Facility: North Anna Date of Examination: 06/16/2014

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

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

* 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: **North Anna Power Station** Date of Examination: **6/16/2014**

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.	RD	N/A	CB
	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.	RD	N/A	CB
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	RD	N/A	CB
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	RD	N/A	CB
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.	RD	LB	CB
	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.	RD	LB	CB
	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.	RD	LB	CB
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.	RD	LB	CB
	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	RD	LB	CB
	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.	RD	LB	CB
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	RD	LB	CB
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	RD	LB	CB
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	RD	LB	CB
	d. Check for duplication and overlap among exam sections.	RD	LB	CB
	e. Check the entire exam for balance of coverage.	RD	LB	CB
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	RD	LB	CB

	Printed Name/Signature	Date
a. Author	RANDALL GARRETT / RD	3/27/14
b. Facility Reviewer (*)	Lee C. Baron / LB	3/27/14
c. NRC Chief Examiner (#)	Daniel M. Bacon / Daniel M. Bacon	4/11/14
d. NRC Supervisor	MALCOLM T. WIDMANN /	06/09/14

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

- WRITTEN EXAM SAMPLE PLAN ONLY -

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

Facility: North Anna Power Station Date of Examination: June 2014

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.	M	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.	M	N/A	
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	M	N/A	
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	M	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.			
	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.	N		A
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations			
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.			
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	M	N/A	
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	M	N/A	
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	M	N/A	
	d. Check for duplication and overlap among exam sections.	N/A	N/A	N/A
	e. Check the entire exam for balance of coverage.	M	N/A	
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	M	N/A	

	Printed Name/Signature	Date
a. Author	MICHAEL MEEKS / Michael Meeks	08/16/2013
b. Facility Reviewer (*)	N/A	N/A
c. NRC Chief Examiner (#)	Daniel M. Bacon / Daniel M. Bacon	08/22/2013
d. NRC Supervisor	MARK FRANKE /	8/22/13

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

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 6-16-14 TO 6-27-14 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 6-16 TO 6-25 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 (9-3-13 / 8-8-13)	SIGNATURE (2)	DATE	NOTE
1.	CRISTALLE WALSH	Sr. Operations Instructor	C. Walsh	8-8-14	C. Walsh	6-25-14	
2.	RANDALL GARRETT	Sr Ops Instructor / Lead Author		9-3-13		6/25/14	
3.	Lee C. Barn	Supervisor Mc + ng	Lee C B	9-3-13	Lee C	6/25/14	
4.	Denise Tibbis	Sr. Ops Instructor	DG Tibbis	9-3-13	DG Tibbis	6/26/14	
5.	JEFF MOSHER	SHIFT MANAGER		11-18-13		6-26-14	
6.	Wesley, Richard W.	Training Manager		11/20/13		7/2/2014	
7.	ADAM THOMAS	REACTOR OPERATOR		2-4-14		6-25-14	
8.	Benjamin Schum	REACTOR OPERATOR		2/4/14		6/26/14	
9.	Jorge Bermudez	Unit Supervisor		2-4-14		7-8-14	
10.	RICH SCHWAB	Unit Supervisor		2/10/14		6/25/14	
11.	Arthur Stephens	Unit Supervisor		2-18-14		6-26-14	
12.	David E. Nunberg	Unit Supervisor	David E	2-18-14	David E	6-25-14	
13.	Alex Blanchard	Control Room Operator		2-18-14		6/26/14	
14.	Joe Gordon	Control Room Operator		2/18/14		6/26/14	
15.	SHARAD KUMAR	SR. SIMULATOR SUPPORT COORD		02/27/14		06/26/14	

NOTES:

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 6-16-14 to 6-27-14 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 6/16 - 6/25/14. 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
16.	KENNETH W. ELGER	Sr Simulator Coordinator		2/27/14		6/26/14	
17.	JAMES C SACK	SR SIM COOR		2/27/14		7/8/14	
18.	KHANH LE	Sr Simulator Coordinator		3/04/14		6/18/14	
19.	Mike Erdman	Sr. Ops Instructor		3/5/14		6/26/14	
20.	Paul K. Corrado	Sr Inst Duties/Supply Load Exam		3/24/14			(1)
21.	JOHN SUTTEMA	OPS MGR		3/26/14		6/25/14	
22.	John Bacon	RO		4/7/14		6/25/14	
23.	JASON RUSSELL	SRO/STA		4/7/14		6/25/14	
24.	Ted Vobaar	RO		4/21/14		6/25/14	
25.	Kurt Kracke	RO		4/21/14		7/10/14	
26.	Gerald Bischof	Site VP		4-21-14		7-7-14	
27.	Erin Salling	Instructor - RP		4-23-14		6/30/14	
28.	Andy Plumley	RO		4-23-14		6/25/14	
29.	John Little	INSTRUCTOR - LORP		5-12-14		7/11/14	
30.	Brian Scott	ASST. OPS MGR		5/22/14		6/25/14	

NOTES: (1) Signed by FAX. See attached

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 6-16-14 to 6-27-14 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. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC. Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of 6/16 - 6/25/14. 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
16.	Kenneth W. Elgert	Sr Simulator Coordinator		2/27/14		6/26/14	
17.	James C Sage	Sr Sim Coord		3/24/14		7/8/14	
18.	Khanh Le	Sr Simulator Coordinator		3/10/14		6/26/14	
19.	Mike Eadman	Sr Ops Instructor		3/5/14		6/26/14	
20.	Paul K. Orrell	Sr Inst Duties Supervisor		3/24/14		7/8/14	(1)
21.	John Sutton	OPS MGR		3/27/14		6/25/14	
22.	John Balon	RO		4/7/14		6/25/14	
23.	Jason Russell	SRO/STA		4/7/14		6/03/14	
24.	Ted Vebner	RO		4/7/14		6/25/14	
25.	Kurt Kracke	RO		4/21/14			
26.	Gerald Bischof	Site VP		4-21-14		7-7-14	
27.	Evan Sallay	Instructor - RP		4-13-14		6/30/14	
28.	Andy Plumley	RO		4-22-14		6/25/14	
29.	John Little	INSTRUCTOR - LORP		5-12-14		7/11/14	
30.	Brian Scott	ASST. OPS MGR		5/27/14		6/25/14	

NOTES: (1) Signed by FAX. See attached

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 6/16/14 - 6/27/14 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 6/16-6/25/14. 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
31.	Bryan Thompson	Supv Ops Trng / Project Mgr		5/30/14		6/25/14
32.	Mike Nichols	Unit Supervisor Validator		6/3/14		6/6/14
33.	Rebecca Fawls	STA		6/3/14		6/26/14
34.	Susan Lowe	RO		6/3/14		6/25/14
35.	Michael Brodsky	RO		6/3/14		6/25/14
36.	John A. Leake	RO		6/10/14		6-25-14
37.	Matt Hayes	SM / SRO		6-10-14		6-25-14
38.	M.D. Guill	SM / SRO		6/10/14		6-25-14
39.	SM SIDE	RO		6/10/14		6/25/14
40.	Traca Hicks	Admin		6-16-14		6/25/14
41.	Brenda Parish	Admin		6-16-14		6/25/14
42.	David Critchfield	Instructor		6/17/14		7/2/14
43.	Raina Horner	Admin, proctor		6-19-14		6-26-14
44.	Kennedy Dudek	Instructor		6/17/14		7/2 6/14
45.	Stewart Purvis	Inst / proctor		6/19/14		6/26/14

NOTES:

Facility: **North Anna Power Station** Date of Examination: 6/16/2014
Examination Level: **Combined (*See Below*)** Operating Test Number: 1

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	M,R G2.1.37	Calculate RCS boration to reduce Tave 2°F (**ALL**) (RO 4.3 / SRO 4.6)
Conduct of Operations	N,R G2.1.42	Calculate maximum CC temperature for refueling IAW 1-OP-4.1 (**ALL**) (RO 2.5 / SRO 3.4)
Equipment Control	N,R G2.2.12	Evaluate offsite source operability IAW 0-PT-80 (**RO ONLY**) (RO 3.4 / SRO 4.1)
Equipment Control	N,R G2.2.13	Review and approve a Tagging Record (**SRO ONLY**) (RO 4.1 / SRO 4.3)
Radiation Control	M,R G2.3.7	Given an assignment in the RCA determine entry requirements and stay time (**ALL**) (RO 3.5 / SRO 3.6)
Emergency Procedures/Plan	M,R G2.4.41	Classify an emergency event (EPIP1.01) (**SRO ONLY**)(SRO 4.6)

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: North Anna Power Station Date of Examination: 6/16/2014

Exam Level : RO ☒ SRO-I ☒ SRO-U ☒ Operating Test No.: 1

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

System / JPM Title (KA)	Type Code*	Safety Function
a) Transfer steam dumps to steam pressure mode 041A4.04 (2.7/2.7) **(RO and SRO-I)**	A, N, L, S	4 (Sec)
b) Transfer an emergency bus feed from a transfer bus to a station service bus 062A4.07 (3.1 / 3.1) **(ALL)**	D, S	6
c) Transfer cold leg to hot leg recirc with only one charging pump 006A4.07 (4.4 / 4.4) **(ALL)**	A,M, E,EN,L,S	2
d) Forced feed and spill during loss of shutdown cooling 025AA1.22 (2.9 / 2.8) **(RO and SRO-I)**	D,E,L,S	4(Pri)
e) Align containment spray IAW 1-FR-Z.1 026A4.01 (4.5 / 4.3) **(RO and SRO-I)**	A,D,E,EN,L,S	5
f) Respond to Loss of Circulating Water (no tell) 075A2.02 (2.5 / 2.7) **(RO and SRO-I)**	A,D,E,S	8
g) Perform a boration of the RCS 004A4.07 (3.9 / 3.7) **(ALL)**	A,M,S	1
h) Respond to pressurizer level channel failed low (no tell) 016A2.01 (3.0 / 3.1) **(RO ONLY)**	M,E,S	7
In-Plant Systems@ (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i) Trip the main turbine locally IAW 1-E-0 045A3.04, (3.4 / 3.6) **(ALL)**	A,D,E	4(Sec)
j) Align hydro test pump locally to fill SI accumulator 006A1.13 (3.5 / 3.7) **(RO and SRO-I)**	D, EN, R	3
k) Make up to CC head tank from condensate 008A2.02 (3.2 / 3.5) **(ALL)**	D, E, R	8

@ 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 (similar topic)	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

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

Facility: North Anna Power Station Date of Examination: 6/16/2014 Operating Test Number: 1

	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).	RB	LC	CB
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	RB	LC	CB
c.	The operating test shall not duplicate items from the applicants' audit test(s). (see Section D.1.a.)	RB	LC	CB
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	RB	LC	CB
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	RB	LC	CB
	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	RB	LC	CB
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.	RB	LC	CB
	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.		RB	LC	CB

		Printed Name / Signature	Date
a.	Author	Randall Garrett/	6-2-14
b.	Facility Reviewer(*)	Lee C. Baron,	6-2-14
c.	NRC Chief Examiner (#)	Daniel M. Bacon,	6-5-14
d.	NRC Supervisor	MICHAEL T. WIDMANN/	06/05/14

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

Facility: North Anna Date of Exam: 6/16/2014 Scenario Numbers: 2 / 3 / 4 / 5 Operating Test No.: 1

QUALITATIVE ATTRIBUTES	Initials a	b*	c#
1. The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.			
2. The scenarios consist mostly of related events.			
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)			
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.			
5. The events are valid with regard to physics and thermodynamics.			
6. Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.			
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.			
8. The simulator modeling is not altered.			
9. The scenarios have been validated. Pursuant to 10CFR55.46(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.			
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.			
11. All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).			
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).			
13. The level of difficulty is appropriate to support licensing decisions for each crew position.			

Target Quantitative Attributes (Per Scenario; See Section D.5.d)	Actual Attributes 2/3/4/5			
1. Total malfunctions (5–8)	7/7/8/9			
2. Malfunctions after EOP entry (1–2)	2/2/2/3			
3. Abnormal events (2–4)	4/4/5/4			
4. Major transients (1–2)	1/1/1/1			
5. EOPs entered/requiring substantive actions (1–2)	2/2/1/1			
6. EOP contingencies requiring substantive actions (0–2)	1/1/0/0			
7. Critical tasks (2–3)	4/3/4/3			

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

NOTE: I/C Events in **bold** happen *before* EOP entry

Facility: North Anna Power Station Date of Exam: 6/16/2014 Operating Test No.:1

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		2			3			4			5 (Spare)						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO	RX		2			2			6			1		1/1	1	1	0
	NOR		1	2		1	2,3a		1	6			1,4a	2/3	1	1	1
	I/C		**3,5,** 7	**4,6,** 7,9		**3,5,** 9	**4,6,** 8,9		**3,6a,7**	**2,4,9**		**2,4,** 7,8	**3,5, 5a**	6/7	4	4	2
	MAJ		8	8		7	**7**		8	8		6	6	2/2	2	2	1
	TS														0	2	2
SRO-U	RX	2			2			6			1			1/1	1	1	0
	NOR	1			1			1						1/1	1	1	1
	I/C	**3,4,5** 6,7,9			**3,4,5** 6,8,9			**2,3,4, 6a,7,** 9			**2,3,4, 5,5a,** 7,8			6/6	4	4	2
	MAJ	8			7			8			6			2/2	2	2	1
	TS	3,6			3,6			2,3,6			2a,3			2/3	0	2	2
SRO-I	RX	2	2		2	2		6	6		1	1		1/1	1	1	0
	NOR	1	1		1	1		1	1					1/1	1	1	1
	I/C	**3,4,5** 6,7,9	**3,5,7**		**3,4,5** 6,8,9	**3,5,** 9		**2,3,4, 6a,7,** 9	**3,6a,7**		**2,3,4, 5,5a,** 7,8	**2,4** 7,8		6/7	4	4	2
	MAJ	8	8		7	7		8	8		6	6		2/2	2	2	1
	TS	3,6			3,6			2,3,6			2a,3			2/3	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.

ES-301 **Competencies Checklist** **Form ES-301-6**

Facility: North Anna	Date of Examination: 6/16/2014	Operating Test No.: 1

Competencies	APPLICANTS															
	RO/BOP				SRO-I as RO				SRO-U SRO-I							
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	2	3	4	5	2	3	4	5	2	3	4	5				
Interpret/Diagnose Events and Conditions	2,3, 4,5, 6,7 8,9	2,3, 4,5, 6,7, 8,9	2,3, 4,5, 6,7, 8,9	1,2 3,4, 5,5a 7,8	2,3, 4,5, 6,7 8,9	2,3, 4,5, 6,7, 8,9	2,3, 4,5, 6,7, 8,9	1,2 3,4, 5,5a 7,8	2,3, 4,5, 6,7, 8,9	2,3, 4,5, 6,7, 8,9	2,3, 4,5, 6,7, 8,9	1,2, 3,4, 5,5a 7,8				
Comply With and Use Procedures (1)	1,2, 3,4, 5,6, 78, 8,9	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2 3,4 4a,5 5a,7 8	1,2, 3,4, 5,6, 78, 8,9	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2 3,4 4a,5 5a,7 8	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2 3,4, 5,6, 7,8, 9	1,2 3,4 4a,5 5a,7 8				
Operate Control Boards (2)	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 4a,6 8	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 4a,6 8								
Communicate and Interact	1,2 3.4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2 2a,3 4,4a 5,7, 8	1,2 3.4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2 2a,3 4,4a 5,7, 8	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2 2a,3 4,4a 5,7, 8				
Demonstrate Supervisory Ability (3)									1,2, 3,4, 5,6, 7,8, 9,	1,2, 3,4, 5,6, 7,8, 9	1,2, 3,4, 5,6, 7,8, 9	1,2 2a,3 4,4a 5,8				
Comply With and Use Tech. Specs. (3)									3,6	3,6	2,6	2a,3				

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.

ES-401, Rev. 9 **PWR Examination Outline** **Form ES-401-2**

Facility: NORTH ANNA Date of Exam: JUNE 2014

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	3	3	3	N/A			3	3	N/A		3 / 18	3	3	6
	2	1	2	2				1	2			1 / 9	3	1	4
	Tier Totals	4	5	5				4	5			4 / 27	6	4	10
2. Plant Systems	1	2	2	2	3	2	3	3	3	3	3	2 / 28	2	3	5
	2	2	0	1	1	1	1	1	0	1	1	1 / 10	~~0~~ 2	1	3
	Tier Totals	4	2	3	4	3	4	4	3	4	4	3 / 38	4	4	8
3. Generic Knowledge and Abilities Categories		1: 2			2: 2			3: 3			4: 3	10	1: 2	2: 2	3: 1 / 4: 2	7

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 ⋈ 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 section D.1.b of ES-401 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. Refer to section D.1.b of ES-401 for the applicable KAs.
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:
007EK1.02	Reactor Trip - Stabilization - Recovery / 1	3.4	3.8	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Shutdown margin
009EG2.4.20	Small Break LOCA / 3	3.8	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of operational implications of EOP warnings, cautions and notes.
011EA1.14	Large Break LOCA / 3	3.9	4.1	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Subcooling margin monitors
015AK3.02	RCP Malfunctions / 4	3	3.1	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	CCW lineup and flow paths to RCP oil coolers
022AA2.03	Loss of Rx Coolant Makeup / 2	3.1	3.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Failures of flow control valve or controller
025AK1.01	Loss of RHR System / 4	3.9	4.3	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Loss of RHRS during all modes of operation
027AK2.03	Pressurizer Pressure Control System Malfunction / 3	2.6	2.8	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Controllers and positioners
029EK3.04	ATWS / 1	3.1	3.1	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Closing the normal charging header isolation valves
038EK3.08	Steam Gen. Tube Rupture / 3	4.1	4.2	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Criteria for securing RCP
040AK2.02	Steam Line Rupture - Excessive Heat Transfer / 4	2.6	2.6	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Sensors and detectors
055EA1.02	Station Blackout / 6	4.3	4.4	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Manual ED/G start

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
057AA2.19	Loss of Vital AC Inst. Bus / 6	4	4.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	The plant automatic actions that will occur on the loss of a vital ac electrical instrument bus
058AG2.2.22	Loss of DC Power / 6	4.0	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of limiting conditions for operations and safety limits.
062AA1.02	Loss of Nuclear Svc Water / 4	3.2	3.3	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Loads on the SWS in the control room
065AG2.4.4	Loss of Instrument Air / 8	4.5	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.
077AA2.01	Generator Voltage and Electric Grid Disturbances / 6	3.5	3.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Operating point on the generator capability curve
WE04EK1.1	LOCA Outside Containment / 3	3.5	3.9	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Components, capacity, and function of emergency systems.
WE11EK2.2	Loss of Emergency Coolant Recirc. / 4	3.9	4.3	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems and relations between the proper operation of these systems to the operation of the facility.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
001AG2.1.23	Continuous Rod Withdrawal / 1	4.3	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to perform specific system and integrated plant procedures during all modes of plant operation.
028AK2.03	Pressurizer Level Malfunction / 2	2.6	2.9	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Controllers and positioners
037AK3.05	Steam Generator Tube Leak / 3	3.7	4	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Actions contained in procedures for radiation monitoring, RCS water inventory balance, S/G tube failure and plant shutdown
051AA2.02	Loss of Condenser Vacuum / 4	3.9	4.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Conditions requiring reactor and/or turbine trip
060AA2.06	Accidental Gaseous Radwaste Rel. / 9	3.6	3.8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Valve lineup for release of radioactive gases
061AK3.02	ARM System Alarms / 7	3.4	3.6	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Guidance contained in alarm response for ARM system
067AA1.09	Plant Fire On-site / 8	3	3.3	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Plant fire zone panel (including detector location)
076AK2.01	High Reactor Coolant Activity / 9	2.6	3	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Process radiation monitors
WE10EK1.3	Natural Circ. With Seam Void/ 4	3.3	3.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Annunciators and conditions indicating signals, and remedial actions associated with the (Natural Circulation w/ Steam Void in Vessel w/wo RVLIS).

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
003A1.04	Reactor Coolant Pump	2.6	2.5	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	RCP oil reservoir levels
003A2.02	Reactor Coolant Pump	3.7	3.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Conditions which exist for an abnormal shutdown of an RCP in comparison to a normal shutdown of an RCP
004A3.03	Chemical and Volume Control	2.9	2.9	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Ion exchange bypass
005A1.02	Residual Heat Removal	3.3	3.4	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	RHR flow rate
005K6.03	Residual Heat Removal	2.5	2.6	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	RHR heat exchanger
006K4.17	Emergency Core Cooling	3.8	4.1	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Safety Injection valve interlocks
007A1.03	Pressurizer Relief/Quench Tank	2.6	2.7	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Monitoring quench tank temperature
008G2.2.42	Component Cooling Water	3.9	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to recognize system parameters that are entry-level conditions for Technical Specifications
008K2.02	Component Cooling Water	3.0	3.2	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	CCW pump, including emergency backup
010K6.01	Pressurizer Pressure Control	2.7	3.1	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Pressure detection systems
012K4.02	Reactor Protection	3.9	4.3	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Automatic reactor trip when RPS setpoints are exceeded for each RPS function; basis for each

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
012K5.02	Reactor Protection	3.1	3.3	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Power density
013K5.02	Engineered Safety Features Actuation	2.9	3.3	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Safety system logic and reliability
022A4.01	Containment Cooling	3.6	3.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	CCS fans
026K3.02	Containment Spray	4.2	4.3	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Recirculation spray system
039A4.07	Main and Reheat Steam	2.8	2.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Steam dump valves.
059K4.16	Main Feedwater	3.1	3.2	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Automatic trips for MFW pumps
061K2.02	Auxiliary/Emergency Feedwater	3.7	3.7	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	AFW electric drive pumps
062A3.01	AC Electrical Distribution	3.0	3.1	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Vital ac bus amperage
062A4.04	AC Electrical Distribution	2.6	2.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Local operation of breakers
063A2.01	DC Electrical Distribution	2.5	3.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Grounds
064G2.1.30	Emergency Diesel Generator	4.4	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to locate and operate components, including local controls.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
064K6.07	Emergency Diesel Generator	2.7	2.9	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Air receivers
073A2.02	Process Radiation Monitoring	2.7	3.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Detector failure
076K1.16	Service Water	3.6	3.8	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	ESF
078A3.01	Instrument Air	3.1	3.2	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Air pressure
078K3.02	Instrument Air	3.4	3.6	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Systems having pneumatic valves and controls
103K1.01	Containment	3.6	3.9	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	CCS

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
002K5.19	Reactor Coolant	2.6	2.9	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Neutron embrittlement
014K3.02	Rod Position Indication	2.5	2.8	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Plant computer
017K6.01	In-core Temperature Monitor	2.7	3.0	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Sensors and detectors
027K1.01	Containment Iodine Removal	3.4	3.7	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	CSS
029A3.01	Containment Purge	3.8	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	CPS isolation
033A1.02	Spent Fuel Pool Cooling	2.8	3.3	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Radiation monitoring systems
034G2.1.28	Fuel Handling Equipment	4.1	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the purpose and function of major system components and controls.
035K1.13	Steam Generator	2.7	2.8	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Condensate system
068K4.01	Liquid Radwaste	3.4	4.1	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Safety and environmental precautions for handling hot, acidic and radioactive liquids
079A4.01	Station Air	2.7	2.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Cross-tie valves with IAS

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.
G2.1.34	Conduct of operations	2.7	3.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of primary and secondary chemistry limits
G2.2.3	Equipment Control	3.8	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	(multi-unit license) Knowledge of the design, procedural and operational differences between units.
G2.2.39	Equipment Control	3.9	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of less than one hour technical specification action statements for systems.
G2.3.13	Radiation Control	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiological safety procedures pertaining to licensed operator duties
G2.3.14	Radiation Control	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities
G2.3.4	Radiation Control	3.2	3.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiation exposure limits under normal and emergency conditions
G2.4.12	Emergency Procedures/Plans	4.0	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of general operating crew responsibilities during emergency operations.
G2.4.47	Emergency Procedures/Plans	4.2	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.
G2.4.6	Emergency Procedures/Plans	3.7	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge symptom based EOP mitigation strategies.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
015AA2.11	RCP Malfunctions / 4	3.4	3.8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	When to jog RCPs during ICC
022AA2.02	Loss of Rx Coolant Makeup / 2	3.2	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Charging pump problems
029EG2.4.8	ATWS / 1	3.8	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of how abnormal operating procedures are used in conjunction with EOPs.
038EA2.17	Steam Gen. Tube Rupture / 3	3.8	4.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	RCP restart criteria
077AG2.2.44	Generator Voltage and Electric Grid Disturbances / 6	4.2	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions
we11EG2.4.1	Loss of Emergency Coolant Recirc. / 4	3.3	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the specific bases for EOPs.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
005AG2.2.25	Inoperable/Stuck Control Rod / 1	3.2	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.
024AA2.04	Emergency Boration / 1	3.4	4.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Availability of BWST
033AA2.02	Loss of Intermediate Range NI / 7	3.3	3.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Indications of unreliable intermediate-range channel operation
WE16EA2.1	High Containment Radiation / 9	2.9	3.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
004A2.18	Chemical and Volume Control	3.1	3.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	High VCT level
013A2.03	Engineered Safety Features Actuation	4.4	4.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Rapid depressurization
061G2.1.28	Auxiliary/Emergency Feedwater	4.1	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the purpose and function of major system components and controls.
076G2.1.7	Service Water	4.4	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.
103G2.1.20	Containment	4.6	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to execute procedure steps.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
016A2.01	Non-nuclear Instrumentation	3.0	3.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Detector failure
033G2.4.11	Spent Fuel Pool Cooling	4.0	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of abnormal condition procedures.
045A2.13	Main Turbine Generator	2.1	2.5	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Opening of the steam dumps at low pressure

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.35	Conduct of operations	2.2	3.9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the fuel handling responsibilities of SRO's
G2.1.45	Conduct of operations	4.3	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to identify and interpret diverse indications to validate the response of another indication
G2.2.21	Equipment Control	2.9	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of pre- and post-maintenance operability requirements.
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
G2.3.6	Radiation Control	2.0	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to aprove release permits
G2.4.32	Emergency Procedures/Plans	3.6	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of operator response to loss of all annunciators.
G2.4.44	Emergency Procedures/Plans	2.4	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of emergency plan protective action recommendations.

Tier / Group	Randomly Selected K/A	Reason for Rejection
T2/G1	078K3.03 Instrument Air Cross-tied units	**K3. Knowledge of the effect that a loss or malfunction of the IAS will have on the following: (CFR: 41.7 / 45.6)** **K3.03 Cross-tied units** This K/A is not applicable to North Anna Power Station. The Instrument air system at North Anna is operated as one system shared between both units. There are no procedures for splitting out or cross-tying units. New K/A: 078K3.02 K3 Knowledge of the effect that a loss or malfunction of the IAS will have on the following: (CFR: 41.7 / 45.6) K3.02 Systems having pneumatic valves and controls IMPORTANCE RO 3.4 SRO 3.6
T2/G2	027K2.01 Containment Iodine Removal Fans; power supply	**K2. Knowledge of bus power supplies to the following: (CFR: 41.7)** **K2.01 Fans** This is a repeat K/A from the last exam. The material for these fans is very limited in scope since they are manually operated fans that are only used 30 days prior to a refueling outage. It would be very hard to write a question that didn't cover the exact same information as the previous exam question. New K/A: 027K1.01 K1 Knowledge of the physical connections and/or cause-effect relationships between the CIRS and the following systems: (CFR: 41.2 to 41.9 / 45.7 to 45.8) K1.01 CSS IMPORTANCE RO 3.4* SRO 3.7*

T2/G2	034G2.4.50 Fuel Handling Equipment Alarm response	**2.4.50 Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.** The fuel handling equipment at North Anna does not have alarm response manuals. We would have to address some other alarm that may occur during fuel handling such as Hi Flux at Shutdown or a Radiation Monitor Hi alarm (already have a K/A for spent fuel pit rad monitor selected) New K/A: 034G2.1.28 2.1.28 Knowledge of the purpose and function of major system components and controls. (CFR: 41.7) IMPORTANCE RO 4.1 SRO 4.1
SRO T3 SRO Generic	G2.3.12	**2.3.12 Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc**. This K/A was rejected due to being very similar to RO T3 Generic K/A G2.3.13. New K/A: G2.3.6 2.3.6 Ability to approve release permits. (CFR: 41.13 / 43.4 / 45.10) IMPORTANCE RO 2.0 SRO 3.8
SRO T3 SRO Generic	G2.1.21	**2.1.21 Ability to verify the controlled procedure copy.** This K/A was rejected due to all personnel being required to have the ability to verify the controlled procedure copy. New K/A: G2.1.35 2.1.35 Knowledge of the fuel-handling responsibilities of SROs. (CFR: 41.10 / 43.7) IMPORTANCE RO 2.2 SRO 3.9

SRO T1/G1	015AA2.09 RCP Malfunctions	**AA2. Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC flow): (CFR 43.5 / 45.13)** **AA2.09 When to secure RCPs on high stator temperatures.** This K/A was rejected due to being unable to write an SRO only question on this topic. New K/A: 015AA2.11 AA2. Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC flow): (CFR 43.5 / 45.13) AA2.11 When to jog RCPs during ICC IMPORTANCE RO 3.4* SRO 3.8*
SRO T1/G1	022AA2.01 Loss of Reactor Coolant Makeup	**AA2. Ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Makeup: (CFR 43.5/ 45.13)** **AA2.01 Whether charging line leak exists** This K/A was rejected due to being unable to write an SRO only question on this topic. New K/A: 022AA2.02 AA2. Ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Makeup: (CFR 43.5/ 45.13) AA2.02 Charging pump problems IMPORTANCE RO 3.2 SRO 3.7

SRO T1/G1	WE11EG2.4.3 Loss of Emergency Coolant Recirculation	**2.4.3 Ability to identify post-accident instrumentation. (CFR: 41.6 / 45.4)** This K/A was rejected due to being unable to write an SRO only question on this topic. New K/A: WE11EG2.4.18 2.4.18 Knowledge of the specific bases for EOPs. IMPORTANCE RO 3.3 SRO 4.0
SRO T1/G2	WE16EG2.4.35 High Containment Radiation	**2.4.35 Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects. (CFR: 41.10 / 43.5 / 45.13)** This K/A was rejected due to being unable to write an SRO only question on this topic. New K/A: WE16EA2.1 EA2. Ability to determine and interpret the following as they apply to the (High Containment Radiation) (CFR: 43.5 / 45.13) EA2.1 Facility conditions and selection of appropriate procedures during abnormal and emergency operations. IMPORTANCE RO 2.9 SRO 3.3

SRO T2/G2	016A2.02 Non-Nuclear Instrumentation	**A2 Ability to (a) predict the impacts of the following malfunctions or operations on the NNIS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:** (CFR: 41.5 / 43.5 / 45.3 / 45.5) **A2.02 Loss of power supply** This K/A was rejected due to being unable to write an SRO only question on this topic. New K/A: 016A2.01 A2 Ability to (a) predict the impacts of the following malfunctions or operations on the NNIS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: (CFR: 41.5 / 43.5 / 45.3 / 45.5) A2.01 Detector failure IMPORTANCE RO 3.0* SRO 3.1*

Facility: NORTH ANNA Date of Exam: 6/25/14 Exam Level: RO [X] SRO [X]

	Item Description	Initial a	Initial b*	Initial c*
1.	Questions and answers are technically accurate and applicable to the facility.	CWJ/RB	RF	CB
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.	CWJ/RB	RF	CB
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401	CWJ/RB	RF	CB
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).	CB**	N/A	CB
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 X the licensee certifies that there is no duplication; or __ other (explain)	CWJ/RB	RF	CB
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: 17/5 Modified: 9/1 New: 49/19	CWJ/RB	RF	CB
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: 31/11 C/A: 44/14	W/RB	RF	CB
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.	CWJ/RB	RF	CB
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.	CWJ/RB	RF	CB
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.	CWJ/RB	RF	CB
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.	CWJ/RB	RF	CB

	Printed Name / Signature	Date
a. Author	Corbett/Cristalle Wilson, Randall Garrett/RG	6-9-14
b. Facility Reviewer (*)	Bryan Thompson / BT	6-9-14
c. NRC Chief Examiner (#)	Daniel Bacon / Daniel Bacon	6-10-14
d. NRC Regional Supervisor	MARCOLLI-WARD	06/10/14

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.

** - Daniel Bacon for Michael Meeks

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	F	2				X						Y		N	U	K/A 007EK1.02 1. Choices C and D are not plausible. Burnout is not plausible with the reactor tripped. Question is UNSAT due to two non-plausible distractors. 06/09/14-Question has been updated and is satisfactory.
2	F	3				X						Y		B	U	K/A 009EG2.4.20 1. Choices C and D are not plausible as caution statements. Question is UNSAT due to two non-plausible distractors. 06/09/14-Question has been updated and is satisfactory.
3	H	2	X									Y		M	E	K/A 011EA1.14 1. Question was provided for sample question review. 2. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.
4	H	3	X						?			Y		N	E	K/A 015AK3.02 1. For choice D, need to add a sentence stating something to the effect that RCP operation may continue in order to fully answer the stem question and balance out the choices. May also just ask about the components that have or have not lost flow. 2. Are the specific power supplies for the valves related to this question required knowledge from memory, or is this minutia? Does an alarm come in when one of these valves goes closed? Need to discuss. 3. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.
5	H	2	X									Y		B	E	K/A 022AA2.03 1. Question was provided for sample question review. 2. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.

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						Y		B	E	K/A 025AK1.01 1. Choice B does not appear to be a plausible distractor when compared to Choice A because of the cause and effect relationship between pressure and the position of the letdown pressure control valve. It is also possible that there could be two correct answers if the letdown pressure control valve opened simultaneously as pressure increased or the valve may open first due to the locations that pressure is sensed for RCS pressure and valve control. To leave the question as written, I would need to have this run on the simulator to ensure that the correct answer is obvious. Recommend removing "initially" from the stem and changing Choice B to close vice open. This would result in one correct and four fully incorrect choices. 2. Need to add "one" to "which of the following." 06/09/14-Question has been updated and is satisfactory.
7	H	3	X			X						Y		B	E	K/A 027AK2.03 1. Choice C is not plausible. If an applicant incorrectly believed that a low failure of the controller would cause heaters to de-energize and spray valves to open, how would it be reasonable to expect that the PORV controlled by the master pressure controller would not open also? Could ask which PORV would open (or whether or not a certain PORV would open) and whether or not a reactor trip would occur. 2. Need to add "one" to "which of the following." 06/09/14-Question has been updated and is satisfactory.
8	F	2	X									N		N	U	K/A 029EK3.04 1. Question does not meet the K/A. The reasons for closing the normal charging header isolation valves are not tested as the K/A specifies. The applicant is essentially picking what the procedure specifies and you are giving them the reason. 2. Need to add a "Which one of the following" statement to the question. 3. Need to add "one" to "which of the following." Question is UNSAT due to not meeting the K/A. 06/09/14-Question has been updated and is satisfactory.

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	F	3	X									N		B	U	K/A 038EK3.08 1. Question does not meet the K/A. The reasons for the criteria for securing RCPs are not tested as stated in the K/A. 2. Need to add a "Which one of the following" statement to the question. Question is UNSAT due to not meeting the K/A. 06/09/14-Question has been updated and is satisfactory.
10	F	2	X			X						Y		N	E	K/A 040AK2.02 1. Need to add "one" to "which of the following." 06/09/14-Question has been updated and is satisfactory.
11	H	3	X									Y		M	E	K/A 055EA1.02 1. The answer choices could be written more concisely. Some choices discuss rolling with air and then subsequently starting while others discuss immediately starting. I believe in any case that the diesel starts, it rolls with air first. Could just ask if there is or is not a time delay before the diesel can be started and whether or not the mode selector switch must be placed in manual-remote for the diesel to be started. 2. Need to add a "Which one of the following" statement to the question. 06/09/14-Question has been updated and is satisfactory.
12	H	4										Y		M	S	K/A 057AA2.19 1. Question was provided for sample question review.
13	F	2	X											N	E	K/A 058AG2.2.22 1. Question was provided for sample question review. 2. Need to add a "Which one of the following" statement to the question. 3. Recommend separating the two question sentences to make it easier for the applicants to read. 4. Ensure that the applicants are required to know the SR voltage requirement from memory. AOM stated that this knowledge is required for RO applicants due to this parameter being checked as part of the daily RO surveillances. 06/09/14-Question has been updated and is satisfactory.
14	H	3										Y		N	S	K/A 062AA1.02

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	3										N		N	U	K/A 065AG2.4.4 1. Question does not match the K/A. The question does not test the recognition of abnormal indications of system operating parameters that are entry level conditions for EOPs or AOPs. It would be possible to use a timeline and use times as choices for when Abnormal Procedure entry is required and when a reactor trip is required. 2. Need to add a "Which one of the following" statement to the question. Question is UNSAT due to not meeting the K/A. 06/09/14-Question has been updated and is satisfactory.
16	H	3	X									Y		N	E	K/A 077AA2.01 1. Need to add a "Which one of the following" statement to the question. 06/09/14-Question has been updated and is satisfactory.
17	F	2				X						Y		B	E	K/A WE04EK1.1 1. Recommend using RVLIS level or just asking if a level instrument or pressure instrument is used to increase plausibility. 2. Need to add a "Which one of the following" statement to the question. 06/09/14-Question has been updated and is satisfactory.
18	H	4	X			X						Y		N	E	K/A WE11EK2.2 1. Choice B is not plausible. There is no logic in securing a lower flow rate pump and starting a higher flow rate pump that is above its shutoff head in an attempt to reduce inventory loss. 2. Need to ensure that choice C is not a subset of choice D. Should be more specific. 3. Need to add a "Which one of the following" statement to the question. 4. The number of bullets in the initial conditions can be significantly reduced. 5. Need to ask what actions are required next. 06/09/14-Question has been updated and is satisfactory.

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
19	H	2				X						Y		B	U	K/A 001AG2.1.23 1. Choices B and C are not plausible. Why would an applicant pick choice B when they know they are required to check rod bottom lights lit during the immediate actions of 1-E-0? Why would you initiate an emergency boration with no indication of the final Tave/Tref or AFD indications? 2. Need to specify the procedure in the stem (in accordance with…). Question is UNSAT due to two non-plausible distractors. 06/09/14-Question has been updated and is satisfactory.
20	H	3	X											N	E	K/A 028AK2.03 1. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.
21	H	3	X									Y		M	E	K/A 037AK3.05 1. Although this is actually testing a note in the AP, the way the question is written appears to be more SRO level due to asking in the format of greater than one hour action statements without a reference. Also, the time Mode 3 entry is required is more of an SRO job function. Recommend setting up a timeline with different values of leakage from each S/G and asking when (IAW AP-24) is the earliest time that a plant shutdown is required and whether the decision is based on leakage from one or all steam generators. 2. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
22	H	3				X						Y		N	U	K/A 051AA2.02 1. Choices A and B are not plausible due to there being no step in 1-AP-14 that requires a turbine trip. Recommend asking the lowest pressure that a reactor trip is required (IAW AP-14) for the given conditions or whether a reactor trip is or is not required for the given conditions and whether an automatic turbine trip should or should not have already occurred. Question is UNSAT due to two non-plausible distractors. 06/09/14-Question has been updated and is satisfactory.
23	H	3	X									Y		N	E	K/A 060AA2.06 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.

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	F	2	X					?				Y		N	E	K/A 061AK3.02 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
25	F	2	X									Y		N	E	K/A 067AA1.09 1. Need to add a “Which one of the following” statement to the question. 2. Is it 1-EP-CB-97 or 1-EI-CB-97? See 1-AR-19. 3. The distractor analysis discusses smoke detectors and using smoke rising for the plausibility statements. The lesson plan states that heat detectors are used. Which is correct? 4. It would be a better match for the K/A to ask which Halon system can be actuated using the pushbutton on the Fire Protection Panel . In all cases Halon can be actuated from the bottles. This method of asking the question reduces the plausibility of choices A and C. 06/09/14-Question has been updated and is satisfactory.
26	F	2	X			X						Y		N	E	K/A 076AK2.01 1. Need to add a “Which one of the following” statement to the question. 2. Choice C is not plausible. 3. Would need to add “if any” to the stem question, if the question is retained. 4. Could ask if the main purpose for the radiation monitor is to detect fuel failure or crud burst. Also could ask about the type of detector or if automatic actions will or will not occur when a Hi-Hi alarm is received. 06/09/14-Question has been updated and is satisfactory.
27	F	3	X			X						Y		B	E	K/A WE10EK1.3 1. Choice D is not plausible. 2. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
28	F	2	X									Y		N	E	K/A 003A1.04 1. Remove the information that describes all of the parameters that are required to be monitored and add “in accordance with__ “ to the stem question. 06/09/14-Question has been updated and is satisfactory.

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
29	H	3	X									Y		N	E	K/A 003A2.02 1. Need to add a “Which one of the following” statement to the question. 2. Need to add #1 seal leak off flow rate to initial conditions. If it were less than 0.2 gpm (a low flow alarm is given), both choice C and D would be correct. It would be a better K/A match to set up conditions to determine if a RCP trip is or is not required(immediate versus 8 hours) and whether or not the seal leakoff valve is required to be closed. 06/09/14-Question has been updated and is satisfactory.
30	F	2				X						Y		N	U	K/A 004A3.03 1. Need to add “one” to “which of the following.” 2. Choice B is not plausible because the same valve does not divert flow to either the VCT or gas stripper. 3. Are the valve names listed in the choices correct? They do not match what is listed in the lesson plan. 4. Choices C and D are not plausible based on the fact that if flow was directed to the VCT or gas stripper as stated in the second part of the choice, then either choice A or B would be true also. Question is UNSAT due to two or more non-plausible distractors. 06/09/14-Question has been updated and is satisfactory.
31	H	3				X						Y		B	U	K/A 005A1.02 1. Need to add a “Which one of the following” statement to the question. 2. Choice B and C are not plausible. It is against the laws of thermodynamics for cool down rate to rise and CCW to lower (and vice versa), in this case. Question is UNSAT due to two non-plausible distractors. 06/09/14-Question has been updated and is satisfactory.
32	H	4										Y/N		B	E	K/A 005K6.03 1. Need to add “one” to “which of the following.” 2. The second part of the question really doesn’t relate to the K/A. It is more of a loss of instrument air question. 06/09/14-Question has been updated and is satisfactory.
33	F	2										Y		M	S	K/A 006K4.17

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				X						Y		M	E	K/A 007A1.03 1. Need to add “one” to “which of the following.” 2. Choice D is not plausible. Nitrogen gas would not cause level or temperature of the tank to rise. 3. Check choice C distractor analysis. 06/09/14-Question has been updated and is satisfactory.
35	H	3						X				Y		N	U	K/A 008G2.2.42 1. Need to add a “Which one of the following” statement to the question. 2. Operability determinations and bases knowledge are typically at the SRO level. If this information is RO knowledge at your plant, then it cannot be used for an SRO only level question on the SRO written exam. Question is UNSAT due to license level mismatch. 06/09/14-Question has been updated and is satisfactory.
36	F	2										N		M	U	K/A 008K2.02 1. Check LOD. A LOD of one is listed in the information provided with the question. If that is true, this would be an UNSAT question. The LOD appears to be two, based on question analysis. 2. Question does not match the K/A. No knowledge of power supplies is required to answer the question. Question is UNSAT due to not meeting the K/A. 06/09/14-Question has been updated and is satisfactory.
37	H	4	X									Y		N	E	K/A 010K6.01 1. Need to add a “Which one of the following” statement to the question. 2. There are two correct answer choices for this question. Actual pressurizer pressure will rise and then lower and then continue to cycle. 3. Ensure that the final version of this question does not overlap with question #7. Need to ensure that different knowledge is required to answer each of these questions. 06/09/14-Question has been updated and is satisfactory.

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	H	3						?				Y		N	E	K/A 012K4.02 1. Need to add a “Which one of the following” statement to the question. 2. Need to ensure that the analysis of OTΔT is not solely based on TS Bases knowledge (SRO knowledge). 06/09/14-Question has been updated and is satisfactory.
39	H	2	X									Y		N	E	K/A 012K5.02 1. Need to add a “Which one of the following” statement to the question. 2. Need to place the (1) and (2) in the blank to be consistent with the other questions. 06/09/14-Question has been updated and is satisfactory.
40	H	4	X									Y		N	E	K/A 013K5.02 1. Are ROs expected to memorize steps and notes in an MOP? Recommend giving the position that the applicable trip or bypass switch has been placed in IAW the applicable procedure. I do not have the MOP to reference, but I believe these would be the same positions as required by the action statements in TS 3.3.2. 2. Recommend asking if an automatic actuation would occur for the stated functions rather than if logic is satisfied. 06/09/14-Question has been updated and is satisfactory.
41	F	2	X									Y		N	E	K/A 022A4.01 1. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.
42	H	3	X									Y		N	E	K/A 026K3.02 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
43	H	4	X									Y		B	E	K/A 039A4.07 1. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.

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
44	H	3	X									Y		N	E	K/A 059K4.16 1. Need to add a “Which one of the following” statement to the question. 2. Recommend underlining or making the word ”Bypass” bold in the second part of the question. 06/09/14-Question has been updated and is satisfactory.
45	F	2	X									Y		M	E	K/A 061K2.02 1. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.
46	H	2	X									Y		N	E	K/A 062A3.01 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
47	F	2	X			X						Y		N	E	K/A 062A4.04 1. Need to add a “Which one of the following” statement to the question. 2. Are there any other component operating time delays associated with 2 minutes? Recommend using 5 minutes because that matches up with the pump discharge MOVs. That would make the second choice more plausible. 06/09/14-Question has been updated and is satisfactory.
48	F	3	X			X						Y		N	U	K/A 063A2.01 1. Need to add a “Which one of the following” statement to the question. 2. Lit and not lit are not plausible based on the wording of “unequal brightness” in the ground isolation procedure. Question is UNSAT due to two or more non-plausible distractors. 06/09/14-Question has been updated and is satisfactory.
49	F	2	X									Y		N	E	K/A 064G2.1.30 1. Need to add a “Which one of the following” statement to the question. 2. Need to be consistent with all of the choices. Is it the EDG Room, Diesel Generator Room or Diesel Room? 06/09/14-Question has been updated and is satisfactory.

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
50	F	3	X									Y		N	E	K/A 064K6.07 1. Need to add “one” to “which of the following.” 2. 1-OP-6.7 states that the unloader valves will maintain approximately 240 psig. 06/09/14-Question has been updated and is satisfactory.
51	H	3	X									Y		N	E	K/A 073A2.02 1. Need to add a “Which one of the following” statement to the question. 2. 1-AP-5 allows reset if desired and does not state that it is required. Need to make the stem question match what is stated in the procedure. 06/09/14-Question has been updated and is satisfactory.
52	F	2	X									Y		M	E	K/A 076K1.16 1. Question was provided for sample question review. 2. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.
53	H	2										Y		B	S	K/A 078A3.01
54	F	3	X									Y		N	E	K/A 078K3.02 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
55	H	3	X									Y		N	E	K/A 103K1.01 1. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.

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
56	F	2				X						Y		N	U	K/A 002K5.19 1. Need to add a “Which one of the following” statement to the question. 2. The second part of choices B and D is not plausible due to no cooldown being in progress and LTOP being required whether or not a cooldown is in progress or temperatures are at equilibrium. Recommend asking whether neutron embrittlement causes the nil ductility reference transition temperature that the heatup and cooldown curves in TS 3.4.3.are based on to raise or lower for the first part of the question and whether or not those curves apply to the pressurizer for the second part. Question is UNSAT due to two non-plausible distractors. 06/09/14-Question has been updated and is satisfactory.
57	H	4	X			X						Y		B	E	K/A 014K3.02 1. Need to add a “Which one of the following” statement to the question. 2. It does not seem plausible that alarm A-F1 would not be received with the given indications. It is also questionable whether you would get a Rod Drop alarm with no other alarms. Recommend asking the minimum difference that would cause alarm A-F1 based on the given conditions (10 steps or 24 steps). Could also ask whether one of the other alarms will or will not be received. 06/09/14-Question has been updated and is satisfactory.
58	F	2	X			X						Y		N	U	K/A 017K6.01 1. Need to add a “Which one of the following” statement to the question. 2. Choices A and D are not plausible. Especially for choice D, how would the indication not change, but the 5 max rise? Question is UNSAT due to two non-plausible distractors. 06/09/14-Question has been updated and is satisfactory.
59	F	2										Y		B	S	K/A 027K1.01
60	H	3				X						Y		N	E	K/A 029A3.01 1. Choice C does not seem plausible due to having the supply open with the fans running. Recommend stating that all fans shut down and both Unit 1 and 2 supply and exhaust valves close. 06/09/14-Question has been updated and is satisfactory.

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
61	H	3	X									Y		N	E	K/A 033A1.02 1. Need to add a “Which one of the following” statement to the question. 2. Need to discuss whether or not this really matches the K/A. This appears to be more closely associated with the fuel handling system (034) than the spent fuel cooling system. 06/09/14-Question has been updated and is satisfactory.
62	H	2	X									Y		N	E	K/A 034G2.1.28 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
63	H	3	X			X						Y		N	E	K/A 035K1.13 1. Choice A not plausible due to having the same indications for all steam generators and MFRVs with that choice applying to a single MFRV. 2. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.
64	F	3	X									Y		N	E	K/A 068K4.01 1. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.
65	H	3	X									Y		N	E	K/A 079A4.01 1. Need to ensure that the IA pressure values given can be monitored in the control room in order for the K/A to be met. 2. Need to specify in the stem question that a complete or total loss of seal cooling will or will not occur or ask specifically about seal injection. 06/09/14-Question has been updated and is satisfactory.
66	H	3	X									Y		N	E	K/A G2.1.3 1. Need to add a “Which one of the following” statement to the question. 2. Choice D is a subset of choice C. Need to add something to effect of “at least” to the stem question. 06/09/14-Question has been updated and is satisfactory.

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
67	F	2	X									Y		N	E	K/A G2.1.34 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
68	H	2										Y		B	S	K/A G2.2.3
69	H	3	X									Y		N	E	K/A G2.2.39 1. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.
70	F	3	X									Y		N	E	K/A G2.3.13 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
71	F	3	X									Y		B	E	K/A G2.3.14 1. Need to address the fuel assembly being in a safe location in the initial conditions in order for the evacuation step to be reached. Does it really need to be dropped on the core plate to meet the K/A or the entry condition for the AP? 06/09/14-Question has been updated and is satisfactory.
72	H	3	X									Y		N	E	K/A G2.3.4 1. Need to add a “Which one of the following” statement to the question. 2. Recommending not mixing the lifesaving activities in the second part with the conditions and activity required in the first part. It would be better if the conditions for the two parts of the question were consistent. 06/09/14-Question has been updated and is satisfactory.
73	H	2	X			X		X				Y		N	E	K/A G2.4.12 1. Need to add a “Which one of the following” statement to the question. 2. Remove the first bullet. The applicant should be able to determine that a large break LOCA has occurred from the other information given. 3. Need to discuss the plausibility of a non-licensed operator monitoring CSFs. 4. ROs should not have to answer questions by recalling what is in a specific step number. 06/09/14-Question has been updated and is satisfactory.

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	H	3	X									Y		B	E	K/A G2.4.47 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
75	F	2	X									Y		B	E	K/A G2.4.6 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
76	H	3	X									Y	N	B	U/E	K/A 015AA2.09 1. This does not appear to be SRO only since RCP trip criteria was asked on the RO exam, as well as a DNBR question. The procedure direction does not really work as SRO only because it is listed with the RCP that is required to be tripped. Also, the SRO only portion of a two part question needs to be the part that matches the K/A. 2. Need to add a “Which one of the following” statement to the question. 3. It may be better to change the K/A. We will discuss. Question is UNSAT due to not being SRO only. Unable to write SRO only question for the current K/A. K/A rejected and K/A 015AA2.11 was randomly selected. 06/09/14-New question is satisfactory.
77	H	3	X									Y	N	N	U/E	K/A 022AA2.01 1. Need to add “one” to “which of the following.” 2. Neither part of the question is SRO only. The first part can be answered with RO system knowledge. The second part is above the line TS knowledge. Also, the part of the question that meets the K/A must be SRO only. Question is UNSAT due to not being SRO only. Unable to write SRO only question for the current K/A. K/A rejected and K/A 022AA2.02 was randomly selected. 06/09/14-New question is satisfactory.

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	H	3	X									Y	Y	N	E	K/A 029EG2.4.8 1. Need to add a "Which one of the following" statement to the question. 2. Remove first two bullets and just state that FR-S.1 is in progress due to an ATWS. 3. Recommend asking if the AP can be used in parallel with FR-S.1 to tie more closely to the ATWS. The other information can then be asked for the second part of the question. 06/09/14-Question has been updated and is satisfactory.
79	H	2	X									Y	Y	M	E	K/A 038EA2.17 1. Question was provided for sample question review. 2. Need to add a "Which one of the following" statement to the question. 06/09/14-Question has been updated and is satisfactory.
80	H	4	X									Y	N	B	U	K/A 077AG2.2.44 1. Need to add "one" to "which of the following." 2. This is not SRO only. Less than or equal to one hour technical specifications are RO knowledge. No reference should be provided for this case. Are ROs required to know the voltage when off-site power sources are inoperable? Question is UNSAT due to not being SRO only. 06/09/14-Question has been updated and is satisfactory.
81	F	4	X									Y/N	N	N	U/E	K/A WE11EG2.4.3 1. Need to add "one" to "which of the following." 2. Question is not SRO only. ROs should know what instruments are PAM for control board monitoring during accidents. This also does not really test loss of emergency coolant recirculation. Recommend giving pam and non pam instrumentation indications for a parameter in the initial conditions and the ask procedure path or selection. Question is UNSAT due to not being SRO only. Unable to write SRO only question for the current K/A. K/A rejected and K/A WE11EG2.4.18 was randomly selected. 06/09/14-New question is satisfactory.

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	F	2	X									Y	Y	N	E	K/A 005AG2.2.25 1. Question was provided for sample question review. 2. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
83	H	2	X									Y	Y	N	E	K/A 024AA2.04 1. Question was provided for sample question review. 2. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
84	H	3										Y	N	B	U	K/A 033AA2.02 1. This question is not SRO only and can be answered using RO knowledge only. The first part of the question is RO knowledge due to normally performing the required channel checks. The second part of the question for choices A and C is an immediate action statement which is RO knowledge. Question is UNSAT due to not being SRO only. 06/09/14-Question has been updated and is satisfactory.
85	F	2	X									Y	N	M	U/E	K/A WE16EG2.4.35 1. Need to add a “Which one of the following” statement to the question. 2. Question is not SRO only. The first part of the question is a note in 0-AP-30. The second part of the question is basic AOP knowledge and LOD=1. Question is UNSAT due to not being SRO only and LOD=1. Unable to write SRO only question for the current K/A. K/A rejected and K/A WE16EA2.1 was randomly selected. 06/09/14-New question is satisfactory.
86	H	2	X									Y	Y	N	E	1. Question was provided for sample question review. 2. Need to add “one” to “which of the following.” 3. Recommend slightly rewording the second part of the stem stating to enter a condition/action statement and therefore “use” procedures not just determine that a requirement is not met. 06/09/14-Question has been updated and is satisfactory.

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									Y	Y	B	E	K/A 013A2.03 1. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.
88	F	3	X									Y	Y	B	E	K/A 061G2.1.28 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
89	H	3	X									Y	Y	N	E	K/A 076G2.1.7 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
90	F	3	X									Y	Y	N	E	K/A 103G2.1.20 1. Need to add “one” to “which of the following.” 06/09/14-Question has been updated and is satisfactory.
91	F	2	X									N	Y	N	U/E	K/A 016A2.02 1. Need to add a “Which one of the following” statement to the question. 2. The question does not meet the second part of the K/A (and use procedures…..). Question is UNSAT due to not meeting the K/A. Unable to write SRO only question for the current K/A. K/A rejected and K/A 016A2.1 was randomly selected. 06/09/14-New question is satisfactory.
92	F	2	X									Y	Y	N	E	K/A 033G2.4.11 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.

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	3	X			X						Y	Y	N	E	K/A 045A2.13 1. Need to add a “Which one of the following” statement to the question. 2. It does not seem plausible to wait until power exceeds the limit to direct a ramp down. Recommend using “ramp the turbine to maintain power less than 100% (and 96%)” for the second part answer choices. 06/09/14-Question has been updated and is satisfactory.
94	F	3	X									Y	Y	N	E	K/A G2.1.35 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
95	H	2	X									Y	Y	N	E	K/A G2.1.45 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
96	F	2	X			X						Y	Y	B	E	K/A G2.2.21 1. Need to add a “Which one of the following” statement to the question. 2. Choice B and D basically make the other not plausible.
97	H	3	X			X						Y	Y	N	E	K/A G2.2.36 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.
98	F	2	X									Y	N	N	E	K/A G2.3.6 1. Need to add a “Which one of the following” statement to the question. 06/09/14-Question has been updated and is satisfactory.

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
99	H	3	X									N	Y	N	U	K/A G2.4.32 1. Need to add a "Which one of the following" statement to the question. 2. This question does not really meet the K/A. The information provided tells what the classification is and then the question tests knowledge of when notification is required. Question is UNSAT due to not meeting K/A. 06/09/14-Question has been updated and is satisfactory.
100	F	2	X									Y	Y	N	E	K/A G2.4.44 1. Question was provided for sample question review. 2. Need to add a "Which one of the following" statement to the question. 06/09/14-Question has been updated and is satisfactory.

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).

Facility: Date of Exam: Exam Level: RO ☑ SRO ☑

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

	Printed Name/Signature	Date
a. Grader	Newton Lacy / [signature]	7/2/14
b. Facility Reviewer(*)	N/A	N/A
c. NRC Chief Examiner (*)	Daniel M. Bacon / [signature]	7/2/14
d. NRC Supervisor (*)	E Guthrie / [signature]	7/7/14

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