

**INITIAL EXAMINATION SUBMITTAL COVER LETTER AND**

**COMPLETED CHECKLISTS**

**FOR THE BRAIDWOOD INITIAL EXAMINATION - JULY 2004**

# Submitted Operating Test and Written Examination with Comments

Contains the following:

Initial Submittal Cover Letter

ES-301-3      Operating Test Quality Checklist  
ES-301-4      Simulator Scenario Quality Checklist  
ES-301-6      Competencies Checklist  
ES-401-6      Written Examination Quality Checklist (SRO)

The following were submitted electronically

Five (5) SRO administrative job performance measures  
Ten (10) operating job performance measures  
Two (2) dynamic simulator scenario guides (ES-D-1 & ES-D-2)  
Written examination (100 questions; first 75 are RO questions, 76-100 are SRO questions)  
Operating Test Comments  
ES-401-9      Written Examination Review Worksheet

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Braceville, IL 60407-9619  
Tel. 815-417-2000

May 14, 2004  
BW040047

James L. Caldwell  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region III  
2443 Warrenville Road  
Suite 210  
Lisle, IL 60532-4352

Braidwood Station, Units 1 and 2  
Facility Operating License Nos. NPF-72 and NPF-77  
NRC Docket Nos. STN 50-456 and STN 50-457

Subject:      Submittal of Integrated Initial License Training Examination Materials

Enclosed are the examination materials supporting the Initial License Examination scheduled for the week of July 12, 2004, through July 16, 2004, at Braidwood Station.

This submittal includes all appropriate Examination Standard forms and outlines in accordance with NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," Draft Revision 9.

In accordance with NUREG 1021, Draft Revision 9, Section ES-201, "Initial Operator Licensing Examination Process," please ensure that these materials are withheld from public disclosure until after the examinations are complete.

Should you have any questions concerning this letter, please contact Ms. Kelly Root, Regulatory Assurance Manager, at (815) 417-2800. For questions concerning examination outlines, please contact Robert Cameron at (815) 458-7694.

Respectfully,



Thomas P. Joyce  
Site Vice President  
Braidwood Station

Enclosures: (Hand Delivered to Dell McNeil, Chief Examiner, NRC Region III)

(Revised) Operational Scenarios Sample Plan (Forms ES-D-1) (2 sets)  
RO/SRO Composite Examination with references attached  
Control Room Systems and Facility Walk-Through Job Performance Measures with references attached  
Administrative Topic Job Performances Measures with references attached  
Integrated Plant Scenario Guides  
Examination Security Agreement (Form ES-201-3)  
Record of Rejected K/As (Form ES-401-4)  
Completed Checklists:  
    Operating Test Quality Checklist (Form ES-301-3)  
    Simulator Scenario Quality Checklist (Form ES-301-4)  
    Competencies Checklist (Form ES-301-6)  
    Written Exam Quality Checklist (Form ES-401-6)

cc: (without attachments)  
Chief, NRC Operator Licensing Branch  
NRC Senior Resident Inspector – Braidwood Station

bcc: (w/o enclosures)  
NRC Project Manager, NRR – Braidwood  
Illinois Emergency Management Agency – Division of Nuclear Safety  
Manager of Energy Practice – Winston & Strawn  
Vice President – Licensing and Regulatory Affairs  
Director – Licensing and Regulatory Affairs  
Manager, Licensing – Braidwood, Byron and LaSalle County Stations  
Braidwood Nuclear Licensing Administrator  
Human Resources – Braidwood Station  
Training Manager – Braidwood Station  
Exelon Document Control Desk (Hard Copy)

Facility: BRAIDWOOD Date of Examination: 7/12-7/14/04 Operating Test Number: 2004301

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

2. WALK-THROUGH CRITERIA		a	b*	c#
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>- reasonable and 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>	<i>JAC</i>	<i>Q</i>	<i>JM</i>
b.	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.	<i>JAC</i>	<i>Q</i>	<i>JM</i>
c.	At least 20 percent of the JPMs on each test are new or significantly modified.	<i>JAC</i>	<i>Q</i>	<i>JM</i>

3. SIMULATOR CRITERIA		a	b*	c#
a.	The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.	<i>JAC</i>	<i>Q</i>	<i>JM</i>

	Printed Name / Signature	Date
a. Author	<u>ROBERT M. CAMERON / Robert M. Cameron</u>	<u>5/11/04</u>
b. Facility Reviewer(*)	<u>D. Ackerman / D. Ackerman</u>	<u>5-11-04</u>
c. NRC Chief Examiner (#)	<u>Dell R. McNeil / Dell R. McNeil</u>	<u>6/30/04</u>
d. NRC Supervisor (*)	<u>RD Lanksbury / RD Lanksbury</u>	<u>7/9/04</u>

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: <b>Braidwood</b>		Date of Exam: <b>7/12-7/16/2004</b> Scenario Numbers: <b>04-1 / 04-2</b> Operating Test No.: <b>2004301</b>			
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.	<i>jm</i>	<i>gl</i>	<i>sm</i>	
2.	The scenarios consist mostly of related events.	<i>jm</i>	<i>gl</i>	<i>sm</i>	
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>	<i>jm</i>	<i>gl</i>	<i>sm</i>	
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.	<i>jm</i>	<i>gl</i>	<i>sm</i>	
5.	The events are valid with regard to physics and thermodynamics.	<i>jm</i>	<i>gl</i>	<i>sm</i>	
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	<i>jm</i>	<i>gl</i>	<i>sm</i>	
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.	<i>jm</i>	<i>gl</i>	<i>sm</i>	
8.	The simulator modeling is not altered.	<i>jm</i>	<i>gl</i>	<i>sm</i>	
9.	The scenarios have been validated. Pursuant to 10CFR55.46(d) any open simulator performance deficiencies have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.	<i>jm</i>	<i>gl</i>	<i>sm</i>	
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.	<i>jm</i>	<i>gl</i>	<i>sm</i>	
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	<i>jm</i>	<i>gl</i>	<i>sm</i>	
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).	<i>jm</i>	<i>gl</i>	<i>sm</i>	
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	<i>jm</i>	<i>gl</i>	<i>sm</i>	
TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d)		Actual Attributes	--	--	--
1.	Total malfunctions (5-8)	7 / 7	<i>jm</i>	<i>gl</i>	<i>sm</i>
2.	Malfunctions after EOP entry (1-2)	4 / 3	<i>jm</i>	<i>gl</i>	<i>sm</i>
3.	Abnormal events (2-4)	3 / 3	<i>jm</i>	<i>gl</i>	<i>sm</i>
4.	Major transients (1-2)	1 / 1	<i>jm</i>	<i>gl</i>	<i>sm</i>
5.	EOPs entered/requiring substantive actions (1-2)	1 / 2	<i>jm</i>	<i>gl</i>	<i>sm</i>
6.	EOP contingencies requiring substantive actions (0-2)	1 / 1	<i>jm</i>	<i>gl</i>	<i>sm</i>
7.	Critical tasks (2-3)	3 / 2	<i>jm</i>	<i>gl</i>	<i>sm</i>

Competencies	SRO(SRO I All &U)		RO (SRO I #1&2)		BOP (Surrogate Only)	
	SCENARIO		SCENARIO		SCENARIO	
	1	2	1	2	1	2
Interpret / Diagnose Events and Conditions	2-8	2-8	2, 4-8	2-5, 7, 8	N/A	N/A
Comply With and Use Procedures (1)	1-8	1-8	1, 2, 4-8	1, 3-8	N/A	N/A
Operate Control Boards (2)	N/A	N/A	1, 2, 4-8	1, 3-8	N/A	N/A
Communicate and Interact	1-8	1-8	1, 2, 4-8	1, 3-8	N/A	N/A
Demonstrate Supervisory Ability (3)	1-8	1-8	N/A	N/A	N/A	N/A
Comply With and Use Tech. Specs. (3)	2, 3	2, 3, 4	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 one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Author: Robert M. Cameron

NRC Reviewer: Lee R. Miller



Facility: BRAIDWOOD Date of Exam: 7/12-7/16/04 Exam Level: RO/SRO

Item Description	Initial		
	a	b*	c#
1. Questions and answers technically accurate and applicable to facility	<i>jm</i>	<i>J</i>	<i>jm</i>
2. a. NRC K/As referenced for all questions b. Facility learning objectives referenced as available	<i>jm</i>	<i>J</i>	<i>jm</i>
3. SRO questions are appropriate per Section D.2.d of ES-401	<i>jm</i>	<i>J</i>	<i>jm</i>
4. Question section and duplication from the last two NRC licensing exams appears consistent with a systematic sampling process.			<i>jm</i>
5. Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: <input type="checkbox"/> the audit exam was systematically and randomly developed; or <input checked="" type="checkbox"/> the audit exam was completed before the license exam was started; or <input type="checkbox"/> the examinations were developed independently; or <input type="checkbox"/> the licensee certifies that there is no duplication; or <input type="checkbox"/> other (explain)	<i>jm</i>	<i>J</i>	<i>jm</i>
6. Bank use meets limits (no more than 75 percent from the bank at least 10 percent new, and the rest modified); enter the actual RO / SRO-only question distribution(s) at right	Bank <b>12/1</b>	Modified <b>4/0</b>	New <b>59/24</b>
7. Between 50 and 60 percent of the questions on the 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 <b>34/13</b>	C/A <b>41/12</b>	<i>jm</i>
8. References/handouts provided do not give away answers	<i>jm</i>	<i>J</i>	<i>jm</i>
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	<i>jm</i>	<i>J</i>	<i>jm</i>
10. Question psychometric quality and format meet ES, Appendix B, guidelines	<i>jm</i>	<i>J</i>	<i>jm</i>
11. The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with value on cover sheet	<i>jm</i>	<i>J</i>	<i>jm</i>

	Printed Name / Signature	Date
a. Author	<u>ROBERT M. CAMERON / Robert M. Cameron</u>	<u>5-11-04</u>
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