

**2011 DUANE ARNOLD ENERGY CENTER**

**INITIAL EXAMINATION**

**PROPOSED EXAM FILES**



May 11, 2011

NG-11-0171  
NUREG 1021

U.S. Nuclear Regulatory Commission, Region III  
Attention: Chuck Zoia  
2443 Warrenville Road  
Suite 210  
Lisle, IL 60532-4352

Duane Arnold Energy Center  
Docket 50-331  
License No. DPR-49

Examination Material for Duane Arnold Energy Center Initial License  
Examination Week of June 27, 2011

In accordance with the guidelines of NUREG 1021, "Operating License Examination Standard for Power Reactors," Revision 9, we are sending you the written examination portion of the initial license examinations to be administered at our facility the week of June 27, 2011.

NUREG 1021 physical security requirements state that the enclosed examination materials shall be withheld from public disclosure until after the examination is complete.

You may direct any questions or comments regarding this material to Curtis Hansen or Wayne Render at 319-851-7268.

This letter contains no new commitments.

A handwritten signature in black ink, appearing to read "Chris Costanzo for".

Christopher R. Costanzo  
Vice President, Duane Arnold Energy Center  
NextEra Energy Duane Arnold, LLC

Enclosure

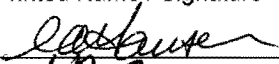

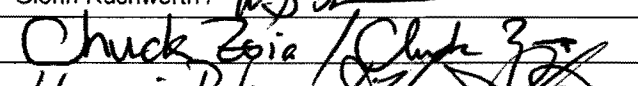
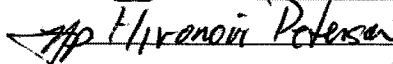
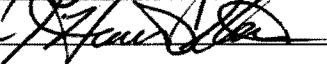
CC: Chief Operator License Branch, Region III  
NRC Resident Inspector  
NRC Document Control Desk

BLIND CARBON COPY LIST FOR NG-11-0171  
May 11, 2011

D. Curtland w/o  
G. Pry w/o  
C. Hansen w/o  
W. Render w/o  
IRMS w/o  
S. Catron w/o  
W. Simmons w/o  
Licensing CTS Project w/o

SUBJECT:            Examination Material for Duane Arnold Energy Center Initial  
License Examination Week of June 27, 2011

FILE CODES:       A117a

Facility: DAEC		Date of Examination: 6/2011	Operating Test Number: 2011 NRC		
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).		Rush	h	my
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.		Rush	h	my
c.	The operating test shall not duplicate items from the applicants' audit test(s) (see Section D.1.a).		Rush	h	my
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.		Rush	h	my
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.		Rush	h	my
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		Rush	h	my
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.		Rush	h	my
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.			Rush	h	my
		Printed Name / Signature	Date		
a.	Author	Curtis Hansen / 	5/12/11		
b.	Facility Reviewer (*)	Glenn Rushworth / 	5/12/11		
c.	NRC Chief Examiner (#)	Chuck Zoria / 	6/1/11		
d.	NRC Supervisor	 Hironori Peterson / 	6/20/11		
NOTE: * The facility signature is not applicable for NRC-developed tests. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.					

RAUND BAKER \*  
 RAB on file  
 6/1/11  
 \*  
 REQUIRED FOR  
 CERTIFICATION

Facility: DAEC		Date of Exam: 6/2011		Scenario Numbers: 1 / 2 / 3 / 4		Operating Test No.: 2011 NRC	
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.			DAEC	h	any	
2.	The scenarios consist mostly of related events.			DAEC	h	any	
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>			DAEC	h	any	
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.			DAEC	h	any	
5.	The events are valid with regard to physics and thermodynamics.			DAEC	h	any	
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.			DAEC	h	any	
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.			DAEC	h	any	
8.	The simulator modeling is not altered.			DAEC	h	any	
9.	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.			DAEC	h	any	
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.			DAEC	h	any	
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).			DAEC	h	any	
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).			DAEC	h	any	
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.			DAEC	h	any	
Target Quantitative Attributes (Per Scenario; See Section D.5.d)				Actual Attributes 1 / 2 / 3 / 4			
1.	Total malfunctions (5-8)			7 / 7 / 7 / 8			
2.	Malfunctions after EOP entry (1-2)			2 / 1 / 2 / 2			
3.	Abnormal events (2-4)			2 / 3 / 3 / 2			
4.	Major transients (1-2)			1 / 1 / 1 / 1			
5.	EOPs entered/requiring substantive actions (1-2)			2 / 2 / 2 / 2			
6.	EOP contingencies requiring substantive actions (0-2)			1 / 1 / 1 / 0			
7.	Critical tasks (2-3)			3 / 3 / 2 / 2			

Facility: DAEC	Date of Examination: 6/2011	Operating Test No.: 2011 NRC										
Competencies	APPLICANTS											
	RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>				RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>			
	SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions	3-7	2-7	3-8	2,4-9	3-7	2-7	3-8	2,4-9	3-7	2-7	3-8	2,4-9
Comply With and Use Procedures (1)	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	NA
Operate Control Boards (2)	NA	NA	NA	NA	NA	NA	NA	NA	ALL	ALL	ALL	NA
Communicate and Interact	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	NA
Demonstrate Supervisory Ability (3)	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	NA	NA	NA	NA
Comply With and Use Tech. Specs. (3)	3,5	2,4	4,5	2,4,6	3,5	2,4	4,5	2,4,6	NA	NA	NA	NA
<b>Notes:</b> (1) Includes Technical Specification compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs.												

*Instructions:*

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

Facility: Duane Arnold		Date of Exam: 6/2011		Exam Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>			
Item Description	Initial			a	b*	c#	
	a	b*	c#				
1. Questions and answers technically accurate and applicable to facility.	left	u	copy				REB*
2. a. NRC K/As referenced for all questions. b. Facility learning objectives referenced as available.	left	u	copy				REB* ROD*
3. SRO questions are appropriate in accordance with Section D.2.d of ES-401	left	u	copy				REB*
4. The sampling process was random and systematic. (If more than 4 RO and 2 SRO questions were repeated from the last 2 NRC licensing exams, consult the NRR OL Program Office)	left	u	copy				REB*
5. Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: <input checked="" type="checkbox"/> 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 _____ the licensee certifies that there is no duplication, or _____ other (explain)	left	u	copy				REB*
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 32 / 9	Modified 0 / 0	New 43 / 16	left	u	copy	REB*
7. Between 50 and 60 percent of the question on the RO exam are written at the comprehension/analysis level; the SRO exam may exceed 60 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right	Memory 33 / 6	C/A 42 / 19		left	u	copy	REB*
8. References/handouts provided do not give away answers or aid in the elimination of distractors.	left	u	copy				REB*
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.	left	u	copy				REB*
10. Question psychometric quality and format meet the guidelines in ES Appendix B.	left	u	copy				REB*
11. The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with value on cover sheet.	left	u	copy				REB*
Printed Name / Signature						Date	
a. Author	Curtis Hansen / <i>[Signature]</i>					5/12/2011	
b. Facility Reviewer (*)	Glenn Rushworth / <i>[Signature]</i>					5/12/2011	
c. NRC Chief Examiner (#)	Charles D. Zola / <i>[Signature]</i>					6/20/2011	
d. NRC Regional Supervisor	<i>[Signature]</i>					6/20/11	
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.							

RANDAL BAKER\*  
 FSL D. Baker  
 6/20/11  
 \*  
 PERFORMED FOR  
 CERTIFICATION