

Facility: Prairie Island		Date of Examination: 09/08/2003
Examination Level (circle one): RO / SRO		Operating Test Number: _____
Administrative Topic	Describe activity to be performed:	
Conduct of Operations	NEW, Review Daily Control Room Log for Discrepancies (Classroom)	
Conduct of Operations	NEW, Prepare Reactivity Plan For A Power Increase from 50% to 100% (Classroom) Key Elements: <ul style="list-style-type: none"> • Power defect • Rod Worth • Boron worth • Boron quantity 	
Equipment Control	BANK, Remove An Annunciator Alarm From Service ADMIN-11, (Simulator)	
Radiation Control	BANK, Prepare to Conduct an Emergency Radiation Survey (Classroom)	
Emergency Plan	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.		

Facility: Prairie Island		Date of Examination: 09/08/2003
Examination Level (circle one): RO / SRO		Operating Test Number: _____
Administrative Topic	Describe activity to be performed:	
Conduct of Operations	NEW, Review A Temporary Procedure Change 5AWI 1.5.10 Step 6.4.2 (Classroom)	
Conduct of Operations	BANK, (Repeat 2002), Determine Maximum RCS Venting Time ADMIN-10, F5 Appendix B, Attachment M - (Classroom)	
Equipment Control	NEW, Review a Surveillance Test for Acceptance Criteria (Classroom)	
Radiation Control	NEW, Authorize a Waste Gas Release (Classroom)	
Emergency Plan	BANK, Prepare a Protective Action Recommendation (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.		

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

Date of Examination: **09/08/2003**
 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) VC-12S A, Emergency Boration	MSA	1
b) SI-11S, Transfer to Recirculation	MSL	2
c) Respond to stuck open pressurizer spray valve	NSAL	3
d) EO-21SF-1, RCS Bleed And Feed During Response To Loss Of Secondary Heat Sink With A PORV Failing To Open	DSAL	4a
e) Place standby air ejector in service (loss of condenser vac) (ROs-Only)	NS	4b
f) Response to Containment Isolation Failure to actuate	NSAL	5
g) Respond To A Pressurizer Level Channel Failing HIGH	NS	7
h) RC-15S, High RCS Activity	DS	9

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

i) F5-9, F5-10, F5-7 or F5-8, Immediate actions (by position) for control room evacuation.	D	8
j) Local start of DG (ECA-0.0 Step 18)	NA	6
k) MS-4, Locally Open 12 S/G PORV	DR	4b

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

Date of Examination: **09/08/2003**
 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) VC-12S, Emergency Boration	MSA	1
b) SI-11S, Transfer to Recirculation	MSL	2
c) Respond to stuck open pressurizer spray valve	NSAL	3
d) EO-21SF-1, RCS Bleed And Feed During Response To Loss Of Secondary Heat Sink With A PORV Failing To Open	DSL	4a
e) Not administered to SRO Instant		
f) Response to Containment Isolation Failure to actuate	NSAL	5
g) Respond To A Pressurizer Level Channel Failing HIGH	NS	7
h) RC-15S, High RCS Activity	DS	9

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

i) F5-9, F5-10, F5-7 or F5-8, Immediate actions (by position) for control room evacuation.	D	8
j) Local start of DG (ECA-0.0 Step 18)	NA	6
k) MS-4, Locally Open 12 S/G PORV	DR	4b

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

Date of Examination: **09/08/2003**
 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) VC-12S, Emergency Boration	MSA	1
b) Not administered to the SRO-U candidates.		
c) New, Respond to Stuck Open Pressurizer Spray Valve	NSAL	3
d) Not administered to the SRO-U candidates.		
e) Not administered to the SRO-U candidates.		
f) New, Response to Containment Isolation Failure to Actuate	NSAL	5
g) Not administered to the SRO-U candidates.		
h) Not administered to the SRO-U candidates.		

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

i) F5-9, F5-10, F5-7 or F5-8, Immediate actions (by position) for control room evacuation.	D	8
j) Not administered to the SRO-U candidates.		
k) MS-4, Locally Open 12 S/G PORV	DR	4b

* 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

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	K	A	A 2	G	TOTAL
1. Emergency & Abnormal Plant Evolutions	1.	3	3	3				3	3			3	18	1	0	4	2	7
	2.	1	2	1				1	2			2	9	1	0	2	2	5
	Tier Totals	4	5	4				4	5			5	27	2	0	6	4	12
2. Plant Systems	1.	3	2	3	2	3	2	3	3	2	3	2	28	2	0	0	2	4
	2.	1	1	1	1	1	0	1	1	1	1	1	10	0	0	0	2	2
	Tier Totals	4	3	4	3	4	2	4	4	3	4	3	38	2	0	0	4	6
3. Generic Knowledge and Abilities Categories					1		2		3		4		10	1	2	3	4	7
					3		2		3		2			2	2	2	1	

Notes:

1. Ensure that at least two topics from every K/A category are sampled within each tier of the RO outline (i.e., the "Tier Totals" in each K/A category shall not be less than two). Refer to Section D.1.c for additional guidance regarding SRO sampling.
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ± 1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Select topics from many systems and evolutions; avoid selecting more than two K/A topics from a given system or evolution 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.
6. 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. The SRO K/As must also be linked to 10 CFR 55.43 or an SRO-level learning objective.
7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IR) 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; summarize all the SRO-only knowledge and non-A2 ability categories in the columns labeled "K" and "A." Use duplicate pages for RO and SRO-only exams.
8. For Tier 3, enter the K/A numbers, descriptions, importance ratings, and point totals on Form ES-401-3.
9. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1							Form ES-401-2	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000007 Reactor Trip - Stabilization – Recovery / 1					S		EA2.04: Ability to determine and interpret the following as they apply to a reactor trip: If reactor should have tripped but has not done so, manually trip the reactor and carry out actions in ATWS EOP	4.4	0/1
000008 Pressurizer Vapor Space Accident / 3					R		AA2.20: Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: The effect of an open PORV on code safety, based on observation of plant parameters	3.4	1/0
000009 Small Break LOCA / 3					R		EA2.14: Ability to determine and interpret the following as they apply to a small break LOCA: Actions to be taken if PTS limits are violated	3.8	1/0
000011 Large Break LOCA / 3			R		S		EK3.15: Knowledge of the reasons for the following responses as they apply to the Large Break LOCA: Criteria for shifting to recirculation mode (SRO) EA2.02: Ability to determine and interpret the following as they apply to a Large Break LOCA: Consequences to RHR of not resetting safety injection	4.3 3.7	1/1
000015/17 RCP Malfunctions / 4		R					AK2.08: Knowledge of the interrelations between the Reactor Coolant Pump Malfunctions and the following: CCWS	2.6	1/0
000022 Loss of Rx Coolant Makeup / 2	R						AK1.04: Knowledge of the operational implications of the following concepts as they apply to Loss of Reactor Coolant Pump Makeup: Relationship of charging flow to pressure differential between charging and RCS	2.7	1/0
000025 Loss of RHR System / 4	R						AK1.01: Knowledge of the operational implications of the following concepts as they apply to Loss of Residual Heat Removal System: Loss of RHRS during all modes of operation	3.9	1/0
000026 Loss of Component Cooling Water / 8									
000027 Pressurizer Pressure Control System Malfunction / 3			R		S		AK3.03: Knowledge of the reasons for the following responses as they apply to the Pressurizer Pressure Control Malfunctions: Actions contained in EOP for PZR PCS malfunction (SRO) 2.4.30: Emergency Procedures/Plan: Knowledge of which events related to system operations/status should be reported to outside agencies. (Pressurizer Pressure Control Malfunction)	3.7 3.6	1/1

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1							Form ES-401-2	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000029 ATWS / 1		R					EK2.06: Knowledge of the interrelations between the ATWS and the following: Breakers, relays, and disconnects	2.9	1/0
000038 Steam Gen. Tube Rupture / 3				R			EA1.27: Ability to operate and/or monitor the following as they apply to a SGTR: Steam dump valve status lights and indicators	3.9	1/0
000040 and W/E12 Steam Line Rupture - Excessive Heat Transfer / 4						R	2.4.31: Emergency Procedures/Plan: Knowledge of annunciators alarms and indications, and use of the response instructions. (Steam Line Rupture)	3.3	1/0
000054 Loss of Main Feedwater / 4			R		S		AK3.01: Knowledge of the reasons for the following responses as they apply to the Loss of Main Feedwater (MFW): Reactor and/or turbine trip, manual and automatic (SRO) AA2.01: Ability to determine and interpret the following as they apply to the Loss of Main Feedwater (MFW): Occurrence of reactor and/or turbine trip	4.1 4.4	1/1
000055 Station Blackout / 6					S	R	2.2.25: Equipment Control: Knowledge of bases in technical specification for limiting conditions for operation and safety limits. (Station Blackout) (SRO) EA2.02: Ability to determine and interpret the following as they apply to a Station Blackout: RCS core cooling through natural circulation cooling to S/G cooling	2.5 4.6	1/1
000056 Loss of Off-site Power / 6				R			AA1.37 :Ability to operate and/or monitor the following as they apply to the Loss of Offsite Power: Instrument air	3.4	1/0
000057 Loss of Vital AC Inst. Bus / 6					R	S	AA2.12: Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: PZR level controller, instrumentation, and heater indications (SRO) 2.2.25: Equipment Control: Knowledge of bases in technical specifications for limiting conditions for operations and safety limits. (Loss of Vital AC Instrument Bus)	3.5 3.7	1/1
000058 Loss of DC Power / 6						R	2.1.32: Conduct of Operations: Ability to explain and apply all system limits and precautions. (Loss of DC Power)	3.4	1/0
000062 Loss of Nuclear Svc Water / 4									

ES-401		PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1							Form ES-401-2	
E/APE # / Name / Safety Function		K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000065 Loss of Instrument Air / 8					R			AA1.05: Ability to operate and/or monitor the following as they apply to the Loss of Instrument Air: RPS	3.3	1/0
W/E04 LOCA Outside Containment / 3										
W/E11 Loss of Emergency Coolant Recirc. / 4		S	R					EK2.2: Knowledge of the interrelations between the Loss of Emergency Coolant Recirculation 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 (SRO) EA2.1: Ability to determine and interpret the following as they apply to Loss of Emergency Coolant Recirculation: Facility conditions and selection of appropriate procedures during abnormal and emergency operations.	3.9 4.2	1/1
W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4		R						EK1.3: Knowledge of the operational implications of the following concepts as they apply to the Loss of Secondary Heat Sink: Annunciators and conditions indicating signals, and remedial actions associated with the Loss of Secondary Heat Sink	3.9	1/0
K/A Category Totals	RO	3	3	3	3	3	3	Group Point Total		18/7
	SRO	1	--	--	--	4	2			

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2							Form ES-401-2		
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#	
000001 Continuous Rod Withdrawal / 1					R		AA2.02: Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal: Position of emergency boration valve	4.2	1/0	
000003 Dropped Control Rod / 1	S						AA2.03: Ability to determine and interpret the following as they apply to the Dropped Control Rod: Dropped rod using in-core/ex-core instrumentation, in-core or loop temperature measurements	3.8	0/1	
000005 Inoperable Stuck Control Rod / 1										
000024 Emergency Boration / 1					S		AA2.01: Ability to determine and interpret the following as they apply to the Emergency Boration: Whether boron flow and/or MOVs are malfunctioning, from plant conditions	4.1	0/1	
000028 Pressurizer Level Malfunction / 2										
000032 Loss of Source Range NI / 7										
000033 Loss of Intermediate Range NI / 7	R						AK1.01: Knowledge of the operational implications of the following concepts as they apply to Loss of Intermediate Range Nuclear Instrumentation: Effects of voltage changes on performance	2.7	1/0	
000036 Fuel Handling Accident / 8										
000037 Steam Generator Tube Leak / 3										
000051 Loss of Condenser Vacuum / 4										
000059 Accidental Liquid RadWaste Rel. / 9										
000060 Accidental Gaseous Radwaste Rel. /9										
000061 ARM System Alarms / 7										
000067 Plant Fire On-site / 8										
000068 Control Room Evac. / 8					R		AA2.05: Ability to determine and interpret the following as they apply to the Control Room Evacuation: Availability of heat sink	4.2	1/0	
000069 and W/E14 Loss of CTMT Integrity / 5		R					EK2.1: Knowledge of the interrelations between the High Containment Pressure and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.4	1/0	

ES-401		PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2							Form ES-401-2	
E/APE # / Name / Safety Function		K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000074 (W/E06 & 07) Inad. Core Cooling / 4			R				S	EK2.1: Knowledge of the interrelations between the Saturated Core Cooling and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features (SRO) 2.2.25: Equipment Control: Knowledge of bases in technical specifications for limiting conditions for operations and safety limits. (Inadequate Core Cooling)	3.2 3.7	1/1
000076 High Reactor Coolant Activity / 9				R				AK3.06: Knowledge of the reasons for the following responses as they apply to the High Reactor Coolant Activity: Actions contained in EOP for high reactor coolant activity	3.2	1/0
W/E01 and W/E02 Rediagnosis & SI Termination / 3					R			EA1.2: Ability to operate and/or monitor the following as they apply to the SI Termination: Operating behavior characteristics of the facility	3.6	1/0
W/E13 Steam Generator Over-pressure / 4							S R	2.1.23: Conduct of Operations: Ability to perform specific system and integrated plant procedures during all modes of plant operation. (Steam Generator Overpressure) (SRO) EA2.2: Ability to determine and interpret the following as they apply to the Steam Generator Overpressure: Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments	3.9 3.4	1/1
W/E15 Containment Flooding / 5										
W/E16 High Containment Radiation / 9										
W/E03 LOCA Cooldown - Depress. / 4										
W/E09 and W/E10 Natural Circ. / 4							S	EA2.2: Ability to determine and interpret the following as they apply to the Natural Circulation with Steam Void in Vessel with/without RVLIS: Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments	3.9	1/0
W/E08 RCS Overcooling – PTS / 4							R	2.1.23: Conduct of Operations: Ability to perform specific system and integrated plant procedures during all modes of plant operation. (Pressurized Thermal Shock)	3.9	1/0
K/A Category Totals	RO	1	2	1	1	2	2	Group Point Total		9/5
	SRO	1	--	--	--	2	2			

ES-401	PWR Examination Outline Plant Systems - Tier 2 / Group 1												Form ES-401-2	
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
003 Reactor Coolant Pump		R										K2.01: Knowledge of bus power supplies to the following: RCPS	3.1	1/0
004 Chemical and Volume Control					R							K5.17: Knowledge of the operational implications of the following concepts as they apply to the CVCS: Types and effects of radiation, dosimetry, and shielding-time-distance	2.6	1/0
005 Residual Heat Removal						R						K6.03: Knowledge of the effect of a loss or malfunction of the following will have on the RHRS: RHR heat exchanger	2.5	1/0
006 Emergency Core Cooling					R							K5.06: Knowledge of the operational implications of the following concepts as they apply to the ECCS: Relationship between ECCS flow and RCS pressure	3.5	1/0
007 Pressurizer Relief/Quench Tank									R			A3.01: Ability to monitor automatic operation of the PRTS, including: Components which discharge to the PRT	2.7	1/0
008 Component Cooling Water							R					A1.04: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CCWS controls including: Surge tank level	3.1	1/0
010 Pressurizer Pressure Control	R							R				K1.06: Knowledge of the physical connections and/or cause-effect relationships between the PZR PCS and the following systems: CVCS A1.01: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PZR PCS controls including: PZR and RCS boron concentrations	2.9 2.8	2/0
012 Reactor Protection			S		R							K5.01: Knowledge of the operational implications of the following concepts as they apply to the RPS: DNB (SRO) 2.2.25: Equipment Control: Knowledge of bases in technical specifications for limiting conditions for operations and safety limits. (RPS)	3.3 3.7	1/1
013 Engineered Safety Features Actuation						R					S	K6.01: Knowledge of the effect of a loss or malfunction of the following will have on the ESFAS: Sensors and detectors (SRO) 2.2.25: Equipment Control: Knowledge of bases in technical specifications for limiting conditions for operations and safety limits. (ESFAS)	2.7 3.7	1/1

ES-401		PWR Examination Outline Plant Systems - Tier 2 / Group 1											Form ES-401-2		
System # / Name		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
022 Containment Cooling								R					A1.04: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CCS controls including: Cooling water flow	3.2	1/0
026 Containment Spray				R					R				K3.01: Knowledge of the effect that a loss or malfunction of the CSS will have on the following: CCS A2.03: Ability to (a) predict the impacts of the following malfunctions or operations on the CSS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of ESF	3.9 4.1	2/0
039 Main and Reheat Steam		R										R	2.4.49: Emergency Procedures/Plan: Ability to perform without reference to procedures those actions that require immediate operation of system components and controls. (Main and Reheat Steam) K1.06: Knowledge of the physical connections and/or cause-effect relationships between the MRSS and the following systems: Condenser steam dump	4.0 3.1	2/0
056 Condensate									R				A2.04: 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	2.6	1/0
059 Main Feedwater				R								R	K3.04: Knowledge of the effect that a loss or malfunction of the MFW System will have on the following: RCS A4.12: Ability to manually operate and/or monitor in the control room: Initiation of automatic feedwater isolation	3.6 3.4	2/0

ES-401	PWR Examination Outline Plant Systems - Tier 2 / Group 1												Form ES-401-2	
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
061 Auxiliary/Emergency Feedwater		R		R								K2.02: Knowledge of bus power supplies to the following: AFW electric driven pumps	3.7	2/0
												K4.02: Knowledge of AFW System design feature(s) and/or interlock(s) which provide for the following: AFW automatic start upon loss of MFW pump, S/G level, blackout, or safety injection	4.5	
062 AC Electrical Distribution			R								S	K3.02: Knowledge of the effect that a loss or malfunction of the A.C. Distribution System will have on the following: ED/G	4.1	1/1
												(SRO) 2.4.6: Emergency Procedures/Plan: Knowledge symptom based EOP mitigation strategies. (AC Electrical Distribution)	4.0	
063 DC Electrical Distribution								R				A2.01: Ability to (a) predict the impacts of the following malfunctions or operations on the D.C. Electrical System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Grounds	2.5	1/0
064 Emergency Diesel Generator						S			R			A3.03: Ability to monitor automatic operation of the ED/G System, including: Indicating lights, meters, and recorders	3.4	1/1
												(SRO) 2.2.22: Knowledge of limiting conditions for operations and safety limits.	2.9	
073 Process Radiation Monitoring										R	R	A4.03: Ability to manually operate and/or monitor in the control room: Check source for operability demonstration	3.1	1/0
076 Service Water										R	R	2.1.14: Conduct of Operations: Knowledge of system status criteria which require the notification of plant personnel. (Service Water System)	2.5	2/0
												A4.04: Ability to manually operate and/or monitor in the control room: Emergency heat loads	3.5	
078 Instrument Air	R											K1.02: Knowledge of the physical connections and/or cause-effect relationships between the IAS and the following systems: Service air	2.7	1/0

ES-401		PWR Examination Outline Plant Systems - Tier 2 / Group 1											Form ES-401-2		
System # / Name		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
103 Containment					R								K4.04: Knowledge of Containment System design feature(s) and/or interlock(s) which provide for the following: Personnel access hatch and emergency access hatch	2.5	1/0
K/A Category Totals:	RO	3	2	3	2	3	2	3	3	2	3	2	Group Point Total:		28/4
	SRO	--	--	1	--	--	1	--	--	--	--	2			

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ES-401		PWR Examination Outline Plant Systems - Tier 2 / Group 2											Form ES-401-2	
Group 2 (RO / SRO)	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
001 Control Rod Drive														
002 Reactor Coolant									R			A3.03: Ability to monitor automatic operation of the RCS, including: Pressure, temperatures, and flows	4.4	1/0
011 Pressurizer Level Control		R									S	K2.01: Knowledge of bus power supplies to the following: Charging pumps (SRO) 2.4.4: Emergency Procedures/Plan: Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.. (Pressurizer Level Control System)	3.1 4.3	1/1
014 Rod Position Indication			R									K3.02: Knowledge of the effect that a loss or malfunction of the RPIS will have on the following: Plant computer	2.5	1/0
015 Nuclear Instrumentation														
016 Non-nuclear Instrumentation														
017 In-core Temperature Monitor							R					A1.01: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ITM System controls including: Core exit temperature	3.7	1/0
027 Containment Iodine Removal														
028 Hydrogen Recombiner and Purge Control											R S	A4.02: Ability to manually operate and/or monitor in the control room: Location and interpretation of containment pressure indications (SRO) 2.2.25: Equipment Control: Knowledge of bases in technical specifications for limiting conditions for operations and safety limits. (Hydrogen Recombiner and Purge Control System)	3.7 3.7	1/1
029 Containment Purge														
033 Spent Fuel Pool Cooling														
034 Fuel Handling Equipment														
035 Steam Generator														

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ES-401		PWR Examination Outline Plant Systems - Tier 2 / Group 2												Form ES-401-2		
Group 2 (RO / SRO)		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#	
041 Steam Dump/Turbine Bypass Control						R							K5.07: Knowledge of the operational implications of the following concepts as they apply to the SDS: Reactivity feedback effects	3.1	1/0	
045 Main Turbine Generator																
055 Condenser Air Removal												R	2.1.32: Conduct of Operations: Ability to explain and apply all system limits and precautions. (Condenser Air Removal System)	3.4	1/0	
068 Liquid Radwaste									R				A2.04: Ability to (a) predict the impacts of the following malfunctions or operations on the Liquid Radwaste System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of automatic isolation	3.3	1/0	
071 Waste Gas Disposal																
072 Area Radiation Monitoring																
075 Circulating Water																
079 Station Air					R								K4.01: Knowledge of SAS design feature(s) and/or interlock(s) which provide for the following: Cross-connect with IAS	2.9	1/0	
086 Fire Protection		R											K1.01: Knowledge of the physical connections and/or cause-effect relationships between the Fire Protection System and the following systems: High-pressure service water	3.0	1/0	
K/A Category Totals:		RO	1	1	1	1	1	0	1	1	1	1	1	Group Point Total:		10/2
		SRO	--	--	--	--	--	--	--	--	--	--	2			

2003 ILT Exam K/A Suppression Report

ES-401		Generic Knowledge and Abilities Outline (Tier 3)			Form ES-401-3	
Facility: Prairie Island				Date of Exam: 09/11/2003		
Category	K/A #	Topic	RO		SRO	
			IR	#	IR	#
1. Conduct of Operations	2.1.18	Ability to make accurate, clear and concise logs, records, status boards, and reports.	2.9	1		
	2.1.29	Knowledge of how to conduct and verify valve lineups.	3.4	1		
	2.1.31	Ability to locate control room switches, controls and indications and to determine that they are correctly reflecting the desired plant lineup.	4.2	1		
	2.1.34	Ability to maintain primary and secondary plant chemistry within allowable limits.			2.9	1
	2.1.6	Conduct of Operations: Ability to supervise and assume a management role during plant transients and upset conditions.			4.3	1
	Subtotal			3		2
2. Equipment Control	2.2.1	Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.	3.7	1		
	2.2.4	Ability to explain the variations in control board layouts, systems, instrumentation and procedural actions between units at a facility. (multi-unit)	2.8	1		
	2.2.25	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.			3.7	1
	2.2.32	Knowledge of the effects of alterations on core configuration.			3.3	1
	Subtotal			2		2
3. Radiation Control	2.3.1	Knowledge of 10 CFR 20 and related facility radiation control requirements.	2.6	1		
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	2.9	1		
	2.3.9	Knowledge of the process for performing a containment purge.	2.5	1		
	2.3.4	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.			3.1	1
	2.3.3	Knowledge of SRO responsibilities for auxiliary systems that are outside the control room (e.g., waste disposal and handling systems).			2.9	1
	Subtotal			3		2
4. Emergency Procedures / Plan	2.4.16	Knowledge of EOP implementation hierarchy and coordination with other support procedures.	3.0	1		
	2.4.4	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.0	1		
	2.4.27	Knowledge of fire in the plant procedure.			3.5	1
	Subtotal			2		1
Tier 3 Point Total				10		7

2003 ILT Exam K/A Suppression Report

Facility: Prairie Island		Scenario No.: 2003NRC-A		Op-Test No.:	
<u>Examiners:</u> <ul style="list-style-type: none"> • 		<u>Operators:</u> RO: Lead: SS:			
Initial Conditions: (IC-40) <ul style="list-style-type: none"> • 100% power EOC • Turbine impulse pressure failed with S/D abnormal per C51 					
Turnover: <ul style="list-style-type: none"> • 					

Event No.	Malf. No.	Event Type*	Event Description
1	VC01A	C	Loss of charging pump (RO)
2	RC21A	C	Reactor vessel flange O-ring leak (RO)
3	Various Overrides	I	Rad monitor (R-11 &12) low flow (LEAD) {T.S}
4	MS01B	M	Steam line rupture inside containment [Ramp 35% over 5 minutes]
5	FW34A/B	C	AFW pumps fail to start (RO)
5	FW32	C	Trip of MDAFW pump on manual start
6	RP06	C	MSIVs fail to auto close
6	DI-46158C DI-46159C	C	MSIVs fail to close in manual (ECA-2.1) (LEAD has CT actions)
7	CS03A/B	C	CS pumps fail to start (LEAD)
8	CS02A/B	C	Caustic addition valves fail to open (LEAD)

Critical Tasks:

- E-0 (E) Minimum containment cooling equipment
- E-0 (F) Minimum AFW flow
- ECA-2.1 (A) Reduce AFW flow

2003 ILT Exam K/A Suppression Report

Facility: Prairie Island		Scenario No.: 2003NRC-B		Op-Test No.:	
<u>Examiners:</u> • Initial Conditions: (IC-6) • 6% power • Turnover: •		<u>Operators:</u> RO: Lead: SS:			

Event No.	Malf. No.	Event Type*	Event Description
1	RX216	I	SG pressure fails (HIGH) {T.S.} (LEAD)
2	SI07A	C	SI accumulator check valve leakage (LEAD)
3	FW13A	C	Main feedwater pump trips (RO – power reduction)
4	ED18, ED19, DG07A/B	M	Loss of all AC power (ECA-0.0) with restoration from DG within 5 minutes
5	SG02A	M	SG tube rupture [10%]
6	DI-46158C	C	Associated MSIV won't close in manual
7	RC22A or B	C	Pressurizer PORV leaks after RCS depressurization (RO)

Critical Tasks:

- E-0 (A) Restore heat sink -OR- Manual reactor trip
- E-0 (C) Restore electrical power
- E-3 (A) Isolate ruptured SG
- E-3 (C) Depressurize RCS
- E-3 (D) Terminate SI

2003 ILT Exam K/A Suppression Report

Facility: Prairie Island		Scenario No.: 2003NRC-C		Op-Test No.:	
<u>Examiners:</u> <ul style="list-style-type: none"> • 		<u>Operators:</u> RO: Lead: SS:			
Initial Conditions: (IC- <ul style="list-style-type: none"> • 79% power • Maximize pressurizer bypass spray flow • Ensure pressurizer heaters are in AUTO Turnover: <ul style="list-style-type: none"> • 					

Event No.	Malf. No.	Event Type*	Event Description
1	EG200	I	Generator gas temperature controller failure (LEAD)
2	RX014	I	Pressurizer low level bistable failure (No heaters) (RO)
3	CC01B	C	Running CC pump trips
3	CC02A	C	Standby CC pump fails to auto-start {T.S. 3.0.3} (LEAD)
4	MS02B	M	Main steam rupture outside containment before MSIV
5	various	C	ATWS (setup using computer assisted exercise)
6	TC01A	C	Turbine stop valve sticks open (LEAD)
7	NI04A	I	IR compensation causes P-6 failure (SR does not energize) (RO)

Critical Tasks:

- E-0 (A) Manual reactor trip
- E-0 (K) Minimum CCW pumps
- FR-S.1 (C) Negative reactivity insertion
- FR-S.1 (A) Isolate Main Turbine

2003 ILT Exam K/A Suppression Report

Facility: Prairie Island <u>Examiners:</u> <ul style="list-style-type: none"> Initial Conditions: (IC-15) <ul style="list-style-type: none"> Mode 4 RCS temperature 320°F - 340°F RCS pressure <400 psig Turnover: <ul style="list-style-type: none"> Ready to place RHR in service RCP 11 is operating RCP 12 needs to be placed in service and RCP 11 stopped. 	Scenario No.: 2003NRC-D	Op-Test No.:
	<u>Operators:</u> RO: Lead: SS:	

Event No.	Malf. No.	Event Type*	Event Description
0	RX09A	I	Loop pressure instrument fails HIGH
1	NA	N	Switch operating RCPs. (RO)
2	ED09A	C	Loss of 4160v Bus #11 {T.S.}
3	CC09	C	Seal water heat exchanger tube rupture [70%] (LEAD)
4	RC05B	C	Bearing failure on only running RCP {T.S.} (RO)
5	RC08A	M	LOCA – RCS cold leg (will result in PTS -> FR-P.1) [Ramp 2%-6%]
6	SI05A/B	C	SI pumps fail to start on SI (LEAD)
7	DI-46026	C	Loss of CCW flow to RCP thermal barriers (LEAD)

Critical Tasks:

- E-0 (I) Minimum SI pumps
- FR-P.1 (A) Terminate SI

2003 ILT Exam K/A Suppression Report

KA suppression was performed in accordance with ES-401 Attachment 2 “K/A Elimination Guidance” from NUREG-1021 Draft Revision 9.

The attached tables do not include K/A’s suppressed for the following reasons:

- All K/A’s associated with System 025 “Ice Condenser System” were suppressed because this form of containment is not installed at Prairie Island.
- All generic K/A’s were suppressed for RO and SRO exam outline preparation at Tier 1 and Tier 2 except for K/A’s 2.1.2, 2.1.14, 2.1.23, 2.1.27, 2.1.28, 2.1.30, 2.1.32, 2.1.33, 2.2.22, 2.2.25, 2.4.4, 2.4.6, 2.4.30, 2.4.31, 2.4.49 and 2.4.50. No K/A’s were suppressed for outline preparation at Tier 3.
- All K/A’s with RO importance ratings less than 2.5 were suppressed for the RO exam outline preparation.
- All K/A’s with SRO importance ratings less than 2.5 were suppressed for the SRO exam outline preparation.

The attached tables for Tier 1 and Tier 2 identify, with the four bulleted exceptions noted above, those K/A statements which were suppressed prior to random generation of the written exam outlines for the 2003 Prairie Island RO and SRO exams.

2003 ILT Exam K/A Suppression Report

Tier 1 - Events			
Event Information	K/A #	K/A Statement	Basis for suppression
001 Continuous Rod Withdrawal	AK1.14	Knowledge of the operational implications of the following concepts as they apply to Continuous Rod Withdrawal: Interaction of ICS control stations as well as purpose, function, and modes of operation of ICS	Equipment not installed.
003 Dropped Control Rod	AA1.04	Ability to operate and/or monitor the following as they apply to the Dropped Control Rod: Control rod drive safety rod out limit bypass switch or key	Equipment not installed.
003 Dropped Control Rod	AK1.13	Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod: Interaction of ICS control stations as well as purpose, function, and modes of operation of ICS	Equipment not installed.
003 Dropped Control Rod	AK2.03	Knowledge of the interrelations between the Dropped Control Rod and the following: Metroscope	Equipment not installed.
003 Dropped Control Rod	AK3.01	Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod: When ICS logic has failed on a dropped rod, the load must be reduced until flux is within specified target bank	Equipment not installed.
003 Dropped Control Rod	AK3.02	Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod: Reactor runback with a dropped control rod	Equipment not installed.
003 Dropped Control Rod	AK3.03	Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod: Turbine automatic runback with reactor in order to balance power output	Equipment not installed.
003 Dropped Control Rod	AK3.05	Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod: Tech-Spec limits for reduction of load to 50% power if flux cannot be brought back within specified target band	Action not applicable. (Reactor must be tripped.)
003 Dropped Control Rod	AK3.06	Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod: Reset of demand position counter to zero	Action not applicable. (Reactor must be tripped.)
003 Dropped Control Rod	AK3.09	Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod: Recording of group bank position for dropped rod (reference point used to withdraw dropped rod to equal height with other rods in the bank)	Action not applicable. (Reactor must be tripped.)
005 Inoperable/Stuck Control Rod	AA1.03	Ability to operate and/or monitor the following as they apply to the Inoperable/Stuck Control Rod: Metroscope	Equipment not installed.
005 Inoperable/Stuck Control Rod	AA2.02	Ability to determine and interpret the following as they apply to the Inoperable/Stuck Control Rod: Difference between jog and run rod speeds, effect on CRDM of stuck rod	Equipment not installed.
005 Inoperable/Stuck Control Rod	AK1.04	Knowledge of the operational implications of the following concepts as they apply to Inoperable/Stuck Control Rod: Definitions of axial imbalance, neutron error, power demand, actual power tracking mode, ICS tracking	Equipment not installed.

2003 ILT Exam K/A Suppression Report

Tier 1 - Events			
Event Information	K/A #	K/A Statement	Basis for suppression
005 Inoperable/Stuck Control Rod	AK2.03	Knowledge of the interrelations between the Inoperable/Stuck Control Rod and the following: Metroscope	Equipment not installed.
008 Pressurizer (PZR) Vapor Space Accident (Relief Valve Stuck	AA2.23	Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: Criteria for throttling high-pressure injection after a small LOCA	SI Throttling not allowed for.
009 Small Break LOCA	EA1.18	Ability to operate and/or monitor the following as they apply to a small break LOCA: Balancing of HPI loop flows	Equipment not installed or capability does not exist.
009 Small Break LOCA	EA2.26	Ability to determine and interpret the following as they apply to a small break LOCA: Activity waste tank level gauges	Equipment not in CR & action not required.
009 Small Break LOCA	EA2.30	Ability to determine and interpret the following as they apply to a small break LOCA: Tech-Spec limits for plant operation with less than four loops	2 loop does not allow for idle loop operation.
009 Small Break LOCA	EA2.31	Ability to determine and interpret the following as they apply to a small break LOCA: Tech-Spec limits for plant operation with an idle loop	2 loop does not allow for idle loop operation.
009 Small Break LOCA	EA2.35	Ability to determine and interpret the following as they apply to a small break LOCA: Conditions for throttling or stopping reflux boiling spray	Equipment not installed or capability does not exist.
011 Large Break LOCA	EA1.02	Ability to operate and/or monitor the following as they apply to a Large Break LOCA: Reflux boiling sump level indicators	Equipment not installed or action does not occur.
011 Large Break LOCA	EA1.16	Ability to operate and/or monitor the following as they apply to a Large Break LOCA: Balancing of HPI loop flows	Equipment not installed or action does not occur.
011 Large Break LOCA	EA2.12	Ability to determine and interpret the following as they apply to a Large Break LOCA: Conditions for throttling or stopping reflux boiling spray	Equipment not installed or action does not occur.
011 Large Break LOCA	EK3.07	Knowledge of the reasons for the following responses as they apply to the Large Break LOCA: Stopping charging pump bypass flow	Equipment not installed or action does not occur.
011 Large Break LOCA	EK3.13	Knowledge of the reasons for the following responses as they apply to the Large Break LOCA: Hot-leg injection/recirculation	Equipment not installed or action does not occur.
015 Reactor Coolant Pump (RCP) Malfunctions	AA1.19	Ability to operate and/or monitor the following as they apply to the Reactor Coolant Pump Malfunctions: Power transfer confirm lamp	Equipment not installed.
015 Reactor Coolant Pump (RCP) Malfunctions	AK1.03	Knowledge of the operational implications of the following concepts as they apply to Reactor Coolant Pump Malfunctions: The basis for operating at a reduced power level when one RCP is out of service	2 loop, Single loop operation not allowed.
015 Reactor Coolant Pump (RCP) Malfunctions	AK3.04	Knowledge of the reasons for the following responses as they apply to the Reactor Coolant Pump Malfunctions: Reduction of power to below the steady state power-to-flow limit	Power to flow limit does not exist
024 Emergency Boration	AA1.01	Ability to operate and/or monitor the following as they apply to the Emergency Boration: Use of spent fuel pool as backup to BWST	Flowpaths not available/used for emergency boration

2003 ILT Exam K/A Suppression Report

Tier 1 - Events			
Event Information	K/A #	K/A Statement	Basis for suppression
024 Emergency Boration	AA1.04	Ability to operate and/or monitor the following as they apply to the Emergency Boration: Manual boration valve	Flowpath not directed for use
024 Emergency Boration	AA1.10	Ability to operate and/or monitor the following as they apply to the Emergency Boration: CVCS centrifugal charging pumps	Equipment not installed.
024 Emergency Boration	AA1.11	Ability to operate and/or monitor the following as they apply to the Emergency Boration: BIT suction and recirculation valves	Equipment not installed.
024 Emergency Boration	AA1.20	Ability to operate and/or monitor the following as they apply to the Emergency Boration: Manual boration valve and indicators	Flowpath not directed for use
024 Emergency Boration	AA1.21	Ability to operate and/or monitor the following as they apply to the Emergency Boration: CVCS charging pump miniflow isolation valves and indicators	Equipment not installed.
024 Emergency Boration	AA1.22	Ability to operate and/or monitor the following as they apply to the Emergency Boration: Safety injection valves, switches, flow meters, and indicators	Flowpaths not available/used for emergency boration
024 Emergency Boration	AA1.23	Ability to operate and/or monitor the following as they apply to the Emergency Boration: CVCS centrifugal charging pump switches and indicators	Equipment not installed.
024 Emergency Boration	AA1.24	Ability to operate and/or monitor the following as they apply to the Emergency Boration: BIT inlet and outlet valve switches and indicators	Equipment not installed.
024 Emergency Boration	AA2.02	Ability to determine and interpret the following as they apply to the Emergency Boration: When use of manual boration valve is needed	Flowpath not directed for use
025 Loss of Residual Heat Removal System (RHRS)	AA1.05	Ability to operate and/or monitor the following as they apply to the Loss of Residual Heat Removal System: Raw water or sea water pumps	Equipment not installed.
025 Loss of Residual Heat Removal System (RHRS)	AA1.13	Ability to operate and/or monitor the following as they apply to the Loss of Residual Heat Removal System: SWS radiation monitors	Flowpath not directly affected
025 Loss of Residual Heat Removal System (RHRS)	AA1.19	Ability to operate and/or monitor the following as they apply to the Loss of Residual Heat Removal System: Block orifice bypass valve controller and indicators	Equipment not installed.
028 Loss of Component Cooling Water (CCW)	AA1.03	Ability to operate and/or monitor the following as they apply to the Loss of Component Cooling Water: SWS as a backup to the CCWS	Systems not related in this manner.
028 Loss of Component Cooling Water (CCW)	AA1.04	Ability to operate and/or monitor the following as they apply to the Loss of Component Cooling Water: CRDM high-temperature alarm system	Systems not related in this manner.
027 Pressurizer Pressure Control (PZR PCS) Malfunction	AA1.02	Ability to operate and/or monitor the following as they apply to the Pressurizer Pressure Control Malfunctions: SCR-controlled heaters in manual mode	Manual mode operation not performed any differently than that covered by KA: AA1.01.
028 Pressurizer (PZR) Level Control Malfunction	AK3.04	Knowledge of the reasons for the following responses as they apply to the Pressurizer Level Control Malfunctions: Change in PZR level with power change, even though RCS T-ave. constant, due to loop size difference	Plant does not react in this manner

2003 ILT Exam K/A Suppression Report

Tier 1 - Events			
Event Information	K/A #	K/A Statement	Basis for suppression
029 Anticipated Transient Without Scram (ATWS)	EA1.04	Ability to operate and/or monitor the following as they apply to a ATWS: BIT inlet valve switches	Equipment not installed or not used in Evolution.
029 Anticipated Transient Without Scram (ATWS)	EA1.05	Ability to operate and/or monitor the following as they apply to a ATWS: BIT outlet valve switches	Equipment not installed or not used in Evolution.
029 Anticipated Transient Without Scram (ATWS)	EA1.06	Ability to operate and/or monitor the following as they apply to a ATWS: Operating switches for normal charging header isolation valves	Equipment not installed or not used in Evolution.
029 Anticipated Transient Without Scram (ATWS)	EA1.07	Ability to operate and/or monitor the following as they apply to a ATWS: Operating switch for charging pump recirculation valve	Equipment not installed or not used in Evolution.
029 Anticipated Transient Without Scram (ATWS)	EA2.03	Ability to determine and interpret the following as they apply to a ATWS: Centrifugal charging pump ammeter	Equipment not installed or not used in Evolution.
029 Anticipated Transient Without Scram (ATWS)	EA2.04	Ability to determine and interpret the following as they apply to a ATWS: CVCS centrifugal charging pump operating indication	Equipment not installed or not used in Evolution.
029 Anticipated Transient Without Scram (ATWS)	EK3.03	Knowledge of the reasons for the following responses as they apply to the ATWS: Opening BIT inlet and outlet valves	Equipment not installed or not used in Evolution.
029 Anticipated Transient Without Scram (ATWS)	EK3.04	Knowledge of the reasons for the following responses as they apply to the ATWS: Closing the normal charging header isolation valves	Action not performed for Evolution
029 Anticipated Transient Without Scram (ATWS)	EK3.05	Knowledge of the reasons for the following responses as they apply to the ATWS: Closing the centrifugal charging pump recirculation valve	Equipment not installed or not used in Evolution.
029 Anticipated Transient Without Scram (ATWS)	EK3.09	Knowledge of the reasons for the following responses as they apply to the ATWS: Opening centrifugal charging pump suction valves from RWST	Equipment not installed or not used in Evolution.
037 Steam Generator (S/G) Tube Leak	AA1.03	Ability to operate and/or monitor the following as they apply to the Steam Generator Tube Leak: Loop isolation valves	Equipment not installed.
037 Steam Generator (S/G) Tube Leak	AK3.08	Knowledge of the reasons for the following responses as they apply to the Steam Generator Tube Leak: Criteria for securing RCP	Does not apply to this Evolution.
038 Steam Generator Tube Rupture (SGTR)	EA1.28	Ability to operate and/or monitor the following as they apply to a SGTR: Interlock between MSIV and bypass valve	Equipment not installed.
038 Steam Generator Tube Rupture (SGTR)	EK1.04	Knowledge of the operational implications of the following concepts as they apply to the SGTR: Reflux boiling	Condition not expected for Evolution.
038 Steam Generator Tube Rupture (SGTR)	EK3.07	Knowledge of the reasons for the following responses as they apply to the SGTR: RCS loop isolation valves	Equipment not installed.
040 Steam Line Rupture	AA1.21	Ability to operate and/or monitor the following as they apply to the Steam Line Rupture: Vibration alarm	Not applicable to this evolution.
056 Loss of Offsite Power	AA1.15	Ability to operate and/or monitor the following as they apply to the Loss of Offsite: Service water booster pump	Equipment not installed.

2003 ILT Exam K/A Suppression Report

Tier 1 - Events			
Event Information	K/A #	K/A Statement	Basis for suppression
056 Loss of Offsite Power	AA2.11	Ability to determine and interpret the following as they apply to the Loss of Offsite Power: Operational status of service water booster pump	Equipment not installed.
056 Loss of Offsite Power	AA2.29	Ability to determine and interpret the following as they apply to the Loss of Offsite Power: Service water booster pump ammeter and flowmeter	Equipment not installed.
057 Loss of Vital AC Electrical Instrument Bus	AA1.03	Ability to operate and/or monitor the following as they apply to the Loss of Vital AC Instrument Bus: Feedwater pump speed to control pressure and level in S/G	Constant speed motor-driven feed pumps w/o controllers.
057 Loss of Vital AC Electrical Instrument Bus	AA2.02	Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: Core flood tank pressure and level indicators	Redundant (different eqpt name) to AA2.01.
057 Loss of Vital AC Electrical Instrument Bus	AA2.11	Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: Main feed pump running indicator and controller	Constant speed motor-driven feed pumps w/o controllers.
062 Loss of Nuclear Service Water	AA1.03	Ability to operate and/or monitor the following as they apply to the Loss of Nuclear Service Water (SWS): SWS as a backup to the CCWS	System does not provide this function.
062 Loss of Nuclear Service Water	AK3.01	Knowledge of the reasons for the following responses as they apply to the Loss of Nuclear Service Water: The conditions that will initiate the automatic opening and closing of the SWS isolation valves to the nuclear service water coolers	Equipment not installed, Lake provides cooling
065 Loss of Instrument Air	AA2.07	Ability to determine and interpret the following as they apply to the Loss of Instrument Air: Whether backup nitrogen supply is controlling valve position	Equipment not installed.
065 Loss of Instrument Air	AK3.05	Knowledge of the reasons for the following responses as they apply to the Loss of Instrument Air: Checking electric loads on a running compressor	Equipment not installed.
068 Control Room Evacuation	AK3.04	Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation: Filling the feedwater system and closing the AFW pump discharge valve	Action not performed.
074 Inadequate Core Cooling	EA1.03	Ability to operate and/or monitor the following as they apply to an Inadequate Core Cooling: The alternate control station for turbine bypass valve operation	Equipment not installed.
076 High Reactor Coolant Activity	AA1.04	Ability to operate and/or monitor the following as they apply to the High Reactor Coolant Activity: Failed fuel-monitoring equipment	Equipment not installed

Tier 2 - Systems			
System Information	K/A #	K/A Statement	Basis for suppression
001 Control Rod Drive System	A1.08	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CRDS controls including: Verification that CRDS temperatures are within limits before starting	Actions not performed.
001 Control Rod Drive System	A1.10	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CRDS controls including: Location and operation of controls and indications for CRDS component cooling water	Equipment not installed or not aligned in this manner.
001 Control Rod Drive System	A1.13	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CRDS controls including: "Prepower dependent insertion limit" and power dependent insertion limit, determined with metroscope	Equipment not installed or not aligned in this manner.
001 Control Rod Drive System	A2.04	Ability to (a) predict the impacts of the following malfunctions or operations on the CRDS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Positioning of axial shaping rods and their effect on SDM	Equipment not installed or not aligned in this manner.
001 Control Rod Drive System	A2.08	Ability to (a) predict the impacts of the following malfunctions or operations on the CRDS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of CCW to CRDS	Equipment not installed or not aligned in this manner.
001 Control Rod Drive System	A2.20	Ability to (a) predict the impacts of the following malfunctions or operations on the CRDS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Isolation of lift coil on affected rod to prevent coil burnout	Action not performed
001 Control Rod Drive System	A4.09	Ability to manually operate and/or monitor in the control room: CCWS	Equipment not installed or not aligned in this manner.
001 Control Rod Drive System	K1.01	Knowledge of the physical connections and/or cause-effect relationships between the CRDS and the following systems: CCW	Equipment not installed or not aligned in this manner.
001 Control Rod Drive System	K1.09	Knowledge of the physical connections and/or cause-effect relationships between the CRDS and the following systems: CCWS must be cut in before energizing CRDS	Equipment not installed or not aligned in this manner.
001 Control Rod Drive System	K5.11	Knowledge of the operational implications of the following concepts as they apply to the CRDS: Relationship between reactivity worth of power-shaping control rod group and other control rod groups (power-shaping, or part-length, rods have much less reactivity than full-length control rods)	Equipment not installed or not aligned in this manner.
001 Control Rod Drive System	K5.12	Knowledge of the operational implications of the following concepts as they apply to the CRDS: Effects on power of inserting axial shaping rods	Equipment not installed or not aligned in this manner.

Tier 2 - Systems			
System Information	K/A #	K/A Statement	Basis for suppression
001 Control Rod Drive System	K5.16	Knowledge of the operational implications of the following concepts as they apply to the CRDS: Relationship between RCS temperature and NDT of vessel	Heatup & cooldown at temperatures of concern not associated with CRDS
001 Control Rod Drive System	K5.68	Knowledge of the operational implications of the following concepts as they apply to the CRDS: Understanding of "cold-water" (startup) accidents	"Cold" startups not allowed
001 Control Rod Drive System	K5.76	Knowledge of the operational implications of the following concepts as they apply to the CRDS: Effects on power of inserting axial shaping rods	Equipment not installed or not aligned in this manner.
001 Control Rod Drive System	K5.79	Knowledge of the operational implications of the following concepts as they apply to the CRDS: Effects of positioning of axial shape rods on SDM	Equipment not installed or not aligned in this manner.
002 Reactor Coolant System (RCS)	A4.05	Ability to manually operate and/or monitor in the control room: The HPI system when it is used to refill the refueling cavity	System is not used in this manner.
002 Reactor Coolant System (RCS)	K4.09	Knowledge of RCS design feature(s) and/or interlock(s) which provide for the following: Operation of loop isolation valves	Equipment not installed.
002 Reactor Coolant System (RCS)	K5.16	Knowledge of the operational implications of the following concepts as they apply to the RCS: Reason for automatic features of the Feedwater control system during total loss of reactor coolant flow	Equipment not installed.
002 Reactor Coolant System (RCS)	K6.15	Knowledge of the effect of a loss or malfunction on the following RCS components: Post-accident sampling	Value not determined yet for both RO & SRO importance..
003 Reactor Coolant Pump System (RCPS)	K1.11	Knowledge of the physical connections and/or cause-effect relationships between the RCPS and the following systems: Sound monitoring	Equipment not installed.
003 Reactor Coolant Pump System (RCPS)	K3.05	Knowledge of the effect that a loss or malfunction of the RCPS will have on the following: ICS	Equipment not installed.
004 Chemical and Volume Control System (CVCS)	A4.22	Ability to manually operate and/or monitor in the control room: Boronometer chart recorder	Equipment not installed.
004 Chemical and Volume Control System (CVCS)	K1.22	Knowledge of the physical connections and/or cause-effect relationships between the CVCS and the following systems: BWST	Covered by KA K1.23
004 Chemical and Volume Control System (CVCS)	K1.25	Knowledge of the physical connections and/or cause-effect relationships between the CVCS and the following systems: Interface between HPI flow path and excess letdown flow path	Interface does not exist.
004 Chemical and Volume Control System (CVCS)	K1.33	Knowledge of the physical connections and/or cause-effect relationships between the CVCS and the following systems: Interface between clean waste receiver tank and seal injection filters	Interface does not exist
004 Chemical and Volume Control System (CVCS)	K5.31	Knowledge of the operational implications of the following concepts as they apply to the CVCS: Purpose of flow path around boric acid storage tank	Equipment not installed.
004 Chemical and Volume Control System (CVCS)	K6.12	Knowledge of the effect of a loss or malfunction on the following CVCS components: Principle of recirculation valve: (permit emergency flow even if valve is blocked by crystallized boric acid)	Equipment not provided for this reason.

Tier 2 - Systems			
System Information	K/A #	K/A Statement	Basis for suppression
004 Chemical and Volume Control System (CVCS)	K6.19	Knowledge of the effect of a loss or malfunction on the following CVCS components: Purpose of centrifugal pump miniflows (recirculation)	Equipment not installed.
005 Residual Heat Removal System (RHRS)	K1.08	Knowledge of the physical connections and/or cause-effect relationships between the RHRS and the following systems: SWS	System are not used in this manner.
005 Residual Heat Removal System (RHRS)	K1.10	Knowledge of the physical connections and/or cause-effect relationships between the RHRS and the following systems: CSS	System are not used in this manner. (interface not used)
005 Residual Heat Removal System (RHRS)	K3.06	Knowledge of the effect that a loss or malfunction of the RHRS will have on the following: CSS	System are not used in this manner. (interface not used)
006 Emergency Core Cooling System (ECCS)	A4.03	Ability to manually operate and/or monitor in the control room: Transfer from boron storage tank to boron injection tank	Equipment not installed.
006 Emergency Core Cooling System (ECCS)	K1.04	Knowledge of the physical connections and/or cause-effect relationships between the ECCS and the following systems: Auxiliary spray system	Equipment not related to ECCS.
006 Emergency Core Cooling System (ECCS)	K1.05	Knowledge of the physical connections and/or cause-effect relationships between the ECCS and the following systems: RCP seal injection and return	Equipment not related to ECCS.
006 Emergency Core Cooling System (ECCS)	K1.10	Knowledge of the physical connections and/or cause-effect relationships between the ECCS and the following systems: Safety injection tank heating system	Equipment not installed.
006 Emergency Core Cooling System (ECCS)	K4.12	Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following: HPI flow throttling	Action not performed.
006 Emergency Core Cooling System (ECCS)	K4.19	Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following: Interlocks to storage tank makeup valve	Equipment not installed.
006 Emergency Core Cooling System (ECCS)	K4.20	Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following: Automatic closure of common drain line and fill valves to accumulator	Equipment not installed.
006 Emergency Core Cooling System (ECCS)	K4.22	Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following: Interlocks between RCP seal flow rate and standby HPI pump	Equipment not related to ECCS.
006 Emergency Core Cooling System (ECCS)	K4.29	Knowledge of ECCS design feature(s) and/or interlock(s) which provide for the following: BIT recirculation	Equipment not installed.
007 Pressurizer Relief Tank/Quench Tank System (PRTS)	A2.07	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: Recirculating quench tank	Equipment not installed.
008 Component Cooling Water System (CCWS)	A4.11	Ability to manually operate and/or monitor in the control room: CCW pump recirculation valve and its three-way control switch	Equipment not installed
008 Component Cooling Water System (CCWS)	K3.02	Knowledge of the effect that a loss or malfunction of the CCWS will have on the following: CRDS	Equipment does not function in this manner.

Tier 2 - Systems			
System Information	K/A #	K/A Statement	Basis for suppression
008 Component Cooling Water System (CCWS)	K4.04	Knowledge of CCWS design feature(s) and/or interlock(s) which provide for the following: Weir design aspect of the surge tank	Equipment not installed.
008 Component Cooling Water System (CCWS)	K4.06	Knowledge of CCWS design feature(s) and/or interlock(s) which provide for the following: Auxiliary building CCWS isolation	Equipment not installed
008 Component Cooling Water System (CCWS)	K4.07	Knowledge of CCWS design feature(s) and/or interlock(s) which provide for the following: Operation of the CCW swing-bus power supply and its associated breakers and controls	Equipment not installed
011 Pressurizer Level Control System (PZR LCS)	A2.09	Ability to (a) predict the impacts of the following malfunctions or operations on the PZR LCS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: High ambient reflux boiling temperature effect or indicated PZR level	Process not addressed.
011 Pressurizer Level Control System (PZR LCS)	A4.05	Ability to manually operate and/or monitor in the control room: Letdown flow controller	Equipment not installed.
011 Pressurizer Level Control System (PZR LCS)	K1.05	Knowledge of the physical connections and/or cause-effect relationships between the PZR LCS and the following systems: Reactor regulating system	Equipment not installed.
011 Pressurizer Level Control System (PZR LCS)	K5.06	Knowledge of the operational implications of the following concepts as they apply to the PZR LCS: Indicated charging flow: seal flow plus actual charging flow	Equipment not installed.
012 Reactor Protection System	K6.07	Knowledge of the effect of a loss or malfunction of the following will have on the following: Core protection calculator	Equipment not installed.
012 Reactor Protection System	K6.08	Knowledge of the effect of a loss or malfunction of the following will have on the following: COLSS	Equipment not installed.
012 Reactor Protection System	K6.09	Knowledge of the effect of a loss or malfunction of the following will have on the following: CEAC	Equipment not installed.
013 Engineered Safety Features Actuation System (ESFAS)	A1.03	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ESFAS controls including: Feedwater header differential	Equipment not installed.
013 Engineered Safety Features Actuation System (ESFAS)	K4.06	Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following: Recirculation actuation system reset	Equipment not installed.
013 Engineered Safety Features Actuation System (ESFAS)	K4.14	Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following: Upper head injection accumulator isolation	Equipment not installed.
013 Engineered Safety Features Actuation System (ESFAS)	K4.17	Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following: Reason for stopping air coolers on train being tested	Action not performed.

Tier 2 - Systems			
System Information	K/A #	K/A Statement	Basis for suppression
013 Engineered Safety Features Actuation System (ESFAS)	K4.21	Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following: Reason for starting an additional service water booster pump for train not being tested and stopping the pump on train under test	Equipment not installed.
013 Engineered Safety Features Actuation System (ESFAS)	K4.24	Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following: Reason for disabling of BIT so it will not function during ESF sequencer test	Equipment not installed.
014 Rod Position Indication System (RPIS)	A1.01	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RPIS controls including: Metroscope reed switch display	Equipment not installed.
014 Rod Position Indication System (RPIS)	A2.07	Ability to (a) predict the impacts of the following malfunctions or operations on the RPIS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of reed switch	Equipment not installed.
014 Rod Position Indication System (RPIS)	K4.01	Knowledge of RPIS design feature(s) and/or interlock(s) which provide for the following: Upper electrical limit	Equipment not installed.
014 Rod Position Indication System (RPIS)	K4.02	Knowledge of RPIS design feature(s) and/or interlock(s) which provide for the following: Lower electrical limit	Equipment not installed.
014 Rod Position Indication System (RPIS)	K4.04	Knowledge of RPIS design feature(s) and/or interlock(s) which provide for the following: Zone reference lights	Equipment not installed.
014 Rod Position Indication System (RPIS)	K6.03	Knowledge of the effect of a loss or malfunction of the following will have on the following: Metroscope	Equipment not installed.
015 Nuclear Instrumentation System	K1.05	Knowledge of the physical connections and/or cause-effect relationships between the NIS and the following systems: ICS	Equipment not installed.
015 Nuclear Instrumentation System	K1.06	Knowledge of the physical connections and/or cause-effect relationships between the NIS and the following systems: Reactor regulating system	Equipment not installed.
015 Nuclear Instrumentation System	K3.04	Knowledge of the effect that a loss or malfunction of the NIS will have on the following: ICS	Equipment not installed.
015 Nuclear Instrumentation System	K3.06	Knowledge of the effect that a loss or malfunction of the NIS will have on the following: Reactor regulating system	Equipment not installed.
015 Nuclear Instrumentation System	K4.04	Knowledge of NIS design feature(s) and/or interlock(s) which provide for the following: Slow response time of SPNDs	Equipment not installed.
022 Containment Cooling System (CCS)	A2.02	Ability to (a) predict the impacts of the following malfunctions or operations on the CCS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Fan motor vibration	Equipment not installed.
022 Containment Cooling System (CCS)	K4.01	Knowledge of CCS design feature(s) and/or interlock(s) which provide for the following: Cooling of containment penetrations	Equipment not installed.

Tier 2 - Systems			
System Information	K/A #	K/A Statement	Basis for suppression
026 Containment Spray System (CSS)	A1.03	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CSS controls including: Containment sump level	Operation during SI recirc not addressed.
026 Containment Spray System (CSS)	A2.01	Ability to (a) predict the impacts of the following malfunctions or operations on the CSS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Reflux boiling pressure spike when first going on recirculation	Operation during SI recirc not addressed.
026 Containment Spray System (CSS)	A2.02	Ability to (a) predict the impacts of the following malfunctions or operations on the CSS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of automatic recirculation transfer	Equipment not installed.
026 Containment Spray System (CSS)	A2.06	Ability to (a) predict the impacts of the following malfunctions or operations on the CSS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Increase in spray flow following swapover, because of higher pump suction pressure	Operation during SI recirc not addressed.
026 Containment Spray System (CSS)	A2.07	Ability to (a) predict the impacts of the following malfunctions or operations on the CSS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of containment spray pump suction when in recirculation mode, possibly caused by clogged sump screen, pump inlet high temperature exceeded cavitation, voiding), or sump level below cutoff (interlock) limit	Containment spray is not used when ECCS is aligned for recirculation.
026 Containment Spray System (CSS)	A4.02	Ability to manually operate and/or monitor in the control room: The remote location and use of spool pieces and other equipment to set up portable recirculation pump for additive tank, including power supply	Action not required.
026 Containment Spray System (CSS)	K3.02	Knowledge of the effect that a loss or malfunction of the CSS will have on the following: Recirculation spray system	Equipment not installed.
026 Containment Spray System (CSS)	K4.05	Knowledge of CSS design feature(s) and/or interlock(s) which provide for the following: Prevention of material from clogging nozzles during recirculation	Containment spray is not used when ECCS is aligned for recirculation.
026 Containment Spray System (CSS)	K4.07	Knowledge of CSS design feature(s) and/or interlock(s) which provide for the following: Adequate level in containment sump for suction (interlock)	Containment spray is not used when ECCS is aligned for recirculation.
026 Containment Spray System (CSS)	K4.08	Knowledge of CSS design feature(s) and/or interlock(s) which provide for the following: Automatic swapover to containment sump suction for recirculation phase after LOCA (RWST low-low level alarm)	Containment spray is not used when ECCS is aligned for recirculation.

Tier 2 - Systems			
System Information	K/A #	K/A Statement	Basis for suppression
026 Containment Spray System (CSS)	K4.09	Knowledge of CSS design feature(s) and/or interlock(s) which provide for the following: Prevention of path for escape of radioactivity from containment to the outside (interlock on RWST isolation after swapover)	Containment spray is not used when ECCS is aligned for recirculation.
027 Containment Iodine Removal System (CIRS)	K1.01	Knowledge of the physical connections and/or cause-effect relationships between the CIRS and the following systems: CSS	System not related for operation.
029 Containment Purge System (CPS)	K1.05	Knowledge of the physical connections and/or cause-effect relationships between the Containment Purge System and the following systems: Containment air cleanup and recirculation system	Equipment not installed.
033 Spent Fuel Pool Cooling System (SFPCS)	A3.01	Ability to monitor automatic operation of the Spent Fuel Pool Cooling System, including: Temperature control valves	Equipment not installed.
033 Spent Fuel Pool Cooling System (SFPCS)	K1.02	Knowledge of the physical connections and/or cause-effect relationships between the Spent Fuel Pool Cooling System and the following systems: RHRS	Equipment not related in this manner.
033 Spent Fuel Pool Cooling System (SFPCS)	K1.03	Knowledge of the physical connections and/or cause-effect relationships between the Spent Fuel Pool Cooling System and the following systems: SIS	Equipment not related in this manner.
034 Fuel Handling Equipment System (FHES)	K1.05	Knowledge of the physical connections and/or cause-effect relationships between the Fuel Handling System and the following systems: Shutdown monitor	Equipment not installed.
035 Steam Generator System (S/GS)	A3.02	Ability to monitor automatic operation of the S/G, including: MAD valves	Equipment not installed.
039 Main and Reheat Steam System (MRSS)	A4.03	Ability to manually operate and/or monitor in the control room: MFW pump turbines	Equipment not installed. (motor driven MFW pumps)
039 Main and Reheat Steam System (MRSS)	K3.04	Knowledge of the effect that a loss or malfunction of the MRSS will have on the following: MFW pumps	Equipment is not related to MRSS. (motor driven MFW pumps)
041 Steam Dump System (SDS) and Turbine Bypass Control	A4.01	Ability to manually operate and/or monitor in the control room: ICS voltage inverter	Equipment not installed.
041 Steam Dump System (SDS) and Turbine Bypass Control	A4.07	Ability to manually operate and/or monitor in the control room: Remote gagging of stuck open-relief valves	Actions not provided for.
041 Steam Dump System (SDS) and Turbine Bypass Control	K2.01	Knowledge of bus power supplies to the following: ICS, normal and alternate power supply	Equipment not installed.
041 Steam Dump System (SDS) and Turbine Bypass Control	K2.02	Knowledge of bus power supplies to the following: ICS inverter breakers	Equipment not installed.

Tier 2 - Systems			
System Information	K/A #	K/A Statement	Basis for suppression
041 Steam Dump System (SDS) and Turbine Bypass Control	K4.01	Knowledge of SDS design feature(s) and/or interlock(s) which provide for the following: RRG/ICS system	Equipment not installed.
041 Steam Dump System (SDS) and Turbine Bypass Control	K4.08	Knowledge of SDS design feature(s) and/or interlock(s) which provide for the following: Control rod index	Equipment not installed.
041 Steam Dump System (SDS) and Turbine Bypass Control	K4.15	Knowledge of SDS design feature(s) and/or interlock(s) which provide for the following: "Measured variable" readings on ICS hand-automatic stations and required action if reading is out of the acceptable band	Equipment not installed.
045 Main Turbine Generator (MT/G) System	A2.13	Ability to (a) predict the impacts of the following malfunctions or operations on the MT/G System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Opening of the steam dumps at low pressure	Action not provided for.
045 Main Turbine Generator (MT/G) System	K4.08	Knowledge of MT/G System design feature(s) and/or interlock(s) which provide for the following: The reactor bailey station and reactor diamond station in integrated control circuitry	Equipment not installed.
045 Main Turbine Generator (MT/G) System	K4.44	Knowledge of MT/G System design feature(s) and/or interlock(s) which provide for the following: Impulse pressure mode control of steam dumps	Not directly controlled covered by previous KA
045 Main Turbine Generator (MT/G) System	K4.45	Knowledge of MT/G System design feature(s) and/or interlock(s) which provide for the following: Operation of low-pressure steam dump to prevent T/G overspeed	Equipment not installed.
059 Main Feedwater (MFW) System	A1.07	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MFW System controls including: Feed Pump speed, including normal control speed for ICS	Variable speed MFW pumps not installed.
059 Main Feedwater (MFW) System	A2.07	Ability to (a) predict the impacts of the following malfunctions or operations on the MFW System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Tripping of MFW pump turbine	Turbine-driven MFW pumps not installed.
059 Main Feedwater (MFW) System	A3.04	Ability to monitor automatic operation of the MFW System, including: Turbine driven feed pump	Turbine-driven MFW pumps not installed.
059 Main Feedwater (MFW) System	A3.07	Ability to monitor automatic operation of the MFW System, including: ICS	Equipment not installed.
059 Main Feedwater (MFW) System	A4.01	Ability to manually operate and/or monitor in the control room: MFW turbine trip indication	Turbine-driven MFW pumps not installed.
059 Main Feedwater (MFW) System	A4.10	Ability to manually operate and/or monitor in the control room: ICS	Equipment not installed.
059 Main Feedwater (MFW) System	K1.07	Knowledge of the physical connections and/or cause-effect relationships between the MFW System and the following systems: ICS	Equipment not installed.

Tier 2 - Systems			
System Information	K/A #	K/A Statement	Basis for suppression
059 Main Feedwater (MFW) System	K4.05	Knowledge of MFW System design feature(s) and/or interlock(s) which provide for the following: Control of speed of MFW pump turbine	Turbine-driven MFW pumps not installed.
059 Main Feedwater (MFW) System	K4.13	Knowledge of MFW System design feature(s) and/or interlock(s) which provide for the following: Feedwater fill for S/G upon loss of RCPs	Equipment does not function in this manner.
059 Main Feedwater (MFW) System	K4.17	Knowledge of MFW System design feature(s) and/or interlock(s) which provide for the following: Increased feedwater flow following a reactor trip	Equipment does not function in this manner.
059 Main Feedwater (MFW) System	K4.18	Knowledge of MFW System design feature(s) and/or interlock(s) which provide for the following: Automatic feedwater reduction on plant trip	Equipment does not function in this manner.
059 Main Feedwater (MFW) System	K5.12	Knowledge of the operational implications of the following concepts as they apply to the MFW System: Increased MFW pump discharge with increased turbine speed	Turbine-driven MFW pumps not installed.
059 Main Feedwater (MFW) System	K6.09	Knowledge of the effect of a loss or malfunction of the following will have on the MFW System components: MFW pump speed and flow regulating valves (reason for adjusting position of both)	Variable speed MFW pumps not installed.
061 Auxiliary / Emergency Feedwater (AFW) System	A2.05	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: Automatic control malfunction	Equipment not installed.
061 Auxiliary / Emergency Feedwater (AFW) System	A2.09	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: Total loss of feedwater	RO & SRO KA values yet to be determined.
061 Auxiliary / Emergency Feedwater (AFW) System	A3.03	Ability to monitor automatic operation of the AFW System, including: AFW S/G level control on automatic start	Equipment not installed.
061 Auxiliary / Emergency Feedwater (AFW) System	A3.04	Ability to monitor automatic operation of the AFW System, including: Automatic AFW isolation	Equipment not installed.
061 Auxiliary / Emergency Feedwater (AFW) System	K1.10	Knowledge of the physical connections and/or cause-effect relationships between the AFW System and the following systems: Diesel fuel oil	Equipment not installed.
061 Auxiliary / Emergency Feedwater (AFW) System	K2.03	Knowledge of bus power supplies to the following: AFW diesel driven pump	Equipment not installed.
061 Auxiliary / Emergency Feedwater (AFW) System	K4.05	Knowledge of AFW System design feature(s) and/or interlock(s) which provide for the following: Prevention of MFW swapover to AFW suction pressure is low	Equipment does not function in this manner.

Tier 2 - Systems			
System Information	K/A #	K/A Statement	Basis for suppression
061 Auxiliary / Emergency Feedwater (AFW) System	K4.11	Knowledge of AFW System design feature(s) and/or interlock(s) which provide for the following: Automatic level control	Equipment not installed.
061 Auxiliary / Emergency Feedwater (AFW) System	K4.14	Knowledge of AFW System design feature(s) and/or interlock(s) which provide for the following: AFW automatic isolation	Equipment not installed.
062 A.C. Electrical Distribution System	A4.02	Ability to manually operate and/or monitor in the control room: Remote racking in and out of breakers	Equipment not installed.
062 A.C. Electrical Distribution System	K4.06	Knowledge of A.C. Distribution System design feature(s) and/or interlock(s) which provide for the following: One-line diagram of 6.9kV distribution, including sources of normal and alternative	Equipment not installed.
064 Emergency Diesel Generator (ED/G) System	A2.13	Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Consequences of opening auxiliary feeder bus (ED/G sub supply)	Equipment not installed.
064 Emergency Diesel Generator (ED/G) System	A2.17	Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Consequences of not shedding loads during nonoperability test	Equipment not installed.
064 Emergency Diesel Generator (ED/G) System	A2.21	Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Significance and interpretation of opening of ring bus during test	Equipment not installed.
064 Emergency Diesel Generator (ED/G) System	A3.08	Ability to monitor automatic operation of the ED/G System, including: Consequences of automatic transfer to automatic position after the ED/G is stopped	Equipment not installed.
064 Emergency Diesel Generator (ED/G) System	A3.09	Ability to monitor automatic operation of the ED/G System, including: Functions (modes) of automatic transfer switch (to a startup bank)	Equipment not installed.
064 Emergency Diesel Generator (ED/G) System	A4.04	Ability to manually operate and/or monitor in the control room: Remote operation of the air compressor switch (different modes)	Equipment not installed.
064 Emergency Diesel Generator (ED/G) System	A4.08	Ability to manually operate and/or monitor in the control room: Opening of the ring bus	Equipment not installed.
071 Waste Gas Disposal System (WGDS)	A3.01	Ability to monitor automatic operation of the Waste Gas Disposal System, including: HRPS	Equipment is not related in this manner.
072 Area Radiation Monitoring (ARM) System	A3.01	Ability to monitor automatic operation of the ARM system, including: Changes in ventilation alignment	Equipment does not function in this manner.

Tier 2 - Systems			
System Information	K/A #	K/A Statement	Basis for suppression
072 Area Radiation Monitoring (ARM) System	K1.01	Knowledge of the physical connections and/or cause-effect relationships between the ARM system and the following systems: Plant ventilation systems	Equipment does not function in this manner.
072 Area Radiation Monitoring (ARM) System	K1.02	Knowledge of the physical connections and/or cause-effect relationships between the ARM system and the following systems: Containment isolation	Equipment does not function in this manner.
072 Area Radiation Monitoring (ARM) System	K1.03	Knowledge of the physical connections and/or cause-effect relationships between the ARM system and the following systems: Fuel building isolation	Equipment does not function in this manner.
072 Area Radiation Monitoring (ARM) System	K1.04	Knowledge of the physical connections and/or cause-effect relationships between the ARM system and the following systems: Control room ventilation	Equipment does not function in this manner.
072 Area Radiation Monitoring (ARM) System	K1.05	Knowledge of the physical connections and/or cause-effect relationships between the ARM system and the following systems: MRSS	Equipment does not function in this manner.
072 Area Radiation Monitoring (ARM) System	K3.01	Knowledge of the effect that a loss or malfunction of the ARM system will have on the following: Containment ventilation isolation	Equipment does not function in this manner.
072 Area Radiation Monitoring (ARM) System	K4.01	Knowledge of ARM system design feature(s) and/or interlock(s) which provide for the following: Containment ventilation isolation	Equipment does not function in this manner.
072 Area Radiation Monitoring (ARM) System	K4.02	Knowledge of ARM system design feature(s) and/or interlock(s) which provide for the following: Fuel building isolation	Equipment does not function in this manner.
073 Process Radiation Monitoring (PRM) System	A2.03	Ability to (a) predict the impacts of the following malfunctions or operations on the PRM System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Calibration drift	Not addressed by Operations.
073 Process Radiation Monitoring (PRM) System	K4.02	Knowledge of PRM System design feature(s) and/or interlock(s) which provide for the following: Letdown isolation on high-RCS activity	Equipment does not function in this manner.
075 Circulating Water System	K3.07	Knowledge of the effect that a loss or malfunction of the Circulating Water System will have on the following: ESFAS	Equipment not related in this manner.
076 Service Water System (SWS)	A1.02	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the SWS controls including: Reactor and turbine building closed cooling water temperatures	Equipment not installed.
076 Service Water System (SWS)	K1.07	Knowledge of the physical connections and/or cause-effect relationships between the SWS and the following systems: Secondary closed cooling water	Equipment not installed.
076 Service Water System (SWS)	K1.08	Knowledge of the physical connections and/or cause-effect relationships between the SWS and the following systems: RHR system	Equipment is not related in this manner.

Tier 2 - Systems			
System Information	K/A #	K/A Statement	Basis for suppression
076 Service Water System (SWS)	K1.09	Knowledge of the physical connections and/or cause-effect relationships between the SWS and the following systems: Reactor building closed cooling water	Equipment not installed.
076 Service Water System (SWS)	K1.21	Knowledge of the physical connections and/or cause-effect relationships between the SWS and the following systems: Auxiliary backup SWS	Equipment not installed.
076 Service Water System (SWS)	K2.04	Knowledge of bus power supplies to the following: Reactor building closed cooling water	Equipment not installed.
076 Service Water System (SWS)	K3.02	Knowledge of the effect that a loss or malfunction of the SWS will have on the following: Secondary closed cooling water	Equipment not installed.
076 Service Water System (SWS)	K3.03	Knowledge of the effect that a loss or malfunction of the SWS will have on the following: Reactor building closed cooling water	Equipment not installed.
076 Service Water System (SWS)	K3.08	Knowledge of the effect that a loss or malfunction of the SWS will have on the following: Radioactive liquid waste discharges	System does not function in this manner.
076 Service Water System (SWS)	K4.01	Knowledge of SWS design feature(s) and/or interlock(s) which provide for the following: Conditions initiating automatic closure of closed cooling water auxiliary building header supply and return valves	Equipment not installed.
078 Instrument Air System (IAS)	K1.01	Knowledge of the physical connections and/or cause-effect relationships between the IAS and the following systems: Sensor air	Equipment not installed. (IA is sensor air)
078 Instrument Air System (IAS)	K1.03	Knowledge of the physical connections and/or cause-effect relationships between the IAS and the following systems: Containment air	Equipment not installed.
078 Instrument Air System (IAS)	K2.02	Knowledge of bus power supplies to the following: Emergency air compressor	Equipment not installed.
078 Instrument Air System (IAS)	K3.01	Knowledge of the effect that a loss or malfunction of the IAS will have on the following: Containment air system	Equipment not installed.
086 Fire Protection System (FPS)	A1.02	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the Fire Protection System controls including: Fire water storage tank level	Equipment not installed. (River is water source)
086 Fire Protection System (FPS)	A4.04	Ability to manually operate and/or monitor in the control room: Fire water storage tank makeup pumps	Equipment not installed. (River is water source)
086 Fire Protection System (FPS)	K1.02	Knowledge of the physical connections and/or cause-effect relationships between the Fire Protection System and the following systems: Raw service water	Equipment not related in this manner. (Lake is water source)
086 Fire Protection System (FPS)	K1.03	Knowledge of the physical connections and/or cause-effect relationships between the Fire Protection System and the following systems: AFW System	Equipment not related in this manner.
103 Containment System	A4.07	Ability to manually operate and/or monitor in the control room: Use of the air lock rate test panel	Action not performed by Operators.
103 Containment System	A4.09	Ability to manually operate and/or monitor in the control room: Containment vacuum system	Equipment not installed.

Tier 2 - Systems			
System Information	K/A #	K/A Statement	Basis for suppression
103 Containment System	K1.06	Knowledge of the physical connections and/or cause-effect relationships between the Containment System and the following systems: Subsurface drain system	Equipment not installed.
103 Containment System	K1.07	Knowledge of the physical connections and/or cause-effect relationships between the Containment System and the following systems: Containment vacuum system	Equipment not installed.
103 Containment System	K4.02	Knowledge of Containment System design feature(s) and/or interlock(s) which provide for the following: Containment penetration cooling	Equipment not installed.
103 Containment System	K4.03	Knowledge of Containment System design feature(s) and/or interlock(s) which provide for the following: Prevention of radiation streaming	Design characteristic not controlled by operator.