

**EXAMINATION OUTLINE SUBMITTAL**

**FOR THE PRAIRIE ISLAND RETAKE EXAMINATION - APR 2004**

## Outline Submittal

Contains the following:

Outline Submittal Letter

ES-201-2	Examination Outline Quality Checklist
ES-401-2	PWR Examination Outline & Written Sample Plan (includes equivalent of Form ES-401-3)
Admin	There were no NRC Comments on licensee submitted test outline

2/1/00



Prairie Island Nuclear Generating Plant  
Operated by Nuclear Management Company, LLC

JAN 29 2004

L-PI-04-013  
NUREG-1021

Regional Administrator  
U S Nuclear Regulatory Commission  
Region III  
801 Warrenville Road  
Lisle, Illinois 60532-4351

PRAIRIE ISLAND NUCLEAR GENERATING PLANT  
DOCKET NOS. 50-282 AND 50-306  
LICENSE NOS. DPR-42 AND DPR-60  
EXAMINATION MATERIAL FOR PRAIRIE ISLAND INITIAL LICENSE EXAMINATION,  
WEEK OF APRIL 19, 2004

As a follow-up to our letter dated January 6, 2004, enclosed are the integrated examination outlines for the initial license examinations to be administered at our facility the week of April 19, 2004. As discussed in the earlier letter, this class is comprised of students who passed the operating test portion of the exam and thus the information enclosed supports only the written portion of a License Exam. Letters requesting a waiver of the operating portion of the exam for the affected students will be completed as soon as results from the previous exam are finalized.

This information is being provided in accordance with the guideline ES-201 of NUREG 1021, "Operating License Examination Standard for Power Reactors," Draft 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.

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

Joseph M. Solymossy  
Site Vice President, Prairie Island Nuclear Generating Plant

C: Dell McNeill (NRC lead examiner) w/ attachments

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 per ES-401.	f	S	sm
	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.	f	S	sm
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	f	S	sm
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	f	S	sm
2. S I M	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, and major transients.	N/A	N/A	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; ensure 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 scenarios will not be repeated <del>over successive</del> on subsequent days.	N/A	N/A	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	N/A	N/A
3. W /	a. Verify that: (1) the outline(s) contain(s) the required number of control room and in-plant tasks, (2) no more than 30% of the test material is repeated from the last NRC examination, (3)* no tasks are duplicated from the applicants' audit test(s), and (4) no more than 80% of any operating test is taken directly from the licensee's exam banks.	N/A	N/A	N/A
	b. Verify that: (1) the tasks are distributed among the safety function groupings as specified in ES-301, (2) one task is conducted in a low-power or shutdown condition, (3) 40% - 60% (2 - 3 for SRO-U) of the tasks require the applicant to implement an alternate path procedure, (4) one in-plant task tests the applicant's response to an emergency or abnormal condition, and (5) the in-plant walk-through requires the applicant to enter the RCA.	N/A	N/A	N/A
	c. Verify that the required administrative topics are covered, with emphasis on performance-based activities.	N/A	N/A	N/A
	d. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on successive-subsequent days.	N/A	N/A	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 section.	f	S	sm
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	f	S	sm
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	f	S	sm
	d. Check for duplication and overlap among exam sections.	f	S	N/A
	e. Check the entire exam for balance of coverage.	f	S	sm
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	f	S	sm
a. Author <u>JOHN KEMPKE</u> b. Facility Reviewer (*) <u>DOUG SMITH</u> c. NRC Chief Examiner (#) <u>JOHN McNEIL</u> d. NRC Supervisor <u>R.D. Lankburg</u>		Printed Name / Signature <u>[Signature]</u> <u>[Signature]</u> <u>[Signature]</u> <u>[Signature]</u>		Date 1-23-04 1-26-04 1/30/04 2/18/04
Note: * Not applicable for NRC-developed examinations. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.				

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# Sample Plan Information for the NRC Makeup RO Exam

Tier: 1 Exam	Group: 1 ID	KA	RO Imp	SRO Imp	Full KA Statement	
RO	007	EA1.05	4.0	4.1	Ability to operate and/or monitor the following as they apply to a reactor trip:	Nuclear instrumentation
RO	008	AA2.05	3.9	3.9	Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident:	PORV isolation (block valve switches and indicators)
RO	009	EK3.11	4.4	4.5	Knowledge of the reasons for the following responses as they apply to the small break LOCA:	Dangers associated with inadequate core cooling
RO	011	EA1.04	4.4	4.4	Ability to operate and/or monitor the following as they apply to a Large Break LOCA:	ESF actuation system in manual
RO	022	AA1.04	3.3	3.2	Ability to operate and/or monitor the following as they apply to the Loss of Reactor Coolant Pump Makeup:	Speed demand controller and running indicators (positive displacement pump)
RO	025	2.1.2	3.0	4.0	Conduct of Operations	Knowledge of operator responsibilities during all modes of plant operation.
RO	026	AK3.01	3.2	3.5	Knowledge of the reasons for the following responses as they apply to the Loss of Component Cooling Water:	The conditions that will initiate the automatic opening and closing of the SWS isolation valves to the CCW/nuclear service water coolers
RO	027	2.4.4	4.0	4.3	Emergency Procedures/Plan	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.
RO	029	EA2.05	3.4	3.4	Ability to determine and interpret the following as they apply to a ATWS:	System component valve position indications
RO	038	EK3.06	4.2	4.5	Knowledge of the reasons for the following responses as they apply to the SGTR:	Actions contained in EOP for RCS water inventory balance, S/G tube rupture, and plant shutdown procedures
RO	040	AK1.05	4.1	4.4	Knowledge of the operational implications of the following concepts as they apply to Steam Line Rupture:	Reactivity effects of cooldown
RO	055	EA2.04	3.7	4.1	Ability to determine and interpret the following as they apply to a Station Blackout:	Instruments and controls operable with only dc battery power available
RO	056	AK1.03	3.1	3.4	Knowledge of the operational implications of the following concepts as they apply to Loss of Offsite Power:	Definition of subcooling: use of steam tables to determine it
RO	058	AK1.01	2.8	3.1	Knowledge of the operational implications of the following concepts as they apply to Loss of DC Power:	Battery charger equipment and instrumentation
RO	062	2.1.28	3.2	3.3	Conduct of Operations	Knowledge of the purpose and function of major system components and controls.

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# Sample Plan Information for the NRC Makeup RO Exam

RO	E04	EK2.2	3.8	4.0	Knowledge of the interrelations between the LOCA Outside Containment and the following:	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
RO	E05	EK2.1	3.7	3.9	Knowledge of the interrelations between the Loss of Secondary Heat Sink and the following:	Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features
RO	E11	EK2.1	3.6	3.9	Knowledge of the interrelations between the Loss of Emergency Coolant Recirculation and the following:	Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features

Tier: 1 Exam	Group: 2 ID	KA	RO Imp	SRO Imp	Full KA Statement	
RO	001	AA2.04	4.2	4.3	Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal:	Reactor power and its trend
RO	003	2.1.23	3.9	4.0	Conduct of Operations	Ability to perform specific system and integrated plant procedures during all modes of plant operation.
RO	024	AA1.13	3.2	3.0	Ability to operate and/or monitor the following as they apply to the Emergency Boration:	Boric acid flow controller
RO	032	2.4.31	3.3	3.4	Emergency Procedures/Plan	Knowledge of annunciators alarms and indications, and use of the response instructions.
RO	036	AK2.02	3.4	3.9	Knowledge of the interrelations between the Fuel Handling Incidents and the following:	Radiation monitoring equipment (portable and installed)
RO	061	AA2.06	3.2	4.1	Ability to determine and interpret the following as they apply to the Area Radiation Monitoring (ARM) System Alarms:	Required actions if alarm channel is out of service
RO	068	AA1.06	4.1	4.2	Ability to operate and/or monitor the following as they apply to the Control Room Evacuation:	Charging pump
RO	E03	EK3.2	3.4	3.9	Knowledge of the reasons for the following responses as they apply to the LOCA Cooldown and Depressurization:	Normal, abnormal and emergency operating procedures associated with LOCA Cooldown and Depressurization
RO	E15	EK1.3	2.8	3.0	Knowledge of the operational implications of the following concepts as they apply to the Containment Flooding:	Annunciators and conditions indicating signals, and remedial actions associated with the Containment Flooding

Tier: 2 Exam	Group: 1 ID	KA	RO Imp	SRO Imp	Full KA Statement	
RO	003	A3.05	2.7	2.6	Ability to monitor automatic operation of the RCPS, including:	RCP lube oil and bearing lift pumps

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# Sample Plan Information for the NRC Makeup RO Exam

RO	004	A3.09	3.3	3.2	Ability to monitor automatic operation of the CVCS, including:	VCT level
RO	005	K3.01	3.9	4.0	Knowledge of the effect that a loss or malfunction of the RHRS will have on the following:	RCS
RO	006	K5.07	2.7	3.0	Knowledge of the operational implications of the following concepts as they apply to the ECCS:	Expected temperature levels in various locations of the RCS due to various plant conditions
RO	007	2.1.30	3.9	3.4	Conduct of Operations	Ability to locate and operate components, including local controls.
RO	007	A2.02	2.6	3.2	Ability to (a) predict the impacts of the following malfunctions or operations on the PRTS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Abnormal pressure in the PRT
RO	008	K4.09	2.7	2.9	Knowledge of CCWS design feature(s) and/or interlock(s) which provide for the following:	The "standby" feature for the CCW pumps
RO	010	K6.04	2.9	3.2	Knowledge of the effect of a loss or malfunction of the following will have on the PZR PCS:	PRT
RO	012	K5.02	3.1	3.3	Knowledge of the operational implications of the following concepts as they apply to the RPS:	Power density
RO	013	A1.01	4.0	4.2	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ESFAS controls including:	RCS pressure and temperature
RO	022	K1.04	2.9	2.9	Knowledge of the physical connections and/or cause-effect relationships between the CCS and the following systems:	Chilled water
RO	026	K2.02	2.7	2.9	Knowledge of bus power supplies to the following:	MOV's
RO	026	K4.01	4.2	4.3	Knowledge of CSS design feature(s) and/or interlock(s) which provide for the following:	Source of water for CSS, including recirculation phase after LOCA
RO	039	A4.01	2.9	2.8	Ability to manually operate and/or monitor in the control room:	Main steam supply valves
RO	056	A2.04	2.6	2.8	Ability to (a) predict the impacts of the following malfunctions or operations on the Condensate System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Loss of condensate pumps
RO	056	K1.03	2.6	2.6	Knowledge of the physical connections and/or cause-effect relationships between the Condensate System and the following systems:	MFW
RO	059	A3.03	2.5	2.6	Ability to monitor automatic operation of the MFW System, including:	Feedwater pump suction flow pressure
RO	061	K6.01	2.5	2.8	Knowledge of the effect of a loss or malfunction of the following will have on the AFW System components:	Controllers and positioners
RO	062	2.2.22	3.4	4.1	Equipment Control	Knowledge of limiting conditions for operations and safety limits.



# Sample Plan Information for the NRC Makeup RO Exam

RO	063	A4.03	3.0	3.1	Ability to manually operate and/or monitor in the control room:	Battery discharge rate
RO	063	K1.02	2.7	3.2	Knowledge of the physical connections and/or cause-effect relationships between the D.C. Electrical System and the following systems:	AC electrical system
RO	064	A1.03	3.2	3.3	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ED/G System controls including:	Operating voltages, currents, and temperatures
RO	073	A4.02	3.7	3.7	Ability to manually operate and/or monitor in the control room:	Radiation monitoring system control panel
RO	076	K2.01	2.7	2.7	Knowledge of bus power supplies to the following:	Service water
RO	078	2.1.28	3.2	3.3	Conduct of Operations	Knowledge of the purpose and function of major system components and controls.
RO	078	K4.01	2.7	2.9	Knowledge of IAS design feature(s) and/or interlock(s) which provide for the following:	Manual/automatic transfers of control
RO	103	A2.03	3.5	3.8	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
RO	103	K3.03	3.7	4.1	Knowledge of the effect that a loss or malfunction of the Containment System will have on the following:	Loss of containment integrity under refueling operations

Tier: 2		Group: 2				
Exam	ID	KA	RO Imp	SRO Imp	Full KA Statement	
RO	001	A3.06	3.9	3.9	Ability to monitor automatic operation of the CRDS, including:	RCS temperature and pressure
RO	002	K5.11	4.0	4.2	Knowledge of the operational implications of the following concepts as they apply to the RCS:	Relationship between effects of the primary coolant system and the secondary coolant system
RO	011	K4.06	3.3	3.7	Knowledge of PZR LCS design feature(s) and/or interlock(s) which provide for the following:	Letdown isolation
RO	015	K2.01	3.3	3.7	Knowledge of bus power supplies to the following:	NIS channels, components, and interconnections
RO	016	K3.12	3.4	3.6	Knowledge of the effect that a loss or malfunction of the NNIS will have on the following:	S/G
RO	034	K1.02	2.5	3.2	Knowledge of the physical connections and/or cause-effect relationships between the Fuel Handling System and the following systems:	RHRS
RO	041	A1.02	3.1	3.2	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the SDS controls including:	Steam pressure

# Sample Plan Information for the NRC Makeup RO Exam

RO	072	A2.02	2.8	2.9	Ability to (a) predict the impacts of the following malfunctions or operations on the ARM system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Detector failure
RO	079	A4.01	2.7	2.7	Ability to manually operate and/or monitor in the control room:	Cross-tie valves with IAS
RO	086	2.4.50	3.3	3.3	Emergency Procedures/Plan	Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

Tier: 3		Group: 1		RO Imp	SRO Imp	Full KA Statement
Exam	ID	KA				
RO	ENERID	2.1.11	3.0	3.8	Conduct of Operations	Knowledge of less than one hour technical specification action statements for systems.
RO	ENERID	2.1.25	2.8	3.1	Conduct of Operations	Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data.
RO	ENERID	2.2.1	3.7	3.6	Equipment Control	Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.
RO	ENERID	2.2.12	3.0	3.4	Equipment Control	Knowledge of surveillance procedures.
RO	ENERID	2.2.2	4.0	3.5	Equipment Control	Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.
RO	ENERID	2.3.2	2.5	2.9	Radiation Controls	Knowledge of facility ALARA program.
RO	ENERID	2.3.4	2.5	3.1	Radiation Controls	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.
RO	ENERID	2.3.9	2.5	3.4	Radiation Controls	Knowledge of the process for performing a containment purge.
RO	ENERID	2.4.2	3.9	4.1	Emergency Procedures/Plan	Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions. Note: The issue of setpoints and automatic safety features is not specifically covered in the systems sections.
RO	ENERID	2.4.6	3.1	4.0	Emergency Procedures/Plan	Knowledge symptom based EOP mitigation strategies.

# Sample Plan Information for the NRC Makeup SRO Exam

Tier: 1		Group: 1		RO Imp	SRO Imp	Full KA Statement	
Exam	ID	KA					
SRO	007	2.1.14	2.5	3.3	Conduct of Operations		Knowledge of system status criteria which require the notification of plant personnel.
SRO	008	AA2.01	3.9	4.2	Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident:		RCS pressure and temperature indicators and alarms
SRO	011	2.4.4	4.0	4.3	Emergency Procedures/Plan		Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.
SRO	025	AA2.06	3.2	3.4	Ability to determine and interpret the following as they apply to the Loss of Residual Heat Removal System:		Existence of proper RHR overpressure protection
SRO	029	2.4.6	3.1	4.0	Emergency Procedures/Plan		Knowledge symptom based EOP mitigation strategies.
SRO	038	EA2.13	3.1	3.7	Ability to determine and interpret the following as they apply to a SGTR:	Magnitude of rupture	
SRO	E11	EA2.1	3.4	4.2	Ability to determine and interpret the following as they apply to the Loss of Emergency Coolant Recirculation:		Facility conditions and selection of appropriate procedures during abnormal and emergency operations

Tier: 1		Group: 2		RO Imp	SRO Imp	Full KA Statement	
Exam	ID	KA					
SRO	005	AA2.01	3.3	4.1	Ability to determine and interpret the following as they apply to the Inoperable/Stuck Control Rod:	Stuck or inoperable rod from in-core and ex-core NIS, in-core or loop temperature measurements	
SRO	033	2.1.33	3.4	4.0	Conduct of Operations	Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	
SRO	037	AA2.12	3.3	4.1	Ability to determine and interpret the following as they apply to the Steam Generator Tube Leak:	Flow rate of leak	
SRO	076	AA2.02	2.8	3.4	Ability to determine and interpret the following as they apply to the High Reactor Coolant Activity:	Corrective actions required for high fission product activity in RCS	
SRO	E02	2.4.4	4.0	4.3	Emergency Procedures/Plan	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	

Tier: 2		Group: 1		RO	SRO	Full KA Statement
Exam	ID	KA	Imp	Imp		

# Sample Plan Information for the NRC Makeup SRO Exam

SRO	061	A2.06	2.7	3.0	Ability to (a) predict the impacts of the following malfunctions or operations on the AFW System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Back leakage of MFW
SRO	062	A2.05	2.9	3.3	Ability to (a) predict the impacts of the following malfunctions or operations on the A.C. Distribution System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Methods for energizing a dead bus
SRO	073	2.4.4	4.0	4.3	Emergency Procedures/Plan	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.
SRO	076	2.1.33	3.4	4.0	Conduct of Operations	Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

Tier: 2		Group: 2				
Exam	ID	KA	RO Imp	SRO Imp	Full KA Statement	
SRO	027	2.4.6	3.1	4.0	Emergency Procedures/Plan	Knowledge symptom based EOP mitigation strategies.
SRO	075	2.4.6	3.1	4.0	Emergency Procedures/Plan	Knowledge symptom based EOP mitigation strategies.

Tier: 3		Group: 1				
Exam	ID	KA	RO Imp	SRO Imp	Full KA Statement	
SRO	ENERI	2.1.10	2.7	3.9	Conduct of Operations	Knowledge of conditions and limitations in the facility license.
SRO	ENERI	2.1.6	2.1	4.3	Conduct of Operations	Ability to supervise and assume a management role during plant transients and upset conditions.
SRO	ENERI	2.2.10	1.9	3.3	Equipment Control	Knowledge of the process for determining if the margin of safety, as defined in the basis of any technical specification is reduced by a proposed change, test or experiment.
SRO	ENERI	2.2.25	2.5	3.7	Equipment Control	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.
SRO	ENERI	2.3.11	2.7	3.2	Radiation Controls	Ability to control radiation releases.
SRO	ENERI	2.4.31	3.3	3.4	Emergency Procedures/Plan	Knowledge of annunciators alarms and indications, and use of the response instructions.
SRO	ENERI	2.4.42	2.3	3.7	Emergency Procedures/Plan	Knowledge of emergency response facilities.