Facility: Hatch Examination Date: 9/3-19/2013

Examinations Developed by: (Facility) Written / Operating Test

Target Date*	Task Description (Reference)	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a and b)	EL
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	EL
-120	3. Facility contact briefed on security and other requirements (C.2.c)	EL
-120	4. Corporate notification letter sent (C.2.d)	EL
[-90]	[5. Reference material due (C.1.e; C.3.c; Attachment 2)]	EL
{-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)	EL
{-70}	{7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)}	EL
{-45}	8. Proposed examinations (including written, walk-through JPMs, and scenarios, as applicable), supporting documentation (including Forms ES-301-3, ES-301-4, ES-301-5, ES-301-6, and ES-401-6), and reference materials due (C.1.e, f, g and h; C.3.d)	EL
-30	9. Preliminary license applications (NRC Form 398's) due (C.1.l; C.2.g; ES-202)	EL
-14	10. Final license applications due and Form ES-201-4 prepared (C.1.l; C.2.i; ES-202)	EL
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	EL
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f and h; C.3.g)	EL
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	EL
-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 4; ES-202, C.2.e; ES-204)	EL
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee (C.3.k)	EL
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	EL

* 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: **HATCH 2013-301** Date of Examination: **09-03-2013 to 09-19-2013**

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	tf
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.	NA	NA	tf
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	NA	NA	tf
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	NA	NA	tf
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.	AB	CE	tf
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and that scenarios will not be repeated on subsequent days.	AB	CE	tf
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.	AB	CE	tf
3. W/T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.	AB	CE	tf
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations	AB	CE	tf
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.	AB	CE	tf
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	AB	CE	tf
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	AB	CE	tf
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	AB	CE	tf
	d. Check for duplication and overlap among exam sections.	AB	CE	tf
	e. Check the entire exam for balance of coverage.	AB	CE	tf
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	AB	CE	tf

	Printed Name/Signature	Date
a. Author	Anthony Ball / Anthony Ball	8/21/2013
b. Facility Reviewer (*)	Charlie Edmund / Charlie Edmund	8/22/2013
c. NRC Chief Examiner (#)	Edwin Lea Jr. / Edwin Lea Jr.	8/28/2013
d. NRC Supervisor	MICHAEL MEEKS / Michael R. Meeks (ACTING) FOR M. FRANKE	08/28/2013

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

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 9-2-13 → 9-19-13 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 9-2-2013 to 9-19-2013

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 9-2-13 → 9-19-13. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE / NOTE
1.	Anthony Ball	Plant Ops Instructor / Author	Anthony Ball	1/2/2013	Anthony Ball	9/19/13
2.	Arthur Genereux	Plant ops Instructor	Arthur Genereux	1/10/2013	Arthur Genereux	9/19/13
3.	ED JONES	PLANT OPS INSTRUCTOR	Ed Jones	2/11/2013	Ed Jones	9/19/13
4.	Mike Johnston	PLANT OPS INSTRUCTOR		2/11/13		9/20/13
5.	Charlie Edmund	PITOPS INST. / EXAM GRP LEAD	Charlie Edmund	3/14/13	Charlie Edmund	9/19/13
6.	Van Hayes	NPO	Van Hayes	6-5-13	Van Hayes	9-23-13
7.	DJ VAUGHN	SS	DJ Vaughn	6-5-13	DJ Vaughn	9-23-13
8.	Charles Preston Shaw III	NPO	Charles Preston Shaw III	6/5/13	Charles Preston Shaw III	9/23/13
9.	JOHN C MITCHELL	SS		6/5/13		9/23/13
10.	Jeff Lackmeyer	SIMULATOR ENGINEER		6/7/13		9/20/13
11.	Neal White	SR. I&C Tech		6/7/13		9/20/13
12.	Jay Powers	NPO / VALIDATOR		6/8/13		9/20/13
13.	Glenn W. Dunham	NPO		6-8-13		9-19-13
14.	MC McLeod	SS / Validator		06 08 13		09 19 13
15.	CHRISTOPHER T. BURKE	OPS SUPPORT MANAGER		6-10-13		9-19-13

NOTES:

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 9/2/13 - 9/19/13 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 9-2-2013 to 9-19-2013

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

	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	JOHN L. RICHTER	SIMULATOR COORDINATOR/SIM	John L Richter	6/20/13	John L Richter	9/20/13	
2.	Shentang Ted Yang	Simulator Engineer		6/20/13	** see email		
3.	Terry Jones	NPO		7/31/13		9/23/2013	
4.	Gary Covington	NNO		7/31/13		9/20/13	
5.	RODGER LOWERY	SRO		7/31/13		9/20/13	
6.	GARY BROWN	SRO	Gary Brown	7-31-13	Gary Brown	9-23-13	
7.	JOHN D. WILLIAMS	NPO		8-12-13		9-23-13	
8.	D. Russell Lewis	Class Mentor / SRO	DR Lewis	9-3-13	DR Lewis	9/23/13	
9.	B. Dwayne Taylor	OPS Instructor / sequester	B Dwayne Taylor	9-5-13	B Dwayne Taylor	9/19/13	
10.	Jerry L Thomas	OPS Instructor / sequester	Jerry L Thomas	9-5-13	Jerry L Thomas	9/19/13	
11.	Robert C BARTLES	OPS Instructor / sequester	Robert C Bartles	9-6-13	Robert C Bartles	9-19-13	
12.	Randy Herndon	OPS Instructor/Sequester	Randy Herndon	9-6-13	Randy Herndon	9-23-13	
13.	MM GUNN	OPS TRNG MGT	MM Gunn	9-17-13	MM Gunn	9/19/13	
14.	PAUL UNDERWOOD	OPS TRN SUPV		09/19/13		09/19/13	
15.							

NOTES:

Ball, Anthony R. **

From: Yang, Shenteng Ted [styang@tva.gov]
Sent: Thursday, September 19, 2013 4:13 PM
To: Ball, Anthony R.
Subject: RE: ES-201-3, Security Agreement

Hi, Ball :
This is Ted Yang. Thank you for your email. How Are you doing ??
I am now working for TVA at Soddy Daisy, TN, Sequoyah Plant. Still work in the Simulator Group.
Yes, I will be adherence with the statement you quoted in the email to me.
When you get chance, welcome to visit Sequoyah !
See hi to Friends in Hatch, and in Simulator Group –John, Jeff, Mike, Neil.
Take care,

S. Ted Yang

From: Ball, Anthony R. [mailto:arball@southernco.com]
Sent: Thursday, September 19, 2013 4:04 PM
To: Ohmstede, Gary T.; stedyang@gmail.com; Yang, Shenteng Ted
Subject: ES-201-3, Security Agreement

Greetings,

The ILT-08 NRC Exam is complete. IAW NUREG 1021, I am again required to obtain your signature on ES-201-3, Security Agreement.

> ES-201-3, Security Agreement, states:
> "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 **09-02-13 thru 09-19-13** . 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."

Please respond to me stating your adherence with the above statement. I will then print your email and attach to the ES-201-3, Security Agreement.

Please contact me if you have any questions.

Thank you again for your support in the exam process.

ab

Anthony Ball
ILT-08 NRC Exam Author
Nuclear Ops Plant Instructor

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 9/2/13 → 9/19/13 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 9/2/2013 to 9/19/2013

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

	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Gary Ohmstede	Fleet Exam Manager		7/29/13	*** see email		
2.	B.K Wainwright	ILT Supervisor		9/4/13		9/23/13	
3.	Shane Cowson	Sequester		9/6/13		9/19/13	
4.	Lonnie Lowman	SEQUESTOR		9/3/13		9/20/13	
5.	John Campbell	SEQUESTOR		9/3/13		9/20/13	
6.	Ray Reyna	OPS INST / SEQUESTOR		9-5-13		9-20-13	
7.	David Hagen	SEQUESTER		9/4/13		9/20/13	
8.	Doug Harris	SEQUESTOR		9/3/13		9/20/13	
9.							
10.							
11.							
12.							
13.							
14.							
15.							

NOTES:

Ball, Anthony R. ***

From: Ohmstede, Gary T.
Sent: Friday, September 20, 2013 7:49 AM
To: Ball, Anthony R.
Subject: Re: ES-201-3, Security Agreement

I adhered to the exam security agreement and did not divulge to any unauthorized persons any information concerning the NRC licensing examinations. You can sign me off the ESA.

Gary Ohmstede

Sent from my iPad

On Sep 19, 2013, at 3:03 PM, "Ball, Anthony R." <arball@southernco.com> wrote:

> Greetings,
>
> The ILT-08 NRC Exam is complete. IAW NUREG 1021, I am again required to obtain your signature on ES-201-3, Security Agreement.
>
> > ES-201-3, Security Agreement, states:
> > "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 **09-02-13 thru 09-19-13** . 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."
>
> Please respond to me stating your adherence with the above statement. I will then print your email and attach to the ES-201-3, Security Agreement.
>
> Please contact me if you have any questions.
>
> Thank you again for your support in the exam process.
>
> ab

Anthony Ball
ILT-08 NRC Exam Author
Nuclear Ops Plant Instructor

912-366-2000 ext. 2411
912-379-8395 (pager)
arball@southernco.com

Facility: **PLANT E. I. HATCH ILT 8** Date of Examination: 09/02/2013
Exam Level: **RO ☑** SRO-I ☐ SRO-U ☐ Operating Test No.: 2013-301

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations **Admin 1**	M, R	Heat Stress Stay Time Determination **G2.1.26** (3.4/3.6) **ALL**
Conduct of Operations **Admin 2**	N, R	Determine if section 7.4 of the Control Room Surveillance checks, 34SV-SUV-019-2, requires Torus Cooling to be placed in service. **G2.1.07** (4.4/4.7) **ALL**
Emergency Procedures/Plan **Admin 4**	M, R	Determine the Evacuation Route During an Emergency. **G2.4.39** (3.9/3.8) **RO ONLY**
Radiation Control **Admin 5**	M, R	Evaluate a Radiation Work Permit (RWP) and Survey Map. **G2.3.7** (3.5/3.6) **ALL**

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)

Facility: **PLANT E. I. HATCH ILT 8** Date of Examination: 09/02/2013
Exam Level: RO ☐ **SRO-I ☑** SRO-U ☐ Operating Test No.: 2013-301

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations **Admin 1**	M, R	Heat Stress Stay Time Determination **G2.1.26** (3.4/3.6) **ALL**
Conduct of Operations **Admin 2**	N, R	Determine if section 7.4 of the Control Room Surveillance checks, 34SV-SUV-019-2, requires Torus Cooling to be placed in service. **G2.1.07** (4.4/4.7) **ALL**
Equipment Control **Admin 3**	N, R	Review a Required Action Sheet (RAS) for an inoperable Tech Spec component. **G2.2.23** (4.6) **SRO ONLY**
Radiation Control **Admin 5**	M, R	Evaluate a Radiation Work Permit (RWP) and Survey Map. **G2.3.7** (3.5/3.6) **ALL**
Emergency Procedures/Plan **Admin 6**	D, R	Determine a Protective Action Recommendation (PAR). **G2.4.9** (4.0) **SRO Only**

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

* Type Codes & Criteria:
(C)ontrol room, (S)imulator, or Class(R)oom
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1; randomly selected)

Facility: PLANT E. I. HATCH ILT 8 Date of Examination: 09/02/2013
Exam Level: RO ☐ SRO-I ☐ **SRO-U ☑** Operating Test No.: 2013-301

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations **Admin 1**	M, R	Heat Stress Stay Time Determination **G2.1.26** (3.4/3.6) **ALL**
Conduct of Operations **Admin 2**	N, R	Determine if section 7.4 of the Control Room Surveillance checks, 34SV-SUV-019-2, requires Torus Cooling to be placed in service. **G2.1.07** (4.4/4.7) **ALL**
Equipment Control **Admin 3**	N, R	Review a Required Action Sheet (RAS) for an inoperable Tech Spec component. **G2.2.23** (4.6) **SRO ONLY**
Radiation Control **Admin 5**	M, R	Evaluate a Radiation Work Permit (RWP) and Survey Map. **G2.3.7** (3.5/3.6) **ALL**
Emergency Procedures/Plan **Admin 6**	D, R	Determine a Protective Action Recommendation (PAR). **G2.4.9** (4.0) **SRO Only**

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

* Type Codes & Criteria:
(C)ontrol room, (S)imulator, or Class(R)oom
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1; randomly selected)

Facility: PLANT E. I. HATCH ILT 8 Date of Examination: 09/02/2013

Exam Level: RO ☑ SRO-I ☐ SRO-U ☐ Operating Test No.: 2013-301

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
CR/SIM 1 – Normal Start of Recirc ASD	D, L, S	SF-1 Reactivity Control 202001K6.02 (3.1/3.2) **RO ONLY**
CR/SIM 2 – Perform a Manual S/U of the Core Spray With 1st Injection valve failure	A, EN, L, M, S	SF-2 Reactor Water Inventory Control 209001A4.05 (3.8/3.6) **ALL**
CR/SIM 3 – ED Using Head Vents	D, S	SF-3 Reactor Pressure Control 295025A1.01 (2.9/3.0) **RO**
CR/SIM 4 – Perform A Manual Initiation of LPCI From Shutdown Cooling	L, M, S	SF-4 Heat Removal From the Core 206000A4.06 (4.3/4.3) **RO**
CR/SIM 5 – Verify An Automatic Isolation Of PCIS Group II	D, E, EN, S	SF-5 Containment Integrity 223002A3.02 (3.5/3.5) **ALL**
CR/SIM 6 – Perform a D/G Manual Start Surveillance (Trip Failure)	A, D, S	SF-6 Electrical 364000A4.04 (3.7/3.7) **RO**
CR/SIM 7 – Perform RC-1, Alternate Path	A, M, S	SF-7 Instrumentation 212000A4.01 (4.6/4.6) **RO**
CR/SIM 8 – Place Control Room HVAC Systems in the Isolation Mode (1st C012 fan fails)	A, C, M	SF-9 Radiation Release 290003A4.01 (3.2/3.2) **ALL**
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
PLANT 1 – Vent the Scram Air Header on Unit 1	D, E, L, R	SF-1 Reactivity Control 212000A4.17 (4.1/4.1) **ALL**
PLANT 2 – From the Unit 2 Remote Shutdown Panel, Start RHR in Torus Cooling	D, E, R	SF-5 Containment Integrity 295013 AA1.01 (3.9/3.9) **RO**
PLANT 3 – Crosstie Unit 2 Instrument Bus "B" to Instrument Bus "A"	D, E,	SF-6 Electrical 262001A2.07 (3.0/3.2) **ALL**

Facility: PLANT E. I. HATCH ILT 8 Date of Examination: 09/02/2013

Exam Level: RO ☐ SRO-I ☑ SRO-U ☐ Operating Test No.: 2013-301

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
CR/SIM 2 – Perform a Manual S/U of the Core Spray With 1st Injection valve failure	A, EN, L, M, S	SF-2 Reactor Water Inventory Control 209001A4.05 (3.8/3.6) **ALL**
CR/SIM 3 – ED Using Head Vents	D, S	SF-3 Reactor Pressure Control 295025A1.01 (2.9/3.0) **SRO-I**
CR/SIM 4 – Perform A Manual Initiation of LPCI From Shutdown Cooling	L, M, S	SF-4 Heat Removal From the Core 206000A4.06 (4.3/4.3) **SRO-I**
CR/SIM 5 – Verify An Automatic Isolation Of PCIS Group II	D, E, EN, S	SF-5 Containment Integrity 223002A3.02 (3.5/3.5) **ALL**
CR/SIM 6 – Perform a D/G Manual Start Surveillance (Trip Failure)	A, D, S	SF-6 Electrical 364000A4.04 (3.7/3.7) **SRO-I**
CR/SIM 7 – Perform RC-1, Alternate Path	A, M, S	SF-7 Instrumentation 212000A4.01 (4.6/4.6) **SRO-I**
CR/SIM 8 – Place Control Room HVAC Systems in the Isolation Mode (1st C012 fan fails)	A, C, M	SF-9 Radiation Release 290003A4.01 (3.2/3.2) **ALL**
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
PLANT 1 – Vent the Scram Air Header on Unit 1	D, E, L, R	SF-1 Reactivity Control 212000A4.17 (4.1/4.1) **ALL**
PLANT 2 – From the Unit 2 Remote Shutdown Panel, Start RHR in Torus Cooling	D, E, R	SF-5 Containment Integrity 295013 AA1.01 (3.9/3.9) **SRO-I**
PLANT 3 – Crosstie Unit 2 Instrument Bus "B" to Instrument Bus "A"	D, E,	SF-6 Electrical 262001A2.07 (3.0/3.2) **ALL**

Facility: PLANT E. I. HATCH ILT 8 Date of Examination: 09/02/2013

Exam Level: RO ☐ SRO-I ☐ SRO-U ☑ Operating Test No.: 2013-301

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
CR/SIM 2 – Perform a Manual S/U of the Core Spray With 1st Injection valve failure	A, EN, L, M, S	SF-2 Reactor Water Inventory Control 209001A4.05 (3.8/3.6) **ALL**
CR/SIM 5 – Verify An Automatic Isolation Of PCIS Group II	D, E, EN, S	SF-5 Containment Integrity 223002A3.02 (3.5/3.5) **ALL**
CR/SIM 8 – Place Control Room HVAC Systems in the Isolation Mode (1st C012 fan fails)	A, C, M	SF-9 Radiation Release 290003A4.01 (3.2/3.2) **ALL**
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
PLANT 1 – Vent the Scram Air Header on Unit 1	D, E, L, R	SF-1 Reactivity Control 212000A4.17 (4.1/4.1) **ALL**
PLANT 3 – Crosstie Unit 2 Instrument Bus "B" to Instrument Bus "A"	D, E,	SF-6 Electrical 262001A2.07 (3.0/3.2) **ALL**

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

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(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	

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

Facility: **E. I. HATCH** Date of Examination: **09-03-2013** Operating Test Number: **2013-301**

	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., 10CFR55.45, operational importance, safety function distribution).	AB	CE	EJ
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	AB	CE	EJ
c.	The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)	AB	CE	EJ
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	AB	CE	EJ
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	AB	CE	EJ
	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	AB	CE	EJ
b.	Ensure that any changes from the previously approved systems and administrative walk-through outlines (Forms ES-301-1 and 2) have not caused the test to deviate from any of the acceptance criteria (e.g., item distribution, bank use, repetition from the last 2 NRC examinations) specified on those forms and Form ES-201-2.	AB	CE	EJ
	3. Simulator Criteria	--	--	--
The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.		AB	CE	EJ

		Printed Name / Signature	Date
a.	Author	Anthony Ball / Anthony Ball	8/21/2013
b.	Facility Reviewer(*)	Charlie Edmund / Charlie Edmund	8/22/2013
c.	NRC Chief Examiner (#)	Edwin Lea, Jr. / Edwin Lea, Jr.	8/28/2013
d.	NRC Supervisor	MICHAEL MEEKS / Michael Meeks (ACTING) FOR M. FRANKE	08/28/2013

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

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

Facility: **E. I. HATCH** Date of Exam: **09-03-2013** Scenario Numbers: **1 / 3 / 4 / 5** Operating Test No.:**2013-301**

QUALITATIVE ATTRIBUTES		Initials a	b*	c#
1.	The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.	AB	CE	LJ
2.	The scenarios consist mostly of related events.	AB	CE	LJ
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)	AB	CE	LJ
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.	AB	CE	LJ
5.	The events are valid with regard to physics and thermodynamics.	AB	CE	LJ
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	AB	CE	LJ
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.	AB	CE	LJ
8.	The simulator modeling is not altered.	AB	CE	LJ
9.	The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.	AB	CE	LJ
10.	Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered in accordance with Section D.5 of ES-301.	AB	CE	LJ
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	AB	CE	LJ
12.	Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).	AB	CE	LJ
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	AB	CE	LJ

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

Facility: E. I. HATCH Date of Exam: 09-03-2013 Operating Test No.:2013-301

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		1			3			4			5						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO X SRO-I ☐ SRO-U ☐	RX		2			5			6			3		4	1	1	0
	NOR			1			1			1			1	4	1	1	1
	I/C		3,5	4,6		3,5	2,4		2,4	3,5		2,5	3,4	16	4	4	2
	MAJ		7,9	7,9		6	6		7,9	7,9		6	6	6	2	2	1
	TS		NA	NA		NA	NA		NA	NA		NA	NA	NA	0	2	2
RO ☐ SRO-I X SRO-U ☐	RX	2			5			6			3			4	1	1	0
	NOR	1			1			1			1			4	1	1	1
	I/C	3,4, 5,6			2,3, 4,5			2,3, 4,5			2,3, 4,5			16	4	4	2
	MAJ	7,9			6			7,9			6			6	2	2	1
	TS	4,6			2,4,5			2,5,6			2,4,5			11	0	2	2
RO ☐ SRO-I ☐ SRO-U X	RX	2			5			6			3			4	1	1	0
	NOR	1			1			1			1			4	1	1	1
	I/C	3,4, 5,6			2,3, 4,5			2,3, 4,5			2,3, 4,5			16	4	4	2
	MAJ	7,9			6			7,9			6			6	2	2	1
	TS	4,6			2,4,5			2,5,6			2,4,5			11	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: **Plant E. I. Hatch** Date of Examination: **09/03/2013** Operating Test No.: **2013-301**

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

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

Instructions:

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

Tier / Group	Randomly Selected K/A	Reason for Rejection
2 / 2	233000K4.08 RO QUESTION	ORIGINAL K/A: 233000 Fuel Pool Cooling and Clean-up K4. Knowledge of FUEL POOL COOLING AND CLEAN-UP design feature(s) and/or interlocks which provide for the following: (CFR: 41.7) K4.08 Pool cooling during loss of coolant accident: BWR-6 ..... 2.6* 2.8 Plant Hatch is not a BWR-6.
1 / 1	295031EA1.01 RO QUESTION	ORIGINAL K/A: 295031EA1.01 Reactor Low Water Level EA1. Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL : (CFR: 41.7 / 45.6) EA1.04 High pressure core spray: Plant-Specific ... 4.3* 4.2 Plant Hatch does not have a High Pressure Core Spray System.

ES-401, Rev. 9 **BWR Examination Outline** **Form ES-401-1**

Facility Hatch **Date of Exam:** 2013

Tier	Group	RO K/A Category Points												SRO-Only Points				
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	Total	A2		G*		Total
1. Emergency & Abnormal Plant Evolutions	1	4	3	3	N/A			3	4	N/A		3	20	4		3		7
	2	1	1	1				2	1			1	7	2		1		3
	Tier Totals	5	4	4				5	5			4	27	6		4		10
2. Plant Systems	1	3	2	3	1	3	2	2	3	2	3	2	26	3		2		5
	2	1	1	1	2	1	1	1	1	1	1	1	12	0	2	1		3
	Tier Totals	4	3	4	3	4	3	3	4	3	4	3	38	5		3		8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7
		3			3			2			2			2	2	1	2	

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

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295001AK2.06	Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	3.8	3.8	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Reactor power.....
295003AK1.02	Partial or Complete Loss of AC / 6	3.1	3.4	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Load shedding.....
295004G2.1.7	Partial or Total Loss of DC Pwr / 6	4.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.
295005AK3.02	Main Turbine Generator Trip / 3	3.4	3.5	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Recirculation pump downshift/trip: Plant-Specific...
295006AA1.01	SCRAM / 1	4.2	4.2	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	RPS.....
295016AA2.07	Control Room Abandonment / 7	3.2	3.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Suppression chamber pressure.....
295018AK3.06	Partial or Total Loss of CCW / 8	3.3	3.3	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Increasing cooling water flow to heat exchangers.....
295019AA2.02	Partial or Total Loss of Inst. Air / 8	3.6	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Status of safety-related instrument air system loads (see AK2.1 - AK2.19).....
295021G2.2.40	Loss of Shutdown Cooling / 4	3.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to apply technical specifications for a system.
295023AA2.03	Refueling Acc Cooling Mode / 8	3.3	3.8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Airborne contamination levels.....
295024EA2.06	High Drywell Pressure / 5	4.1	4.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Suppression pool temperature.....

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295025G2.1.27	High Reactor Pressure / 3	3.9	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of system purpose and or function.
295026EK3.04	Suppression Pool High Water Temp. / 5	3.7	4.1	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	SBLC injection.....
295028EA1.03	High Drywell Temperature / 5	3.9	3.9	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Drywell cooling system.....
295030EK1.02	Low Suppression Pool Wtr Lvl / 5	3.5	3.8	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Pump NPSH.....
295031EA1.04	Reactor Low Water Level / 2	4.3	4.2	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	High pressure core spray: Plant-Specific.....
295037EK2.12	SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	3.6	3.8	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Rod control and information system: Plant-Specific...
295038EK1.01	High Off-site Release Rate / 9	2.5	3.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Biological effects of radioisotope ingestion.....
600000AK1.01	Plant Fire On Site / 8	2.5	2.8	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Fire Classifications by type
700000AK2.03	Generator Voltage and Electric Grid Distrurbancecs	3.0	3.1	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Sensors, detectors, indicators

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295009AK1.02	Low Reactor Water Level / 2	3.0	3.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Recirculation pump net positive suction head: Plant-Specific.....
295010AA2.06	High Drywell Pressure / 5	3.6	3.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Drywell temperature.....
295012AK3.01	High Drywell Temperature / 5	3.5	3.6	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Increased drywell cooling.....
295013G2.4.18	High Suppression Pool Temp. / 5	3.3	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the specific bases for EOPs.
295017AA1.05	High Off-site Release Rate / 9	2.7	3.2	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	SPDS/ERIS/CRIDS/GDS: Plant-Specific.....
295035EA1.01	Secondary Containment High Differential Pressure / 5	3.6	3.6	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Secondary containment ventilation system.....
500000EK2.07	High CTMT Hydrogen Conc. / 5	3.2	3.7	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Drywell vent system

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
203000K6.02	RHR/LPCI: Injection Mode	2.8	3.0	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	D.C. electrical power
205000K5.02	Shutdown Cooling	2.8	2.9	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Valve operation
205000K5.03	Shutdown Cooling	2.8	3.1	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Heat removal mechanisms
206000A1.08	HPCI	4.1	4	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	System lineup: BWR-2,3,4
209001K3.01	LPCS	3.8	3.9	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Reactor water level
209001K3.03	LPCS	2.9	3.0	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Emergency generators
211000K2.02	SLC	3.1	3.2	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Explosive valves
212000A3.02	RPS	3.2	3.5	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Individual system relay status: Plant-Specific
212000A4.15	RPS	3.9	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Recirculation pump trip/EOC RPT
215003K4.05	IRM	2.9	3.0	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Changing detector position
215004K1.05	Source Range Monitor	2.8	3.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Display control system: Plant-Specific

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
215005A4.06	APRM / LPRM	3.6	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Verification of proper functioning/ operability
217000K5.06	RCIC	2.7	2.7	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Turbine operation
218000K3.01	ADS	4.4	4.4	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Restoration of reactor water level after a break that does not depressurize the reactor when required
223002A2.11	PCIS/Nuclear Steam Supply Shutoff	3.8	3.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Standby liquid initiation
239002K2.01	SRVs	2.8	3.2	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	SRV solenoids
259002A4.08	Reactor Water Level Control	4.5	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Manually initiate FWCI: FWCI
261000A2.07	SGTS	2.7	2.8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	A.C. electrical failure
261000K1.03	SGTS	2.9	3.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Suppression pool
262001K6.03	AC Electrical Distribution	3.5	3.7	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Generator trip
262002G2.4.4	UPS (AC/DC)	4.5	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.
263000A3.01	DC Electrical Distribution	3.2	3.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Meters, dials, recorders, alarms and indicating lights

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
284000G2.2.42	EDGs	3.9	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to recognize system parameters that are entry-level conditions for Technical Specifications
300000A2.01	Instrument Air	2.9	2.8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Air dryer and filter malfunctions
300000K1.03	Instrument Air	2.8	2.9	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Containment air
400000A1.01	Component Cooling Water	2.8	2.8	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	CCW flow rate

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
201003A2.09	Control Rod and Drive Mechanism	3.2	3.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Low reactor pressure
204000K1.15	RWCU	3.1	3.2	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Leak detection: Plant-Specific
215001A4.03	Traversing In-core Probe	3.0	3.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Isolation valves: Mark-I&II(Not-BWR1)
215002G2.4.4	RBM	4.5	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.
223001A3.05	Primary CTMT and Aux.	4.3	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Drywell pressure
226001K6.04	RHR/LPCI: CTMT Spray Mode	2.7	2.7	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Keep fill system
233000K4.08	Fuel Pool Cooling/Cleanup	2.6	2.8	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Pool cooling during loss of coolant accident: BWR-6
239001K5.05	Main and Reheat Steam	2.8	2.8	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Flow indication
241000K3.03	Reactor/Turbine Pressure Regulator	3.7	3.8	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Reactor water level
245000K4.10	Main Turbine Gen. / Aux.	2.6	2.7	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Extraction steam
268000A1.02	Radwaste	2.6	3.6	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Off-site release

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
286000K2.02	Fire Protection	2.9	3.1	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Pumps

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.1	Conduct of operations	3.8	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of conduct of operations requirements.
G2.1.20	Conduct of operations	4.6	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to execute procedure steps.
G2.1.8	Conduct of operations	3.4	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to coordinate personnel activities outside the control room.
G2.2.21	Equipment Control	2.9	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of pre- and post-maintenance operability requirements.
G2.2.22	Equipment Control	4.0	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of limiting conditions for operations and safety limits.
G2.2.36	Equipment Control	3.1	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions of operations
G2.3.11	Radiation Control	3.8	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to control radiation releases.
G2.3.13	Radiation Control	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiological safety procedures pertaining to licensed operator duties
G2.4.16	Emergency Procedures/Plans	3.5	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of EOP implementation hierarchy and coordination with other support procedures or guidelines.
G2.4.5	Emergency Procedures/Plans	3.7	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the organization of the operating procedures network for normal, abnormal and emergency evolutions.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295004AA2.02	Partial or Total Loss of DC Pwr / 6	3.5	3.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Extent of partial or complete loss of D.C. power.....
295016G2.2.37	Control Room Abandonment / 7	3.6	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to determine operability and/or availability of safety related equipment
295019G2.1.28	Partial or Total Loss of Inst. Air / 8	4.1	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the purpose and function of major system components and controls.
295023AA2.02	Refueling Acc Cooling Mode / 8	3.4	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Fuel pool level.....
295024EA2.02	High Drywell Pressure / 5	3.9	4.0	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Drywell temperature.....
295037G2.4.49	SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1	4.6	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.
700000AA2.07	Generator Voltage and Electric Grid Distrurbancecs	3.6	4.0	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Operational status of engineered safety features

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
295007AA2.01	High Reactor Pressure / 3	4.1	4.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Reactor pressure.....
295012G2.4.11	High Drywell Temperature / 5	4.0	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of abnormal condition procedures.
295032EA2.03	High Secondary Containment Area Temperature / 5	3.8	4.0	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Cause of high area temperature.....

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
209001G2.4.49	LPCS	4.6	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.
215003A2.05	IRM	3.3	3.5	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Faulty or erratic operation of detectors/system
218000A2.05	ADS	3.4	3.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loss of A.C. or D.C. power to ADS valves
261000A2.08	SGTS	2.4	2.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	D.C. electrical failure
263000G2.4.8	DC Electrical Distribution	3.8	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of how abnormal operating procedures are used in conjunction with EOPs.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
201006A2.06	RWM	2.9	3.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loss of reactor water level control input: P- Spec(Not-BWR6)
290001A2.02	Secondary CTMT	3.5	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Excessive outleakage
290003G2.4.4	Control Room HVAC	4.5	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.3	Conduct of operations	3.7	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of shift or short term relief turnover practices.
G2.1.36	Conduct of operations	3.0	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of procedures and limitations involved in core alterations
G2.2.18	Equipment Control	2.6	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the process for managing maintenance activities during shutdown operations.
G2.2.39	Equipment Control	3.9	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of less than one hour technical specification action statements for systems.
G2.3.4	Radiation Control	3.2	3.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiation exposure limits under normal and emergency conditions
G2.4.38	Emergency Procedures/Plans	2.4	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator.
G2.4.4	Emergency Procedures/Plans	4.5	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

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September 2013
SRO

Form ES-401-9

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 the question source: Bank (B), Modified (M), or New (N). Check that Modified (M) 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. B/M/N	7. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			

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	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			
SRO ONLY Questions																
76	H	1				X						X		M	S	LOD. Consider this a K/A match based on the fact that Hatch doesn't use RWLC inputs into RWM. Is it necessary to use (signature is NOT allowed)? **(Accepted question as is. SRO is required to know what is required)**
77	F	1	X	X										N	U	LOD. Why would anyone not open the CS pumps discharge valve after starting the pumps? Is there a min flow line. This question appears to be a direct lookup because this is open reference. The stem directs the applicant to the date (4/12/2013). I do not see where a time of 02:00 would come from. **(Changed pressure to 475 psig. Licensee explained why it was not a direct lookup. Changed LOD to a 2. Question should have been S)**
78	H	1												B	S	**(OK. Changed to 2)**
79	H	3												M	S/?	Need to make sure the pressure reduction cannot be accomplished with Alternate RPV pressure control (Rewrote question to make sure there were not two correct. **As provided, there could have been two correct answers. Question could have been identified as an U)**
80	F	2												M	S	**(OK)**
81	H	2												M	S	
82	F	1												N	S	LOD **(OK. Changed LOD to 2)**
83	H	2												N	S	**(OK)**
84	F/H	2				X						X		B	U	Explain the plausibility of distractors B and D second part. It appears that this question can be answered with RO only knowledge. **(LOD Will MOVE ON) (8/7 reviewed new question and concluded it was OK. Went from an F to and H with a LOD of ~2) (Was a U)**
85	H	2												M	S	Need to discuss references provided **(Change NUE to Site Area Emergency)**
86	H	1												B	S	**(OK)**
87	H	2												M	U/S/?	Need to discuss why this is an SRO question. As written it appears that the question can be answered with purely RO knowledge. **(made a**

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																change distractors A & B. I still consider this an easy question)
88	H	3												N	S?	Need to make sure that this is a K/A match. Discuss purpose & function. **(OK)**
89	H	1										X		M	U	LOD. Why do you consider this SRO? SPL is TS entry condition. Following an isolation of a system, and the conditions which caused the isolation has not cleared, why would anyone consider restarting the system? What was the position of the bundle after the fall? It appears that this question can be answered with system knowledge. **(OK as written. Should not have been a U).**
90	H	2										X?		N	S?	Need to have discussion on why this is a K/A match **(OK)**
91	H	2												N	S	**(OK)**
92	H	1										X		N	U/S?	LOD. It appears that this question can be answered with system knowledge and knowledge of immediate scram actions. Also based on knowing that all rods did not fully insert and RX power is at 8%, why would anyone not know to prevent injecting into the RPV? **(OK)**
93	H	3												M	S	**(OK)**
94	F	2												N	E	Consider changing the time the scram was inserted. And changing the times in the distractor to match another time in the stem. **(Made changes. OK)**
95	F	2												M	S	**(OK)**
96	F	2												N	S	**(OL)**
97	F	2												M	U	Not sure why 30 minutes is plausible. Not sure of any procedure that requires a TS time requirement to be completed in 30 minutes. Consider using 1 hour and 1 hour and 15 minutes which is 125% of the action statement. **(Identified 30 minute time and 2 times requirement. Made changes as necessary. OK Not a U)**
98	F	1												N	U	LOD. This appears to be general rad worker training. Question 99 appears to match this K/A and would be a better question **(Look at changing -- Will use question 99) (Discussed on 8/7 Question OK as written. Old question was U)**
99	F	1												N		LOD **(Will find new question) Moved to 98. Wrote new question. Reviewed question on 8/7 and determined it was OK. LOD ~2).**
100	H	2												N	S?	Is there sufficient information in the stem concerning oil pressure? (Not a problem with pressure. **(Need to figure out changes in oil pressure over time that would cause EDG to trip. Removed highest from stem**

																OK)

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RO

Form ES-401-9

Instructions
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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. B/M/N	7. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			
1	H	3	X			X								N	E	Consider adding information in the stem concerning accumulator CRD temperature. This should add to the plausibility of the distractors. **(Added CRDM temperature. OK)**
2	F	2												N	S	
3	H	2												N	S	
4	H	2												M	E	Consider rewording the stem. Give a time for all conditions and add time when RWL returned to normal. Then ask: Based on the given plant conditions, 2E11-F008, RHR SDC Suction valve will be _____ and RHR pump will _____ **(Made change as suggested. OK)**

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	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			
5	F	2												B	S	
6	H	2												N	S	
7	F	2	X											N	E	Check to grammar in the stem. Is there a need to tell them the TS required flow rates? **(Added flow rate. OK)**
8	F	2												N	S	
9	H	3												M	S	
10	F	3												M	S	
11	H	2												N	S/?	Please explain why maximizing CRD flow is plausible **(maximizing CRD flow would have the opposite effect on stratification as explained by the licensee. Reviewed supporting information. RWCU is maximized and effect stratification. OK)**
12	H	2												M	S/?	Is "TIP "A" has been given ..." needed? **(Removed information as suggested and reworded the stem. OK)**
13	H	2												N	S	
14	F	2				X								B	U	Is there a correct answer? Will depressing the Drive-In button once accomplish the task? Distractor A is not plausible. Explain why turning power off and then on is plausible. **(Made minor changes to stem and distractors. Question should have been an E. OK)**
15	H	2												N	S	
16	F	2												M	S	
17	F	3												N	S	
18	H	3	X											N	E	Look at the grammar in the stem. Add units to reactor pressure. Make sure there are not two correct. Need to discuss HPCI injection. (HPCI will have isolated based on plant condition. Therefore it will not start. OK).
19	H	2												M	S	
20	F	2				X								N	U/S?	Why do you consider distractors B and C plausible? Do we expect an RO to know the information contained in the EOP? Changed distractor B & C **(Wrote new question. OK. Question as submitted was U)**
21	H	2												N	S	
22	F	2												B	S	

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RO

Form ES-401-9

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	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			
23	F	2												N	E	Need to discuss changing setpoint. Could a number lower than 170 be used and still be incorrect? **(Changed set point to include a Unit 1 setpoint. OK)**
24	F	2												N	S	
25	H	2												M	S	**(OK)**
26	F	2												B	S	
27	F	3				X								B	U	Distractors B and D are not plausible. I cannot think of any time when you would stop to test trip circuit. Any testing of such would have been done before starting a component. **(Discussed why B & D are acceptable. Reviewed procedure which supported use of 3500 RPM. OK Should be E)**
28	H	3	X			X								N	U	Explain plausibility of distractors. On a loss of bus is it true that the dampers go to their fail safe position? In this case, is it not open? Please explain why anyone would want to start a SBGT fan with dampers close. There are two answers given in the second part of the question. The answer given identifies the procedure and action required to be performed. **(This question test unit differences. Unit one fail open and Unit 2 open OK. Question should have been a S)**
29	F	2												N	U/?	I do not think this is an RO question. As written it ask the applicant to recall information from one of the EOP Flow Charts. Information provided doesn't provide sufficient information to support selection of answer. **According to licensee this question is acceptable based on lesson plan/objective. Changed one of the distractors. Should have been an E) Look at question 63)**
30	H	3												M	S	
31	H	2												M	S	
32	F	2												N	S	
33	H	3												M	S	
34	H	2												M	S	
35	H	2												M	S	

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	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			
36	H	3												N	S	
37	H	2												M	S	
38	F	2												N	S	**(Added For the above conditions: OK)**
39	F	3												N	S?	Need to make sure that this is an acceptable RO question. The question requires the applicant to recall TS bases. Is this require RO knowledge. **(Made a change to wording in the stem. RO learning objective)**
40	F	3												M	S	
41	F	2				X								B	U?	I do not see the plausibility of plant availability (distractors B and D). Plant availability could be seen as the purpose of any runback which prevents a reactor scram. **(Changed distractors B & D to add only. OK after discussion. Should have been an E)**
42	H	3												N	S	
43	F	3												N	S	
44	F	3												N	?	Is "because this value exceeds ..... a bases? **(Expect RO knowledge as stated by the licensee. OK. S)**
45	H	3												M	S	
46	F	3												N	S	
47	H	2												M	S	
48	H	3	X											B	E	Consider rewording the stem. Based on the current plant conditions, which one of the following identify final MSIV position? **(Revised as suggested. OK)**
49	H	3												B	S	
50	H	2												N	S?	Need to discuss location of main steam lines. Explain why anyone would think that the fuel pool racks would be uncovered.....**(question is OK. Discussed system design and procedural requirements)**
51	F	2												M	S	
52	H	2												M	S	
53	H	2												M	S	
54	H	2												M	S	
55	H	3												B	S	

ES-401, Rev. 9

Written Examination Review Worksheet
HATCH NUCLEAR Plant 2013-301
September 2013
RO

Form ES-401-9

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	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			
56	H	2												M	S	
57	F	2												B	S?	Need to discuss when it might be necessary to operate both trains of SBGT.**(question is OK)**
58	H	2												B	S	
59	F	2												M	S	
60	H	3												N	S	
61	F	1				X								B	U/E	LOD. Need to discuss plausibility of distractors C and D. **(Question determined to be acceptable OK)**
62	F	2												N	S?	Are there other panels with RBCCW indications? **(Changed 700 to 602. OK)**
63	H	3												M	S	**(OK)**
64	F	1												B	S	LOD
65	H	3												M	S	
66	F	1	X											B	S	LOD. Identify why six is plausible or is there some other number, such as 4, that is associated with another procedure. **(Changed 6 to 1 OK)**
67	F	2												M	S	**(OK)**
68	F	1				X								N	U	LOD. Based on my review of the procedure, the answer identified may not be correct. **(Question determined to be acceptable OK)**
69	H	2												M	S	Question 69 doesn't match what is in LXR **(Provided new question. OK. Was a U.)**
70	H	3												M	S	
71	F	2												S	S	
72	F	2												M	S	
73	F	2												B	S	
74	H	2												M/N ?	S	

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	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			
75	F	1												M	S	LOD

Written Examination Review Worksheet
HATCH NUCLEAR Plant 2013-301
September 2013
RO

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	7. Explanation
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/ units	Back-ward	Q= K/A	SRO Only			

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

Facility: HATCH (2013-301) Date of Exam: 9/19/2013 Exam Level: RO [X] SRO [ ]

	Item Description	Initials a	b	c
1.	Clean answer sheets copied before grading	MJR		EL
2.	Answer key changes and question deletions justified and documented	N/A		N/A
3.	Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	MJR		EL
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
5.	All other failing examinations checked to ensure that grades are justified	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	MJR		EL

	Printed Name/Signature	Date
a. Grader	MARK J. RICHES / Mark J. Riches	10/02/13
b. Facility Reviewer(*)	N/A	
c. NRC Chief Examiner (*)	Edwin Lea, Jr. / Edwin Lea Jr.	10/4/2013
d. NRC Supervisor (*)	MARK FRANKE	10/4/13

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

ES-401 **Written Examination Quality Checklist** **Form ES-401-6**

Facility: **Plant E. I. Hatch** Date of Exam: **09-19-2013** Exam Level: RO X SRO X

	Item Description	Initial a	b*	c#
1.	Questions and answers are technically accurate and applicable to the facility.	AB	CE	tJ
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.	AB	CE	tJ
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401	AB	CE	tJ
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).			tJ
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)	AB	CE	tJ
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.	AB	CE	tJ
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.	AB	CE	tJ
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.	AB	CE	tJ
9.	Question content conforms with specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.	AB	CE	tJ
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.	AB	CE	tJ
11.	The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet.	AB	CE	tJ

	RO Bank	SRO Bank	RO Modified	SRO Modified	RO New	SRO New
	26.7%	4%	33.3%	48%	40%	48%
	20	1	25	12	30	12

	RO Memory	SRO Memory	RO C/A	SRO C/A
	43%	12%	57%	88%
	32	3	43	22

	Printed Name / Signature	Date
a. Author	Anthony Ball / Anthony Ball	8/21/2013
b. Facility Reviewer (*)	Charlie Edmund / Charlie Edmund	8/22/2013
c. NRC Chief Examiner (#)	Edwin Lea Jr / Edwin Lea Jr	8/28/2013
d. NRC Regional Supervisor	MICHAEL MEEKS / Michael K. Meeks (ACTING) FOR M. FRANKE	08/28/2013

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.

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

Facility: HATCH (2013-301) Date of Exam: 9/19/2013 Exam Level: RO ☐ SRO ☒

Item Description	Initials a	b	c
1. Clean answer sheets copied before grading	MJR		EL
2. Answer key changes and question deletions justified and documented	N/A		N/A
3. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	MJR		EL
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
5. All other failing examinations checked to ensure that grades are justified	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	MJR		EL

	Printed Name/Signature	Date
a. Grader	MARK J. RICHES / Mark J. Riches	10/02/13
b. Facility Reviewer(*)	N/A	
c. NRC Chief Examiner (*)	Edwin Lea, Jr. / Edwin Lea, Jr.	10/4/2013
d. NRC Supervisor (*)	MARK FRANKE	10/4/13

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