



Entergy Nuclear Generating Company
Chiltonville Training Center
46 Sandwich Road
Plymouth, MA 02360-2505

April 18, 2002

Mr. Paul Bissett
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

Dear Mr. Bissett:

Enclosed for your review are the examination outline materials to support the NRC Examination currently scheduled for the week of July 29, 2002 for Pilgrim Nuclear Power Station. The materials are organized per the index before Tab 1.

The Knowledge and Abilities for the written outlines were randomly selected using the "WD Associates BWR K/A Catalog Program, Version 1.07" designed for that purpose.

SRO/RO Written Examination Outlines Forms ES-401-1 are the original randomly selected Knowledge and Abilities. They will be modified to reflect rejected K/As and Plant Specific Priorities after NRC approval of the outline. Replacement/Rejected K/As were systematically selected to provide balanced coverage including Plant Specific High Risk Human Error Probabilities. The proposed replacement/rejected K/As have been verified to adhere to the Examiner Standards. (i.e., after proposed revisions all tier and group totals are per the examiner standards and no tier totals fall below two.)

As per our discussion the list of Suppressed Knowledge and Abilities are included with the Outline for your review.

The audit exam is being developed independently of the NRC exam but has not been developed as of this date. After its development the audit exam will be reviewed. Any overlap noted between the NRC exam and the audit exam will be discussed with the NRC.

Per ES-201 Attachment 1, regarding exam security, I would request that the enclosed materials be withheld from public disclosure until after the examinations have been completed.

If I can provide any additional assistance, please feel free to call Scott Willoughby at (508) 830-7638 or Keith Vines at (508) 830-7620.

Sincerely yours,

A handwritten signature in cursive script that reads "David Mitchell".

David Mitchell
Training Development Supervisor

Facility: Pilgrim Nuclear Power Station

Form ES-401-1

Exam Date: 07/29/2002Exam Level: SRO

Tier	Group	K/A Category Points											Point Total
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	
1. Emergency & Abnormal Plant Evolutions	1	5	4	4				5	4			4	26
	2	3	3	3				2	3			3	17
	Tier Totals	8	7	7				7	7			7	43
2. Plant Systems	1	2	2	2	3	2	2	2	2	2	1	3	23
	2	1	1	1	1	2	1	1	1	1	1	2	13
	3	0	0	1	0	1	0	0	1	0	0	1	4
	Tier Totals	3	3	4	4	5	3	3	4	3	2	6	40
3. Generic Knowledge And Abilities					Cat 1		Cat 2		Cat 3		Cat 4		
					5		4		4		4		17

Note:

1. Attempt to distribute topics among all K/A Categories; select at least one topic from every K/A category within each tier.
2. Actual point totals must match those specified in the table.
3. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.
4. Systems/evolutions within each group are identified on the associated outline.
5. The shaded areas are not applicable to the category tier.

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-1

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295007	High Reactor Pressure / 3					X		AA2.01 - Reactor pressure	4.1*	1
295007	High Reactor Pressure / 3		X					AK2.05 - Shutdown cooling; Plant-Specific	3.1	1
295009	Low Reactor Water Level / 2		X					AK2.04 - Reactor water cleanup	2.6	1
295009	Low Reactor Water Level / 2			X				AK3.02 - Reactor feedpump runout flow control: Plant-Specific	2.8	1
295010	High Drywell Pressure / 5					X		AA2.06 - Drywell temperature	3.6	1
295013	High Suppression Pool Temperature / 5						X	2.3.6 - Knowledge of the requirements for reviewing and approving release permits.	3.1	1
295013	High Suppression Pool Temperature / 5		X					AK2.01 - Suppression pool cooling	3.7	1
295014	Inadvertent Reactivity Addition / 1			X				AK3.02 - Control rod blocks	3.7	1
295016	Control Room Abandonment / 7					X		AA2.02 - Reactor water level	4.3*	1
295017	High Off-Site Release Rate / 9				X			AA1.07 - Process radiation monitoring system	3.6	1
295017	High Off-Site Release Rate / 9						X	2.2.2 - Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.	3.5	1
295023	Refueling Accidents / 8						X	2.2.11 - Knowledge of the process for controlling temporary changes.	3.4*	1
295023	Refueling Accidents / 8	X						AK1.01 - Radiation exposure hazards	4.1	1
295024	High Drywell Pressure / 5						X	2.1.22 - Ability to determine Mode of Operation.	3.3	1

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-1

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295025	High Reactor Pressure / 3	X						EK1.03 - Safety/relief valve tailpipe temperature/pressure relationships	3.8	1
295025	High Reactor Pressure / 3			X				EK3.03 - HPCI operation: Plant-Specific	3.8	1
295026	Suppression Pool High Water Temperature / 5	X						EK1.01 - Pump NPSH	3.4	1
295030	Low Suppression Pool Water Level / 5			X				EK3.07 - NPSH considerations for ECCS pumps	3.8	1
295030	Low Suppression Pool Water Level / 5				X			EA1.02 - RCIC: Plant-Specific	3.5	1
295031	Reactor Low Water Level / 2		X					EK2.16 - Reactor water level control	4.1	1
295037	SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1	X						EK1.07 - Shutdown margin	3.8	1
295037	SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1				X			EA1.04 - SBLC	4.5*	1
295038	High Off-Site Release Rate / 9					X		EA2.04 - Source of off-site release	4.5*	1
295038	High Off-Site Release Rate / 9	X						EK1.01 - Biological effects of radioisotope ingestion	3.1	1
500000	High Containment Hydrogen Concentration / 5				X			EA1.03 - Containment Atmosphere Control System	3.2	1
500000	High Containment Hydrogen Concentration / 5				X			EA1.02 - Primary containment oxygen instrumentation	3.2	1

K/A Category Totals: 5 4 4 5 4 4

Group Point Total: 26

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-1

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295002	Loss of Main Condenser Vacuum / 3	X						AK1.03 - Loss of heat sink	3.8	1
295004	Partial or Complete Loss of D.C. Power / 6	X						AK1.02 - Redundant D.C. power supplies: Plant-Specific	3.4	1
295005	Main Turbine Generator Trip / 3				X			AA1.01 - Recirculation system: Plant-Specific	3.3	1
295012	High Drywell Temperature / 5						X	2.2.7 - Knowledge of the process for conducting tests or experiments not described in the safety analysis report.	3.2	1
295012	High Drywell Temperature / 5			X				AK3.01 - Increased drywell cooling	3.6	1
295019	Partial or Complete Loss of Instrument Air / 8			X				AK3.02 - Standby air compressor operation	3.4	1
295020	Inadvertent Containment Isolation / 5						X	2.4.1 - Knowledge of EOP entry conditions and immediate action steps.	4.6	1
295021	Loss of Shutdown Cooling / 4					X		AA2.04 - Reactor water temperature	3.5	1
295021	Loss of Shutdown Cooling / 4				X			AA1.02 - RHR/shutdown cooling	3.5	1
295022	Loss of CRD Pumps / 1		X					AK2.04 - Reactor water level	2.7	1
295022	Loss of CRD Pumps / 1			X				AK3.02 - CRDM high temperature	3.1	1
295032	High Secondary Containment Area Temperature / 5					X		EA2.02 - Equipment operability	3.5	1
295032	High Secondary Containment Area Temperature / 5		X					EK2.03 - Fire protection system	3.4	1
295033	High Secondary Containment Area Radiation Levels / 9		X					EK2.02 - Process radiation monitoring system	4.1	1

Facility: Piquette Nuclear Power Station

BWR SR Examination Outline

Printed: 04/11/2012

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-1

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295035	Secondary Containment High Differential Pressure / 5						X	2.4.33 - Knowledge of the process used track inoperable alarms.	2.8	1
295035	Secondary Containment High Differential Pressure / 5	X						EK1.02 - †Radiation release	4.2	1
295036	Secondary Containment High Sump/Area Water Level / 5					X		EA2.01 - Operability of components within the affected area	3.2	1

K/A Category Totals: 3 3 3 2 3 3

Group Point Total: 17

Facility: Pilgrim Nuclear Power Station

ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-1

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
202002	Recirculation Flow Control System / 1			X									K3.03 - Reactor water level	3.4	1
202002	Recirculation Flow Control System / 1								X				A2.04 - Recirculation pump speed mismatch between loops: Plant-Specific	3.2	1
203000	RHR/LPCI: Injection Mode (Plant Specific) / 2						X						K6.10 - Component cooling water systems	3.1	1
203000	RHR/LPCI: Injection Mode (Plant Specific) / 2										X		A4.10 - Pump/system discharge pressure: Plant-Specific	3.6	1
206000	High Pressure Coolant Injection System / 2				X								K4.10 - Surveillance for all operable components: BWR-2, 3, 4	3.8	1
206000	High Pressure Coolant Injection System / 2					X							K5.05 - Turbine speed control: BWR-2, 3, 4	3.3	1
211000	Standby Liquid Control System / 1											X	2.2.18 - Knowledge of the process for managing maintenance activities during shutdown operations.	3.6	1
211000	Standby Liquid Control System / 1		X										K2.01 - SBLC pumps	3.1*	1
212000	Reactor Protection System / 7		X										K2.02 - Analog trip system logic cabinets	2.9	1
212000	Reactor Protection System / 7									X			A3.02 - Individual system relay status: Plant-Specific	3.5	1
215004 / 7	Source Range Monitor (SRM) System	X											K1.01 - Reactor protection system	3.7	1

Facility: Pilgrim Nuclear Power Station

ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-1

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
215004	Source Range Monitor (SRM) System / 7					X							K5.01 - Detector operation	2.6	1
215005	Average Power Range Monitor/Local Power Range Monitor System / 7	X											K1.16 - Flow converter/comparator network: Plant-Specific	3.4	1
218000	Automatic Depressurization System / 3									X			A3.07 - Lights and alarms	3.6	1
223001	Primary Containment System and Auxiliaries / 5						X						K6.11 - A.C. electrical distribution	3.2	1
223002	Primary Containment Isolation System/Nuclear Steam Supply Shut-Off / 5				X								K4.03 - Manual initiation capability: Plant-Specific	3.6	1
226001	RHR/LPCI: Containment Spray System Mode / 5											X	2.2.27 - Knowledge of the refueling process.	3.5	1
241000	Reactor/Turbine Pressure Regulating System / 3							X					A1.05 - Reactor steam flow	3.6	1
262001	A.C. Electrical Distribution / 6											X	2.4.35 - Knowledge of local auxiliary operator tasks during emergency operations including system geography and system implications.	3.5	1
262001	A.C. Electrical Distribution / 6								X				A2.08 - Opening a disconnect under load	3.6	1
264000	Emergency Generators (Diesel/Jet) / 6			X									K3.03 - Major loads powered from electrical buses fed by the emergency generator(s)	4.2*	1
290001	Secondary Containment / 5				X								K4.03 - Fluid leakage collection	2.9	1

BWR SRO mination Outline

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Facility: Pilgrim Nuclear Power Station

ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-1

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
290001	Secondary Containment / 5							X					A1.01 - System lineups	3.1	1

K/A Category Totals: 2 2 2 3 2 2 2 2 2 2 1 3

Group Point Total: 23

Facility: Pilgrim Nuclear Power Station

ES - 401

Plant Systems - Tier 2 / Group 2

Form ES-401-1

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
201002	Reactor Manual Control System / 1	X											K1.06 - Rod sequence control system: Plant-Specific	3.3	1
201002	Reactor Manual Control System / 1				X								K4.08 - Continuous In rod insertion	3.2	1
205000	Shutdown Cooling System (RHR Shutdown Cooling Mode) / 4		X										K2.01 - Pump motors	3.1*	1
205000	Shutdown Cooling System (RHR Shutdown Cooling Mode) / 4					X							K5.03 - Heat removal mechanisms	3.1	1
215002	Rod Block Monitor System / 7											X	2.1.6 - Ability to supervise and assume a management role during plant transients and upset conditions.	4.3	1
215003	Intermediate Range Monitor (IRM) System / 7											X	2.2.33 - Knowledge of control rod programming.	2.9	1
215003	Intermediate Range Monitor (IRM) System / 7										X		A4.05 - Trip bypasses	3.4	1
219000	RHR/LPCI: Torus/Suppression Pool Cooling Mode / 5						X						K6.04 - Keep fill system	3.0	1
245000	Main Turbine Generator and Auxiliary Systems / 4								X				A2.04 - Reactor scram	3.8	1
263000	D.C. Electrical Distribution / 6									X			A3.01 - Meters, dials, recorders, alarms, and indicating lights	3.3	1
272000	Radiation Monitoring System / 7					X							K5.01 - Hydrogen injection operation's effect on process radiation indications: Plant-Specific	3.5	1

Facility: Pilgrim Nuclear Power Station

ES - 401

Plant Systems - Tier 2 / Group 2

Form ES-401-1

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
286000	Fire Protection System / 8							X					A1.05 - System lineups	3.2	1
290003	Control Room HVAC / 9			X									K3.02 - Computer/instrumentation: Plant-Specific	3.6	1

K/A Category Totals: 1 1 1 1 2 1 1 1 1 1 2

Group Point Total: 13

Facility: Pilgrim Nuclear Power Station

ES - 401

Plant Systems - Tier 2 / Group 3

Form ES-401-1

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
201003	Control Rod and Drive Mechanism / 1			X									K3.01 - Reactor power	3.4	1
233000	Fuel Pool Cooling and Clean-up / 9											X	2.4.16 - Knowledge of EOP implementation hierarchy and coordination with other support procedures.	4.0	1
256000	Reactor Condensate System / 2								X				A2.10 - Main turbine trip	3.1	1
288000	Plant Ventilation Systems / 9					X							K5.03 - Temperature control	2.6	1

K/A Category Totals: 0 0 1 0 1 0 0 1 0 0 1

Group Point Total: 4

Generic Knowledge and Abilities Outline (Tier 3)

Printed: 04/18/2006

BWR SRO Examination Outline

Form ES-401-5

Facility: Pilgrim Nuclear Power Station

Generic Category	KA	KA Topic	Imp.	Points
Conduct of Operations	2.1.4	Knowledge of shift staffing requirements.	3.4	1
	2.1.13	Knowledge of facility requirements for controlling vital / controlled access.	2.9	1
	2.1.11	Knowledge of less than one hour technical specification action statements for systems.	3.8	1
	2.1.20	Ability to execute procedure steps.	4.2	1
	2.1.28	Knowledge of the purpose and function of major system components and controls.	3.3	1
Category Total:				5
Equipment Control	2.2.5	Knowledge of the process for making changes in the facility as described in the safety analysis report.	2.7	1
	2.2.32	Knowledge of the effects of alterations on core configuration.	3.3	1
	2.2.33	Knowledge of control rod programming.	2.9	1
	2.2.24	Ability to analyze the affect of maintenance activities on LCO status.	3.8	1
Category Total:				4
Radiation Control	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	3.3	1
	2.3.8	Knowledge of the process for performing a planned gaseous radioactive release.	3.2	1
	2.3.2	Knowledge of facility ALARA program.	2.9	1
	2.3.11	Ability to control radiation releases.	3.2	1
Category Total:				4

Generic Knowledge and Abilities Outline (Tier 3)

Printed: 04/18/2006

BWR SRO Examination Outline

Form ES-401-5

Facility: Pilgrim Nuclear Power Station

Generic Category	KA	KA Topic	Imp.	Points
Emergency Plan	2.4.7	Knowledge of event based EOP mitigation strategies.	3.8	1
	2.4.9	Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.	3.9	1
	2.4.3	Ability to identify post-accident instrumentation.	3.8	1
	2.4.25	Knowledge of fire protection procedures.	3.4	1

Category Total: 4

Generic Total: 17

Facility: Pilgrim Nuclear Power Station

Form ES-401-2

Exam Date: 07/29/2002Exam Level: RO

Tier	Group	K/A Category Points											Point Total
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	
1. Emergency & Abnormal Plant Evolutions	1	2	3	3				4	1			0	13
	2	4	3	4				3	3			2	19
	3	2	1	0				1	0			0	4
	Totals Tier	8	7	7				8	4			2	36
2. Plant Systems	1	3	2	2	3	2	3	3	2	3	3	2	28
	2	2	2	2	2	2	1	2	3	2	1	0	19
	3	0	0	1	0	1	0	0	1	1	0	0	4
	Tier Totals	5	4	5	5	5	4	5	6	6	4	2	51
3. Generic Knowledge And Abilities					Cat 1		Cat 2		Cat 3		Cat 4		
					4		3		3		3		13

Note:

1. Attempt to distribute topics among all K/A Categories; select at least one topic from every K/A category within each tier.
2. Actual point totals must match those specified in the table.
3. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.
4. Systems/evolutions within each group are identified on the associated outline.
5. The shaded areas are not applicable to the category tier.

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Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-2

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295005	Main Turbine Generator Trip / 3				X			AA1.01 - Recirculation system: Plant-Specific	3.1	1
295007	High Reactor Pressure / 3		X					AK2.05 - Shutdown cooling: Plant-Specific	2.9	1
295009	Low Reactor Water Level / 2		X					AK2.04 - Reactor water cleanup	2.6	1
295009	Low Reactor Water Level / 2			X				AK3.02 - Reactor feedpump runout flow control: Plant-Specific	2.7	1
295010	High Drywell Pressure / 5					X		AA2.06 - Drywell temperature	3.6	1
295014	Inadvertent Reactivity Addition / 1			X				AK3.02 - Control rod blocks	3.7	1
295025	High Reactor Pressure / 3	X						EK1.03 - Safety/relief valve tailpipe temperature/pressure relationships	3.6	1
295025	High Reactor Pressure / 3			X				EK3.03 - HPCI operation: Plant-Specific	3.8	1
295031	Reactor Low Water Level / 2		X					EK2.16 - Reactor water level control	4.1*	1
295037	SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1	X						EK1.07 - Shutdown margin	3.4	1
295037	SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1				X			EA1.04 - SBLC	4.5*	1
500000	High Containment Hydrogen Concentration / 5				X			EA1.03 - Containment Atmosphere Control System	3.4	1
500000	High Containment Hydrogen Concentration / 5				X			EA1.02 - Primary containment oxygen instrumentation	3.3	1

K/A Category Totals: 2 3 3 4 1 0

Group Point Total: 13

Facility: **Phenix Nuclear Power Station**

BWR RQ Elimination Outline

Printed: 04/18/2022

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-2

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295002	Loss of Main Condenser Vacuum / 3	X						AK1.03 - Loss of heat sink	3.6	1
295004	Partial or Complete Loss of D.C. Power / 6	X						AK1.02 - Redundant D.C. power supplies: Plant-Specific	3.2	1
295004	Partial or Complete Loss of D.C. Power / 6				X			AA1.02 - Systems necessary to assure safe plant shutdown	3.8	1
295012	High Drywell Temperature / 5			X				AK3.01 - Increased drywell cooling	3.5	1
295012	High Drywell Temperature / 5					X		AA2.02 - Drywell pressure	3.9	1
295013	High Suppression Pool Temperature / 5		X					AK2.01 - Suppression pool cooling	3.6	1
295017	High Off-Site Release Rate / 9				X			AA1.07 - Process radiation monitoring system	3.4	1
295017	High Off-Site Release Rate / 9						X	2.2.2 - Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.	4.0	1
295018	Partial or Complete Loss of Component Cooling Water / 8					X		AA2.01 - Component temperatures	3.3	1
295019	Partial or Complete Loss of Instrument Air / 8			X				AK3.02 - Standby air compressor operation	3.5	1
295022	Loss of CRD Pumps / 1		X					AK2.04 - Reactor water level	2.5	1
295022	Loss of CRD Pumps / 1			X				AK3.02 - CRDM high temperature	2.9	1
295026	Suppression Pool High Water Temperature / 5	X						EK1.01 - Pump NPSH	3.0	1
295028	High Drywell Temperature / 5						X	2.2.27 - Knowledge of the refueling process.	2.6	1

Facility: Pigeon Nuclear Power Station

BWR RO~~2~~ mination Outline

Printed: 04/18 2

ES - 401


Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-2

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295030	Low Suppression Pool Water Level / 5			X				EK3.07 - NPSH considerations for ECCS pumps	3.5	1
295030	Low Suppression Pool Water Level / 5				X			EA1.02 - RCIC: Plant-Specific	3.4	1
295033	High Secondary Containment Area Radiation Levels / 9		X					EK2.02 - Process radiation monitoring system	3.8	1
295033	High Secondary Containment Area Radiation Levels / 9					X		EA2.03 - †Cause of high area radiation	3.7	1
295038	High Off-Site Release Rate / 9	X						EK1.01 - Biological effects of radioisotope ingestion	2.5	1

K/A Category Totals: 4 3 4 3 3 2

Group Point Total: 19

Facility:  PSEG Nuclear Power Station

BWR RCCamination Outline

Printed: 04/12

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 3

Form ES-401-2

E/APE #	E/APE Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
295021	Loss of Shutdown Cooling / 4				X			AA1.02 - RHR/shutdown cooling	3.5	1
295023	Refueling Accidents / 8	X						AK1.01 - Radiation exposure hazards	3.6	1
295032	High Secondary Containment Area Temperature / 5		X					EK2.03 - Fire protection system	3.3	1
295035	Secondary Containment High Differential Pressure / 5	X						EK1.02 - †Radiation release	3.7	1

K/A Category Totals: 2 1 0 1 0 0

Group Point Total: 4

Facility: Pilgrim Nuclear Power Station

ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-2

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
201002	Reactor Manual Control System / 1	X											K1.06 - Rod sequence control system: Plant-Specific	3.2	1
201002	Reactor Manual Control System / 1				X								K4.08 - Continuous In rod insertion	3.2	1
202002	Recirculation Flow Control System / 1			X									K3.03 - Reactor water level	3.3	1
202002	Recirculation Flow Control System / 1								X				A2.04 - Recirculation pump speed mismatch between loops: Plant-Specific	3.0	1
203000	RHR/LPCI: Injection Mode (Plant Specific) / 2						X						K6.10 - Component cooling water systems	3.0	1
203000	RHR/LPCI: Injection Mode (Plant Specific) / 2										X		A4.10 - Pump/system discharge pressure: Plant-Specific	3.7	1
206000	High Pressure Coolant Injection System / 2				X								K4.10 - Surveillance for all operable components: BWR-2, 3, 4	3.7	1
206000	High Pressure Coolant Injection System / 2					X							K5.05 - Turbine speed control: BWR-2, 3, 4	3.3	1
211000	Standby Liquid Control System / 1		X										K2.01 - SBLC pumps	2.9*	1
211000	Standby Liquid Control System / 1							X					A1.09 - SBLC system lineup	4.0*	1
212000	Reactor Protection System / 7		X										K2.02 - Analog trip system logic cabinets	2.7	1
212000	Reactor Protection System / 7									X			A3.02 - Individual system relay status: Plant-Specific	3.2	1

Facility: Pilgrim Nuclear Power Station

ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-2

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
215003	Intermediate Range Monitor (IRM) System / 7										X		A4.05 - Trip bypasses	3.4	1
215003	Intermediate Range Monitor (IRM) System / 7								X				A2.03 - Stuck detector	2.9	1
215004	Source Range Monitor (SRM) System / 7	X											K1.01 - Reactor protection system	3.6	1
215004	Source Range Monitor (SRM) System / 7					X							K5.01 - Detector operation	2.6	1
215005	Average Power Range Monitor/Local Power Range Monitor System / 7	X											K1.16 - Flow converter/comparator network: Plant-Specific	3.3	1
218000	Automatic Depressurization System / 3									X			A3.07 - Lights and alarms	3.7	1
223001	Primary Containment System and Auxiliaries / 5						X						K6.11 - A.C. electrical distribution	3.0	1
223001	Primary Containment System and Auxiliaries / 5									X			A3.01 - Suppression pool level	3.4	1
223002	Primary Containment Isolation System/Nuclear Steam Supply Shut-Off / 5				X								K4.03 - Manual initiation capability: Plant-Specific	3.5	1
223002	Primary Containment Isolation System/Nuclear Steam Supply Shut-Off / 5										X		A4.02 - Manually initiate the system	3.9	1

Facility: Pilgrim Nuclear Power Station

ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-2

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
239002	Relief/Safety Valves / 3											X	2.2.25 - Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	2.5	1
241000	Reactor/Turbine Pressure Regulating System / 3							X					A1.05 - Reactor steam flow	3.5	1
241000	Reactor/Turbine Pressure Regulating System / 3											X	2.3.11 - Ability to control radiation releases.	2.7	1
259001	Reactor Feedwater System / 2							X					A1.02 - Feedwater inlet temperature	3.2	1
264000	Emergency Generators (Diesel/Jet) / 6			X									K3.03 - Major loads powered from electrical buses fed by the emergency generator(s)	4.1*	1
264000	Emergency Generators (Diesel/Jet) / 6						X						K6.09 - D.C. power	3.3	1

K/A Category Totals: 3 2 2 3 2 3 3 2 3 3 2

Group Point Total: 28

Facility: Pilgrim Nuclear Power Station

ES - 401

Plant Systems - Tier 2 / Group 2

Form ES-401-2

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
201003	Control Rod and Drive Mechanism / 1			X									K3.01 - Reactor power	3.2	1
205000	Shutdown Cooling System (RHR Shutdown Cooling Mode) / 4		X										K2.01 - Pump motors	3.1*	1
205000	Shutdown Cooling System (RHR Shutdown Cooling Mode) / 4					X							K5.03 - Heat removal mechanisms	2.8	1
219000	RHR/LPCI: Torus/Suppression Pool Cooling Mode / 5						X						K6.04 - Keep fill system	2.9*	1
219000	RHR/LPCI: Torus/Suppression Pool Cooling Mode / 5	X											K1.04 - LPCI/RHR pumps	3.9	1
226001	RHR/LPCI: Containment Spray System Mode / 5				X								K4.03 - Reduction in vessel injection flow during accident conditions	2.9	1
239001	Main and Reheat Steam System / 3									X			A3.03 - Moisture separator reheat steam supply: Plant-Specific	2.8	1
245000	Main Turbine Generator and Auxiliary Systems / 4								X				A2.04 - Reactor scram	3.7	1
245000	Main Turbine Generator and Auxiliary Systems / 4	X											K1.09 - D.C. electrical distribution	2.7	1
256000	Reactor Condensate System / 2								X				A2.10 - Main turbine trip	3.1	1
262001	A.C. Electrical Distribution / 6								X				A2.08 - Opening a disconnect under load	3.3	1
263000	D.C. Electrical Distribution / 6									X			A3.01 - Meters, dials, recorders, alarms, and indicating lights	3.2	1

Facility: Pilgrim Nuclear Power Station

ES - 401

Plant Systems - Tier 2 / Group 2

Form ES-401-2

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
263000	D.C. Electrical Distribution / 6		X										K2.01 - Major D.C. loads	3.1	1
272000	Radiation Monitoring System / 7					X							K5.01 - Hydrogen injection operation's effect on process radiation indications: Plant-Specific	3.2	1
286000	Fire Protection System / 8							X					A1.05 - System lineups	3.2	1
286000	Fire Protection System / 8										X		A4.05 - Fire pump	3.3	1
290001	Secondary Containment / 5				X								K4.03 - Fluid leakage collection	2.8	1
290001	Secondary Containment / 5							X					A1.01 - System lineups	3.1	1
290003	Control Room HVAC / 9			X									K3.02 - Computer/instrumentation: Plant-Specific	3.3	1

K/A Category Totals: 2 2 2 2 2 1 2 3 2 1 0

Group Point Total: 19

BWR RO I Initiation Outline

Printed: 04/02

Facility: Pilgrim Nuclear Power Station

ES - 401 Plant Systems - Tier 2 / Group 3 Form ES-401-2

Sys/Ev #	System / Evolution Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
215001	Traversing In-Core Probe / 7								X				A2.02 - High primary containment pressure: Mark-I&II(Not-BWR1)	2.9	1
233000	Fuel Pool Cooling and Clean-up / 9			X									K3.03 - Fuel pool water clarity	2.6	1
288000	Plant Ventilation Systems / 9					X							K5.03 - Temperature control	2.5	1
288000	Plant Ventilation Systems / 9									X			A3.01 - Isolation/initiation signals	3.8	1

K/A Category Totals: 0 0 1 0 1 0 0 1 1 0 0

Group Point Total: 4

Generic Knowledge and Abilities Outline (Tier 3)

Printed: 04/18/2006

BWR RO Examination Outline

Form ES-401-5

Facility: Pilgrim Nuclear Power Station

Generic Category	KA	KA Topic	Imp.	Points
Conduct of Operations	2.1.11	Knowledge of less than one hour technical specification action statements for systems.	3.0	1
	2.1.20	Ability to execute procedure steps.	4.3	1
	2.1.28	Knowledge of the purpose and function of major system components and controls.	3.2	1
	2.1.7	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.	3.7	1
Category Total:			4	
Equipment Control	2.2.33	Knowledge of control rod programming.	2.5	1
	2.2.24	Ability to analyze the affect of maintenance activities on LCO status.	2.6	1
	2.2.25	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	2.5	1
Category Total:			3	
Radiation Control	2.3.2	Knowledge of facility ALARA program.	2.5	1
	2.3.11	Ability to control radiation releases.	2.7	1
	2.3.9	Knowledge of the process for performing a containment purge.	2.5	1
Category Total:			3	
Emergency Plan	2.4.9	Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.	3.3	1
	2.4.3	Ability to identify post-accident instrumentation.	3.5	1
	2.4.25	Knowledge of fire protection procedures.	2.9	1
Category Total:			3	
Generic Total:			13	

Facility: <u>PNPS</u>		Date of Examination: <u>07/29/02</u>
Examination Level (circle one): SRO		Operating Test Number: <u>1</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Plant Parameter Verification	JPM – Perform a Short Form Heat Balance
	Security	Question #1 – Requirements for degraded vital area barriers.
		Question #2 – Escort responsibilities.
A.2	Surveillance Testing	JPM – Determine SSW Pump Operability using Flowrate Surveillance Test Data
A.3	Ability to Perform Procedures to Reduce Excessive Levels of Radiation and Guard Against Personnel Exposure	Question #1 – Supervisor responsibilities for work performed under RWP.
		Question #2 – Actions for refuel floor hi radiation levels.
A.4	Emergency Communications	JPM – Off-site Notification for Contaminated, Injured Person.

Facility: <u>PNPS</u>		Date of Examination: <u>07/29/02</u>
Examination Level (circle one): RO		Operating Test Number: <u>1</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Plant Parameter Verification	JPM – Perform a Short Form Heat Balance
	Security	Question #1 – Requirements for degraded vital area barriers. Question #2 – Escort responsibilities.
A.2	Tagging and Clearances	Question #1 What is the recommended sequence for tagging out a centrifugal pump?
		Question # 2 Describe the tagout verification requirements for removal/ installation of fuses.
A.3	Ability to Perform Procedures to Reduce Excessive Levels of Radiation and Guard Against Personnel Exposure	Question #1 – Requirements for entry into very high radiation areas.
		Question #2 – Actions for refuel floor hi radiation levels.
A.4	Lines of Authority During an Emergency	Question #1 – Emergency dose limits.
		Question #2 – Actions in the event of a bomb threat.

Facility: <u>PNPS</u>	Date of Examination: <u>07/29/02</u>
Examination Level (circle one): RO / SRO	Operating Test Number: <u>1</u>

B.1 Control Room Systems		
System / JPM Title	Type Code*	Safety Function
a. Start turbine generator and sync to grid	D L S	4
b. Transfer MPR to EPR	N S	3
c. Manually start SBGT and vent torus.	D A S	9
d. APRM/LPRM/"Perform an APRM setdown Functional Test"	D L S	7
e. Restart RWCU following auto isolation	M A S	2
f. Normal control rod withdrawal uncoupled rod.	D A S	1
g. Manual transfer of emergency buses to SUT.	D S	6
B.2 Facility Walk-Through		
a. Swapping spent fuel pool pumps.	D R	9
b. RCIC start from ASP	D A R	4
c. EDG operation from outside CR	D	6
* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA		

Facility: <u>Pilgrim</u>	Scenario No.: <u>1</u>	Op-Test No.: <u>1</u>
Examiners: _____		Operators: _____
_____		_____
_____		_____
Initial Conditions: <u>100% RCIC OOS, 'A' APRM Bypassed</u>		

Turnover: <u>Reduce reactor power to 50% in prep for backwash</u>		

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R-RO	Reduce reactor power for thermal backwash
2	1	I-RO	FWLC transmitter fails high
3	2	N-BOP	Shift TBCCW pumps for maint. vibes
4	3	C-RO	'B' recirc scoop tube lockup
5	4	C-BOP	TBCCW pump trip
6	5	M-ALL	Steamline break inside containment
7	6	C-BOP	HPCI fails to start

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

Facility: PilgrimScenario No.: 2Op-Test No.: 1

Examiners: _____

Operators: _____

Initial Conditions: 60% power, 'A' IRM bypassedTurnover: Shutting down for maintenance outage

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R-RO	Continue shutdown
2	1	I-RO	'C' IRM fails downscale
3	2	N-BOP	Remove 'C' RFP from service
4	3	C-BOP	HPCI spurious ECCS actuation
5	4	C-RO	Rod drift
6	5	C-BOP	'B' RFP trips
7	6	M-ALL	Large break LOCA ramped in
8	7	M-ALL	Loss of off-site power
9	8	C-BOP	RHR pump fails to auto start

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

Facility: <u>Pilgrim</u>	Scenario No.: <u>3</u>	Op-Test No.: <u>1</u>
Examiners: _____	Operators: _____	
_____	_____	
_____	_____	
Initial Conditions: <u>20% turbine synced to grid, 'A' RBCCW pump out of service</u>		

Turnover: <u>Starting up following scram</u>		

Event No.	Malfunction No.	Event Type*	Event Description
1	N/A	R-RO	Continue reactor startup
2	1	N-BOP	MSIV twice weekly surveillance, PNPS 8.7.4.5
3	2	I-RO	FRV lockup
4	3	C-BOP	'B' RBCCW pump trip
5	4	C-RO	CRD FCV fails closed
6	5	C-BOP	Turbine high vibration
7	6	M-ALL	ATWS
8	7	C-RO	SLC pump failure

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

Facility: Pilgrim Scenario No.: (Spare) Op-Test No.: _____

Examiners: _____ Operators: _____

Initial Conditions: 75%, 'A' core spray OOS, 'B' recirc MG aux oil pump OOS

Turnover: Raise reactor power following backwash

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R-RO	Raise reactor power
2	1	N-BOP	Swap SSW pump for vibes
3	2	C-RO	RPS MG set trip
4	3	C-BOP	SRV fails open
5	4	C-RO	CRD pump trips
6	5	M-ALL	Small break LOCA inside containment
7	6	C-BOP	Bypass valves fail closed after scram

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