ES-201 **Examination Preparation Checklist** **Form ES-201-1**

Facility: HATCH Date of Examination: 4/2009

Developed by: Written - Facility ☑ NRC ☐ // Operating - Facility ☑ NRC ☐

Target Date*	Task Description (Reference)	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a and b)	BM
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	BM
-120	3. Facility contact briefed on security and other requirements (C.2.c)	BM
-120	4. Corporate notification letter sent (C.2.d)	BM
[-90]	[5. Reference material due (C.1.e; C.3.c; Attachment 3)]	BM
{-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)	BM
{-70}	{7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)}	BM
{-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)	BM
-30	9. Preliminary license applications (NRC Form 398's) due (C.1.l; C.2.g; ES-202)	BM
-14	10. Final license applications due and Form ES-201-4 prepared (C.1.l; C.2.i; ES-202)	BM
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	BM
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f and h; C.3.g)	BM
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	BM
-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)	BM
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee (C.3.k)	BM
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	BM

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

ES-201 **Examination Outline Quality Checklist** **Form ES-201-2**

Facility:		Date of Examination:		
Item	Task Description	Initials a	b*	c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	BM	N/A	DJC
	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.	BM	N/A	DJC
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	BM	N/A	DJC
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	BM	N/A	DJC
2. SIMULATOR	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-1	N-1	N-1
	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-1	N-1	N-1
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	BM	N/A	DJC
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	BM	N/A	DJC
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	BM	N/A	DJC
	d. Check for duplication and overlap among exam sections.	BM	N/A	DJC
	e. Check the entire exam for balance of coverage.	BM	N/A	DJC
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	BM	N/A	DJC

	Printed Name/Signature	Date
a. Author	BRUNO CABALLERO / B. Caballero	4-28-09
b. Facility Reviewer (*)	N/A	N/A
c. NRC Chief Examiner (#)	Phillip G. Capehart / P.G. Capehart	4-29-09
d. NRC Supervisor	MARK BATES FOR M. Widmann / Mark Bates	4-29-09

Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.
* Not applicable for NRC-prepared examination outlines

N-1, Operating Test Exam Outline Quality Checklist previously completed; this Form ES-201-2 documents only final written exam.

ES-201 **Examination Outline Quality Checklist** **Form ES-201-2**

Facility: HATCH Date of Examination: 4/20/09

Item	Task Description	Initials a	Initials b*	Initials c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	NA	NA	N/A
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.	N/A	NA	N/A
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	N/A	NA	N/A
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	N/A	NA	N/A
2. SIMULATOR	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.	CH	CE	B/C
	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.	CH	CE	B/C
	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.	CH	CE	B/C
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.	CH	CE	B/C
	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	CH	CE	B/C
	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.	CH	CE	B/C
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	CH	CE	B/C
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	CH	CE	B/C
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	CH	CE	B/C
	d. Check for duplication and overlap among exam sections.	CH	CE	B/C
	e. Check the entire exam for balance of coverage.	CH	CE	B/C
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	CH	CE	B/C

	Printed Name/Signature	Date
a. Author	EDWARD L JONES / [signature]	04/08/09
b. Facility Reviewer (*)	CHARLES Edmund / [signature]	04/08/09
c. NRC Chief Examiner (#)	BRUNO CATALLEDO / BRUNO CATALLEDO	4/15/09
d. NRC Supervisor	MALCOLM T. WILLIAMS / [signature]	04/15/09

Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.
* Not applicable for NRC-prepared examination outlines

rec'd 5/10/09

ES-201 **Examination Outline Quality Checklist** **Form ES-201-2**

Facility: HATCH Date of Examination: April 2009

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

	Printed Name/Signature	Date
a. Author	BRUNO CABALLERO / B. Caballero	4/29/08
b. Facility Reviewer (*)		
c. NRC Chief Examiner (#)	Edwin Lea Jr / Edwin Lea Jr	4/30/pm
d. NRC Supervisor	MALCOLM T. WIDELMAN / [signature]	05/02/08

Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.
* Not applicable for NRC-prepared examination outlines

This Form ES-201-2 is for 2008 when the written exam outline was initially provided to the licensee.

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

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 4/20/2009 ≥ 4/27/2009 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 4/20-4/30/09 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.	Charlie Edmund	Exam Author / Plant Instructor	Charles Edmund	4/28/2008	Charlie Edmund	5/1/09	
2.	David Giddens	Instructor / Writer		5-12-08	DHG by Charlie Edmund	5/11/09	(2)
3.	ED JONES	INSTRUCTOR		5/12/08		5/1/09	
4.	Jeff Lackmeyer	Simulator Engineer		8/7/08		5/1/09	
5.	Michael Kennedy	INSTRUCTOR		4Sep08		5/11/09	
6.	Ben Smith	"		090808		050/09	
7.	CHUCK VONIER	SHIFT SUPERVISOR		9/15/08		5/7/09	
8.	Allen Durrence	Plant Operator		9-15-08		5-7-09	
9.	Jerry Thomas	Plant Operator		9/15/08		5-12-09	
10.	SCOTT BRITT	SHIFT MANAGER		9/15/08		5-6-09	
11.	Dana L. Stille	Simulator Technician		9-15-08		5-1-09	
12.	Wes Vaughn	Simulator Engineer		9/15/08	for Frank Fagan	5/12/09	(1)
13.	JOHN RICHTER	SIMULATOR COORDINATOR		9/15/08	John L Richter	05/01/09	
14.	STEVE BECH	EXELON TRG SUPPORT MGR		11/17/08	for Frank Fagan	5/6/09	(1)
15.	Chuck Goodman	SSS		12-1-08		5/4/09	

NOTES:
(1) Frank Fagan signed for via email communication.
(2) Charlie Edmund signed For David Giddens via Phone conversation

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 4/20/2009 → 4/30/2009 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 4/20-4/30/09 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.	T. A. HEAD	PLANT OPERATOR		12/02/08		5/4/09	
2.	Frank Fegan	Instructor		12/08/08		5/11/09	
3.	R Shanahan	Supv Op Trg		12/19/08		4/30/09	
4.	A.M. WOLFE	Ops Supt		12/22/08		05/01/09	
5.	D A. Dees	Shift Supervisor		1/09/09		5/01/09	
6.	ALLAN CARROLL	SSS		01-12-09		050409	
7.	DARRELL NEW	SHIFT SUPV.		3.27.09		5-4-09	
8.	Shannon Britt	Plant Operator		3-27-09		5-4-09	
9.	CHRISTOPHER T. BURKE	SHIFT SUPPORT SUPERVISOR		3-27-09		5-11-09	ITA 4/16/09 ITA 5/6/09
10.	James C. Westberry	Plant Operator		3-30-09		5/4/09	
11.	T. F. PHILLIPS	SIMULATOR OPERATOR		3/30/09		5/06/09	
12.	J.W. Mercer	Instructor		3/30/09		5/1/09	
13.	G/2 BRINSON	OPERATIONS MGR		4/21/09		5/1/09	
14.							
15.							

NOTES:

Fagan, Frank N.

From: steven.beck@exeloncorp.com
Sent: Wednesday, May 06, 2009 10:33 AM
To: Fagan, Frank N.
Subject: RE: Hatch Security Agreement

I concur with the statement below:
"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 04/20/09 - 04/30/09 . 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."

Steve Beck
Training Support Manager
Peach Bottom Atomic Power Station
717.456.3243

-----Original Message-----
From: Fagan, Frank N. [mailto:X2FNFAGA@southernco.com]
Sent: Wednesday, May 06, 2009 8:56 AM
To: Beck, Steven C.:(GenCo-Nuc)
Subject: Hatch Security Agreement

We have recently completed our NRC exam and are having the Security Agreement signed off. Since you are off-site we can take care of this via email.

Would you please read the below and, if you agree with it, indicate so in a reply email to me. The email will be attached to the security agreement and sent to the NRC for their final records.

Thank you.

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 04/20/09 - 04/30/09 . 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.

****

Edmund, Charlie M.

From: Vaughn, Wesley [wesley.vaughn@englobal.com]
Sent: Monday, May 11, 2009 4:17 PM
To: Edmund, Charlie M.
Subject: RE: Hatch security agreement

Hi Charlie! Good to hear from you...

Yes, I agree with the NUREG paragraph.

Hope all is well at Hatch...

Wes

-----Original Message-----
From: Edmund, Charlie M. [mailto:cmedmund@southernco.com]
Sent: Monday, May 11, 2009 3:13 PM
To: Vaughn, Wesley
Cc: Fagan, Frank N.
Subject: Hatch security agreement

Hey Wes,

Hope things are going well at your new job.

We have completed the NRC Exam for HLT 4. You are on the security agreement for this exam and we need to get you signed off.

Would you please read the below paragraph from NUREG 1021 ES 2-1-3 Security Agreement and, if you agree with it, indicate so in a reply email to me. The email will be attached to the security agreement and sent to the NRC for their final records.

Thank you.

Charlie Edmund

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 04/20/09 - 04/30/09 . 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

Facility: _Plant E. I. Hatch, HLT 4_____ Date of Examination: _4-20-2009__
Examination Level: RO SRO X Operating Test Number: __2009-301_

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations Admin 1	N, R	Verify Fuel Movements **G 2.1.35 3.9**
Conduct of Operations Admin 2	N, S	Perform ECCS Status Check and determine a valve is out of position. **G 2.1.29 4.1, 4.0**
Equipment Control Admin 3	N, R	Given a inoperable Tech Spec component, initiate a Required Action Sheet (RAS). **2.2.23, 4.6**
Radiation Control Admin 4	N, R	Given an inoperable ODCM Effluent Radiation detector, determine the required actions. **G 2.3.11, 4.3**
Emergency Procedures/Plan Admin 5	N, R	Review/Authorize Emergency Exposures **G2.4.38, 4.4**

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)

Rec'd 4/10/09

Facility: _____HATCH_____	Date of Examination: _4-20-2009__
Exam Level: RO SRO-I X SRO-U	Operating Test No.: ___2009-301_

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
a. Perform IRM Overlap Test, All IRMs Do Not Pass Test. (JP25038)	L, D, S	215003, SF 7
b. Shutdown Cooling Isolation Failure. (JP13047)	A, L, N, S	223002, SF 5
c. Diesel Generator Manual Start Surveillance (Trip Failure) (JP25034)	A, D, S	264000, SF 6
d. Perform A Manual Startup Of HPCI, Controller Failure Low, Alternate Path (JP00502b)	A, D, S	295031, SF 2
e. Over Ride And Open PSW Isolation Valves, (JP20003)	M, S	295018, SF 8
f. Override and Open MSIVs In An Emergency (JP01414)	D, S	295025, SF 3
g. Using the Override Switches, Vent the Torus With the CAD System, (JP01363)	A, M, S	295038, SF 9
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Inject SBLC Locally (JP01112) Modified with failure of the "A" pump to start requiring start of the "B" pump.	A, E, M, R	295037, SF1
j. From the Remote Shutdown Panel, Start RHR in Torus Cooling (JP00720)	D, E, R	295013, SF 5
k. Transfer 600 VAC Essential (LPCI Bus) From Normal To Alternate (JP02718)	D, R	203000, SF 4

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.

rec'd 4/10/09

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

Facility: HATCH 4/20/2009 Date of Examination: 2009-301 Operating Test Number:

	1. General Criteria	Initials a	b*	c#
a.	The operating test conforms with the previously approved outline; changes are consistent with sampling requirements (e.g., 10 CFR 55.45, operational importance, safety function distribution).	EJJ	CE	BJC
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	EJJ	CE	BJC
c.	The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)	EJJ	CE	BJC
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	EJJ	CE	BJC
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	EJJ	CE	BJC
	2. Walk-Through Criteria	--	--	--
a.	Each JPM includes the following, as applicable: • initial conditions • initiating cues • references and tools, including associated procedures • reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time-critical by the facility licensee • operationally important specific performance criteria that include: – detailed expected actions with exact criteria and nomenclature – system response and other examiner cues – statements describing important observations to be made by the applicant – criteria for successful completion of the task – identification of critical steps and their associated performance standards – restrictions on the sequence of steps, if applicable	EJJ	CE	BJC
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.	EJJ	CE	BJC
	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.	EJJ	CE	BJC

		Printed Name / Signature	Date
a.	Author	EDWARD L JONES / Edward L Jones	04/08/09
b.	Facility Reviewer(*)	CHARLES Edmund / Charles Edmund	04/08/09
c.	NRC Chief Examiner (#)	BRUNO CABALLERO / B Caballero	4/15/09
d.	NRC Supervisor	MALCOLM T. WIDMANN / Malcolm T. Widmann	04/15/09

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

Recd 4/10/09

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

Facilty: HATCH Date of Exam: 4/20/2009 Scenario Numbers: 1/2/3 Operating Test No.: 2009-301

QUALITATIVE ATTRIBUTES		Initials a	Initials b*	Initials 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.	EH	CE	BH
2.	The scenarios consist mostly of related events.	EH	CE	BH
3.	Each event description consists of • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point (if applicable)	EH	CE	BH
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.	EH	CE	BH
5.	The events are valid with regard to physics and thermodynamics.	EH	CE	BH
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	EH	CE	BH
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.	EH	CE	BH
8.	The simulator modeling is not altered.	EH	CE	BH
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.	EH	CE	BH
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.	EH	CE	BH
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	EH	CE	BH
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).	EH	CE	BH
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	EH	CE	BH

	Target Quantitative Attributes (Per Scenario; See Section D.5.d)	#1 / #2 / #3 Actual Attributes	--	--	--
1.	Total malfunctions (5–8)	7 / 6 / 5	EH	CE	BH
2.	Malfunctions after EOP entry (1–2)	2 / 2 / 1	EH	CE	BH
3.	Abnormal events (2–4)	3 / 2 / 3	EH	CE	BH
4.	Major transients (1–2)	1 / 2 / 1	EH	CE	BH
5.	EOPs entered/requiring substantive actions (1–2)	2 / 1 / 1	EH	CE	BH
6.	EOP contingencies requiring substantive actions (0–2)	1 / 2 / 1	EH	CE	BH
7.	Critical tasks (2–3)	3 / 3 / 2	EH	CE	BH

Rec'd 4/10/09

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

Facilty: HATCH 4/20/2009 Date of Exam: Scenario Numbers: 4 / Operating Test No.: 2009-301

QUALITATIVE ATTRIBUTES		Initials a	Initials b*	Initials 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.	EH	CE	BH
2.	The scenarios consist mostly of related events.	EH	CE	BH
3.	Each event description consists of • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point (if applicable)	EH	CE	BH
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.	EH	CE	BH
5.	The events are valid with regard to physics and thermodynamics.	EH	CE	BH
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	EH	CE	BH
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.	EH	CE	BH
8.	The simulator modeling is not altered.	EH	CE	BH
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.	EH	CE	BH
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.	EH	CE	BH
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	EH	CE	BH
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).	EH	CE	BH
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	EH	CE	BH

	Target Quantitative Attributes (Per Scenario; See Section D.5.d)	Actual Attributes (NC 4)	--	--	--
1.	Total malfunctions (5–8)	6 / /	EH	CE	BH
2.	Malfunctions after EOP entry (1–2)	2 / /	EH	CE	BH
3.	Abnormal events (2–4)	3 / /	EH	CE	BH
4.	Major transients (1–2)	1 / /	EH	CE	BH
5.	EOPs entered/requiring substantive actions (1–2)	2 / /	EH	CE	BH
6.	EOP contingencies requiring substantive actions (0–2)	0 / /	EH	CE	BH
7.	Critical tasks (2–3)	3 / /	EH	CE	BH

Rec'd 4/10/09

Facility: **HATCH** Date of Exam: **4/20/09** Operating Test No.: **2009-301**

APPLICANT	EVENT TYPE	Scenarios 1 CREW POSITION SRO	1 ATC	1 BOP	2 SRO	2 ATC	2 BOP	3 SRO	3 ATC	3 BOP	4 SRO	4 ATC	4 BOP	TOTAL	MINIMUM(*) R	I	U
RO ☐ SRO-I ■ SRO-U ☐	RX		3					1						2	1	**1**	0
	NOR													0	1	**1**	1
	I/C		1,4	2				2,3,4						5	4	**4**	2
	MAJ		5					6						2	2	**2**	1
	TS							3,4						2	0	**2**	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2
RO ☐ SRO-I ■ SRO-U ☐	RX	3							1					2	1	**1**	0
	NOR													0	1	**1**	1
	I/C	1,2,4							2,4	3				5	4	**4**	2
	MAJ	5							6					2	2	**2**	1
	TS	1,2												2	0	**2**	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must 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.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: **HATCH** Date of Exam: **4/20/09** Operating Test No.: **2009-301**

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		1			**2 (spare)**			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I ■ SRO-U ☐	RX					3								1	1	**1**	0
	NOR													0	1	**1**	1
	I/C					1,2	4							2	4	**4**	2
	MAJ					5								1	2	**2**	1
	TS													0	0	**2**	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2
RO ☐ SRO-I ■ SRO-U ☐	RX				3									1	1	**1**	0
	NOR													0	1	**1**	1
	I/C				1,2,4									3	4	**4**	2
	MAJ				5									1	2	**2**	1
	TS				2,4									2	0	**2**	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2

Instructions:

3. 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.

4. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: **Hatch** Date of Examination: **4/20/09** Operating Test No.: **2009-301**

Competencies	APPLICANTS															
	RO ☐ SRO-I ■ SRO-U ☐				RO ☐ SRO-I ☐ SRO-U ☐				RO ☐ SRO-I ■ SRO-U ☐				RO ☐ SRO-I ☐ SRO-U ☐			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	1 RO	2	3 SRO	4	1	2	3	4	1 SRO	2	3 RO	4	1	2	3	4
Interpret/Diagnose Events and Conditions	1,4		1,2, 4						2,3, 4		2,4					
Comply With and Use Procedures (1)	3,5		6						6,7		6					
Operate Control Boards (2)	3,6										1,6 ,8					
Communicate and Interact	all		all						all		all					
Demonstrate Supervisory Ability (3)			all						all							
Comply With and Use Tech. Specs. (3)			1,2						3,4							

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 Examination: **4/20/09** Operating Test No.: **2009-301**

(SPARE) Competencies	APPLICANTS															
	RO ☐ SRO-I ■ SRO-U ☐				RO ☐ SRO-I ☐ SRO-U ☐				RO ☐ SRO-I ■ SRO-U ☐				RO ☐ SRO-I ☐ SRO-U ☐			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	1	2 RO	3	4	1	2	3	4	1	2 SRO	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions		1,2								1,2						
Comply With and Use Procedures (1)		3,								5,7						
Operate Control Boards (2)		1,2, 3,6, 7														
Communicate and Interact		all								all						
Demonstrate Supervisory Ability (3)										all						
Comply With and Use Tech. Specs. (3)										2,4						

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: APRIL 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	2	N/A			4	3	N/A		4	20	3	4	7
	2	1	1	1				1	1			2	7	1	2	3
	Tier Totals	5	4	3				5	4			6	27	4	6	10
2. Plant Systems	1	2	2	2	4	2	2	2	2	2	3	3	26	2	3	5
	2	1	1	1	1	2	1	1	1	1	1	1	12	0 / 1	2	3
	Tier Totals	3	3	3	5	4	3	3	3	3	4	4	38	3	5	8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7
		3			3			2			2			1	2	2	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 ATier 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.

Tier / Group	Randomly Selected K/A	Reason for Rejection
1/1 (RO)	295027EK2.02	Hatch does not have Mark 3 containment; randomly re-selected 295026EK2.01
1/1 (RO)	295025 G2.1.27	Generic statement did not match high reactor pressure; randomly re-selected G2.1.23
2/1 (RO)	203000G2.4.41	Generic statement did not match RHR/LPCI Injection Mode for RO knowledge; randomly re-selected G2.4.8
2/1 (RO)	207000K5.02	Hatch does not have an Isolation Condenser; randomly re-selected 264000K5.06
2/1 (RO)	209002K6.02	Hatch does not have High Pressure Core Spray; randomly re-selected 206000K6.02
2/1 (RO)	223002K3.13	Hatch does not have an Isolation Condenser: randomly re-selected 223002K3.11
2/1 (RO)	259002A4.05	Hatch does not have run out flow reset controls; randomly re-selected 259002A4.01
2/2 (RO)	201004K4.02	Hatch does not have rod sequence control system (RSCS) any longer; randomly reselected 201001K5.02
1 /2 (SRO)	295011AA2.01	Hatch does not have a Mark 3 containment; randomly re-selected 295017AA2.01
2 /1 (SRO)	262002A2.04	Hatch is a BWR 4 (vs BWR 1); randomly reselected 262002A2.01
		After 3/25/09 in-office visit w/ Hatch:
2/1 (RO)	262002A3.01	This K/A will be double jeopardy for SRO Q#80 (262002A2.01); consequently replaced K/A w/ 262002 K3.01 [None of the remaining abilities would work for the same reason or they were not applicable at Hatch] Sample Plan Tier totals still meet ES-401-1 requirements, i.e., at least 2 in each category.
3/3 (RO)	G2.3.7	Cannot write a discriminating question for Radiation Work Permit topic; replaced w/ randomly selected G2.3.13
2/1 (SRO)	300000 A2.01	Cannot write a discriminating question at the SRO level for instrument air filter malfunctions; replaced w/ randomly selected 223002 A2.06

ES-401 BWR Examination Outline Form ES-401-1
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO / SRO)

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					R 295001 AK2.03	R3.6	
295003 Partial or Complete Loss of AC / 6						R	R 295003 G2.4.34	R4.2	
295004 Partial or Total Loss of DC Pwr / 6				R			R295004 AA1.03	R3.4	
295005 Main Turbine Generator Trip / 3			R				R 295005 AK3.04	R3.2	
295006 SCRAM / 1	R					S	R 295006 AK1.01 S295006 G2.1.27	R3.7	≤ 4.0
295016 Control Room Abandonment / 7					R		R 295016 AA2.01	R4.1	
295018 Partial or Total Loss of CCW / 8			R				R 295018 AK3.03	R3.1	
295019 Partial or Total Loss of Inst. Air / 8					R		R 295019 AA2.02	R3.6	
295021 Loss of Shutdown Cooling / 4					S	R	R 295021 G2.4.35, S295021 AA2.03	R3.8	S3.5
295023 Refueling Acc / 8				R		S	R 295023 AA1.04, S295023 G2.4.45	R3.4	S4.3
295024 High Drywell Pressure / 5					R		R 295024 EA2.06	R4.1	
* 295025 High Reactor Pressure / 3						R	R 295025 G2.1.23	R4.3	
* 295026 Suppression Pool High Water Temp. / 5		R			S		S295026 A2.03 R 295026 EK2.01	R3.9	S3.9
* ~~295027 High Containment Temperature / 5~~									
295028 High Drywell Temperature / 5				R	S		R295028 EA1.03, S295028 EA2.04	R3.9	S4.2
295030 Low Suppression Pool Wtr Lvl / 5	R						R295030 KE1.02	R3.5	
295031 Reactor Low Water Level / 2				R			R295031 EA1.01	R4.4	
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1		R					R295037 EK2.12	R3.6	
295038 High Off-site Release Rate / 9	R					S	R295038 EK1.02, S295038 G2.4.9	R4.2	S4.2
600000 Plant Fire On Site / 8	R					S	R600000 AK1.01, S600000 G2.4.49	R2.5	S4.4
700000 Generator Voltage and Electric Grid Disturbances / 6						R	R700000 G2.4.4	R4.5	
K/A Category Totals:	4	3	2	4	3	4	Group Point Total: 20/		20/7

3 4 7

ES-401 BWR Examination Outline Form ES-401-1
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO / SRO)

	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						S	S295008G2.4.20		S4.3
	295009 Low Reactor Water Level / 2									
	295010 High Drywell Pressure / 5						R	R295010G2.2.22	R4.0	
*	295011 High Containment Temp / 5									
	295012 High Drywell Temperature / 5									
	295013 High Suppression Pool Temp. / 5		R					R295013AK2.01	R3.6	
	295014 Inadvertent Reactivity Addition / 1						S	S295014G2.2.40		S4.7
	295015 Incomplete SCRAM / 1						R	R295015G2.2.42	R3.9	
*	295017 High Off-site Release Rate / 9					S		S295017AA2.01		S4.2
	295020 Inadvertent Cont. Isolation / 5 & 7	R						R295020AK1.05	R3.3	
	295022 Loss of CRD Pumps / 1									
	295029 High Suppression Pool Wtr Lvl / 5									
	295032 High Secondary Containment Area Temperature / 5				R			R295032EA1.03	R3.7	
	295033 High Secondary Containment Area Radiation Levels / 9									
	295034 Secondary Containment Ventilation High Radiation / 9									
	295035 Secondary Containment High Differential Pressure / 5					R		R295035EA2.02	R2.8	
	295036 Secondary Containment High Sump/Area Water Level / 5									
	500000 High CTMT Hydrogen Conc. / 5			R				R500000EK3.06	R3.1	
	K/A Category Point Totals:	1	1	1	1	1	2	Group Point Total: 7/		7/3

1 2 3

ES-401 BWR Examination Outline Plant Systems - Tier 2/Group 1 (RO / SRO) Form ES-401-1

	System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	IR	#
*	203000 RHR/LPCI: Injection Mode											R	R203000G2.4.8	R3.8	
	205000 Shutdown Cooling		R										R205000K2.01	R3.1	
*	206000 HPCI					R	R						R206000K5.08, R206000K6.02	R3.0 R3.3	
*	~~207000 Isolation (Emergency)~~ Condenser														
	209001 LPCS										R R		R209001A4.04, R209001A4.05	R2.9 R3.8	
*	~~209002 HPCS~~														
	211000 SLC				R								R211000K4.03	R3.8	
	212000 RPS							R				S	R212000A1.07, S212000G2.2.36	R3.4	S4.2
	215003 IRM							R					R215003A1.03	R3.6	
	215004 Source Range Monitor						R						R215004K6.01	R3.2	
	215005 APRM / LPRM											R R	R215005G2.1.20, R215005G2.4.11	R4.6 R4.0	
	217000 RCIC		R										R217000K2.03	R2.7	
	218000 ADS	R											R218000K1.06	R3.9	
*	223002 PCIS/Nuclear Steam Supply Shutoff			R									R223002K3.11	R2.8	
	239002 SRVs									R		S	R239002A3.01, S239002G2.4.18	R3.8	S4.0
*	259002 Reactor Water Level Control										R	S	R259002A4.01, S259002G2.4.20	R3.8	S4.3
	261000 SGTS								R				R261000A2.12	R3.2	
	262001 AC Electrical Distribution				R R								R262001K4.02 R262001K4.05	R2.9 R3.4	
*	262002 UPS (AC/DC)								S	R			R262002A3.01, S262002A2.01	R2.8	S2.8
	263000 DC Electrical Distribution								R				R263000A2.02	R2.6	
*	264000 EDGs				R	R							R264000K4.06, R264000K5.06	R2.6 R3.4	
*	300000 Instrument Air	R							S				R300000K1.03, S300000A2.01	R2.8	S2.8
	400000 Component Cooling Water			R									R400000K3.01	R2.9	
	K/A Category Point Totals:	2	2	2	4	2	2	2	2	2	3	3	Group Point Total: 26/		26/5

2 3 5

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					R							R201001K5.02	R2.6	
201002 RMCS														
201003 Control Rod and Drive Mechanism														
~~201004 RSCS~~														
201005 RCIS														
201006 RWM														
202001 Recirculation				R								R202001K4.07	R2.8	
202002 Recirculation Flow Control														
204000 RWCU										R		R204000A4.09	R2.9	
214000 RPIS														
215001 Traversing In-core Probe									R			R215001A3.03	R2.5	
215002 RBM						R						R215002K6.04	R2.8	
216000 Nuclear Boiler Inst.														
219000 RHR/LPCI: Torus/Pool Cooling Mode														
223001 Primary CTMT and Aux.			R									R223001K3.09	R2.8	
226001 RHR/LPCI: CTMT Spray Mode		R										R226001K2.02	R2.9	
230000 RHR/LPCI: Torus/Pool Spray Mode														
233000 Fuel Pool Cooling/Cleanup											R S	R233000G2.2.25, S233000G2.1.28	R3.2	S4.1
234000 Fuel Handling Equipment														
239001 Main and Reheat Steam					R							R239001K5.09	R3.4	
239003 MSIV Leakage Control														
241000 Reactor/Turbine Pressure Regulator	R											R241000K1.25	R2.8	
245000 Main Turbine Gen. / Aux.														
256000 Reactor Condensate														
259001 Reactor Feedwater														
268000 Radwaste								R			S	R268000A2.01, 268000G2.4.21	R2.9	S4.6
271000 Offgas														
272000 Radiation Monitoring														
286000 Fire Protection							R					R286000A1.01	R2.9	
288000 Plant Ventilation														
290001 Secondary CTMT								S				S290001A2.04		S3.7
290003 Control Room HVAC														
290002 Reactor Vessel Internals														
K/A Category Point Totals:	1	1	1	1	2	1	1	1	1	1	1	Group Point Total: 12/		12/3
								1			2	3		

Facility: HATCH Date of Exam: April 2009

Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.27	RO	3.9	1		
	2.1.31	RO	4.6	1		
	2.1.39	RO	3.6	1		
	2.1.20	SRO			4.6	1
	2.1.					
	2.1.					
	Subtotal					
2. Equipment Control	2.2.15	RO	3.9	1		
	2.2.25	RO	3.2	1		
	2.2.39	RO	3.9	1		
	2.2.11	SRO			3.3	1
	2.2.7	SRO			3.6	1
	2.2.					
	Subtotal					
3. Radiation Control	2.3.14	RO	3.4	1		
*	2.3.7	RO	3.5	1		
	2.3.11	SRO			4.3	1
	2.3.5	SRO			2.9	1
	2.3.					
	2.3.					
	Subtotal					
4. Emergency Procedures / Plan	2.4.1	RO	4.6	1		
	2.4.9	RO	3.8	1		
	2.4.22	SRO			4.4	1
	2.4.30	SRO			4.1	1
	2.4.					
	2.4.					
	Subtotal					
Tier 3 Point Total				10		7

Tier / Group	Randomly Selected K/A	Reason for Rejection
1/1 (RO)	295027EK2.02	Hatch does not have Mark 3 containment; randomly re-selected 295026EK2.01
1/1 (RO)	295025 G2.1.27	Generic statement did not match high reactor pressure; randomly re-selected G2.1.23
2/1 (RO)	203000G2.4.41	Generic statement did not match RHR/LPCI Injection Mode for RO knowledge; randomly re-selected G2.4.8
2/1 (RO)	207000K5.02	Hatch does not have an Isolation Condenser; randomly re-selected 264000K5.06
2/1 (RO)	209002K6.02	Hatch does not have High Pressure Core Spray; randomly re-selected 206000K6.02
2/1 (RO)	223002K3.13	Hatch does not have an Isolation Condenser: randomly re-selected 223002K3.11
2/1 (RO)	259002A4.05	Hatch does not have run out flow reset controls; randomly re-selected 259002A4.01
2/2 (RO)	201004K4.02	Hatch does not have rod sequence control system (RSCS) any longer; randomly reselected 201001K5.02
1 /2 (SRO)	295011AA2.01	Hatch does not have a Mark 3 containment; randomly re-selected 295017AA2.01
2 /1 (SRO)	262002A2.04	Hatch is a BWR 4 (vs BWR 1); randomly reselected 262002A2.01
		After 3/25/09 in-office visit w/ Hatch:
2/1 (RO)	262002A3.01	This K/A will be double jeopardy for SRO Q#80 (262002A2.01); consequently replaced K/A w/ 262002 K3.01 [None of the remaining abilities would work for the same reason or they were not applicable at Hatch] Sample Plan Tier totals still meet ES-401-1 requirements, i.e., at least 2 in each category.
3/3 (RO)	G2.3.7	Cannot write a discriminating question for Radiation Work Permit topic; replaced w/ randomly selected G2.3.13
2/1 (SRO)	300000 A2.01	Cannot write a discriminating question at the SRO level for instrument air filter malfunctions; replaced w/ randomly selected 223002 A2.06

Facility: PLANT E.I. HATCH Date of Exam: 04/30/2009 Exam Level: RO ☑ SRO ☑

Item Description					Initial a	Initial b*	Initial c#
1.	Questions and answers are technically accurate and applicable to the facility.				EH	CE	BK
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.				EH	CE	BK
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401				EH	CE	BK
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).				N-1	N-1	BK
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 ☑ the licensee certifies that there is no duplication; or __ other (explain)				EH	CE	BK
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: 9%/0%	Modified: 20%/12%	New: 71%/88%	EH	CE	BK
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: 43%/8%	C/A: 57%/92%		EH	CE	BK
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.				EH	CE	BK
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.				EH	CE	BK
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.				EH	CE	BK
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.				EH	CE	BK

	Printed Name / Signature	Date
a. Author	ED JONES / Ed Jones	04/27/09
b. Facility Reviewer (*)	CHARLES Edmund / Charles Edmund	04/27/09
c. NRC Chief Examiner (#)	BRUNO CABALLERO / B. Caballero	4/27/09
d. NRC Regional Supervisor	MARK A. BATES FOR MW DOWNEY / Mark A. Bates	04/27/2009

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.

N-1: NRC developed Sample Plan and provided to licensee in 2008.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
GEN		3				8	7	3				6				RO Exam Review Summary: 13 Sat items; 5 items Enhancement Suggestions; ~~30~~ 43 "Req'd" Enhancement Items; ~~27~~ 14 UNSAT items (36%) [breakdown of reasons to the left]
GEN		1				2	1					2	6			SRO Exam Review Summary: 1 Sat item; 1 item Enhancement Suggestion; ~~11~~ 17 "Req'd" Enhancement Items; ~~12~~ 6 UNSAT items (48%) [breakdown of reasons to the left]
GEN	32/43															Review of RO Higher Order Items: 43/75 = 57.3%
GEN																Several cases of when the use of fill-in-the-blank statement(s) made the questions less precise and/or too long. (Q# 22, 25, 28, 55, 60, 66)
GEN																Several questions have potential overlap issues with other test questions (43/53, 47/61, 75/87). Questions with very close K/As or topics should be justified in the remarks section for the questions.
GEN																It's okay to limit the written questions to the current Recirc MG set configuration even though the simulator may reflect the next version (Variable Frequency Drives). The applicants have been trained on both versions and could be tested on the new version during the operating exam if the licensee implements the mod. If the mod is not implemented, then the licensee will provide "gap" training before the mod is implemented in the actual plant.
GEN																[Jan 09] Initial DRAFT validation (5 SROs + 3 ROs) indicated 4 to 5 hours to complete and scores ranging from 56 (SRO exam) to 84.
GEN																For regional consistency, put all references that will be distributed to the applicants in one handout package. Remove the graphs from the stem of the questions.

Instructions

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

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

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
1	H	2		x		x								N	~~U~~ ~~E~~ S	201001 K5.02 1. Cred Dist: The 1st part of "C" and "D" (lower than normal) is not plausible because the 2nd part of these choices [excessive cooldown and pump runout, respectively] aren't potential implications of lower than normal flow indication. For example, high CRD temperature may be a potential implication of a lower than normal CRD flow condition. 2. Cues: The phrase in the first sentence ["....in which the CRD pump remains running..."] is not necessary because the CRD pump would normally stay running following a scram. The applicant should assume that the plant equipment performs as designed. This phrase could cue an operator applicant who thinks that the pump normally trips. (thus making "c" and "d" less plausible.) 3. Cues: The word "SIGNIFICANTLY" in the stem is not necessary to elicit the required response and can potentially cue an operator that "A" and "B" are correct because they each contain a synonymous word, i.e., "EXCESSIVE." 4. 04/24/09: Changes incorporated; question now includes two figures to choose from for CRD flow indication. Question is SAT
2	H	2												N	~~E~~ S	202001 K4.07 1. Because the last choice "D" is not counterbalanced [NUREG 1021, Appendix B, Section C.2.f], then an applicant who does not know the MG set trips may not pick "D" because it does not look like the other choices. Options are to make another choice into two sentences OR make "D" say ONLY the 1A Reactor Recirc pump will trip. 2. Be consistent on use of capital letters. 1st bullet in stem uses lower case letters whereas choices all have upper case. Consider eliminating the word "reactor" 3. 4/24/09: Changes incorporated; Question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
3	H	2					x							N	~~U~~ S	203000 G2.4.8 1. Partial: "D" can potentially be argued as correct because the word "required" could be interpreted to mean that not all ECCS pumps are necessary to reverse the lowering level trend. 2. Partial: "A" can potentially be argued as correct because the following is a TRUE statement: "IAW 34AB-R23-001-2, "Loss of 600 Volt Emergency Bus", energizing 600 VAC bus "2C" using the 4160/600V "2CD" Transformer is NOT allowed until the reactor is in Mode 4. ←- True statement. Suggest the following: "WOOTF completes the following statement?" In accordance with CP-1 (Alternate Level Control, Steam Cooling, and Emergency Depressurization) and 34AB-R23-001-2 (Loss of 600 Volt Emergency Bus), ….the operator ____(1)_____ to use the "2CD" transformer and LPCI injection and DW Spray flow _____(2)_____ used concurrently. a. is permitted; may be b. is permitted; may NOT be c. is NOT permitted; may be d. is NOT permitted; may NOT be 3. 01-9-09: Licensee pointed out that since the injection valve power supplies are affected in this question that the "D" choice could not be argued as correct. Also, Comment #2 is easily corrected by using a phrase "given these plant conditions." Changed "A" & "B" to "NOT"; "C" & "D" changed to "allowed when discharge pressure lowers." 4. 4/24/09: Question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
4	~~H~~ F	2		x										N	~~E~~ S	204000 A4.09 1. Cues: The second sentence in the stem contains a cue, i.e., parenthesis phrase ("Blowdown mode to the Main Condenser"). An applicant may not know the RWCU alignment for vessel level control and this information is not required to elicit the correct response. 2. To prevent subset issues, refine the choices to clarify ONLY and also to eliminate the reasons: a. ONLY at the 2H11-P602 panel; OPEN b. ONLY at the 2H11-P602 panel; CLOSED c. At the 2-H11-P602 AND 2-H11–P614 panels; OPEN d. At the 2-H11-P602 and 2-H11–P614 panels; CLOSED 3. 4/24/09: Comments incorporated; Question is SAT
5	~~F~~	2						x						M	~~E~~ S	205000 K2.01 1. Change the stem question to read "WOOTF predicts the status of the RHR Pumps? 2. Consider streamlining "A" and "D" to read BOTH pumps remain running (BOTH pumps have tripped). 3. Job-Link: Is it normal to have 2 loops running in SDC'g? Discuss w/ licensee. 4. According to licensee, procedure allows two loops running in SDC'g, e.g., when swapping loops. [Placing 2nd Loop of SDC'g In Service W Unit in CSD or Refuel, Parallel SDC'g loop operation: 34SO-E11-010, Section 7.4.4.]

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
6	H	2		x			x							N	~~E~~ S	206000 K5.08 1. Partial: An applicant may argue that there is no correct answer because the phrase "discharge directly to the suppression chamber air space" could be interpreted to mean that the main flowpath for the HPCI steam exhaust will be limited to the torus airspace (not true, even though this is the first part of the correct answer "B"). The HPCI steam exhaust would be *partially* discharging to the airspace. 2. Cue: The applicant is allowed to ask for noun name of a valve (i.e., 2E41-F104). The noun name of this valve would potentially give away the answer since it is the only choice with this. Suggest re-wording the question as follows: "WOOTF identifies the potential impact of these check valve failures during a subsequent HPCI auto-initiation on low reactor water level, including the control room indications for these check valves?" a. water hammer in the HPCI steam exhaust line; these check valves have no control room indication b. high torus pressure; these check valves have position indication available in the main control room. c. Water hammer in the HPCI steam exhaust line: these check valves have position indication available in the main control room. d. High torus pressure; these check valves have no control room indication. 3. 4/24/09: Comments incorporated; Question is SAT
7	H	2												N	S	206000 K6.02
8	~~F~~	2												N	S	209001 A4.04

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
9	H	2		x		x								N	~~E~~ S	209001 A4.05 1. Cues: The stem question contains the phrase "IAW 30AC-OPS-003-0, Plant Operations." This phrase can cue an applicant (who doesn't know the auto-initiation setpoint) that either 1) the setpoint must be quickly approaching and conservative decision making to manually start the pumps is prudent OR 2) the auto-start may not have occurred. 2. Note: The question stem contains 30AC-OPS-003-0 however; the question references section in LXR has NMP-OS-007. Are there two different procedures with the same requirement? 3. Cred Dist: LXR plausibility explanation states that procedure auto-start setpoint is -101" whereas TS setpoint is -113". What does "procedure auto-start setpoint" mean? 4. 04/24/09: Comment #1 incorporated. Question is SAT
10	~~F~~	1	x				x							N	~~U~~ S	211000 K4.03 1. Partial: The first fill-in-the-blank statement asks for the "primary" means of ensuring that boron remains in solution. The word "primary" is undefined. During normal operation the air sparger is used prior to taking samples. The air sparger can potentially be argued as a "primary" means to ensuring boron remains in solution. 2. Stem Focus: The 2nd fill-in-the-blank statement is worded in a way that suggests that the tank heaters ensure the reactor will remain in hot shutdown irrespective of control rod position. [The 32% level ensures that the reactor will remain subcritical *provided the plant remains* in hot shutdown.] Therefore, there is potentially no correct answer. 3. LOD=1: This question is borderline AO knowledge (with the exception of the HSD [B]. Suggest keeping the 2nd part and re-working the 1st part to ask about any control room alarms that reflect a situation where the heaters aren't working correctly. 4. 4/24/09: Comments incorporated; Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
11	~~H~~ F	2	x					x						N	~~E~~ S	212000 A1.07 1. Job-Link: Is there ever a time where the operator would perform this evolution at 100% power? Which procedure is being used to perform this evolution? Discuss w/ licensee 2. Stem Focus: Which specific rod position information at 2H11-P603 is the stem question referring to? Is it the 4-rod group display? Is it the full core display? 3. 4/24/09: Changed to 30% power. Changed choices to include full-in; intermediate; blank overtravel beyond full-in. Question is SAT
12	H	2				x								M	~~U~~ S	215001 A3.03 1. Cred Dist: "A" and "C" are not plausible because BWR shear valves (SLC, TIP) must be manually actuated. An automatic shear valve is not a common misconception. (See NUREG Appendix B, C.2.g) Therefore, with no operator action, automatic severing of the TIP can never occur. 2. 4/24/09: Licensee re-worked question to ask about TIP position following a group 2 isolation signal. Question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
13	F	2	x			x								B	~~E~~ S	215002 K6.04 1. Cred Dist: "A" is not plausible because all the other choices are "actions". "A" is the only choice that is not an action. 2. Stem Focus: Can the RBM automatically shift without a rod selected? Suggest re-working the question as follows: The operator is moving a centrally located control rod when the APRM "B" channel fails upscale. While the control rod remains selected, the operator bypasses the APRM "B" using the joystick. WOOTF identifies the effect this action will have on the RBM "B" Channel? a. The RBM will automatically use the "C" APRM channel to monitor the neutron flux in the locality of the selected rod. b. The RBM will automatically use the "C" APRM channel to determine one of three upscale setpoints. c. The RBM will automatically use the "D" APRM channel to monitor the neutron flux in the locality of the selected rod. d. The RBM will automatically use the "D" APRM channel to determine one of three upscale setpoints. 3. 4/24/09: Licensee incorporated comments. Question is SAT
14	H	3												M	S	215003 A1.03

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
15	H	2				x								N	~~E~~ S	215004 K6.01 1. Cred Dist: "A" is not plausible because the SRM was withdrawn before the voltage failure happened and there wasn't a rod block at that time. Suggest re-wording the last bullet in the stem as follows: The "1A" SRM chassis at Panel H11-P606 experiences a failure that causes the detector supply voltage to lower to 20VDC. The SRM indication dropped to 10 cps. WOOTF choices completes the following statement? A Control Rod Block ___(1)___ occur because ___(2)__ a. will; the SRM count rate is at the downscale setpoint b. will; the detector voltage is low c. will NOT; of the IRM Range switch positions d. will NOT; the SRM count rate is still reading 10 cps 2. Cues: The last bullet in the stem provides the normal detector voltage (350VDC) and this information is not required to elicit the correct response. 3. Cues: The "B" choice provides the word "INOP" trip versus simply stating the condition, i.e., high voltage low. 4. 4/24/09: 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.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
16	H	2		x								x		N	~~U~~ ~~E~~ S	215005 G2.1.20 1. Cred Dist: "C" and "D" are not plausible because if one of these choices was correct, then the other choice would also be correct. (always want to maintain vacuum and stay in allowable region) Therefore, an applicant who does not know the OPRM immediate actions can eliminate both of these choices. 2. Q=K/A: Question is more associated with the recirculation system (MG set power supply, immediate operator actions for dual pump trip) than with the APRM/LPRM/OPRM system. Suggest modifying the question to more directly hit target neutron monitoring system K/A: Unit 1 is operating at 100% power with all OPRMs inoperable when the 1B Reactor Recirc Pump trips. WOOTF actions is required, including the reason for the action? a. Manual Scram; all OPRMs are inoperable b. The APRM simulated thermal power (STP) high trip setpoint must be changed; Two Recirc Loops are not operating c. The APRM simulated thermal power (STP) high trip setpoint must be changed; all OPRMs are inoperable d. Manual Scram; Region of Potential Instabilities has been entered 3. What is the power supply to the MG set lube oil system? Is it fed from the "1B" 4160 VAC bus? 4. Cues: This question may provide the applicant with a cue for Q#68. Discuss double jeopardy with the licensee. The question is testing the same thing as Q#68, i.e., reactor must be scrammed when OPRMs are inoperable 5. 01-29-09: Discussion w/ licensee indicated that "C" was plausible to insert rods to get the plant above 25 " Hg. Since "D" is the only one left that is not plausible, then this is enhancement.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
17	H	2		x										N	~~E~~ S	215005 G2.4.11 1. Cues: The last bullet in the stem ["No entry conditions for the EOP flow charts have been met or exceeded."] is telling the operator that a scram condition with reactor power at 3% isn't an EOP entry condition. This could provide information for other questions on the test. Discuss w/ licensee. May need to provide DW pressure, RPV level, etc. 2. 4/24/09: Comments incorporated; Question is SAT
18	~~F~~	2												N	S	217000 K2.03
19	H	3	x	x										M	~~E~~ S	218000 K1.06 1. Cues: The 2nd bullet is not necessary because the first sentence states that a loss of offsite power has occurred. This bullet is "teaching" the applicant the impact of a loss of offsite power on the 4160 VAC Distribution system. This information is not necessary to elicit the correct response. 2. Cues: The two bullets after the diesel is started [Core Spray auto starts at shut off head] is "teaching" the applicant the CS low level setpoint and also is alerting him that these are low pressure pumps. This information is not necessary to elicit the correct response. 3. Stem Focus: Spell out LOSP [Loss of offsite Power] 4. 04/24/09: Enhanced stem by incorporating time line; 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			
20	~~F~~ H	1				x		x				x		N	~~U~~ ~~E~~ S	223000 K3.09 1. Q=K/A & LOD=1: This question is not a plant specific question. This is a GFES question, i.e., high containment temperature always makes level instruments read higher than actual. ["B" correct]. Suggest developing the question to target a Caution 1 situation. 2. Cred Dist: "C" and "D" are not credible because they defy the fundamental GFES principle (i.e., they each state that indicated level will be less than actual). 3. Job-Link: The stem states "If all other parameters remain the same…". This phrase could potentially make the question invalid because in the actual plant other parameters (level, DW pressure, reference leg temperatures, etc.) WILL change. 4. 01-29-09: Discussed w/ licensee that some level instruments are compensated for reactor pressure or drywell temperature (Fuel zone and wide range); Therefore, question is plant specific and distractors plausible. 5. 4/24/09: Licensee wrote new question to require evaluating Caution 1 - - requires distributing reference but avoids interference w/ SRO Q# 79. Question is SAT.
21	H	2	x									x		N	~~U~~ S	223002 K3.11 1. Q=K/A: The question is written to target 290003 (Control Room HVAC), K1.04 (Knowledge of the physical connections and/or cause effect relationships between CONTROL ROOM HVAC and Nuclear Steam Supply Shutoff System (NSSSS/PCIS). This is not the correct K/A. The correct K/A should target how a loss or malfunction of the PCIS system will affect one of the plant ventilation systems. Suggest writing a question where an RPS MG set trips and ask applicant to predict RX Bldg HVAC valve status/indications. 2. Stem Focus: The correct answer "D" reads as if this action is required to be performed manually (i.e., "must be aligned to the Pressurization mode). This shift will occur automatically. 3. 04/24/09: Licensee targeted RPS MG set trip impact; however, licensee proposed manual alignment as incorrect choices (not plausible). Subsequently modified to have choice either Isolation mode or Pressurization mode. Question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
22	H	2	x											B	S	226001 K2.02 1. Stem Focus: Combine the first sentence with the first bullet. 2. Stem Focus: Re-word the 3rd bullet to say "1A and 1B RHR pumps are running in the Torus Spray Mode" 3. Stem Focus: Make the fill-in-the-blank statement into one sentence (vs. bulletized). 4. 4/24/09: Comments incorporated; Question was SAT already.
23	~~F~~	2	x									x		N	~~U~~ ~~E~~ S	233000 G2.2.25 1. Q=K/A: The question does not require knowledge of the bases for this tech spec. Suggest providing TS Bases Figure B3.5-21 and re-word question to also ask the applicant to identify the point of reference on typical fuel bundle from where level is measured. Since this information is included in the bases, this will meet the K/A. 2. Stem Focus: The first sentence needs to specify that fuel movements are occurring IN THE FUEL POOL. Otherwise, TS 3.7.8 does not apply. 3. 01-29-09: Discussed w/ licensee that RO knowledge of fuel pool level TS may be sufficient to meet K/A since ROs are only responsible for bases associated with TS safety limits. 4. 04-24-09: Allowed licensee to use LCO 3.7.8 requirements to meet KA. Comment #2 incorporated; Question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
24	H	2	x	x										N	~~E~~ S	239001 K5.09 1. Cues: The second part of the first sentence (…and a main turbine trip occurred.) and cue an unknowledgeable applicant that the stop valves and control valves are closed. This information is not necessary to elicit the correct response, because the actions of TC-1 will ensure the turbine is tripped. 2. Stem Focus: Re-word the 2nd sentence: "The operators have completed the following placards IAW 34AB-C71-001-2, Scram Procedure: 3. Stem Focus: Include the titles for each of the placards 4. Stem Focus: Re-word the stem question: "WOOTF identifies a component that will still be contributing to the RPV cooldown? 5. 4-24-09: Comments incorporated; Question is SAT
25	~~H~~ F	2	x	x										M	~~E~~ S	239002 A3.01 1. Cue: The 1st bullet could provide a cue to an unknowledgeable applicant that ADS will cease at 50 psig. Suggest stating that Reactor pressure is at 39 psig. 2. Stem Focus: Re-word the stem question as follows: "WOOTF predicts which ADS valve light indications are illuminated at Panel H11-P602? 3. Stem Focus: The fill-in-the-blank statement may be confusing to some applicants. Discuss the following with the licensee: a. ONLY the red light is illuminated b. ONLY the red and green lights are illuminated c. ONLY the red and amber lights are illuminated d. The red, amber, and green lights are ALL illuminated 4. 4-24-09: Comments incorporated; Question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
26	H	3	x			x								M	~~E~~ S	241000 K1.25 1. Cred Dist: "C" and "D" are virtually the same. If they are different, the choices require additional clarification as to which comes first (pressure scram signal vs neutron flux signal). This is impossible to predict. Suggest re-wording "C" and "D" as follows: c. turbine control valves throttling closed, followed by a control valve position scram signal d. turbine control valves throttling closed, followed by a high reactor pressure scram signal 2. Stem Focus: Ensure that the 1st three bullets are the exact wording on the labels at the control panel. 3. Ensure that this is verified on the simulator. This question has the potential to be invalid if the plant response is more than one option. 4. 4-24-09: Licensee ran on simulator and found that runback always begins from 100%; therefore, the amount of time to get the load limit below 35% exceeds the amount of time allowed before the turbine trips. Remedy was to tell them that a runback was occurring (providing a timeline) and then asking which controlling valve caused runback and final status of turbine. Question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
27	H	3					x	x						N	~~U~~ S	259002 A4.01 1. Job-link: The question poses a scenario which may not be addressed by 34SO-N21-007-2, i.e., unplugging the RFP controller and transitioning to the speed setter mode of control. Section 7.3.7 (RFPT Alternate Startup) is written for rolling the feed pump and using the speed setter to control RPV injection manually. Section 7.3.8, (RFPT Recovery From Loss of Normal Speed Control) appears to be the closest procedure for this postulated scenario. In this case, it appears that as soon as the RFP controller is unplugged that the speed setter will take over. (Confirm w/ licensee). 2. Job-Link: Assuming that the postulated scenario can be addressed by 34SO-N21-007-2, Section 7.3.8 (RFPT Recovery From Loss of Normal Speed Control), then this procedure does not contain guidance with respect to continuing a plant startup. In fact, conservative decision-making and plant management could require that power be maintained until the RFP controller is replaced. 3. Partial: Since the speed setter automatically takes over control when the RFP controller is unplugged, this question is more targeted to the plant management decision to continue the startup versus only testing the applicant's knowledge of the manual speed setter operation. In this case, the applicant could potentially argue several correct choices, i.e., test item would have to be thrown out. Suggest removing the portion of the each choice related to whether the startup may/may not continue and only test on the controls/alarms that are pertinent to this mode of manual operation. 4. 4-24-09: Re-aligned question more closely w/ procedure guidance and eliminated RO making decision whether startup could continue. Licensee focused question on systems knowledge. Question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
28	H	2	x									x		B	~~U~~ S	261000 A2.12 1. Q=K/A: The item (as written) does not require the applicant to use procedures to correct, control, or mitigate the consequences of the high rad level situation. The 2nd portion of the question is a "verification" step of actions that occur automatically. An example of meeting this K/A would be to require the applicant identify the procedure that contained the verification steps or require the applicant to identify procedure actions to minimize any additional fuel bundle damage. 2. Stem Focus: Re-word the first fill-in-the-blank statement as follows: "The total number of Standby Gas filtration trains that will automatically start is ___(1)___." [Unit 1 and Unit 2 parenthesis information is not required to elicit the correct response since the choices imply both units.] 3. 4-24-09: Licensee's replacement still had only systems knowledge and didn't target the A2 K/A req't. Added AOP entry requirements. Question is SAT
29	H	3				x						x		N	~~E~~ S	262001 K4.02 1. Q=K/A: This item (as written) more appropriately tests K/A 262001 K3.06 [how a loss of AC affects RPS]. The required K/A is knowledge of circuit breaker features that cause automatic breaker trips. Suggest keeping the stem and asking the applicant to predict how the 4160VAC breakers will respond (vs. how RPS will respond). 2. Partial: "C" is not plausible because the word "significant" is relative; therefore, an applicant would deduce that the 2G normal feeder transient was a significant threat to plant operation (already) and then eliminate this choice only based on the meaning of the word "significant." 3. 4-24-09: Comments incorporated; Question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
30	~~F~~	1												M	~~U~~ S	262001 K4.05 1. LOD=1: Need to add another element related to an interlock or design feature to this question to ensure LOD = 2 or more. (NUREG Appendix B, Section C, Low Discriminatory Validity) 2. 4-24-09: Licensee changed to require applicant's knowledge of Test Switch position and light indication required for breaker closure.
31	~~F~~	2										x		N	~~S~~ ~~U~~ S	262002 A3.01 1. Q=K/A: Sort of matches the K/A. Seems more like previous K2 K/A (now deleted) "Knowledge of electrical power supplies to the …" Consider adding something to the question requiring the applicant to know that the power does/does not flow through the Vital AC Static Transfer Switch. 2. 4-24-09: Due to double jeopardy w/ SRO Q# 80; licensee unable to write a discriminating question that avoided double jeopardy; therefore, another K/A selected. New question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
32	F	2	x				x			x				B	E S	263000 A2.02 1. Partial: "D" can be potentially argued as correct since step 4.2.1 in the procedure, directs the operator to shutdown operating equipment or reduce load on the equipment if ventilation cannot be restored. 2. Stem Focus & Q=K/A: The stem question does not match the choices, i.e., the choices include a reason. The stem should state that the batteries are being charged (i.e., float vs. equalize) Re-word the stem question to better target the choices and meet the K/A…i.e., "WOOTF predicts how the DC Electrical System is affected by the loss of ventilation and also identifies a required action in accordance with 34AB-T41-001-2, Loss of ECCS, MCREC, or Area Ventilation System(s)? 3. #/units: reword "A" to say "Start Emergency Exhaust Fans 2Z41-C014 and 2Z41-C015." Refine each choice to have an impact and a procedure action. 4. 4-24-09: Licensee's proposed new question included the word "significant", which is subjective. This was changed. Question is SAT.
33	F	2				x								M	E S	264000 K4.06 1. Cred Dist: "C" is not plausible because an applicant who does not know the Woodward Governor will choose between 0 and 10 and always pick 0. Consider asking which knob (and providing the picture in the stem) at 0 will cause the fuel supply to shut off. (speed droop, synchronizer, load limit, and syn indicator.) 2. 4-24-09: Comment incorporated; Question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
34	H	3												N	~~E~~ S	264000 K5.06 1. Stem Focus: Limit each choice to correct or NOT correct. The words "operational implication" are not necessary to meet the K/A because one implied operational implication of load sequencing (as it applies to Diesels) is the precise time at which a piece of equipment becomes available to the operator. 2. 4-24-09: Comment incorporated; Question is SAT
35	H	3												N	S	268000 A2.01
36	~~F~~	2	x											B	~~E~~ S	286000 A1.01 1. Stem Focus: Re-word the 1st sentence as follows: "A Turbine Building fire protection sprinkler system actuation causes the fire main header pressure to lower to 98 psig. 2. Stem Focus: Re-word the 2nd sentence as follows: "Assuming that this is the lowest pressure achieved, which ONE of the following predicts how the fire pumps respond?" 3. 4-24-09: Comments incorporated; Question is SAT
37	H	3	x											N	~~E~~ S	295001 AK2.03 1. Stem Focus: Modify 1st bullet: "Recirculation pump speeds are both at 63%. 2. Stem Focus: Modify 2nd bullet as the operator would see i.e., Mlbm/hr (vs. % steam flow). 3. 04-24-09: Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
38	~~F~~	3	x					x						N	~~E~~ S	295003 G2.4.34 1. Stem Focus: The 3rd bullet states that the lights are located on 1R43-P001A. Is this correct? The procedure and lesson plan state these lights are located on 1R43-P003A. 2. Stem Focus: Re-word the stem question to ensure that the question refers to one switch with two positions: "WOOTF choices completes the following statements for locally starting the EDG and flashing the field using the 1R43-P003A EDG Control Switch IAW 34AB-R43-001-1, Diesel Generator Recovery?" 3. Stem Focus: Re-word the 2nd fill-in-the-blank statement to refer to the "EDG Control Switch" (vs. control switch). 4. 4-24-09: Comments incorporated; question is SAT
39	H	3		x										N	~~E~~ S	295004 AA1.03 1. Cues: The 2nd part of "B" and "D" [IAW 34AB-R22-001-2] is not necessary to elicit the correct response and could potentially provide a cue to an applicant who does not know the correct mitigating procedure following a loss of 2R22-S016. 2. 4-24-09: Changes incorporated; question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
40	~~F~~	2	x			x						x		N	~~E~~ S	295005 AK3.04 1. Stem focus & Q=K/A: To ensure the K/A is being directly addressed, consider clarifying the 2nd fill-in-the-blank statement as follows: "This main generator trip arrangement protects the turbine from ___(2)___ " 2. Stem Focus: The phrase in the 1st bullet "due to a problem with the lubricating oil system" could potentially be mis-interpreted. Which turbine trip has occurred? We could provide the name of the trip without providing the setpoint, etc. 3. Cred Dist: How is the 2nd part of "D" plausible (overheating) when combined with a sequential generator trip? Discuss changing "overheating" (in "B" and "D") to more plausible choices such as "bearing damage and "blade damage", respectively. 4. Stem Focus: Can the unit be at 100% power (instead of 40% power)? Discuss how this may make the lube oil turbine trip more significant with respect to reason for sequential generator trip. 5. 4-24-09: Comments incorporated; question is SAT
41	H	2												B	S	295006 AK1.01 Used on NRC '07 exam
42	~~F~~	3	x											N	S	295010 G2.2.22 1. Stem Focus: "a" should be "an" (before the word entry). Also consider removing the word 'listed" from the fill-in-the-blank statement. 2. Stem Focus: Clarify the fill-in-the-blank statement by adding question: "WOOTF completes the following statement?" 3. 4-24-09: Comments incorporated; question was already 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			
43	~~F~~ H	2		x		x						x		N	~~E~~ S	295013 AK2.01 1. Q=K/A: This question may be a better fit for Q#53 K/A (abnormal vs. emergency). Discuss overlap issues w/ licensee (double jeopardy for not knowing EOP allowance to use 2 loops) and, if necessary re-select another K/A. 2. Cred Dist: "A" is not plausible because the stem has the words 'ALL REQUIRED RHR" systems capitalized 3. Cue: The capitalization of the words ("ALL REQUIRED RHR") could potentially cue the operator that the answer must be greater than one-pump flow. (7,700 gpm) Also, Q#55 provides the flow rate for one pump configuration. Suggest re-working the question to ask the applicant whether one or two loops are required and what the limiting total flow value is. (17,000 or 23,000). 4. 4-24-09: Used draft submittal Q# 53 to target this question K/A. Question is SAT
44	~~F~~	3		x			x							M	~~E~~	295015 G2.2.42 1. Partial: There may be no correct answer because whether the NRC would issue a violation is subject to many reviews. Suggest re-wording the question to say: "While RWL is in this band, a Tech Spec Safety Limit value has/has not been exceeded and adequate core cooling as defined in ???" 2. Stem Focus: The definition of adequate core cooling is in what document at Hatch? This needs to be in the fill-in-the-blank statement to ensure the question cannot be appealed. 3. Cue: Since the 1st sentence in the stem only deals with water level and the 2nd fill-in-the-blank sentence starts off with the words "While RWL is in this band…" this could potentially cue the applicant that RWL has exceeded the safety limit setpoint. Suggest changing the 1st sentence to read "Unit 2 is in an ATWS and reactor water level is being controlled at -155 to -185 inches and reactor pressure is being maintained at 900 psig." This way if the word "violation" (see item 1 above) is changed to "value", then the applicant has to know the pressure safety limits also. 4. 4-24-09: Question re-worked to ask if TS safety limit exceeded and whether adequate core cooling exists. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
45	F	2						x						N	~~U~~ E	295016 AA2.01 1. Partial: "A" can be argued as correct because this is a "gross" method of control rod status. (The stem does NOT state that all blue lights have illuminated.) 2. Job-Link: 31RS-OPS-001-1, Section 4.4 provides the guidance to shutdown the reactor (from outside the control room) if this was not achieved when the control room was evacuated. The test item (as written) assumes that an ATWS has occurred, which may be outside the design basis of the procedure. In other words, the required control room evacuation is the single failure and an additional failure (ATWS) is beyond the scope of the procedure. Suggest writing a question where the control room had to be evacuated and the immediate operator actions could not be performed, i.e., no manual scram. Ask the applicant to identify an approved method (IAW Section 4.4) to complete the scram (SDV level switches) and to verify that a scram had been achieved (visual verification of each scram valve) as opposed to some of the other "unapproved" remote indications could potentially indicate a reactor scram had been achieved such as lowering water level, lowering pressure, etc. 01-29-09: Discussed w/ licensee that the intent was focused on the words "reactor power", i.e, the numerical value. (not a gross determination). Licensee said this could be fixed with word changes. (enhancement only) 3. 04-24-09: Re-worked question to align w/ 31RS-OPS-001-1 guidance for locally scramming Rx and confirmation of shutdown. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
46	F		x				x							N	E S	295018 AK3.03 1. Stem Focus: The 1st sentence is confusing because it is backwards, i.e., reactor power is 0% before being at 100%. 2. Partial: "C" can be argued as potentially correct because the stem doesn't specifically ask the applicant for the reason for step 4.7 of the procedure. Consequently, the applicant can argue that since the fuel pool cooling pump remains running that the "entire procedure" has accomplished this. Suggest re-wording the question as follows: Unit 2 was operating at 100% power and a manual scram was inserted due to a loss of RBCCW. The following conditions currently exist: - 2A RBCCW Pump is running - 2B and 2C RBCCW Pumps can NOT be started - 2P42-F033 and 2P42-F034 valves have been manually closed WOOTF identifies the reason that the 2P42-F033 and 2P42-F034 valves are closed IAW 34AB-P42-001-2, Loss of RBCCW? This action will ensure that.... a. CRD pump... b. Recirc pumps... c. Fuel Pool clg pumps... d. The 2A RBCCW pump is protected from runout conditions. 3. 4-24-09: Suggestion incorporated except changed "C" from FPC pump cavitation to isolate RBCCW surge tank; question is SAT
47	H	2	x	x										B	S	295019 AA2.02 1. Stem Focus: WOOTF predicts the final MSIV positions, only with respect to the availability of a pneumatic supply? 2. Cues: This question may overlap with Q#61. Discuss double jeopardy with the licensee. The words "Drywell Pneumatic System" in Q#61 provide a clue to the applicant for this question. Consider re-wording Q#61. 3. 4-24-09: Comments incorporated; question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
48	H	3		x										M	S	295020 AK1.05 1. Cue: Since the exact section of the procedure is being provided in the stem, are the 1st two bullets necessary? 2. 4-24-09: 1st two bullets don't provide cue; acceptable to leave as-is. Question is SAT
49	~~F~~ H	2				x						x		N	~~U~~ S	295021 G2.4.35 1. Cred Dist: "C" and "D" are not plausible because the plant is in an emergent abnormal condition (i.e., total loss of shutdown cooling); therefore, an applicant who does not know the procedure content could eliminate chemistry concerns based on the sense of urgency. 2. Q=K/A: This item was developed around the REASON that a step is being performed. The K/A asks the applicant for the task to be performed. Suggest re-working question to ask applicant to identify a local AO task (only provide two tasks) listed in 34AB-E11-001-2 and also ask applicant to identify the reason for the task. 3. 4-24-09: Licensee wrote new question; Question is SAT
50	H	2				x		x						N	~~U~~ S	295023 AA1.04 1. Cred Dist: An applicant who does not know the water level can deduce that "A", "B", and "C" are not plausible because there is no way to tell exactly what dose rate a partially uncovered fuel bundle will yield. Therefore, the unknowledgeable applicant would conservatively assume that the highest possible radiation reading was the correct answer. 2. Job-Link: For "D" (upscale), isn't there a pegging circuit available on the ARMs to preclude a continuous upscale reading? 3. 4-24-09: Question re-worked to eliminate subjectivity associated with dose rates following uncovery of a fuel bundle. Question now asks for lowest fuel pool level achieved and prediction of MCREC system status. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
51	~~F~~	2				x						x		B	~~U~~ ~~E~~ S	295024 EA2.06 1. Q=K/A: This is an "elusive" K/A. (Note: licensee indicated this was on the NRC '05 exam) The test item (as developed) asks the applicant to identify the effect of high drywell pressure on torus water temperature; however, a more appropriate derivative of the K/A is to require the applicant to determine or interpret torus temperature as it relates to a high drywell pressure condition. For example: Unit 1 was operating at 100% power when loss of Feedwater occurred and the following plant conditions currently exist: - All control rods inserted - Water level +20" and rising - Reactor pressure 1000 psig (LLS) - Drywell pressure 4.0 psig - Torus pressure 3.8 psig - Torus water temperature 89 deg Given these current plant conditions, which ONE of the following is indicated? a. ONLY an SRV tail pipe vacuum breaker is stuck open b. ONLY a broken SRV tailpipe c. A small steam line break in the drywell coincident with a stuck open Rx Bldg to Torus Vacuum Breaker d. A small steam line break in the drywell coincident with a stuck open Torus to Drywell Vacuum Breaker 2. Cred Dist: "C" is not plausible because there is no reasonable correlation between the location of the leak in the drywell and water temperature. 3. 01-29-09: Discussed w/ licensee that this question previously used by Tim Kolb on NRC developed exam. The question can be enhanced to make adequate (enhancement only). 4. 4-24-09: Used question w/ grammatical enhancements. Question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
52	H	2						x						M	~~E~~ S	295025 G2.1.23 1. Job-Link: Per 31EO-EOP-107-2, Step 3.2.12, the operator should FIRST use the flow controller (2E41-R612) and then (only if necessary) use the F008. The applicant could potentially argue that there is no correct answer because the stem question specifically requires the operator to answer the question in accordance with the procedure. Suggest asking the operator which component should be used (controller or F011) and then asking which way to manipulate the selected component (raise/lower setpoint OR open/close valve). 2. 4-24-09: Question re-worked to align more closely w/ guidance provided in EOP-107-2. Question is SAT
53	H	2	x									x		N	~~E~~ S	295026 EK2.01 1. Q=K/A: This question may be a better fit for Q#43 K/A (abnormal vs emergency). Discuss overlap issues w/ licensee (double jeopardy for not knowing EOP allowance to use 2 loops) and, if necessary re-select another K/A. 2. Stem Focus: Add "in accordance with 34AB-T23-003-1" to the end of the stem question. 3. 4-24-09: Original draft Q#53 was used to replace Q#43 as recommended. This question was replaced w/ a new question testing whether LOCA override switch was required and max req'd Hx loop flow. Question is SAT.
54	H	2				x	x							M	~~E~~ S	295028 EA1.03 1. Cred Dist: To make "B" more plausible, add the reason why the chillers aren't allowed during extremely high DW temperatures. (what is the reason? Not listed in EOP-100-LP-20311 lesson plan). To make "A" more plausible state "is NOT allowed to be restarted because the high drywell pressure isolation has the potential for increased release rates. 2. Partial: Will "D" work also? 3. 4-24-09: Replaced the reasons w/ more plausible ones. Question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
55	H	2	x	x										N	~~E~~ S	295030 EK1.02 1. Cues: The 4th bullet in the stem (7700 gpm one pump flow) provides a cue for Q#43. 2. Stem Focus: The 2nd fill-in-the-blank statement does not read well (grammatically) with the 2nd part of choice "C" 3. Stem Focus: Make both of the fill-in-the-blank statements read grammatically correct. 4. 4-24-09: Changed 2A RHR flow to 7000 gpm; all other comments incorporated. Question is SAT.
56	~~F~~	3	x											N	~~E~~ S	295031 EA1.01 1. Stem Focus: Need to ensure the stem is worded IAW 31EOP-010. 2. Stem Focus: Need to ensure that the question is asking for the expected control panel flow indication (vs. "will be injecting"). 3. Stem Focus: Combine 1st bullet with the first sentence and change Unit 2 WAS operating .(vs. IS) 4. 4-24-09: Comments incorporated; question is SAT.
57	~~F~~	2	x	x										N	~~E~~ S	295032 EA1.03 1. Cue: The loss of SW could potentially lead an unknowledgeable operator to a temperature start feature. Why is the bullet necessary? Will the standby cooler (2T41-B004B) auto-start (regardless of loss of SW) when room temperature rises to 100 deg? 2. Stem Focus: Use the word "its" instead of "the" in the following sentence: "The "A" RCIC Room Cooler is operating with *THE* control switch in the RUN position. 3. 4-24-09: Eliminated loss of SW aspect. Comments incorporated; question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
58	H	2				x								N	~~U~~ S	295035 EA2.02 1. Cred Dist: "B" and "D" are not plausible because an applicant without knowledge of elevated/ground release patterns could guess that the release is always higher when the blowout panels go. Release rates remaining the same with/without the blowout panels is not plausible because some of the radioactive steam will not be filtered via the SBGT system filter and rad levels near the plant will go up. Suggest writing a question related to what could cause a hi dP in the Rx Bldg and how this would affect the Rx Bldg flow indications used during a prompt offsite dose calculation (TRN 52, MIDAS INPUT DATA ACQUISITION) 2. 4-24-09: Licensee re-worked question to ask how negative pressure is affected and how the stack release rate is affected following a trip of C007A. Question is SAT.
59	~~F~~ H	2										x		N	~~U~~ ~~E~~ S	295037 EK2.12 1. Q=K/A: The test item is targeted towards K/A EK1.07, Shutdown Margin. The required K/A is ED2.12, Rod control and information system. For example, the first large portion of the stem is not necessary to answer the question, i.e., the only item in the stem that is required is the fill-in-the-blank statement, "The operating crew can determine that the reactor will remain shutdown under ALL conditions when _____ . Suggest providing the applicant with rod panel indications and/or RWM screen indications and asking the applicant to interpret these indications with respect to ATWS actions. 01-29-09: Discussed w. licensee how removing choices "B" and "C" and providing applicant w/ rod position indications to assess. 2. 4-24-09: Comments incorporated. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
60	H	2		x		x								M	~~E~~ S	295038 EK1.02 1. Cues/Cred Dist: The words in the stem "to protect the public from radioactive release" make "B" and "D" [perform a fast reactor shutdown] not plausible. Suggest eliminating the fill-in-the-blank statements and ask the applicant the following question. "WOOTF identifies whether all automatic actions have occurred and also identifies the required actions IAW 34AB-B21-001-1. 2. 4-24-09: Eliminated words "to protect the public…"; instead, asked applicant for procedure requirements. Licensee stated that NFPB @ 100% = 1100 – 1800 mr/hr. Trip is active at 18% power but not active when > 20% power. Question is SAT.
61	~~F~~			x		x				x				N	~~E~~ S	300000 K1.03 1. Cues: This question may provide the applicant with a cue for Q#47. Discuss double jeopardy with the licensee. The words "Drywell Pneumatic System" may provide clue to applicants on why the inboard MSIVs remain open in Q#47. Suggest simply stating that instrument air has been aligned to supply pneumatic loads in the drywell. 2. #/units: Where is the drywell air flow rate meter? Can it be observed? If so, then provide the applicant with the actual meter name, panel location, and flow value. Does the alarm come in? If so, provide the alarm in the stem, then ask the applicant to predict the expected actions. What are the valve names/numbers that will isolate? Ask the applicant to identify these valves and predict their position. 3. Cred Dist: In "C" and "D", change the word "since" to "because". The changes in item #2 (above) will make "C" and "D" more plausible. 4. 4-24-09: All comments incorporated; licensee explained proximity of measured flow and piping configuration. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
62	~~F~~	1				x						x		N	~~U~~ S	400000 K3.01 1. Q=K/A: This question is targeting K/A 264000 (EDGs) K6.07 [Knowledge that loss of cooling water system will have on EDG]. The correct K/A deals with component cooling water, i.e., the system that is normally cooled by service water. 2. Cred Dist: "B", "C", "D" are not plausible because "A" is ALWAYS correct, i.e., will run until major component damage occurs. 3. 4-24-09: Licensee replaced question to target RBCCW. Question is SAT.
63	H	3	x				x							N	~~U~~ ~~E~~ S	500000 EK3.06 1. Partial: "A" can also be argued as correct because the PC flowchart directs spraying the drywell at this time and the spray flow can be attributed for some removal of flammable aerosols and scrubbing effect. 2. Stem Focus: The stem refers to "EOP strategy" instead of specifically referring to 31EO-PCG-001-1, Primary Containment Gas Control. This makes the question less precise and could potentially lead to multiple correct answers. 3. Stem Focus: The stem states that [hydrogen and oxygen] are 8% and 7%, respectively. Is this in both the torus and drywell? Only drywell? These items matter with respect to the actions in 31EO-PCG-001-1. Suggest re-working the question to ask the applicant for when the containment hardened vent path is used, (only for hydrogen oxygen problems or for both hydrogen oxygen and containment pressure) AND/OR ask the applicant for when the venting process in 31EO-PCG-001-1 is/is not allowed to proceed irrespective of release rates. 01-29-09: Discussed w/ licensee that procedures prohibit spraying when torus level is > 197.5" ; therefore, "A" is totally incorrect. (enhancement only) 4. 4-24-09: Comment #1 addressed by adding NOT statements to "B" and "D". Comment #2 addressed as recommended. Comment #3 addressed by including both spaces. Question is SAT

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
64	~~F~~	1												N	~~U~~ S	600000 AK1.01 1. LOD=1: This question will not provide any discriminatory value on the exam. Suggest re-working the question to state that a certain MCC is on fire. Ask the applicant which type of extinguishing agent (IAW a fire plan procedure) can be used, including when water can be used (IAW fire procedures). 2. 4-24-09: Jointly developed new question w/ licensee because the licensee's proposed replacement question had non-credible choices "A" and "B." Question is SAT.
65	H	2				x	x							N	~~U~~ ~~E~~ S	700000 G2.4.4 1. Partial/Cred Dist: "B" is also correct because an applicant could argue that the symptoms provided in the stem also warrant a prudent entry to 34AB-R22-003-1 (Station Blackout) even though this procedure would subsequently be exited since 2 emergency busses are still energized. Consequently, "A" and "B" are not plausible since none of the conditions presented in the stem are indicative of a station blackout condition. Suggest presenting the applicant with indications that eliminate the possibility of the busses being de-energized but warrant entry to 34AB-001-0. What indications would the operator look for to identify that the buss was still energized but that grid voltage was causing the problem? Provide those indications and ask the applicant to identify the procedure (degraded vs loss of bus) and also to identify an action from the procedure. 01-29-09: Discussed w/ licensee to re-word the stem such that "B" was totally incorrect; i.e., short term entry as a reference could not be argued as correct. 2. 4-24-09: Licensee's proposed replacement questions contained partially correct answers ("A" and "B") because 34AB-S11-001-0, Step 4.4 stated that it may be necessary to enter SBO 34AB-R22-003-1/2. Also, "A" and "B" weren't plausible given the 1st bullet. I developed new question and provided to licensee. New question targets the allowed min voltage at the switchyard (Modes 1, 2, 3) and 4KV bus voltages/times that required starting EDGs IAW 34AB-S11-001-0. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
66	~~F~~	2	x											N	~~E~~ S	G2.1.27 1. Stem Focus: the word "primary" is not necessary to elicit the correct response. 2. Stem Focus: the purpose of the RWM should be referenced IAW either Tech Specs, FSAR, something. 3. Stem Focus: The use of a fill-in-the-blank statement is unnecessary. 4. 4-24-09: Changed question to incorporate all comments and made distractors more plausible by referring to wrong bases for safety limits. Question is SAT.
67	H	2	x					x	x					M	~~U~~ S	G2.1.31 1. Job-Link: In the pictures, the flow is indicating 400 gpm without any turbine speed. How is this possible? 2. Stem Focus: The question is confusing because the procedure section 7.1.4.2 states to place controller in MAN @ 50% when a controller has malfunctioned in AUTO? The stem doesn't state that the controller had a problem. 3. Job-Link: Is the controller required to be placed in MANUAL when the cause of the spurious trip was being reset? Did the trip occur while RCIC was initially running? 4. Plausibility analysis for choice "B" appears to be a cut-and-paste instead of the actual plausibility analysis for the panel location. 5. 01-29-09: The controller picture was correct, when 400 gpm is indicated there is a solid digital bar that comes up. Also, the Section 7.1.4.2 is for either when a initiation signal is present or an auto controller failure has occurred. 6. 04-24-09: Discussed system procedure w/ licensee to gain understanding of guidance to roll RCIC w/ initiation signal present; i.e., ramp generator unavailable; therefore controller must be in MANUAL at 50%. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
68	~~F~~	1	x	x			x							N	~~U~~ S	G2.1.39 1. Cred Dist and/or LOD=1: "B", "C", and "D" are not plausible because "A" can never be wrong, In other words, an unknowledgeable operator can always argue that when presented with worsening conditions in the reactor, the best thing to do is scram it. He can never be wrong. 2. Partial: Why is it necessary to state that the SROs are out of the control room? Is iit conceivable that IF the SROs were in the control room that "A" isn't the correct answer? 3. Cues: This question may provide the applicant with a cue for Q#16 (or vice versus). Also discuss double jeopardy with the licensee. The question is testing the same thing as Q#16, i.e., reactor must be scrammed when OPRMs are inoperable. 4. 4-24-09: Provided replacement question to licensee which tests applicants knowledge of a caution in 34GO-OPS-001-1 related to extended operation just below or just above the POAH. Question is SAT.
69	~~F~~	2	x											N	S	G2.2.15 1. Stem Focus: Combine the 1st sentence and the 1st bullet with one statement as follows: "The crew is implementing a tag out for the Unit 2 Core Spray system and the 2E21-F019A keylock control switch at panel P601 has been placed in the "CLOSED" position. 2. Stem Focus: Why does the fuse have to blow, versus stating that the power supply to the solenoid is removed? Re-word the stem question as follows: "WOOTF predicts how the valve and actuator will respond if the solenoid valve power is removed? 3. 4-24-09: Comments incorporated; question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
70	~~F~~	2	x				x							N	~~U~~ ~~E~~ S	G2.2.25 1. Partial & Stem Focus: Because the stem does not explicitly ask for the basis behind the MCPR safety limit, then an applicant could potentially argue that fuel damage is significantly increased due to stored decay heat ("B") and zirc water reaction (""C"). Suggest asking plainly, "WOOTF is the basis for the MCPR Safety Limit, in accordance with the Tech Spec Bases? 01-29-09: Discussed w/ licensee that stem should be re-worded to ask for the bases behind a safety limit (like pressure, or MCPR) (enhancement only) 2. 4-24-09: Re-worded question w/ bases from TS and used other bases wording for incorrect choices; using wording from bases makes this question plant specific. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
71	H	2	x					x				x		N	~~U~~ ~~E~~ S	G2.2.39 1. Job-Link: At 10:10, the SS declared 2 accumulators inop. IAW TS 3.1.5, B.2.2, the SS can declare both rods inoperable per the rod TS 3.1.3. In this case, the mode switch does not have to be placed in the shutdown position. 2. Stem Focus: The word "earliest" is confusing and can lead to multiple answers. Re-word the stem question as follows, "WOOTF identifies the time that the reactor mode switch is REQUIRED to be placed in the shutdown position IAW TS 3.1.5. 3. Job-Link: The SS declaration of 2 accumulators is subjective because the stem does not state that the accumulator pressures are less than 940 psig. In other words, the stem doesn't provide an accumulator alarms, etc. which would indicate that accumulator pressure is indeed less than 940 psig. Consequently, an applicant could potentially argue that the time requirement to manually scram the reactor is not defined well enough by the question. 4. Q=K/A: This question seems to test the 34AB-C11-001-1 required manual scram action (Step 4.8) vs the Tech Spec action (see comment #1 above) 5. 01-29-09: B.1 is applicable in either case because drive water pressure must be restored > 940 psig regardless of whether the rod is declared inop. (enhancement only) 6. 4-24-09: Reworked question to require TS knowledge (above-the-line RO knowledge) related to when the mode switch must be placed in shutdown. Comment #1 concern was explained that because both CRD pumps are o.o.s, then Condition "D" is invoked, i.e., place mode switch to shutdown within 20 minutes. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
72	~~F~~	2	x				x							N	~~U~~ S	G2.3.14 1. Partial: Since the amount of H2 injection at Hatch has varied over time [as low as 8 scfm to as high as 45 scfm] and because 34SO-P73-001-1 does not specify the 100% max rate for the current chemistry plan, then the applicant could potentially argue any of the answers as correct. 2. Stem Focus: Combine the 1st sentence and the 1st bullet into one statement as follows: "Unit 1 was at 35% when the Hydrogen Injection System was placed in the AUTOMATIC-EXTERNAL mode of operation IAW 34SO-P73-001-1, Section 7.1.4, (title). 3. 01-29-09: Discussed w/ licensee that system has an automatic shutdown feature of 25 scfm; therefore, applicant could not argue that any flow was correct. 4. 4-24-09: Comment #2 incorporated; question is SAT.
73	~~F~~	1	x			x								N	~~U~~ S	G2.3.7 1. LOD=1: This K/A may be difficult to write a discriminating question for…discuss substituting with the licensee. The question (as written) is targeting general rad worker knowledge for the definitions of very high rad area [area in which individual could receive absorbed dose > 500 rad/hr]; airborne radiation area (> 0.3 DAC); contaminated area [Beta-gamma of 1000 dpm/100cm^2 or Alpha of 50 dpm/100cm^2] Question (as written) does not discriminate at the licensed level. 2. Cred Dist: "A" is not plausible because a very high radiation area [area in which individual could receive absorbed dose > 500 rad/hr] will always require a special RWP (as outlined in general rad worker training). "B" is not plausible because of grammar, i.e., doesn't fit with the fill-in-the-blank phraseology. 3. Stem Focus: Try to avoid "not" questions, i.e., WOOTF is "not"…. This question is the same concept (without). 4. 4-24-09: Licensee could not write a discriminating question for this K/A; provided substitute K/A G2.3.13. New question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
74	~~F~~ H	2												N	S	G2.4.1 1. Ask the licensee if there are any differences between the entry conditions on Unit 1 vs Unit 2. If so, then add this information to the plausibility analysis. 2. 4-24-09: Licensee stated there are no differences between units for the entry conditions. Question is SAT.
75	H	2	x	x		x								N	~~E~~ S	G2.4.9 1. Cred Dist: "A" and "B" are not plausible because an applicant can deduce that throttling RHR side valves can't affect reactor pressure. Consequently, an unknowledgeable applicant (one who doesn't know mitigation strategies associated with a loss of shutdown cooling) can indirectly surmise that Shutdown Cooling has been lost. Suggest re-working the question to ask for differences in the strategies contained in 34AB-E11-001-2, "Loss of SDC'g" for different low power conditions. For example, what's the difference between the strategy for when the RPV head is on vs when the head is off (following a loss of shutdown cooling). 2. The stem asks the applicant to predict the status of "shutdown cooling" as either "in service" OR "has been lost". Be more specific and ask the applicant for the pump status, i.e., running or OFF. As written, the applicant could potentially argue that the pumps would continue to run (which is true) and that throttling the bypass valve F048B (choice "A") 3. Cues: This question provides a cue for SRO Q#87 that raising reactor water level is a low power mitigation strategy for a loss of Shutdown Cooling. Discuss overlap w/ the licensee. 4. 4-24-09: Re-worked question w/ licensee to ask how 2B RHR pump is affected and how reactor pressure must be controlled following an inadvertent High DW pressure signal w/ Unit 2 in Mode 3. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
76	H	2		x										N	~~E~~ S	212000G2.2.36 1. Cues: The stem states that an "error" occurred which implies that something is broken or inoperable. This is not necessary to elicit the correct response. Suggest re-wording the stem to reflect the "as-left" relay setpoints. (Let the applicant identify the error.) 2. Cues: The stem identifies that P003A and P003C are associated with the "A" RPS MG Set. (Let the applicant identify that these relays are associated with the "A" RPS MG set vs telling them.) 3. Cues: The 34SO-C71-001 procedure refers to the component as "Equipment Protection Circuit Breaker." The question stem is worded as "RPS Power Monitoring Assembly," which is similar to the Tech Spec wording. This can help the applicant identify that only one is inoperable (vs. 2). Suggest Re-wording the stem to use the same terminology as the system operating procedure. 4. 4-24-09: Comments incorporated; question is SAT. SRO-only based on knowledge of TS basis definition of "EPA."
77	H	2	x										x	N	~~U~~ S	233000G2.1.28 1. SRO-only: The applicant can eliminate "A" and "B" using systems knowledge of the skimmer/pool arrangement. The applicant can also use systems knowledge to eliminate "D" because of the prerequisite flow path requirement, i.e., Shutdown Cooling must be in service. Suggest re-working the question to test when the SPENT FUEL STORAGE POOL LEVEL LOW alarm would be received, i.e., at approximately 22' 0.5"' above the top of seated fuel assemblies, and what E-plan call is appropriate. 2. Stem Focus: Re-word the stem question to say "WOOTF choices completes both of the following statements?" 3. 4-24-09: Eliminated the stem status of fuel pool gates because this now requires SRO knowledge of procedure requirements for placing SDC'g in service (only allowed in Mode 5) and refueling configuration status. Additionally, this question does not merely test procedure's overall mitigative strategy; this question tests detailed knowledge of subsequent procedure steps from memory. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
78	F	2					x						x	N	~~U~~ ~~E~~ S	239002 G2.4.18 1. SRO-only: Discuss w/ licensee. Unlike Tech Spec Bases, most EOP Bases are required knowledge for RO applicants. Licensee states that question targets 10CFR55.43(1), "Conditions and Limitations in the facility license". Ask the licensee how this item is related to facility license (tech specs). RO applicants also have overall knowledge of the EOPs (K/A importance rating of 3.3), including bases for 5 SRVs required. Suggest asking how many SRVs are required and then the correct procedure in the event that this number of SRVs cannot be opened. 2. Partial: An applicant could potentially argue that 4 is the minimum number of SRVs because the reference provided (BWROG EPGs/SAGs, Appendix B, Section 17.22, pg B-17-55) states that FOUR SRVs is the least number of SRVs satisfying the second criteria of MNSRED. What Hatch procedure identifies the bases for the EOP steps? Lesson Plan EOP-Curves-LP-20306, pg 55 of 78 states that 5 SRVs required at Hatch following conversion to two year operating cycles. Is there an EOP bases document (other than a lesson plan) at Hatch that identifies 5 SRVs for MNSRED? 3. 01-29-09: Because this was a borderline case, agreed with licensee that question could be enhanced with suggestion (see above). (enhancement only) 4. 4-24-09: 5 SRVs required minimum number at Hatch; 4 was previous number with lower power cores. I proposed replacement that asked min # of SRVs required and allowable release rates for EOP-108-1, Alternate Emergency Depress. Licensee didn't want proposal because required too detailed knowledge of 2 lines on EOP bases graphs associated w/ reason for 5 SRVs. Compromise was to ask for min # of SRVs and the bases for the number. SRO-only because of analytical methodology used to determine min # of SRVs, i.e., doesn't involve systems knowledge. RO knowledge is min # of SRVs whereas SRO knowledge is reason or basis behind the min #. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
79	H	2		x		x								N	~~U~~ ~~E~~ S	259002 G2.4.20 1. Cred Dist: "A" and "B" are not plausible because no drywell temperatures (near reference legs) are provided. Actual reactor level can only be plausible as an answer if the corresponding temperatures are provided. Suggest re-working the question to ask what the implication of erratic instrument behavior and high reference leg temperatures is….and also require the applicant to determine the correct procedure to proceed with, CP-1 AND CP-2 or ONLY CP-2. 2. Cues: the words "flashing observed" are strong enough to eliminate "A" and "B" as plausible since "A" and "B" don't include CP-2. Suggest using words such as "erratic instrument behavior. 3. 01-29-09: Discussed w/ licensee that because wide range and fuel zone recorders have compensation for pressure and temperature (respectively), that "A" and "B" are plausible. Licensee agreed to incorporate suggestion (enhancement only) 4. 4-24-09: Re-worked question to ask for where the steps were contained for ED when RPV Flooding is required and also ask for whether the Wide Range Instruments can be used to determine RWL after MCFI. SRO-only because of 1st portion, i.e., procedure selection. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
80	H	2											x	N	~~U~~ S	262002 A2.01 1. SRO-only: "B" and "C" can be eliminated by systems knowledge (i.e., knowing that the batteries aren't available because the fuse is downstream of the inverter and the batteries are upstream). Once "B" and "C" have been eliminated, then the correct answer can be determined by knowing that a loss of Vital AC results in a loss of FWH and does not cause the Mark VI DEHC system to de-energize. Suggest asking the applicant to predict the impact (i.e., loss of FWH or turbine trip) and also to identify IF the loss of F/W heating requires change(s) to MAPFAC(p) curve. 2. 4-24-09: Licensee's proposed replacement no longer hit K/A. I provided substitute question which asked for where the 2R25-S063 would be powered from immediately following a loss of 600VAC Bus 2D and knowledge of TS 3.0.6 allowances for cascading loads not required to be declared inoperable. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
81	H		x				x							N	~~E~~ S	268000 G2.4.21 (Good idea for a tough K/A, but may be better suited for Q#100 K/A – Discuss w/ licensee) 1. Partial: "D" may be argued as correct for two reasons: 1) the stem doesn't ask for the most limiting reportability time and 2) the unidentified leakage would require a TS required shutdown BASED ON A PRINCIPAL SAFETY BARRIER (RCS) BEING DEGRADED. Therefore, an applicant could pick "D" and indirectly be correct. 2. Stem Focus: Does "C" and "D" refer to 00AC-REG-001-0 or REG 0024? Ask licensee to explain the word "form" in each of these choices. Ensure that wording reflects the correct procedure name and number. 3. This test item may better fit the K/A for Q#100. [Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as State, NRC, or the transmission system operator.] Discuss using this question w/ Q#100. 4-24-09: Kept Question as Q#81; however, addressed comments by 1) asking for SOONEST required action; 2) DW pressure at 0.6 psig and steady;and 3) UID leakage increased from steady state to 55 gpm over past 24 hours. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
82	H	3	x				x					x		M	~~E~~ S	1. Partial: SCC Flowchart requires performing RC(A) point "A." [Does this mean to enter the RC RPV Control (non-atws) Flowchart?] The applicant could potentially argue that there is no correct answer since 34AB-C71-001-2 is not listed in the SCC Flowchart. Discuss w/ licensee change "B" and "D" to RC RPV Control Flowchart. Also, 34GO-OPS procedures allow entering 34AB-C71-001-2S, (step 7.15 in fast shutdown procedure) 2. Q=K/A: 1st part of K/A requires predicting impact of hi airborne radiation on the reactor building (secondary containment). A more closer tie to the K/A can be made by asking the applicant to predict whether the Rx Bldg HVAC will isolate or not (based on given rad monitor readings). Agree that SBGT is a part of secondary containment and this could be the licensee's intent. Discuss w/ licensee. 3. Stem Focus: 1) Reword the first sentence as follows: "Unit 2 was operating at 100% power when an unisolable steam line break occurred in the Main Steam Line Tunnel area." {This will allow eliminating 1st bullet}. 2) Re-word the 2nd fill-in-the-blank statement as follows: IAW 31EO-EOP-014-2, Secondary Containment Flowchart", the SS is required to enter _____(2)_____ ." 3) Why is the last bullet required? ("Several other area radiation monitors in the area indicate as high as 200 mr/hr." 4) Re-word the stem question "WOOTF choices completes the following statements?" 4. 4-24-09: Last bullet required to precisely describe situation as ONLY one area above Max Safe. Comments incorporated; question is SAT. SRO-only b/c of procedure selection.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
83	H	3	x											N	E	2950006 G2.1.27 1. Stem Focus: 1) Re-word the 2nd fill-in-the-blank statement as follows: "The Shift Supervisor is required to enter ____(2)___ . 2) Bullets 5 & 7 are redundant. Suggest providing the control room panel number and the white light indications because bullet 7 information is not necessary to elicit the correct response. 3) Re-word the 1st fill-in-the-blank statement as follows: "The ____(1)____ depressurized the scram air header." 2. 4-24-09: Comments incorporated; question is SAT. SRO-only b/c of procedure selection.
84	H	3	x									x		N	~~E~~ S	295008 G2.4.20 1. Q=K/A & Stem Focus: K/A requires knowledge of EOPs during a high water level condition. The correct answer, "C", applies when vessel level is not high. Discuss w/ licensee how K/A is being met. Suggest eliminating the DW Spray piece of the question and ask applicant which procedure is required to stop vessel injection [i.e., either 31EO-EOP-113-2 or 31EO-EOP-114-2] and whether level is required to be lowered [or not required] at this time. As written, question introduces Primary Containment Control knowledge (drywell spray) condition which may not fulfill the intent of the K/A. 2. Stem Focus: Re-word the stem question as follows: "WOOTF choices completes the following statement? The SS is required to enter ____(1)_____ and _____(2)_____ to lower vessel level. 3. Stem Focus: Stem does not indicate whether RHR pumps have been secured. Applicant could argue that DW Sprays were secured but the RHR pumps were left running. In this case, there are no correct answers. 4. 4-24-09: Comments incorporated; question is SAT. SRO-only because of branching decision points deep in EOP contingency and procedure selection.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
85	H	2	x	x		x							x	M	~~U~~ S	295014 G2.2.40 1. SRO-only: RO knowledge is the information "above-the-line." In other words, the knowledge that BPWS is required when power is less than 10% in modes 1 & 2 is RO knowledge. Suggest asking the applicant to apply tech specs and TRM requirement for BPWS and/or RWM instrument. 2. Cred Dist: "A" is not plausible because if RWM is inoperable below 10%, then Tech Spec LCO for 3.1.6 is always required to be entered. The "reason" in choice "A" (TS compliance for the banked position withdrawal sequence is met) is also not plausible because the stem states that the group withdraw limit is 18 and the rod went to 20. 3. Cue: Q#66 may provide the SRO applicant with a double jeopardy, i.e, will miss two questions if he doesn't know the power level at which bank position withdrawal sequence is required. 4. 4-24-09; Question is SAT.
86	H	2	x			x								N	~~U~~ S	295017 AA2.01 1. Cred Dist: "C" and "D" [don't emergency depressurize] are not plausible when an unisolable steam leak is blowing into the turbine building and offsite dose is 1050 mr/hr TEDE. [The only way to stop leak is to depressurize.] Ask licensee for their basis. May be more plausible to change "C" and "D" to cooldown while maintaining less than 100 deg/hr cooldown rate. Another possibility is to ask applicant to identify whether release is a ground or elevated release and what the emergency classification is. (was this on last exam?) 2. Re-word the first sentence as follows: "Unit 1 was at 80% power when an unisolable Main Steam Line break occurred in the Turbine Building." 3. 01-29-09: Discussed w/ licensee that because the Rad Release Flowchart procedure identifies 1000 mr/hr as the requirement for ED, then not depressurizing is plausible. 4. 4-24-09: RR flowchart requires ED at 1000 mr/hr if a primary system is discharging. SRO knowledge of E-plan. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
87	H	2	x										x	N	~~U~~ S	295021 AA2.03 1. SRO-only: RO knowledge can be used to eliminate choices "A" and "D", i.e., knowledge of natural circulation level is RO knowledge. RO knowledge can be used to eliminate choice "B" because the unavailability of 1E11-F009 suction flowpath eliminates the 34SO-E11-010-1, Shifting Shutdown Cooling Loops, selection. Suggest re-working question to include applicant's knowledge of appropriate attachment to trend temperature and/or pressure in 15 minute intervals. 2. SRO-only: RO knowledge of LCO 3.4.7 less than or equal to 1 hour action statement B.1, "Initiate action to restore one loop of RHR shutdown cooling subsystem or one recirculation pump to operation" *immediately.* 3. Stem Focus: Re-word the second fill-in-the-blank statement as follows: "The Shift Supervisor is required to enter _____(2)_____ . 4. Cues: This question provides a cue for RO Q#75 that raising reactor water level is one low power mitigation strategy for a loss of Shutdown Cooling. Discuss overlap w/ the licensee. 5. 4-24-09: Changed 2nd part of question to require selection of appropriate procedure attachment (vs frequency of temperature monitoring). Question is SAT.
88	H	3					x							N	~~E~~ S	295023 G2.4.45 1. Partial: The applicant can potentially argue that "A" is also correct since the "highest priority" action is not defined in a plant procedure. [Ask licensee] In other words, the applicant may argue that contacting Health Physics is just as important as evacuating the refuel floor. 2. 4-24-09: Replaced question w/ another question which asks for alarm that requires entry to SC flowchart (RO knowledge) and required procedure IAW SC flowchart (SRO knowledge). Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
89	H	3						x	x					N	~~E~~ S	295026 EA2.03 1. Minutia: The choices contain very distinct flowchart designations and may be impossible to understand without distributing the flowcharts. 2. Job-Link: How can torus temperature be 192 degrees and rising with all rods inserted? (no ATWS) Is this thermodynamically possible? Suggestion: The knowledge of whether pressure can/cannot be adjusted to avoid ED is SRO level knowledge. The knowledge of whether the cooldown rate can be exceeded is also SRO level knowledge. Given that, suggest re-working the question to put the applicant in the unsafe region of HCTL and ask if pressure can/cannot be adjusted to re-enter the safe region (to avoid ED). In other words, CP-1, Emergency Depressurization is required or not required. 3. For regional consistency sake, provide all references in separate handout, i.e., remove HCTL graph from the stem of the question. 4. 4-24-09: Comments incorporated. Question is SAT.
90	H	2												N	S	295028 EA2.04 For regional consistency sake, provide all references in separate handout, i.e., remove DWSIL graph from the stem of the question 4-24-09: Comment incorporated. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
91	H	2										x		N	~~U~~ S	295038 G2.4.9 1. Q=K/A: This K/A may be impossible to hit, i.e., High Offsite Release and knowledge of low power/shutdown implications in accident mitigation strategies. As written, the K/A is not testing knowledge of how being at a low power or being shutdown is affecting an accident mitigation strategy. Discuss replacing K/A with the licensee. 2. 01-29-09: Discussed with licensee that PAR reference provided to applicants would have the protective action guidelines "whited out"; therefore, the PAR call could potentially be a low power mitigation strategy if applicant assumes PAGs were lower since a refueling outage was occurring. 3. 4-24-09: PAR recommendation has thresholds "whited" out. Low power mitigation strategy involves assessment of whether event makes evacuation more dangerous IAW NMP-EP-109, Section 6.1.5 and 6.1.6.
92	H	2											x	N	~~U~~ S	300000 A2.01 1. SRO-only: This is a hard K/A to make into SRO question. As written, the question can be answered using systems knowledge because the set points (2P52-F565 valve and Startup Level Control Valve) are all the information that is necessary to deduce the correct answer ("D"). Suggest writing question related to Diesel Generator starting air system and incorporate operability determination on Diesel. Another suggestion is to keep question as is and incorporate SRO actions that would occur in the work control center for this scenario, i.e., WR classification, Maintenance Rule Risk assessment, or Fire Protection LCOs. May need to select another K/A if unable to write a discriminating question. 2. 4-24-09: Could not write question for EDG starting air because the air admission valves fail open (i.e., EDG starts when filter becomes clogged). Replaced K/A w/ 223002, A2.06. New question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
93	H	1	x			x				x				N	~~E~~ S	600000 G2.4.49 1. Cred Dist: "A" and "B" (the normal way of manually initiating CO2) are not plausible because the stem states that the CO2 system failed to actuate following the room fire. In other words, the applicant would not consider pushing the CO2 start button because the stem states that "CO2 is NOT being discharged into the "1A" EDG Room" Suggestion: Is there a way that we can describe the indications and then the applicant can deduce the status of the CO2 system? 2. #/units: The exact name on the red light label should be used in the stem (vs "red light associated with the fire protection system"). Make this into another bullet. 3. #/units: Use the exact name on the START pushbutton (as identified in procedures) in choices "A" and "B". 4. Stem Focus: Refine (or consolidate) the bullets to allow using a "WOOTF choices completes the following statements? 5. Stem Focus: Refer to the actual emergency bus associated with 1A EDG when asking for whether loads are operable. Add actual TS number (instead of saying IAW Tech Specs). 6. 4-24-09: Comments #1, 2, 3, 4 incorporated. Re-worked question to ask how to manually actuate EDG CO2 system and implication of two loops of LPCI being inoperable once EDG is inop. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
94	~~F~~	2	x				x	x		x				M	~~E~~ S	G2.1.20 1. #/units: Is this the Generator Lockout reset switch, on panel 1B31-P003A(B)? If so, then specifically state the lockout switch label name and location. 2. Job-Link: According to 34SO-B31-001-1, The M-G set generator lockout relay will trip UPON receipt of any of the following signals: • Starting sequence incomplete 15 seconds after drive motor breaker closed • M-G drive motor overcurrent • Generator neutral overvoltage • M-G drive motor ground overcurrent • Generator/pump motor differential overcurrent • Generator exciter field overcurrent • MG drive motor differential overcurrent • Pump motor (locked rotor) overcurrent • Generator exciter field under voltage The question stem states that the pumps tripped as a result of a reactor water level transient. Will the generator lockout relay be tripped? 3. Partial: Discuss w/ licensee. Since the 34SO-B31-001-1 procedure for re-starting a recirc pump (step 7.1.2.3) does not state that Shift Supervisor approval is required to reset the lockout, then the applicant may argue that there is no correct answer?? In other words, 34SO does not require Shift Supervisor approval but 31GO does? 4. 4-24-09: Comments incorporated by eliminating postulated scenario and simply asking for procedure and requirements for resetting the U1 Recirc Pump MG set lock out relays. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
95	~~F~~	2	x					x						N	~~E~~ S	G2.2.11 Discuss the last exam appeal related to jumper approvals and authorizations w/ licensee from the last exam for lessons learned. 1. Job-Link: Current question has the potential for appeals because 40AC-ENG-018-0 states that Plant Review Board "REVIEW" is required. Does this mean the same thing as "APPROVAL?" Whose approval is required? 2. Job-Link: 40AC-ENG-018-0, Section 5.2.1 states that a purple TM tag is not required if the Shift Supervisor "approves" the TM as having a condition with "EXISTING HANGING HAZARD." The HPCI skid can potentially be argued as being hazardous to hanging a TM tag? 3. Stem Focus: Re-word the stem as follows: "WOOTF activities requires a temporary modification tag and also identifies whether the Plant Review Board's approval is required to implement the temporary mod IAW 40AC-ENG-018-0?" 4. 4-24-09: Comments incorporated by adding note and tightening the stem wording to closely align to the procedure requirement. Question is SAT.
96	F	2					x	x						N	~~E~~ S	G2.2.7 1. Partial: NMP-AD-006, Section 4.6 states that the on-duty SM can NOT perform the function of the SLM. The applicant could potentially interpret that choices "C" and "D" are referring to the on-duty SM. In this case, the applicant could argue that there is no correct answer. 2. Job-Link: 42SV-TET-003-1 not provided with disc or hard copy reference material. Ask licensee to provide cover page(s) that reflect this test as requiring NMP-AD-006 classification as an IPTE. 3. 4-24-09: Comments incorporated and re-worded licensee's proposal to incorporate exact wording from NMP-AD-006 regarding a "Senior Line Manager."

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
97	H	2		x			x						x	N	~~E~~ S	G2.3.11 1. Partial: An applicant could potentially argue "A" as correct because 31EO-EOP-012-2 does not specifically say that venting until 1.85 psig is incorrect. [It says that venting only as necessary to maintain torus pressure less than 56 psig.] Does this mean that venting MUST be secured at 34 psig? 43 psig? 2. Cues: Last bullet in the stem has capitalized word [OFFSCALE]. This could cue an applicant with no knowledge of the torus vent opening elevations. Suggest changing the bullet to "> 300 inches." 3. SRO-only: This item may not be testing any of the 10CFR55.43 areas. If the intent is to tie to 10CFR55.43 (5) [assessment of plant conditions and selection of procedures], then re-work the question as follows: "WOOTF identifies the required procedure to vent the Primary Containment and also identifies the release rate requirements during the venting process in accordance with 31EO-012-2, Primary Containment Control?" a. 34SO-T48-002-2, Containment Atmospheric Ctl & Dilution Systems, Section 7.3.3, Fast Drywell Vent Vent irrespective of offsite release rates b.31EO-EOP-101-2, Emergency Containment Venting Vent irrespective of offsite release rates c. 34SO-T48-002-2, Containment Atmospheric Ctl & Dilution Systems, Section 7.3.3, Fast Drywell Vent Venting MUST be secured if approaching General Emergency Release Rate Limits d. 31EO-EOP-101-2, Emergency Containment Venting Venting MUST be secured if approaching General Emergency Release Rate Limits. 4. 4-24-09: Comments incorporated; question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
98	H	2	x				x							N	~~U~~ ~~E~~ S	G2.3.5 1. Partial: 73EP-RAD-001-0, "Radiological Event" mixes the terms "abnormal radiological condition", "unusual radiological condition", and "radiological event." Ask the licensee if the term "radiological event" is defined in 73EP-RAD-001-0, "Radiological Event." If not, then there is no correct answer to this question as written. Suggest using the term "unusual radiological condition." Ask the licensee if 73EP-RAD-001-0, Section 4.1.2 is referring to an E-plan classification IAW 73EP-EIP-001-0). 2. Partial: An applicant can potentially argue that the Shift Supervisor and Shift Manager are equivalent since both have the highest NRC license (SROs). The applicant may argue that the Shift Supervisor has the authority to declare an emergency. 3. Stem Focus: Suggest asking the applicant to identify the definition of the term "NORMAL dose rate" [highest reading in the past 24 hours excluding the current peak value.] and to identify the ARM reading which requires declaring an UNUSUAL EVENT IAW 73EP-EIP-001-0. This meets the K/A at the SRO level because the applicant must demonstrate the ability to use fixed rad instruments to implement the E-plan. 4. 01-29-09: Discussion w/ licensee that stem wording could be tightened to align with the 73EP-RAD-001-0 procedure. Also verified that second fill-in-the-blank statement would include an "in accordance with" statement to ensure applicant's could not argue that Shift Manager was equivalent. Licensee pointed out that stem already said the LOWEST level management. (enhancement only) 5. 4-24-09: Question re-worked. 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			
99	H	1		x									x	N	~~U~~ ~~E~~ S	G2.4.22 1. LOD=1/Cues: The last bullet of the stem states that RCIC is the only method available to add negative reactivity to the core. Consequently, an SRO applicant who has no knowledge of the SC Control flowchart can deduce that "~~D~~" "C" is the correct answer. 2. SRO-only: The selected generic K/A has an importance rating of 3.6 for ROs. Discuss w/ licensee how this affects the development of an SRO-only test item. 3. Ask the licensee if the EOP lesson plans are the official EOP step basis document at Hatch. 4. Possible Alternative: Suggest asking question related to steam cooling procedure…perhaps ask applicant to identify steam cooling procedure is required (vs another procedure such as emergency depressurization) and/or pose situation where RCIC becomes available…..do you stay at pressure or ED? Basis? 5. 01-29-09: Discussed w/ licensee modifying stem to eliminate the strong cue ("only method to add – reactivity). Also verified that EOPs preclude using RCIC if SLC is available. Also modified stem make 2nd fill-in-the-blank statement have an "in accordance with" statement. 6. 4-24-09: Re-worked question to ask EOP bases for allowing RCIC to continue to operate (made choices "B" and "D" plausible by stating level was -70" and HPCI/CRD unavailable) and asking for procedure selection regarding the steps to jumper out the Hi temp isolation signal. Question is SAT.

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6.	7.	8.
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only	B/M/N	U/E/S	Explanation
100	H	2	x									x		N	~~U~~ S	G2.4.30 1. Q=K/A: This question does not meet the K/A because it does not target a specific event related to a system's initiation or status. Discuss using Q#81 to meet this K/A because it seems like a better fit, i.e., reportability due to excessive in leakage requiring a TS shutdown. 2. Verify with the licensee that there will be no E-plan classification JPMs which could overlap with this written test item (i.e., NRC notification w/I 1 hour). 3. Stem Focus: Re-word the stem question to say "the LATEST time that the SRO is required to make the notifications (vs. "is allowed") 4. 4-24-09: Re-worked question to pose a specific event which required reportability assessment. Question is SAT.

ES-403	Written Examination Grading Quality Checklist	Form ES-403-1

Facility: HATCH Date of Exam: 4/30/09 Exam Level: RO ☑ SRO ☑

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

Konwn 31, 33/92/84

	Printed Name/Signature	Date
a. Grader	Phillip G. Capehart / PJCapehart	6/11/09
b. Facility Reviewer(*)	N/A	N/A
c. NRC Chief Examiner (*)	BRUNO CABALLERO / B. Caballero	5/29/09
d. NRC Supervisor (*)	MALCOLM T. WIDMANN /	06/01/09

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