

KEWAUNEE

May 2001

PROPOSED OUTLINE

Facility: <u>Keweenaw</u>		Date of Examination: <u>MAY 14, 2001</u>		
Item	Task Description	Initials		
		a	b*	c
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model per ES-401.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all knowledge and ability categories are appropriately sampled.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	d. Assess whether the repetition from previous examination outlines is excessive.	<u>ASB</u>	<u>B</u>	<u>sm</u>
2. SIM	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, and major transients.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity; ensure each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s)*, and scenarios will not be repeated over successive days.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.	<u>ASB</u>	<u>B</u>	<u>sm</u>
3. W/T	a. Verify that: (1) the outline(s) contain(s) the required number of control room and in-plant tasks, (2) no more than 30% of the test material is repeated from the last NRC examination, (3)* no tasks are duplicated from the applicants' audit test(s), and (4) no more than 80% of any operating test is taken directly from the licensee's exam banks.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	b. Verify that: (1) the tasks are distributed among the safety function groupings as specified in ES-301, (2) one task is conducted in a low-power or shutdown condition, (3) 40% of the tasks require the applicant to implement an alternate path procedure, (4) one in-plant task tests the applicant's response to an emergency or abnormal condition, and (5) the in-plant walk-through requires the applicant to enter the RCA.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	c. Verify that the required administrative topics are covered, with emphasis on performance-based activities.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	d. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on successive days.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	e. Verify that the required administrative topics are covered, with emphasis on performance-based activities.	<u>ASB</u>	<u>B</u>	<u>sm</u>
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	d. Check for duplication and overlap among exam sections.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	e. Check the entire exam for balance of coverage.	<u>ASB</u>	<u>B</u>	<u>sm</u>
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	<u>ASB</u>	<u>B</u>	<u>sm</u>
a. Author		Printed Name / Signature		Date
b. Facility Reviewer(*)		George E. Baldwin <u>George E. Baldwin</u>		<u>2/23/01</u>
c. Chief Examiner		DAVID T. BRAUN <u>D. Braun</u>		<u>2-23-01</u>
d. NRC Supervisor		Dell R. McNeil <u>Dell R. McNeil</u>		<u>03/01/01</u>
		David E. Hills <u>David E. Hills</u>		<u>3/1/01</u>
(*) Not applicable for NRC-developed examinations				

Facility: Kewaunee
Examination Level: SRO

Date of Examination: May 14, 2001
Operating Test Number: 1

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Knowledge of non-nuclear safety procedures	Respond to a degraded Appendix R door
	How to conduct and verify valve lineups	Review Tagout Prior to Authorizing Hanging of Tagout
A.2	Post-maintenance operability requirements	Review Partial Surveillance procedure for post maintenance retest.
A.3	Radiation exposure limits and contamination control, including permissible levels in excess of those authorized.	Review and Approve exposure limit in excess of 10CFR20 limit as ED.
A.4	Events related to system operations/status should be reported to outside agencies	Event Notification for Tech. Spec. Required Shutdown.

Administrative Topics Outline
Supplementary Information

- A.1.a The candidate be will informed of a degraded fire door (Appendix R) as the Shift Supervisor (Shift Manager)) and requested to provide a Barrier Impairment Permit (fire procedure FPP 08-09, Barrier Control). The candidate will then be required to determine what actions are required per the Fire Plan.

Facility Task:

1190190302 Apply Technical Specifications during plant operations

Objective:

1190190302A02 Analyze plant conditions and determine if any Technical Specification LCO Action Statements apply.

- A.1.b The candidate will be provided a tagout to review as the Control Room Supervisor for a failed safeguards component (6-8 tags). Maintenance will be requesting hold cards for the repair work. The tagout will have several errors and the candidate should not approve the tagout.

Facility Task:

1190120302 Process a tagout

1190120304 Conduct equipment tagouts

Objective

1190120304A01 Conduct an Equipment tagout in accordance with GNP 3.3.1.

- A.2 As an SRO the candidate will be asked to review a partial surveillance for post maintenance testing of a safety related system. It will be incomplete or change the intent of the procedure. To approve the candidate must sign GNP-03.01.03, Procedure Use and Adherence, Partial Procedure Cover Sheet.

Facility Task:

1190190304 Perform Surveillance testing assigned to the shift

Objective:

1190190304K02 Explain the requirements for review and approval of temporary changes to Surveillance procedures in accordance with NAD 12.2.

- A.3 As Emergency Director, the candidate will be asked to approve exceeding 10CFR20 requirements to save a piece of valid equipment. The radiation levels will be too high to save the equipment in the stay time required. This will require the use of EPIP Form AD 11.1, Emergency Radiation Permit.

Facility Task:

1190040502 Respond to a declared emergency with an ALERT or HIGHER emergency classification

Objective

1190040502A01 Given an emergency classification of Alert or higher, perform the initial actions of the Shift Supervisor/Emergency Director in accordance with EP-AD-4.

- A.4 As the Shift Supervisor (Shift Manager) the candidate will complete an Event Notification Form per GNP-11.4.4 for a Tech. Spec. required shutdown.

Facility Task:

1190090302 Complete an Event Notification Worksheet

Objective

1190090302A01 Given an NRC reportable event at KNPP, complete an Event Notification Worksheet in accordance with GNP 11.4.4.

Facility: Kewauanee
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B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. 004 - CVCS / JPM 173 - Shutdown and Cooldown with a Fire in a Dedicated Zone (Boron Control & Misc. Equip.)	M A S L	I
b. 073 - Rad. Monitoring / JPM 137 - Operate the Process Radiation Monitors (R-11 Startup)	D S	VII
c. 006 - Safety Injection / JPM 108 - Line Up Safety Injection For Normal Plant Shutdown	D S L	II
d. /		I
e. /		I
f. /		I
g. /		I

B.2 Facility Walk-Through

a. 036 - Steam Generator / JPM 006 - Locally Operate The S/G PORV	M L R	IV
b. 064 - EDG / JPM 078A - Operate The Diesel Generator (Locally)	D A	VI
c. /		I

Type Codes: (D) Direct from bank, (M)odified from bank, (N)ew, (A)lternate Path, (C)ontrol Room, (S)imulator, (L)ow Power, (R)CA

JPM SUPPLEMENTAL INFORMATION

B.1.

- a. The performance of E-O-07, Fire in Dedicated Zone, steps 16 through 17, with a failure of SI-15A and SI-9B.
- b. Any RCS condition
- c. Performed at Intermediate Shutdown

B.2.

- a. Performance of E-0-06, Fire in Alternate Zone, step 34
- b. Performance of E-0-06, Fire in Alternate Fire Zone, step 13. Time critical

Timing for the JPMs:

JPM	TIME
B.1.a	5 min.
B.1.b	5 min.
B.1.c	10 min.
B.2.a	5 min.
B.2.b	19 min.
TOTAL	45 min.

Simulation Facility <u>Kewaunee</u>	Scenario No.: <u>1</u>
Examiners: _____	Applicant: _____ <u>SRO</u>
_____	_____ <u>RO</u>
_____	_____ <u>BOP</u>

Initial Conditions: IC-14: 83% power, end of cycle (EOC).

Turnover: The plant is at 83% power. Backdown is underway with plant going to COLD SHUTDOWN conditions for refueling. Directions are to go to 40% power to support Reactor Engineering testing (RXT 8). Currently performing steps 4.3.5, 6 and 7 of N-0-03.
 Directions are to continue the plant backdown at 0.5 %/ min.
 Diesel Generator "A" has been tested 4 hours ago (Following SW Pump B2 failure)
 All ESF features for Train A have been verified OPERABLE
 Equipment Out of Service: RHR Pump "B"
 Internal Containment Spray Pump "B"
 Service Water Pump "B2"

Event No.	Malf. No.	Event Type*	Event Description
Preload	RD11		Failure of Reactor Trip Breakers to open (can be opened locally)
Preload	CC04B		CC Pump "B" fails to auto start
Preload	RH04A		RHR Pump "A" fails to auto start
1	—	N BOP SRO	Decrease turbine load at 0.5%/min. When < 50% (< 60%) power, Stop FW Pump, Cond Pump & align condensate to condenser for Mode II
		R RO	Decrease reactor power using rods and/or boration
2	SO3-3, 4.47E6 (RX215)	I BOP SRO	FI-464, S/G A controlling steam flow channel fails high
3	S02 - 9, 21% (RX206)	I RO SRO	Controlling Przr level channel (LT-428) fails to No-Load value
4	CC05A, 95% (CC04C)	C RO SRO	Running Component Cooling Water Pump "A" trips & Pump "B" fails to auto start
5	MS02A, 20%	M RO BOP SRO	Main Steamline Break inside containment on the "A" Header (~ 350,000 lbm/hr)
6	(RH04A)	C RO SRO	RHR Pump "A" fails to auto start
7	RC05, 100%	M BOP RO SRO	Przr steam space LOCA (~500,000 lbm/hr)

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

SCENARIO 1 OVERVIEW

Event 1 - The plant is at 83% power, end of cycle. Plant backdown is in progress for refueling. Operations Management has directed a backdown rate of 0.5%/min. to 40% power to support Reactor Engineering testing (RXT 8). Currently performing steps 4.3.5, 6 and 7 of N-0-03. When directed, the BOP operator will remove from service a Feedwater Pump (N-FW-05A), a Condensate Pump (N-CD-03), and condensate will be aligned to North end of condenser for Mode II (N-BT-07A). He may also direct placing of the Heating Boiler in operation (N-HS-22).

Event 2 - After the load reduction is started, S/G A steam flow channel (controlling channel for Main Feedwater Control Valve FW-7A), FT-464, will fail high. This results in an indicated steam flow - feedwater flow mismatch, and a demanded opening of FW-7A causing S/G level to increase. The operator responds to annunciator 47061-B SG A SF > FF alarm. The operator is expected to recognize this condition, take manual control of the FW-7A and adjust it to restore S/G A level to normal. The actions of A-MI-87 are implemented for the failed S/G steam flow channel, including selection of the alternate steam flow channel (FT-465) for control. Once S/G levels are stabilized, FW-7A controller may be restored to AUTO per procedure A-FW-05A. The SRO should review Technical Specification 3.5 for actions associated with the failed steam flow channel.

Event 3 - After Steam Generator levels are stabilizes and when actions are complete for responding to S/G A steam flow channel failure, the controlling Przr level channel fails to its no-load value of 21. The operators will respond to Computer alarm LO428A for level deviation and determine the failure of LT-428. The operators should also note the increase in Przr level and increase in the controlled Charging Pump speed indication. If Przr level program increases above 31% [$\sim 558^{\circ}\text{F}$] (as Tav_g increase with load), then annunciator 47043-E PRESSURIZER LEVEL DEVIATION will alarm. The operators will select the alternate channel for control (Position 2-1) and recorder (Position 1) and remove LT-428 (Channel 3) from service as directed by procedure A-MI-87. The SRO will address TS 3.5 for actions for the failed Przr level instrument.

Event 4 - When actions are complete for responding to the Przr level channel failure, the running CCW Pump ("A") trips. CCW Pump "B" should auto start on low CCW header pressure but will fail to do so, requiring the operator to manually start the pump. (NOTE: The operator may manually start the pump prior to the automatic start by standard practice.) Normal CCW cooling should be verified once the pump is started. The SRO should review Technical Specification 3.3.d for applicability to the tripped CCW Pump and order a plant shutdown. If failure of the auto start of CCW Pump B is noted, I&C should be notified to investigate cause.

Events 5, 6 & 7 - After the plant shutdown is started, a main steamline break of $\sim 350,000$ lbm/hr occurs on the S/G A steam header inside containment. Containment humidity, temperature and pressure will rise. An automatic actuation of Safety Injection will occur due to Low Steam Line Pressure. The operators will recognize the failure of the reactor to trip, enter E-0 and transfer to FR-S.1 from E-0 step 1 contingency. The operators will perform the immediate actions of FR-S.1. The operators will direct the local operators to open the feeder breakers to the buses supplying the Rod Drive MG Sets (Bus 33 & 34) and the reactor trip breakers. Transition to E-0 will occur at step 5.d Steam flow will remain higher than expected for S/G A, resulting in closure of MSIV MS-1A. The RO will determine RHR Pump "A" failed to auto start and will manually start the pump when directed (and allowed by SI sequencing). One minute following MSIV closure, a Przr steam space break occurs, which will further reduce RCS pressure resulting in adverse containment conditions and reduction in RCS subcooling requiring the RXCPs to be stopped. Transition from E-0 is made to E-2 at step 21. Upon entry into E-2, the operators will isolate steam flow from S/G A by closing the supply to the TD AFW Pump (MS-100A) and isolate AFW flow to the S/G by closing AFW-2A and AFW-10A. Transition from E-2 is made at step 8 to procedure E-1. The operators will reset SI and evaluate SI termination. The running RHR Pump will be stopped as directed and when S/G A has completed its blowdown, the evaluation for RCS cooldown and depressurization will be made. The scenario ends upon the transition to ES-1.2.

SCENARIO 1 OVERVIEW (CONT.)

Critical Tasks

1. E-CC A: Manually start at least one CCW Pump required to provide adequate component cooling flow for the operating safeguards train prior to Rx Trip.
2. PRZR B: Prevent a Rx Trip by shifting PRZR level controlling channel or by taking manual control of charging pumps.
3. FR-S.1 — C: Insert negative reactivity into the core by at least one of the following methods before completing immediate action steps of FR-S.1: • Open the Bus 33 and Bus 43 supply breakers to de-energize the rod drive MG sets; • Manually insert control rods.

Simulation Facility	<u>Kewaunee</u>	Scenario No.: <u>2</u>
Examiners:	_____	Operators: _____
	_____	_____
	_____	_____
		<u>SRO</u>
		<u>RO</u>
		<u>BOP</u>
Initial Conditions:	IC-12 100% power, middle of cycle (MOC)	
Turnover:	The plant is at 100% power. Directions are to decrease power to 80% per Energy Supply and Control due to 345KV line problems. Diesel Generator "A" has been tested 6 hours ago (Following SW Pump B2 failure) All ESF features for Train A have been verified OPERABLE	
	Equipment Out of Service: SW Pump "B2" Internal Containment Spray Pump "B" S/G "B" Feedwater flow Red channel (FI-477)	

Event No.	Malf. No.	Event Type*	Event Description
Preload	RD11		Reactor Trip Breakers Fail to open on trip signal
1	—	N BOP SRO	Decrease turbine load to 80% at the normal rate of 0.25%/min.
		R RO	Decrease reactor power using rods and/or boration
2	NI06B, 100%	I RO SRO	Nuclear Power Range N-42 fails high
3	RD03, 100%	C RO SRO	Continuous rod motion (during N-42 failure) requiring operation of Rod Control in manual
4	SO3 – 2 200 psig (RX213)	I BOP SRO	S/G A Steam Pressure Channel PT- 468 fails mid-scale (200 psig)
5	RD08A	C RO SRO	RPI power supply breaker trips open
6	FW01, 50%, 15 min	C BOP RO SRO	Loss of condenser vacuum at 500 cfm over 15 minutes
7	(RD11)	M RO BOP SRO	Reactor Trip Breakers Fail to open on trip signal
8	RC04A, 100%	M BOP RO SRO	Large Break LOCA

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

SCENARIO 2 OVERVIEW

Event 1 - The plant is at 100% power. Directions are to decrease load to 80% power at the normal rate of 0.25%/min per Energy Supply and Control due to 345KV line problems.

Events 2&3 - Following clearly observable plant response from the reactivity changes, NI Channel N-42 upper detector fails high resulting in N42 Power Range channel indication increase. Control Rods will insert in AUTO. Power Range Overpower Rod Stop (Annunciator 47043-1) will prevent withdrawal of control rods in AUTO or MAN. Coincident with the N42 failure, Control Rods will be demanded to move in at the maximum rate (72 spm) due to a failure in the summing unit providing a +10°F difference output (Tave-Tref). This failure may be noted immediately with the N42 failure or may not since rods are placed in MAN (stopping the rod motion), but will be evident following removal of N42 from service and any attempt to restore AUTO rod control. The operator will be required to operate rod control in MAN. N42 is removed from service. The SRO will review Technical Specification 3.5 for applicability of N42 failure.

Events 4 - Following removal of N42 from service and stabilization of plant, steam pressure channel PT-468 for S/G A fails to mid-scale position. This channel also affects the output of the controlling steam flow channel FT-474 since it provides for density compensation for this steam flow channel. Indicated steam flow will decrease, resulting in closing of FW-7A to decrease feedwater flow to S/G A. The operator will be required to take manual control of FW-7A and restore level to normal. The alternate available steam flow channel (and possibly feedwater flow channel) will be selected, and when level is restored, feedwater control may be returned to automatic. The SRO will review Technical Specification 3.5 for applicability of PT-468 failure.

Event 5 - Following restoration of automatic level control for S/G a and stabilization of level, an AC power failure to the rod position indicator cabinet results in failure of all indicators. Annunciator 47041-P ROD BOTTOM ROD DROP will alarm, and all rods Rod Bottom Lights on the IRPIs will light. Actions are taken per E-CRD-49C and verify the rod is not dropped. Actions will then be directed in abnormal procedures A-CRD-49D and A-CRD-49B. The operator will note requirements for limitations on control motion, and hourly actions to record QPTR and step counter positions. The SRO will apply Technical Specification 3.10.f., TS 3.0.c.

Event 6 - After the requirements for shutdown are addressed (per Technical Specifications) for the IRPI power failure, a loss of condenser vacuum will occur. Initially the leak will be such that adequate vacuum may be maintained by the load backdown, but will increase to the point where a plant trip is required (turbine trip & reactor trip). The operator is alerted by decreasing condenser vacuum indication, computer alarm and finally annunciator 47051-W CONDENSER LOW VACUUM. Operator actions are performed per E-AR-09. The operator should verify operation within limits of N-TB-54 Figure 4. Also the RO and SRO must address the limitations on control rod motion with the IRPI power failure per A-CRD-49D (12 steps > 85% power OR 24 steps between 50% and 85% power). The turbine will trip at 8-12" Hg abs. Pressure. The operators should choose to trip the turbine and reactor before this value if vacuum continues to drop OR may choose to trip the reactor based on condenser vacuum decrease and inability to adjust reactivity adequately within the control rod motion limits.

Event 7 & 8 - The reactor will fail to trip. The operators will recognize the failure of the reactor to trip and FR-S.1 entered at step 1 Contingency Action of E-0. The operators will perform the immediate actions of FR-S.1 and when the reactor cannot be manually tripped, they open the feeder breakers to the buses supplying the MG Sets (Bus 33 & 34). The reactor trip breakers will be opened ONE-minute following contact to open the breakers. Transition to E-0 will occur at step 5.d.

The operators will complete the immediate actions and transition from E-0 to ES-0.1 at step 4, when SI is determined NOT to be required. The operator will stabilize the plant and initiate an Emergency Boration (E-CVC-35) when he is unable to determine control rod status from RPI due to loss of power. Following the verification of emergency boration flow, a large break LOCA occurs on the RCS. Transition should be made to E-0, and later a transition from E-0 is made to E-1 at step 23. The RXCPs should be secured during the performance of E-0. At step 19 of E-1, the crew will identify the need to initiate containment sump recirculation when RWST falls to < 37%, and will re-perform the previous two steps if RWST is > 37%.

NOTE: After the initial return to step 17 of E-1 occurs, the crew will be informed of time compression to a later time with RWST inventory reduced. The crew will be directed to continue with actions of step 17 of E-1 with all other conditions as expected for the given time interval.

SCENARIO 2 OVERVIEW (CONT.)

Event 8 (cont.)

When RWST level falls to 37% (as indicated by alarm 47023-B RWST LEVEL LOW), transition should be made to ES-1.3 to transfer to cold leg recirculation. The operator will stop Train A SI, RHR and ICS Pumps, align the RHR Pump to take suction from the Containment sump, restart the RHR "A" Pump and establish recirculation flow. The scenario is terminated following completion of this action.

Critical Tasks

1. FR-S.1 — C: Insert negative reactivity into the core by at least one of the following methods before completing immediate action steps of FR-S.1: • Open the Bus 33 and Bus 43 supply breakers to de-energize the rod drive MG sets; • Manually insert control rods.
2. ES-1.3 — A: Transfer to cold leg recirculation and establish ECCS recirculation flow that at least meets the assumptions of the plant-specific LOCA analysis.

Facility: Kewaunee Date of Exam: May 14, 2001 Exam Level: SRO													
Tier	Group	K/A Category Points											Point Total
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	
1. Emergency & Abnormal Plant Evolutions	1	4	4	4				4	4			4	24
	2	3	3	3				3	2			2	16
	3	0	1	0				0	1			1	3
	Tier Totals	7	8	7				7	7			7	43
2. Plant Systems	1	2	1	2	2	1	2	2	2	2	1	2	19
	2	2	1	2	1	2	1	2	2	1	1	2	17
	3	1	0	0	1	0	0	1	0	0	0	1	4
	Tier Totals	5	2	4	4	3	3	5	4	3	2	5	40
3. Generic Knowledge and Abilities						Cat 1	Cat 2	Cat 3	Cat 4				
						4	5	4	4	17			
<p>Note:</p> <ol style="list-style-type: none"> 1. Ensure that at least two topics from every K/A category are sampled within each tier (i.e., the "Tier Totals" in each K/A category shall not be less than two). 2. Actual point totals must match those specified in the table. 3. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities. 4. Systems/evolutions within each group are identified on the associated outline. 5. The shaded areas are not applicable to the category/tier. 6.* The generic 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. 7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings for the RO license level, and the point totals for each system and category. K/As below 2.5 should be justified on the basis of plant-specific priorities. Enter the tier totals for each category in the table above. 													

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Points
000003 Dropped Control Rod / 1		X					AK2.05 - Control rod drive power supplies and logic circuits	2.8	1
000003 Dropped Control Rod / 1			X				AK3.07 - Tech-Spec limits for T-ave	3.9*	1
000005 Inoperable/Stuck Control Rod / 1	X						AK1.01 - Axial power imbalance	3.8	1
000011 Large Break LOCA / 3	X						EK1.01 - Natural circulation and cooling, including reflux boiling	4.4	1
000011 Large Break LOCA / 3		X					EK2.02 - Pumps	2.7*	1
000015 RCP Malfunctions / 4						X	2.1.14 - Knowledge of system status criteria which require the notification of plant personnel	3.3	1
000015 RCP Malfunctions / 4			X				AK3.07 - Ensuring that S/G levels are controlled properly for natural circulation enhancement	4.2	1
000029 Anticipated Transient w/o Scram / 1	X						EK1.03 - Effects of boron on reactivity	3.8	1
000029 Anticipated Transient w/o Scram / 1		X					EK2.06 - Breakers, relays, and disconnects	3.1*	1
000040 Steam Line Rupture / 4						X	2.2.25 - Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.7	1
000055 Station Blackout / 6				X			EA1.05 - Battery, when approaching fully discharged	3.6	1
000067 Plant Fire On-site / 9					X		AA2.09 - That a failed fire alarm detector exists	2.7	1
000068 (BW/A06) Control Room Evac. / 8				X			AA1.27 - Local trip of main feed pumps and Condensate pumps	3.4*	1
000069 (W/E14) Loss of CTMT Integrity / 5			X				AK3.01 - Guidance contained in EOP for loss of containment integrity	4.2	1
000074 Inad. Core Cooling / 4			X				EK3.04 - Tripping RCPs	4.2	1
000076 High Reactor Coolant Activity / 9					X		AA2.05 - CVCS letdown flow rate indication	2.5	1
000076 High Reactor Coolant Activity / 9						X	2.4.30 - Knowledge of which events related to system operations/status should be reported to outside agencies	3.6	1
E06 Degraded Core Cooling / 4					X		EA2.2 - Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments	4.1	1
E06 Degraded Core Cooling / 4						X	2.4.1 - Knowledge of EOP entry conditions and immediate action steps.	4.6	1
E07 Saturated Core Cooling / 4	X						EK1.2 - Normal, abnormal and emergency operating procedures associated with Saturated Core Cooling	3.6	1
E10 Natural Circulation with Steam Void in Vessel with/without RVLIS / 4					X		EA2.1 - Facility conditions and selection of appropriate procedures during abnormal and emergency operations	3.9	1
E10 Natural Circulation with Steam Void in Vessel with/without RVLIS / 4				X			EA1.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and features	3.6	1
E12 Uncontrolled Depressurization of all Steam Generators / 4		X					EK2.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.7	1
E12 Uncontrolled Depressurization of all Steam Generators / 4				X			EA1.3 - Desired operating results during abnormal and emergency situations	3.9	1
K/A Category Totals:	4	4	4	4	4	4	Group Point Total:		24

ES-401 PWR SRO Examination Outline Form ES-401-3 Emergency and Abnormal Plant Evolutions - Tier 1/Group 2									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Points
000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1					X		EA2.04 - If reactor should have tripped but has not done so, manually trip the reactor and carry out actions in ATWS	4.4	1
000008 Pressurizer Vapor Space Accident / 3				X			AA1.07 - Reseating of code safety and PORV	4.2	1
000009 Small Break LOCA / 3						X	2.4.45 - Ability to prioritize and interpret the significance of each annunciator or alarm.	3.6	1
000009 Small Break LOCA / 3				X			EA1.10 - Safety parameter display system	3.9*	1
000022 Loss of Reactor Coolant Makeup / 2						X	2.4.8 - Knowledge of how the event-based emergency/abnormal operating procedures are used in conjunction with the symptom-based EOPs.	3.7	1
000025 Loss of RHR System / 4	X						AK1.01 - Loss of RHRS during all modes of operation	4.3	1
000027 Pressurizer Pressure Control System Malfunction / 3			X				AK3.03 - Actions contained in EOP for PZR PCS malfunction	4.1	1
000032 Loss of Source Range NI / 7	X						AK1.01 - Effects of voltage changes on performance	3.1	1
000033 Loss of Intermediate Range NI / 7	X						AK1.01 - Effects of voltage changes on performance	3.0	1
000060 Accidental Gaseous Radwaste Rel. / 9		X					AK2.01 - ARM system, including the normal radiation-level indications and the operability status	2.9*	1
000065 Loss of Instrument Air / 8					X		AA2.03 - Location and isolation of leaks	2.9	1
000065 Loss of Instrument Air / 8			X				AK3.03 - Knowing effects on plant operation of isolating certain equipment from instrument air	3.4	1
E03 LOCA Cooldown and Depressurization / 4		X					EK2.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and features	4.0	1
E05 Loss of Secondary Heat Sink / 4				X			EA1.1 - Components, and functions of control and safety systems, including instrumentation, signals interlocks, failure modes, and automatic and features	4.0	1
E11 Loss of Emergency Coolant Recirculation / 4		X					EK2.2 - Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the facility	4.3	1
E16 High Containment Radiation / 9			X				EK3.3 - Manipulation of controls required to obtain desired operating results during abnormal, and emergency situations	3.0	1
K/A Category Point Totals:	3	3	3	3	2	2	Group Point Total:		16

ES-401 PWR SRO Examination Outline Form ES-401-3 Emergency and Abnormal Plant Evolutions - Tier 1/Group 3									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Points
000028 Pressurizer Level Malfunction / 2						X	2.4.41 Knowledge of the emergency action level thresholds and classifications. (CFR: 43.5 / 45.11)	4.1	1
000056 Loss of Off-site Power / 6					X		AA2.22 - Emergency lube oil pump indicators and low-pressure alarms on ED/G	3.6	1
E15 Containment Flooding / 5		X					EK2.2 - Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility	2.9	1
K/A Category Point Totals:	0	1	0	0	1	1	Group Point Total:		3

ES-401 PWR SRO Examination Outline Form ES-401-3 Plant Systems - Tier 2/Group 1

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)	Imp.	Points
001 Control Rod Drive					X							K5.85 - Estimation of xenon reactivity based on time to reach peak xenon after trip/shutdown, approximate peak xenon reactivities after shutdown from various levels, approximate xenon worth during the decay process following peak worth	3.7	1
001 Control Rod Drive								X				A2.07 - Effect of reactor trip on primary and secondary parameters and systems	4.4	1
004 Chemical and Volume Control											X	2.4.30 - Knowledge of which events related to system operations/status should be reported to outside agencies.	3.6	1
004 Chemical and Volume Control		X										K2.04 - BWST tank heaters	2.7	1
013 Engineered Safety Features Actuation						X						K6.01 - Sensors and detectors	3.1*	1
013 Engineered Safety Features Actuation								X				A2.03 - Rapid depressurization	4.7	1
014 Rod Position Indication							X					A1.04 - Axial and radial power distribution	3.8	1
015 Nuclear Instrumentation							X					A1.03 - NIS power indication	3.7	1
022 Containment Cooling			X									K3.01 - Containment equipment subject to damage by high or low temperature, humidity, and pressure	3.2*	1
056 Condensate	X											K1.03 - MFW	2.6	1
059 Main Feedwater										X		A4.08 - Feed regulating valve controller	2.9*	1
061 Auxiliary/Emergency Feedwater				X								K4.06 - AFW startup permissives	4.2*	1
061 Auxiliary/Emergency Feedwater						X						K6.02 - Pumps	2.7	1
063 DC Electrical Distribution				X								K4.01 - Manual/automatic transfers of control	3.0*	1
063 DC Electrical Distribution									X			A3.01 - Meters, annunciators, dials, recorders, and indicating lights	3.1	1
071 Waste Gas Disposal	X											K1.06 - ARM and PRM systems	3.1	1
071 Waste Gas Disposal									X			A3.02 - Pressure-regulating system for waste gas vent header	2.8	1
072 Area Radiation Monitoring											X	2.4.46 - Ability to verify that the alarms are consistent with the plant conditions.	3.6	1
072 Area Radiation Monitoring			X									K3.02 - Fuel handling operations	3.5	1
K/A Category Point Totals:	2	1	2	2	1	2	2	2	2	1	2	Group Point Total:		19

ES-401 PWR SRO Examination Outline Form ES-401-3 Plant Systems - Tier 2/Group 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)	Imp.	Points
002 Reactor Coolant					X							K5.09 - Relationship of pressure and temperature for water at saturation and subcooling conditions	4.2	1
010 Pressurizer Pressure Control	X											K1.05 - PRTS	3.6	1
010 Pressurizer Pressure Control					X							K5.02 - Constant enthalpy expansion through a valve	3.0*	1
011 Pressurizer Level Control										X		A4.01 - Charging pump and flow controls	3.2	1
012 Reactor Protection		X										K2.01 - RPS channels, components, and interconnections	3.7	1
012 Reactor Protection								X				A2.05 - Faulty or erratic operation of detectors and function generators	3.2*	1
029 Containment Purge											X	2.2.25 - Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.7	1
029 Containment Purge			X									K3.01 - Containment parameters	3.1	1
034 Fuel Handling Equipment											X	2.2.22 - Knowledge of limiting conditions for operations and safety limits.	4.1	1
062 AC Electrical Distribution							X					A1.01 - Significance of D/G load limits	3.8	1
062 AC Electrical Distribution									X			A3.04 - Operation of inverter (e.g., precharging synchronizing light, static transfer)	2.9	1
073 Process Radiation Monitoring			X									K3.01 - Radioactive effluent releases	4.2	1
073 Process Radiation Monitoring				X								K4.01 - Release termination when radiation exceeds setpoint	4.3	1
075 Circulating Water								X				A2.03 - Safety features and relationship between condenser vacuum, turbine trip, and steam dump	2.7*	1
079 Station Air	X											K1.01 - IAS	3.1	1
086 Fire Protection						X						K6.04 - Fire, smoke, and heat detectors	2.9	1
086 Fire Protection							X					A1.01 - Fire header pressure	3.3	1
K/A Category Point Totals:	2	1	2	1	2	1	2	2	1	1	2	Group Point Total:		17

ES-401 PWR SRO Examination Outline Form ES-401-3														Plant Systems - Tier 2/Group 3	
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A4	G	K/A Topic(s)	Imp.	Points	
005 Residual Heat Removal							X					A1.02 - RHR flow rate	3.4	1	
041 Steam Dump/Turbine Bypass Control	X											K1.06 – Condenser	2.9	1	
045 Main Turbine Generator											X	2.1.14 – Knowledge of system status criteria which require the notification of plant personnel.	3.3	1	
045 Main Turbine Generator				X								K4.13 - Overspeed protection	2.8	1	
K/A Category Point Totals:	1	0	0	1	0	0	1	0	0	0	1	Group Point Total:		4	
Plant-Specific Priorities															
System / Topic	Recommended Replacement for...						Reason						Points		
Plant-Specific Priority Total: (limit 10)															

Facility: Kewaunee Date of Exam: May 14, 2001 Exam Level: RO													
Tier	Group	K/A Category Points											Point Total
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	
1. Emergency & Abnormal Plant Evolutions	1	3	3	4				4	1			1	16
	2	5	5	2				3	1			1	17
	3	0	1	2				0	0			0	3
	Tier Totals	8	9	8				7	2			2	36
2. Plant Systems	1	2	2	2	2	2	2	2	2	2	2	3	23
	2	2	2	2	2	2	1	3	2	2	1	1	20
	3	1	1	1	1	1	0	1	1	0	1	0	8
	Tier Totals	5	5	5	5	5	3	6	5	4	4	4	51
3. Generic Knowledge and Abilities						Cat 1	Cat 2	Cat 3	Cat 4				
						3	3	4	3	13			
<p>Note:</p> <ol style="list-style-type: none"> 1. Ensure that at least two topics from every K/A category are sampled within each tier (i.e., the "Tier Totals" in each K/A category shall not be less than two). 2. Actual point totals must match those specified in the table. 3. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities. 4. Systems/evolutions within each group are identified on the associated outline. 5. The shaded areas are not applicable to the category/tier. 6.* The generic 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. 7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings for the RO license level, and the point totals for each system and category. K/As below 2.5 should be justified on the basis of plant-specific priorities. Enter the tier totals for each category in the table above. 													

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Points
000005 Inoperable/Stuck Control Rod / 1	X						AK1.01 - Axial power imbalance	3.1	1
000015 RCP Malfunctions / 4			X				AK3.07 - Ensuring that S/G levels are controlled properly for natural circulation enhancement	4.1	1
000024 Emergency Boration / 1	X						AK1.01 - Relationship between boron addition and change in T-ave	3.4	1
000027 Pressurizer Pressure Control System Malfunction / 3			X				AK3.03 - Actions contained in EOP for PZR PCS malfunction	3.7	1
000055 Station Blackout / 6				X			EA1.05 - Battery, when approaching fully discharged	3.3	1
000068 (BW/A06) Control Room Evac. / 8				X			AA1.27 - Local trip of main feed pumps and Condensate pumps	3.2*	1
000068 (BW/A06) Control Room Evac. / 8		X					AK2.01 - Auxiliary shutdown panel layout	3.9	1
000069 (W/E14) Loss of CTMT Integrity / 5			X				AK3.01 - Guidance contained in EOP for loss of containment integrity	3.8*	1
000074 (W/E06&E07) Inad. Core Cooling / 4			X				EK3.04 - Tripping RCPs	3.4	1
E06 Degraded Core Cooling / 4						X	2.4.48 - Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.	3.5	1
E07 Saturated Core Cooling / 4	X						EK1.2 - Normal, abnormal and emergency operating procedures associated with Saturated Core Cooling	3.1	1
E08 Pressurized Thermal Shock / 4		X					EK2.2 - Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility	3.6	1
E10 Natural Circulation with Steam Void in Vessel with/without RVLIS / 4				X			EA1.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.8	1
E10 Natural Circulation with Steam Void in Vessel with/without RVLIS / 4					X		EA2.2 - Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments	3.4	1
E12 Uncontrolled Depressurization of all Steam Generators / 4		X					EK2.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.4	1
E12 Uncontrolled Depressurization of all Steam Generators / 4				X			EA1.3 - Desired operating results during abnormal and emergency situations	3.4	1
K/A Category Totals:	3	3	4	4	1	1	Group Point Total:		16

E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Points
000003 Dropped Control Rod / 1		X					AK2.05 - Control rod drive power supplies and logic circuits	2.5	1
000003 Dropped Control Rod / 1			X				AK3.07 - Tech-Spec limits for T-ave	3.8*	1
000008 Pressurizer Vapor Space Accident / 3				X			AA1.07 - Reseating of code safety and PORV	4.0	1
000009 Small Break LOCA / 3				X			EA1.10 - Safety parameter display system	3.8*	1
000011 Large Break LOCA / 3	X						EK1.01 - Natural circulation and cooling, including reflux boiling	4.1	1
000011 Large Break LOCA / 3		X					EK2.02 - Pumps	2.6*	1
000025 Loss of RHR System / 4	X						AK1.01 - Loss of RHRS during all modes of operation	3.9	1
000029 Anticipated Transient w/o Scram / 1	X						EK1.03 - Effects of boron on reactivity	3.6	1
000029 Anticipated Transient w/o Scram / 1		X					EK2.06 - Breakers, relays, and disconnects	2.9*	1
000032 Loss of Source Range NI / 7	X						AK1.01 - Effects of voltage changes on performance	2.5	1
000033 Loss of Intermediate Range NI / 7	X						AK1.01 - Effects of voltage changes on performance	2.7	1
E01 Rediagnosis / 3						X	2.1.23 - Ability to perform specific system and integrated plant procedures during all modes of plant operation.	2.9	1
E03 LOCA Cooledown and Depressurization / 4		X					EK2.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.6	1
E05 Loss of Secondary Heat Sink / 4				X			EA1.1 - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	4.1	1
E05 Loss of Secondary Heat Sink / 4					X		EA2.1 - Facility conditions and selection of appropriate procedures during abnormal and emergency operations	3.4	1
E11 Loss of Emergency Coolant Recirculation / 4		X					EK2.2 - Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility	3.9	1
E16 High Containment Radiation / 9			X				EK3.3 - Manipulation of controls required to obtain desired operating results during abnormal, and emergency situations	3.0	1
K/A Category Point Totals:	5	5	2	3	1	1	Group Point Total:		17

ES-401 PWR RO Examination Outline Form ES-401-4 Emergency and Abnormal Plant Evolutions - Tier 1/Group 3									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	Imp.	Points
000036 (BW/A08) Fuel Handling Accident / 8			X				AK3.01 - Different inputs that will cause a reactor building evacuation	3.1	1
000065 Loss of Instrument Air / 8			X				AK3.03 - Knowing effects on plant operation of isolating certain equipment from instrument air	2.9	1
W/E15 Containment Flooding / 5		X					EK2.2 - Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the operation of these systems to the operation of the facility	2.7	1
K/A Category Point Totals:	0	1	2	0	0	0	Group Point Total:		3

ES-401 PWR RO Examination Outline Form ES-401-4 Plant Systems - Tier 2/Group 1

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)	Imp.	Points
001 Control Rod Drive					X							K5.85 - Estimation of xenon reactivity based on time to reach peak xenon after trip/shutdown, approximate peak reactivities after shutdown from various power levels, approximate xenon worth during the decay process following peak worth	3.5	1
001 Control Rod Drive								X				A2.07 - Effect of reactor trip on primary and secondary parameters and systems	4.1	1
003 Reactor Coolant Pump									X			A3.05 - RCP lube oil and bearing lift pumps	2.7*	1
003 Reactor Coolant Pump											X	2.2.22 - Knowledge of limiting conditions for operations and safety limits.	3.4	1
004 Chemical and Volume Control		X										K2.04 - BWST tank heaters	2.6	1
004 Chemical and Volume Control		X										K2.05 - MOVs	2.7	1
013 Engineered Safety Features Actuation						X						K6.01 - Sensors and detectors	2.7*	1
013 Engineered Safety Features Actuation								X				A2.03 - Rapid depressurization	4.4	1
015 Nuclear Instrumentation							X					A1.03 - NIS power indication	3.7	1
015 Nuclear Instrumentation							X					A1.06 - Fuel burnup	2.5*	1
017 In-core Temperature Monitor				X								K4.02 - Sensing and determination of location core hot spots	3.1	1
017 In-core Temperature Monitor					X							K5.03 - Indication of superheating	3.7	1
022 Containment Cooling			X									K3.01 - Containment equipment subject to damage by high or low temperature, humidity, and pressure	2.9*	1
056 Condensate	X											K1.03 - MFW	2.6*	1
059 Main Feedwater										X		A4.08 - Feed regulating valve controller	3.0*	1
059 Main Feedwater										X		A4.12 - Initiation of automatic feedwater isolation	3.4	1
061 Auxiliary/Emergency Feedwater				X								K4.06 - AFW startup permissives	4.0*	1
061 Auxiliary/Emergency Feedwater						X						K6.02 - Pumps	2.6	1
068 Liquid Radwaste											X	2.4.50 - Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	3.3	1
071 Waste Gas Disposal	X											K1.06 - ARM and PRM systems	3.1*	1
071 Waste Gas Disposal									X			A3.02 - Pressure-regulating system for waste gas vent header	2.8	1
072 Area Radiation Monitoring			X									K3.02 - Fuel handling operations	3.1	1
072 Area Radiation Monitoring											X	2.1.32 - Ability to explain and apply all system limits and precautions.	3.4	1
K/A Category Point Totals:	2	2	2	2	2	2	2	2	2	2	3	Group Point Total:		23

ES-401 PWR RO Examination Outline Form ES-401-4 Plant Systems - Tier 2/Group 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)	Imp.	Points
002 Reactor Coolant					X							K5.09 - Relationship of pressure and temperature for water at saturation and subcooling conditions	3.7	1
010 Pressurizer Pressure Control	X											K1.05 - PRTS	3.4	1
010 Pressurizer Pressure Control					X							K5.02 - Constant enthalpy expansion through a valve	2.6	1
011 Pressurizer Level Control										X		A4.01 - Charging pump and flow controls	3.5	1
012 Reactor Protection		X										K2.01 - RPS channels, components, and interconnections	3.3	1
012 Reactor Protection								X				A2.05 - Faulty or erratic operation of detectors and function generators	3.1*	1
014 Rod Position Indication							X					A1.04 - Axial and radial power distribution	3.5	1
026 Containment Spray		X										K2.01 - Containment spray pumps	3.4*	1
029 Containment Purge			X									K3.01 - Containment parameters	2.9	1
055 Condenser Air Removal											X	2.1.27 - Knowledge of system purpose and or function.	2.8	1
062 AC Electrical Distribution							X					A1.01 - Significance of D/G load limits	3.4	1
062 AC Electrical Distribution									X			A3.04 - Operation of inverter (e.g., precharging synchronizing light, static transfer)	2.7	1
063 DC Electrical Distribution				X								K4.01 - Manual/automatic transfers of control	2.7	1
063 DC Electrical Distribution									X			A3.01 - Meters, annunciators, dials, recorders, and indicating lights	2.7	1
073 Process Radiation Monitoring			X									K3.01 - Radioactive effluent releases	3.6	1
073 Process Radiation Monitoring				X								K4.01 - Release termination when radiation exceeds setpoint	4.0	1
075 Circulating Water									X			A2.03 - Safety features and relationship between condenser vacuum, turbine trip, and steam dump	2.5	1
079 Station Air	X											K1.01 - IAS	3.0	1
086 Fire Protection						X						K6.04 - Fire, smoke, and heat detectors	2.6	1
086 Fire Protection							X					A1.01 - Fire header pressure	2.9	1
K/A Category Point Totals:	2	2	2	2	2	1	3	2	2	1	1	Group Point Total:		20

ES-401 PWR RO Examination Outline Form ES-401-4 Plant Systems - Tier 2/Group 3																																																										
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)	Imp.	Points																																												
005 Residual Heat Removal							X					A1.02 - RHR flow rate	3.3	1																																												
005 Residual Heat Removal		X										K2.03 - RCS pressure boundary motor-operated valves	2.7*	1																																												
007 Pressurizer Relief/Quench Tank			X									K3.01 - Containment	3.3	1																																												
034 Fuel Handling Equipment										X		A4.02 - Neutron levels	3.5	1																																												
041 Steam Dump/Turbine Bypass Control	X											K1.06 - Condenser saturation pressure relief setting on valves	2.6	1																																												
041 Steam Dump/Turbine Bypass Control					X							K5.01 - Relationship of no-load T-ave. saturation pressure relief setting on valves	2.9	1																																												
045 Main Turbine Generator				X								K4.13 - Overspeed protection	2.6*	1																																												
076 Service Water								X				A2.01 - Loss of SWS	3.5*	1																																												
K/A Category Point Totals:	1	1	1	1	1	0	1	1	0	1	1	Group Point Total:		8																																												
<table border="1"> <thead> <tr> <th>Plant-Specific Priorities System / Topic</th> <th>Recommended Replacement for...</th> <th>Reason</th> <th>Points</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>															Plant-Specific Priorities System / Topic	Recommended Replacement for...	Reason	Points																																								
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Plant-Specific Priority Total: (limit 10)																																																										

Facility: Kewaunee					Date of Exam: 5/14/01		Exam Level: SRO	
Category	K/A #	Topic			Imp.	Points		
Conduct of Operations	2.1.4	Knowledge of shift staffing requirements.			3.4	1		
	2.1.7	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.			4.4	1		
	2.1.18	Ability to make accurate, clear and concise logs, records, status boards, and reports.			3.0	1		
	2.1.22	Ability to determine Mode of Operation.			3.3	1		
	Total				4			
Equipment Control	2.2.9	Knowledge of the process for determining if the proposed change, test or experiment increases the probability of occurrence or consequences of an accident during the change, test or experiment.			3.3	1		
	2.2.20	Knowledge of the process for managing troubleshooting activities.			3.3	1		
	2.2.25	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.			3.7	1		
	2.2.27	Knowledge of the refueling process			3.5	1		
	2.2.31	Knowledge of procedures and limitations involved in initial core loading.			2.9*	1		
	Total				5			
Radiation Control	2.3.1	Knowledge of 10 CFR: 20 and related facility radiation control requirements.			3.0	1		
	2.3.2	Knowledge of facility ALARA program.			2.9	1		
	2.3.9	Knowledge of the process for performing a containment purge.			3.4	1		
	2.3.11	Ability to control radiation releases.			3.2	1		
	Total				4			
Emergency Procedures/ Plan	2.4.1	Knowledge of EOP entry conditions and immediate action steps.			4.6	1		
	2.4.3	Ability to identify post-accident instrumentation.			3.8	1		
	2.4.32	Knowledge of operator response to loss of all annunciators.			3.5	1		
	2.4.42	Knowledge of emergency response facilities.			3.7	1		
	Total				4			
Tier 3 Point Total (SRO)						17		

Facility: Kewaunee Date of Exam: 5/14/01 Exam Level: RO				
Category	K/A #	Topic	Imp.	Points
Conduct of Operations	2.1.18	Ability to make accurate, clear and concise logs, records, status boards, and reports.	2.9	1
	2.1.20	Ability to execute procedure steps.	4.3	1
	2.1.29	Knowledge of how to conduct and verify valve lineups	3.4	1
	Total			3
Equipment Control	2.2.25	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	2.5	1
	2.2.27	Knowledge of the refueling process	2.6	1
	2.2.30	Knowledge of RO duties in the control room during fuel handling such as alarms fuel handling area, communication with fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation.	3.5	1
	Total			3
Radiation Control	2.3.4	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized	2.5	1
	2.3.9	Knowledge of the process for performing a containment purge.	2.5	1
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	2.9	1
	2.3.11	Ability to control radiation releases.	2.7	1
	Total			4
Emergency Procedures/ Plan	2.4.3	Ability to identify post-accident instrumentation.	3.5	1
	2.4.27	Knowledge of fire in the plant procedure.	3.0	1
	2.4.32	Knowledge of operator response to loss of all annunciators.	3.3	1
	Total			3
Tier 3 Point Total (RO)				13

SAMPLE PLAN CHANGES FOR MAY 2001 EXAM

Original K/A	Replacement K/A	Exam	Reason For The Replacement	Method of reselection
074EK3.03	074EK3.04	Both	Hot Standby is the mode of plant operations where the plant is critical behind the steam stops (<2% Power). This mode is defined by Tech. Spec. 1.0.j. In an emergency dealing with inadequate core coring, the plant would be put in a shutdown condition to reduce the heat production. Using the available procedures including the generic WOG background documents, the operator is never directed to place the Reactor in a hot standby condition. Due to the lack of instructions to place the plant in that condition, there is no basis for a question with this K/A statement.	Selected next available K/A statement
E06 2.4.45	E06 2.4.48	RO	Plant annunciators and/or alarms are not applicable in this situation. Any alarm associated with inadequate core cooling is set at a point far below any criteria for inadequate core cooling condition. The methodology used to determine an inadequate core cooling condition is the CSF checklist or the SAS unit. The SAS Unit provides a red flag but does not alarm. Since this K/A statement deals with prioritizing and interpreting annunciators or alarms, and no alarms are directly associated with this condition, there is no basis for a question with this K/A statement.	Selected next available K/A statement
E01 2.1.12	E01 2.1.23	RO	Radiagnosis is not a system and has no Tech. Spec. associated with it. Due to no relationship with Tech. Spec., there is no basis for a question with this K/A statement.	Went ten (10) K/A statements to avoid a number of system related K/A statements, and selected next procedure related K/A statement.
Post Approval Changes				
Original K/A	Replacement K/A	Exam	Reason For The Replacement	Method of reselection
067AA2.10	067AA2.09	SRO	KNPP does not have long term breathing air in the Control Room. Breathing air is supplied by Air Packs only.	Selected next closest K/A with SRO rating >2.5 and RO <2.5
028 2.4.49	028 2.4.41	SRO	Due to the rating for RO and the overlap of the knowledge area, this is not applicable for a SRO only level question.	Selected next closest K/A with SRO rating >2.5 and RO <2.5