

Subject: Millstone Unit 2 Description of the Random K/A Selection Process for the March 12 2001 NRC Written Exam.

Millstone Unit 2 used the guidelines described in ES-401 of NUREG 1021 Revision 8 (including Supplement 1 and "For Comment and Interim Use" drafts) to systematically select K/As to be tested on the written exam. The outline was developed for the SRO written exam using the process described in ES-401 section D and Attachment 1 without modification.

The random selection resulted in less than 2 K/As being selected in the "K4" category, so all categories were evaluated for "over selection". It was noted that category "A1" had far more than any other category, so all applicable systems in Tier 2 that had available "K4" items of greater than 2.4 importance were evaluated for a possible reselection. The random selection process was then used to select a replacement K/A to meet the minimum requirement category counts.

In order to meet the 25 SRO only question minimum requirement, as specified in NUREG-1021, Interim Rev. 8, Section 401, paragraph D.1.c, additional K/A statements may need to be randomly reselected for conversion into A2 or G categories during the question generation and review process.

As stated above, three changes were necessary to the original K/A selection performed and documented in the outline previously sent. The changes were driven by the need for the random sampling to also meet the pattern specified in NUREG-1021, Interim Rev. 8, Section 401, paragraph D.1.c. To more closely match the distribution pattern of this paragraph, three K/As have been changed, with the changes annotated on the applicable ES-401 form (change bars). The new K/As were "manually" selected based on the following criteria:

1. Priority to the applicable system.
2. Importance factors available in the needed category (preference given to highest number).
3. Applicability to MP2 plant systems.
4. Knowledge of potential or demonstrated student weakness.

Please see the included form ES-401-3 for specific changes (also barred).

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Facility: Millstone Unit 2

3/2001 NRC EXAM

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 3	6 5				5	4 5			4 2	24
	2	1	2	3				6	0 1			4 3	16
	3	1	1	0				1	0			0	3
	Tier Totals	6	7 6	9 8				12	4 6			5	43
2.  Plant  Systems	1	2	1	1	1	4	1	2	1	1	3	2	19
	2	4	1	2	1	0	1	1	3	2	1	1	17
	3	0	0	1	0	0	0	2	0	1	0	0	4
	Tier Totals	6	2	4	2	4	2	5	4	4	4	3	40
3. Generic Knowledge and  Abilities					Cat 1	Cat 2	Cat 3	Cat 4					
					4	5	4	4	17				

## Note:

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.

PWR SRO Examination Outline  
Emergency and Abnormal Plant Evolutions - Tier  
1/Group 1

Seq. #	E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
1	000001 Continuous Rod Withdrawal / 1					X		AA2.01; Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal: Reactor tripped breaker indicator	4.2/ 4.2	1
2	000003 Dropped Control Rod / 1	X						AK1.05; Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod: CVCS response to dropped rod	2.3/ 2.6	1
3	000005 Inoperable/Stuck Control Rod / 1		X					AK2.03; Knowledge of the interrelations between the Inoperable / Stuck Control Rod and the following: Metroscope	3.1/ 3.3	1
4	000005 Inoperable/Stuck Control Rod / 1			X				AK3.02; Knowledge of the reasons for the following responses as they apply to the Inoperable / Stuck Control Rod: Rod insertion limits  <i>Changed to meet the SRO K/A distribution requirements.</i>	3.6/ 4.2	1
							X	2.1.7; "Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation."	3.7/ 4.4	
5	000011 Large Break LOCA / 3		X					EK2.02; Knowledge of the interrelations between the and the following Large Break LOCA: Pumps  <i>Changed to meet the SRO K/A distribution requirements.</i>	2.6/ 2.7	1
						X		Ability to determine or interpret the following as they apply to a Large Break LOCA: Verification of adequate core cooling	4.5/ 4.7	

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PWR SRO Examination Outline  
Emergency and Abnormal Plant Evolutions - Tier  
1/Group 1

Form ES-401-3

Seq. #	E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
6	000011 Large Break LOCA / 3			X				EK3.11; Knowledge of the reasons for the following responses as they apply to the Large Break LOCA: NC and PC	3.3/ 3.4	1
[Note 1]	W/E04 LOCA Outside Containment / 3									
[Note 1]	W/E02&E02 Rediagnosis SI Termination / 3									
7	000015/17 RCP Malfunctions / 4				X			AA1.12; Ability to operate and / or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): Reactor coolant loop flow meters	2.8/ 3.1	1
8	BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4	X						AK1.1; Knowledge of the operational implications of components, capacity and function of emergency systems as they apply to the Natural Circulation Operations.	3.0/ 3.5	1
9	000024 Emergency Boration / 1				X			AA1.25; Ability to operate and / or monitor the following as they apply to the Emergency Boration: Boration valve indicators	3.4/ 3.3	1
10	000026 Loss of Component Cooling Water / 8			X				AK3.01; Knowledge of the reasons for the following responses as they apply to the Loss of Component Cooling Water: The conditions that will initiate the automatic opening and closing of the SWS isolation valves to the CCWS coolers	3.2/ 3.5	1

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Emergency and Abnormal Plant Evolutions - Tier  
1/Group 1

Seq. #	E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
11	000029 Anticipated Transient w/o Scram / 1				X			EA1.06; Ability to operate and monitor the following as they apply to a ATWS: Operating switches for normal charging header isolation valves Does not fit system operation for a credible event. Valves would not be operated in such an event.  EA1.13; Ability to operate and monitor the following as they apply to a ATWS: Manual trip of main turbine	4.1/ 3.9	1
12	000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4					X		EA2.2; Ability to determine and interpret adherence to appropriate procedures and operation within the limitations in the facility's license and amendments as they apply to the Excess Steam Demand.	3.4/ 4.2	1
13	CE/A11; W/E08 RCS Overcooling - PTS / 4			X				AK3.3; Knowledge of the reasons for manipulation of controls required to obtain desired operating results during abnormal and emergency situations as they apply to the RCS Overcooling.	3.1/ 3.5	1
14	000051 Loss of Condenser Vacuum / 4					X		AA2.02; Ability to determine and interpret the following as they apply to the Loss of Condenser Vacuum: Conditions requiring reactor and/or turbine trip	3.9/ 4.1	1
15	000055 Station Blackout / 6					X		EA2.01; Ability to determine or interpret the following as they apply to a Station Blackout: Existing valve positioning on a loss of instrument air system	3.4/ 3.7	1

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Emergency and Abnormal Plant Evolutions - Tier  
1/Group 1

Seq. #	E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
16	000057 Loss of Vital AC Elec. Inst. Bus / 6				X			AA1.05; Ability to operate and / or monitor the following as they apply to the Loss of Vital AC Instrument Bus: Backup instrument indications	3.2/ 3.4	1
17	000059 Accidental Liquid RadWaste Rel. / 9						X	2.1.7; "Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation."	3.7/ 4.4	1
18	000062 Loss of Nuclear Service Water / 4			X				AK3.02; Knowledge of the reasons for the following responses as they apply to the Loss of Nuclear Service Water: The automatic actions (alignments) within the nuclear service water resulting from the actuation of the ESFAS	3.6/ 3.9	1
19	000067 Plant fire on site / 9			X				AK3.04; Knowledge of the reasons for the following responses as they apply to the Plant Fire on Site: Actions contained in EOP for plant fire on site	3.3/ 4.1	1
20	000068 (BW/A06) Control Room Evac. / 8		X					AK2.03; Knowledge of the interrelations between the Control Room Evacuation and the following: Controllers and positioners	2.9/ 3.1	1
21	000069 (W/E14) Loss of CTMT Integrity / 5	X						AK1.01; Knowledge of the operational implications of the following concepts as they apply to Loss of Containment Integrity: Effect of pressure on leak rate	2.6/ 3.1	1
22	000074 (W/E06&E07) Inad. Core Cooling / 4				X			EA1.01; Ability to operate and monitor the following as they apply to a Inadequate Core Cooling: RCS water inventory	4.2/ 4.4	1
[Note 1]	BW/E03 Inadequate Subcooling Margin / 4									

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Emergency and Abnormal Plant Evolutions - Tier  
1/Group 1

Form ES-401-3

Seq. #	E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
23	000076 High Reactor Coolant Activity / 9	X						AK1.01; Knowledge of the operational implications of the following concepts as they apply to High Reactor Coolant Activity: Radioactivity units	2.1/ 2.5	1
24	000076 High Reactor Coolant Activity / 9		X					AK2.01; Knowledge of the interrelations between the High Reactor Coolant Activity and the following: Process radiation monitors	2.6/ 3.0	1
[Note 1]	BW/A02&A03 Loss of NNI-X/Y /7									
N/A	K/A Category Totals:	4	<del>4</del> 3	6 5	5	<del>4</del> 5	4 2	Group Point Total:		24

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Emergency and Abnormal Plant Evolutions - Tier 1/Group 2

Form ES-401-3

Seq. #	E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
25	000007 9BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1	X						EK1.3; Knowledge of the operational implications of annunciators and conditions indicating signals and remedial actions associated with the Reactor Trip Recovery as they apply to the Reactor Trip Recovery.	3.0/ 3.4	1
[Note 1]	BW/AO1 Plant Runback / 1									
[Note 1]	BW/A04 Turbine Trip / 4									
26	000008 Pressurizer Vapor Space Accident / 3		X					AK2.02; Knowledge of the interrelations between the Pressurizer Vapor Space Accident and the following: Sensors and detectors	2.7*/ 2.7	1
27	000009 Small Break LOCA / 3				X			EA1.08; Ability to operate and monitor the following as they apply to a small break LOCA: Containment isolation system	4.0/ 4.1	1
[Note 1]	BW/E08; W/E03 LOCA Cooldown - Depress. / 4									
[Note 1]	W/E11 Loss of Emergency Coolant Recirc. / 4									
28	000022 Loss of Reactor Coolant Makeup / 2						X	2.4.15; Knowledge of communications procedures associated with EOP implementation.	3.0/ 3.5	1
29	000025 Loss of RHR System / 4			X				AK3.02; Knowledge of the reasons for the following responses as they apply to the Loss of Residual Heat Removal System: Isolation of RHR low-pressure piping prior to pressure increase above specified level	3.3/3. 7	1



Seq. #	E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
30	000027 Pressurizer Pressure Control System Malfunction / 3		X					AK2.03; Knowledge of the interrelations between the Pressurizer Pressure Control Malfunctions and the following: Controllers and positioners	2.6/ 2.8	1
31	000032 Loss of Source Range NI / 7				X			AA1.01; Ability to operate and / or monitor the following as they apply to the Loss of Source Range Nuclear Instrumentation: Manual restoration of power	31*/ 3.4*	1
32	000033 Loss of Intermediate Range NI / 7			X				AK3.01; Knowledge of the reasons for the following responses as they apply to the Loss of Intermediate Range Nuclear Instrumentation: Termination of startup following loss of intermediate- range instrumentation	3.2./ 3.6	1
33	000037 Steam Generator Tube Leak / 3			X				AK3.03; Knowledge of the reasons for the following responses as they apply to the Steam Generator Tube Leak: Comparison of makeup flow and letdown flow for various modes of operation	3.1/ 3.3	1
34	000038 Steam Generator Tube Rupture / 3				X			EA1.34; Ability to operate and monitor the following as they apply to a SGTR: Obtaining shutdown with natural circulation	4.2/ 4.3	1
35	000054 (CE/E06) Loss of Main Feedwater / 4  000069 (W/E14) Loss of CTMT Integrity / 5						X	<del>2.3.1; Knowledge of 10 CFR- 20 and related facility radiation control requirements.</del>  <i>Changed to meet the SRO K/A distribution requirements.</i>  Ability to determine and interpret the following as they apply to the Loss of Containment Integrity: Loss of containment integrity	<del>2.6/ 3.0</del>  3.7/ 4.3	1

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PWR SRO Examination Outline  
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2

Form ES-401-3

Seq. #	E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
[Note 1]	BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary heat Sink / 4									
36	000058 Loss of DC Power / 6				X			AA1.02; Ability to operate and / or monitor the following as they apply to the Loss of DC Power: Static inverter dc input breaker, frequency meter, ac output breaker, and ground fault detector	3.1*/ 3.1	1
37	000060 Accidental Gaseous Radwaste Rel. / 9						X	<del>2.3.1; Knowledge of 10 CFR: 20 and related facility radiation control requirements. Reselected due to duplicate of K/A for #35, above.</del> 2.3.5; Knowledge of use and function of personnel monitoring equipment.	2.3/ 2.5	1
38	000061 ARM System Alarms / 7						X	<del>2.1.17; Ability to make accurate, clear and concise verbal reports. Does not apply to system.</del> 2.1.2; Knowledge of operator responsibilities during all modes of plant operation.	3.0/ 4.0	1
[Note 1]	W/E16 High Containment Radiation / 9									
39	000065 Loss of Instrument Air / 8				X			AA1.05; Ability to operate and / or monitor the following as they apply to the Loss of Instrument Air: RPS	3.3*/ 3.3*	1
40	CE/E09 Functional Recovery				X			EA1.2; Ability to operate and/or monitor operating behavior characteristics of the facility as they apply to the Functional Recovery.	3.6/ 3.9	1
N/A	K/A Category Point Totals:	1	2	3	6	-0-1	-4-3	Group Point Total:		16

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PWR SRO Examination Outline  
Emergency and Abnormal Plant Evolutions - Tier 1/Group 3

Form ES-401-3

Seq. #	E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
41	000028 Pressurizer Level Malfunction / 2		X					AK2.03; Knowledge of the interrelations between the Pressurizer Level Control Malfunctions and the following: Controllers and positioners	2.6/ 2.9	1
42	000036 (BW/A08) Fuel Handling Accident / 8	X						AK1.03; Knowledge of the operational implications of the following concepts as they apply to Fuel Handling Incidents : Indications of approaching criticality	4.0/ 4.3	1
43	000056 Loss of Off-site Power / 6				X			AA1.31; Ability to operate and / or monitor the following as they apply to the Loss of Offsite Power: PZR heater group control switches	3.3/ 3.3	1
[Note 1]	BW/E13&E14 EOP Rules and Enclosures									
[Note 1]	BW/A05 Emergency Diesel Actuation / 6									
[Note 1]	BW/A07 Flooding / 8									
N/A	CE/A16 Excess RCS Leakage / 2							~ Random Deselection ~		
[Note 1]	W/E13 Steam Generator Over-pressure / 4									
[Note 1]	W/E15 Containment Flooding / 5									
N/A	K/A Category Point Totals:	1	1	0	1	0	0	Group Point Total:		3

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PWR SRO Examination Outline  
Plant Systems - Tier 2/Group 1

Form ES-401-3

Seq. #	System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
44	001 Control Rod Drive					X							K5.06; Knowledge of the following operational implications as they apply to the CRDS: Effects of control rod motion on axial offset	3.8/ 4.1	1
45	003 Reactor Coolant Pump		X										K2.01; Knowledge of bus power supplies to the following: RCPS	3.1/ 3.1	1
46	004 Chemical and Volume Control					X							K5.35; Knowledge of the operational implications of the following concepts as they apply to the CVCS: Heat exchanger principles and the effects of flow, temperature and other parameters	2.5/ 2.9	1
47	013 Engineered Safety Features Actuation							X					A1.06; Ability to predict and/or monitor changes in parameters (to Prevent exceeding design limits) associated with operating the ESFAS controls including: RWST level	3.6/ 3.9	1
48	014 Rod Position Indication											X	<del>2.4.15; Knowledge of communications procedures associated with EOP implementation. Does not apply to system.</del> 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/ 4.3	1
49	015 Nuclear Instrumentation										X		A4.02; Ability to manually operate and/or monitor in the control room: NIS indicators	3.9/ 3.9	1

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Plant Systems - Tier 2/Group 1

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Seq. #	System # / Name	K1	K2	K3	K4	K5	K6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	Imp.	Points
50	015 Nuclear Instrumentation							X					A1.04; Ability to predict and/or monitor changes in parameters to prevent exceeding design limits) associated with operating the NIS controls including: Quadrant power tilt ratio	3.5/ 3.7	1
51	017 In-core Temperature Monitor									X			A3.02; Ability to monitor automatic operation of the ITM system including: Measurement of in-core thermocouple temperatures at panel outside control room	3.4*/ 3.1*	1
52	017 In-core Temperature Monitor					X							K5.01; Knowledge of the operational implications of the following concepts as they apply to the ITM system: Temperature at which cladding and fuel melt	3.1/ 3.9	1
53	022 Containment Cooling										X		A4.04; Ability to manually operate and/or monitor in the control room: Valves in the CCS	3.1*/ 3.2	1
[Note 1]	025 Ice Condenser														
54	026 Containment Spray					X							K5.04; Knowledge of operational implications of the following concepts as they apply to the CSS: Chemistry control	2.0/ 2.7	1

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Plant Systems - Tier 2/Group 1

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Seq. #	System # / Name	K1	K2	K3	K4	K5	K6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	Imp.	Points
55	026 Containment Spray								X				<p>A2.05; Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CSS controls including: Chemical additive tank level and concentration. <i>Not applicable to MP2 CSS.</i></p> <p>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</p>	4.2*/ 4.4*	1
56	056 Condensate				X								<p>A1.08; Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the Condensate System controls including: MFW pump suction pressure. <i>Reselected to ensure &gt;= 2 K/As per category.</i></p> <p>K4.14; Knowledge of Condensate System design feature(s) and/or interlock(s) which provide for the following: MFW pump NPSH</p>	2.2/ 2.6*	1

Seq. #	System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
57	059 Main Feedwater						X						K6.09; Knowledge of the effect of a loss or malfunction of the following will have on the MFW components: MFW pump speed and flow regulating valves (reason for adjusting position of both)	2.4*/ 2.6*	1
58	061 Auxiliary/Emergency Feedwater	X											K1.01; Knowledge of the physical connections and/or cause-effect relationships between the AFW and the following systems: S/G system	4.1/ 4.1	1
59	063 DC Electrical Distribution										X		A4.03; Ability to manually operate and/or monitor in the control room: Battery discharge rate	3.0*/ 3.1	1
60	068 Liquid Radwaste	X											K1.02; Knowledge of the physical connections and/or cause effect relationships between the Liquid Radwaste System and the following systems: Waste gas vent header	2.5/ 2.6	1
61	071 Waste Gas Disposal											X	2.4.18; Knowledge of the specific bases for EOPs. <i>Not applicable to system.</i> 2.2.18; Knowledge of the process for managing maintenance activities during shutdown operations.	2.3/ 2.6	1
62	072 Area Radiation Monitoring			X									K3.02; Knowledge of the effect that a loss or malfunction of the ARM system will have on the following: Fuel handling operations	3.1/ 3.5	1

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Plant Systems - Tier 2/Group 1

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Seq. #	System # / Name	K1	K2	K3	K4	K5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	Imp.	Points
N/A	K/A Category Point Totals:	2	1	1	1	4	1	2	1	1	3	2	Group Point Total:		19



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Plant Systems - Tier 2/Group 2

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Seq. #	System # / Name	K1	K2	K3	K4	K5	K6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	Imp.	Pts
63	002 Reactor Coolant										X		A4.03; Ability to manually operate and/or monitor in the control room: Indications and controls necessary to recognize and correct saturation conditions	4.3/ 4.4	1
N/A	006 Emergency Core Cooling												~ RANDOM DESELECTED ~		
N/A	010 Pressurizer Pressure Control												~ RANDOM DESELECTED ~		
64	011 Pressurizer Level Control							X					A1.04; Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PZR LCS controls including: T-ave	3.1/ 3.3	1
65	012 Reactor Protection	X											K1.08; Knowledge of the physical connections and/or cause effect relationships between the RPS and the following systems: MFW	2.9*/ 3.1	1
66	016 Non-nuclear Instrumentation	X											K1.02; Knowledge of the physical connections and/or cause- effect relationships between the NNIS and the following systems: PZR LCS	3.4*/ 3.3*	1
[Note 1]	027 Containment Iodine Removal														
67	028 Hydrogen Recombiner and Purge Control		X										K2.01; Knowledge of bus power supplies to the following: Hydrogen recombiners	2.5*/ 2.8*	1
68	029 Containment Purge								X				A2.03; Ability to (a) predict the impacts of the following malfunctions or operations on the Containment Purge System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Startup operations and the associated required valve lineups	2.7/ 3.1	1

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Plant Systems - Tier 2/Group 2

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Seq. #	System # / Name	K1	K2	K3	K4	K5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	Imp.	Pts
69	033 Spent Fuel Pool Cooling			X									K3.01; Knowledge of the effect that a loss or malfunction of the Spent Fuel Pool Cooling System will have on the following: Area ventilation systems	2.6/ 3.1	1
70	034 Fuel Handling Equipment				X								K4.02; Knowledge of design feature(s) and/or interlock(s) which provide for the following: Fuel movement	2.5/ 3.3	1
N/A	035 Steam Generator												~ RANDOM DESELECTED ~		
71	039 Main and Reheat Steam								X				A2.04; Ability to (a) predict the impacts of the following malfunctions or operations on the MRSS; and (b) based on predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Malfunctioning steam dump	3.4/ 3.7	1
72	055 Condenser Air Removal									X			A3.03; Ability to monitor automatic operation of the CARS, including: Automatic diversion of CARS exhaust	2.5/ 2.7*	1
73	062 AC Electrical Distribution									X			A3.04; Ability to monitor automatic operation of the ac distribution system, including: Operation of inverter (e.g., precharging synchronizing light, static transfer)	2.7/ 2.9	1
74	064 Emergency Diesel Generator								X				A2.07; 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 operating under/over-excited	2.5/ 2.7	1
75	073 Process Radiation Monitoring			X									K3.01; Knowledge of the effect that a loss or malfunction of the PRM system will have on the following: Radioactive effluent releases	3.6/ 4.2	1

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Plant Systems - Tier 2/Group 2

Form ES-401-3

Seq. #	System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Pts
76	075 Circulating Water											X	2.2.7; Knowledge of the process for conducting tests or experiments not described in the safety analysis report. <i>Not an operator task (Engineering).</i> 2.2.13; Knowledge of tagging and clearance procedures.	3.6/ 3.8	1
77	079 Station Air	X											K1.01; Knowledge of the physical connections and/or cause- effect relationships between the SAS and the following systems: IAS	3.0/ 3.1	1
78	086 Fire Protection						X						K6.04; Knowledge of the effect of a loss or malfunction on the Fire Protection System following will have on the: Fire, smoke, and heat detectors	2.6/ 2.9	1
79	103 Containment	X											K1.03; Knowledge of the physical connections and/or cause-effect relationships between the containment system and the following systems: Shield building vent system	3.1*/ 3.5*	1
N/A	K/A Category Point Totals:	4	1	2	1	0	1	1	3	2	1	1	Group Point Total:		17

[Note 1] Grayed out rows are not applicable to Millstone Unit Two (CE designed plant)

ES-401		PWR SRO Examination Outline Plant Systems - Tier 2/Group 3											Form ES-401-3		
Seq. #	System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Pts
80	005 Residual Heat Removal							X					A1.01; Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RHRS controls including: Heatup/cooldown rates	3.5/ 3.6	1
81	007 Pressurizer Relief/Quench Tank									X			A3.01; Ability to monitor automatic operation of the PRTS, including: Components which discharge to the PRT	2.7*/ 2.9	1
N/A	008 Component Cooling Water												RANDOM DESELECTED		
82	041 Steam Dump/Turbine Bypass Control							X					A1.01; Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the SDS controls including: T-ave., verification above low/low setpoint	2.9*/ 2.9	1
N/A	045 Main Turbine Generator												RANDOM DESELECTED		
83	076 Service Water			X									K3.05; Knowledge of the effect that a loss or malfunction of the SWS will have on the following: RHR components, controls, sensors, indicators, and alarms, including rad monitors	3.0*/ 3.2*	1
N/A	078 Instrument Air												RANDOM DESELECTED		
N/A	K/A Category Point Totals:	0	0	1	0	0	0	2	0	1	0	0	Group Point Total:		4

  

Plant-Specific Priorities				
Seq	System / Topic	Recommended Replacement for	Reason	Points
35	000054 (CE/E06) Loss of Main Feedwater / 4	000069 (W/E14) Loss of CTMT Integrity / 5	Item replaced to meet SRO distribution guidelines of NUREG 1021. Topic chosen to allow testing of perceived weakness in specific Tech. Spec. area.	1
Plant-Specific Priority Total: (limit 10)				1

ES-401

## Generic Knowledge and Abilities Outline (Tier 3)

Form ES-401-5

Facility: Millstone Unit 2

Date of Exam: 03/12/01

Exam Level: **SRO**

Exam Level: SRO					
Category	Seq	K/A #	Topic	Imp.	Points
Conduct of Operations	84	2.1.4	Knowledge of shift staffing requirements.	2.3/3.4	1
	85	2.1.28	Knowledge of the purpose and function of major system components and controls.	3.2/3.3	1
	86	2.1.14 (1)	Knowledge of system status criteria which require the notification of plant personnel.	2.5/3.3	1
	87	2.1.29	Knowledge of how to conduct and verify valve lineups.	3.4/3.3	1
	Total				4
Equipment Control	88	2.2.23	Ability to track limiting conditions for operations.	2.6/3.8	1
	89	2.2.20	Knowledge of the process for managing troubleshooting activities.	2.2/3.3	1
	90	2.2.21	Knowledge of pre- and post-maintenance operability requirements.	2.3/3.5	1
	91	2.2.22 (2)	Knowledge of limiting conditions for operations and safety limits.	3.4/4.1	1
	92	2.2.14	Knowledge of the process for making configuration changes.	2.1/3.0	1
Total				5	
Radiation Control	93	2.3.9	Knowledge of the process for performing a containment purge.	2.5/3.4	1
	94	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	2.9/3.3	1
	95	2.3.6	Knowledge of the requirements for reviewing and approving release permits.	2.1/3.1	1
	96	2.3.2	Knowledge of facility ALARA program.	2.5/2.9	1
	Total				4
Emergency Procedures and Plan	97	2.4.8	Knowledge of how the event-based emergency/abnormal operating procedures are used in conjunction with the symptom-based EOPs.	3.0/3.7	1
	98	2.4.31	"Knowledge of annunciators alarms and indications, and use of the response instructions."	3.3/3.4	1
	99	2.4.14	Knowledge of general guidelines for EOP flowchart use.	3.0/3.9	1
	100	2.4.46	Ability to verify that the alarms are consistent with the plant conditions.	3.5/3.6	1
	Total				4
Tier 3 Target Point Total (RO/SRO)					17

From Tier 3, K/As initially drawn in random process and replaced by a redraw.

1. 2.1.13; Knowledge of facility requirements for controlling vital / controlled access.  
*Not SRO knowledge, this is required in General Plant Access Training.* Redraw replacement:  
**2.1.14; Knowledge of system status criteria which require the notification of plant personnel.**
2. 2.2.8; Knowledge of the process for determining if the proposed change, test, or experiment involves an unreviewed safety question.  
*Not an SRO responsibility, performed by other departments and management personnel.* Redraw replacement:  
**2.2.22; Knowledge of limiting conditions for operations and safety limits.**

No Changes

ES-301

Administrative Topics Outline

Form ES-301-1

Facility: Millstone Unit 2

Date of Examination: 3/12/2001

Examination Level (circle one):

~~RO~~ / SRO

Operating Test Number: 1

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	073-K4.01	JPM to perform a review of a Shift Surveillance as the US and identify that, with the stated conditions (loss of VA-30), Core Alterations and CTMT Purge must be secured.
	2.1.23	JPM to perform a review, as the US, of the Shift Turnover Report. Determine that with "B" SW pump powered from bus 24D as the "Credited" Operable pump, Compensatory Cooling measures must be implemented in the Lower 4160v room.
A.2	2.2.17	JPM given a 'simulated' AWO determine that the proper retest (post maintenance testing) requirements are not specified.
A.3	2.3.6	JPM given a Radioactive Discharge Permit determine that the discharge is not allowed due to lack of independent sampling requirements being met.
A.4	2.4.41	JPM to classify an Event.

Facility: <u>Millstone Unit 2</u>		Date of Examination: <u>3/12/2001</u>
Exam Level (circle one): <u>RO</u> / <u>SRO(I)</u> / <u>SRO(U)</u>		Operating Test No.: <u>1</u>
<b>B.1 Control Room Systems</b>		
System / JPM Title	Type Code*	Safety Function
a. Pressurizer / Forcing Pressurizer Sprays	N,A,S	3
b. CVCS / Securing Emergency Boration	D,S	1
c. 4160v Electrical / Energize 24C from 44H (Unit 1) <b>24E</b>	D,S	6
<b>B.2 Facility Walk-Through</b>		
a. Main Steam / Local Manual Operation of "A" Atmospheric Dump	D,A,R	4
b. RBCCW / Placing a CAR RBCCW valve in manual local	N,R	5
*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		



No Changes

Facility: Millstone Unit 2		Scenario No.:1		Op-Test No.:1 (2)	
Examiners:			Operators:		
Initial Conditions: IC 24; 100% power at MOL.					
Turnover: The plant is at 100% power at MOL. Boron is at 568 ppm. BLEND RATIO:BAST 9.5 :1 The following equipment is out of service: "A" Charging pump.					
Event No.	Malf. No.	Event Type*	Event Description		
1	RX11C	I (BOP)	The #2 FRV "Main" level transmitter fails to cause the #2 FRV to slowly ramp closed.		
2	RD0308	C (RO)	Rod # 8 drops in to 80 steps. (rod is actually de-energized and stuck)		
2+	RD0208		Rod #8 sticks in at 80 steps		
3		N (US)	Decision to commence downpower to 70% initially and also to continue after rod is determined to be stuck.		
4&5	MS06B MS07B	M (Crew)	A malfunction causes the #2 MSIV to fail closed (Plant trips), simultaneously one of the #2 Steam Generator Safety Valves fails open with it's alarm function inhibited.		
6	SG02B (10%)	M (Crew)	A 300 GPM tube leak occurs in # 2 Steam Generator at the time of the trip.		