

# \* NRC - Generated Operating Test \*

ES-301

Operating Test Quality Checklist

Form ES-301-3

Facility: BRYON	Date of Examination: June 20, 2000	Operating Test Number: 50/454-2000301		
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).	km GM	MCS AMS	AMS
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	GM GM	MCS AMS	AMS
c.	The operating test shall not duplicate items from the applicants' audit test(s) (see Section D.1.a).	N/A	MCS AMS	AMS
d.	Overlap with the written examination and between operating test categories is within acceptable limits.	km GM	MCS AMS	AMS
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	GM GM	MCS AMS	AMS
2. WALK-THROUGH (CATEGORY A & B) CRITERIA		--	--	--
a.	Each JPM includes the following, as applicable: <ul style="list-style-type: none"> <li>• initial conditions</li> <li>• initiating cues</li> <li>• references and tools, including associated procedures</li> <li>• validated time limits (average time allowed for completion) and specific designation if deemed to be time critical by the facility licensee</li> <li>• specific performance criteria that include:                         <ul style="list-style-type: none"> <li>- detailed expected actions with exact criteria and nomenclature</li> <li>- system response and other examiner cues</li> <li>- statements describing important observations to be made by the applicant</li> <li>- criteria for successful completion of the task</li> <li>- identification of critical steps and their associated performance standards</li> <li>- restrictions on the sequence of steps, if applicable</li> </ul> </li> </ul>	GM	MCS AMS	AMS
b.	The prescribed questions in Category A are predominantly open reference and meet the criteria in Attachment 1 of ES-301.	N/A	MCS AMS	AMS
c.	Repetition from operating tests used during the previous licensing examination is within acceptable limits (30% for the walk-through) and do not compromise test integrity.	GM GM	MCS AMS	AMS
d.	At least 20 percent of the JPMs on each test are new or significantly modified.	GM GM	MCS AMS	AMS
3. SIMULATOR (CATEGORY C) CRITERIA		--	--	--
a.	The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.	GM	MCS AMS	AMS
Printed Name / Signature		Date		
a. Author	George Wilson / <u>George Wilson</u> Dell McNeil / <u>Dell McNeil</u>	4/13/00		
b. Facility Reviewer (*)	Michael Bielby / <u>Michael E Bielby</u>	4/18/00		
c. NRC Chief Examiner (*)	Ann Marie Stone / <u>Ann Marie Stone</u>	5/16/00		
d. NRC Supervisor (*)	David Hills / <u>David Hills</u> FOR	5/26/00		
(*) The facility signature is not applicable for NRC-developed tests; two independent NRC reviews are required.				

NOTE: Facility volunteered to write additional scenarios. This quality checklist is only for NRC-generated material.

Final Operating Test Ready to Administer: Ann Marie Stone 6/14/2000  
 Authorization to Administer: David E.H. Hills / David E.H. Hills 6-16-00

# \* NRC-Generated Scenarios\*

ES-301

Simulator Scenario Quality Checklist

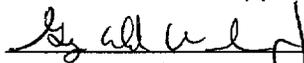
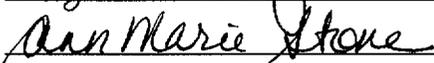
Form ES-301-4

Facility: <u>BRYON</u> Date of Examination: <u>June 20, 2000</u> Scenario Numbers: <u> / /</u> Op Test #: <u>50/454-2000301</u>							
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.	Jim GAW	MFB	AMS				
2. The scenarios consist mostly of related events.	Jim GAW	MFB	AMS				
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)	Jim GAW	MFB	AMS				
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.	Jim GAW	MFB	AMS				
5. The events are valid with regard to physics and thermodynamics.	Jim GAW	MFB	AMS				
6. Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	Jim GAW	MFB	AMS				
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.	Jim JLA GAW	MFB	AMS				
8. The simulator modeling is not altered.	Jim GAW	MFB	AMS				
9. The scenarios have been validated. Any open simulator performance deficiencies have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.		D					
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.4 of ES-301.	Jim GAW	MFB	AMS				
11. All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	Jim GAW	MFB	AMS				
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).	Jim GAW	MFB	AMS				
13. The level of difficulty is appropriate to support licensing decisions for each crew position.	Jim GAW	MFB	AMS				
TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.4.D)	Actual Attributes						
	#1	#2	#3	#4			
1. Total malfunctions (5-8)	6	5	1	5	Jim GAW	MFB	AMS
2. Malfunctions after EOP entry (1-2)	2	2	1	2	Jim GAW	MFB	AMS
3. Abnormal events (2-4)	4	3	1	3	Jim GAW	MFB	AMS
4. Major transients (1-2)	2	1	1	1	Jim GAW	MFB	AMS
5. EOPs entered/requiring substantive actions (1-2)	3	3	1	2	Jim GAW	MFB	AMS
6. EOP contingencies requiring substantive actions (0-2)	1	1	1	1	Jim GAW	MFB	AMS
7. Critical tasks (2-3)	3	3	1	3	Jim GAW	MFB	AMS

OPERATING TEST NO.:

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO	Reactivity	1	1	3	2	1
	Normal	1	2	4	3	2
	Instrument	2	3, 4	1,2,5	1,4	3,4
	Component	2	6,7,9,10	7,8,9	5,7,8	6,7
	Major	1	8,11	6	6	5
As RO	Reactivity	1	1	3	2	1
	Normal	0		4	3	2
	Instrument	1	3,4	1,2,5	1,4	3,4
	Component	1	6,7,9,10	7,8,9	5,7,8	6,7
	Major	1	8,11	6	6	5
SRO-I						
As SRO	Reactivity	0	1	3	2	1
	Normal	1	2	4	3	2
	Instrument	1	3,4	1,2,5	1,4	3,4
	Component	1	6,7,9,10	7,8,9	5,7,8	6,7
	Major	1	8,11	6	6	5

- Instructions: (1) Enter the operating test number and Form ES-D-1 event numbers for each evolution type.  
 (2) Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.4.d) but must be significant per Section C.2.a of Appendix D.

Author:   
 Chief Examiner: 

Competencies	SRO				RO				BoP			
	Applicant #1				Applicant #2				Applicant #3			
	RO/SRO-I/SRO-U				RO/SRO-I/SRO-U				RO/SRO-I/SRO-U			
	SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4
Understand and Interpret Annunciators and Alarms	3,4 5,6	1,2 5	1,4 5	1,4 5	4,5,6 7,8	2,5 6,8	1,5	4,5	3	1	7	1
Diagnose Events and Conditions	3,4,5 6,7,8 9,10	1,2 5,6 7,8	1,4,5 6,7,8	3,4,5 6,7,8	4,5,6 7,8 9,10	2,5 6,8	1,5	4,5 6,7	3,7 6,9 10	1,6 7	4,6 7,8	3,6 8
Understand Plant and System Response	3,4,5 6,7,10	1,2 4,5 6,8	1,4,5 8	3,4 5,6 8	4,5,6 7,10	2,5 6,8	1,2 5,6	1,4 5,6 7	2,3 7,10	1,4 6,7	3,4 6,7	2,3 6,8
Comply With and Use Procedures (1)	4,5,6 7,8,10	1,2,5 6,7 8	1,4,5 6,7,8	3,4 5,6 7,8	1,4,5 6,7,8 10	2,3 5,6	1,2 5,6	1,4,5 6,7	2,3 7,8,9 10	1,4 6,7	3,4 6,7	2,3 6,8
Operate Control Boards (2)					1,4,5 6,8	2,3 5,6 8	1,2 5,6	1,4,5 6,7	2,3 8,9	1,4 7	3,4 6,7 8	2,3 6,8
Communicate and Interact With the Crew	3,4,5 6,8,10	1,2 5,6 7,8	1,4,5 6,7,8	3,4,5 6,7,8	1,4 5,6 8	2,3 5,6 8	1,2 5	1,4,5 7	2,3 9	1,4 7	3,4 7,8	2,3 8
Demonstrate Supervisory Ability (3)	3,4,5 6,8,10	1,2,5 6,7,8	1,4,5 6,7,8	3,4,5 6,7,8								
Comply With and Use Tech. Specs. (3)	4 8	2	5,7 8	4,5								

Notes:

(1) Includes Technical Specification compliance for an RO.

(2) Optional for an SRO-U.

(3) Only applicable to SROs.

Instructions:

Circle 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.

Author: Gregory J. [Signature] David R. McNeil

Chief Examiner: Ann Marie Stone

# Facility-developed scenarios - only

ES-301

Operating Test Quality Checklist

Form ES-301-3

Facility: Byron		Date of Exam: Weeks of 6/19/00 and 6/26/00		Operating Test Number: 1	
1. GENERAL CRITERIA			Initials		
			a	b	c
a.	The operating test conforms with the previously approved outline; changes are consistent with sampling requirements (e.g., 10 CFR 55.45, operational importance, safety function distribution).	JA	EB	AMS	
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	N/A	N/A	AMS	
c.	The operating test shall not duplicate items from the applicants' audit test(s) (see Section D.1.a).	JA	EB	AMS	
d.	Overlap with the written examination and between operating test categories is within acceptable limits.	N/A	N/A	AMS	
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	JA	EB	AMS	
2. WALK-THROUGH (CATEGORY A & B) CRITERIA			--	--	--
a.	Each JPM includes the following, as applicable: <ul style="list-style-type: none"> <li>- initial conditions</li> <li>- initiating cues</li> <li>- references and tools, including associated procedures</li> <li>- validated time limits (average time allowed for completion) and specific designation if deemed to be time critical by the facility licensee</li> <li>- specific performance criteria that include: <ul style="list-style-type: none"> <li>- detailed expected actions with exact criteria and nomenclature</li> <li>- system response and other examiner cues</li> <li>- statements describing important observations to be made by the applicant</li> <li>- criteria for successful completion of the task</li> <li>- identification of critical steps and their associated performance standards</li> <li>- restrictions on the sequence of steps, if applicable</li> </ul> </li> </ul>	N/A	N/A	N/A	
b.	The prescribed questions in Category A are predominantly open reference and meet the criteria in Attachment 1 of ES-301.	N/A	N/A	N/A	
c.	Repetition from operating tests used during the previous licensing examination is within acceptable limits (30% for the walk-through) and do not compromise test integrity.	N/A	N/A	N/A	
d.	At least 20 percent of the JPMs on each test are new or significantly modified.	N/A	N/A	N/A	
3. SIMULATOR (CATEGORY C) CRITERIA			--	--	--
a.	The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.	JA	EB	AMS	
		Printed Name / Signature		Date	
a. Author	Terry Holder / Jerry A. Holder		5-22-00		
b. Facility Reviewer(*)	Ed Bendis / Ed Bendis		5/22/00		
c. NRC Chief Examiner (*)	AnnMarie Stone / AnnMarie Stone		5/25/00		
d. NRC Supervisor (*)	DAVID L. PETERSON / DAVID L. PETERSON FOR D. HILLS		5/26/00		
(*) The facility signature is not applicable for NRC-developed tests; two independent NRC reviews are required.					

Scenarios Ready to Administer: AnnMarie Stone 6/16/2000

Authorization to Administer: David E. Hills / David E. Hills 6/16/00

Facility: Byron		Date of Exam: Weeks of 6/19/00 and 6/26/00		Scenario Numbers: 1 / 2 / Extra			Operating Test No.: 1		
QUALITATIVE ATTRIBUTES							Initials		
							a	b	c
1.	The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.	JH	EB	AMS					
2.	The scenarios consist mostly of related events.	JH	EB	AMS					
3.	Each event description consists of <ul style="list-style-type: none"> <li>• the point in the scenario when it is to be initiated</li> <li>• the malfunction(s) that are entered to initiate the event</li> <li>• the symptoms/cues that will be visible to the crew</li> <li>• the expected operator actions (by shift position)</li> <li>• the event termination point (if applicable)</li> </ul>	JH	EB	AMS					
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.	JH	EB	AMS					
5.	The events are valid with regard to physics and thermodynamics.	JH	EB	AMS					
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	JH	EB	AMS					
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.	JH	EB	AMS					
8.	The simulator modeling is not altered.	JH	EB	AMS					
9.	The scenarios have been validated. Any open simulator performance deficiencies have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.	JH	EB	AMS					
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.4 of ES-301.	JH	EB	AMS					
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	JH	EB	AMS					
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).	JH	EB	AMS					
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	JH	EB	AMS					
TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.4.D)							Actual Attributes		
1.	Total malfunctions (5-8)	7 / 7 / 7			JH	EB	AMS		
2.	Malfunctions after EOP entry (1-2)	2 / 3 / 3			JH	EB	AMS		
3.	Abnormal events (2-4)	4 / 2 / 2			JH	EB	AMS		
4.	Major transients (1-2)	1 / 2 / 2			JH	EB	AMS		
5.	EOPs entered/requiring substantive actions (1-2)	1 / 2 / 2			JH	EB	AMS		
6.	EOP contingencies requiring substantive actions (0-2)	0 / 1 / 1			JH	EB	AMS		
7.	Critical tasks (2-3)	4 / 3 / 2			JH	EB	AMS		

## OPERATING TEST NO.: 1

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO	Reactivity	1	2/	1/	1/	
	Normal	1	12	11	11	
	Instrument	2	6/3	3/4	2/3	
	Component	2	1,5,8,9/ 1,4,5,9	6,8/2,6	4,5,7/4	
	Major	1	7/7	5,7/5,7	6,8/6,8	
As RO	Reactivity	1	2	1	1	
	Normal	0				
	Instrument	1	6	3	2	
	Component	1	1,5,8,9	6,8	4,5,7	
	Major	1	7	5,7	6,8	
SRO-I	Reactivity	0				
	Normal	1	2	1	1	
	Instrument	1	3,6	3,4	2,3	
	Component	1	1,4,5,8,9	2,6,8	4,5,7	
	Major	1	7	5,7	6,8	
SRO-U	Reactivity	0	N/A	N/A	N/A	
	Normal	1	N/A	N/A	N/A	
	Instrument	1	N/A	N/A	N/A	
	Component	1	N/A	N/A	N/A	
	Major	1	N/A	N/A	N/A	

- Instructions: (1) Enter the operating test number and Form ES-D-1 event numbers for each evolution type.  
 (2) Reactivity manipulations must be significant as defined in Appendix D.

NOTE: Scenario Number 3 is a "spare" scenario and is represented for comparison purposes only in Examination Outline submittal.

The "/" in the cells for the "RO" applicant type represents the position the applicant is expected to fill during the scenario. The events are listed for the identified position: RO / BOP.

Author:

Jerry Holder 5-22-00

Chief Examiner:

Ann Marie Stone 5/25/00

Operating Test: 1

Competencies	Applicant #1 RO/SRO-I/SRO-U				Applicant #2 RO/SRO-I/SRO-U				Applicant #3 RO(BOP)/SRO-I/SRO-U			
	SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4
Understand and Interpret Annunciators and Alarms	1,3-8	2-8	2-6,8		1,5-8	3,5-8	2,4-6,8		1,3-5,7	2,4-7	3,4,6,8	
Diagnose Events and Conditions	1,3-9	2-8	2-8		1,5-9	3,5-8	2,4-8		1,3-5,7,9	2,4-7	3,4,6,8	
Understand Plant and System Response	1-9	1-8	1-8		1,2,5-9	1,3,5-8	1,2,4-8		1-5,7,9	1,2,4-7	1,3,4,6,8	
Comply With and Use Procedures (1)	1-9	1-8	1-8		1,2,5-9	1,3,5-8	1,2,4-8		1-5,7,9	1,2,4-7	1,3,4,6,8	
Operate Control Boards (2)	N/A	N/A	N/A		1,2,5-9	1,3,5-8	1,2,4-8		1-5,7,9	1,2,4-7	1,3,4,6,8	
Communicate and Interact With the Crew	1-9	1-8	1-8		1,2,5-9	1,3,5-8	1,2,4-8		1-5,7,9	1,2,4-7	1,3,4,6,8	
Demonstrate Supervisory Ability (3)	1-9	1-8	1-8		N/A	N/A	N/A		N/A	N/A	N/A	
Comply With and Use Tech. Specs. (3)	1,3,5,6	2,3	2		N/A	N/A	N/A		N/A	N/A	N/A	

Notes:

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

Instructions:

Circle the applicant's license type and enter the event numbers that test the competency for each scenario in the set.

NOTE: **OPERATING TEST NO.: 1.** Scenario Number 3 is a "spare" scenario and is represented for comparison purposes only in Examination Outline submittal. The order of listing for candidates is SRO, RO and BOP by position.

Author: Jerry Holde 5-22-00  
 Chief Examiner: Ann Marie Stone 5/25/00