ANO Unit One PWR RO Examination Outline

Based on NUREG-1021 Form ES-401-4 Pg 33 of 45 Rev.8

		K/A Category Points											
Tier	**Group**	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**	**A1**	**A2**	**A3**	**A4**	**G**	**Point Total**
Tier 1	**1**	1	2	3				2	3			5	**16**
Plant	**2**	2	3	5				3	3			1	**17**
Evolutions	**3**	1	0	1				1	0			0	**3**
	Tier Totals	4	5	9				6	6			6	**36**
Tier 2	**1**	2	1	1	3	1	2	3	0	2	6	2	**23**
Plant	**2**	1	0	3	6	1	0	1	6	0	0	2	**20**
Systems	**3**	0	1	0	1	2	0	0	2	0	1	1	**8**
	Tier Totals	3	2	4	10	4	2	4	8	2	7	5	**51**
Tier 3		**Cat1**	**Cat2**	**Cat3**	**Cat4**								
Generic		5	3	3	2								**13**

K/A/G/ Totals	*7*	*7*	*13*	*10*	*4*	*2*	*10*	*14*	*2*	*7*	*24*	100

PWR RO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier1/Group1

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000005 Inoperable/Stuck Control Rod / 1						1	2.1.12 Ability to apply technical specifications for a system.	2.9	1
000015/17 RCP Malfunctions / 4				1			AA1.05 Ability to operate and / or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): RCS flow.	3.8	1
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4			1				BW/E09 EK3.1 Knowledge of the reasons for the following responses as they apply to the (Natural Circulation Cooldown): Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics.	3.2	1
000024 Emergency Boration / 1					1		AA2.03 Ability to determine and interpret the following as they apply to the Emergency Boration: Correlation between boric acid controller setpoint and boric acid flow.	2.9	1
000026 Loss of Component Cooling Water / 8				1			AA1.05 Ability to operate and / or monitor the following as they apply to the Loss of Component Cooling Water: The CCWS surge tank, including level control and level alarms, and radiation alarm.	3.1	1
000027 Pressurizer Pressure Control System Malfunction / 3		1					AK2.03 Knowledge of the interrelations between the Pressurizer Pressure Control Malfunctions and the following: Controllers and positioners.	2.6	1
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4					1		BW/EA2.2 Ability to determine and interpret the following as they apply to the (Excessive Heat Transfer): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.	3.6	1
CE/A11; W/E08 RCS Overcooling - PTS / 4							Not applicable.		0
000051 Loss of Condenser Vacuum / 4						1	2.1.23 Ability to perform specific system and integrated plant procedures during all modes of plant operation.	3.9	1
000055 Station Blackout / 6	1						EK1.02 Knowledge of the operational implications of the following concepts as they apply to the Station Blackout: Natural circulation cooling.	4.1	1
000057 Loss of Vital AC Elec. Inst. Bus / 6									0

PWR RO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier1/Group1

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000062 Loss of Nuclear Service Water / 4			1				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	1
000067 Plant Fire On-site / 9									0
000068 (BW/A06) Control Room Evac. / 8		1					BW/A06 AK2.1 Knowledge of the interrelations between the (Shutdown Outside Control Room) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.	3.8	1
000069 (W/E14) Loss of CTMT Integrity / 5						1	2.4.11 Knowledge of abnormal condition procedures.	3.4	1
000074 (W/E06&E07) Inad. Core Cooling / 4						1	2.4.6 Knowledge symptom based EOP mitigation strategies.	3.1	1
BW/E03 Inadequate Subcooling Margin / 4			1				B/W EK3.4 Knowledge of the reasons for the following responses as they apply to the (Inadequate Subcooling Margin): RO or SRO function within the control room team as appropriate to the assigned position, in such a way that procedures are adhered to and the limitations in the facilities license and amendments are not violated.	3.2	1
000076 High Reactor Coolant Activity / 9						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
BW/A02&A03 Loss of NNI-X/Y / 7					1		BW/A02 AA2.2 Ability to determine and interpret the following as they apply to the (Loss of NNI-X): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.	4.0	1
K/A Category Totals:	1	2	3	2	3	5	Group Point Total =		16

PWR RO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier1/Group2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000001 Continuous Rod Withdrawal / 1									0
000003 Dropped Control Rod / 1				1			AA1.02 Ability to operate and/or monitor the following as they apply to the Dropped Control Rod: Controls and components necessary to recover rod.	3.6	1
000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1		1					BW/E10 EK2.1 Knowledge of the interrelations between the (Post-Trip Stabilization) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.	3.5	1
BW/A01 Plant Runback / 1									0
BW/A04 Turbine Trip / 4			1				BW/AK3.2 Knowledge of the reasons for the following responses as they apply to the (Turbine Trip): Normal, abnormal and emergency operating procedures associated with (Turbine Trip).	3.4	1
000008 Pressurizer Vapor Space Accident / 3					1		AA2.27 Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: Effects on indicated PZR pressure and/or level of sensing line leakage	2.9	1
000009 Small Break LOCA / 3			1				EK3.21 Knowledge of the reasons for the following responses as they apply to the small break LOCA: Actions contained in EOP for small break LOCA/leak.	4.2	1
000011 Large Break LOCA / 3		1					EK2.02 Knowledge of the interrelations between the Large Break LOCA and the following: Pumps.	2.6	1
W/E04 LOCA Outside Containment / 3							Not applicable.		0
BW/E08; W/E03 LOCA Cooldown/Depress. / 4		1					BW/EK2.2 Knowledge of the interrelations between the (LOCA Cooldown) 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.	4.0	1
W/E11 Loss of Emergency Coolant Recirc. / 4							Not applicable.		0
W/E01 & E02 Rediagnosis & SI Termination / 3							Not applicable.		0
000022 Loss of Reactor Coolant Makeup / 2									0
000025 Loss of RHR System / 4									0
000029 Anticipated Transient w/o Scram / 1						1	2.4.2 Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.	3.9	1

PWR RO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier1/Group2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000032 Loss of Source Range NI / 7			1				AK3.01 Knowledge of the reasons for the following responses as they apply to the Loss of Source Range Nuclear Instrumentation: Startup termination on source-range loss.	3.2	1
000033 Loss of Intermediate Range NI / 7			1				AK3.02 Knowledge of the reasons for the following responses as they apply to the Loss of Intermediate Range Nuclear Instrumentation: Guidance contained in EOP for loss of intermediate- range instrumentation	3.6	1
000037 Steam Generator Tube Leak / 3	1						AK1.02 Knowledge of the operational implications of the following concepts as they apply to Steam Generator Tube Leak: Leak rate vs. pressure drop.	3.5	1
000038 Steam Generator Tube Rupture / 3					1		EA2.02 Ability to determine or interpret the following as they apply to a SGTR: Existence of an S/G tube rupture and its potential consequences.	4.5	1
000054 (CE/E06) Loss of Main Feedwater / 4				1			AA1.04 Ability to operate and / or monitor the following as they apply to the Loss of Main Feedwater (MFW): HPI, under total feedwater loss conditions	4.4	1
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	1						BW EK1.2 Knowledge of the operational implications of the following concepts as they apply to the (Inadequate Heat Transfer): Normal, abnormal and emergency operating procedures associated with (Inadequate Heat Transfer).	4.0	1
000058 Loss of DC Power / 6									0
000059 Accidental Liquid RadWaste Rel. / 9				1			AA1.01 Ability to operate and / or monitor the following as they apply to the Accidental Liquid Radwaste Release: Radioactive-liquid monitor.	3.5	1
000060 Accidental Gaseous Radwaste Rel. / 9			1				AK3.01 Knowledge of the reasons for the following responses as they apply to the Accidental Gaseous Radwaste: Implementation of E-plan.	2.9	1
000061 ARM System Alarms / 7					1		AA2.05 Ability to determine and interpret the following as they apply to the Area Radiation Monitoring (ARM) System Alarms: Need for area evacuation; check against existing limits.	3.5	1
W/E16 High Containment Radiation / 9							Not applicable.		0
CE/E09 Functional Recovery							Not applicable.		0
K/A Category Totals:	2	3	5	3	3	1	Group Point Total = 17		17

PWR RO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier1/Group3

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000028 Pressurizer Level Malfunction / 2				1			AA1.02 Ability to operate and / or monitor the following as they apply to the Pressurizer Level Control Malfunctions: CVCS.	3.4	1
000036 (BW/A08) Fuel Handling Accident / 8	1						BW A08/ AK1.2 Knowledge of the operational implications of the following concepts as they apply to the (Refueling Canal Level Decrease): Normal, abnormal and emergency operating procedures associated with (Refueling Canal Level Decrease).	3.7	1
000056 Loss of Off-site Power / 6			1				AK3.01 Knowledge of the reasons for the following responses as they apply to the Loss of Offsite Power: Order and time to initiation of power for the load sequencer.	3.5	1
000065 Loss of Instrument Air / 8									0
BW/E13&E14 EOP Rules and Enclosures									0
BW/A05 Emergency Diesel Actuation / 6									0
BW/A07 Flooding / 8									0
CE/A16 Excess RCS Leakage / 2							Not applicable.		0
W/E13 Steam Generator Over-pressure / 4							Not applicable.		0
W/E15 Containment Flooding / 5							Not applicable.		0
K/A Category Totals:	1	0	1	1	0	0	Group Point Total = 3		3

PWR RO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier2/Group1

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic	Imp.	Points
001 Control Rod Drive										1	1	A4.10 Ability to manually operate and/or monitor in the control room: Determination of an ECP. 2.1.27 Knowledge of system purpose and or function.	3.5 2.8	 2
003 Reactor Coolant Pump			1						1			K3.03 Knowledge of the effect that a loss or malfunction of the RCPS will have on the following: Feedwater and emergency feedwater. A3.01 Ability to monitor automatic operation of the RCPS, including: Seal injection flow.	2.8 3.3	 2
004 Chemical and Volume Control									1	1		A3.10 Ability to monitor automatic operation of the CVCS, including: PZR level and pressure. A4.12 Ability to manually operate and/or monitor in the control room: Boration/dilution batch control.	3.9 3.8	 2
013 Engineered Safety Features Actuation						1	1					K6.01 Knowledge of the effect of a loss or malfunction on the following will have on the ESFAS: Sensors and detectors. A1.02 Ability to predict and/or monitor changes in parameters (to Prevent exceeding design limits) associated with operating the ESFAS controls including: Containment pressure, temperature, and humidity.	2.7 3.9	 2
015 Nuclear Instrumentation					1							K5.10 Knowledge of the operational implications of the following concepts as they apply to the NIS: Ex-core detector operation.	2.8	1
017 In-core Temperature Monitor	1						1					K1.02 Knowledge of the physical connections and/or cause-effect relationships between the ITM system and the following systems: RCS. 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.	3.3 3.7	 2
022 Containment Cooling		1								1		K2.01 Knowledge of power supplies to the following: Containment cooling fans. A4.03 Ability to manually operate and/or monitor in the control room: Dampers in the CCS.	3.0 3.2	 2
025 Ice Condenser												Not applicable.		0

Emergency and Abnormal Plant Evolutions - Tier2/Group1

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic	Imp.	Points
056 Condensate				1						1		K4.11 Knowledge of Condensate System design feature(s) and/or interlock(s) which provide for the following: Bypass of heater stream. **(Replaced by Plant Specific Priority in T2G3)** A4.08 Ability to manually operate and monitor in the control room: Condensate automatic makeup valve controller. *Justification for <2.5 Importance: The use of Condensate 056 A4.08 is appropriate due to the importance of maintaining condenser level which is a suction source of the Condensate Pumps and thus necessary to maintain the secondary system's ability to remove heat from the primary.	1.7 *1.7	2
059 Main Feedwater				1			1					interlock(s) which provide for the following: MFW and startup feedwater valve combination. **(Replaced by Plant Specific Priority in T2G3)** A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or	2.4 2.9	2
061 Auxiliary/Emergency Feedwater	1					1						K1.03 Knowledge of the physical connections and/or cause-effect relationships between the AFW and the following systems: Main steam system. K6.02 Knowledge of the effect of a loss or malfunction of the following will have on the AFW components: Pumps.	3.5 2.6	2
068 Liquid Radwaste										1		A4.04 Ability to manually operate and/or monitor in the control room: Automatic isolation.	3.8	1
071 Waste Gas Disposal				1							1	K4.01 Knowledge of design features(s) and/or interlock(s) which provide for the following: Pressure capability of the waste gas decay tank. **(Replaced by Plant Specific Priority in T2G3)** 2.1.28 Knowledge of the purpose and function of major system components and controls.	2.6 3.2	2
072 Area Radiation Monitoring										1		A4.01 Ability to manually operate and/or monitor in the control room: Alarm and interlock setpoint checks and adjustments.	3.0	1
K/A Category Totals:	2	1	1	3	1	2	3	0	2	6	2	Group Point Total = 23		23

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PWR RO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier2/Group2

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic	Imp.	Points
002 Reactor Coolant					1							K5.10 Knowledge of the operational implications of the following concepts as they apply to the RCS: Relationship between reactor power and RCS differential temperature.	3.6	1
006 Emergency Core Cooling												K6.19 **Deleted due to question exchange with SRO exam due to NRC validation. Another K/A was added to ED/G.**		0
010 Pressurizer Pressure Control											1	2.1.28 Knowledge of the purpose and function of major system components and controls.	3.2	1
011 Pressurizer Level Control								1				A2.07 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: Isolation of letdown.	3.0	1
012 Reactor Protection								1				A2.02 Ability to (a) predict the impacts of the following malfunctions or operations on the RPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of instrument power.	3.6	1
014 Rod Position Indication	1											K1.01 Knowledge of the physical connections and/or cause-effect relationships between the RPIS and the following systems: CRDS.	3.2	1
016 Non-nuclear Instrumentation								1				A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the NNIS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Detector failure.	3.0	1
026 Containment Spray			1									K3.01 Knowledge of the effect that a loss or malfunction of the CSS will have on the following: CCS.	3.9	1
029 Containment Purge							1					A1.03 Ability to predict and/or monitor changes in parameters to prevent exceeding design limits) associated with operating the Containment Purge System controls including: Containment pressure, temperature, and humidity.	3.0	1
033 Spent Fuel Pool Cooling			1									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	1
035 Steam Generator											1	2.4.10 Knowledge of annunciator response procedures.	3.0	1

PWR RO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier2/Group2

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic	Imp.	Points
039 Main and Reheat Steam								1				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	1
055 Condenser Air Removal				1								K4.01 Knowledge of CARS design feature(s) and/or interlock(s) which provide for the following: Turbine startup. *Justification for <2.5 Importance: The use of CARS 058 K4.01 is appropriate due to this system's effects on the Main Turbine's ability to function as a Secondary Heat Removal device.	*1.9	1
062 AC Electrical Distribution				1								K4.01 Knowledge of ac distribution system design eature(s) and/or interlock(s) which provide for the following: Bus lockouts.	2.6	1
063 DC Electrical Distribution								1				A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the DC electrical systems; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Grounds.	2.5	1
064 Emergency Diesel Generator				1				1				K4.05 Knowledge of ED/G system design feature(s) and/or interlock(s) which provide for the following: Incomplete-start relay. A2.09 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: Synchronization of the ED/G with other electric power supplies. **(Added after NRC validation)**	2.8 3.1	2
073 Process Radiation Monitoring			1									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	1
075 Circulating Water				1								K4.01 Knowledge of circulating water system design feature(s) and interlock(s) which provide for the following: Heat sink.	2.5	1
079 Station Air				1								K4.01 Knowledge of SAS design feature(s) and/or interlock(s) which provide for the following: Cross-connect with IAS.	2.9	1

PWR RO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier2/Group2

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic	Imp.	Points
086 Fire Protection				1								K4.03 Knowledge of design feature(s) and/or interlock(s) which provide for the following: Detection and location of fires.	3.1	1
K/A Category Totals:	1	0	3	6	1	0	1	6	0	0	2	Group Point Total = 20		20

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PWR RO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier2/Group3

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic	Imp.	Points
005 Residual Heat Removal					1							K5.09 Knowledge of the operational implications of the following concepts as they apply the RHRS: Dilution and boration considerations.	3.2	1
007 Pressurizer Relief/Quench Tank								1				A2.03 Ability to (a) predict the impacts of the following malfunctions or operations on the PS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Overpressurization of the PZR.	3.6	1
008 Component Cooling Water														0
027 Containment Iodine Removal												Not applicable.		0
028 Hydrogen Recombiner and Purge Control					1							K5.03 Knowledge of the operational implications of the following concepts as they apply to the HRPS: Sources of hydrogen within containment.	2.9	1
034 Fuel Handling Equipment											1	2.2.28 Knowledge of new and spent fuel movement procedures.	2.6	1
041 Steam Dump/Turbine Bypass Control														0
045 Main Turbine Generator										1		A4.01 Ability to manually operate and/or monitor in the control room: Turbine valve indicators (throttle, governor, control, stop, intercept), alarms, and annunciators.	3.1	1
076 Service Water				1								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.	2.5	1
078 Instrument Air		1										K2.01 Knowledge of bus power supplies to the following: Instrument air compressor.	2.7	1
103 Containment								1				A2.05 Ability to (a) predict the impacts of the following malfunctions or operations on the containment system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Emergency containment entry.**(Replaced by Plant Specific Priority in T2G3)**	2.9	1
														0
K/A Category Totals:	0	1	0	1	2	0	0	2	0	1	1	Group Point Total = 8		8

PWR RO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier2/Group3

Plant-Specific Priorities

System/Topic	Recommended Replacement for……	Reason	Points
041 K2.01 SDS: Knowledge of bus power supplies to the following: ICS, normal and alternate power supply. 2.8	071 K4.01 (T2G1)	This item has a higher importance rating and has more importance to overall plant operation than pressure ratings of Waste Gas Decay Tanks.	1
045 K4.12 MT/G: Knowledge of MT/G system design feature(s) and/or interlock(s) which provide for the following: Automatic turbine runback. 3.3	056 K4.11 (T2G1)	This item has a higher importance rating and has more importance to overall plant operation than bypass of FW heaters.	1
059 A3.07 Ability to monitor automatic operation of the MFW, including: ICS. 3.4	103 A2.05 (T2G3)	This item has a higher importance rating and has more importance to overall plant operation than Condensate automatic makeup valve controller.	1
059 K1.07 Knowledge of the physical connections and/or cause-effect relationships between the MFW and the following systems: ICS. 3.2	059 K4.01 (T2G1)	This item has a higher importance rating and has more importance than MFW and startup valve combination.	1
Plant-Specific Priority Total: (limit 10)			4

ANO Unit One PWR SRO Examination Outline

Based on NUREG-1021 Form ES-401-3 Pg 26 of 45 Rev.8

		K/A Category Points														
Tier	**Group**	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**	**A1**	**A2**	**A3**	**A4**	**G**	**Point Total**	SRO Only	*Temp Total*	*Average*	*Std. Dev.*
Tier 1	**1**	1	2	3				4	6			8	**24**	5	*24*		
Plant	**2**	2	3	5				1	4			1	**16**	2	*16*		
Evolutions	**3**	1	0	1				1	0			0	**3**	0	*3*		
	Tier Totals	4	5	9				6	10			9	**43**		*43*	*7.17*	*2.48*
Tier 2	**1**	2	1	1	2	1	2	1	2	2	2	3	**19**	3	*19*		
Plant	**2**	0	0	2	3	2	0	1	5	0	0	4	**17**	4	*17*		
Systems	**3**	0	1	0	0	1	0	0	0	0	1	1	**4**	1	*4*		
	Tier Totals	2	2	3	5	4	2	2	7	2	3	8	**40**		*40*	*3.64*	*2.16*
Tier 3		**Cat1**	**Cat2**	**Cat3**	**Cat4**												
Generic		6	4	3	4								**17**	10	*17*		
K/A/G/ Totals		*6*	*7*	*12*	*5*	*4*	*2*	*8*	*17*	*2*	*3*	*34*	100	25 SRO Only Total	*100*	*9.09*	*9.42*

PWR SRO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier1/Group1

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points	
000001 Continuous Rod Withdrawal / 1					1		AA2.03 Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal: Proper actions to be taken if automatic safety functions have not taken place.	4.8	1	SRO
000003 Dropped Control Rod / 1				1			AA1.02 Ability to operate and/or monitor the following as they apply to the Dropped Control Rod: Controls and components necessary to recover rod.	3.4	1	
000005 Inoperable/Stuck Control Rod / 1						1	2.1.12 Ability to apply technical specifications for a system.	4.0	1	
000011 Large Break LOCA / 3		1			1		EK2.02 Knowledge of the interrelations between the Large Break LOCA and the following: Pumps. EA2.01 Ability to determine the following as they apply to a Large Break LOCA: Actions to be taken, based on RCS temperature and pressure - saturated and superheated.	2.7 4.7	2	SRO
W/E04 LOCA Outside Containment / 3							Not applicable.		0	
W/E02 & E02 Rediagnosis & SI Termination / 3							Not applicable.		0	
000015/17 RCP Malfunctions / 4				1			AA1.05 Ability to operate and / or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): RCS flow.	3.8	1	
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4			1				BW/E09 EK3.1 Knowledge of the reasons for the following responses as they apply to the (Natural Circulation Cooldown): Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics.	3.4	1	
000024 Emergency Boration / 1					1		AA2.03 Ability to determine and interpret the following as they apply to the Emergency Boration: Correlation between boric acid controller setpoint and boric acid flow.	3.0	1	
000026 Loss of Component Cooling Water / 8				1			AA1.05 Ability to operate and / or monitor the following as they apply to the Loss of Component Cooling Water: The CCWS surge tank, including level control and level alarms, and radiation alarm.	3.1	1	

PWR SRO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier1/Group1

000029 Anticipated Transient w/o Scram / 1						1	2.4.2 Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.	4.1	1	
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4					1		BW/EA2.2 Ability to determine and interpret the following as they apply to the (Excessive Heat Transfer): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.	4.0	1	
CE/A11; W/E08 RCS Overcooling - PTS / 4							Not applicable.		0	
000051 Loss of Condenser Vacuum / 4						1	2.1.23 Ability to perform specific system and integrated plant procedures during all modes of plant operation.	4.0	1	
000055 Station Blackout / 6	1						EK1.02 Knowledge of the operational implications of the following concepts as they apply to the Station Blackout: Natural circulation cooling.	4.4	1	
000057 Loss of Vital AC Elec. Inst. Bus / 6						1	2.4.1 Knowledge of EOP entry conditions and immediate action steps.	4.6	1	SRO
000059 Accidental Liquid RadWaste Rel. / 9				1			AA1.01 Ability to operate and / or monitor the following as they apply to the Accidental Liquid Radwaste Release: Radioactive-liquid monitor.	3.5	1	
000062 Loss of Nuclear Service Water / 4			1				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.	3.9	1	
000067 Plant Fire On-site / 9					1		AA2.15 Ability to determine and interpret the following as they apply to the Plant Fire On Site: Requirements for establishing a fire watch.	3.9	1	SRO
000068 (BW/A06) Control Room Evac. / 8		1					BW/A06 AK2.1 Knowledge of the interrelations between the (Shutdown Outside Control Room) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.	3.8	1	
000069 (W/E14) Loss of CTMT Integrity / 5						1	2.4.11 Knowledge of abnormal condition procedures.	3.6	1	
000074 (W/E06&E07) Inad. Core Cooling / 4						1	2.4.6 Knowledge of symptom based EOP mitigation strategies.	4.0	1	

PWR SRO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier1/Group1

BW/E03 Inadequate Subcooling Margin / 4			1			1	B/W EK3.4 Knowledge of the reasons for the following responses as they apply to the (Inadequate Subcooling Margin): RO or SRO function within the control room team as appropriate to the assigned position, in such a way that procedures are adhered to and the limitations in the facilities license and amendments are not violated. 2.4.8 Knowledge of how the event-based emergency/abnormal operating procedures are used in conjunction with the symptom based EOPs.	3.5 3.7	2	SRO
000076 High Reactor Coolant Activity / 9						1	2.4.4 Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.3	1	
BW/A02&A03 Loss of NNI-X/Y / 7					1		BW/A02 AA2.2 Ability to determine and interpret the following as they apply to the (Loss of NNI-X): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.	4.0	1	
K/A Category Totals:	1	2	3	4	6	8	Group Point Total =	24	24	

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PWR SRO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier1/Group2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points	
000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1		1					BW/E10 EK2.1 Knowledge of the interrelations between the (Post-Trip Stabilization) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.	4.0	1	
BW/A01 Plant Runback / 1						1	2.4.11 Knowledge of abnormal condition procedures.	3.6	1	SRO
BW/A04 Turbine Trip / 4			1				BW/AK3.2 Knowledge of the reasons for the following responses as they apply to the (Turbine Trip): Normal, abnormal and emergency operating procedures associated with (Turbine Trip).	3.6	1	
000008 Pressurizer Vapor Space Accident / 3					1		AA2.27 Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: Effects on indicated PZR pressure and/or level of sensing line leakage	3.2	1	
000009 Small Break LOCA / 3			1				EK3.21 Knowledge of the reasons for the following responses as they apply to the small break LOCA: Actions contained in EOP for small break LOCA/leak.	4.5	1	
BW/E08; W/E03 LOCA Cooldown - Depress. / 4		1					BW/EK2.2 Knowledge of the interrelations between the (LOCA Cooldown) 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.	4.0	1	
W/E11 Loss of Emergency Coolant Recirc. / 4							Not applicable.		0	
000022 Loss of Reactor Coolant Makeup / 2									0	
000025 Loss of RHR System / 4									0	
000027 Pressurizer Pressure Control System Malfunction / 3		1					AK2.03 Knowledge of the interrelations between the Pressurizer Pressure Control Malfunctions and the following: Controllers and positioners.	2.8	1	
000032 Loss of Source Range NI / 7			1				AK3.01 Knowledge of the reasons for the following responses as they apply to the Loss of Source Range Nuclear Instrumentation: Startup termination on source-range loss.	3.6	1	

PWR SRO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier1/Group2

000033 Loss of Intermediate Range NI / 7			1				AK3.02 Knowledge of the reasons for the following responses as they apply to the Loss of Intermediate Range Nuclear Instrumentation: Guidance contained in EOP for loss of intermediate- range instrumentation	3.9	1	
000037 Steam Generator Tube Leak / 3	1						AK1.02 Knowledge of the operational implications of the following concepts as they apply to Steam Generator Tube Leak: Leak rate vs. pressure drop.	3.9	1	
000038 Steam Generator Tube Rupture / 3					1		EA2.02 Ability to determine or interpret the following as they apply to a SGTR: Existence of an S/G tube rupture and its potential consequences.	4.8	1	
000054 (CE/E06) Loss of Main Feedwater / 4				1			AA1.04 Ability to operate and / or monitor the following as they apply to the Loss of Main Feedwater (MFW): HPI, under total feedwater loss conditions	4.5	1	
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	1						BW EK1.2 Knowledge of the operational implications of the following concepts as they apply to the (Inadequate Heat Transfer): Normal, abnormal and emergency operating procedures associated with (Inadequate Heat Transfer).	4.2	1	
000058 Loss of DC Power / 6					1		AA2.03 Ability to determine and interpret the following as they apply to the Loss of DC Power: DC loads lost; impact on ability to operate and monitor plant systems.	3.9	1	SRO
000060 Accidental Gaseous Radwaste Rel. / 9			1				AK3.01 Knowledge of the reasons for the following responses as they apply to the Accidental Gaseous Radwaste: Implementation of E-plan.	4.2	1	
000061 ARM System Alarms / 7					1		AA2.05 Ability to determine and interpret the following as they apply to the Area Radiation Monitoring (ARM) System Alarms: Need for area evacuation; check against existing limits.	4.2	1	
W/E16 High Containment Radiation / 9							Not applicable.		0	
000065 Loss of Instrument Air / 8									0	
CE/E09 Functional Recovery							Not applicable.		0	
K/A Category Totals:	2	3	5	1	4	1	Group Point Total = 16		16	

PWR SRO Examination Outline

Emergency and Abnormal Plant Evolutions - Tier1/Group3

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000028 Pressurizer Level Malfunction / 2				1			AA1.02 Ability to operate and / or monitor the following as they apply to the Pressurizer Level Control Malfunctions: CVCS.	3.4	1
000036 (BW/A08) Fuel Handling Accident / 8	1						BW A08/ AK1.2 Knowledge of the operational implications of the following concepts as they apply to the (Refueling Canal Level Decrease): Normal, abnormal and emergency operating procedures associated with (Refueling Canal Level Decrease).	4.0	1
000056 Loss of Off-site Power / 6			1				AK3.01 Knowledge of the reasons for the following responses as they apply to the Loss of Offsite Power: Order and time to initiation of power for the load sequencer.	3.9	1
BW/E13&E14 EOP Rules and Enclosures									0
BW/A05 Emergency Diesel Actuation / 6									0
BW/A07 Flooding / 8									0
CE/A16 Excess RCS Leakage / 2							Not applicable.		0
W/E13 Steam Generator Over-pressure / 4							Not applicable.		0
W/E15 Containment Flooding / 5							Not applicable.		0
K/A Category Totals:	1	0	1	1	0	0	Group Point Total = 3		3

SRO Only

PWR SRO Examination Outline

Plant Systems - Tier2/Group1

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic	Imp.	Points	
001 Control Rod Drive											1	2.1.32 Ability to explain and apply all system limits and precautions.	3.8	1	SRO
003 Reactor Coolant Pump			1						1			K3.03 Knowledge of the effect that a loss or malfunction of the RCPS will have on the following: Feedwater and emergency feedwater. A3.01 Ability to monitor automatic operation of the RCPS, including: Seal injection flow.	3.1 3.2	2	
004 Chemical and Volume Control									1			A3.10 Ability to monitor automatic operation of the CVCS, including: PZR level and pressure.	3.9	1	
013 Engineered Safety Features Actuation						1		1				K6.01 Knowledge of the effect of a loss or malfunction on the following will have on the ESFAS: Sensors and detectors. A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the ESFAS; and (b) based Ability on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of instrument bus.	3.1 4.2	2	SRO
014 Rod Position Indication	1											K1.01 Knowledge of the physical connections and/or cause-effect relationships between the RPIS and the following systems: CRDS.	3.6	1	
015 Nuclear Instrumentation					1							K5.10 Knowledge of the operational implications of the following concepts as they apply to the NIS: Ex-core detector operation.	3.0	1	
017 In-core Temperature Monitor							1					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.	3.9	1	
022 Containment Cooling		1										K2.01 Knowledge of power supplies to the following: Containment cooling fans.	3.1	1	
025 Ice Condenser												Not applicable.		0	
026 Containment Spray											1	2.4.10 Knowledge of annunciator response procedures.	3.1	1	SRO
056 Condensate				1								K4.11 Knowledge of Condensate System design feature(s) and/or interlock(s) which provide for the following: Bypass of heater stream. **(Replaced by Plant Specific Priority in T2G3)**	2.0	1	

PWR SRO Examination Outline

Plant Systems - Tier2/Group1

059 Main Feedwater				1								K4.01 Knowledge of MFW design features(s) and/or interlock(s) which provide for the following: MFW and startup feedwater valve combination. **(Replaced by Plant Specific Priority in T2G3)**	2.6	1
061 Auxiliary/Emergency Feedwater	1					1						K1.03 Knowledge of the physical connections and/or cause-effect relationships between the AFW and the following systems: Main steam system. K6.02 Knowledge of the effect of a loss or malfunction of the following will have on the AFW components: Pumps.	3.9 2.7	2
063 DC Electrical Distribution								1				A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the DC electrical systems; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Grounds.	3.2	1
068 Liquid Radwaste										1		A4.04 Ability to manually operate and/or monitor in the control room: Automatic isolation.	3.7	1
071 Waste Gas Disposal											1	2.1.28 Knowledge of the purpose and function of major system components.	3.3	1
072 Area Radiation Monitoring										1		A4.01 Ability to manually operate and/or monitor in the control room: Alarm and interlock setpoint checks and adjustments.	3.3	1
K/A Category Totals:	2	1	1	2	1	2	1	2	2	2	3	Group Point Total = 19		19

PWR SRO Examination Outline

Plant Systems - Tier2/Group2

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic	Imp.	Points	
002 Reactor Coolant					1							K5.10 Knowledge of the operational implications of the following concepts as they apply to the RCS: Relationship between reactor power and RCS differential temperature.	4.1	1	
006 Emergency Core Cooling											1	2.2.34 Knowledge of the process for determining the internal and external effects on core reactivity.	3.2	1	SRO
010 Pressurizer Pressure Control											1	2.1.28 Knowledge of the purpose and function of major system components and controls.	3.3	1	
011 Pressurizer Level Control								1				A2.07 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: Isolation of letdown.	3.3	1	
012 Reactor Protection								1				A2.02 Ability to (a) predict the impacts of the following malfunctions or operations on the RPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of instrument power.	3.9	1	
016 Non-nuclear Instrumentation											1	2.4.10 Knowledge of annunciator response procedures.	3.1	1	SRO
027 Containment Iodine Removal												Not applicable.		0	
028 Hydrogen Recombiner and Purge Control					1							K5.03 Knowledge of the operational implications of the following concepts as they apply to the HRPS: Sources of hydrogen within containment.	3.6	1	
029 Containment Purge							1					A1.03 Ability to predict and/or monitor changes in parameters to prevent exceeding design limits) associated with operating the Containment Purge System controls including: Containment pressure, temperature, and humidity.	3.3	1	
033 Spent Fuel Pool Cooling			1									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.	3.1	1	
034 Fuel Handling Equipment											1	2.2.28 Knowledge of new and spent fuel movement procedures.	3.5	1	
035 Steam Generator								1				A2.06 Ability to (a) predict the impacts of the following malfunctions or operations on the SG; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Small break LOCA.	4.6	1	SRO

PWR SRO Examination Outline

Plant Systems - Tier2/Group2

039 Main and Reheat Steam								1				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.	3.7	1	
055 Condenser Air Removal														0	
062 AC Electrical Distribution				1								K4.01 Knowledge of ac distribution system design feature(s) and/or interlock(s) which provide for the following: Bus lockouts.	3.2	1	
064 Emergency Diesel Generator								1				A2.09 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: Synchronization of the ED/G with other electric power supplies.	3.3	1	SRO
073 Process Radiation Monitoring			1									K3.01 Knowledge of the effect that a loss or malfunction of the PRM system will have on the following: Radioactive effluent releases.	4.2	1	
075 Circulating Water														0	
079 Station Air				1								K4.01 Knowledge of SAS design feature(s) and/or interlock(s) which provide for the following: Cross-connect with IAS.	3.2	1	
086 Fire Protection				1								K4.03 Knowledge of design feature(s) and/or interlock(s) which provide for the following: Detection and location of fires.	3.7	1	
103 Containment														0	
K/A Category Totals:	0	0	2	3	2	0	1	5	0	0	4	Group Point Total = 17		17	

PWR SRO Examination Outline

Plant Systems - Tier2/Group3

System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic	Imp.	Points
005 Residual Heat Removal					1							K5.09 Knowledge of the operational implications of the following concepts as they apply the RHRS: Dilution and boration considerations.	3.4	1
007 Pressurizer Relief/Quench Tank														0
008 Component Cooling Water														0
041 Steam Dump/Turbine Bypass Control														0
045 Main Turbine Generator										1		A4.01 Ability to manually operate and/or monitor in the control room: Turbine valve indicators (throttle, governor, control, stop, intercept), alarms, and annunciators.	2.9	1
076 Service Water											1	2.2.24 Ability to analyze the affect of maintenance activities on LCO status.	3.8	1 SRO
078 Instrument Air		1										K2.01 Knowledge of bus power supplies to the following: Instrument air compressor.	2.9	1
K/A Category Totals:	0	1	0	0	1	0	0	0	0	1	1	Group Point Total = 4		4

Plant-Specific Priorities

System/Topic	Recommended Replacement for……	Reason	Points
045 K4.12 MT/G: Knowledge of MT/G system design feature(s) and/or interlock(s) which provide for the following: Automatic turbine runback. 3.6	056 K4.11 (T2G1)	This item has a higher importance rating and has more importance to overall plant operation than bypass of FW heaters.	1
059 K1.07 Knowledge of the physical connections and/or cause-effect relationships between the MFW and the following systems: ICS. 3.2	059 K4.01 (T2G1)	This item has a higher importance rating and has more importance than MFW and startup valve combination.	1
Plant-Specific Priority Total: (limit 10)			2

ES-401 Generic Knowledge and Abilities Outline (Tier 3)

Based on NUREG 1021 Rev. 8 Form ES-401-5

Facility: ANO Unit One	Date of Exam: 2/11/01		Exam Level: RO	
Category	K/A #	Topic	Imp.	Points
Conduct of Operations	2.1 .1	Knowledge of conduct of operations requirements.	3.7	1
	2.1 .11	Knowledge of less than one hour technical specification action statements for systems.	3.0	1
	2.1.21	Ability to obtain and verify controlled procedure copy.	3.1	1
	2.1.29	Knowledge of how to conduct and verify valve lineups.	3.4	1
	2.1.33	Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	3.4	1
	2.1.			
	Total			5
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
	2.2.13	Knowledge of tagging and clearance procedures.	3.6	1
	2.2.33	Knowledge of control rod programming.	2.5	1
	2.2.			
	2.2.			
	2.2.			
	Total			3
Radiation Control	2.3.1	Knowledge of 10 CFR: 20 and related facility radiation control requirements.	2.6	1
	2.3.4	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.	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.			
	2.3.			
	2.3.			
	Total			3
Emergency Procedures / Plan	2.4.25	Knowledge of fire protection procedures.	2.9	1
	2.4.32	Knowledge of operator response to loss of all annunciators.	3.3	1
	2.4.			
	2.4.			
	2.4.			
	2.4.			
	Total			2
Tier 3 Point Total (RO)				13

Generic Knowledge and Abilities Outline (Tier 3)

Based on NUREG 1021 Rev. 8 Form ES-401-5

Facility: Date of Exam: Exam Level: SRO

Category	K/A #	Topic	Imp.	Points	
Conduct of Operations	2.1 .3	Knowledge of shift turnover practices.	3.4	1	SRO
	2.1 .4	Knowledge of shift staffing requirements.	3.4	1	SRO
	2.1 .11	Knowledge of less than one hour technical specification action statements for systems.	3.8	1	
	2.1 .12	Ability to apply technical specifications for a system.	4.0	1	SRO
	2.1 .15	Ability to manage short-term information such as night and standing orders.	3.0	1	SRO
	2.1.33	Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	4.0	1	
	Total			6	
Equipment Control	2.2.5	Knowledge of the process for making changes in the facility as described in the safety analysis report.	2.7	1	SRO
	2.2.11	Knowledge of the process for controlling temporary changes.	3.4	1	SRO
	2.2.13	Knowledge of tagging and clearance procedures.	3.8	1	
	2.2.17	Knowledge of the process for managing maintenance activities during power operations.	3.5	1	SRO
	2.2.				
	2.2.				
	Total			4	
Radiation Control	2.3.1	Knowledge of 10 CFR: 20 and related facility radiation control requirements.	3.0	1	
	2.3.4	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.	3.1	1	
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	3.3	1	
	2.3.				
	2.3.				
	2.3.				
	Total			3	
Emergency Procedures/ Plan	2.4.29	Knowledge of the emergency plan.	4.0	1	SRO
	2.4.30	Knowledge of which events related to system operations/status should be reported to outside agencies.	3.6	1	SRO
	2.4.32	Knowledge of operator response to loss of all annunciators.	3.5	1	
	2.4.34	Knowledge of RO tasks performed outside the main control room during emergency operations including system geography and system implications.	3.6	1	SRO
	2.4.				
	2.4.				
	Total			4	
Tier 3 Point Total (SRO)				17	

Facility: ANO Unit 1 Date of Examination: 2-12-01

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	Conduct of Operations 2.1.23	Ability to perform specific and integrated plant procedures during all modes of plant operation. NEW ADMIN JPM (ANO-1-JPM-RO-RBAL3)
	Conduct of Operations 2.1.19	Ability to use plant computer to obtain and evaluate parametric information on system or component status. ADMIN JPM (ANO-1-JPM-RO-PMS1)
A.2	Equipment Control 2.2.24	Ability to analyze the affect of maintenance activities on LCO status. NEW ADMIN JPM (ANO-1-JPM-RO-OOS1)
A.3	Radiation Control	2.3.11 Ability to control radiation releases. NEW ADMIN JPM (ANO-1-JPM-RO-RAD1)
A.4	Emergency Procedures/Plan 2.4.43	Knowledge of emergency communications systems and techniques. NEW ADMIN JPM (ANO-1-JPM-RO-COMM1)

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Facility: ANO Unit 1 Date of Examination: 02/12/01

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	Conduct of Operations 2.1.3	Knowledge of shift turnover practices. NEW ADMIN JPM (ANO-1-JPM-SRO-TURN)
	Conduct of Operations 2.1.1	Knowledge of conduct of operations requirements. ADMIN JPM (ANO-1-JPM-SRO-TREND)
A.2	Equipment Control 2.2.13	Knowledge of tagging and clearance procedures. MODIFIED ADMIN JPM (ANO-1-JPM-SRO-HCRD3)
A.3	Radiation Control	2.3.1 Knowledge of 10CFR 20 and related facility radiation control requirements. NEW OPEN REFERENCE QUESTION
		2.3.2 Knowledge of facility ALARA program. NEW OPEN REFERENCE QUESTION
A.4	Emergency Procedures/Plan 2.4.41	Knowledge of the emergency action level thresholds and classifications. NEW ADMIN JPM (ANO-1-JPM-SRO-EAL4, EAL5 and EAL6)