

**2015 PALISADES NUCLEAR PLANT**  
**INITIAL LICENSE RETAKE EXAMINATION**

**OUTLINE SUBMITTAL**



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

Jeffery A. Hardy  
Regulatory Assurance Manager

PNP 2014-104

November 21, 2014

NUREG-1021

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

Subject: Initial License Examination Retake Outline

Palisades Nuclear Plant  
Docket 50-255  
License No. DPR-20

Dear Sir:

Entergy Nuclear Operations, Inc. is submitting the initial license written examination retake outline, for the Palisades Nuclear Plant, in accordance with NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1. The initial license written examination retake is scheduled for the week of January 19, 2015. The following materials are enclosed:

- One Form ES-201-2, Examination Outline Quality Checklist
- One Form ES-201-3, Examination Security Agreement
- One Form ES-401-2, PWR Examination Outline (SRO only)
- One Form ES-401-3, Generic Knowledge and Abilities Outline (SRO only)
- One Form ES-401-4, Record of Rejected K/As (SRO exam)
- 2015 K/A Selection Methodology and Suppression Report

Pursuant to NUREG-1021, these materials shall be withheld from public disclosure until after the examinations are complete.

PNP 2014-104  
Mr. Michael Bielby  
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Please contact Steve Botimer at (269) 764-2975 if you have any questions regarding this submittal.

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

A handwritten signature in black ink, appearing to be 'JAH' followed by a stylized flourish.

JAH/bed

Attachment: Palisades Nuclear Plant Initial Licensed Operator Examination Retake  
Outline

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

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## 2015 K/A Selection Methodology and Suppression Report

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1. The systematic and random sampling of K/As for the Palisades Nuclear Plant January 2015 NRC Written Exam was performed in accordance with the following:

- NUREG-1021, Rev. 9 Supplement 1, ES-401, Attachment 1, "Example Systematic Sampling Methodology"
- NUREG-1021, Rev. 9 Supplement 1, ES-401, D.1.b

2. K/A Suppression:

Suppression of K/As was minimal and in accordance with the guidance mentioned in Step 1 of this methodology document. K/A suppression was as follows:

Fifteen Tier 1 K/A topics were suppressed that are vendor specific to a plant design other than Combustion Engineering. The following are the Tier 1 K/A topics that were suppressed:

- W/E04 LOCA Outside Containment / 3
- W/E11 Loss of Emergency Coolant Recirc. / 4
- BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4
- W/E01 & E02 Rediagnosis & SI Termination / 3
- W/E13 Steam Generator Over-pressure / 4
- W/E15 Containment Flooding / 5
- W/E16 High Containment Radiation / 9
- BW/A01 Plant Runback / 1
- BW/A02&A03 Loss of NNI-X/Y / 7
- BW/A04 Turbine Trip / 4
- BW/A05 Emergency Diesel Actuation / 6
- BW/A07 Flooding / 8
- BW/E03 Inadequate Subcooling Margin / 4
- BW/E08; W/E03 LOCA Cooldown - Depress. / 4
- BW/E13&E14 EOP Rules and Enclosures

One Tier 2 K/A topic, "025 Ice Condenser System," was suppressed due to prior knowledge that Palisades design does not use Ice Condensers.

3. K/A Selection:

- Numbered tokens were used in the K/A selection process.
- These tokens were manually and randomly selected from a large cup.
- Automatic generation software was not used in the selection process.

4. SRO Only questions - K/As were randomly selected from either the "A2" or "G" categories. This was completed per ES-401, Attachment 1, item 4.
5. Tier 1 and Tier 2 randomly selected generic category ("G") K/As were selected from the 41 generic K/As listed in ES-401, section D.1.b.
6. After initial random selection, a total of 6 K/As were rejected for various reasons, as documented on Form ES-401-4, "Record of Rejected K/As," as required.

Facility:		Date of Examination:		
Item	Task Description	Initials		
		a	b*	c#
1. W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	SD	BAS	MG3
	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.	SD	BAS	MG3
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	SD	BAS	MG3
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	SD	BAS	MG3
2. S I M U L A T O R	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	
	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 that scenarios will not be repeated on subsequent days.	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	
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	
	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	
	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	
4. G E N E R A L	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	SD	BAS	MG3
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	SD	BAS	MG3
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	SD	BAS	MG3
	d. Check for duplication and overlap among exam sections.	SD	BAS	MG3
	e. Check the entire exam for balance of coverage.	SD	BAS	MG3
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	SD	BAS	MG3
a. Author <u>Steve Botimer</u> b. Facility Reviewer (*) <u>Brian Parker</u> c. NRC Chief Examiner (#) <u>Michael Bielby</u> d. NRC Supervisor <u>Jim E. McNeal</u>		Printed Name/Signature <u>Steve Botimer</u> <u>Brian Parker</u> <u>Michael P. Bielby</u> <u>Jim E. McNeal</u>		Date 11/11/14 11/11/14 12/10/14 12/10/14
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required. * Not applicable for NRC-prepared examination outlines				

Facility Name:PALISADES														Date of Exam:01/19-23/2015					
Tier	Group	RO K/A Category Points												SRO-Only Points					
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2		G*	Total		
1. Emergency & Abnormal Plant Evolutions	1	0	0	0	N/A			0	0	N/A			0	18	4		2	6	
	2	0	0	0				0	0				0	9	2	2	4		
	Tier Totals	0	0	0				0	0				0	0	27	6	4	10	
2. Plant Systems	1	0	0	0	0	0	0	0	0	0	0	0	28	3		2	5		
	2	0	0	0	0	0	0	0	0	0	0	0	10	1	1	1	3		
	Tier Totals	0	0	0	0	0	0	0	0	0	0	0	38	5		3	8		
3. Generic Knowledge and Categories				Abilities		1		2		3		4		10	1	2	3	4	7
						0		0		1		0			2	2	2	1	

- Note: 1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by  $\pm 1$  from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.
4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- 7.\* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable K/As.
8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G\* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

ES-401		PWR Examination Outline							Form ES-401-2	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (SRO)										
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#	
000007 Reactor Trip / 1									0	
CE/E02 Reactor Trip Recovery / 1										
000008 Pressurizer Vapor Space Accident / 3					0 1		AA2.01-Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: RCS pressure and temperature indicators and alarms	4.2	1	
000009 Small Break LOCA / 3						04. 41	2.4.41-Knowledge of the emergency action level thresholds and classifications.	4.6	1	
000011 Large Break LOCA / 3					0 1		EA2.01-Ability to determine or interpret the following as they apply to a Large Break LOCA: Actions to be taken, based on RCS temperature and pressure - saturated and superheated	4.7	1	
000015 RCP Malfunctions / 4									0	
000017 RCP Malfunctions (Loss of RC Flow) / 4										
000022 Loss of Rx Coolant Makeup / 2									0	
000025 Loss of RHR System / 4						04. 11	2.4.11-Knowledge of abnormal condition procedures.	4.2	1	
000026 Loss of Component Cooling Water / 8									0	
000027 Pressurizer Pressure Control System Malfunction / 3									0	
000029 ATWS / 1									0	
000038 Steam Gen. Tube Rupture / 3									0	
000040 Steam Line Rupture / 4									1	
CE/E05 Excessive Steam Demand / 4					0 1		EA2.1-Ability to determine and interpret the following as they apply to the (Excess Steam Demand): Facility conditions and selection of appropriate procedures during abnormal and emergency operations.	4.0		
000054 Loss of Main Feedwater / 4									0	
CE/E06 Loss of Feedwater / 4										
000055 Station Blackout / 6									0	
000056 Loss of Off-site Power / 6									0	
000057 Loss of Vital AC Inst. Bus / 6									0	
000058 Loss of DC Power / 6									0	
000062 Loss of Nuclear Svc Water / 4					0 6		AA2.06-Ability to determine and interpret the following as they apply to the Loss of Nuclear Service Water: The length of time after the loss of SWS flow to a component before that component may be damaged	3.1	1	
000065 Loss of Instrument Air / 8									0	
000077 Generator Voltage and Electric Grid Disturbances / 6									0	
K/A Category Totals:	0	0	0	0	4	2	Group Point Total:		6	

ES-401		PWR Examination Outline							Form ES-401-2	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (SRO)										
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#	
000001 Continuous Rod Withdrawal / 1									0	
000003 Dropped Control Rod / 1									0	
000005 Inoperable/Stuck Control Rod / 1									0	
000024 Emergency Boration / 1									0	
000028 Pressurizer Level Malfunction / 2						02. 22	2.2.22-Knowledge of limiting conditions for operations and safety limits.	4.7	1	
000032 Loss of Source Range NI / 7									0	
000033 Loss of Intermediate Range NI / 7					10		AA2.10-Ability to determine and interpret the following as they apply to the Loss of Intermediate Range Nuclear Instrumentation: Tech-Spec limits if both intermediate-range channels have failed	3.8	1	
000036 Fuel Handling Accident / 8									0	
000037 Steam Generator Tube Leak / 3									0	
000051 Loss of Condenser Vacuum / 4									0	
000059 Accidental Liquid RadWaste Rel. / 9					05		AA2.05-Ability to determine and interpret the following as they apply to the Accidental Liquid Radwaste Release: The occurrence of automatic safety actions as a result of a high PRM system signal	3.9	1	
000060 Accidental Gaseous Radwaste Rel. / 9									0	
000061 ARM System Alarms / 7									0	
000067 Plant Fire On-site / 9 8									0	
000068 Control Room Evac. / 8									0	
000069 Loss of CTMT Integrity / 5									0	
000074 Inad. Core Cooling / 4						04. 46	2.4.46-Ability to verify that the alarms are consistent with the plant conditions.	4.2	1	
000076 High Reactor Coolant Activity / 9									0	
CE/A13 Natural Circ. / 4									0	
CE/A11 RCS Overcooling / 4									0	
CE/A16 Excess RCS Leakage / 2									0	
CE/E09 Functional Recovery									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
K/A Category Totals:	0	0	0	0	2	2	Group Point Total:		4	

ES-401		PWR Examination Outline												Form ES-401-2	
Plant Systems - Tier 2/Group 1 (SRO)															
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#	
003 Reactor Coolant Pump														0	
004 Chemical and Volume Control								1 7				A2.17-Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Low PZR pressure	3.7	1	
005 Residual Heat Removal														0	
006 Emergency Core Cooling											04. 08	2.4.8-Knowledge of how abnormal operating procedures are used in conjunction with EOPs.	4.5	1	
007 Pressurizer Relief/Quench Tank														0	
008 Component Cooling Water								0 2				A2.02-Ability to (a) predict the impacts of the following malfunctions or operations on the CCWS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: High/low surge tank level	3.5	1	
010 Pressurizer Pressure Control														0	
012 Reactor Protection														0	
013 Engineered Safety Features Actuation														0	
022 Containment Cooling														0	
025 Ice Condenser														0	
026 Containment Spray														0	
039 Main and Reheat Steam														0	
059 Main Feedwater											04. 20	2.4.20-Knowledge of the operational implications of EOP warnings, cautions, and notes.	4.3	1	
061 Auxiliary/Emergency Feedwater														0	
062 AC Electrical Distribution														0	
063 DC Electrical Distribution														0	
064 Emergency Diesel Generator														0	
073 Process Radiation Monitoring														0	
076 Service Water														0	
078 Instrument Air														0	
103 Containment								0 3				A2.03-Ability to (a) predict the impacts of the following malfunctions or operations on the containment system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Phase A and B Isolation	3.8	1	
														0	
K/A Category Totals:	0	0	0	0	0	0	0	3	0	0	2	Group Point Total:		5	

ES-401		PWR Examination Outline												Form ES-401-2	
Plant Systems - Tier 2/Group 2 (SRO)															
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#	
001 Control Rod Drive														0	
002 Reactor Coolant														0	
011 Pressurizer Level Control														0	
014 Rod Position Indication														0	
015 Nuclear Instrumentation											02. 40	2.2.40-Ability to apply Technical Specifications for a system.	4.7	1	
016 Non-nuclear Instrumentation														0	
017 In-core Temperature Monitor														0	
027 Containment Iodine Removal														0	
028 Hydrogen Recombiner and Purge Control														0	
029 Containment Purge														0	
033 Spent Fuel Pool Cooling														0	
034 Fuel Handling Equipment										0 1		A4.01-Ability to manually operate and/or monitor in the control room: Radiation levels	3.7	1	
035 Steam Generator								0 6				A2.06-Ability to (a) predict the impacts of the following malfunctions or operations on the GS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Small break LOCA	4.6	1	
041 Steam Dump/Turbine Bypass Control														0	
045 Main Turbine Generator														0	
055 Condenser Air Removal														0	
056 Condensate														0	
068 Liquid Radwaste														0	
071 Waste Gas Disposal														0	
072 Area Radiation Monitoring														0	
075 Circulating Water														0	
079 Station Air														0	
086 Fire Protection														0	
K/A Category Totals:	0	0	0	0	0	0	0	1	0	1	1	Group Point Total:		3	

Facility Name: PALISADES Date of Exam: 01/19-23/2015

Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1. 05	2.1.5-Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.	2.9		3.9	1
	2.1. 32	2.1.32-Ability to explain and apply system limits and precautions.	3.8		4.0	1
	2.1.					
	2.1.					
	2.1.					
	2.1.					
	Subtotal			0		2
2. Equipment Control	2.2. 18	2.2.18-Knowledge of the process for managing maintenance activities during shutdown operations, such as risk assessments, work prioritization, etc.	2.6		3.9	1
	2.2. 20	2.2.20-Knowledge of the process for managing troubleshooting activities.	2.6		3.8	1
	2.2.					
	2.2.					
	2.2.					
	2.2.					
	Subtotal			0		2
3. Radiation Control	2.3. 04	2.3.4-Knowledge of radiation exposure limits under normal or emergency conditions.	3.2	1	3.7	1
	2.3. 11	2.3.11-Ability to control radiation releases.	3.8		4.3	1
	2.3.					
	2.3.					
	2.3.					
	2.3.					
	Subtotal			1		2
4. Emergency Procedures / Plan	2.4. 30	2.4.30-Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.	2.7		4.1	1
	2.4.					
	2.4.					
	2.4.					
	2.4.					
	2.4.					
	Subtotal			0		1
Tier 3 Point Total				1		7