	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor feedwater flow input
261000K3.01	SGTS	3.3	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Secondary containment and environment differential pressure
261000K3.06	SGTS	3.0	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Primary containment oxygen content: Mark-I&II
262001G2.2.44	AC Electrical Distribution	4.2	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions
262002A3.01	UPS (AC/DC)	2.8	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Transfer from preferred to alternate source

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
263000A2.01	DC Electrical Distribution	2.8	3.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Grounds
264000K4.04	EDGs	2.6	2.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Field flashing
300000K6.07	Instrument Air	2.5	2.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Valves
400000K2.02	Component Cooling Water	2.9	2.9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CCW valves

ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 2 (RD/SRG)										Form ES-401-1		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#
✓ 201001 CRD Hydraulic					R							R201001 K5.02	R2.6	
201002 RMCS														
201003 Control Rod and Drive Mechanism														
201004 RSCS														
201005 RCIS														
201006 RWM														
✓ 202001 Recirculation									R			R202001 A3.04	R3.2	
✓ 202002 Recirculation Flow Control		R										R202002 K2.02	R2.6	
✓ 204000 RWCU											R	R204000 G2.4.46	R4.2	
✓ 214000 RPIS	R											R214000 K1.04	R3.2	
215001 Traversing In-core Probe														
215002 RBM														
✓ 216000 Nuclear Boiler Inst.								R				R216000 A2.10	R3.3	
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				R								R233000 K4.06	R2.9	
✓ 234000 Fuel Handling Equipment			R									R234000 K3.04	R2.9	
239001 Main and Reheat Steam														
239003 MSIV Leakage Control														
✓ 241000 Reactor/Turbine Pressure Regulator							R					R241000 A1.24	R2.6	
245000 Main Turbine Gen. / Aux.														
256000 Reactor Condensate														
259001 Reactor Feedwater														
268000 Radwaste														
271000 Offgas														
272000 Radiation Monitoring														
✓ 288000 Fire Protection										R		R288000 A4.02	R2.5	
288000 Plant Ventilation														
290001 Secondary CTMT														
✓ 290003 Control Room HVAC							R					R290003 A1.04	R2.5	
✓ 290002 Reactor Vessel Internals						R						R290002 K6.08	R2.9	
K/A Category Point Totals:	1	1	1	1	1	1	2	1	1	1	1	Group Point Total:		123

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
201001K5.02	CRD Hydraulic	2.6	2.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Flow indication
202001A3.04	Recirculation	3.2	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lights and alarms
202002K2.02	Recirculation Flow Control	2.6	2.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hydraulic power unit: Plant-Specific \Rightarrow write question to target power supply arrangement for ASD
204000G2.4.46	RWCU	4.2	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ability to verify that the alarms are consistent with the plant conditions.
214000K1.04	RPIS	3.2	3.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RMCS: Plant-Specific
216000A2.10	Nuclear Boiler Inst.	3.3	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Rapid vessel depressurizations
233000K4.06	Fuel Pool Cooling/Cleanup	2.9	3.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Maintenance of adequate pool level
234000K3.04	Fuel Handling Equipment	2.9	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	core modifications/alterations
241000A1.24	Reactor/Turbine Pressure Regulator	2.6	2.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Main turbine eccentricity
286000A4.02	Fire Protection	2.5	2.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Applicable component cooling water system: Plant-Specific (e.g., Diesel Fire Pump has dedicated component cooling water system)
290002K6.08	Reactor Vessel Internals	2.9	3.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Nuclear boiler instrumentation

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
290003A1.04	Control Room HVAC	2.5	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Control room pressure

Facility: <i>Hatch</i>		Date of Exam: <i>Oct/Nov 2009</i>				
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.17	Verbal reports	R3.9			
	2.1.6	Manage crew during transients	R3.8			
	2.1.8	Coordinate activities w/ control room	R3.4			
	2.1.—					
	2.1.—					
	2.1.—					
	Subtotal		(3)			
2. Equipment Control	2.2.1	Perform pre-startup procedures	R4.5			
	2.2.37	Determine operability/availability	R3.6			
	2.2.44	Interpret control room indications	R4.2			
	2.2.—					
	2.2.—					
	2.2.—					
	Subtotal		(3)			
3. Radiation Control	2.3.13	Knowledge of radiological procedures	R3.4			
	2.3.5	Ability to use radiation monitoring systems	R2.9			
	2.3.—					
	2.3.—					
	2.3.—					
	2.3.—					
	Subtotal		(2)			
4. Emergency Procedures / Plan	2.4.26	Fire Brigade requirements	R3.1			
	2.4.49	Immediate Operator Actions (memory)	R4.6			
	2.4.—					
	2.4.—					
	2.4.—					
	2.4.—					
	Subtotal		(2)			
Tier 3 Point Total			(10)			7

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
G2.1.17	Conduct of operations	3.9	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to make accurate, clear and concise verbal reports.
G2.1.6	Conduct of operations	3.8	4.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to manage the control room crew during plant transients.
G2.1.8	Conduct of operations	3.4	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to coordinate personnel activities outside the control room.
G2.2.1	Equipment Control	4.5	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.
G2.2.37	Equipment Control	3.6	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to determine operability and/or availability of safety related equipment
G2.2.44	Equipment Control	4.2	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions
G2.3.13	Radiation Control	3.4	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiological safety procedures pertaining to licensed operator duties
G2.3.5	Radiation Control	2.9	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to use radiation monitoring systems
G2.4.26	Emergency Procedures/Plans	3.1	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of facility protection requirements including fire brigade and portable fire fighting equipment usage.
G2.4.49	Emergency Procedures/Plans	4.6	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO/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						S	\$295001 AA2.04	\$3.1		
295003 Partial or Complete Loss of AC / 6										
✓ 295004 Partial or Total Loss of DC Pwr / 6						S	\$295004 G2.1.23	\$4.4		
✓ 295005 Main Turbine Generator Trip / 3						S	\$295005 AA2.02	\$2.7		
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						S	\$295019 AA2.02	\$3.7		
295021 Loss of Shutdown Cooling / 4										
295023 Refueling Acc / 8										
295024 High Drywell Pressure / 5										
295025 High Reactor Pressure / 3										
295026 Suppression Pool High Water Temp. / 5										
295027 High Containment Temperature / 5										
295028 High Drywell Temperature / 5										
✓ 295030 Low Suppression Pool Wtr Lvl / 5						S	\$295030 G2.1.20	\$4.6		
✓ 295031 Reactor Low Water Level / 2						S	\$295031 G2.2.44	\$4.4		
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1										
295038 High Off-site Release Rate / 9										
600000 Plant Fire On Site / 8										
✓ 700000 Generator Voltage and Electric Grid Disturbances / 6						S	\$700000 AA2.03	\$3.6		
K/A Category Totals:						43	Group Point Total:		20/7	

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295001AA2.04	Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	3.0	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Individual jet pump flows: Not-BWR-1&2.....
295004G2.1.23	Partial or Total Loss of DC Pwr / 6	4.3	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ability to perform specific system and integrated plant procedures during all modes of plant operation.
295005AA2.02	Main Turbine Generator Trip / 3	2.4	2.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Turbine vibration.....
295019AA2.02	Partial or Total Loss of Inst. Air / 8	3.6	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Status of safety-related instrument air system loads (see AK2.1 - AK2.19).....
295030G2.1.20	Low Suppression Pool Wtr Lvl / 5	4.6	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ability to execute procedure steps.
295031G2.2.44	Reactor Low Water Level / 2	4.2	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions
700000AA2.03	Generator Voltage and Electric Grid Disturbancecs	3.5	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Generator current outside the generator capability curve

ES-401		BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 RO (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					S		\$ 295007 AA2.01	SA1		
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					S		\$ 295012 G2.4.11	SA2		
✓ 295013 High Suppression Pool Temp. / 5					S		\$ 295013 AA2.01	SA0		
295014 Inadvertent Reactivity Addition / 1										
295015 Incomplete SCRAM / 1										
295017 High Off-site Release Rate / 9										
295020 Inadvertent Cont. Isolation / 5 & 7										
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										
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	1	Group Point Total:		7/3	

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
295007AA2.01	High Reactor Pressure / 3	4.1	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reactor pressure.....
295012G2.4.11	High Drywell Temperature / 5	4.0	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of abnormal condition procedures.
295013AA2.01	High Suppression Pool Temp. / 5	3.8	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Suppression pool temperature.....

ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 1 (RG/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															
207000 Isolation (Emergency) Condenser															
209001 LPCS															
209002 HPCS															
✓ 211000 SLC												\$ 211000 G2.2.44	\$4.0		
212000 RPS															
✓ 215003 IRM												\$ 215003 G2.1.27	\$4.0		
215004 Source Range Monitor															
215005 APRM / LPRM															
217000 RCIC															
218000 ADS															
223002 PCIS/Nuclear Steam Supply Shutoff															
239002 SRVs															
259002 Reactor Water Level Control															
✓ 261000 SGTS												\$ 261000 A2.12	\$34		
262001 AC Electrical Distribution															
262002 UPS (AC/DC)															
263000 DC Electrical Distribution															
✓ 264000 EDGs												\$ 264000 A2.09	\$4.1		
300000 Instrument Air															
✓ 400000 Component Cooling Water												\$ 400000 A2.02	\$3.0		
K/A Category Point Totals:								3			2		Group Point Total:	28/5	

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
211000G2.2.44	SLC	4.2	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions
215003G2.1.27	IRM	3.9	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of system purpose and or function.
261000A2.12	SGTS	3.2	3.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High fuel pool ventilation radiation: Plant-Specific.
264000A2.09	EDGs	3.7	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Loss of A.C. power
400000A2.02	Component Cooling Water	2.8	3.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High/low surge tank level

ES-401		BWR Examination Outline Plant Systems - Tier 2/Group 2 (RO/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														
201004 RSCS														
201005 RCIS														
201006 RWM														
202001 Recirculation														
202002 Recirculation Flow Control														
204000 RWCU														
214000 RPIS														
215001 Traversing In-core Probe														
215002 RBM														
✓ 216000 Nuclear Boiler Inst.								S				S 216000 A2.14	S2.9	
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											S	S 234000 G2.2.25	S4.2	
239001 Main and Reheat Steam														
239003 MSIV Leakage Control														
241000 Reactor/Turbine Pressure Regulator														
245000 Main Turbine Gen. / Aux.														
256000 Reactor Condensate														
259001 Reactor Feedwater														
268000 Radwaste														
271000 Offgas														
✓ 272000 Radiation Monitoring								S				S 272000 A2.11	S3.7	
286000 Fire Protection														
286000 Plant Ventilation														
290001 Secondary CTMT														
290003 Control Room HVAC														
290002 Reactor Vessel Internals														
K/A Category Point Totals:								2			1	Group Point Total:		12/3

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
216000A2.14	Nuclear Boiler Inst.	2.9	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Recirculation flow: Design-Specific
234000G2.2.25	Fuel Handling Equipment	3.2	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.
272000A2.11	Radiation Monitoring	3.4	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Leakage and/or breaks from contaminated systems to atmosphere or to other process systems

Facility: <i>Hatch</i>		Date of Exam: <i>Oct/Nov 2009</i>				
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.28	Major system components/controls			S4.1	
	2.1.37	Reactivity Management			S4.6	
	2.1.—					
	2.1.—					
	2.1.—					
	2.1.—					
	Subtotal				(2)	
2. Equipment Control	2.2.1	Pre-startup procedures			S4.4	
	2.2.23	Process for monitoring active LCDs			S4.6	
	2.2.—					
	2.2.—					
	2.2.—					
	2.2.—					
	Subtotal				(2)	
3. Radiation Control	2.3.13	Radiological Safety Procedures			S3.8	
	2.3.—					
	2.3.—					
	2.3.—					
	2.3.—					
	2.3.—					
	Subtotal				(1)	
4. Emergency Procedures / Plan	2.4.37	Lines of authority during E-plan			S4.1	
	2.4.41	E-plan thresholds & classifications			S4.6	
	2.4.—					
	2.4.—					
	2.4.—					
	2.4.—					
	Subtotal				(2)	
Tier 3 Point Total				10	7	(7)

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
G2.1.28	Conduct of operations	4.1	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the purpose and function of major system components and controls.
G2.1.37	Conduct of operations	4.3	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of procedures, guidelines or limitations associated with reactivity management
G2.2.1	Equipment Control	4.5	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.
G2.2.23	Equipment Control	3.1	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to track Technical Specification limiting conditions for operations.
G2.3.13	Radiation Control	3.4	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiological safety procedures pertaining to licensed operator duties
G2.4.37	Emergency Procedures/Plans	3.0	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the lines of authority during implementation of an emergency plan.
G2.4.41	Emergency Procedures/Plans	2.9	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the emergency action level thresholds and classifications.

Tier / Group	Randomly Selected K/A	Reason for Rejection
1/1 (RO)	295001 AK2.05	Hatch does not have loop-select feature; replaced w/ 295001 AK2.07 (Core Flow Indication)
1/1 (RO)	295016 AA2.07	Torus pressure is not utilized in the shutdown-from-outside-the-control room procedure. Replaced w/ 295016 AA2.06 (cooldown rate)
1/1 (RO)	295024 EA2.10	Hatch is a Mark I containment; replace w/ 295024 EA2.02 (Drywell Temp)
1/1 (RO)	295038 EK1.01	Unable to write a discriminating question at the RO level; replaced w/ 295038 EK1.03 (Meterological effects on off-site release)
1/1 (RO)	600000 AK1.01	Unable to write a discriminating question at the RO level; replaced with 600000 AK1.02 (Fire fighting)
2/1 (RO)	206000 K5.04	Asterisk indicates high variability; steam driven pump precludes writing good NPSH question. Replaced w/ 206000 K5.05 (Turbine speed control)
2/1 (RO)	215005 A1.03	Overlapped 215005 A1.04 (same tier and group; i.e., scram & rod block trip setpoints). Replaced w/ 215005 A1.05 (lights and alarms)
2/1 (RO)	218000 K1.05	Hatch remote shutdown panel only has non-ADS valves; i.e., SRVs "B" & "F" (U2) and SRVs "C" & "G" (U1). Replaced w/ 218000 K1.06 (safety/relief valves)
2/1 (RO)	261000 K3.04	At Hatch, the HPCI barometric condenser vacuum pump discharges to the HPCI room HVAC system (not SBTG). Replaced w/ 261000 K3.01 (Secondary Cnmt & environment differential pressure)
2/1 (RO)	263000 A2.02	At Hatch, chargers do not trip on hi temp; therefore, no effect to DC electrical distribution other than H2 production. Same K/A was used on April 2009 exam but licensee had much difficulty writing question. Replaced w/ 263000 A2.01 (Grounds)
2/1 (RO)	300000 K6.04	Overlap w/ 300000 K6.07 (Valves) in tier 2/group 1. Replaced with 259002 Reactor Water Level Control, K6.04 (Reactor FW flow input)
2/2 (RO)	214000 K1.02	Hatch does not have RSCS any longer. Replaced w/ 214000 K1.04 (RMCS: Plant specific)
2/2 (RO)	233000 K4.08	Hatch is a BWR 4. Replaced w/ 233000 K4.06 (maintenance of adequate pool level)
2/2 (SRO)	234000 G2.2.39	Less than or equal to 1 hour Tech Specs are RO knowledge and this is not generally applicable to fuel handling equipment; replaced w/ 234000 G2.2.25 (Knowledge of the bases in Tech Specs for LCOs & Safety Limits)
2/2 (SRO)	272000 A2.09	Overlap w/ 233000 K4.06 (Tier 2 Gp 2 RO exam) and also difficult to quantify/predict rad monitor response to low fuel pool level. Replaced w/ 272000 A2.11 (leakage and/or breaks from contaminated systems to atmosphere or to other process systems)
2/2 (RO)	286000 A4.02	06/26/09: Licensee stated that at Hatch, the Diesel Fire Pump component cooling water system has no instrumentation available in the control room. Chief Examiner randomly re-selected 286000 A4.05
2/1 (RO)	215004 K6.01	06/26/09: Licensee stated that the loss or malfunction of RPS has no effect on the SRMs. (converse could be true but not this K/A as stated) Chief Examiner randomly re-selected 215004 K6.04

Facility: Plant E. I. Hatch		Date of Exam: 11/12/2009		Exam Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>			
Item Description				Initial			
				a	b*	c*	
1. Questions and answers are technically accurate and applicable to the facility.				AB	CE	BN	
2. a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.				AB	CE	BN	
3. SRO questions are appropriate in accordance with Section D.2.d of ES-401				AB	CE	BN	
4. The sampling process was random and systematic (If more than 4 RO or 2 SRO questions were repeated from the last 2 NRC licensing exams, consult the NRR OL program office).						BN	
5. Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: ___ the audit exam was systematically and randomly developed; or ___ the audit exam was completed before the license exam was started; or ___ the examinations were developed independently; or <input checked="" type="checkbox"/> the licensee certifies that there is no duplication; or ___ other (explain)				AB	CE	BN	
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	AB	CE	BN
		26 / 2 35% / 8%	14 / 5 19% / 20%	35 / 18 46% / 72%			
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		AB	CE	BN
		31 / 6 41% / 24%	44 / 19 59% / 76%				
8. References/handouts provided do not give away answers or aid in the elimination of distractors.				AB	CE	BN	
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.				AB	CE	BN	
10. Question psychometric quality and format meet the guidelines in ES Appendix B.				AB	CE	BN	
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.				AB	CE	BN	
a. Author		Printed Name / Signature			Date		
b. Facility Reviewer (*)		Anthony Ball			7/9/9		
c. NRC Chief Examiner (#)		Charles Edmund			09/09/09		
d. NRC Regional Supervisor		BRUNO CABALLERO			11/5/09		
		MICHAEL T. WIDMANN			11/09/09		
Note: * The facility reviewer's initials/signature are not applicable for NRC-developed examinations. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.							

Rec'd
11/15/09

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only				
Gen																	<p>The following 5 questions were EXACT repeats from the Hatch April 2009 Exam. [Refer to NUREG 1021, ES-401, Section D.2.f (pg 8)]</p> <p>RO-4 items:</p> <p>Q#1 (Q#1 April 2009); Q#19 (Q#18 April 2009); Q#50 (Q#50 April 2009); Q#73 (April 2009 Q#73);</p> <p>SRO-1 item:</p> <p>Q#98 (Q#98 April 2009)</p>
Gen																	<p>The following questions were submitted as MODIFIED from the Hatch April 2009 Exam:</p> <p>Q#10 (Q#10 April 2009) ;Q#54 (mod April 2009 Q#54); Q#55 (mod April 2009 Q#55);</p>
Gen																	<p>The following RO questions were preliminarily determined to be outside the acceptability ranges of NUREG 1021:</p> <p>Q#22, Q#34, Q#48, Q#59, Q#65, Q#66, Q#75 = 7</p> <p>After discussions w/ licensee, the following RO questions were determined to be outside the acceptability ranges of NUREG 1021:</p> <p>Q#48, Q#59, Q#65, Q#66 = 4</p>
Gen															20%		<p>The following SRO questions were preliminarily determined to be outside the acceptability ranges of NUREG 1021:</p> <p>Q#77, Q#78, Q#81, Q#82, Q#85, Q#89, Q#92 = 7</p> <p>After discussions w/ licensee, the following SRO questions were determined to be outside the acceptability ranges of NUREG 1021:</p> <p>Q#77, Q#81, Q#82, Q#89, Q#92 = 5</p>
Gen																	<p>The following questions need to be assessed for knowledge overlap and throughout the exam review process:</p> <p>Q#18/51; Q#19/39/84; Q#24/43; Q#57/80/28; Q#44 & inplant JPM; Q#50/36; Q#65/93; and Q#89/61</p>
Gen																	<p>The phrase "<i>the Shift Supervisor will direct...</i>" is not a requirement for SRO only questions, and its use may unnecessarily raise the reading burden.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8. Explanation	
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only				
<p style="text-align: center;">Instructions</p> <p style="text-align: center;">[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. The distractors are not credible; single implausible distractors should be repaired, more than one is unacceptable. One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem). 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. <u>Check questions that are sampled</u> for conformance with the approved K/A and those that are <i>designated SRO-only</i> (<u>K/A and license level mismatches are unacceptable</u>). Enter question source: (B)ank, (M)odified, or (N)ew. Check that (M)odified questions meet criteria of ES-401 Section D.2.f. Based on the reviewer's judgment, is the question as written (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory? At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met). 																	

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
1	H	2												B	E S	201001 K5.02 1.Exact REPEAT from 2009-301 April exam, Q#1. The question should be randomly selected from the bank. Discuss w/ licensee. 2. Licensee agreed to remove the diagram and test applicants' knowledge of flow with respect to flow setpoint following a manual scram. QUESTION IS SAT.
2	H	2		x			x			x				N	E S	202001 A3.04 1. Cue: Ask the licensee why 69% power was chosen. [speed limiter #2 steam flow setpoint is 65%.] Ask the licensee <i>why</i> the stem needs to state that both feed pumps are operating? (will 1 pump suffice at this power?) Ask the licensee why the word "RED" is capitalized? 2. Partial: Since the question stem does not specify the lowest reactor water level, an applicant could argue that "C" is also correct IF the steam flow setpoint was not exceeded, i.e., 69% power is too close to the 65% steam flow setpoint. Suggest adding a statement to the stem that the lowest reactor water level achieved was 36" and was subsequently recovered by the 2B RFPT. Will the unit response be the same at 100% power? If so, then pick a higher initial power. Discuss w/ licensee. 3. #/units: Provide exact label name and Panel 2H11-P602 identification to the ASD runback lites. 34SO-B31-001-2 uses the terminology as follows: " <i>red Recirc ASD A Runback light at panel 2H11-P602</i> ". Ask the licensee if this is the <u>exact wording</u> on the light as labeled on the control board. 4. Concern was: Since #2 limiter depends on RWL < 32" (or SF > 65%), this question may not have enough information, i.e., would be a simulator "prediction." Fixed by changing power to 90%. QUESTION IS SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
3	H	2		x		x						x		N	E S	<p>202002 K2.02</p> <ol style="list-style-type: none"> 1. Cues: The fill-in-the-blank statement is a cue because it points the applicant to the fact that both pumps operate in the same fashion, i.e., they'll either both trip or both continue to run even though the power supply is only 4KV Bus 2C. The fill-in-the-blank statement does not allow for the applicant to demonstrate a knowledge of the common cooling pump power supply for both ASDs. Suggest re-working the question to test the applicants knowledge that both ASDs will trip [following a loss of Bus 2C] instead of just one ASD tripping. 2. Cred Dist: The second part of the choices is not symmetrical, i.e., "D" is the only choice that states that the pumps will not trip. 3. Q=K/A: Suggest limiting the question to test the power supply to the Adjustable Speed Drive (ASD) and auxiliaries. 4. Changed 2nd part of "A" to match 2nd part of "D." Question requires knowledge of reactor feed pump oil pump power supplies. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
4	H	2	x											M	E S	<p>203000 G2.1.31</p> <ol style="list-style-type: none"> Stem Focus: Why does the stem state that the unit is in Mode 3? Stem Focus: Were the "A" and "D" pumps overridden off? Suggest re-wording as follows: <i>"Unit 2 was operating at 100% when a LOCA occurred and the following conditions currently exist:</i> <ul style="list-style-type: none"> Drywell pressure at 3 psig RPV pressure at 500 psig RPV level at [normal level] RHR "A" and "D" pumps overridden off RHR "C" pump running in LPCI mode RHR "B" pump running in Torus Cooling mode <i>WOOTF identifies the control room panel that provides flow indicators for BOTH RHR loops and the expected flow indication on these flow indicators?</i> <ol style="list-style-type: none"> 2H11-P601; Both loops flow indicators will have flow 2H11-P601; ONLY one loop's flow indicator will have flow 2H11-P602; Both loops flow indicators will have flow 2H11-P602; ONLY one loop's flow indicator will have flow Stem Focus: The fill-in-the-blank statement is grammatically incorrect; i.e., <i>"when the operator looks at flow will determine..."</i> Partial: Is there any flow indication [or anything that can be construed as flow indication] at all on Panel 2H11-P602? Verify with licensee Suggested changes incorporated. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
5	F	2		x			x							N	E S	<p>204000 G2.4.46</p> <ol style="list-style-type: none"> Partial: An applicant can successfully argue any of the choices as correct in an appeal. The word "valid" and "DIRECTLY" in the stem make all choices potentially correct. Cue: The stem statement "Assume each annunciator has been in alarm for 60 seconds" can be a cue to the applicant because the correct answer ("A") is the only alarm with an associated time delay. <p>Suggest re-working the question to the following:</p> <p><i>Unit 1 was operating at 100% power with the following RWCU indications:</i></p> <ul style="list-style-type: none"> <i>RWCU Inlet Flow Indicator R609: 245 gpm</i> <i>RWCU Demin "A" & "B" Flow Ind R605A/B: 115 gpm each</i> <p><i>The following alarm is subsequently received,</i></p> <p>RWCU SYS LEAK (602-421)</p> <p><i>Which ONE of the following is the expected flow indication at the 1G31-R615 Cleanup Leak Detection Indicator on Panel 1H11-P613, at the time when the annunciator began alarming?</i></p> <ol style="list-style-type: none"> <i>0 gpm</i> 60 gpm <i>15 gpm</i> <i>45 gpm</i> <p>3. Changes incorporated. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
6	F	2	x					x							E S	<p>205000 K5.03</p> <ol style="list-style-type: none"> 1. Job-Link: It appears that the crew is violating procedure with reactor level as stated at 30." Suggest removing the level provided in the stem and asking applicant for the required minimum level IAW 34SO-E11-010-1. 2. Stem Focus: RHR flow does not specify whether this is one loop (or two). 3. Job-Link: Ask the licensee how is the "corrected level" is determined or calculated. Suggest asking the applicants to determine the required 1C32-R606A, B, & C level indications [let them determine what the level indicators should indicate to ensure natural circulation path has been established.] 4. Licensee re-worked question to address items 1 & 2. QUESTION IS SAT.
7	H	2	x			x								B	E S	<p>206000 K6.05</p> <ol style="list-style-type: none"> 1. Cred Dist: "C" and "D" may not be plausible since the second part (trip on overspeed) can never occur on HPCI because the stop and control valves are both "oil-to-open" (i.e., held closed by spring pressure). Discuss this w/ the licensee. Suggest the following fill-in-the-blank statement: <i>"When the HPCI High Water Reset pushbutton is depressed, the _____ will open and the ramp generator _____ limit the control valve position."</i> <ol style="list-style-type: none"> A. F001; will B. F001; will not C. Stop Valve; will D. Stop Valve will not 2. Stem Focus: some terms in the stem can be improved such as 3rd bullet ("decreased back" vs. lowered) and 5th bullet ("pushed" vs depressed). 3. Plausibility is that RCIC operates opposite than HPCI. Licensee incorporated suggestion. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
8	H	2										x		M	E S	<p>209001 K1.09</p> <p>1. Q=K/A: The proposed question targets 209001 A3.01 [<i>"Ability to monitor automatic operations of LPCS, including valve operation."</i>] The required K/A is knowledge of physical connections and/or cause effect relationships between LPCS and nuclear boiler instrumentation. Although the proposed question deals with the parameter of reactor pressure [and its impact on the LPCS valve operation], it does not test the applicants' knowledge of the relationship between the valves and the <u>transmitters</u>.</p> <p>Suggest writing a question testing the applicants' knowledge of which level transmitters are used to initiate LPCS [N091A, B, C, & D] and/or which reference legs these instruments utilize [D003A provides N091B & D ; D003B provides N091A & C].</p> <p>Another possibility is to write a question testing the applicants' knowledge of how the reactor pressure instrument permit opening of the injection valves, i.e., < 425 psig (U2), i.e., do the pressure instruments take into account the static head of the coolant in the recirc loops or do they simply measure the steam dome pressure. [pressure instrument tap point: steam dome or recirc loops].</p> <p>2. Licensee fixed question by testing applicants' knowledge of where pressure instrument taps off of. QUESTION IS SAT.</p>
9	F H														S	<p>209001 K1.13</p> <p>1. Licensee classified this question as Higher Order. Discuss whether this question is Fundamental knowledge w/ licensee. Question is SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
10	F	2												M	E S	<p>211000 K4.03</p> <p>1. This question was previously used on the April 2009 exam Q#10 with slightly modified tank levels. [The choices are identical; however, the Figure "A" tank levels has been changed .] Discuss w/ licensee how the question was randomly selected and criteria to classify as "modified."</p> <p>Discuss changing the 1st portion of the question w/ licensee. Alternatives include:</p> <p>Suggest writing a question to test the applicants' knowledge of how many immersion heaters [2] and the power supply to the immersion heaters [R24-S012 and -S011, A&B, respectively] or strip heaters (heat tracing) on the pump suction line piping.</p> <p>Alternate possibility is to test applicants' knowledge of temperatures at which immersion and strip heaters cycle. Suction line heat tracing can also cause an alarm in the control room at 55 degrees.</p> <p>2. Question was already modified to ask for COLD shutdown [B] vs HOT shutdown [B]. QUESTION IS SAT.</p>
11	H	2	x			x				x				B	E S	<p>212000 A2.16</p> <p>1. Cred Dist: "A" is not plausible because if the 1st part is correct, then the 2nd part can <i>never</i> be correct.</p> <p>2. Stem Focus: In order to ensure that "D" remains plausible and avoid potential cues, the fill-in-the-blank statement should be split into two separate sentences as follows:</p> <p>"Placing the Reactor Mode Switch to the START & HOT STBY position _____ cause an automatic scram signal.</p> <p>After the mode switch has been placed to the START & HOT STBY position, all source range monitors (SRMs) _____ required to be immediately fully inserted.</p> <p>3. #/units: The 34GO-OPS-13-1 lists the mode switch position as "START & HOT STBY" [not Start/Hot Stby]</p> <p>4. Licensee re-wrote question to test applicants' knowledge of if a scram will [or will not] occur and what required procedure action afterwards. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
12	H	2	x				x							M	E S	<p>212000 A2.19</p> <ol style="list-style-type: none"> Partial: "B" can also be argued as correct by an applicant because bypassing IRM "G" is an action required by the applicable annunciator response procedure. [even though it can't be done...it's still listed in the ARP.] Stem Focus: the stem refers (twice) to "<i>the applicable annunciator procedure.</i>". This is sufficiently vague to allow several correct answers or no correct answer. On the other hand, if the name of the "<i>applicable annunciator procedure</i>" is listed, [REACTOR AUTO-SCRAM SYSTEM A TRIP] then the answer to the 1st part of the question is given away. <p>Since question deals with similar situation as previous Q#11 and Q#14 [IRM range during a plant shutdown or startup], suggest re-working the question to power operations and note the following allowance for A2 K/A statements in NUREG-1021, Rev 9, Supp 1, ES-401, Section 2.a (page 6 of 33):</p> <p><i>"When selecting or writing questions for K/As that test coupled knowledge or abilities (e.g., the A.2 K/A statements in Tiers 1 and 2 and a number of generic K/A statements, such as 2.4.1, in Tier 3), try to test both aspects of the K/A statement. If that is not possible without expending an inordinate amount of resources, limit the scope of the question to that aspect of the K/A statement requiring the highest cognitive level (e.g., the (b) portion of the A.2 K/A statements) or substitute another randomly selected K/A."</i></p> <p>Suggestion: Write question at 100% power with RPS MG set trip and ask applicant to predict some alarms that will be received and then test specific required actions out of the procedure used to recover from the MG set trip, i.e., how to place on alternate power supply, etc.</p> <ol style="list-style-type: none"> Licensee proposed using a Brunswick 2008 exam item involving a half scram test and testing applicants' knowledge of how many scram lites are on/off and the minimum way to reset scram switch (one direction or both). This proposal still did not hit the 2nd portion of the A2 K/A and could be vague with respect to Ops expectations for resetting a scram. Licensee re-wrote another question to ask for RPS MG Set trip impact on RWCU F001 valve and the preferred source of alternate power alignment IAW 34SO-C71 procedure. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
13	F	2	x	x										B	E S	<p>214000 K1.04</p> <ol style="list-style-type: none"> Stem Focus: The RMCS/RWM Rod Block or Sys. Trouble (603-239) annunciator will also be in alarm but is not included in the stem. Cue: The 1st and 2nd bullets are not necessary to elicit the correct response. <p>Suggest the following re-worded question:</p> <p><i>Unit 1 is at 5% power and the following alarms are received:</i></p> <ul style="list-style-type: none"> <i>RMCS/RWM Rod Block or Sys. Trouble (603-239)</i> <i>Process computer alarm typer: RPIS INOPERATIVE</i> <p><i>Which ONE of the following identifies how the Reactor Manual Control System (RMCS) is affected?</i></p> <ol style="list-style-type: none"> <i>No control rod can be selected; Full-in and Full-out lights on the full core display are still available</i> <i>No control rod can be selected; Full-in and Full-out lights on the full core display are NOT available</i> <i>Any control rod can still be selected; Full-in and Full-out lights on the full core display are still available</i> <i>Any control rod can still be selected; ; Full-in and Full-out lights on the full core display are NOT available</i> <p>3. Licensee incorporated suggestion in the form of a fill-in-the-blank item. QUESTION IS SAT.</p>
14	H	2	x												E S	<p>215003 A1.04</p> <ol style="list-style-type: none"> Stem Focus: Misspelled word (<i>annunciator</i>) in 5th bullet; also, 2nd bullet has <i>SRMSs</i>. Stem Focus: 1st bullet should be <i>START & HOT STBY</i> Stem Focus: Change IRM "H" to failed downscale and bypassed Stem Focus: Make the fill-in-the-blank statement current tense as follows: "<i>The ROD OUT BLOCK annunciator will clear if the operator ranges _____ or if the operator _____</i>". (Change 2nd part of each choice to be present tense.) Changes incorporated. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
15	F	2	x					x		x				B	E S	<p>215004 K6.04</p> <ol style="list-style-type: none"> Job Link: The TRM refers to the shorting links as <i>RPS</i> shorting links; Re-word the 1st bullet as "<i>Reactor Protection System (RPS) Shorting Links have been REMOVED</i>" Stem Focus: Re-word the 2nd bullet as "<i>Due to a detector malfunction, the SRM "A" count rate begins to rise</i>" Stem Focus: Convert the fill-in-the-blank statement as follows: "<i>The SRM Upscale Trip (High High Scram) set point is _____ and when SRM "A" reaches this setpoint a _____ will occur.</i>" #/units: Change the 2nd part of each choice to either <i>half scram</i> or <i>full scram</i> Comments incorporated. QUESTION IS SAT.
16	F	2						x						N	E S	<p>215005 A1.04</p> <ol style="list-style-type: none"> Job-link: U2 Hatch Tech Spec 3.3.1, Function 2.b, Simulated Thermal Power – High lists the set point as $\leq 0.57w + 56.8\%$. The LXR plausibility analysis lists the scram set point as $0.57w + 53\%$. The applicants' need to know that the question is testing their knowledge of the Tech Specs setpoint (not actual). Discuss w/ the licensee to ensure that this question cannot be appealed (deleted) after the exam due to no correct answer. Licensee modified the proposed question to ask for the ACTUAL set point in accordance with the annunciator procedure. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
17	H	3				x		x						M	E S	<p>215005 A1.05</p> <ol style="list-style-type: none"> Q=K/A: K/A requires applicants to predict changes or monitor changes in lights and alarms that are associated with the APRMs. As proposed, the question asks the applicants to predict the current status, i.e., no <i>changes</i> are involved. Suggest modifying the question to test the applicants' knowledge of the current status of ROD OUT BLOCK alarm and then to predict the status of the alarm if an LPRM detector is subsequently bypassed. In other words, provide a list of LPRMs that are bypassed and then ask the applicant what will happen if an additional detector is bypassed. The answer could be no alarm (due to currently bypassed detectors) and no alarm (even when the additional detector is bypassed), etc. This will convert the question to a two-part question and will eliminate asymmetry of "D" being the only choice with a <i>"not."</i> Cred Dist: "D" is not plausible because it is the only one without an accompanying "reason" in the choice. Job-link: What is the Ops management expectation for continuing a startup with this many LPRMs inoperable? Would the startup have commenced with this many LPRMs inoperable? Licensee modified question to incorporate having to declare LPRM inoperable and predicting the impact (rod block alarm). QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
18	H	3	x					x						N	E S	<p>216000 A2.10</p> <ol style="list-style-type: none"> Cred Dist: "C" is not plausible because the stem already states that level swelled to +40"; therefore, eliminating the narrow range is not plausible. Stem Focus: Is the 3rd bullet referring to the <u>peak bulk average</u> DW temperature or simply one point in the drywell peaks at 155 deg? Stem Focus: The 5th and 6th bullets are redundant and can be combined. Stem Focus: Could not find anything in 34AB-B21-002-2 that prohibits using the wide range instruments when reactor pressure is less than 500 psig. Is this caution embedded in the EOPs? If so, then modify the IAW statement in the stem to reflect exact reference. Job-link: Question poses scenario with a hot drywell and subsequent ED required due to low torus level. K/A requires applicants to predict impact of ED on water level indications and use of mitigating procedures. Usually, the crew will begin ED and not worry about level indications until the ED is almost complete or until flashing is observed. Not sure if testing the applicants' knowledge of level monitoring immediately when ADS valves are opened is linked to actual job performance. Discuss w/ licensee to gain understanding. Could be minutia. Question could be slightly modified to ask applicants when flashing is expected [what DW temp & vessel pressure] and the corresponding required procedure [vessel flooding or 34AB-B21-002-2 RPV water level corrections]. Overlap w/ Q#51 knowledge: when WR level instruments can/cannot be used Licensee explained that no overlap issues [w Q#51] b/c DW spray and vessel flooding are concepts in Q#51. All other items above incorporated. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
19	F	2		x										B	E S	217000 K2.03 1. EXACT Repeat from April 2009 exam. [Q# 18]. The question should be randomly selected from the bank (discuss w/ licensee) or , at a minimum, modified in some way. 2. Cues/Cred Dist: The only DC power source is the correct answer. Suggest changing "D" to DC Cabinet 2B (). 3. Discuss how this question does not overlap Q#39 and Q#84. 4. No overlap with Q#39 b/c RCIC not listed. No overlap w Q#84 b/c of a different power supply board. Licensee incorporated changing "D" to 2R25-S002 (no longer exact repeat). QUESTION IS SAT.
20	H	3												M	S	218000 K1.06 1. Modified from April 2009 exam [Q#19]. 2. Stem focus: Re-word the stem question as follows: "Given these trends, WOOTF predicts the EARLIEST time that the ADS valves will automatically open?" 3. Licensee incorporated change. QUESTION IS SAT.
21	H	4	x						x					N	E S	223002 K3.21 1. Minutia: The proposed question is testing the applicants' knowledge of which 2R25-S103 breaker supplies each TIP machine. Discuss w/ Ops and Training management to ensure approval. LOD may be too high. Otherwise, question is SAT. 2. Stem Focus: Suggest combining the 1 st sentence and the first 3 bullets into two sentences. 3. Licensee eliminated the breaker # from the stem. All other TIP machines have their detectors at the PARKED position. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
22	F	2				x								B	U E S	<p>233000 K4.06</p> <ol style="list-style-type: none"> Cred Dist: "C" is not plausible because the other choices all provide conservative auto-actions, i.e., re-position, trip, isolate. "C" is the only choice w/o an auto-action. Cred Dist: "D" is not plausible because 1) the demins bypassing on low level will not ever terminate a level loss, 2) there is no feature on any demin that causes a low level isolation, and 3) the filter demin bypass valve has no auto-open features at Hatch. <p>Suggest testing applicants' knowledge of features that ensure fuel pool level is safe, i.e., pumps taking suction from bottom of the skimmer surge tanks [vs discharging to the bottom of the fuel pool] and no piping connections below the level of the transfer gate [vs Unit 1 and Unit 2 cross connect capability via transfer canal].</p> <p>3. Discussed grading this question as "enhancement" item w/ licensee b/c the submersion depth of the diffusers is plausibility basis b/c the decay heat removal (G71) system has diffusers at some mid-position. "B" and "D" are partially correct (still). Licensee modified to 8 psig suction pressure trip vs 18 psig [basis is CRD pump suction pressure trip]. QUESTION IS SAT.</p>
23	F	2	x											N	E S	<p>234000 K3.04</p> <ol style="list-style-type: none"> Stem Focus: Modify the 1st bullet to specify that the bundle is still seated in the core. Stem Focus: Split up the fill-in-the-blank statement into two separate sentences to eliminate the "and/but" connector. Stem Focus: Modify the 1st part of "A" and "C" to include the word can "still" [be unlatched.] Modify the 2nd part of "A" to include the word can "still" [be raised.] Similarly with the 2nd part of "C." Stem Focus: Modify the stem question to ask "WOOTF identifies how this malfunction will affect the main grapple?" Changes incorporated. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
24	H	2				x		x						M	E S	<p>239002 A3.05</p> <ol style="list-style-type: none"> Job-link: The 2nd part of the question is directly targeted towards the K/A [monitor torus temperature]; however, the 34AB-T23-003-2 is an abnormal operating procedure and the question involves the EOPs. Ask the licensee if the 34AB procedure is still enforceable during an ATWS in the EOP network. Alternatively, test the applicants' knowledge of one of the EOP requirements related to torus temperature during an ATWS. Cred Dist: Discuss w/ licensee how "A" and "C" [only placing one loop in torus cooling] are plausible given an ATWS exists w/ torus temp at 105 deg and rising. An applicant can potentially eliminate "A" and "C" because prudent to place two loops in torus cooling anytime an ATWS exists. Ensure no overlap exists w/ Q#43. No overlap exists b/c Q#43 tests applicants' knowledge of PC flowchart entry condition and when scram is required. Licensee incorporated changes listed above. QUESTION IS SAT.
25	F	3												N	S	<p>241000 A1.24</p> <ol style="list-style-type: none"> Stem Focus: Ask licensee if applicants need to have HMI spelled out. Licensee spelled out. QUESTION IS SAT.
26	F	2												B	S	<p>259002 A4.03</p> <ol style="list-style-type: none"> Stem Focus: Suggest embedding a picture of the controller in the stem. Licensee embedded picture. QUESTION IS SAT.
27	F	2					x							B	E	<p>259002 K6.04</p> <ol style="list-style-type: none"> Partial: Modify the 3rd bullet to capitalize the first word (the) and to state that the "A" FW flow signal to the FWCS <i>.."suddenly fails downscale."</i> This will preclude an applicant assuming a slow gradual failure making "A" also correct. Licensee incorporated changes. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
28	H	2	x	x										N	E S	<p>261000 K3.01</p> <ol style="list-style-type: none"> Stem Focus/Cues: 4th and 5th bullets are not necessary to elicit the correct response since both of these items are normal 100% power configuration. [Verify w/ licensee.] Stem Focus: Split out the fill-in-the-blank statement into two sentences as follows: [the "and/but" connector is confusing] <i>"The Unit 2 SBGT system _____. The Unit 2 Rx Bldg differential pressure (Δp) _____.</i> <ol style="list-style-type: none"> <i>responded correctly; will remain the same.</i> <i>failed to start; will remain the same</i> <i>responded correctly; will approach 0"</i> <i>failed to start; will approach 0"</i> Combine the 2nd and 3rd bullets for conciseness. This question may <u>overlap</u> with Q#57 and/or Q#80. Question does not overlap w/ Q#57 b/c that question tests applicants' knowledge of procedural guidance to stop one SBGT following a high rad start. Question does not overlap Q#80 b/c that question tests applicants' knowledge of how many trains will be running and procedure selection. Other recommended changes incorporated. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
29	H	3										x		N	E S	<p>261000 K3.06</p> <p>1. Q=K/A: Difficult K/A to hit. The proposed question is testing the applicants' knowledge of the loads provided by 600 V Bus 2C [SBGT 2A, DW vent valve 2T48-F319, and Normal DW N2 makeup Vlv]. The K/A requires testing the applicants' knowledge of how a loss of the SBGT will affect O2 concentration. Suggest the following enhancement:</p> <p><i>Unit 2 is inerting the primary containment in accordance with Containment Atmospheric Control & Dilution, 34SO-T48-002-2, Section 7.11, Primary Containment Inerting. The following conditions currently exist:</i></p> <ul style="list-style-type: none"> • SBGT 2A running • DW O2 concentration is 4.2%, slowly lowering <p><i>WOOTF predicts how the oxygen concentration and DW venting are affected if the 2A SBGT trips?</i></p> <p>A. DW O2 concentration will continue to lower; DW is not allowed to be vented</p> <p>B. DW O2 concentration will continue to lower, DW is still allowed to be vented with no SBGT in service</p> <p>C. DW O2 concentration will remain at 4.2%; DW is not allowed to be vented</p> <p>D. DW O2 concentration will remain at 4.2%; DW is still allowed to be vented with no SBGT in service</p> <p>2. Licensee incorporated changes. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
30	F	4 2		x								x		B	E S	<p>262001 G2.2.44</p> <ol style="list-style-type: none"> 1. Cue: The 1st sentence cues the operator that a power supply caused the 3 alarms. The applicant should be able to interpret/deduce that a DC power supply has been lost w/o providing this information. 2. Q=K/A: Test the applicants' ability to interpret control room indications by asking which power supply has been lost [2R25-S004 or another 125VDC cabinet]. Test the applicant's ability to understand how operator actions are affected by asking whether a 4KV breaker can still be remotely opened from the control [or cannot]. 3. LOD=1: Loss of DC (provided by 2nd bullet) prevents breaker operation (borderline GFES knowledge). 4. Licensee incorporated Item# 1 & #2 suggestions. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
31	H	2	x											B	E S	<p>262002 A3.01</p> <p>1. Stem Focus: The timeline is confusing with respect to the two fill-in-the-blank statements. The 1st statement is asking for "current" status of what's powering the Vital AC Bus. The 2nd statement is asking the status of what's powering the Vital AC Bus after some procedure actions [34AB-R23-001-2 ??] have been completed and, then, after a low voltage alarm is received.</p> <p>Suggest the following: [Caution! May not be technically correct; verify w/ licensee]</p> <p><i>Unit 2 is at 100% power when a loss of offsite power occurs and the "2C" EDG fails to start.</i></p> <p><i>WOOTF identifies how the Vital AC Bus is currently receiving its power and also identifies when the Vital AC Bus will transfer to a different source?</i></p> <p>A. Vital AC batteries; ONLY after power has been restored to the non-essential loads supplied from 600 V Bus 2C</p> <p>B. 600 V Bus 2C; ONLY after power has been restored to the non-essential loads supplied from 600 V Bus 2D</p> <p>C. Vital AC batteries; ONLY after power has been restored to the non-essential loads supplied from 600 V Bus 2D</p> <p>D. 600 V Bus 2D; ONLY after power has been restored to the non-essential loads supplied from 600 V Bus 2C</p> <p>2. Licensee incorporated suggestion and verified technical accuracy. QUESTION IS SAT.</p>
32	H	2	x											B	E S	<p>263000 A2.01</p> <p>1. Stem Focus: Consider streamlining the 2nd fill-in-the-blank statement as follows: "The readings from meter 1R42-613B mean that the ground _____ 19,000 ohms. [greater than or less than]</p> <p>2. Discuss use of reference w/ licensee. May be acceptable.</p> <p>3. Use of reference is not direct lookup and is required to answer the question. Does not compromise other questions. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
33	F	2					x							B	E S	<p>264000 K4.04</p> <ol style="list-style-type: none"> Partial: "A" can be argued as correct. Consider asking for <i>WOOTF</i> <i>permissives</i> is required to flash the field [At engine vs Remote] and another knowledge item to convert to 2-part question. Licensee modified question to test applicants' knowledge of switch position to start diesel and to flash the field (2 different positions). QUESTION IS SAT.
34	H	2	x			x	x							N	U E S	<p>286000 A4.05</p> <ol style="list-style-type: none"> Cred Dist: "B" and "D" are not plausible because a LOOP exists; i.e., an unknowledgable applicant can eliminate these two choices simply because <i>electricity</i> is not available. Stem Focus: The 3rd bullet duplicates the 4th bullet and is not necessary to elicit the correct response. Stem Focus: Modify the 1st fill-in-the-blank statement to incorporate "<i>is required to _____ in accordance with</i> [procedure]. Partial: The 2nd fill-in-the-blank statement suggests that a "manual" start of the engine driven pump is required even though these engines auto-start at 100/90 (A/B, respectively). An applicant can potentially argue that there is NO correct answer since the 2nd fill-in-the-blank statement suggests that a "manual" start is absolutely required. Partial: After the 1E EDG output breaker is opened [to de-energize the 1E bus], the EDG will at some point be manually "tripped." An applicant can also argue that "B" is correct. Licensee classified as Fundamental; however, may be Higher order question. Discuss w/ licensee. Discussed w/ licensee and changed grade to "enhancement" b/c "B" and "D" are plausible since 1E Emerg Bus provides only power to the electric fire pump, i.e., LOOP doesn't mean station blackout. All other changes incorporated. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
35	H	2										X		N	S	<p>290002 K6.08</p> <p>Need more information from the licensee to evaluate this test item. This K/A [the effect of losing nuclear boiler instrumentation on vessel internals] is difficult to hit. Does a slowly drifting single level transmitter cause actual level to change and stabilize?</p> <p>Discussed w/ licensee and accepted question since carryover/carryunder are associated with the nuclear boiler. QUESTION IS SAT.</p>
36	F	2	x				x							B	E S	<p>290003 A1.04</p> <ol style="list-style-type: none"> Partial: If refuel floor vent rad K611 monitors "see" 18 mr/hr won't the K601A also "see" same radiation? An applicant could potentially argue as correct? Discuss w/ licensee. Stem Focus: The stem asks for WOOTF "signals" cause MCREC... aren't these really "plant conditions?" <i>WOOTF Unit 2 plant conditions will cause Control Room pressure to automatically be higher relative to Turbine Building pressure?</i> Stem Focus: The word "relative" may cause confusion. Does Turbine Building pressure mean atmospheric pressure? Cue: Add the instrument numbers for the MSL rad monitors to "C" to make symmetrical with choice "A" Licensee modified the proposed question to address all items listed above. QUESTION IS SAT.
37	H	2	x												S	<p>295001 K2.07</p> <ol style="list-style-type: none"> Stem Focus: The 4th bullet can be shortened to "2B21-R613, "Core Plate dp/ Rx Core Flow" recorder.....19% Stem Focus: The fill-in-the-blank statement can be re-worded as "The 2B21-R613 recorder _____ accurate and actual core flow is _____." QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
38	H	2	x	x				x						N	E S	<p>295003 K1.04</p> <ol style="list-style-type: none"> Job-link: Given a LOOP, HPCI/RCIC inservice, and a Group 1 isolation, it is not realistic that the EOPs haven't already been entered. [The 9th bullet was intended to test applicants' additional knowledge that the 2CD transformer is only allowed if in Mode 4 or 5; however, the premise that the EOPs haven't been entered may make this question unrealistic.] Discuss w/ licensee. Cues: The 8th bullet [<i>"It is desired to power 2C from the 2CD xfrmr"</i>] and the first phrase in the fill-in-the—blank statement [<i>"to power 2C Bus from 2CD xfrmr"</i>] are cues to the applicant that 2C is de-energized. The applicant should be able to deduce this information from the provided information in the stem. Suggest asking the applicant the following: Test the applicants' knowledge of whether or not the 2CD transformer bus link must first be re-located (false) and whether there is an electrical [or administrative only] interlock to prevent supplying both 2C and 2D at the same time. Stem Focus: The 1st bullet can be consolidated with the first sentence in the question. Licensee modified question to make EOPs not being entered more realistic (initial conditions are plant is shutdown). Licensee eliminated the cue. QUESTION IS SAT.
39	H	2	x											N	E S	<p>295004 G2.4.09</p> <ol style="list-style-type: none"> Stem Focus: The 1st bullet states that 1R22-S016 <i>"trips."</i> The word <i>"trips"</i> may cause confusion; suggest changing to <i>"de-energizes"</i> to eliminate the possibility of batteries continuing to power the bus. Stem Focus: Spell out the choice "C" and "D", Reactor Feed pump and Condensate Booster Pump. Discuss how this question does not overlap Q#84 and Q#19 Question does not overlap Q#84 b/c 1R22-S022 is power supply for HPCI discharge valve and Q#39 asks about 1R22-S016 which is RCIC valves. Question does not overlap w/ Q#19 b/c 2R25-S001 is power supply to RCIC flow controller and Q#39 asks about 1R22-S016 which is power supply to rcic VALVES. Licensee incorporated suggestions. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
40	F	4 2												B	E S	<p>295005 K3.07</p> <p>1. LOD = 1; Question is exact repeat from Brunswick 2008 Exam. Discuss LOD w/ the licensee and negotiate different question.</p> <p>Suggest testing applicants' knowledge of bypass valve capacity [21%] and when bypass valves are required to be operable [≥ 24% RTP].</p> <p>2. Licensee modified into a 2-part question which tests applicants' knowledge of the pressure xmitters (for bypass valve control). QUESTION IS SAT.</p>
41	H	2	x	x		x								M	E S	<p>295006 A1.02</p> <p>1. Stem Focus: The stem states that RWL is <i>-1" and rising</i>, however, it does not state from what level indicator this indication is obtained. Is this actual level from the wide range indicators? Incorporate exact level indicator numbers/ID #s. [same comment for steam flow indication]</p> <p>2. Cue: The 2nd and 3rd bullets are cues to an applicant. Combine the 1st bullet with the first sentence.</p> <p>3. Cred Dist: Why are the wide range instruments plausible since FWLC only uses the narrow range? Discuss w/ licensee.</p> <p>4. Stem Focus: Suggest re-wording the fill-in-the-blank statement as follows:</p> <p><i>"IF level continues to rise, THEN a FWLC set point setdown will first occur at _____. This set down will cause the FW master controller (C32-R600) setpoint to be automatically changed to _____."</i></p> <p>5. Licensee incorporated suggestions. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
42	H	2										x		B	E S	<p>1. Q=K/A: The proposed question tests the applicants' knowledge of the auto-isolation at 1.85 psig. However, the proposed question does not test the applicants' ability to operate or monitor the drywell/torus vent system during a high drywell pressure condition.</p> <p>Since all choices provide an auto-isolation <i>time</i>, then the applicant does not need to know whether or not the high pressure isolation has been bypassed [in the 34SO-T48 procedure network.]</p> <p>Suggest re-working the question to test the applicants' knowledge of procedure and/or override interlocks. An alternative is to test the applicants' knowledge of whether an auto-isolation will occur at 1.85 psig [using normal 34SO-T48 allowances] and applicable release rates during the drywell leak scenario.</p> <p>2. Licensee incorporated an additional element to test applicants' knowledge of the additional flowpath available via the fast vent valves. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
43	F	2	x				x							M	E S	295013 G2.4.01 1. Partial: An applicant can argue "D" as correct if a prudent decision making call is made with respect to drywell pressure at 1.2 psig and continuing to rise. The stem question asks "WOOTF actions would the crew be "expected" to take? Discuss w/ Ops management regarding conservative decision to scram the reactor with DW pressure approaching the auto-scram setpoint. One entry condition for RC flowchart is "scram required and > 5% power." 2. Stem Focus: Which indicator is the 2 nd bullet referring to? Provide indicator ID # and name. 3. Stem Focus: Suggest making drywell pressure 1.2 psig and steady and then re-wording the stem question as follows: <i>"_____ loop(s) of RHR Suppression Pool Cooling are currently required to be in service. Entry to the Primary Containment Control Flowchart _____ required. "</i> 4. Ensure no overlap exists w/ Q#24. 5. No overlap exists w/ Q#24 b/c Q#43 was modified to test applicants' knowledge of whether PC flowchart entry is required and the min torus temp that requires a manual scram. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
44	H	1	x			x								B	E S	<p>295015 A1.02</p> <p>1. Stem Focus: The 1st, 2nd, and 3rd bullets can be combined with the first sentence for streamlining. Use "past tense" in the initial wording, to convey a sequence of events that have transpired.</p> <p><i>Unit 2 was at 100% when an auto-scam signal was received. The reactor operator inserted a manual scram signal and all immediate operator actions were taken and the following conditions currently exist:</i></p> <ul style="list-style-type: none"> • The 8 white RPS lights on 2H11-P603 are illuminated • Full core display blue lights are all extinguished <p>2. LOD=1 and/or Cred Dist: "C" and "D" offer no discriminatory value and the plausibility is border line.</p> <p>Suggest the following question:</p> <p><i>WOOTF identifies the current status of the APRM downscale indications (at panel ?) and the required operator action IAW 31EO-EOP-103-2, EOP Control Rod Insertion Methods?</i></p> <p><i>A. Illuminated; Individually scram control rods</i></p> <p><i>B. Illuminated; Place RPS Test Trip Logic Switches to TRIP</i></p> <p><i>C. Extinguished ; ditto "A"</i></p> <p>D. Extinguished; ditto "B"</p> <p>3. Discuss whether proposed question was higher order (vs Fundamental) w/ licensee.</p> <p>4. Ensure no overlap w/ in-plant JPM [initial RPS assessment actions prior to venting scram air header].</p> <p>5. No overlap w/ in-plant JPM because in-plant JPM dealt with venting the scram air header. Licensee incorporated suggestions. QUESTION IS SAT.</p>
45	H	2		x										M	E S	<p>295016 A2.06</p> <p>1. Cue: The 2nd bullet is not necessary to elicit the correct response.</p> <p>2. Licensee corrected and eliminated the 2nd parts of "C" and "D." QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
46	F	2	x				x							B	E S	<p>295018 K3.06</p> <ol style="list-style-type: none"> Partial: The 2nd bullet refers to the RBCCW heat exchangers "fouling." This bullet is vague and can potentially render none of the choices correct [depends on the <i>extent</i> of the fouling] Delete 2nd bullet and see suggested revision below: Stem Focus: The alarm procedure [RBCCW SYS HEAT EXCH OUTLET TEMP HIGH 650-349] does not provide a "reason" for throttling open the PSW flow thru the heat exchanger. The 1st fill-in-the-blank statement implies that the ["only"] reason for throttling open the PSW flow thru the heat exchange is to prevent RWCU from isolating. <p>Suggest testing the applicants' knowledge of RWCU use for RWL control [i.e., blow down operation causes the RWCU system to place a large heat load on the Non-Regen Hx; therefore, this would suffice as a "partial" loss of RBCCW for Q=K/A] as follows:</p> <p><i>WOOTF identifies a reason why raising PSW flow is required and how this will affect the differential pressure (delta P) between RBCCW and PSW?</i></p> <ol style="list-style-type: none"> <i>Lowers the RWCU return temperature to the vessel in the Regenerative Heat Exchanger; less delta P</i> <i>Lowers the RWCU return temperature to the vessel in the Regenerative Heat Exchanger; more delta P</i> <i>Lowers the RWCU non-regenerative heat exchanger outlet temperature; less delta P</i> <i>Lowers the RWCU non-regenerative heat exchanger outlet temperature; more delta P</i> <p>3. Licensee incorporated suggestions. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
47	H	2				x	x							N	E S	<p>295019 A2.02</p> <p>1. Partial: "A" is also correct because Rx Bldg dP will <i>"remain negative"</i> which an applicant can argue is the same as "remaining as is."</p> <p>2. Cred Dist: "A" and "B" are not plausible because an un-knowledgeable applicant could "reasonably guess" that the dP indication will change <i>in some way</i> even if he/she does not know how the instrument air loss affects the dampers. Suggest the following:</p> <p><i>The Reactor Building differential pressure (delta P) will become more _____ and the SBT Inlet Dampers from the Reactor Building will fail _____.</i></p> <p>A. positive; open</p> <p>B. positive; closed</p> <p>C. negative; open</p> <p>D. negative; closed</p> <p>3. Licensee incorporated suggestions. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
48	H	2				x									U S	<p>295020 A2.03</p> <ol style="list-style-type: none"> Cred Dist: "C" and "D" are not plausible an un knowledgeable applicant can "reasonably guess" that when an MSIV closes that power will change <i>in some way</i> [fluctuate either up or down].; therefore, power won't remain the same,...it'll change <u>somehow</u>. Cred Dist: "A" and "C" are not plausible because the fill-in-the-blank statement combines "half" and "full" scram together; therefore, the 2nd half of these choices ["will be generated"] is not plausible. <p>Suggest writing a question testing applicants' knowledge of expected reactor power, heat balance power indications following an inadvertent RWCU isolation, including colors of heat balance numbers and/or validity of heat balance information. Refer to 34SO-G31-003-2, Section 7.4, Step #1 Evaluate the impact of removing the RWCU system from service on the computer heat balance. The RO applicant should have knowledge <u>how</u> RWCU isolation affects actual reactor power and reactor power heat balance indications.</p> <p>3. Licensee did not incorporate suggestion regarding how heat balance [power] is affected when RWCU isolates. Licensee contended that 1st part of question was plausible [if applicant reasoned that bypass valves compensated for pressure transient] and that the test was written at the novice operator level. Licensee modified question to address comment #2 by removing the "full scram" and adding an additional MSIV closure to the stem. QUESTION IS SAT.</p>
49	H	2	x	x										N	E S	<p>295021 G2.2.40</p> <ol style="list-style-type: none"> Cue: The 1st sentence states that Unit 2 is in Hot Shutdown. The applicant should be able to deduce this information based on the 1st bullet, i.e., reactor pressure at 134 psig. Stem Focus: Suggest re-wording the 2nd fill-in-the-blank statement to state "<i>is required</i>" (vs MUST) Stem Focus: For the 1st fill-in-the-blank statement, enclose the words "<i>without entry to a Required Action Statement</i>" in parenthesis. Licensee incorporated changes. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
50	H	2												B	E S	<p>295023 A1.04</p> <ol style="list-style-type: none"> 1. EXACT repeat from 2009-301 April exam, Q#50 Discuss w/ licensee how question was randomly selected. 2. Overlap w/ knowledge of proposed Q#36, i.e., refuel rad monitors of 15 mr/hr on K601 A /M cause MCREC to go to pressurization mode. 3. Suggest keeping 1st part of the question [related to how low level will drain to] and incorporating a new 2nd part that tests applicant knowledge of how to operate or monitor the different rad monitor (i.e., K611 A thru D refuel floor vent exhaust) 4. Licensee resolved overlap concern by revising 2nd part of the question to ask for how the local horn alarm must be silenced. QUESTION IS SAT.
51	H	2												N	E	<p>295024 A2.02</p> <ol style="list-style-type: none"> 1. Overlap w/ knowledge from Q#18; i.e., when WR level instruments can/ cannot be used > during ED. Suggest keeping the 1st part of the question [related to whether DW spray can be initiated or not] and incorporating knowledge item related to interpreting drywell reference leg temperatures (provided) and Caution 1 information. 2. Does not overlap w/ Q#18 b/c that question pertains to when SRVs initially opened at high reactor pressure. Licensee proposed to provide applicant w/ reference and test knowledge of whether level can be determined. QUESTION IS SAT.
52	H	2												N	S	<p>295025 G2.1.23</p> <ol style="list-style-type: none"> 1. Stem Focus: Add a question to the stem as follows: "WOOTF completes the following statement in accordance with 31EO-EOP-107-2?" 2. Changes incorporated. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
53	F	2	x	x										B	E S	<p>295026 K3.01</p> <ol style="list-style-type: none"> We (NRC) need a basis document (vs a lesson plan) listed in the question as "in accordance with" to ensure only one correct answer. Need to get a copy of the Hatch Plant Specific Technical Guideline document which was based on the generic BWROG guidelines. Which document is this at Hatch? Stem Focus: Re-word the stem as follows (to avoid duplication w/ Q# 43 and eliminate ...(see item 3 below) Cue: the 2nd bullet [<i>"Shift Supervisor directs entry into EOP PC Primary Containment Control"</i>] is a cue for Q#43 <p><i>"WOOTF identifies the reason that emergency depressurization is required when torus temperature exceeds the safe area of the Heat Capacity Temperature Limit Curve in accordance with the Hatch EOP Basis Document xxx-xxx123?"</i></p> <ol style="list-style-type: none"> Ensures that the Primary Containment Pressure Limit will not be exceeded. Ensures that the Net Positive Suction Head (NPSH) Limits for the ECCS and RCIC will not be exceeded Ensures that Ensures that..... <p>4. Licensee provided basis and incorporated suggested changes. QUESTION IS SAT.</p>
54	H	2						x							E S	<p>295028 A1.03</p> <ol style="list-style-type: none"> Modified from April 2009 exam Q#54. Discuss w/ licensee how this question was randomly selected. April 2009 exam had same answer "C" as correct even though the April exam involved a LOCA. Discuss w/ licensee. Job Link: Primary Containment Control flowchart in DW/T leg directs the crew to operate drywell cooling fans IAW 34SO-T47-001-1 and to spray the drywell before temperature reaches 280 degrees. What directs the crew to operate the DW Chiller? Discuss w/ licensee. First step in DW/T leg also states to operate drywell chillers IAW 34SO-P64. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
55	H	2	x	x		x								M	E S	<p>295030 K1.02</p> <ol style="list-style-type: none"> Modified from Q#55 on the April 2009 exam to test HPCI (vs RHR pump on previous exam). Cred Dist: "B" is not plausible because of the 2nd part, i.e., if RWL is currently rising, then why is flow required to be increased? Cue: The fill-in-the-blank statement cues the applicant to look at a graph. Re-word to state: <i>"HPCI pump operation is _____ NPSH and vortex limits and _____"</i>. Stem Focus: Make the 2nd part of "C" the same as the 2nd part of "D" by adding <i>"to 3000 gpm"</i> to "C". [These choices will still remain different because of the word "NOT"] Licensee incorporated suggestions. QUESTION IS SAT.
56	H	2				x	x	x						B	E S	<p>295031 A1.05</p> <ol style="list-style-type: none"> Cred Dist: "A" is not plausible because the stem states that RWL is still lowering. Cred Dist: "A" and "B" [leave in AUTO] are not plausible because the last bullet states that the RCIC Flow Controller has failed downscale. Partial: Does the RCIC Flow Indication at 500 gpm mean that a pipe break has occurred? Job-Link: Does the minimum flow value show up on the flow controller? Is flow sensor downstream or upstream of min flow path? Licensee revised question to target all of the items above. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
57	H	2	x	x			x	x						N	E S	<p>295032 K1.02</p> <ol style="list-style-type: none"> Job-Link: The stem states that the HPCI Pump Room Area Temp is 2E31-N011. According to the Secondary Containment Flowchart, there are no such prefixes of "E31." The Table 4 on the flowchart [Ambient Temps] lists three temperature elements in the pump room, 2E41-N024, -N030A, and N030B. Partial: "C" can also be argued as correct. On Unit 2: the SBGTs will auto-start at 18 mrem/hr on 2D11-K609 A-D [Reactor Zone HVAC exhaust] and the Rx Bldg HVAC will also isolate. This value is also above the Max Normal Operating Value for the SC Flowchart. The 34AB-T22-003-2 procedure is required to be entered [from the override at the top of the SC Flowchart.] 34AB-T22-003-2, Step 4.4.2.2 directs the operator to confirm initiation OR manually initiate SBGT as per 34SO-T46-001-2. <p>In accordance with the 34SO-T46-001-2 NOTE preceding Step 7.2.1.4, the operator is directed to operate both trains of SBGT only WHEN required per another procedure <u>OR</u> IF required to maintain adequate negative pressure. Since the Rx Bldg HVAC is isolated, an applicant can also argue that both trains of SBGT are needed to maintain the negative pressure.</p> <ol style="list-style-type: none"> Stem Focus: The 1st fill-in-the-blank statement has a typo, "Standy." Stem Focus: There is an extra space in the 1st sentence after the word "power." Cue: The 1st bullet states that a HPCI steam line break occurs in the HPCI pump room. Is this necessary to elicit the correct response? Discuss w/ licensee. Stem Focus: The 2nd part of the question can be better aligned with the K/A [operational implication of rad releases] if it tested the SC Flowchart SC/T leg and SC/R leg knowledges associated with not jumpering and running the HVAC fans during a radiation situation [vs testing the HPCI room cooler logic]. This question may overlap with Q# 28 and/or Q#80. No overlap w/ Q# 28 and #80 b/c this question implies that more than 1 train is running ...but doesn't tell if 2 or 4 trains running. Licensee provided new proposed question to target the items listed above; however, the proposal had a cue that Rx Bldg HVAC isolated and SBGT auto-started and both on hi rad. Negotiated removing cue on Rx Bldg HVAC isolation on high rad and left in the SBGT auto-start on hi rad. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
58	F	2					x	x						N	E S	295035 K3.02 1. Job-Link: What is the status of the C007A and C007B exhaust fans? Discuss RB HVAC arrangement w/ licensee. 2. Partial: Because of the wording of "C", an applicant can argue there is not correct answer or that "D" is the correct answer. "C" (correct answer) states that reason the C004A continues to run is to "prevent a <i>high Reactor Building DP</i> ." The term "high DP" is confusing and can be seen both ways by an applicant. High differential pressure can mean the building is excessively negative [with respect to atmospheric pressure]...OR high differential pressure can be interpreted to mean that the building has a large "positive" pressure with respect to atmospheric pressure. Discuss w/ licensee. 3. Licensee added status of all fans and fixed wording. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
59	H	2												B	U S	<p>295037 K2.07</p> <p>1. Q=K/A: The Emergency/Abnormal required K/A topic is the interrelationship between an ATWS and the neutron monitoring system. The Section 295037 of the BWR K/A catalog is associated only with the ATWS event.</p> <p>The question, as proposed by the licensee, tests the applicants' knowledge of the P-T-F map following a recirc pump trip when the OPRMs are inoperable, i.e., a scram is required. Apparently, the intent was to meet the K/A topic statement called "<i>SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown</i>"; however, the required ATWS topic is not being tested.</p> <p>Suggest testing the applicants' knowledge of when boron injection is required (25% peak-to-peak oscillations occurring), including how to determine these oscillations given the APRM/OPRM display screens.</p> <p>2. Cue: The fill-in-the-blank statement cues the applicant which P-T-F map to use (OPRMs inoperable). This initial plant condition should be listed in the first sentence in the stem vs the 3rd bullet.</p> <p>3. Reference Provided: Discuss which regions of the P-T-F map are required to be memorized by the applicants and consider not providing a P-T-F map.</p> <p>4. Licensee provided replacement question; however, it was disjointed b/c of less than 5% and greater than 50% fill-in-the-blank statements. Licensee incorporated suggestion for 25% peak-to-peak oscillations. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
60	F	2		x		x								N	E S	<p>295038 K1.03</p> <ol style="list-style-type: none"> 1. Tough K/A to hit: Since the ROs are responsible for acquiring data for Table TRN-0052, MIDAS Data Input Acquisition, then this K/A can be met by testing applicants' knowledge of data collected, including which elevation to use for an elevated release. 2. Cue: The stem states that the release is elevated. Suggest providing the release point and requiring the applicants' to decide whether a ground or elevated release is occurring. For example, if the release is occurring from the top of the Turbine Building, then the release is considered a GROUND release. Suggest modifying the 2nd sentence to provide information as to which building /plant location is causing the release. 3. Cred Dist: "C" and "D" are not plausible because an unknowledgable applicant will choose the 100 meter choices since the word "ELEVATED" is capitalized in the 1st fill-in-the-blank statement (cue) and provided in the stem. Alternatively, test the applicants' knowledge that wind speed, direction values MUST be the 15 minute averages (not instantaneous values). 4. Licensee incorporated changes, 15 minute average and definition of which way the wind is blowing at 90 degrees. QUESTION IS SAT.
61	F	2	x											B	E S	<p>300000 K6.07</p> <ol style="list-style-type: none"> 1. Stem Focus: The phrase "<i>it is expected that</i>" in both of the fill-in-the-blank statements is not required to elicit the correct response. 2. Stem Focus: In the 2nd fill-in-the-blank statement, the "<i>and</i>" should be an "<i>or</i>", i.e., If F017 fails to isolate <i>OR</i> pressure continues to decrease...." 3. Licensee incorporated comments. QUESTION IS SAT.
62	F	3													S	<p>400000 K2.02</p> <p>QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
63	H	2	x											N	E S	<p>500000 K2.06</p> <ol style="list-style-type: none"> 1. Stem Focus: The oxygen and hydrogen concentrations do not specify which space is affected, i.e., drywell and/or torus. Consequently, the PCG flowchart override cannot be used for the oxygen action determinations. 2. For regional consistency, provide reference (PCG Override step) at the end of the exam with the other references. Add bracketed [reference provided] to the stem. 3. Stem Focus: The 1st sentence includes power level, etc....can be streamlined as "A LOCA occurred on Unit 2 which resulted in the following primary containment oxygen and hydrogen concentrations." 4. Licensee incorporated comments. QUESTION IS SAT.
64	F	2	x											N	E S	<p>600000 K1.02</p> <ol style="list-style-type: none"> 1. Stem focus: Consolidate the entire stem by re-wording as follows: <i>"WOOTF plant fire locations requires a manual reactor scram In accordance with the 34AB-X43-001-2, Fire Procedure, when a major fire exists?"</i> 2. Stem Focus: Re-word "C" exactly like the procedure terminology, i.e., <i>OIL STORAGE TANK ROOM</i>. 3. Stem Focus: Revise "A" and "B" to become a plant location, i.e., "A" is <i>Main Transformer Yard</i> and "B" is some room in the turbine building near cables? 4. Licensee incorporated comments. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
65	H	4 2				x								N	U S	<p>700000 K2.07</p> <ol style="list-style-type: none"> LOD=1: The proposed question tests the applicants' knowledge of which way to position the voltage regulator to increase VARS [raise or lower]. This is borderline GFES knowledge and does not hit the required K/A "Knowledge of interrelationship between grid disturbances and the turbine/generator control" at the RO level. Cred Dist: "A" and "B" are not plausible to an unknowledgable applicant because the 4th bullet states that reactive load is negative and the fill-in-the-blank statement states positive is wanted. An unknowledgable applicant can eliminate LOWER as a credible possibility. <p>Suggest the following test item:</p> <p><i>Both units are operating at 100% power and the 2H11-P659 voltmeter 2S40-R615 indicates 230 KV voltage at [some abnormally low value here] and is fluctuating by + 5kV.</i></p> <p><i>The NCC has notified the control room crews that 230KV Bus voltage cannot be maintained above normal minimum voltage.</i></p> <p><i>WOOTF identifies how reactive load can be raised and also identifies a required operator action in accordance with 34AB-S11-001, Operation With Degraded System Voltage?</i></p> <p>A. Use the REGULATOR ADJUST control switch; Operator is required to initiate a 1 hour required action statement</p> <p>B. Use the HMI Screen and select Load Raise [or appropriate Hatch terminology]; Operator is required to initiate a 1 hour required action statement</p> <p>C. Use the REGULATOR ADJUST control switch; Transfer Station Service Busses to their alternate supply</p> <p>D. Use the HMI Screen and select Load Raise [or appropriate Hatch terminology]; Transfer Station Service Busses to their alternate supply</p> <ol style="list-style-type: none"> Verify no overlap w/ Q#93. No overlap w/ Q#93 b/c Q#93 tests applicants' knowledge of capability curve (provided) and EDG operability. Licensee incorporated proposed question. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
66	F	2				x								N	U S	<p>G2.1.06</p> <p>1. Cred Dist: "B" and "D" are not plausible because the 2nd part [ONLY Nuclear Plant Operators] is overly restrictive with respect to communications protocol. Suggest the following:</p> <p><i>WOOTF identifies the required transient communication protocol in accordance with DI-OPS-59-896, Operations Management Expectations, Attachment 5, Strategies For Successful Transient Mitigation?</i></p> <p>A. A crew update is required to be preceded by an annunciator check. A crew update is a tool used primarily by the Shift Supervisor.</p> <p>B. A crew update is required to be preceded by an annunciator check. A crew update is a short transfer of information from anyone on the crew to the rest of the crew.</p> <p>C. A crew brief is required to be preceded by an annunciator check. A crew brief is a tool used primarily by the Shift Supervisor.</p> <p>D. A crew brief is required to be preceded by an annunciator check. A crew brief is a short transfer of information from anyone on the crew to the rest of the crew.</p> <p>2. Licensee incorporated suggestion. QUESTION IS SAT.</p>
67	F	2	x											N	S	<p>G2.1.08</p> <p>1. Stem focus: Replace the word "should" with "is required to" in the 1st fill-in-the-blank statement.</p> <p>2. Stem focus: spell out "SO"</p> <p>3. Licensee incorporated suggestions. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
68	F	2	x											N	E S	<p>G2.1.17</p> <p>1. Stem Focus: Re-word the 1st fill-in-the-blank statement as follows: <i>"When reporting the HPCI failure to start to the Shift Supervisor, the operator _____ required to use the Shift Supervisor's name or title."</i></p> <p>2. Stem Focus: Re-word the 2nd fill-in-the-blank statement as follows: <i>"If the operator provides the exact value of RWL to the Shift Supervisor, then he/she _____ required to provide the trend direction."</i></p> <p>Modify the 2nd part of "A" and "C" to include the words <i>"is still required."</i></p> <p>3. Licensee incorporated suggestions. QUESTION IS SAT.</p>
69	F	2												N	S	G2.2.01
70	F	2	x			x	x							N	E S	<p>G2.2.37</p> <p>1. Cred Dist: "A" is not plausible because an unknowledgable applicant could reasonably infer that the EDG was INOP if the emergency stop pushbutton was depressed.</p> <p>2. Partial: "B" can be argued as correct by an applicant because the word "degraded" can be loosely interpreted as "inoperable."</p> <p>3. Stem focus: The term "available" is undefined in 34SV-R43-001-2. Since no other procedure is referenced in the stem, this term can be "loosely" interpreted.</p> <p>Suggest testing the applicants' knowledge of whether 1) the EDG is required to be declared INOPERABLE in accordance with Tech Specs [<i>the 34SV procedure states to "Notify the Shift Supervisor to ensure Tech Specs are complied with PRIOR to performing the following step"</i>] and 2) whether the EDG can still auto-start.</p> <p>4. Licensee incorporated suggestions. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
71	H	2	x				x							N	E S	<p>G2.2.44</p> <ol style="list-style-type: none"> Partial: "D" can be argued as correct by an applicant because the 1st portion (<i>is NOT adequate to manually insert control rods</i>) could be interpreted to as linked to the separate condition that RWM has not been bypassed. Stem Focus: Avoid the use of the connector "and/but" in the fill-in-the-blank statement. Suggest the following revisions. Delete 2nd bullet [250 psid has been established] Add new bullet stating Rx power is 19% (between LPAP and LPSP) Add new bullet stating that the scram has NOT been reset Test the applicants' knowledge of 1) whether the RWM will (or will not) allow rod insertion and 2) what action is required to drive rods IAW 31EO-EOP-103-1 [choose between close the 1C11-F034 (correct) OR place the reactor mode switch to the Shutdown position. Licensee incorporated suggestions. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
72	H	2					x							B	E S	<p>G2.3.05</p> <p>1. Partial: "C" can be argued as correct by an applicant because he/she could argue that he/she didn't "expect" the alarm (even though it's an "expected" alarm).</p> <p>Suggest re-wording the stem as follows:</p> <p>WOOTF completes the following statements?</p> <p><i>The MAIN STEAM LINE RADIATION HIGH (601-425) annunciator _____ alarming.</i></p> <p><i>If radiation levels continued to rise, the LOWEST rad level at which the MAIN STEAM LINE RADIATION HIGH-HIGH (603-125) annunciator will alarm is _____.</i></p> <p>A. is; 3,000 mr/ hr</p> <p>B. is; 990 R/hr</p> <p>C. is NOT; 3,000 mr/hr</p> <p>D. is NOT; 990 R/hr</p> <p>2. Licensee recommended NOT having different units b/c instrument reads out in mr/hr. Licensee incorporated suggestion otherwise. QUESTION IS SAT.</p>
73	F	2												B	E S	<p>G2.3.13</p> <p>1. Exact REPEAT from 2009-301 April exam, Q#73. The question should be randomly selected from the bank (discuss w/ licensee). Discuss w/ licensee.</p> <p>2. Licensee did not incorporate suggested change; however, the correct answer was changed from "a" to "b." QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
74	F	2	x	x										N	E S	<p>G2.4.26</p> <ol style="list-style-type: none"> 1. Cue: The 1st fill-in-the-blank statement "teaches" the applicant that the Cable Spread Room fire suppression system is CO2. This has the potential to compromise other exam questions. 2. Stem focus: The 1st fill-in-the-blank sentence is cumbersome. Suggest re-wording as follows: <i>The Cable Spreading room fire suppression system _____ initiate without operator action.</i> 3. Licensee incorporated suggestions. QUESTION IS SAT.
75	F	2		x		x								N	U S	<p>G2.4.49</p> <ol style="list-style-type: none"> 1. Cred Dist: "B" and "D" are not plausible because an unknowledgable applicant can infer from the word "immediate" that "medium" is not the desired choice. 2. Cue: The 1st sentence contains a cue, i.e., "<i>..and reactor power starts rising.</i>" Suggestion: Eliminate the fill-in-the-blank statement and provide 4 choices of immediate operation actions. Use individual recirc controllers, vs use rods [to some incorrect power level – provided that the stem contains the qualifier minimum required immediate operator action]. Etc. 3. License classified as Higher order. Discuss w/ licensee. 4. Licensee stated that plausibility [for medium rate] was that power reduction was only 1%. Re-graded question as "enhancement." Suggestions incorporated. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
76	H	3	x											N	ES	<p>211000 G2.2.44</p> <ol style="list-style-type: none"> SRO-only because of detailed knowledge of diagnostic steps and decision points in the emergency operating procedures (EOP) that involve transitions to event specific sub-procedures or emergency contingency procedures Stem Focus: Modify the 1st sentence to state: <i>"Unit 2 was operating at 100% power when an ATWS occurred. The following conditions now currently exist:"</i> [use of the word "transient" is not necessary to hide the name of the event.] Stem focus: Modify the stem question to read: <i>"WOOTF completes the following statements in accordance with CP-3, ATWS Level Control and RCA RPV Control (ATWS)?"</i> Stem focus: Modify the fill-in-the-blank statement as follows: <i>"Reactor water level is required to be _____ and a reactor cooldown is _____ .</i> <ol style="list-style-type: none"> <i>maintained in the present band; NOT allowed</i> <i>maintained in the present band; required to be commenced, but NOT to exceed 100 deg/hr</i> <i>raised to between +3" to +50"; NOT allowed</i> <i>raised to between +3" to +50"; required to be commenced, but NOT to exceed 100 deg/hr</i> Licensee incorporated changes. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
77	H	2		x		x							x	N	U S	<p>215003 G2.1.27</p> <ol style="list-style-type: none"> Cred Dist: "A" and "D" are not plausible because the Oscillation Power Range Monitors do not have a "lower range." SRO-only: The 2nd portion of the question is not SRO only because RO's are required to know the Modes when a piece of equipment is required to be operable; i.e., RO knowledge that IRMs are not required in Mode 1. Therefore, the SRO applicant does not need to demonstrate knowledge of LCO 3.0.4. Cue: The 4th sentence is not necessary to elicit the correct response. Suggestion: If the K/A seems difficult to hit, consider asking a question related to the tech spec action associated with the number of required channels per trip system that are required to be operable and also test the applicants' knowledge of when RPS Trip capability has been lost with respect to the IRMs. Licensee changed "A" and "D" to include a different distractor related to RWM low power setpoint (vs OPRM). QUESTION IS SAT.
78	H	2				x								N	U S	<p>216000 A2.14</p> <ol style="list-style-type: none"> Cred Dist: "C" and "D" are not plausible because when a recirc pump trips, the vessel level cannot ever decrease, (unless some other leak was already in progress). For the 1st portion of the question, suggest testing the applicants' knowledge of <u>which</u> thermal limits are required to be adjusted [RO knowledge>> all 3: MCPFR; APLHGR; LHGR] and the 2nd portion of the question can remain as is, i.e., how long to complete these actions [24 hours]. The DRAFT exam submittal package included a blue tab with intended "handouts" (i.e., applicant references) and this package included TS 3.4.1 and 3.4.2 (without SRs). Verify w/ licensee that TS will NOT be provided for Reactor Coolant System. Discussed plausibility w/ licensee. Licensee stated that level changes associated w/ a recirc pump trip [i.e., level decrease] was plausible based on applicant misunderstanding where the level was sensed. Re-graded question as "enhancement." No reference required for this question. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
79	H	2	x					x		x			x	B	E S	<p>234000 G2.2.25</p> <ol style="list-style-type: none"> Job-link: There needs to be more definition in the stem as to exactly what the unit status is with respect to current procedures (refueling) in effect and TS mode. What operating mode is the unit in? The stem states that fuel movement is in progress and also says that control rod <u>removal</u> is in progress. Is there also a governing refueling procedure in effect? What specific section of 34GO-OPS-66-0 is in effect? (single rod withdrawal or multiple rod withdrawal?) Stem Focus: Re-word the question such that the applicants' are required to PREDICT how the refueling equipment will perform [platform will stop prior to reaching cavity or not.....grapple will not lower, etc.] SRO-only: The information provided with this question states the basis for SRO-only is knowledge of the bases of Tech spec 3.9. Assuming that the author is referring to LCO 3.9.1 [because the refueling equipment interlock is defective], then the Action A is RO knowledge. The basis for Action A states that the bundle can be placed in a "safe" location. The meaning of the word "safe" can be potentially argued. This question needs work from the SRO-only perspective and for Item #1 listed above. 10-21-09: Received NEW replacement question from licensee. Job-Link: The question (as proposed) has initial conditions that the rod is only electrically isolated due to "friction." According to TS 3.1.3, if a control rod is "stuck" then the rod is required to be hydraulically isolated (Bases for Action A.1). Consequently, the initial conditions may not be operationally valid. Research w/ licensee to verify which action statement exists when the unit was operating at full power (before the shutdown occurred). Stem Focus: Stem does not specify 1) that the vessel head is removed (or that the Unit is in Mode 5); 2) exactly what the refueling bridge is doing over the core (Stem says that refueling is "about to begin." Is grapple unloaded? Is grapple down?). Consequently, the applicant could successfully argue that the stem of the question didn't specify plant conditions and that the question is not operationally valid or he/she could potentially argue more than one correct answer. (COMMENTS CONT'D)

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
79	H	2	x					x		x			x	B	E S	<p>234000 G2.2.25 (COMMENTS CONT'D)</p> <p>7. #/units: The first fill-in-the-blank statement requires choosing either "full-in" or "00". Reed switch number "S52" is the reed switch that provides the green full-in indication and refueling interlocks. Licensee found Hatch modification what allows three different reed switches to provide the refueling "full-in" permissive. These three switches are referred to as one "channel" in the TS bases.</p> <p>8. Licensee subsequently modified question to test refueling grapple logic and TS Bases knowledge of 3.9.4 on bypassing inoperable "full-in" channel allowance. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
80	H	3	x											M	E S	<p>261000 A2.12</p> <ol style="list-style-type: none"> This question may overlap with Q# 28 and Q#57, pertaining to how many SGBT will auto-start. Discuss in detail w/ licensee. Stem Focus: The phrase "<i>the Shift Supervisor will direct...</i>" is not a requirement for SRO only questions, and its use may unnecessarily raise the reading burden. Stem Focus: The stem states that the area rad levels also rose to 70 mr/hr >> Which detectors is the stem referring to (by number)? Suggest re-wording the stem to: Unit 2 was operating at 100% power while fuel movement was in progress to load a cask when minor damage to a fuel bundle resulted in the following conditions: <ul style="list-style-type: none"> Refuel Floor Area Rad Monitors 2D21-K601M 70 mr/hr 2D21-K601K 65 mr/hr 2D21 -K601L 70 mr/hr Refuel Floor Vent Exhaust Monitors 2D11-K634A..... 15 mr/hr 2D11-K634B14 mr/ hr 2D11-k634C 18 mr/hr 2D11-K634D 19 mr/hr Stem Focus: Eliminate both of the fill-in-the-blank statements and re-word the stem question as follows: <i>"WOOTF identifies the total number of SGBTs that will automatically start and the minimum required procedures in accordance with 31EO-EOP-014-2, Secondary Containment Control Flowchart?"</i> The plausibility of "B" and "D" [34GO-OPS-013-2, Normal Plant Shutdown] comes from the SC/R leg of the SC Flowchart where applicant needs to know Max Safe Operating Value requires shutdown (vs ED) when rad is not related to primary system discharging. Question does not overlap w/ Q# 28 (see comments in Q#28 writeup). Question does not overlap w/ Q# 57 (see comments in Q#57 writeup). Suggested providing Table 6 (only) of SC Flowchart; i.e., only the bottom ARM portion. Removed prompt off site dose element. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
81			x				x						x	N	U S	<p>264000 A2.09</p> <ol style="list-style-type: none"> SRO-only: The question can be answered using RO systems knowledge because when concurrent LOSP and LOCAs exist on both units, then the 1B EDG system operation is unpredictable. [see caution on page 3 of 52 in 34AB-R43-001-2]. This [systems] knowledge can be used to determine that the 1B EDG is required to be tripped. [vs continue monitoring as stated in "B" and "D"] Stem Focus: The phrase "<i>the Shift Supervisor will direct...</i>" is not a requirement for SRO only questions, and its use may unnecessarily raise the reading burden. Partial: An applicant can potentially argue that "D" is also correct since monitoring the EDG is never a wrong thing to do. Discuss w/ licensee. Licensee's justification for SRO-only was that the conduct-of-operations perspective on "overriding an automatic function" was being tested, and this was SRO-only. Question remains outside NUREG 1021 acceptability. Licensee re-worked question to test applicants' knowledge of TS 3.8.1 Bases related to number of feeders required for operable offsite power sources AND the impact on EDG. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
82	H	2		x									x	N	U S	<p>272000 A2.11</p> <ol style="list-style-type: none"> In the DRAFT submittal package, only the top portion of SC Flowchart Table 4 was provided. Does licensee intend on also providing the lower portion of the Table 4 (differential temperatures). It will be difficult to answer without both portions of Table 4. Discuss w/ licensee. SRO-only: The <u>overall</u> mitigative strategy for SC EOP is that when two areas exceed Max Safe (temperature, water level, or rad) due to a primary system discharging, then ED is required. This is <u>overall</u> mitigative strategy knowledge [i.e., RO knowledge of procedures, see K/A G.2.4.6 "Knowledge of EOP mitigation strategies RO importance rating of 3.7] and can be used to eliminate "C" and "D." The applicant is then left with choices "A" and "B", which he/she can then eliminate "A" based on Rx Bldg HVAC isolation setpoint. Cue: The 2nd fill-in-the-blank statement contains a cue that reactor pressure will be lowered. Suggest re-working the same question, but ask the SRO applicant to select a procedure without including follow-on action phrases such as <i>..maintaining <100 deg/hr</i> or <i>emergency depressurize.</i> Use of follow-on action phrases may allow RO knowledge to be used to deduce the correct answer, as is the case in this proposed test item. Licensee re-worked question to test procedure selection knowledge. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
83	H	3	x			x		x						N	E S	<p>295001 A2.04</p> <ol style="list-style-type: none"> Job-link: The documentation of why the 1st fill-in-the-blank is technically accurate could not be found in the draft submittal. The question analysis section states that the tech spec bases states that the recirc system is operating in 1-loop. The only item that could be located in the TS bases was on Page B3.4.1 , which states: <i>"Each external loop contains one variable speed motor driven recirculation pump, an adjustable speed drive (ASD) to control pump speed and associated piping, jet pumps, valves, and instrumentation."</i> However, this statement may not be the one referenced in the question analysis. If this is the statement being referred to in the question analysis, then it is not definitive with respect to officially stating that the plant is in 1-loop operation with an inoperable jet pump. Discuss w/ the licensee where this guidance is documented. Cred Dist: Ask the licensee why "A" and "C" are plausible. Verify w/ licensee that jet pumps 11 thru 20 supply "A" Recirc Loop in order to establish credibility of raising "B" loop flow in "A" and "C". If not, then "A" and "C" are not plausible. Stem Focus: The phrase <i>"the Shift Supervisor will direct..."</i> is not a requirement for SRO only questions, and its use may unnecessarily raise the reading burden. Stem Focus: Re-word the 3rd sentence in the stem as follows: <i>"The diffuser-to-lower-plenum differential pressure for Jet Pumps 5 & 6 differs by 50% from established patterns."</i> Licensee demonstrated that surveillance requirement not being met for matched flows constituted declaring loop inoperable. Licensee modified question to include comments. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
84	H	2	x											N	Ⓔ S	295004 G2.1.23 1. Discuss how this question does not overlap Q#39 and 19. 2. Stem Focus: The phrase “the Shift Supervisor will direct...” is not a requirement for SRO only questions, and its use may unnecessarily raise the reading burden. Modify the 2 nd fill-in-the-blank statement to test the applicants' knowledge of the <u>required</u> procedure. 3. Stem Focus: Does the word “FEEDER” in the 1 st sentence mean that a load breaker off of S022 has tripped? Or does it mean that the supply breaker off of S022 has tripped. Suggest enhancing the DC loss by stating what is de-energized. 4. No overlap w/ Q# 39 and Q# 19 (see items for explanation). Comments incorporated. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
85	F	2				x	x						x	N	U E S	<p>295005 A2.02</p> <ol style="list-style-type: none"> Cred Dist: "B" and "D" are not plausible because the stem states that "<i>The main turbine is operating</i>" and also states that "<i>if continued operation is desired.</i>" Partial: "A" can also be argued correct because the alarm procedure states that the vibe trips may be disabled with the Ops Manager (<i>or designee</i>) and System Engineer approval. The Shift Supervisor can be the Ops Manager designee. SRO-only: This does not appear to be procedure selection. Perhaps the basis for SRO-only is detailed recall of the contents of the annunciator procedure w.r.t. whose approvals are required? Discuss w/ licensee. Suggest testing the applicants' knowledge of the administrative procedures required to document the decision to bypass the high vibe turb trip. Alternatively, test the applicants' knowledge of the turbine vibration setpoint and also the startup procedures' <u>administrative requirements</u> for the vibration instrumentation monitoring. Can you roll the turbine with it bypassed? If so, when or when not? Licensee classified as higher order question. Discuss whether this is fundamental question w/ licensee. Discussed w/ licensee and their intent (for 1st fill-in-the-blank) statement was to test applicants' knowledge of a failure to auto-trip the turbine on high vibration. The grammar may have been mis-leading; however, the intent was correct. Re-graded to "enhancement." Modified question to test applicants' knowledge of turbine trip setpoint and lowest level of authority required (per procedure) to bypass this turbine trip feature. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
86	H	2	x					x						N	E S	<p>295007 A2.01</p> <ol style="list-style-type: none"> 1. Stem Focus: The 1st sentence should be past tense since the alarm means that the unit subsequently scrambled. In other words..."Unit 2 was at 100% power when the following alarm was received" 2. Job-Link: How does the high pressure transient cause torus water level to decrease? Suggest simply stating that torus level and pressure are x and y, respectively. 3. Stem Focus: The phrase "<i>the Shift Supervisor will direct...</i>" is not a requirement for SRO only questions, and its use may unnecessarily raise the reading burden. 4. Licensee incorporated comments. QUESTION IS SAT.
87	F	2	x											N	E S	<p>295012 G2.4.11</p> <ol style="list-style-type: none"> 1. Stem focus: Minimize the use of reference material by re-working the question as follows: <i>WOOTF completes the following statement in accordance with 34AB-T47-001-2, Complete Loss of Drywell Cooling?</i> <i>The crew is required to enter _____ if any peak temperature listed in Attachment 1 is exceeded for _____.</i> A. 34AB-C71-001-2, Reactor Scram Procedure; 1 hour B. 34AB-C71-001-2, Reactor Scram Procedure; 30 minutes C. 34GO-OPS-014-2, Fast Reactor Shutdown; 1 hour D. 34GO-OPS-014-2, Fast Reactor Shutdown; 30 minutes 2. SRO-Only justification is that this is detailed knowledge of when to implement attachments and appendices, including how to coordinate these items with procedure steps 3. Comments incorporated; no need for reference to be distributed to applicants. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
88	F	2	x										x	M	E S	<p>295013 A2.01</p> <p>1. SRO-only: The information listed “above the line” in Tech Spec 3.6.2.1 is RO Tech Spec knowledge, including the “less-than-or-equal-to” 1 hour action statements in Tech Specs. Additionally, plant parameters that require entry to the major EOPs are also RO knowledge. Licensee stated this test item linked to 10CFR55.43 (5) [procedure selection] because the applicant must recall the action in the procedure and when to take the action.</p> <p>The following knowledges are required to determine the correct answer “C”:</p> <ul style="list-style-type: none"> Testing req’d suspended at 105: (Immediate action statement C.1) Logging req’d every 5 minutes: Step 4.4 in 34AB <p>Because this is <u>borderline</u> SRO-only knowledge with respect to procedure selection, suggest re-working the question to require the applicant to select a procedure or , alternatively, test the applicants’ knowledge of the TS Bases for TS 3.6.2.1. The 2nd part of the question [whether or not HPCI testing can continue] is a good starting point to retain.</p> <p>2. Stem Focus: Combine the 1st sentence and the 1st bullet for consolidation purposes.</p> <p>3. Stem focus: misspelled word “stabilizes”</p> <p>4. Stem Focus: The phrase “<i>the Shift Supervisor will direct...</i>” is not a requirement for SRO only questions, and its use may unnecessarily raise the reading burden.</p> <p>5. Licensee provided replacement question; however, question was not accurate b/c it prescribed action statement even though none was required. Suggested asking for maximum torus temperature w/ HPCI testing in progress AND bases for this number. Licensee incorporated suggestion. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
89	F	2										x		N	U S	<p>295019 A2.02</p> <ol style="list-style-type: none"> 1. Cred Dist: "A" and "B" are not plausible because an unknowledable applicant would assume that the Shift Supervisor is not going to stop and sign a work order prior to authorizing repair efforts when control air header pressure is 20 psig and lowering. (not practical) 2. Question may overlap w/ Q#61. Discuss w/ licensee 3. Q=K/A: Ask the licensee whether safety related loads are supplied via the non-intr air header by the N2 system. 4. Licensee classified this question as Higher order..Discuss w/ licensee. 5. Question no longer overlaps w/ Q#61 b/c it was significantly re-worked. Licensee re-worked question to test applicants' knowledge of lowest required pneumatic supply header pressure to the ADS valve accumulators AND the basis for this value IAW TS Bases. QUESTION IS SAT.
90	H	3	x											N	E S	<p>295030 G2.1.20</p> <ol style="list-style-type: none"> 1. Stem Focus: The phrase "<i>the Shift Supervisor will direct...</i>" is not a requirement for SRO only questions, and its use may unnecessarily raise the reading burden. 2. Stem Focus: Re-word the choices as follows: <ol style="list-style-type: none"> A. is; 31EO-EOP-015-1, Emergency Depressurization B. is NOT; 31EO-EOP-015-1, Emergency Depressurization C. is; 31EO-EOP-113-2, Terminating And/Or Preventing Injection Into The RPV D. is NOT: 31EO-EOP-113-2, Terminating And/Or Preventing Injection Into The RPV 3. Stem Focus: the CP-3 portion in the 3rd bullet is not necessary to elicit the correct response. 4. Stem focus: Re-word the 1st sentence as follows: "<i>Unit 2 was operating at 100% power when an ATWS occurred and the following conditions currently exist.</i>" 5. Licensee incorporated suggestions. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
91	H	2												N	S	295031 G2.2.44
92	H	3	x				x						x	N	U S	<p>400000 A2.02</p> <ol style="list-style-type: none"> 1. SRO-only: The 2nd portion of the question was intended to target 10CFR55.43 (5) [assessment of facility conditions and selection of appropriate procedures]. “A” and “B” can be eliminated by RO systems knowledge associated with how many RBCCW pumps remain running [systems knowledge]. The correct answer “C” can be determined by knowing that the recirc pumps have lost their cooling medium (RBCCW) and require tripping. 2. Partial: There is a potential for no correct answer because the guidance to trip the reactor (i.e., enter the scram procedure) is directed by 34AB-P42-001-2, Step 4.8 which directs the operator to scram the reactor and enter 34AB-C71-001-2 <u>at the shift supervisor direction</u>. Therefore, the requirement for 34AB-C71-001-2 is a discretionary decision point in the procedure and may not always be required. 3. Stem Focus: The phrase “<i>the Shift Supervisor will direct...</i>” is not a requirement for SRO only questions, and its use may unnecessarily raise the reading burden. 4. Licensee provided replacement question; however, still did not work. Chief Examiner suggestion taken and incorporated. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
93	H	3	x											N	E S	<p>700000 A2.03</p> <ol style="list-style-type: none"> 1. Verify no overlap w/ Q# 65. 2. Stem Focus: Use of the connectors in the fill-in-the-blank statement ["(es) is (are)"] is confusing. Modify each of the choices to have more words such that these connectors aren't required. 3. Stem focus: The word REFERENCE is misspelled. 4. SRO-only: Justification is that the 3825 volt acceptance criteria is based on TS knowledge. 5. No overlap exists w/ Q#65 (see that question for explanation). Licensee modified question to accommodate 34AB-S11-001-0, Step 4.3.3. QUESTION IS SAT.
94	H	2												M	E S	<p>G2.1.28</p> <ol style="list-style-type: none"> 1. Licensee proposes to provide 73EP-EIP-001-0, Attachment 1, Fission Product Barrier Chart to the applicants to define what reactor level constitutes a potential or actual loss of the fuel clad barrier. Because the compensated and uncompensated levels are both less than -155 inches, this question becomes a direct lookup if the proposed reference is distributed. Discuss w/ licensee. 2. Stem Focus: Re-word the 2nd fill-in-the-blank as follows: "The HIGHEST REQUIRED emergency classification is _____ in accordance with 73EP-EIP-001-0. 3. Stem focus: The S17A switch is listed as "RESET". Is this switch a spring return to Auto? What does it mean when the stem states the switch is "RESET?" 4. Stem Focus: misspelled word in the 2nd bullet (Outoboard). 5. Licensee agreed to <u>exclude</u> the top portion of the Fission Product Barrier Evaluation Chart Attachment 1 from the reference being provided. Comments incorporated. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
95	F	2												N	E S	<p>G2.1.37</p> <p>1. Job-Link: Step 8.3.2 of 30AC-OPS-003-0 states: "<i>The following staffing requirements shall apply to the manning of the Main Control Room: At least two licensed NPOs shall be present, in the MCR, for each reactor, in the process of startup, scheduled reactor shutdown, rapid power reduction, and during recovery from reactor trips caused by transients or emergencies.</i>" Does this requirement mean in addition to the normal number of NPOs assigned to the unit? What defines the "control room?" Is it the combined Unit 1 and Unit 2 control room? Discuss w/ the licensee.</p> <p>2. Stem Focus: Why is the Unit 2 Control room information provided in the stem? Do the headings [Unit 1 Unit 2] imply separate control rooms?</p> <p>3. Licensee explained and no changes required. QUESTION IS SAT.</p>

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
96	H	2												N	E S	<p>G2.2.01</p> <ol style="list-style-type: none"> SRO-only: This question is borderline because the knowledge of how many SRMs are required in Mode 3 vs Mode 2 is RO Tech Spec knowledge. [See K/A G2.2.1 RO IR = 4.5; 2.2.12 RO IR = 3.7; G2.2.23 RO IR = 4.0; and G2.2.42 RO IR = 3.9] Also, the knowledge of SRM minimum count rate is RO Tech Spec knowledge Job-Link: The 1st sentence states that "Unit 2 is in Mode 3.....". Because the 2nd sentence states that the mode switch has just been placed in the Startup position, the question has the potential to become mis-leading, i.e., the plant is now in Mode 2. Suggest combining the 1st and 2nd sentences to state that Unit 2 is preparing to startup and the mode switch is in the startup/hot stby position (ensure exact labeling). Stem focus: The 2nd fill-in-the-blank statement is confusing because it does not ask the applicants for the REQUIRED position of the mode switch. Discuss w/ licensee: The 24 hour repair time exceeds the 4 hour A.1 action statement time; therefore, in accordance with TS, is the licensee allowed to leave the mode switch in startup for 4 hours knowing that the repair time will not be met? Discuss w/ licensee. Licensee modified question to test applicants' knowledge of surveillance requirement 3.0.3 (actions for a missed surveillance). QUESTION IS SAT.
97	F	2				x			x			x		M	E S	<p>G2.2.23</p> <ol style="list-style-type: none"> Q=K/A: The question does not necessarily have to involve a "tracking" RAS because of the K/A statement wording. The licensee may have interpreted the K/A statement wording too restrictive. Consequently, the "B" and "C" choices are not plausible since an unknowledgeable applicant could "guess" that the name of the sheet was "Tracking" when the equipment was not presently required to be operable. Minutia: Testing the applicants' knowledge of whether the SRO is required to "initial" vs "sign" is minutia Licensee explained protocol for tracking vs active LCOs (signature and initials). Question is not minutia. QUESTION IS SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. B/M/N	7. U/E/S	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
98	F	2												B	E S	<p>G2.3.13</p> <ol style="list-style-type: none"> Exact REPEAT from 2009-301 April exam, Q#98 The question should be randomly selected from the bank. Discuss w/ licensee. Licensee modified question to provide a choice between a plant page announcement OR a notification of unusual event. QUESTION IS SAT.
99	F	2												N	E S	<p>G2.4.37</p> <ol style="list-style-type: none"> Cue: The 1st sentence in the 1st fill-in-the-blank statement is not needed to elicit the correct response. Licensee incorporated suggestion. QUESTION IS SAT.
100	H	2	x	x										M	E S	<p>G2.4.41</p> <ol style="list-style-type: none"> Cue: The 3rd bullet is not necessary to elicit the correct response. Stem Focus: The 1st sentence can be consolidated with the 1st bullet as follows: "Unit 1 is at 100% power with the 1B EDG tagged out of service for repairs." Stem Focus: Split out the fill-in-the-blank statement into two sentences and re-word as follows: "The highest required emergency classification is _____. The state and local governments are required to be notified by _____." Licensee incorporated suggestions. QUESTION IS SAT. <p>A. Alert; 11:45 B. Alert; 12:00 C. Site Area Emergency; 11:50 D. Site Area Emergency; 12:00</p>

Facility: <u>HATCH</u>		Date of Exam: <u>11/12/09</u>		Exam Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>	
Item Description	Initials				
	a	b	c		
1. Clean answer sheets copied before grading	<u>JS</u>	<u>N/A</u>	<u>BU</u>		
2. Answer key changes and question deletions justified and documented	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>		
3. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	<u>JS</u>	<u>N/A</u>	<u>BU</u>		
4. Grading for all borderline cases (80 \pm 2% overall and 70 or 80, as applicable, \pm 4% on the SRO-only) reviewed in detail	<u>JS</u>	<u>N/A</u>	<u>BU</u>		
5. All other failing examinations checked to ensure that grades are justified	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>		
6. Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	<u>JS</u>	<u>N/A</u>	<u>BU</u>		
Printed Name/Signature		Date			
a. Grader	<u>GERARD W. LASKA / <u>Gerard W. Laska</u></u>	<u>11/18/2009</u>			
b. Facility Reviewer(*)	<u>N/A</u>	<u>N/A</u>			
c. NRC Chief Examiner (*)	<u>BRUNO CABALLERO / <u>B. Caballero</u></u>	<u>11/19/2009</u>			
d. NRC Supervisor (*)	<u>MALCOLM T. WIDALAWN / <u>Malcolm T. Widalawn</u></u>	<u>12/01/09</u>			
(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.					