Facility: TMI, Unit 1 Date of Examination: 8/31-9/2 OPTEST 9/7/11 WRITTEN

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

Target Date*	Task Description (Reference)	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a and b)	
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	
-120	3. Facility contact briefed on security and other requirements (C.2.c)	
-120	4. Corporate notification letter sent (C.2.d)	
[-90]	[5. Reference material due (C.1.e; C.3.c; Attachment 3)]	
{-75}	6. Integrated examination outline(s) due, including Forms ES-201-2, ES-201-3, ES-301-1, ES-301-2, ES-301-5, ES-D-1's, ES-401-1/2, ES-401-3, and ES-401-4, as applicable (C.1.e and f; C.3.d)	
{-70}	{7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)}	
{-45}	8. Proposed examinations (including written, walk-through JPMs, and scenarios, as applicable), supporting documentation (including Forms ES-301-3, ES-301-4, ES-301-5, ES-301-6, and ES-401-6, and any Form ES-201-3 updates), and reference materials due (C.1.e, f, g and h; C.3.d)	
-30	9. Preliminary license applications (NRC Form 398's) due (C.1.l; C.2.g; ES-202)	
-14	10. Final license applications due and Form ES-201-4 prepared (C.1.l; C.2.i; ES-202)	
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f and h; C.3.g)	
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	
-7	14. Final applications reviewed; 1 or 2 (if >10) applications audited to confirm qualifications / eligibility; and examination approval and waiver letters sent (C.2.i; Attachment 5; ES-202, C.2.e; ES-204)	
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee (C.3.k)	
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	

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

Facility: Three Mile Island		Date of Examination: August 2011			
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.			
	b.	Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.			
	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.			
	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 scenarios will not be repeated on subsequent days.			
	c.	To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.			
3. W/T	a.	Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form			
	b.	Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations			
	c.	Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.			
4. GENERAL	a.	Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.			
	b.	Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.			
	c.	Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.			
	d.	Check for duplication and overlap among exam sections.			
	e.	Check the entire exam for balance of coverage.			
	f.	Assess whether the exam fits the appropriate job level (RO or SRO).			

	Printed Name / Signature	Date
a. Author	Greg Hoek	4/26/11
b. Facility Reviewer (*)	Joseph Kulasinsky	4/26/2011
c. NRC Chief Examiner (#)	John Cassou	4/26/11 5/5/11
d. NRC Supervisor	Sam Hansell	5/2/11

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**

FOR WRITTEN EXAM ONLY

Facility: Three Mile Island Date of Examination: August 2011

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

	Printed Name / Signature	Date
a. Author	Greg Hoek	8/24/11
b. Facility Reviewer (*)	Joseph Kulasinsky	8/24/11
c. NRC Chief Examiner (#)	JOHN CARUSO	8/25/11
d. NRC Supervisor	DONALD E. JACKSON	8/29/11

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

OPERATING EXAM ONLY

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

Facility: Three Mile Island Date of Examination: August 2011

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.	N/A		
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.			
	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.			
	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 scenarios will not be repeated on subsequent days.			
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.			
3. W/T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form			
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations			
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.			
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.			
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.			
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.			
	d. Check for duplication and overlap among exam sections.			
	e. Check the entire exam for balance of coverage.			
	f. Assess whether the exam fits the appropriate job level (RO or SRO).			

	Printed Name / Signature	Date
a. Author	Greg Hoek /	8/17/11
b. Facility Reviewer (*)	Joseph Kulasinsky /	8/17/11
c. NRC Chief Examiner (#)	John Caruso /	8/18/11
d. NRC Supervisor	Donald E. Jackson /	8/19/11

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

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 8/29/11 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 8/29/11. 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.	FRANK R WAPLE JR	DIRECTOR OPERATION / CRO		6-14-11		9/29/11	
2.	FRANK BROWN	SRO		6/14/11		9/3/11	
3.	GERARD YACKEY	SRO		7.3.11		9.7.11	
4.	TIM ALLEY	SRO		7/6/11		9/9/11	
5.	BRIAN BOWERS	CRO		8-2-11		9.12.11	
6.	WILLIAM P. REILLY	CRO		8-2-11		9/2/11	
7.	STEVEN L. BURGER	SRO		8.4.11		9/9/11	
8.	HUGH BLUNT	CRO		8-3-11		9-9-11	
9.	KELLER BARBARA	CRO		8/2/11		9/12/11	
10.	ROBERT R. BRADY JR.	SRO / SM		8/15/11		9-9-11	
11.	GILLIS W. CROPPER	INSTRUCTOR / STA SURROGATE		8/30/11		9-9-11	
12.	GEORGE H. DARLING	INSTRUCTOR / BOOTH OPS		8/30/11		9-12-11	
13.	J.A. FLOWERS	CRO		9-1-11		9-9-11	
14.	JOHN A BLAIR	OTM		9.1.11		9/12/11	
15.							

NOTES:

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 8/29/11 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 8/29/11. 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.	DEBORAH OSHAUGHNESSY	SRO		3/22/11		9/12/11	
2.	MICAH A. LOVETTE	SRO		3/29/11	① GREG HOEK FOR M. LOVETTE 9/12/11		①
3.	William Berger	RO		3/29/11		9/9/11	
4.	M Scott Muscavitch	RO		3/29/11		9/9/11	
5.	Tara J. Snyder	RO		3/30/11		9/12/11	
6.	PAUL ALAIMO	RO		3/31/11		9-20-11	
7.	WILLIAM PRICE	SRO		4-5-11		9-12-11	
8.	Randy Kennedy	RO		4-5-11		9/9/11	
9.	Robert Murray	RO		4-5-11		9/22/11	
10.	DAVE LEWIS	SRO		4-7-11		9/13/11	
11.	John Tesner	Sim Coordinator		5-13-11		9/9/11	
12.	JJEdwards	Simulator Technician		5-13-11		9-9-11	
13.	Tom Kiscaden	Simulator Technician		5-18-11		9/9/11	
14.	MARIO MALINAO	CRO		5/24/11		9/9/11	
15.	Adam Williams	CRO		5/25/11		9/12/11	

NOTES: ① PER TELECON 13:25 9/12/11 9/12/11

1. **Pre-Examination**

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 9/19/11 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 9/19/11. 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.	GREGORY R. HOEK	LEAD EXAM AUTHOR		1/5/11		9/7/11	
2.	THOMAS R. MEGILL	EXAM AUTHOR		1/5/11		9/12/11	
3.	Joseph W. Kulasiewicz	FACILITY REPRESENTATIVE		1/24/11		9/9/11	
4.	FRED J. BRUNS	CORPORATE - OTPS		2/24/11		9/12/11	(1)
~~5.~~	~~Bill Ward~~	~~OTPM~~		~~2/24/11~~			
6.							
7.							
8.							
9.							
~~10.~~							
11.							
12.							
13.							
14.							
15.							

4/14/11

NOTES: BILL WARD REMOVED FROM AGREEMENT, WITHOUT HAVING SEEN ANY EXAM INFORMATION

(1) PER TELECON 9/12/11 13:20 JRK

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 8/29-9/5/11 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 data 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 8/29-9/5/11 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.	David Lazarony	Exam Developer		1/6/11		9/9/11	NA
2.							
3.							
4.							
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NOTES:

TMI 2011-1

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 8/29 - 9/5/11 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 8/29 - 9/5/11. 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.	JOSEPH G ARSENAULT	REVIEWER		1/6/11		9/9/11	
2.							
3.							
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NOTES:

Facility: Three Mile Island Date of Examination: August 2011 Operating Test Number: 289-2011-301

	1. GENERAL CRITERIA	Initials a	b*	c#
a.	The operating test conforms with the previously approved outline; changes are consistent with sampling requirements (e.g., 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. WALK-THROUGH CRITERIA	--	--	--
a.	Each JPM includes the following, as applicable: • initial conditions • initiating cues • references and tools, including associated procedures • reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time critical by the facility licensee • operationally important specific performance criteria that include: - detailed expected actions with exact criteria and nomenclature - system response and other examiner cues - statements describing important observations to be made by the applicant - criteria for successful completion of the task - identification of critical steps and their associated performance standards - restrictions on the sequence of steps, if applicable			
b.	Ensure that any changes from the previously approved systems and administrative walk-through outlines (Forms ES-301-1 and 2) have not caused the test to deviate from any of the acceptance criteria (e.g., item distribution, bank use, repetition from the last 2 NRC examinations) specified on those forms and Form ES-201-2.			
	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	Greg Hoek / Gregory R. Hoek	8/17/11
b. Facility Reviewer (*)	Joseph Kulasinsky /	8/17/11
c. NRC Chief Examiner (#)	Jo Hal Connis /	8/18/11
d. NRC Supervisor	Donald E. Jackson /	8/19/11

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

Facility: Three Mile Island Date of Exam: August 2011 Scenario Numbers: 2 / 3 / 4 Operating Test Number: 289-2011-301

	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 point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point (if applicable)			
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.			
5.	The events are valid with regard to physics and thermodynamics.			
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.			
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.			
8.	The simulator modeling is not altered.			
9.	The scenarios have been validated. Pursuant to 10CFR55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.			
10.	Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered in accordance with Section D.5 of ES-301.			
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).			
12.	Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).			
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.			

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

Facility: Three Mile Island Date of Exam: August 2011 Scenario Numbers: 1 / / Operating Test Number: 289-2011-301

	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 point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point (if applicable)			
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.			
5.	The events are valid with regard to physics and thermodynamics.			
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.			
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.			
8.	The simulator modeling is not altered.			
9.	The scenarios have been validated. Pursuant to 10CFR55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.			
10.	Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered in accordance with Section D.5 of ES-301.			
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).			
12.	Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).			
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.			

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

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

Facility: Three Mile Island | Date of Exam: August 2011 | Operating Test Number: 289-2011-301

APPLICANT	EVENT TYPE	Scenarios 1 CREW POSITION SRO	1 ATC	1 BOP	2 SRO	2 ATC	2 BOP	3 SRO	3 ATC	3 BOP	4 SRO	4 ATC	4 BOP	TOTAL	MINIMUM(*) R	I	U
RO ☐ SRO-I-1 ☒ SRO-U ☐	RX								4					1	1	1	0
	NOR				4						1			2	1	1	1
	I/C				1,2,3,7,8				1,2,3,5		2,3,4,5,6,8			15	4	4	2
	MAJ				6				6		7			3	2	2	1
	TS				1,2,5						2,4			5	0	2	2
RO-1 ☒ SRO-I-2 ☐ SRO-U ☐	RX					4								1	1	1	0
	NOR												1	1	1	1	1
	I/C					1,3,8							2,3,4	6	4	4	2
	MAJ					6							7	2	2	2	1
	TS													0	0	2	2
RO-2 ☒ SRO-I ☐ SRO-U ☐	RX											1		1	1	1	0
	NOR						4							1	1	1	1
	I/C						1,2,3,7					5,6,8		7	4	4	2
	MAJ						6					7		2	2	2	1
	TS													0	0	2	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions. Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

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

Facility: Three Mile Island | Date of Exam: August 2011 | Operating Test Number: 289-2011-301

APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		1			2			3			4						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO ☐ SRO-I ☐ SRO-U ☒	RX													0	1	1	0
	NOR				4			4						2	1	1	1
	I/C				1,2,3,7,8			1,2,3,5,7						10	4	4	2
	MAJ				6			6						2	2	2	1
	TS				1,2,5			1,3						5	0	2	2
RO-3 ☒ SRO-I ☐ SRO-U ☐	RX					4								1	1	1	0
	NOR									4				1	1	1	1
	I/C					1,3,8				1,2,7				6	4	4	2
	MAJ					6				6				2	2	2	1
	TS													0	0	2	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2
RO ☐ SRO-I ☐ SRO-U ☐	RX														1	1	0
	NOR														1	1	1
	I/C														4	4	2
	MAJ														2	2	1
	TS														0	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions. Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: Three Mile Island | Date of Examination: August 2011 | Operating Test No.: 289-2011-301

Competencies	APPLICANTS															
	RO ☐ SRO-I-1 ☒ SRO-U ☐				RO ☐ SRO-I ☐ SRO-U ☒				RO ☐ SRO-I ☐ SRO-U ☐				RO ☐ SRO-I ☐ SRO-U ☐			
	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		1,2,3,4, 5,6,7,8	1,2,3,4, 5,6	1,2,3,4, 5,6,7,8		1,2,3,4, 5,6,7,8	1,2,3,4, 5,6,7									
Comply With and Use Procedures (1)		1,2,3,4, 5,6,7,8	1,2,3,4, 5,6,7	1,2,3,4, 5,6,7,8		1,2,3,4, 5,6,7,8	1,2,3,4, 5,6,7									
Operate Control Boards (2)			1,2,3,4, 5,6													
Communicate and Interact		1,2,3,4, 5,6,7,8	1,2,3,4, 5,6,7	1,2,3,4, 5,6,7,8		1,2,3,4, 5,6,7,8	1,2,3,4, 5,6,7									
Demonstrate Supervisory Ability (3)		1,2,3,4, 5,6,7,8		1,2,3,4, 5,6,7,8		1,2,3,4, 5,6,7,8	1,2,3,4, 5,6,7									
Comply With and Use Tech Specs. (3)		1,2,5		2,4		1,2,5	1,3									

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

Instructions:

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

Facility: Three Mile Island	Date of Examination: August 2011	Operating Test No.: 289-2011-301

Competencies	APPLICANTS															
	RO-1 ☒ SRO-I ☐ SRO-U ☐				RO-2 ☒ SRO-I ☐ SRO-U ☐				RO-3 ☒ SRO-I ☐ SRO-U ☐				RO ☐ SRO-I ☐ SRO-U ☐			
	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		1,3,4,6,8		2,3,4,7		1,2,3,4,6,7		1,5,6,7,8		1,3,4,6,8	1,2,4,6,7					
Comply With and Use Procedures (1)		1,2,3,4,5,6,7,8		1,2,3,4,5,6,7,8		1,2,3,4,5,6,7,8		1,2,3,4,5,6,7,8		1,2,3,4,5,6,7,8	1,2,3,4,5,6,7					
Operate Control Boards (2)		1,3,4,6,8		2,3,4,7		1,2,3,4,6,7		1,5,6,7,8		1,3,4,6,8	1,2,4,6,7					
Communicate and Interact		1,2,3,4,5,6,7,8		1,2,3,4,5,6,7,8		1,2,3,4,5,6,7,8		1,2,3,4,5,6,7,8		1,2,3,4,5,6,7,8	1,2,3,4,5,6,7					
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 applicant's license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

JPM OVERLAP

	05-1 NRC	08-1 NRC	10-1 Cert	10-1 NRC
JPM "A"	Respond to seq fault (11.2.05.159 mod)	EB due to multiple stuck rods. Had to raise letdown flow.	**New** EB 3rd MUP Alt New	ATWAS - Alternate path
JPM "B"	LPI Failure (11.2.05.195)	DC-P-1B trip on ES, alt path PTL cooled equip.	Post Loca Boron control	Respond to PZR level control problem - Alt path
JPM "C"	Failed Narrow Range pressure (TQ-TM-104-220-J001)	Vent the PZR to the Drain Tank	ESAS HPI MU-V-14A fails to open Alt	Transfer ESAS to RB sump recirc Alt path
JPM "D"	Seal Failure, ALT path gets worse, MAP - AOP - Trip rx and pump.	Shift EFW pump suctions	Loss of operating DHR train	Restore ADV's TBV's to ICS Auto
JPM "E"	Cross-Conn NR-SR Alt path	Initiate RB Spray	EOP-001 Turbine Valves fail to close Alt	Initiate RB Cooling Alt path
JPM "F"	Return RB cooling to stnby (from 2003 NRC)	Energize 1E from SBO alt path no cooling water	**Init RB spray BWST >6.3 <9.5 BS-V-1 DH-V-5A cl**	Restore "D" bus from SBO ops
JPM "G"	Operate SBO ALT path (Freq low)	Initiate and Isolate RB Purge	Transfer BOP Busses	RM-A-1 Hi new ALT path
JPM "H"	RM-A-1 Hi ALT path	Shifting DHR train Operate to Stndby	Start up RPS Channel	Cross-connect SR/NR
JPM "I"	Reset EF-P-1 (2003 NRC)	Respond to Loss IA IP Alt path	EFW from F.S. using FS-P-15	Manually Operate MU-V-20 / IC-V-4
JPM "J"	Initate EB (RSD MU-V-51 1B ES)	Initiate EB (Repeat)	**Initate EB (RSD MU-V-51 1B ES) ?**	Purge RM-A-7
JPM "K"	Local Manual RR-V-6	Operate MS-V-3C	Att 11 contingencies Cooldown outside CR	Respond to failure EF-P-2A and EF-V-30D
A1-1 RO	Determine Demin water for batch add Calc	Calc ECB	RB Avg Temp calc	Verify watch stand reqments new
A1-1 SRO	Same	Review Approve ECB	Review and approve water add calc "C" RCBT and bamt	Verify watch stand reqments new
A1-2 RO	Transient RCS LR calc	RB Avg Temp calc	Calc QPT and Imb OOC	Calc ECP
A1-2 SRO	Transient RCS LR calc and T.S. application	Maintain Min Shift manning OT (2003 NRC)	Approve a faulted QPT and IMB.	Review and approve ECP
A2 RO	1301-1 DHR drain down mode	Station print read 27/86 fail	1301-1 HU EFW section	Station print read 27/86 fail **REPEAT**
A2 SRO	Evaluate temporary procedure change	Station print read 27/86 fail & T.S. call	Approve a mode change (NEW)	Determine post maintence test

A3 RO	Given Condition determine and apply Dose Limits (DH-V-12A)	N/A	Dose Limit Stay times (RP-AA-460)	N/A
A3 SRO	Same	Failed RM-A-8G during release	Approve Dose > 5 Rem	Review RB Survey log
A4 RO	N/A	ERO notification Alt path	N/A	ERO notification Different Alt path
A4 SRO	EAL/PAR FS-1	EAL MA2	EAL TBD	EAL MU4
Scenario 1	100% - Steam Leak, EOP-004	Not used.	Apprch to crit - premature crit - continous rod withdraw - OTSG tube rupture (08-1 Cert # 5)	85%- NI5 failure Loss VBA RCS leak containment LOCA ESAS failure
Scenario 2	S/U - premature crit - cont rod with - tube ruptue (See 08-1 Cert #5)	85% - lower power to remove FWP - FW-V's fail to respond auto - dropped rod - RCS leak, LOFW LOCA	85% - lower power to remove FWP - FW-V's fail to respond auto - dropped rod - RCS leak, LOFW LOCA Modify this (last NRC)	100% MU-P-1B trip / AOP-41 Loss 8 bus PZR level trans fail Loss FWP Stuck rod LOOP EFW failure
Scenario 3	85% - stuck rod - RCP high vibs - re-ratio fail - LSCM	100% - Aux Transformer fault - Steam Leak - FW isolation failure - stuck rods	100% - MU-V-32 fails - Seal fail - re-ratio fail - Rx Trip - OTSG tube rupture Modify this (Last NRC)	100% Inadv ESAS OTSG Tube leak Loss ICCW Tube rupture ADV to B/U loader
Scenario 4		5% S/U - RC3A fail High - FWP trips - ATWAS - loss EFW		5% S/U SR-P-1B trip Loss IA Steam leak PORV fail open Uncontrolled rod motion Excessive cooling
Scenario 5		100% - MU-V-32 fails - Seal fail - re-ratio fail - Rx Trip - OTSG tube rupture		

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

Facility: Three Mile Island Date of Exam: August 2011 Exam Level: RO ☒ SRO ☒

	Item Description	Initial a	b*	c#
1.	Questions and answers are technically accurate and applicable to the facility.			
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.			
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401			
4.	The sampling process was random and systematic (If more than 4 RO or 2 SRO questions were repeated from the last 2 NRC licensing exam, consult the NRR OL program office).			
5.	Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: __ the audit exam was systematically and randomly developed; or __ the audit exam was completed before the license exam was started; or __ the examinations were developed independently; or X the licensee certifies that there is no duplication; or __ other (explain)			
6.	Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distribution(s) at right.	Bank: 24/2 Modified: 9/1 New: 42/22		
7.	Between 50 and 60 percent of the questions on the RO exam are written at the comprehension /analysis level; the SRO exam may exceed 60 percent if the randomly selected KAs support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.	Memory: 33 / 7 C/A: 42 / 18		
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.			
9.	Question content conforms with specific K/A statements in the previously approved examination outline and is appropriate for the Tier to which they are assigned; deviations are justified			
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.			
11.	The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with value on cover sheet			

	Printed Name / Signature	Date
a. Author	Greg Hoek / Gregory R. Hoek	8/23/11
b. Facility Reviewer (*)	Joseph Kulasinsky	8/23/11
c. NRC Chief Examiner (#)	John Caruso	8/24/11
d. NRC Regional Supervisor	Donald E. Jackson	8/29/11

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

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

Facility: Three Mile Island Unit 1 Date of Exam: 9/7/11 Exam Level: RO X SRO X

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

	Printed Name/Signature	Date
a. Grader	Gregory R. Hook	9/9/11
b. Facility Reviewer(*)	W. [illegible]	9/9/11
c. NRC Chief Examiner (*)	John Carlson	9/14/11
d. NRC Supervisor (*)	Donald E. Jackson	9/16/11

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