
EXAMINATION OUTLINE SUBMITTAL

FOR THE PRAIRIE ISLAND INITIAL EXAMINATION - AUGUST 2005

PRAIRIE ISLAND Outline Submittal

Contains the following:

Station Cover Letter transmitting the outline

ES-201-2	Examination Outline Quality Checklist
ES-301-1	Administrative Topics Outline (RO) (SRO)
ES-301-2	Control Room and Facility Walk-Through Test Outline (RO) (SRO-I) (SRO-U)
ES-301-5	Transient and Event Checklist (3 Checklists)
ES-401-2	PWR RO Examination Outline
ES-401-2	PWR SRO Examination Outline
ES-401-3	Generic Knowledge and Abilities Outline (RO) (SRO)
D-1	Dynamic Simulator Scenario Outline for 5 scenarios

There were no NRC comments on the Outline Submittal

APR 01 2005

L-PI-05-024
NUREG-1021

Regional Administrator
U S Nuclear Regulatory Commission
Region III
2443 Warrenville Road
Suite 210
Lisle, Illinois 60532-4352

Prairie Island Nuclear Generating Plant
Dockets 50-282 and 50-306
License Nos. DPR-42 and DPR-60

Examination Material for Prairie Island Initial License Examination, Weeks of
August 8 and August 15, 2005

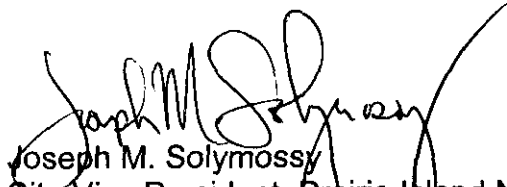
Enclosed are the integrated examination outlines for the initial license examination to be administered at our facility the weeks of August 8 and August 15, 2005. This information is being provided in accordance with guideline ES-201 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9.

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

Please direct any questions or comments regarding this material to Bill Markham at 651-388-1165, ext. 5277.

Summary of Commitments

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


Joseph M. Solymosy
Site Vice President, Prairie Island Nuclear Generating Plant
Nuclear Management Company, LLC

cc: Dell McNeil (NRC Chief Examiner) w/attachments

Facility: <u>Prairie Island</u>		Date of Examination: <u>8/1/05</u>		
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.	<u>g</u>	<u>ia</u>	<u>Yu</u>
	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.	<u>g</u>	<u>ia</u>	<u>Yu</u>
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	<u>g</u>	<u>ia</u>	<u>Yu</u>
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	<u>g</u>	<u>ia</u>	<u>Yu</u>
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.	<u>g</u>	<u>ia</u>	<u>Yu</u>
	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.	<u>g</u>	<u>ia</u>	<u>Yu</u>
	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.	<u>g</u>	<u>ia</u>	<u>Yu</u>
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.	<u>g</u>	<u>ia</u>	<u>Yu</u>
	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	<u>g</u>	<u>ia</u>	<u>Yu</u>
	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.	<u>g</u>	<u>ia</u>	<u>Yu</u>
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.	<u>g</u>	<u>ia</u>	<u>Yu</u>
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	<u>g</u>	<u>ia</u>	<u>Yu</u>
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	<u>g</u>	<u>ia</u>	<u>Yu</u>
	d. Check for duplication and overlap among exam sections.	<u>g</u>	<u>ia</u>	<u>Yu</u>
	e. Check the entire exam for balance of coverage.	<u>g</u>	<u>ia</u>	<u>Yu</u>
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	<u>g</u>	<u>ia</u>	<u>Yu</u>
a. Author <u>JOHN KEMPKE</u> b. Facility Reviewer (*) <u>Stephen Se. Lhymer</u> c. NRC Chief Examiner (#) <u>Dee R. McNair</u> d. NRC Supervisor <u>R. J. Lanksburg</u>		Printed Name/Signature <u>[Signature]</u> <u>[Signature]</u> <u>[Signature]</u> <u>[Signature]</u>		Date <u>3/12/05</u> <u>3/22/05</u> <u>4/4/05</u> <u>4/4/05</u>
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.				

Facility: Prairie Island		Date of Examination: 8/1/05
Examination Level (circle one): RO SRO		Operating Test Number: _____
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations RO-A-1	D, P	ADMIN-10, Determine Maximum RCS Venting Time 2.1.23 (Classroom)
Conduct of Operations RO-A-2	D, S	ADMIN-5S, Establish Appropriate High Flux at Shutdown Setpoint 2.1.30 (Simulator)
Equipment Control RO-A-3	N, S	FH-3S, Perform SFP Fuel Handling Checklist 2.2.26 (Simulator)
Radiation Control RO-A-4	D	ADMIN-8, Conduct an Emergency Radiation Survey 2.3.10 (In-Plant)
Emergency Plan	N/A	N/A
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.		
* Type Codes & Criteria (C)ontrol room (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 ; randomly selected) (S)imulator		

Facility: Prairie Island		Date of Examination: 8/1/05
Examination Level (circle one): RO SRO		Operating Test Number: _____
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations SRO-A-1	D	ME-1, Respond to a Medical Emergency 2.1.8 (Classroom)
Conduct of Operations RO-A-2	D, S	ADMIN-5S, Establish Appropriate High Flux at Shutdown Setpoint 2.1.30 (Simulator)
Equipment Control RO-A-3	N, S	FH-3S, Perform SFP Fuel Handling Checklist 2.2.26 (Simulator)
Radiation Control SRO-A-2	N	ADMIN-37, Authorize Emergency Exposure 2.3.1 (Classroom)
Emergency Plan SRO-A-3	N	ADMIN-39, Issue Updated PAR based on Wind Change 2.4.44 (Classroom)
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.		
* Type Codes & Criteria (C)ontrol room (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 ; randomly selected) (S)imulator		

Facility: **Prairie Island**
 Exam Level (circle one) **RO** SRO(I) / SRO(U)

Date of Examination: 8/1/05
 Operating Test No.: _____

Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)

System / JPM Title	Type Code*	Safety Function
a. CVCS / FL-10SF-3, Line up RWST to Charging During an ATWS RO-S-1	D, A, S	1
b. ESFAS / EO-31SF-2, Attachment L, Steam Line Isolation Failure RO-S-2	D, A, S	2
c. ECCS / SI-13S, Inadvertent Safety Injection Actuation RO-S-3	N, L, E, S	3
d. Condenser Air Removal / ARS-1, Condenser High Pressure RO-S-4	D, S, P	4b
e. PRT / RC-22SF-1, Lower PRT Level RO-S-5	N, A, S	5
f. AC Electrical Distribution / EA-5S, Transfer Safeguards Power to Offsite Source From Diesel Generator RO-S-6	D, S	6
g. Reactor Protection / FL-20SF-2, Ejected Control Rod With RPS Failure RO-S-7	N, L, A, S	7
h. Liquid Rad Waste / WD-1S, Terminate Accidental Radioactive Liquid Release RO-S-8	D, S	9

In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)

i. Hydrogen Recombiner / HC-1, Startup Hydrogen Recombiner RO-S-9	D, R	5
j. AC Electrical Distribution / IP-3, Respond to Bypassed Instrument Inverter RO-S-10	N, E	6
k. Cooling Water / F5-9, F5 Appendix B, Attachment C, Unit 1 RO Actions RO-S-11	D, P, E	4b

@ All control room (and-in plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO/ SRO-I/ SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	$\leq 9 / \leq 8 / \leq 4$
(D)irect from bank	$\geq 1 / \geq 1 / \geq 1$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(L)ow power	$\geq 2 / \geq 2 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(P)revious 2 exams	$\geq 1 / \geq 1 / \geq 1$
(R)CA	
(S)imulator	

Facility: **Prairie Island**Exam Level (circle one): RO / **SRO(I)** SRO(U)Date of Examination: 8/1/05
Operating Test No.: _____

Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)

System / JPM Title	Type Code*	Safety Function
a. CVCS / FL-10SF-3, Line up RWST to Charging During an ATWS RO-S-1	D, A, S	1
b. ESFAS / EO-31SF-2, Attachment L, Steam Line Isolation Failure RO-S-2	D, A, S	2
c. ECCS / SI-13S, Inadvertent Safety Injection Actuation RO-S-3	N, L, E, S	3
d. Condenser Air Removal / ARS-1, Condenser High Pressure RO-S-4	D, S, P	4b
e. PRT / RC-22SF-1, Lower PRT Level – RO-S-5	N, A, S	5
f. AC Electrical Distribution / EA-5S, Transfer Safeguards Power to Offsite Source From Diesel Generator RO-S-6	D, S	6
g. Reactor Protection / FL-20SF-2, Ejected Control Rod With RPS Failure RO-S-7	N, L, A, S	7
h. Not Administered to SRO-I		

In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)

i. Hydrogen Recombiner / HC-1, Startup Hydrogen Recombiner RO-S-9	D, R	5
j. AC Electrical Distribution / IP-3, Respond to Bypassed Instrument Inverter RO-S-10	N, E	6
k. Aux Feed Water / F5-7, F5 Appendix B, Attachment A, Unit 1 SS Actions SRO-S-1	D, E	4b

@ All control room (and-in plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO/ SRO-I/ SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(L)ow power	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Facility: **Prairie Island**Exam Level (circle one): RO / SRO(I) / **SRO(U)**Date of Examination: 8/1/05
Operating Test No.: _____

Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)

System / JPM Title	Type Code*	Safety Function
a. CVCS / FL-10SF-3, Line up RWST to Charging During an ATWS RO-S-1	D, A, S	1
b. Not Administered to SRO-U		
c. ECCS / SI-13S, Inadvertent Safety Injection Actuation RO-S-3	N, L, E, S	3
d. Not Administered to SRO-U		
e. Not Administered to SRO-U		
f. Not Administered to SRO-U		
g. Reactor Protection / FL-20SF-2, Ejected Control Rod With RPS Failure RO-S-7	N, L, A, S	7
h. Not Administered to SRO-U		

In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)

i. Hydrogen Recombiner / HC-1, Startup Hydrogen Recombiner RO-S-9	D, R	5
j. Not Administered to SRO-U		
k. Aux Feed Water / F5-7, F5 Appendix B, Attachment A, Unit 1 SS Actions SRO-S-1	D, E	4b

@ All control room (and-in plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO/ SRO-I/ SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(L)ow power	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Facility: <u>PRAIRIE ISLAND</u>		Date of Exam: <u>8/2/05</u>		Operating Test No.: <u>DAY 1</u>											
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			4				
		<u>2005-A</u>			<u>2005-G</u>										
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION				
		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		
<u>RO</u> SRO-T SRO-U	RX		2											1	1*
	NOR													0	1*
	I/C		1,4			2,3,4								5	4*
	MAJ		5			5,7								3	2
	TS														2
<u>RO</u> SRO-T SRO-U	RX					1								1	1*
	NOR													0	1*
	I/C			2,3,4		3,4								5	4*
	MAJ			5		5,7								3	2
	TS														2
RO SRO-T <u>SRO-U</u>	RX	2				1								2	1*
	NOR													0	1*
	I/C	2,3,4			2,3,4									6	4*
	MAJ	5			5,7									3	2
	TS	1,3			2,3,4									5	2
RO SRO-T SRO-U	RX														1*
	NOR														1*
	I/C														4*
	MAJ														2
	TS														2

Instructions:

1. Circle 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 do one scenario, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position.
2. 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.
3. 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 requirement.

Author:

JOHN KAMAKES

NRC Reviewer:

DELL R. MCNEIL

Facility: <u>PRAIRIE ISLAND</u>		Date of Exam: <u>8/3/05-8/4/05</u>		Operating Test No.: <u>2</u>											
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			4				
		<u>2005-B</u>			<u>2005-F</u>			CREW POSITION			CREW POSITION				
		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		
<u>RO</u>	RX													0	1*
	NOR		1											1	1*
	SRO-I		2,4				3,4,5							5	4*
	SRO-U		5,9				6							3	2
	TS														2
<u>RO</u>	RX					1								1	1*
	NOR														1*
	SRO-I			3,4		2,3,5								5	4*
	SRO-U			5,9		6								3	2
	TS														2
RO	RX														1*
	NOR														1*
	SRO-I														4*
	SRO-U														2
	TS														2
RO	RX														1*
	NOR														1*
	SRO-I														4*
	SRO-U														2
	TS														2

Instructions:

- Circle 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 do one scenario, including at least two instrument or component (I/C) malfunctions and one major transient, in 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 requirement.

Author:

JOHN KEMPLEZ

NRC Reviewer:

DELL R. MCNEIL / DELL R. MCNEIL

Facility: <u>PRAIRIE ISLAND</u>		Date of Exam: <u>8/3/05 - 8/5/05</u> Operating Test No.: <u>3</u>													
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 <u>2005-B</u>			2 <u>2005-F</u>			3 <u>2005-D</u>			4				
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION				
		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		
RO	RX	4				1								2	1*
	NOR	1												1	1*
<u>SRO-I</u>	I/C	2,3,4				2,3,5				1,2				8	4*
<u>SRO-U</u>	MAJ	5,9				6				4				4	2
	TS	2,3												2	2
RO	RX							1						1	1*
	NOR		1											1	1*
<u>SRO-I</u>	I/C		2,4			3,4,5	2,3							7	4*
<u>SRO-U</u>	MAJ		5,9			6	4							4	2
	TS						2,3							2	2
RO	RX				1				1					2	1*
	NOR													0	1*
<u>SRO-I</u>	I/C			3,4	2,3,4,5			2,3						8	4*
<u>SRO-U</u>	MAJ			5,9	6			4						4	2
	TS				4,5									2	2
RO	RX														1*
	NOR														1*
<u>SRO-I</u>	I/C														4*
<u>SRO-U</u>	MAJ														2
	TS														2

Instructions:

- Circle 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 do one scenario, including at least two instrument or component (I/C) malfunctions and one major transient, in 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 requirement.

Author:

JOHN KEMPKE 3-22-05

NRC Reviewer:

DELL R. McNEIL / DELL R. McNEIL

Facility: PRAIRIE ISLAND		Date of Exam: 8/1/05 RO																			
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	3	3	3				4	2				3	18	—	—	6				
	2	2	2	1			N/A	2	1		N/A		1	9	—	—	4				
	Tier Totals	5	5	4				6	3				4	27	—	—	10				
2. Plant Systems	1	3	2	3	3	2	2	3	2	3	2	3		28	—	—	5				
	2	1	1	1	1	1	1	1	1	0	1	1		10	—	—	3				
	Tier Totals	4	3	4	4	3	3	4	3	3	3	4		38	—	—	8				
3. Generic Knowledge and Abilities Categories		1		2		3		4		10		1		2		3		4		7	
		3		2		2		3				—		—		—		—			

Note:

- 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).
- 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 ± 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.
- 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 ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.
- 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.
- 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.
- Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- * 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.
- 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. Use duplicate pages for RO and SRO-only exams.
- 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.

PWR RO Examination Outline

Printed: 04/01/2005

Facility: Prairie Island

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
000007 Reactor Trip - Stabilization - Recovery / 1		X					EK2.03 - Reactor trip status panel	3.5	1
000008 Pressurizer Vapor Space Accident / 3		X					AK2.01 - Valves	2.7*	1
000009 Small Break LOCA / 3					X		EA2.24 - RCP temperature setpoints	2.6	1
000011 Large Break LOCA / 3			X				EK3.05 - Injection into cold leg	4.0*	1
000015/000017 RCP Malfunctions / 4				X			AA1.22 - RCP seal failure/malfunction	4.0	1
000022 Loss of Rx Coolant Makeup / 2						X	2.4.50 - Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	3.3	1
000025 Loss of RHR System / 4	X						AK1.01 - Loss of RHRS during all modes of operation	3.9	1
000038 Steam Gen. Tube Rupture / 3						X	2.1.2 - Knowledge of operator responsibilities during all modes of plant operation.	3.0	1
000054 Loss of Main Feedwater / 4			X				AK3.03 - Manual control of AFW flow control valves	3.8	1
000055 Station Blackout / 6	X						EK1.02 - Natural circulation cooling	4.1	1
000056 Loss of Off-site Power / 6					X		AA2.42 - Occurrence of a reactor trip	4.1	1
000058 Loss of DC Power / 6	X						AK1.01 - Battery charger equipment and instrumentation	2.8	1
000062 Loss of Nuclear Svc Water / 4				X			AA1.07 - Flow rates to the components and systems that are serviced by the SWS; interactions among the components	2.9	1
000065 Loss of Instrument Air / 8				X			AA1.05 - RPS	3.3*	1
W/E04 LOCA Outside Containment / 3				X			EA1.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	4.0	1
W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4		X					EK2.2 - Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility	3.9	1
W/E11 Loss of Emergency Coolant Recirc. / 4			X				EK3.4 - RO or SRO function within the control room team as appropriate to the assigned position, in such a way that procedures are adhered to and the limitations in the facilities license and amendments are not violated	3.6	1

PWR RO Examination Outline

Printed: 04/01/2005

Facility: Prairie Island

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
W/E12 - Steam Line Rupture - Excessive Heat Transfer / 4						X	2.1.2 - Knowledge of operator responsibilities during all modes of plant operation.	3.0	1
K/A Category Totals:	3	3	3	4	2	3	Group Point Total:	18	

PWR RO Examination Outline

Printed: 04/01/2005

Facility: Prairie Island

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
000001 Continuous Rod Withdrawal / 1		X					AK2.06 - T-ave./ref. deviation meter	3.0*	1
000028 Pressurizer Level Malfunction / 2		X					AK2.02 - Sensors and detectors	2.6	1
000067 Plant Fire On-site / 9			X				AK3.04 - Actions contained in EOP for plant fire on site	3.3	1
000068 Control Room Evac. / 8					X		AA2.01 - S/G level	4.0	1
W/E02 SI Termination / 3	X						EK1.1 - Components, capacity, and function of emergency systems	3.2	1
W/E03 LOCA Cooldown - Depress. / 4						X	2.4.31 - Knowledge of annunciators alarms and indications, and use of the response instructions.	3.3	1
W/E07 Inad. Core Cooling / 4				X			EA1.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.6	1
W/E08 RCS Overcooling - PTS / 4				X			EA1.3 - Desired operating results during abnormal and emergency situations	3.6	1
W/E10 Natural Circ. / 4	X						EK1.1 - Components, capacity, and function of emergency systems	3.3	1
K/A Category Totals:	2	2	1	2	1	1	Group Point Total:	9	

PWR RO Examination Outline

Printed: 04/01/2005

Facility: Prairie Island

ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-2

Sys/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
003 Reactor Coolant Pump		X										K2.01 - RCPS	3.1	1
004 Chemical and Volume Control				X								K4.07 - Water supplies	3.0	1
005 Residual Heat Removal	X											K1.09 - RCSO	3.6	1
006 Emergency Core Cooling							X					A1.12 - RHR heatup limits	2.9	1
006 Emergency Core Cooling											X	2.2.22 - Knowledge of limiting conditions for operations and safety limits.	3.4	1
007 Pressurizer Relief/Quench Tank									X			A3.01 - Components which discharge to the PRT	2.7*	1
008 Component Cooling Water	X											K1.01 - SWS	3.1	1
010 Pressurizer Pressure Control						X						K6.02 - PZR	3.2	1
012 Reactor Protection					X							K5.01 - DNB	3.3*	1
013 Engineered Safety Features Actuation				X								K4.10 - Safeguards equipment control reset	3.3	1
013 Engineered Safety Features Actuation					X							K5.02 - Safety system logic and reliability	2.9	1
022 Containment Cooling							X					A1.02 - Containment pressure	3.6	1
026 Containment Spray									X			A3.01 - Pump starts and correct MOV positioning	4.3	1
039 Main and Reheat Steam			X									K3.06 - SDS	2.8*	1
039 Main and Reheat Steam									X			A3.02 - Isolation of the MRSS	3.1	1
059 Main Feedwater				X								K4.02 - Automatic turbine/reactor trip runback	3.3	1
059 Main Feedwater											X	2.2.22 - Knowledge of limiting conditions for operations and safety limits.	3.4	1
061 Auxiliary/Emergency Feedwater	X											K1.09 - PRMS	2.6*	1
062 AC Electrical Distribution			X									K3.02 - ED/G	4.1	1
062 AC Electrical Distribution										X		A4.03 - Synchroscope, including an understanding of running and incoming voltages	2.8	1
063 DC Electrical Distribution							X					A1.01 - Battery capacity as it is affected by discharge rate	2.5	1
064 Emergency Diesel Generator						X						K6.08 - Fuel oil storage tanks	3.2	1
064 Emergency Diesel Generator											X	2.2.22 - Knowledge of limiting conditions for operations and safety limits.	3.4	1
073 Process Radiation Monitoring										X		A4.03 - Check source for operability demonstration	3.1	1

PWR RO Examination Outline

Printed: 04/01/2005

Facility: Prairie Island

ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-2

Sys/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
076 Service Water								X				A2.01 - Loss of SWS	3.5*	1
078 Instrument Air		X										K2.01 - Instrument air compressor	2.7	1
078 Instrument Air			X									K3.03 - Cross-tied units	3.0	1
103 Containment								X				A2.04 - Containment evacuation (including recognition of the alarm)	3.5*	1
K/A Category Totals:	3	2	3	3	2	2	3	2	3	2	3	Group Point Total:	28	

PWR RO Examination Outline

Printed: 04/01/2005

Facility: Prairie Island

ES - 401

Plant Systems - Tier 2 / Group 2

Form ES-401-2

Sys/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
011 Pressurizer Level Control											X	2.1.32 - Ability to explain and apply all system limits and precautions.	3.4	1
014 Rod Position Indication				X								K4.06 - Individual and group misalignment	3.4	1
015 Nuclear Instrumentation		X										K2.01 - NIS channels, components, and interconnections	3.3	1
016 Non-nuclear Instrumentation					X							K5.01 - Separation of control and protection circuits	2.7*	1
028 Hydrogen Recombiner and Purge Control			X									K3.01 - Hydrogen concentration in containment	3.3	1
034 Fuel Handling Equipment										X		A4.02 - Neutron levels	3.5	1
035 Steam Generator								X				A2.04 - Steam flow/feed mismatch	3.6	1
055 Condenser Air Removal	X											K1.06 - PRM system	2.6	1
068 Liquid Radwaste						X						K6.10 - Radiation monitors	2.5	1
072 Area Radiation Monitoring							X					A1.01 - Radiation levels	3.4	1
K/A Category Totals:	1	1	1	1	1	1	1	1	0	1	1	Group Point Total:	10	

Facility: PRAIRIE ISLAND		Date of Exam: 8/1/05 SRO																			
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	-	-	-				-	-			-	18	4	2	6					
	2	-	-	-			N/A	-	-		N/A	-	9	2	2	4					
	Tier Totals	-	-	-				-	-			-	27	6	4	10					
2. Plant Systems	1	-	-	-	-	-	-	-	-	-	-	-	28	2	3	5					
	2	-	-	-	-	-	-	-	-	-	-	-	10	2	1	3					
	Tier Totals	-	-	-	-	-	-	-	-	-	-	-	38	4	4	8					
3. Generic Knowledge and Abilities Categories		1		2		3		4		10		1		2		3		4		7	
		-		-		-		-				1		2		2		2			

Note:

- 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).
- 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 ± 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.
- 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 ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.
- 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.
- 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.
- Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- * 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.
- 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. Use duplicate pages for RO and SRO-only exams.
- 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.

PWR SRO Examination Outline

Printed: 04/01/2005

Facility: Prairie Island

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-2

Q*
6
1
3
4
2
5

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
000008 Pressurizer Vapor Space Accident / 3					X		AA2.01 - RCS pressure and temperature indicators and alarms	4.2	1
000026 Loss of Component Cooling Water / 8					X		AA2.06 - The length of time after the loss of CCW flow to a component before that component may be damaged	3.1*	1
000027 Pressurizer Pressure Control System Malfunction / 3					X		AA2.16 - Actions to be taken if PZR pressure instrument fails low	3.9	1
000029 ATWS / 1						X	2.4.30 - Knowledge of which events related to system operations/status should be reported to outside agencies.	3.6	1
000038 Steam Gen. Tube Rupture / 3					X		EA2.02 - Existence of an S/G tube rupture and its potential consequences	4.8	1
000040 Steam Line Rupture - Excessive Heat Transfer / 4						X	2.4.49 - Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4.0	1
K/A Category Totals:	0	0	0	0	4	2	Group Point Total:	6	

PWR SRO Examination Outline

Printed: 04/01/2005

Facility: Prairie Island

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-2

8
9
7
10

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
000036 Fuel Handling Accident / 8					X		AA2.02 - Occurrence of a fuel handling incident	4.1	1
000037 Steam Generator Tube Leak / 3						X	2.1.2 - Knowledge of operator responsibilities during all modes of plant operation.	4.0	1
000069 Loss of CTMT Integrity / 5					X		AA2.01 - Loss of containment integrity	4.3	1
W/E16 High Containment Radiation / 9						X	2.4.4 - Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.3	1
K/A Category Totals:	0	0	0	0	2	2	Group Point Total:	4	

PWR SRO Examination Outline

Printed: 04/01/2005

Facility: Prairie Island

ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-2

Sys/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
004 Chemical and Volume Control								X				A2.19 - High secondary and primary concentrations of chloride, fluoride, sodium and solids	3.5	1
013 Engineered Safety Features Actuation											X	2.1.33 - Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	4.0	1
059 Main Feedwater											X	2.2.22 - Knowledge of limiting conditions for operations and safety limits.	4.1	1
062 AC Electrical Distribution											X	2.4.31 - Knowledge of annunciators alarms and indications, and use of the response instructions.	3.4	1
073 Process Radiation Monitoring								X				A2.01 - Erratic or failed power supply	2.9*	1
K/A Category Totals:	0	0	0	0	0	0	0	2	0	0	3	Group Point Total:	5	

PWR SRO Examination Outline

Printed: 04/01/2005

Facility: Prairie Island

ES - 401

Plant Systems - Tier 2 / Group 2

Form ES-401-2

17
16
18

Sys/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
017 In-core Temperature Monitor								X				A2.02 - Core damage	4.1	1
034 Fuel Handling Equipment								X				A2.02 - Dropped cask	3.9	1
071 Waste Gas Disposal											X	2.2.22 - Knowledge of limiting conditions for operations and safety limits.	4.1	1
K/A Category Totals:	0	0	0	0	0	0	0	2	0	0	1	Group Point Total:	3	

Generic Knowledge and Abilities Outline (Tier 3)

PWR RO Examination Outline

Printed: 04/01/2005

Facility: Prairie Island

Form ES-401-3

<u>Generic Category</u>	<u>KA</u>	<u>KA Topic</u>	<u>Imp.</u>	<u>Points</u>
Conduct of Operations	2.1.8	Ability to coordinate personnel activities outside the control room.	3.8	1
	2.1.16	Ability to operate plant phone, paging system, and two-way radio.	2.9	1
	2.1.32	Ability to explain and apply all system limits and precautions.	3.4	1
	Category Total:			3
Equipment Control	2.2.11	Knowledge of the process for controlling temporary changes.	2.5	1
	2.2.34	Knowledge of the process for determining the internal and external effects on core reactivity.	2.8	1
	Category Total:			2
Radiation Control	2.3.9	Knowledge of the process for performing a containment purge.	2.5	1
	2.3.11	Ability to control radiation releases.	2.7	1
	Category Total:			2
Emergency Procedures/Plan	2.4.5	Knowledge of the organization of the operating procedures network for normal, abnormal, and emergency evolutions.	2.9	1
	2.4.20	Knowledge of operational implications of EOP warnings, cautions, and notes.	3.3	1
	2.4.27	Knowledge of fire in the plant procedure.	3.0	1
	Category Total:			3
Generic Total:				10

Generic Knowledge and Abilities Outline (Tier 3)

PWR SRO Examination Outline

Printed: 04/01/2005

Facility: Prairie Island

Form ES-401-3

	<u>Generic Category</u>	<u>KA</u>	<u>KA Topic</u>	<u>Imp.</u>	<u>Points</u>
19	Conduct of Operations	2.1.10	Knowledge of conditions and limitations in the facility license.	3.9	1
		Category Total:			1
20	Equipment Control	2.2.8	Knowledge of the process for determining if the proposed change, test, or experiment involves an unreviewed safety question.	3.3	1
21		2.2.31	Knowledge of procedures and limitations involved in initial core loading.	2.9*	1
		Category Total:			2
22	Radiation Control	2.3.8	Knowledge of the process for performing a planned gaseous radioactive release.	3.2	1
23		2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	3.3	1
		Category Total:			2
24	Emergency Procedures/Plan	2.4.1	Knowledge of EOP entry conditions and immediate action steps.	4.6	1
25		2.4.32	Knowledge of operator response to loss of all annunciators.	3.5	1
		Category Total:			2
	Generic Total:				7

Facility: Prairie Island	Scenario No.: 2005-A	Op-Test No.: 1
Examiners: _____ _____ _____	Operators: 1. a 2. b 3. c	
Initial Conditions: 100% Power, MOC, No Equipment OOS		
Turnover: Normal		

Event No.	Malf. No.	Event Type*	Event Description
1	RD0916	I	Failed RPI Rod G7 (AOP)
2	TC03	C	Turbine Control Valve Cycling (AOP) (Reactivity for RO)
3	CL01A	C	11 Cooling Water Pump Trip
3	CL03	C	121 Cooling Water Pump Fails to Autostart
3	CL02A	C	12 Cooling Water Pump Fails to Autostart
3	CL02B	C	22 Cooling Water Pump Fails to Autostart
4	DI-46038C Close	C	Isolation of CL to Unit 1 Turbine Building
5	MS01B	M	12 SG Steamline Break in Containment (Inserts on Rx Trip)
5	FW34B	C	12 AFWP Auto Start Failure
5	SI05A/B	C	Both SI Pumps Fail to Autostart
5	RP06	C	MSIVs Fail to Auto Close

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: Prairie Island	Scenario No.: 2005-B	Op-Test No.: 2, 3	
Examiners: _____ _____ _____	Operators: 1. a 2. b 3. c		
Initial Conditions: 100% Power, MOC (Standard IC 'A')			
Turnover: 11 AFWP and Breaker 16-10 OOS Start 13 Chg Pump and stop 12 Chg Pump in preparation for isolation of 12 Chg			
Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N	Swap from 11-12 Chg to 11-13 Chg in service
2	RX206	I	PRZR Level controlling channel fails HIGH
3	N/A	C	10-Bank Oil Leakage reported, requiring transfer of one safeguards 4160V bus to alternate source in anticipation of loss (AOP)
4	47012-0203	C	High Vibration on 12 RCP (AOP) (Power reduction required)
5	RC03B	M	12 RCP Shaft Shear
6	TC06	C	Turbine Auto Trip Failure (Note: Events 5-8 required to reduce SG inventory enough to cause loss of heat sink post trip)
6	RP06	C	MSIV Auto Closure Failure
6	TC01A	C	Turbine Left Stop Valve Closure Failure
6	TC14C	C	Turbine CV-3 Fails As Is
7	FW27B	C	FCV 476 (12 Main Feed Reg) Fails Closed on Trip
8	ED02B	C	Bus 12 Auto Transfer Failure
9	FW32	M	MD AFW Pump Trip on Start- Loss of Heat Sink

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

38 of 39

Facility: Prairie Island

Scenario No.: 2005-F

Op-Test No.: 2, 3

Examiners: _____

Operators:

1. a
2. b
3. c

Initial Conditions: 2% Power Prior to Turbine Roll in 1C1.2 Startup

Turnover: No Equipment OOS, Raise power to 6% per 1C1.2

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R	Raise power to 6% per 1C1.2
2	DI-46296O Off	C	Regen HX Charging Line Outlet FCV fails CLOSED (AOP)
3	AO-41132 O	I	Steam Header Pressure fails LOW
4	CH121 8	N	Fire in the Aux Building (requires hot short actions for CC, AFW)
5	RC10	C	Pressurizer Surge Line Leakage 11 gpm (AOP)
6	RC10	M	Large Break LOCA- Surge Line Shear
6	CH01E/F	I	Ctmt Press Xmtrs fail as-is, preventing auto Containment Spray
6	RH01A	C	11 RHR Pump Lockout on Start
6	RH02B	C	12 RHR Pump Fails to Start in Auto
6	LO-46211G OFF	C	Breaker trip for Sump B to 12 RHR- Prevents Train B sump recirculation

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: Prairie Island

Scenario No.: 2005- G

Op-Test No.: 1

 Examiners: _____

Operators:

1. a
2. b
3. c

Initial Conditions: IC-26 Critical following App C1B startup, 10⁻⁸A, critical data taken

Turnover: No equipment OOS

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R	Raise reactor power to .5-2% per 1C1.2 Unit Startup.
2	FW32	C	12 AFWP Lockout
3	VC21A	C	11 RCP Thermal Barrier Heat Exchanger leakage (AOP)
4	SG01A	C	Steam Generator Tube Leak (AOP)
5	ED14	M	Loss of Offsite Power (Rx Trip)
5	ED09E	C	Bus 15 Lockout
6	DI-46523	C	22 Diesel Cooling Water Pump start failure
7	SG02A	M	11 SG Steam Generator Tube Rupture (SI) (Causes Loop A CL isolation and loss of pressure)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor