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

Facility: LIMERICK Date of Examination: 12/9/2019

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).	BF
-210	2. NRC examiners and facility contact assigned (C.1.d; C.2.f).	BF
-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).	BF
-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).	BF
-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).	N/A
-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).	BF
-136	8. Operating test outline(s) reviewed by the NRC and feedback provided to facility licensee (C.2.h; C.3.d–e).	BF
-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).	BF
-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).	BF
-50	12. Written exam and operating test reviews completed (C.3.f).	BF
-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.	BF
-7	14. Preliminary license applications and waiver/excusal requests, as applicable (NRC Form 398) due (C.1.m; C.2.i; ES-202).	BF
-7	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).	BF
-7	16. Written examinations and operating tests approved by the NRC supervisor (C.2.j–k; C.3.h).	BF
-7	17. Request facility licensee management feedback on the examination (C.2.l).	BF
-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).	BF

* 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.

Facility: Limerick Date of Examination: 12/02/19

Item	Task Description	Initials a	b*	c**
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model in accordance with ES-401 or ES-401N.	TAB	N/A	F
	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.	TAB	N/A	F
	c. Assess whether the outline overemphasizes any systems, evolutions, or generic topics.	TAB	N/A	F
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	TAB	N/A	F
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.	TAB	(R)	F
	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.	TAB	(R)	F
	c. To the extent possible, assess whether the outline(s) conforms with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D and in Section D.5, "Specific Instructions for the 'Simulator Operating Test,'" of ES-301 (including overlap).	TAB	(R)	F
3. WALKTHROUGH	a. Verify that the systems walkthrough outline meets the criteria specified on Form ES-301-2: (1) The outline(s) contains 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 applicant's 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 radiologically controlled area tasks meets the criteria on the form.	TAB	(R)	F
	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.	TAB	(R)	F
	c. Determine whether there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.	TAB	(R)	F
4. GENERAL	a. Assess whether plant-specific priorities (including probabilistic risk assessment and individual plant examination insights) are covered in the appropriate exam sections.	TAB	(R)	F
	b. Assess whether the 10 CFR 55.41, 55.43, and 55.45 sampling is appropriate.	TAB	(R)	F
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	TAB	(R)	F
	d. Check for duplication and overlap among exam sections and the last two NRC exams.	TAB	(R)	F
	e. Check the entire exam for balance of coverage.	TAB	(R)	F
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	TAB	(R)	F

	Printed Name/Signature	Date
a. Author	Todd A Byrd / [signature]	6/18/19
b. Facility Reviewer (*)	Bill Selse [signature]	6/21/19
c. NRC's Chief Examiner (#)	Brian Fuller [signature]	7/10/19
d. NRC Supervisor	Donald Jackson 7/10/19	

* Not applicable for NRC-prepared examination outlines.
# The independent NRC reviewer initials items in column "c"; the chief examiner's concurrence is required.

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 12/2/19 - 12/12/19 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 12/2/19 - 12/12/19 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.	Christopher Bihl	Exam Author	C. J. Bihl	4/9/19	C. J. Bihl	12/13/19	
2.	Todd A Byers	Exam Author	[illegible]	4/09/19	[illegible]	12/12/19	
3.	Samuel M. Cotton	Simulator Coordinator	Samuel M. C	4/9/19	Samuel M. C	12/13/19	
4.	FRED BRUNS	CORP REE	[illegible]	5/23/19	TAB for Fred (e-mail)	12/12/19	
5.	DARREN WEAVER	IT ANALYST - SIMULATOR	Darren R. Weaver	5/20/19	TAB for Darren (e-mail)	12/13/19	
6.	Scott Messner	Simulator IT Manager	[illegible]	5/30/19	TAB for Scott (e-mail)	12/12/19	
7.	Stuart McDonald	IT Analyst - Simulator	[illegible]	5/30/19	TAB for Stuart (e-mail)	12/13/19	
8.	Bill Sorcso	OPS SRO	[illegible]	9/21/19	TAB for Bill (e-mail)	12/13/19	
9.	Sagar Porter	OPS SRO	[illegible]	7/18/19	TAB for Sagar (e-mail)	12/12/19	
10.	Andrew Wages	OPS RO	Andrew Wages	8/2/19	TAB for Andrew (e-mail)	12/13/19	
11.	ERIC HINKLE	OPS RO	[illegible]	8/2/19	TAB for Eric (e-mail)	12/12/19	
12.	Scott Miller	Exam Author	[illegible]	8/6/19	[illegible]	12/13/19	
13.	NATHAN LASL	OPS SRO	[illegible]	8/9/19			
14.	Joe Jordan	OPS RO	[illegible]	8/13/19	TAB for Joe (e-mail)	12/13/19	
15.	Jeff Peterson	7111.11 FSA	[illegible]	8/19/19	TAB for Jeff (e-mail)	12/13/19	

NOTES:

ES-201, Page 31 of 31

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 12/2/19 12/12/19 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 12/2/19-12/12/19. 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.	Matt Jones	OPS SRO		8/19/19	TMS for Matt (e-mail)	12/16/19	
2.	DREW SHANER	OPS RO		8/19/19	TMS for Drew (e-mail)	12/13/19	
3.	Dave Warner	OPS RO		8/19/19	TMS for Dave (e-mail)	12/13/19	
4.	JD WILLIAMSON	OPS SRO		8/20/19	TMS for JD (e-mail)	12/13/19	
5.	Bo Grove	OPS SRO		8/21/19	TMS for Bo (e-mail)	12/13/19	
6.	Rachel Smolinsky	Training Clerk		8/29/19	TMS for Rachel (e-mail)	12/16/19	
7.	Daniel Semeter	OPS Training Mgr		9/3/19	TMS for Dan (e-mail)	12/13/19	
8.	Matt Bonanno	OPS Director		9/5/19	TMS for Matt (e-mail)	12/12/19	
9.	JOHN MERCURIO	LORT LEAD INSTRUCTOR		9/9/19			
10.	MICHAEL DAVIS	LGS EP		9/13/19	TMS for Mike (e-mail)	12/16/19	
11.	ALEXANDER W. POLLAR	OPS RO		9/25/19	TMS for Alex (e-mail)	12/12/19	
12.	MICHAEL CAPOZZA	OPS INSTRUCTOR		10/2/19		12/16/19	
13.	Benjamin M. Jones	OPS Instructor		10/7/19			TMS 10/25/19
14.	Eric Casey	OPS Instructor		10/8/19	TMS for Eric (e-mail)	12/12/19	
15.	Kevin Korch	MAINT I&C		11/8/19			

NOTES:

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 12/02/19 - 12/12/19 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 12/02/19 - 12/12/19 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.	Victor Gonzalez	EP Manager	[signature]	11/12/19			11/12/19
2.	Eric L. George	50.169 IDP Chair/LORT Ins	[signature]	11/22/19	TAB for Eric (e-mail)	12/13/19	
3.	Richard Weidner	ILT Instructor	[signature]	12/2/19	TAB for Rich (e-mail)	12/13/19	
4.	Raymond Bonner	ILT INSTRUCTOR	[signature]	12/2/19	TAB for Ray (e-mail)	12/13/19	
5.	Franklin Brown	ILT INSTR	[signature]	12/2/19	TAB for Frank (e-mail)	12/13/19	
6.	TODD M. SLICKERS	ILT INSTR.	[signature]	12/2/19	TAB for Todd (e-mail)	12/13/19	
7.	Keith S Kamper	S. Manager Trn	[signature]	12/2/19	TAB for Keith (e-mail)	12/13/19	
8.	Benjamin M. Sakers	LORT Instructor	[signature]	12/2/19	TAB for Ben (e-mail)	12/13/19	
9.	Terrence Clemmer	LEAD INSTRUCTOR	[signature]	12/2/19	TAB for Terry (e-mail)	12/16/19	
10.	Andrew Yanger	Instructor	[signature]	12/2/19	TAB for Andy (e-mail)	12/13/19	
11.	JARRETT GRAFFIN	Inst.	[signature]	12/2/19	TAB for Jarrett (e-mail)	12/13/19	
12.	BRIAN STRATTON	SME INSTRUCTOR	[signature]	12-2-19	TAB for Brian (text)	12/13/19	
13.	Brian Devine	SOS	[signature]	12-3-19	[signature]	12-16-19	
14.	TIM KAN	INST	[signature]	12-12-19	[signature]	12/16/19	
15.							

NOTES:

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

Facility: Limerick Date of Examination: 12/02/19 Operating Test Number: 1

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

	Printed Name/Signature	Date
a. Author	Todd A Byers/	9/18/19
b. Facility Reviewer (*)	Bill Sokas/	9/18/19
c. NRC Chief Examiner (#)	Brian Fuller/	9/25/19
d. NRC Supervisor	Donald E. Jackson 9/25/19	

* 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.

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

Facility: Limerick Date of Exam: 12/02/19 Scenario Numbers: 4159 / 7017 / 6213 Operating Test No.: 1

QUALITATIVE ATTRIBUTES	Initials a	Initials b*	Initials c#
1. The initial conditions are realistic in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.	TAB	Q	F
2. The scenarios consist mostly of related events.	TAB	Q	F
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)	TAB	Q	F
4. The events are valid with regard to physics and thermodynamics.	TAB	Q	F
5. Sequencing and timing of events is reasonable and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	TAB	Q	F
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.	TAB	Q	F
7. The simulator modeling is not altered.	TAB	Q	F
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.	TAB	Q	F
9. Scenarios are new or significantly modified in accordance with Section D.5 of ES-301.	TAB	Q	F
10. All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	TAB	Q	F
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.)	TAB	Q	F
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).	TAB	Q	F
13. Applicants are evaluated on a similar number of preidentified critical tasks across scenarios, when possible.	TAB	Q	F
14. The level of difficulty is appropriate to support licensing decisions for each crew position.	TAB	Q	F

Target Quantitative Attributes per Scenario (See Section D.5.d)	Actual Attributes	--	--	--
1. Malfunctions after EOP entry (1–2)	3 / 2 / 1	TAB	Q	F
2. Abnormal events (2–4)	4 / 4 / 3	TAB	Q	F
3. Major transients (1–2)	1 / 1 / 1	TAB	Q	F
4. EOPs entered/requiring substantive actions (1–2)	2 / 1 / 2	TAB	Q	F
5. Entry into a contingency EOP with substantive actions (≥ 1 per scenario set)	2 / 1 / 1	TAB	Q	F
6. Pre identified critical tasks (≥ 2)	2 / 5 / 3	TAB	Q	F

* 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: LGS Date of Exam: 12/2/19 Operating Test No.: 1

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		4159			7017			6213									
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
SRO-U (1)	RX													0	1	1	**0**
	NOR													0	1	1	**1**
	I/C	1,2,3 4,7,8			1,2,3,4 5,7,8									13	4	4	**2**
	MAJ	5			6									2	2	**2**	**1**
	TS	2,3			3,4									4	0	**2**	2
SRO-I (1)	RX								2					1	1	**1**	0
	NOR													0	1	**1**	1
	I/C	1,2,3 4,7,8					1, 2 3,8		3,6 8					13	4	**4**	2
	MAJ	5					6		7					3	2	**2**	1
	TS	2,3												2	0	**2**	2
SRO-I (2)	RX								2					1	1	**1**	0
	NOR													0	1	**1**	1
	I/C			2,3,4 6,7,8	1,2,3,4 5,7,8				3,6 8					16	4	**4**	2
	MAJ			5	6				7					3	2	**2**	1
	TS				3,4									2	0	**2**	2
SRO-I (3)	RX		3											1	1	**1**	0
	NOR													0	1	**1**	1
	I/C		1,2				1, 2 3,8	2,3,5 6,8						11	4	**4**	2
	MAJ		5				6	7						3	2	**2**	1
	TS							4,5						2	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 I/C 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 new reactor facility 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: LGS		Date of Exam: 12/2/19																
APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		4159			7017			6213									
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
SRO-I (4)	RX					1								1	1	**1**	0
	NOR													0	1	**1**	1
	I/C			2,3,4 6,7,8		4,5 7		2,3, 5 6,8						14	4	**4**	2
	MAJ			5		6		7						3	2	**2**	1
	TS							4,5						2	0	**2**	2
SRO-I (5)	RX		3											1	1	**1**	0
	NOR													0	1	**1**	1
	I/C		1,2		1,2,3,4 5,7,8									9	4	**4**	2
	MAJ		5		6									2	2	**2**	1
	TS				3,4									2	0	**2**	2
SRO-I (6)	RX					1								1	1	**1**	0
	NOR													0	1	**1**	1
	I/C	1,2,3 4,7,8				4,5 7								9	4	**4**	2
	MAJ	5				6								2	2	**2**	1
	TS	2,3												2	0	**2**	2
RO-1	RX		3											1	1	**1**	0
	NOR									1				1	1	**1**	1
	I/C		1,2				1, 2 3,8			2, 5				8	4	**4**	2
	MAJ		5				6			7				3	2	**2**	1
	TS													0	0	**2**	2
RO-2	RX					1								1	1	**1**	0
	NOR									1				1	1	**1**	1
	I/C			2,3,4 6,7,8		4,5 7				2, 5				11	4	**4**	2
	MAJ			5		6				7				3	2	**2**	1
	TS													0	0	**2**	2

Facility: Limerick Date of Examination: 12/02/2019 Operating Test No.: 001

Competencies	APPLICANTS															
	SRO-U (1)				SRO-I (1)				SRO-I (2)				SRO-I (3)			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions	1-8	1-8			1-8	1-8	1-8		1-8	1-8	1-8		1-8	1-8	1-8	
Comply with and Use Procedures (1)	1-8	1-8			1-8	1-8	1-8		1-8	1-8	1-8		1-8	1-8	1-8	
Operate Control Boards (2)						1-8	1-8		1-8		1-8		1-8	1-8		
Communicate and Interact	1-8	1-8			1-8	1-8	1-8		1-8	1-8	1-8		1-8	1-8	1-8	
Demonstrate Supervisory Ability (3)	1-8	1-8			1-8	1-8	1-8		1-8	1-8	1-8		1-8	1-8	1-8	
Comply with and Use TS (3)	2, 3	3, 4			2, 3					3, 4					4, 5	

Notes:
(1) Includes TS 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.) (Forms ES 303 1 and ES 303 3 describe the competency rating factors.)

Facility: Limerick	Date of Examination: 12/02/19	Operating Test No.: 001

Competencies	APPLICANTS															
	SRO-I (4)				SRO-I (5)				SRO-I (6)				RO (1)			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions	1-8	1-8	1-8		1-8	1-8			1-8	1-8			1-8	1-8	1-8	
Comply with and Use Procedures (1)	1-8	1-8	1-8		1-8	1-8			1-8	1-8			1-8	1-8	1-8	
Operate Control Boards (2)	1-8	1-8			1-8					1-8			1-8	1-8	1-8	
Communicate and Interact	1-8	1-8	1-8		1-8	1-8			1-8	1-8			1-8	1-8	1-8	
Demonstrate Supervisory Ability (3)	1-8	1-8	1-8		1-8	1-8			1-8	1-8						
Comply with and Use TS (3)			4, 5			3, 4			2, 3							

Notes:
(1) Includes TS 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.) (Forms ES 303 1 and ES 303 3 describe the competency rating factors.)

Facility: Limerick | Date of Examination: 12/02/19 | Operating Test No.: 001

Competencies	APPLICANTS															
	RO-2															
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions	1-8	1-8	1-8													
Comply with and Use Procedures (1)	1-8	1-8	1-8													
Operate Control Boards (2)	1-8	1-8	1-8													
Communicate and Interact	1-8	1-8	1-8													
Demonstrate Supervisory Ability (3)																
Comply with and Use TS (3)																

Notes:
(1) Includes TS 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.) (Forms ES 303 1 and ES 303 3 describe the competency rating factors.)

Facility: Limerick Date of Exam: 12/12/19 Exam Level: RO X SRO X

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

	Printed Name/Signature	Date
a. Grader	Christopher J. Bihl / Christopher J. Bihl	12/13/19
b. Facility Reviewer(*)	Todd A Byers / Todd A Byers	12/13/19
c. NRC Chief Examiner (*)	Brian Fuller / BFuller	12/18/19
d. NRC Supervisor (*)	Donald E. Jackson 12/18/19	

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

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

Facility: Limerick | Date of Exam: 12/02/19 | Exam Level: RO ☒ SRO ☒

Item Description					Initial a	Initial b*	Initial c*#
1.	Questions and answers are technically accurate and applicable to the facility.				TMB	Q	BF
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available. c. Correct answer explanation and distractor analysis provided (ES-401, D.2.g)				TMB	Q	BF
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401				TMB	Q	BF
4	The sampling process was random and systematic. (If more than four RO or two SRO questions were repeated from the last two NRC licensing exams, consult the NRR/NRO OL program office).				TMB	Q	BF
5.	Question duplication from the licensee 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).				TMB	Q	BF
6.	Bank use meets limits (no more than 75% from the bank, at least 10% new, and the rest new or modified); enter the actual RO/SRO-only question distribution(s) at right.	Bank	Modified	New	N/A	N/A	N/A
		46/12	1/1	28/12	TMB	Q	BF
7.	Between 38 and 45 questions of the questions on the RO exam and at least 13 questions of the questions on the SRO-only portion of the exam are written at the comprehension/analysis level (see ES-401, D.2.c); enter the actual RO/SRO-only question distribution(s) at right.	Memory	C/A		N/A	N/A	N/A
		35/8	40/17		TMB	Q	BF
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.				TMB	Q	BF
9.	Question content conforms to specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.				TMB	Q	BF
10.	Question psychometric quality and format meet the guidelines in Appendix B.				TMB	Q	BF
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.				TMB	Q	BF

	Printed Name/Signature	Date
a. Author	Todd A Byers / [signature]	9/18/19
b. Facility Reviewer (*)	Bill Sacks / [signature]	9/18/19
c. NRC Chief Examiner (#)	Brian Fuller / [signature]	9/25/19
d. NRC Regional Supervisor	Donald E. Jackson 9/25/19	

Note: * The facility reviewer's initials or signature are not applicable for NRC-developed examinations.
Independent NRC reviewer initials items in Column "c"; chief examiner concurrence is required.