Facility: V.C. Summer (Unit 1) Date of Examination: Sept. 2017

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

Target Date*	Task Description (Reference)	Chief Examiner's Initials
-240	1. Examination administration date confirmed (C.1.a; C.2.a–b). For NRC-prepared exams, arrangements are made for the facility to submit reference materials (C.1.e; C.3.c; Attachment 3).	
-210	2. NRC examiners and facility contact assigned (C.1.d; C.2.f).	
-210	3. Facility contact briefed on security and other requirements (C.2.c). As applicable, the facility contact submits to the NRC any prescreened K/As for elimination from the written examination outline, with a description of the facility's prescreening process (ES-401, D.1.b).	
-210	4. Reference material due for NRC-prepared exams (C.1.e; C.3.c; Attachment 3).	N/A
-210	5. Corporate notification letter sent (C.2.e).	
-195	6. NRC-developed written examination outline (ES-401-1/2 or ES-401N-1/2 and ES-401-3 or ES-401N-3) sent to facility contact (must be on the exam security agreement) (C.1.e–f; C.2.h; C.3.d–e).	
-150	7. Operating test outline(s) and other checklists due, including Forms ES-201-2, ES-201-3, ES-301-1, ES-301-2, ES-301-5, and ES-D-1, as applicable (C.1.e–f; C.3.d–e).	
-136	8. Operating test outline(s) reviewed by the NRC and feedback provided to facility licensee (C.2.h; C.3.d–e).	
-75	9. Proposed examinations (written, JPMs, and scenarios, as applicable) and outlines (Forms ES-301-1, ES-301-2, ES-D-1, ES-401-1/2 or ES-401N-1/2, and ES-401-3 or ES-401N-3); supporting documentation (including Forms ES-301-3, ES-301-4, ES-301-5, ES-301-6, ES-401-6, ES-401N-6, and any Form ES-201-2 and ES-201-3 updates); and reference materials due (C.1.e–h; C.3.d).	
-75	10. Examinations prepared by the NRC are approved by the NRC supervisor and forwarded for facility licensee review (C.1.i; C.2.h; C.3.f–g).	N/A
-60	11. Preliminary waiver/excusal requests due (C.1.m; C.2.c; ES-202).	
-50	12. Written exam and operating test reviews completed (C.3.f).	
-35	13. Examination review results discussed between the NRC and facility licensee (C.1.i; C.1.k–l; C.2.h; C.3.g). The NRC and the facility licensee conduct exam preparatory week.	
-30	14. Preliminary license applications and waiver/excusal requests, as applicable (NRC Form 398) due (C.1.m; C.2.i; ES-202).	
-14	15. Final license applications and waiver/excusal requests, as applicable (NRC Form 398), due and Form ES-201-4 prepared (C.1.m; C.2.k; ES-202).	
-7	16. Written examinations and operating tests approved by the NRC supervisor (C.2.j–k; C.3.h).	
-7	17. Request facility licensee management feedback on the examination (C.2.l).	
-7	18. Final applications reviewed; one or two (if more than 10) applications audited to confirm qualifications/eligibility; and examination approval and waiver/excusal letters sent (C.2.k; Attachment 5; ES-202, C.3.j; ES-204).	
-7	19. Proctoring/written exam administration guidelines reviewed with facility licensee (C.3.k).	
-7	20. Approved scenarios and job performance measures distributed to NRC examiners (C.3.i).	

* Target dates are based on facility-prepared examinations and the examination date identified in the corporate notification letter. These dates are for planning purposes and may be adjusted on a case-by-case basis in coordination with the facility licensee.

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

Facility: VC Summer Unit 1 Written Exam Only Date of Examination: Sept 2017

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 or ES-401N.	✓	N/A	MB
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 or ES-401N and whether all K/A categories are appropriately sampled.	✓		MB
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	✓		MB
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	✓		MB
2. SIMULATOR	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.	N/A		N/A
	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.			N/A
	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. WALK THROUGH	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.			
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations			
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.	✓		✓
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	✓		MB
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	✓		MB
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	✓		MB
	d. Check for duplication and overlap among exam sections. To extent possible.	✓		MB
	e. Check the entire exam for balance of coverage. To extent possible.	✓		MB
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	✓	✓	MB

	Printed Name/Signature	Date
a. Author	Phil Capehart / Newton Lic. for P.C.	7-13-16
b. Facility Reviewer (*)	N/A	N/A
c. NRC Chief Examiner (#)	Mark Bates / Mark Bates	7-13-2016
d. NRC Supervisor	Gerald McCoy / Gerald McCoy	7/15/2016

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

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

Facility: V.C. Summer (Unit 1) Date of Examination: 9/18/2017

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 or ES-401N.	N/A	N/A	N/A
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 or ES-401N and whether all K/A categories are appropriately sampled.	↓	↓	↓
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.			
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.			
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.	✓	✓	MB
	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.	✓	✓	MB
	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.	✓	✓	MB
3. WALK THROUGH	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.	✓	✓	MB
	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	✓	✓	MB
	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.	✓	✓	MB
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	✓	✓	MB
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	✓	✓	MB
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	✓	✓	MB
	d. Check for duplication and overlap among exam sections.	✓	✓	MB
	e. Check the entire exam for balance of coverage.	✓	✓	MB
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	✓	✓	MB

	Printed Name/Signature	Date
a. Author	Robert Johnston	12/15/16
b. Facility Reviewer (*)	Danny Rhymer	12/15/16
c. NRC Chief Examiner (#)	Mark A. Bates / Mark A. Bates	12/22/16
d. NRC Supervisor	Eugene Courtney / E Courtney	9/13/17

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

Separate 201-2 For Written Exam.

* Exceptions noted with comments to licensee.

ILO 15-01

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

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 9/25/17 - 10/9/17 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 9/18/17 - 9/25/17. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	ROBERT JOHNSTON	EXAM DEVELOPER		9/27/16		10/2/17	
2.	DANNY RHYMER	SHIFT MANAGER / SRO		9/27/16		10/4/17	
3.	Mike Anderson	Exam Developer		9/27/16		10/2/17	
4.	SCOTT RICHARDSON	EXAM DEVELOPER		9/27/16		10/2/17	
5.	Dodder Wiff	Field Supervisor		1/3/17		10.2.17	
6.	Jason Galloway	Shift Engineer		1/3/17		10.3.17	
7.	RYAN KIMMY	SOS		2/24/17		10/3/17	
8.	LARRY WAGNER	SOS		2/24/17		10/2/17	
9.	Dan Fisher	CRS		3/6/17	Kim Stiko	10/3/17	
10.	Andy McNeely	RO		3/6/17		10/3/17	
11.	Joshua RIORDAN	RO		3-6-17		10-10-17	
12.	RASHAUN FORD	RO		3/7/17		10/11/17	
13.	Jason Pawlak	CRS		3/13/17		10/3/17	
14.	Terry Holcombe	RO		3/13/17		10/10/17	
15.	ROBBIE KING	SE / CRS		3/13/17		10/3/17	

NOTES:

ILO 15-01

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

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the U.S. Nuclear Regulatory Commission (NRC) licensing examinations scheduled for the week(s) of 9/25/17 - 10/5/17 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's 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's 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 9/18/17 - 9/23/17 From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

	PRINTED NAME	JOB TITLE/RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Andrew Petrarca	Simulator Engineer		3/29/17		10/3/17	
2.	PAUL POPADAK	SIM ENG		3/29/17		10/2/17	
3.	JOEY BROOKS	SIMULATOR ENGINEER		3/29/17		10/2/17	
4.	Jody Lawter	Simulator Supervisor		3/29/17		10/3/17	
5.	Justin Galloway	Reactor Operator		6/6/17		10/10/17	
6.	Robert Rachals	SRO / SE		6/6/17		10/12/17	
7.	DUSTIN ANDERSON	REACTOR OPERATOR		6/6/17		10/10/17	
8.	DON SHUE	OPERATIONS MANAGER		6/6/17		10/6/17	
9.	Brandon Blue	SRO/SE		6/7/17		10/10/17	
10.	Travis Micklash	SRO		6-8-17		10-4-17	
11.	KRIS BLAIR	RO		6/8/17		10/3/17	
12.	James Gaib	SRO		6-12-17		10-10-17	
13.	Evan Derrick	RO		6-13-17		10-5-17	
14.	Steven Billingsley	SRO		6-26-17		10-3-17	
15.	Matt Cranton	SRO		6-26-17		10-3-17	

NOTES:

ILO-15-01

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

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the U.S. Nuclear Regulatory Commission (NRC) licensing examinations scheduled for the week(s) of 9/18/17 - 10/2/17 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's 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's 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 9/18/17 - 9/24/17. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

	PRINTED NAME	JOB TITLE/RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	~~Robert Justice~~	GMNPO		6/30/17		6/30/17	
2.	Robert Justice	GMNPO		6/30/17		10/6/17	
3.	MIKE WILLIS	CRS		7-7-17		10-10-17	
4.	MATT TORRES	SE		7/10/17		10/10/17	
5.	David Dumaine	SM		7/10/17		10/3/17	
6.	MICHAEL FERRI	RO		7/10/17		10/3/17	
7.	Beth Dalick	NL- Supervisor		8/7/17		10/5/17	
8.	B.K. THOMPSON	B MGR-NL		8/7/17		10/10/17	
9.	Jim McGee	CRS		8/22/17		10/5/17	
10.	Justin Buck	RO		8/28/17		10/3/17	
11.	D. ALLEN WILLIAMS	DW 8-2017 ~~D. Allen Williams~~ RO		8/22/17		10/3/17	
12.	CHRIS ERICKSON	OPS INSTR.		8-31-17		10/2/17	
13.	Robert Sharpe	Training Supervisor		7/31/17		10/2/17	
14.	Matt Schultz	OST Driller		9/14/17		10-2-17	
15.	Doug Edwards	OPS Supervisor		9-14-17		10-9-17	
16.	Neil Constance	Trng Mgr		9-14-17		10/3/17	

NOTES:

15-01 (2017)

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

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the U.S. Nuclear Regulatory Commission (NRC) licensing examinations scheduled for the week(s) of ~~9/11-9/18/17~~ 9/25/17 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's 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's 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 9/18/17 - 9/25/17. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

	PRINTED NAME	JOB TITLE/RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	SCOTT REED	INSTRUCTOR		9-14-17		10-2-17	
2.	Samantha Penland	Operations Instructor		9-14-17		10-2-17	
3.	PERRY PINNICONG	OPERATIONS INSTRUCTOR		9-14-17		10-3-17	
4.	ANA YAGUE	OPERATIONS INSTRUCTOR		9-14-17		10-2-17	
5.	JASON WOODWORTH	OPERATIONS INSTRUCTOR		9-14-17		10-3-17	
6.	DAVID BROOKINS	OPS INSTRUCTOR (PL)		9-14-17		10/2/17	
7.	Darren Wokurka	Training Supervisor		9-18-17		10/2/17	
8.	Josh Reuer	Training Instructor		9-18-17		10/2/17	
9.	Robbie Crain	~~Training~~ 9-18-17 Operations Mentor		9-18-17		10/3/17	
10.	Harry Mertins	ILO Training		9-18-17		10/3/17	
11.	Keith Hanz	ILO		9/28/17		10/2/17	
12.	~~JASON WOODWORTH~~	ILO		LW 10/2/17			
13.							
14.							
15.							

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Facility: V.C. Summer (Unit 1) Date of Examination: 9/18/2017 Operating Test Number: 2017-301

	1. General Criteria	Initials a	b*	c#
a.	The operating test conforms to the previously approved outline; changes are consistent with sampling requirements (e.g., 10 CFR 55.45, operational importance, safety function distribution).			
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.			
c.	The operating test shall not duplicate items from the applicants' audit test(s) (see Section D.1.a.).			
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.			
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.			
	2. Walkthrough 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			
b.	Ensure that any changes from the previously approved systems and administrative walkthrough outlines (Forms ES-301-1 and ES-301-2) have not caused the test to deviate from any of the acceptance criteria (e.g., item distribution, bank use, repetition from the last two NRC examinations) specified on those forms and Form ES-201-2.			
	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.				

	Printed Name/Signature	Date
a. Author	Robert Johnston /	9/6/17
b. Facility Reviewer (*)	Steven Billingsley /	9-6-17
c. NRC Chief Examiner (#)	Daniel M. Bacon /	9-7-2017
d. NRC Supervisor	Eugene Guthrie /	9/14/17

* The facility licensee signature is not applicable for NRC-developed tests.
\# The independent NRC reviewer initials items in column "c"; the chief examiner concurrence is required.

Facility: V.C. Summer Date of Exam: 9/18/17 Scenario Numbers: 1 / 2 / 3 / 4 Operating Test No.: 2017-301

QUALITATIVE ATTRIBUTES	Initials a	b*	c#
1. The initial conditions are realistic in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.			
2. The scenarios consist mostly of related events.			
3. Each event description consists of the following: • the point in the scenario when it is to be initiated • the malfunction(s) or conditions 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. The events are valid with regard to physics and thermodynamics.			
5. Sequencing and timing of events is reasonable and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.			
6. 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.			
7. The simulator modeling is not altered.			
8. The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.			
9. Scenarios are new or significantly modified in accordance with Section D.5 of ES-301.			
10. All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).			
11. The scenario set provides the opportunity for each applicant to be evaluated in each of the applicable rating factors. (Competency rating factors as described on Forms ES-303-1 and ES-303-3.)			
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. Applicants are evaluated on a similar number of preidentified critical tasks across scenarios, when possible.			
14. 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 (#1 / #2 / #3 / #4)	--	--	--
1. Malfunctions after EOP entry (1–2)	3 / 4 / 5 / 4			
2. Abnormal events (2–4)	4 / 4 / 4 / 4			
3. Major transients (1–2)	1 / 1 / 1 / 1			
4. EOPs entered/requiring substantive actions (1–2)	2 / 2 / 1 / 3			
5. Entry into a contingency EOP with substantive actions (≥ 1 per scenario set)	1 / 0 / 1 / 1			
6. Preidentified critical tasks (≥ 2)	2 / 4 / 4 / 5			

* The facility licensee signature is not applicable for NRC-developed tests.
\# An independent NRC reviewer initials items in column "c"; chief examiner concurrence is required.

Facility: VC SUMMER Date of Exam: 09/18/2017 Operating Test No.: NRC-ILO-15-01

APPLICANT		EVENT TYPE	Scenarios												TOTAL	MINIMUM (*)		
			3			4			2									
			CREW POSITION			CREW POSITION			CREW POSITION									
			SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP					R	I	U
Belcher, Ryan	RO ☒ SRO-I ☐ SRO-U ☐	RX		1											1	1	1	0
		NOR						1							1	1	1	1
		I/C		2,3				2,5							4	4	4	2
		MAJ		6				6							2	2	3	1
		TS													0	0	?	2
Booe, Max	RO ☒ SRO-I ☐ SRO-U ☐	RX					1								1	1	1	0
		NOR			1						1				2	1	1	1
		I/C			4,5		3,4				4,5				6	4	4	2
		MAJ			6		6				6				3	2	3	1
		TS													0	0	2	2
Kowalke, Shaun	RO ☒ SRO-I ☐ SRO-U ☐	RX		1											1	1	1	0
		NOR						1							1	1	1	1
		I/C		2,3				2,5							4	4	4	2
		MAJ		6				6							2	2	2	1
		TS													0	0	2	2
Malsam, Anton	RO ☒ SRO-I ☐ SRO-U ☐	RX					1								1	1	1	0
		NOR			1										1	1	1	1
		I/C			4,5		3,4								4	4	4	2
		MAJ			6		6								2	2	2	1
		TS													0	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 (SRO-I) 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 SRO-I *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 one-for-one 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.

4. For licensees that use the ATC operator primarily for monitoring plant parameters, the chief examiner may place SRO-I applicants in either the ATC or BOP position to best evaluate the SRO-I in manipulating plant controls.

Facility: VC SUMMER Date of Exam: 06/06/2016 Operating Test No.: NRC-ILO-14-01

APPLICANT		EVENT TYPE	Scenarios												TOTAL	MINIMUM (*)		
			3			4			2									
			CREW POSITION			CREW POSITION			CREW POSITION									
			SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP					R	I	U
McDonald, Tommy	RO ☒ SRO-I ☐ SRO-U ☐	RX		1											1	1	1	0
		NOR						1							1	1	1	1
		I/C		2,3				2,5							4	4	4	2
		MAJ		6				6							2	2	2	1
		TS													0	0	2	2
Raush, Pete	RO ☒ SRO-I ☐ SRO-U ☐	RX					1								1	1	1	0
		NOR			1										1	1	1	1
		I/C			4,5		3,4								4	4	4	2
		MAJ			6		6								2	2	2	1
		TS													0	0	2	2
Bender, Scott	RO ☐ SRO-I ☒ SRO-U ☐	RX								1					1	1	1	0
		NOR	1			1									2	1	1	1
		I/C	2,3 5			2,3 4,5				2,3					9	4	4	2
		MAJ	6			6				6					3	2	2	1
		TS	3,5			2,3									4	0	2	2
Garrett, Craig	RO ☐ SRO-I ☐ SRO-U ☒	RX													0	1	1	0
		NOR	1			1									2	1	1	1
		I/C	2,3 5			2,3 4,5									7	4	4	2
		MAJ	6			6									2	2	2	1
		TS	3,5			2,3									4	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 (SRO-I) 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 SRO-I *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 one-for-one 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.

4. For licensees that use the ATC operator primarily for monitoring plant parameters, the chief examiner may place SRO-I applicants in either the ATC or BOP position to best evaluate the SRO-I in manipulating plant controls.

Facility: VC SUMMER Date of Exam: 06/06/2016 Operating Test No.: NRC-ILO-14-01

APPLICANT		EVENT TYPE	Scenarios													MINIMUM (*)		
			3 CREW POSITION			4 CREW POSITION						1-Spare			TOTAL			
			SRO	ATC	BOP	SRO	ATC	BOP				SRO	ATC	BOP		R	I	U
Zimmerman, Elvis	RO ☐ SRO-I ☐ SRO-U ☒	RX													0	1	1	0
		NOR	1			1									2	1	1	1
		I/C	2,3 5			2,3 4,5									7	4	4	2
		MAJ	6			6									2	2	2	1
		TS	3,5			2,3									4	0	2	2
SPARE	RO ☐ SRO-I ☐ SRO-U ☒	RX														1	1	0
		NOR										2				1	1	1
		I/C										3,4 5,6				4	4	2
		MAJ										7				2	2	1
		TS										5,6				0	2	2
SPARE	RO ☒ SRO-I ☐ SRO-U ☐	RX											2			1	1	0
		NOR														1	1	1
		I/C											3,6			3	4	2
		MAJ											7			2	3	1
		TS														0	2	2
SPARE	RO ☒ SRO-I ☐ SRO-U ☐	RX														1	1	0
		NOR												1		1	1	1
		I/C												4,5		4	4	2
		MAJ												7		2	2	1
		TS														0	2	2

Instructions:

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

4. For licensees that use the ATC operator primarily for monitoring plant parameters, the chief examiner may place SRO-I applicants in either the ATC or BOP position to best evaluate the SRO-I in manipulating plant controls.

Facility: VC Summer	Date of Examination: 09/18/2017	Operating Test No.: NRC ILO 15-01

Competencies	APPLICANTS															
	Belcher, Ryan				Booe, Max				Kowalke, Shaun				Malsam, Anton			
	RO ☒ SRO-I ☐ SRO-U ☐				RO ☒ SRO-I ☐ SRO-U ☐				RO ☒ SRO-I ☐ SRO-U ☐				RO ☒ SRO-I ☐ SRO-U ☐			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
			RO 3	BOP 4		BOP 2	BOP 3	RO 4			RO 3	BOP 4			BOP 3	RO 4
Interpret/Diagnose Events and Conditions			2,3	2,5		1,4 5	4,5	3,4			2,3	2,5			4,5	3,4
Comply With and Use Procedures (1)			1,2 3,6	1,2 5,6		1,4 5,6	1,4 5,6	1,3 4,6			1,2 3,6	1,2 5,6			1,4 5,6	1,3 4,6
Operate Control Boards (2)			1,2 3,6	1,2 5,6		1,4 5,6	1,4 5,6	1,3 4,6			1,2 3,6	1,2 5,6			1,4 5,6	1,3 4,6
Communicate and Interact			1,2 3,6	1,2 5,6		1,4 5,6	1,4 5,6	1,3 4,6			1,2 3,6	1,2 5,6			1,4 5,6	1,3 4,6
Demonstrate Supervisory Ability (3)																
Comply With and Use Tech. Specs. (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. (This includes all rating factors for each competency.) (Competency Rating factors as described on forms ES-303-1 and ES-303-3.)

Facility: VC Summer	Date of Examination: 09/18/2017	Operating Test No.: NRC ILO 15-01

Competencies	APPLICANTS															
	McDonald, Tommy				Raush, Pete				Bender, Scott				Garrett, Craig			
	RO ☒ SRO-I ☐ SRO-U ☐				RO ☒ SRO-I ☐ SRO-U ☐				RO ☐ SRO-I ☒ SRO-U ☐				RO ☐ SRO-I ☐ SRO-U ☒			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
			RO 3	BOP 4			BOP 3	RO 4		RO 2	SRO 3	SRO 4	1	2	SRO 3	SRO 4
Interpret/Diagnose Events and Conditions			2,3	2,5			4,5	3,4		2,3	6	6			6	6
Comply With and Use Procedures (1)			1,2 3,6	1,2 5,6			1,4 5,6	1,3 4,6		1,2 3,6	1,3 5	1,2 3,4 5,6			1,3 5	1,2 3,4 5,6
Operate Control Boards (2)			1,2 3,6	1,2 5,6			1,4 5,6	1,3 4,6		1,2 3,6						
Communicate and Interact			1,2 3,6	1,2 5,6			1,4 5,6	1,3 4,6		1,2 3,6	1,2 3,4 5,6	1,2 3,4 5,6			1,2 3,4 5,6	1,2 3,4 5,6
Demonstrate Supervisory Ability (3)											1,2 3,4 5,6	1,2 3,4 5,6			1,2 3,4 5,6	1,2 3,4 5,6
Comply With and Use Tech. Specs. (3)											3,5	2,3			3,5	2,3

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. (This includes all rating factors for each competency.) (Competency Rating factors as described on forms ES-303-1 and ES-303-3.)

Facility: VC Summer	Date of Examination: 09/18/2017	Operating Test No.: NRC ILO 15-01

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

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. (This includes all rating factors for each competency.) (Competency Rating factors as described on forms ES-303-1 and ES-303-3.)

Facility: VC Summer Date of Exam: 2017

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	2	2	4
	Tier Totals	4	5	5				4	5			4	27	5	5	10
2. Plant Systems	1	2	3	2	3	2	2	3	3	2	3	3	28	3	2	5
	2	1	1	1	1	1	1	1	1	0	1	1	10	2	1	3
	Tier Totals	3	4	2	4	3	3	4	4	3	4	4	38		3	8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7
		2			2			3			3			2	1	2	2	

1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only, the "Tier Totals" in each K/A category shall not be less than two). (One Tier 3 Radiation Control K/A is allowed if the K/A is replaced by a K/A from another Tier 3 Category).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to 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:
008AK2.02	Pressurizer Vapor Space Accident / 3	2.7	2.7	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Sensors and detectors
009EK2.03	Small Break LOCA / 3	3	3.3	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	S/Gs
011EG2.2.36	Large Break LOCA / 3	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
015AA1.06	RCP Malfunctions / 4	3.1	2.9	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	CCWS
022AK1.04	Loss of Rx Coolant Makeup / 2	2.9	3	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Reason for changing from manual to automatic control of charging flow valve controller
025AA2.06	Loss of RHR System / 4	3.2	3.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Existence of proper RHR overpressure protection
027AA1.01	Pressurizer Pressure Control System Malfunction / 3	4	3.9	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	PZR heaters, sprays, and PORVs
029EA1.08	ATWS / 1	4.5	4.5	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Reactor trip switch pushbutton
038EK1.01	Steam Gen. Tube Rupture / 3	3.1	3.4	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Use of steam tables
054AA2.03	Loss of Main Feedwater / 4	4.1	4.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Conditions and reasons for AFW pump startup
055EG2.4.6	Station Blackout / 6	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:
057AK3.01	Loss of Vital AC Inst. Bus / 6	4.1	4.4	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Actions contained in EOP for loss of vital ac electrical instrument bus
058AA2.01	Loss of DC Power / 6	3.7	4.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	That a loss of dc power has occurred; verification that substitute power sources have come on line
062AG2.4.46	Loss of Nuclear Svc Water / 4	4.2	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to verify that the alarms are consistent with the plant conditions.
077AK1.01	Generator Voltage and Electric Grid Disturbances / 6	3.3	3.5	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Definition of the terms: volts, watts, amps, VARS, power factor
WE04EK2.2	LOCA Outside Containment / 3	3.8	4.0	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	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.
WE11EK3.4	Loss of Emergency Coolant Recirc. / 4	3.6	3.8	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	RO or SRO function within the control room team as appropriate to the assigned position, in such a way that procedures are adhered to and the limitations in the facilities license and amendments are not violated.
WE12EK3.2	Steam Line Rupture - Excessive Heat Transfer / 4	3.3	3.9	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Normal, abnormal and emergency operating procedures associated with (Uncontrolled Depressurization of all Steam Generators).

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
001AA2.05	Continuous Rod Withdrawal / 1	4.4	4.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Uncontrolled rod withdrawal from available indications
028AK3.03	Pressurizer Level Malfunction / 2	3.5	4.1	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	False indication of PZR level when PORV or spray valve is open and RCS saturated
060AK1.01	Accidental Gaseous Radwaste Rel. / 9	2.5	3.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Types of radiation, their units of intensity and the location of sources of radiation in a nuclear reactor power plant
067AA2.15	Plant Fire On-site / 8	2.9	3.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Requirements for establishing a fire watch
068AG2.2.22	Control Room Evac. / 8	4.0	4.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of limiting conditions for operations and safety limits.
076AA1.04	High Reactor Coolant Activity / 9	3.2	3.4	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Failed fuel-monitoring equipment
WE08EK2.1	RCS Overcooling - PTS / 4	3.4	3.7	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes and automatic and manual features.
WE10EK2.2	Natural Circ. With Seam Void/ 4	3.6	3.9	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	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.
WE15EK3.1	Containment Flooding / 5	2.7	2.9	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure and reactivity changes and operating limitations and reasons for these operating characteristics.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
003K6.14	Reactor Coolant Pump	2.6	2.9	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Starting requirements
004K1.30	Chemical and Volume Control	2.9	3.1	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Relationship between letdown flow and RCS pressure
005A4.02	Residual Heat Removal	3.4	3.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Heat exchanger bypass flow control
005K4.12	Residual Heat Removal	3.1	3.7	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Lineup for piggyback mode with CSS
006K2.02	Emergency Core Cooling	2.5	2.9	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Valve operators for accumulators
006K5.04	Emergency Core Cooling	2.9	3.1	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Brittle fracture, including causes and preventative actions
007K4.01	Pressurizer Relief/Quench Tank	2.6	2.9	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Quench tank cooling
008K3.03	Component Cooling Water	4.1	4.2	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	RCP
010A4.02	Pressurizer Pressure Control	3.6	3.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	PZR heaters
012A2.03	Reactor Protection	3.4	3.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Incorrect channel bypassing
013K2.01	Engineered Safety Features Actuation	3.6	3.8	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	ESFAS/safeguards equipment control

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
022A3.01	Containment Cooling	4.1	4.3	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Initia tion of safeguards mode of operation
022A4.01	Containment Cooling	3.6	3.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	CCS fans
026G2.2.38	Containment Spray	3.6	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of conditions and limitations in the facility licens
039K4.02	Main and Reheat Steam	3.1	3.2	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Utilization of T-ave. program control when steam dumping through atmospheric relief/dump valves, including T-ave. limits
059A1.07	Main Feedwater	2.5	2.6	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Feed Pump speed, including normal control speed for ICS
059K3.03	Main Feedwater	3.5	3.7.	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	S/GS
061K5.01	Auxiliary/Emergency Feedwater	3.6	3.9	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Relationship between AFW flow and RCS heat transfer
061K6.01	Auxiliary/Emergency Feedwater	2.5	2.8	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Controllers and positioners
062K1.04	AC Electrical Distribution	3.7	4.2	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Off-site power sources
063A1.01	DC Electrical Distribution	2.5	3.3	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Battery capacity as it is affected by discharge rate
064A1.05	Emergency Diesel Generator	2.5	2.5	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	ED/G room temperature

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
064A2.07	Emergency Diesel Generator	2.5	2.7	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Consequences of operating under/over-excited
073A2.02	Process Radiation Monitoring	2.7	3.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Detector failure
076G2.4.46	Service Water	4.2	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to verify that the alarms are consistent with the plant conditions.
076K2.01	Service Water	2.7	2.7	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	Service water
078G2.2.38	Instrument Air	3.6	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of conditions and limitations in the facility licens
103A3.01	Containment	3.9	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	Containment isolation

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
001K6.08	Control Rod Drive	2.9	3.2	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	Purpose and position switch of alarm for high flux at shutdown
002A2.04	Reactor Coolant	4.3	4.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loss of heat sinks
011K2.02	Pressurizer Level Control	3.1	3.2	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	PZR heaters
014G2.2.44	Rod Position Indication	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
017A1.01	In-core Temperature Monitor	3.7	3.9	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	Core exit temperature
029A4.01	Containment Purge	2.5	2.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	Containment purge flow rate
033K4.01	Spent Fuel Pool Cooling	2.9	3.2	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	Maintenance of spent fuel level
035K5.01	Steam Generator	3.4	3.9	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	Effect of secondary parameters, pressure and temperature on reactivity
055~~A3.09~~ K3.01	Condenser Air Removal	2.5	2.7	☐	☐	✓	☐	☐	☐	☐	☐	☑	☐	☐	~~Automatic diversion of CARS exhaust~~ Knowledge of the effect that a loss or malfunction of the CARS will have on the following: Main Condenser
068K1.07	Liquid Radwaste	2.7	2.9	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Sources of liquid wastes for LRS

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.
G2.1.37	Conduct of operations	4.3	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of procedures, guidelines or limitations associated with reactivity management
~~G2.2.8~~ 2.2.14	Equipment Control	~~3.8~~ 3.9	~~3.9~~ 4.3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	~~(multi-unit license) Knowledge of the design, procedural and operational differences between units~~ Knowledge of the process for controlling equipment configuration or status
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
G2.3.13	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
G2.4.2	Emergency Procedures/Plans	4.5	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.
G2.4.21	Emergency Procedures/Plans	4.0	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the parameters and logic used to assess the status of safety functions
G2.4.43	Emergency Procedures/Plans	3.2	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of emergency communications systems and techniques.

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
007EA2.04	Reactor Trip - Stabilization - Recovery / 1	4.6	4.4	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	If reactor should have tripped but has not done so, manuall trip the reactor and carry out actions in ATWS EOP
009EA2.06	Small Break LOCA / 3	3.8	4.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Whether PZR water inventory loss is imminent
027AA2.12	Pressurizer Pressure Control System Malfunction / 3	3.7	3.8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	PZR level
040AG2.2.38	Steam Line Rupture - Excessive Heat Transfer / 4	3.6	4.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of conditions and limitations in the facility licens
057AG2.1.30	Loss of Vital AC Inst. Bus / 6	4.4	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to locate and operate components, including local controls.
062AG2.4.35	Loss of Nuclear Svc Water / 4	3.8	4.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
059AG2.4.21	Accidental Liquid RadWaste Rel. / 9	4.0	4.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the parameters and logic used to assess the status of safety functions
067AA2.14	Plant Fire On-site / 8	3.2	4.3	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Equipment that will be affected by fire suppression activities in each zone
we06EG2.4.11	Degraded Core Cooling / 4	4.0	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of abnormal condition procedures.
WE15EA2.1	Containment Flooding / 5	2.7	3.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	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:
004G2.1.23	Chemical and Volume Control	4.3	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to perform specific system and integrated plant procedures during all modes of plant operation.
006G2.2.44	Emergency Core Cooling	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
013A2.04	Engineered Safety Features Actuation	3.6	4.2	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loss of instrument bus
059A2.03	Main Feedwater	2.7	3.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Overfeeding event
064A2.08	Emergency Diesel Generator	2.7	3.1	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Consequences of opening/closing breaker between buses (VARS, out-of-phase, voltage)

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
002A2.04	Reactor Coolant	4.3	4.6	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Loss of heat sinks
011G2.4.46	Pressurizer Level Control	4.2	4.2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to verify that the alarms are consistent with the plant conditions.
041A2.02	Steam Dump/Turbine Bypass Control	3.6	3.9	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	Steam valve stuck open

KA	NAME / SAFETY FUNCTION:	IR RO	IR SRO	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
G2.1.34	Conduct of operations	2.7	3.5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of primary and secondary chemistry limits
G2.1.6	Conduct of operations	3.8	4.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Ability to manage the control room crew during plant transients.
G2.2.6	Equipment Control	3.0	3.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of the process for making changes to procedure
G2.3.12	Radiation Control	3.2	3.7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of radiological safety principles pertaining to licensed operator duties
~~G2.3.13~~ 2.3.6	Radiation Control	~~3.4~~ 2.0	3.8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	~~Knowledge of radiological safety procedures pertaining to licensed operator duties~~ Ability to approve release permits
G2.4.19	Emergency Procedures/Plans	3.4	4.1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of EOP layout, symbols and icons.
G2.4.44	Emergency Procedures/Plans	2.4	4.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	Knowledge of emergency plan protective action recommendations.

Facility: V.C. Summer (Unit 1) Date of Exam: 9/28/17 Exam Level: RO ✓ SRO ✓

Item Description		Initials a	Initials b	Initials c
1.	Clean answer sheets copied before grading	ML	N/A	
2.	Proposed answer key changes and question deletions justified and documented (facility reviewer initials not required (N/R) if NO post-examination comments are submitted)	ML	N/A	
3.	Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	ML	N/A	
4.	Grading for all borderline cases (80% ±2% overall and 70% or 80%, as applicable, ±4% on the SRO-only exam) reviewed in detail	ML	N/A	
5.	All other failing examinations checked to ensure that grades are justified	ML	N/A	
6.	Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by one-half or more of the applicants	ML	N/A	

	Printed Name/Signature	Date
a. Grader	MICHAEL KENNARD	10/10/17
b. Facility Reviewer(*)	N/A	N/A
c. NRC Chief Examiner (*)	Daniel M. Bacon	10/10/17
d. NRC Supervisor (*)	Eugene Guthrie	10/13/17

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

Neil E. Constance
Manager, Nuclear Training
803.345.4028

SCE&G®
A SCANA COMPANY

December 15, 2016

Mr. Gerald J. McCoy, Chief
Operations Branch 1
Division of Reactor Safety
U. S. Nuclear Regulatory Commission, Region II
245 Peachtree Center Ave. N.E., Suite 1200
Atlanta, GA 30303-1257

Dear Mr. McCoy:

Subject: VIRGIL C. SUMMER NUCLEAR STATION UNIT 1
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
REACTOR AND SENIOR REACTOR OPERATOR
INITIAL EXAMINATION OUTLINES

Based on the guidelines in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10, in particular ES-201, "Initial Operator Licensing Examination Process" and ES-301, "Preparing Initial Operating Tests," South Carolina Electric & Gas Company (SCE&G) has enclosed the following information for your consideration:

- Enclosure 1 ES-201-2, Examination Outline Quality Checklist
- Enclosure 2 ES-201-3, Examination Security Agreement
- Enclosure 3 ES-301-1, Administrative Topics Outline
- Enclosure 4 ES-301-2, Control Room/In-Plant Systems Outline
- Enclosure 5 ES-301-5, Transient and Event Checklist
- Enclosure 6 ES-D-1s, Scenario Outlines

The enclosed examination materials have been independently reviewed by Mr. Danny L. Rhymer, Shift Manager, Operations.

In accordance with NUREG-1021, this material must be withheld from public disclosure until the examinations are complete.

Should there be any questions, please contact Mr. Robert N. Johnston, Nuclear Trainer-Principle at (803) 931-5173.

Very truly yours,

12/15/16

Neil E. Constance

TS/NEC/tb
Enclosures

c: (Without Enclosure unless noted)
M. A. Bates (NRC e-mail notification)
NRC Resident Inspector

RTS (CR-16-06263)
File (814.04, RR 1050)
PRSF (RC-16-0172)

Neil E. Constance
Manager, Nuclear Training
803.345.4028
July 12, 2017

SCE&G®
A SCANA COMPANY

Mr. Eugene F. Guthrie, Chief
Operations Branch 2
Division of Reactor Safety
U. S. Nuclear Regulatory Commission, Region II
245 Peachtree Center Ave. N.E., Suite 1200
Atlanta, GA 30303-1257

Dear Mr. Guthrie:

Subject: VIRGIL C. SUMMER NUCLEAR STATION UNIT 1
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
REACTOR AND SENIOR REACTOR OPERATOR WRITTEN EXAMINATION, OPERATING TEST, AND SUPPORTING REFERENCE MATERIAL

Based on the guidelines in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors", Revision 11, in particular ES-301, "Preparing Initial Operating Tests," South Carolina Electric & Gas Company is providing the following information for your consideration.

- ES-201-2, Examination Outline Quality Checklist
- ES-201-3, Examination Security Agreement
- ES-301-1, Administrative Topics Outline
- ES-301-2, Control Room/In-Plant Systems Outline
- ES-301-3, Operating Test Quality Checklist
- ES-301-4, Simulator Scenario Quality Checklist
- ES-301-5, Transient and Event Checklist
- ES-301-6, Competencies Checklist
- ES-401-4, Record of Rejected K/As
- ES-401-6, Written Exam Quality Checklist
- Written Exam Hard Copy with Supporting Documentation
- Written Exam Electronic Files on DVD-ROM
- Operational Exam Hard Copy
- Operational Exam Electronic Files on DVD-ROM
- Supporting Reference Documentation Files on DVD-ROM

The enclosed examination materials have been independently reviewed by Mr. Danny Rhymer, Shift Manager. In accordance with NUREG-1021, this material must be withheld from public disclosure until the examinations are complete.

Should there be any questions, please contact Mr. Robert N. Johnston at (803) 931-5173.

Very truly yours,

Neil E. Constance

Neil E. Constance

TS/NEC/sr
Enclosures
c: (Without Enclosures unless noted)
G. J. McCoy
D. M. Bacon
R. N. Johnston
NRC Resident Inspector
RTS (CR-16-06263)
File (814.04, RR 1050)
DMS (RC-17-0095)

Neil E. Constance
Manager, Nuclear Training
803.345.4028

SCE&G®
A SCANA COMPANY

October 4, 2017

Mr. Eugene F. Guthrie, Chief
Operations Branch 2
Division of Reactor Safety
U. S. Nuclear Regulatory Commission, Region II
245 Peachtree Center Ave. N.E., Suite 1200
Atlanta, GA 30303-1257

Dear Mr. Guthrie:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) UNIT 1
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
INITIAL OPERATOR LICENSE EXAMINATION
POST EXAMINATION SUBMITTAL

The VCSNS Initial Operator License Examination was administered during the weeks of September 18, 2017 and September 25, 2017. The VCSNS Initial License Written Examination was administered on September 28, 2017. VCSNS is enclosing the following as required by Revision 11 of NUREG 1021, "Operator Licensing Examination Standards for Power Reactors:"

1. Each applicant's original answer and examination cover sheets plus two clean copies of each applicant's answer sheet;
2. The master examinations and answer keys;
3. Written examination seating chart; and
4. Written examination performance analysis.

There were no questions asked by applicants during the written examination. Additionally, there are no formal post-examination comments for any portion of the examination. VCSNS does not request a change to any examination item. As agreed, the examination security agreement will be sent via email at a later date.

If you require any additional information or have any questions, please contact Robert Johnston at (803) 931-5173.

Very truly yours,

Neil E. Constance

Neil E. Constance

TS/NEC/hk
Enclosures

c: (Without Enclosure unless noted)
C. Haney
D. M. Bacon (NRC e-mail notification)
NRC Resident Inspector

RTS (CR-16-06263)
File (814.04, RR 1050)
PRSF (RC-17-0142)