

**2012 PALISADES NUCLEAR PLANT**

**INITIAL LICENSE EXAMINATION**

**PROPOSED EXAM FILES**



Entergy Nuclear Operations, Inc.  
Palisades Nuclear Plant  
27780 Blue Star Memorial Highway  
Covert, MI 49043  
269.764.2000

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Hugh Nixon  
Training Manager

PNP 2012-068

July 30, 2012

NUREG-1021

Mr. R. Keith Walton  
U.S. Nuclear Regulatory Commission  
Region III  
2443 Warrenville Road  
Suite 210  
Lisle, IL 60532-4352

Palisades Nuclear Plant  
Dockets 50-255 and 72-07  
License No. DPR-20

Initial Operator License Examination Materials

Dear Mr. Walton:

Entergy Nuclear Operations, Inc. is submitting the initial license examination for the Palisades Nuclear Plant, in accordance with NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1. The initial license examination is scheduled for October 1 through October 12, 2012. The following materials are enclosed:

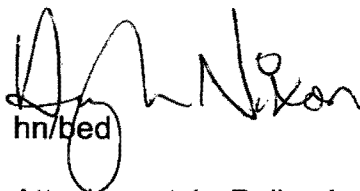
- ES 201-3, Examination Security Agreement (updated)
- ES 301-3, Operating Test Quality Checklist
- ES 301-4, Simulator Scenario Quality Checklist
- ES-301-5, Transient and Event Checklists (2)
- ES 301-6, Competencies Checklist (2)
- System/Control Room Job Performance Measures (11)
- Administrative Job Performance Measures (9)
- Scenarios (2)

- Operating Test Schedule (updated)
- ES 401-2, PWR Examination Outline (updated)
- ES 401-6, Written Examination Quality Checklist
- ES 401-7, RO Written Examination Coversheet
- RO Written Examination (ready to give with handouts)
- RO Written Examination Data Sheets with supporting references
- RO Written Examination Key
- ES-401-8, SRO Written Examination Coversheet
- SRO Written Examination (ready to give with handouts)
- SRO Written Examination Data Sheets with supporting references
- SRO Written Examination Key

In accordance with NUREG-1021, ES-201, Attachment 1, these materials shall be withheld from public disclosure until after the examinations are complete.

Please contact Jeffrey Iliff at (269) 764-2974 if you have any questions regarding this submittal.

This letter contains no new commitments and no revisions to existing commitments.



hn/bed

Attachment 1: Palisades Nuclear Plant Initial Operator License Examination Materials

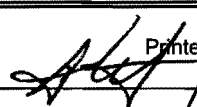


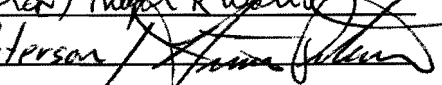
CC Administrator, Region III, USNRC (w/o enclosure)  
Project Manager, Palisades, USNRC (w/o enclosure)  
Resident Inspector, Palisades, USNRC (w/o enclosure)  
Document Control Desk, USNRC (w/o enclosure)

**WITHHOLD ENCLOSURE FROM PUBLIC DISCLOSURE  
IN ACCORDANCE WITH NUREG-1021, REVISION 9, SUPPLEMENT 1**

**ATTACHMENT 1**

**PALISADES NUCLEAR PLANT**

**INITIAL OPERATOR LICENSE EXAMINATION MATERIALS**

Facility: <u>Palisades</u>		Date of Examination: <u>October 2012</u>		Operating Test Number: <u>1</u>	
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).	✓	TPH	RW	
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	✓	TPH	RW	
c.	The operating test shall not duplicate items from the applicants' audit test(s) (see Section D.1.a).	✓	TPH	RW	
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	✓	TPH	RW	
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	✓	TPH	RW	
2. WALK-THROUGH 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>• 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>• operationally important 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>	✓	TPH	RW	
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.	✓	TPH	RW	
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.			✓	TPH	RW
	Printed Name / Signature			Date	
a. Author	<u>Jeff Iliff /</u> 			<u>7-20-12</u>	
b. Facility Reviewer (*)	<u>Timothy Horan /</u> 			<u>7/31/12</u>	
c. NRC Chief Examiner (#)	<u>Raymond K. Walter /</u> 			<u>8/15/2012</u>	
d. NRC Supervisor	<u>Ar Hironaka Peterson /</u> 			<u>9/19/2012</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: Palisades		Date of Exam: October 2012		Scenario Numbers: 1/2		Operating Test Number: 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.	<input checked="" type="checkbox"/>	TPH	RAW			
2.	The scenarios consist mostly of related events.	<input checked="" type="checkbox"/>	TPH	RAW			
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>	<input checked="" type="checkbox"/>	TPH	RAW			
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.	<input checked="" type="checkbox"/>	TPH	RAW			
5.	The events are valid with regard to physics and thermodynamics.	<input checked="" type="checkbox"/>	TPH	RAW			
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	<input checked="" type="checkbox"/>	TPH	RAW			
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.	<input checked="" type="checkbox"/>	TPH	RAW			
8.	The simulator modeling is not altered.	<input checked="" type="checkbox"/>	TPH	RAW			
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.	<input checked="" type="checkbox"/>	TPH	RAW			
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.	<input checked="" type="checkbox"/>	TPH	RAW			
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	<input checked="" type="checkbox"/>	TPH	RAW			
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).	<input checked="" type="checkbox"/>	TPH	RAW			
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	<input checked="" type="checkbox"/>	TPH	RAW			
<b>Target Quantitative Attributes (Per Scenario; See Section D.5.d)</b>		<b>Actual Attributes</b>		--	--	--	
1.	Total malfunctions (5-8)	7 / 6		<input checked="" type="checkbox"/>	TPH	RAW	
2.	Malfunctions after EOP entry (1-2)	1 / 2		<input checked="" type="checkbox"/>	TPH	RAW	
3.	Abnormal events (2-4)	4 / 2		<input checked="" type="checkbox"/>	TPH	RAW	
4.	Major transients (1-2)	1 / 1		<input checked="" type="checkbox"/>	TPH	RAW	
5.	EOPs entered/requiring substantive actions (1-2)	1 / 1		<input checked="" type="checkbox"/>	TPH	RAW	
6.	EOP contingencies requiring substantive actions (0-2)	0 / 1		<input checked="" type="checkbox"/>	TPH	RAW	
7.	Critical tasks (2-3)	2 / 3		<input checked="" type="checkbox"/>	TPH	RAW	

Facility: Palisades			Date of Exam: October 2012			Operating Test No.: 1											
A P P L I C A N T	E V E N T  T Y P E	Scenarios												T O T A L	M I N I M U M (*)		
		1			2			3			SPARE (#)						
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N						
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P				
SRO-U	RX	--			--									0			0
	NOR	--			12									2			1
	I/C	2456			45									6			2
	MAJ	7			6									2			1
	TS	34			34									4			2
RO	RX		4				--							1	1		
	NOR		--				12							2	1		
	I/C		568				457							6	4		
	MAJ		7				6							2	2		
	TS		--				--							0	0		
RO	RX			--		2								1	1		
	NOR			1		--								1	1		
	I/C			24		358								5	4		
	MAJ			7		6								2	2		
	TS			--		--								0	0		

Notes: (1) The above three candidates will form one operating crew (**Crew 1**).

## Instructions:

- 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.
- 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.
- 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: <b>Palisades</b>			Date of Exam: <b>October 2012</b>			Operating Test No.: <b>1</b>											
A P P L I C A N T	E V E N T  T Y P E	Scenarios												T O T A L	M I N I M U M (*)		
		1			2			3			SPARE (#)						
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N						
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P				
SRO-U	6	-					-							0			0
	NOR	-					12							2			1
	I/C	2456					457							7			2
	MAJ	7					6							2			1
	TS	34					-							2			2
SRO-I	RX		4		-									1		1	
	NOR		-		12									2		1	
	I/C		568		45									5		4	
	MAJ		7		6									2		2	
	TS		-		34									2		2	
RO	RX			-		2								1	1		
	NOR			1		-								1	1		
	I/C			24		358								5	4		
	MAJ			7		6								2	2		
	TS			-		-								0	0		

Notes: (1) The above three candidates will form one operating crew (**Crews 2, 3, & 4**).

## Instructions:

- 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.
- 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.
- 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: Palisades		Date of Examination: October 2012				Operating Test No.: 1	
Competencies	APPLICANTS (3)						
	RO <input checked="" type="checkbox"/>		RO <input checked="" type="checkbox"/>		RO <input type="checkbox"/>		
	SRO-I <input type="checkbox"/>		SRO-I <input type="checkbox"/>		SRO-I <input type="checkbox"/>		
	SRO-U <input type="checkbox"/>		SRO-U <input type="checkbox"/>		SRO-U <input checked="" type="checkbox"/>		
	SCENARIO		SCENARIO		SCENARIO		
	1	2	1	2	1	2	
	ATC	BOP	BOP	ATC	CRS	CRS	
Interpret/ Diagnose Events and Conditions	25678	4567	23467	35678	234567	34567	
Comply With and Use Procedures (1)	45678	124567	12347	123568	1-8	1-8	
Operate Control Boards (2)	45678	124567	1247	123568	---	---	
Communicate and Interact	1-8	1-8	1-8	1-8	1-8	1-8	
Demonstrate Supervisory Ability (3)	---	---	---	---	1234567	1234567	
Comply With and Use Tech Specs. (3)	---	---	---	---	34	34	
<b>Notes:</b> (1) Includes Technical Specification compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs. (4) The above applicants form one operating crew ( <b>Crew 1</b> )							


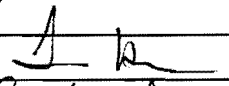
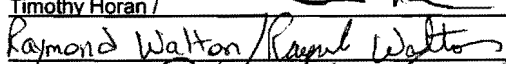
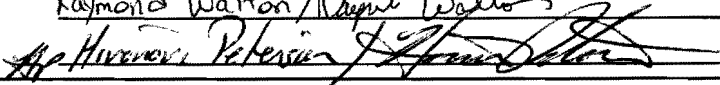
**Instructions:**

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: Palisades		Date of Examination: October 2012				Operating Test No.: 1	
Competencies	APPLICANTS (3)						
	RO <input type="checkbox"/>		RO <input checked="" type="checkbox"/>		RO <input type="checkbox"/>		
	SRO-I <input checked="" type="checkbox"/>		SRO-I <input type="checkbox"/>		SRO-I <input type="checkbox"/>		
	SRO-U <input type="checkbox"/>		SRO-U <input type="checkbox"/>		SRO-U <input checked="" type="checkbox"/>		
	SCENARIO		SCENARIO		SCENARIO		
	1	2	1	2	1	2	
	ATC	CRS	BOP	ATC	CRS	BOP	
Interpret/ Diagnose Events and Conditions	25678	34567	23467	35678	234567	4567	
Comply With and Use Procedures (1)	45678	1-8	12347	123568	1-8	124567	
Operate Control Boards (2)	45678	---	1247	123568	---	124567	
Communicate and Interact	1-8	1-8	1-8	1-8	1-8	1-8	
Demonstrate Supervisory Ability (3)	---	1234567	---	---	1234567	---	
Comply With and Use Tech Specs. (3)	---	34	---	---	34	---	
<b>Notes:</b> (1) Includes Technical Specification compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs. (4) The above applicants form one operating crew ( <b>Crews 2, 3 &amp; 4</b> )							

**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: Palisades		Date of Exam: October 2012		Exam Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>		
Item Description	Initial					
	a	b*	c#			
1. Questions and answers are technically accurate and applicable to the facility.	<input checked="" type="checkbox"/>	TPH	RW			
2. a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.	<input checked="" type="checkbox"/>	TPB	RW			
3. SRO questions are appropriate in accordance with Section D.2.d of ES-401	<input checked="" type="checkbox"/>	TPH	RW			
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).			RW			
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 <input 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)	<input checked="" type="checkbox"/>	TPH	RW			
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 36 / 7	Modified 5 / 3	New 34 / 15	<input checked="" type="checkbox"/>	TPH	RW
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 34 / 5	C/A 41 / 20		<input checked="" type="checkbox"/>	TPH	RW
8. References/handouts provided do not give away answers or aid in the elimination of distractors.	<input checked="" type="checkbox"/>	TPH	RW			
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	<input checked="" type="checkbox"/>	TPH	RW			
10. Question psychometric quality and format meet the guidelines in ES Appendix B.	<input checked="" type="checkbox"/>	TPH	RW			
11. The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with value on cover sheet	<input checked="" type="checkbox"/>	TPH	RW			
Printed Name / Signature				Date		
a. Author	Jeff Iliff / 			7-20-12		
b. Facility Reviewer (*)	Timothy Horan / 			7/31/12		
c. NRC Chief Examiner (#)	Raymond Walton / 			8/15/2012		
d. NRC Regional Supervisor				9/19/2012		
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.						