

Description of program used to generate IPEC Unit 3 July 2010 Written Exam K/As

Generated the RO and SRO sample plan using the "NKEG" Database Program, version 1.1, developed by Westinghouse Electric Company. This program will automatically produce a Random Sample Plan based on NUREG 1122, Rev. 2, Supplement 1 K/As.

K/As were suppressed prior to the outline generation process as provided for in the examiner standard, the list of suppressed K/As is provided as required by the examiners standard.

Inappropriate and inapplicable K/As were discarded during the outline development process and are included in the record of rejected K/As. The replacement K/As were replaced using the random sample function of the NKEG database program.

Facility: Indian Point Unit 3

Printed: 06/28/2010

Date Of Exam: 10/04/2010

Tier	Group	RO K/A Category Points												SRO-Only Points				
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	Total	A2	G*	Total		
1. Emergency & Abnormal Plant Evolutions	1	3	3	3	N/A			3	3	N/A			3	18	3	3	6	
	2	2	2	1	N/A			2	1	N/A			1	9	2	2	4	
	Tier Totals	5	5	4	N/A			5	4	N/A			4	27	5	5	10	
2. Plant Systems	1	3	2	3	3	3	2	3	3	1	3	2	28	3	2	5		
	2	1	1	0	1	1	1	1	1	1	1	1	10	1	1	1	3	
	Tier Totals	4	3	3	4	4	3	4	4	2	4	3	38	5	3	8		
3. Generic Knowledge And Abilities Categories				1		2		3		4		10		1	2	3	4	7
				2		3		2		3				1	2	2	2	

Note:

1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems/evolutions that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.
4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- 7.* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable K/As.
8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

PWR RO/SRO Examination Outline

Facility: Indian Pont Unit 3

NRC Written Examination Outline

ES-401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	Number	K/A Topic	Imp.	Q#
000007 Reactor Trip - Stabilization - Recovery / 1						X	EA2.02	Ability to determine and interpret the following as they apply to a reactor trip: - Proper actions to be taken if the automatic safety functions have not taken place	4.3	1
000009 Small Break LOCA / 3						X	2.1.45	Conduct of Operations - Ability to identify and interpret diverse indications to validate the response of another indication.	4.3	2
000011 Large Break LOCA / 3				X			EA1.03	Ability to operate and/or monitor the following as they apply to a Large Break LOCA: - Securing of RCPs	4.0	4
000015/000017 RCP Malfunctions / 4						X	2.1.37	Conduct of Operations - Knowledge of procedures, guidelines, or limitations associated with reactivity management.	4.3	3
000025 Loss of RHR System / 4						X	2.1.45	Conduct of Operations - Ability to identify and interpret diverse indications to validate the response of another indication.	4.3	76
000026 Loss of Component Cooling Water / 8			X				AK3.04	Knowledge of the reasons for the following responses as they apply to the Loss of Component Cooling Water: - Effect on the CCW flow header of a loss of CCW	3.5	5
000029 ATWS / 1						X	2.4.13	Emergency Procedures/Plan - Knowledge of crew roles and responsibilities during EOP use.	4.0	7
000038 Steam Gen. Tube Rupture / 3			X				EK3.09	Knowledge of the reasons for the following responses as they apply to the SGTR: - Criteria for securing/throttling ECCS	4.1	8
000040 Steam Line Rupture - Excessive Heat Transfer / 4						X	2.4.6	Emergency Procedures/Plan - Knowledge of EOP mitigation strategies.	4.7	77

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Form ES-401-2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	Number	K/A Topic	Imp.	Q#
000040 Steam Line Rupture - Excessive Heat Transfer / 4			X				AK3.01	Knowledge of the reasons for the following responses as they apply to the Steam Line Rupture: - Operation of steam line isolation valves	4.2	6
000054 Loss of Main Feedwater / 4					X		AA2.03	Ability to determine and interpret the following as they apply to the Loss of Main Feedwater (MFW): - Conditions and reasons for AFW pump startup	4.2	78
000055 Station Blackout / 6							EA2.01	Ability to determine and interpret the following as they apply to a Station Blackout: - Existing valve positioning on a loss of instrument air system	3.4	9
000056 Loss of Off-site Power / 6	X						AK1.03	Knowledge of the operational implications of the following concepts as they apply to Loss of Offsite Power: - Definition of subcooling: use of steam tables to determine it	3.1	10
000057 Loss of Vital AC 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	11
000058 Loss of DC Power / 6	X						AK1.01	Knowledge of the operational implications of the following concepts as they apply to Loss of DC Power: - Battery charger equipment and instrumentation	2.8	12
000058 Loss of DC Power / 6					X		AA2.02	Ability to determine and interpret the following as they apply to the Loss of DC Power: - 125V dc bus voltage, low/critical low, alarm	3.6	79
000062 Loss of Nuclear Svc Water / 4							AA2.01	Ability to determine and interpret the following as they apply to the Loss of Nuclear Service Water: - Location of a leak in the SWS	2.9	13

PWR RO/SRO Examination Outline

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ES-401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	Number	K/A Topic	Imp.	Q#
000062 Loss of Nuclear Svc Water / 4						X	2.2.22	Equipment Control - Knowledge of limiting conditions for operations and safety limits.	4.7	80
000065 Loss of Instrument Air / 8				X			AA1.04	Ability to operate and/or monitor the following as they apply to the Loss of Instrument Air: - Emergency air compressor	3.5	14
000077 Generator Voltage and Electric Grid Disturbances / 6		X					AK2.05	Knowledge of the interrelations between Generator Voltage and Electrical Grid Disturbances and the following: - Pumps	3.1	15
W/E04 LOCA Outside Containment / 3					X		EA2.1	Ability to determine and interpret the following as they apply to the LOCA Outside Containment: - Facility conditions and selection of appropriate procedures during abnormal and emergency operations	4.3	81
W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4		X					EK2.1	Knowledge of the interrelations between the Loss of Secondary Heat Sink and the following: - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.7	16
W/E11 Loss of Emergency Coolant Recirc. / 4		X					EK2.1	Knowledge of the interrelations between the Loss of Emergency Coolant Recirculation and the following: - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.6	17

PWR RO/SRO Examination Outline

Facility: Indian Pont Unit 3

NRC Written Examination Outline

ES-401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	Number	K/A Topic	Imp.	Q#
W/E12 - Steam Line Rupture - Excessive Heat Transfer / 4	X						EK1.1	Knowledge of the operational implications of the following concepts as they apply to the Uncontrolled Depressurization of all Steam Generators: - Components:, capacity, and function of emergency systems	3.4	18

PWR RO/SRO Examination Outline

Facility: Indian Pont Unit 3

NRC Written Examination Outline

ES-401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	Number	K/A Topic	Imp.	Q#
000001 Continuous Rod Withdrawal / 1		X					AK2.01	Knowledge of the interrelations between the Continuous Rod Withdrawal and the following: - Rod bank step counters	2.9	19
000003 Dropped Control Rod / 1 <i>KA Number(2.2.37 vice 2.1.37) incorrectly entered for outline submittal</i>						X	2.2.37	Equipment Control - Ability to determine operability and/or availability of safety related equipment.	4.6	82
000028 Pressurizer Level Malfunction / 2						X	2.2.25	Equipment Control - Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	4.2	83
000032 Loss of Source Range NI / 7	X						AK1.01	Knowledge of the operational implications of the following concepts as they apply to Loss of Source Range Nuclear Instrumentation: - Effects of voltage changes on performance	2.5	20
000033 Loss of Intermediate Rang NI / 7			X				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	21
000036 Fuel Handling Accident / 8				X			AA1.02	Ability to operate and/or monitor the following as they apply to the Fuel Handling Incidents: - ARM system	3.1	22
000068 Control Room Evac. / 8							2.1.37	Conduct of Operations - Knowledge of procedures, guidelines, or limitations associated with reactivity management.	4.3	23
000076 High Reactor Coolant Activity / 9					X		AA2.01	Ability to determine and interpret the following as they apply to the High Reactor Coolant Activity: - Location or process point that is causing an alarm	3.2	84

PWR RO/SRO Examination Outline

Facility: Indian Pont Unit 3

NRC Written Examination Outline

ES-401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-2

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	Number	K/A Topic	Imp.	Q#
W/E02 SI Termination / 3	X						EK1.2	Knowledge of the operational implications of the following concepts as they apply to the SI Termination: - Normal, abnormal and emergency operating procedures associated with SI Termination	3.4	24
W/E03 LOCA Cooldown - Depress. / 4							EA2.1	Ability to determine and interpret the following as they apply to the LOCA Cooldown and Depressurization: - Facility conditions and selection of appropriate procedures during abnormal and emergency operations	3.4	25
W/E06 Inad. Core Cooling / 4				X			EA1.3	Ability to operate and/or monitor the following as they apply to the Degraded Core Cooling: - Desired operating results during abnormal and emergency situations	3.7	26
W/E09 Natural Circ. / 4					X		EA2.2	Ability to determine and interpret the following as they apply to the Natural Circulation Operations: - Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments	3.8	85
W/E14 Loss of CTMT Integrity / 5		X					EK2.1	Knowledge of the interrelations between the High Containment Pressure and the following: - Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.4	27

PWR RO/SRO Examination Outline

Facility: Indian Pont Unit 3

**NRC Written Examination Outline
Plant Systems - Tier 2 / Group 1**

ES-401

Form ES-401-2

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	A5	Number	K/A Topic	Imp	Q#
003 Reactor Coolant Pump	X											K1.01	Knowledge of the physical connections and/or cause-effect relationships between the RCPS and the following systems: - RCP lube oil	2.6	28
004 Chemical and Volume Control										X		A4.04	Ability to manually operate and/or monitor in the control room: - Calculation of boron concentration changes	3.2	29
004 Chemical and Volume Control												2.2.22	Knowledge of limiting conditions for operations and safety limits	4.0	30
005 Residual Heat Removal		X										K2.01	Knowledge of bus power supplies to the following: - RHR pumps	3.0	31
005 Residual Heat Removal												A2.03	Ability to (a) predict the impacts of the following malfunctions or operations on the RHRS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: - RHR pump/motor malfunction	2.9	32
006 Emergency Core Cooling			X									K3.03	Knowledge of the effect that a loss or malfunction of the ECCS will have on the following: - Containment	4.2	33
006 Emergency Core Cooling										X		2.2.39	Equipment Control - Knowledge of less than or equal to one hour technical specification action statements for systems.	4.5	86

PWR RO/SRO Examination Outline

Facility: Indian Pont Unit 3

**NRC Written Examination Outline
Plant Systems - Tier 2 / Group 1**

ES-401

Form ES-401-2

System #/Name	K1	K2	K3	K4	K5	K6	A1	A3	A4	Number	K/A Topic	Imp	Q#
007 Pressurizer Relief/Quench Tank										A2.04	Ability to (a) predict the impacts of the following malfunctions or operations on the PRTS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: - Overpressurization of the waste gas vent header	2.5	34
008 Component Cooling Water	X									K1.01	Knowledge of the physical connections and/or cause-effect relationships between the CCWS and the following systems: - SWS	3.1	35
008 Component Cooling Water									X	A4.08	Ability to manually operate and/or monitor in the control room: - CCW pump control switch	3.1*	36
010 Pressurizer Pressure Control					X					K5.02	Knowledge of the operational implications of the following concepts as they apply to the PZR PCS: - Constant enthalpy expansion through a valve	2.6	37
010 Pressurizer Pressure Control							X			A2.02	Ability to (a) predict the impacts of the following malfunctions or operations on the PZR PCS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: - Spray valve failures	3.9	87
012 Reactor Protection			X							K3.01	Knowledge of the effect that a loss or malfunction of the RPS will have on the following: - CRDS	3.9	38
013 Engineered Safety Features Actuation						X				K6.01	Knowledge of the effect of a loss or malfunction of the following will have on the ESFAS: - Sensors and detectors	2.7*	39
013 Engineered Safety Features Actuation		X								K2.01	Knowledge of bus power supplies to the following: - ESFAS/safeguards equipment control	3.6	40

PWR RO/SRO Examination Outline

Facility: Indian Pont Unit 3

**NRC Written Examination Outline
Plant Systems - Tier 2 / Group 1**

ES-401

Form ES-401-2

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	A5	Number	K/A Topic	Imp	Q#
022 Containment Cooling				X								K4.03	Knowledge of CCS design feature(s) and/or interlock(s) which provide for the following: - Automatic containment isolation	3.6	41
022 Containment Cooling							X					A2.06	Ability to (a) predict the impacts of the following malfunctions or operations on the CCS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: - Loss of CCS pump	3.2*	88
026 Containment Spray										X		A4.01	Ability to manually operate and/or monitor in the control room: - CSS controls	4.5	42
039 Main and Reheat Steam			X									K3.06	Knowledge of the effect that a loss or malfunction of the MRSS will have on the following: - SDS	2.8*	43
059 Main Feedwater							X					A1.03	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MFW System controls including: - Power level restrictions for operation of MFW pumps and valves	2.7*	44
059 Main Feedwater										X		2.1.23	Conduct of Operations - Ability to perform specific system and integrated plant procedures during all modes of plant operation.	4.4	89
061 Auxiliary/Emergency Feedwater					X							K5.01	Knowledge of the operational implications of the following concepts as they apply to the AFW System: - Relationship between AFW flow and RCS heat transfer	3.6	45

PWR RO/SRO Examination Outline

Facility: Indian Pont Unit 3

**NRC Written Examination Outline
Plant Systems - Tier 2 / Group 1**

Form ES-401-2

ES-401

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	Number	K/A Topic	Imp	Q#
061 Auxiliary/Emergency Feedwater				X							K4.01	Knowledge of AFW System design feature(s) and/or interlock(s) which provide for the following: - Water sources and priority of use	4.1	46
062 AC Electrical Distribution											A2.12	Ability to (a) predict the impacts of the following malfunctions or operations on the A.C. Distribution System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: - Restoration of power to a system with a fault on it	3.2	47
063 DC Electrical Distribution				X							K4.01	Knowledge of D.C. Electrical System design feature(s) and/or interlock(s) which provide for the following: - Manual/automatic transfers of control	2.7	48
063 DC Electrical Distribution							X				A2.01	Ability to (a) predict the impacts of the following malfunctions or operations on the D.C. Electrical System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: - Grounds	3.2*	90
064 Emergency Diesel Generator						X					K6.07	Knowledge of the effect of a loss or malfunction of the following will have on the ED/G System: - Air receivers	2.7	49
064 Emergency Diesel Generator							X				A1.08	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ED/G System controls including: - Maintaining minimum load on ED/G (to prevent reverse power)	3.1	50

PWR RO/SRO Examination Outline

Facility: Indian Pont Unit 3

**NRC Written Examination Outline
Plant Systems - Tier 2 / Group 1**

Form ES-401-2

ES-401

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	A5	Number	K/A Topic	Imp	Q#
073 Process Radiation Monitoring	X											K1.01	Knowledge of the physical connections and/or cause-effect relationships between the PRM System and the following systems: - Those systems served by PRMs	3.6	51
073 Process Radiation Monitoring					X							K5.01	Knowledge of the operational implications of the following concepts as they apply to the PRM System: - Radiation theory, including sources, types, units, and effects	2.5	52
076 Service Water							X					A1.02	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the SWS controls including: - Reactor and turbine building closed cooling water temperatures	2.6*	53
078 Instrument Air									X			A3.01	Ability to monitor automatic operation of the IAS, including: - Air pressure	3.1	54
103 Containment												2.1.45	Conduct of Operations - Ability to identify and interpret diverse indications to validate the response of another indication.	4.3	55

PWR RO/SRO Examination Outline

Facility: Indian Pont Unit 3

**NRC Written Examination Outline
Plant Systems - Tier 2 / Group 2**

ES-401

Form ES-401-2

System #/Name	K1	K2	K3	K4	K5	K6	A1	A3	A4	Number	K/A Topic	Imp	Q#
002 Reactor Coolant	X									K1.05	Knowledge of the physical connections and/or cause-effect relationships between the RCS and the following systems: - PRT	3.2	56
011 Pressurizer Level Control							X			A1.02	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PZR LCS controls including: - Charging and letdown flows	3.3	57
014 Rod Position Indication							X			A2.01	Ability to (a) predict the impacts of the following malfunctions or operations on the RPIS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: - Loss of offsite power	3.3	91
015 Nuclear Instrumentation					X					K5.10	Knowledge of the operational implications of the following concepts as they apply to the NIS: - Ex-core detector operation	2.8	58
017 In-core Temperature Monitor						X				K6.01	Knowledge of the effect of a loss or malfunction of the following will have on the ITM System components: - Sensors and detectors	2.7	59
034 Fuel Handling Equipment										K4.02	Knowledge of Fuel Handling System design feature(s) and/or interlock(s) which provide for the following: - Fuel movement	2.5	63
034 Fuel Handling Equipment						X				K6.01	Knowledge of the effect of a loss or malfunction of the following will have on the Fuel Handling System: - Fuel handling equipment	3.0	92

PWR RO/SRO Examination Outline

Facility: Indian Pont Unit 3

**NRC Written Examination Outline
Plant Systems - Tier 2 / Group 2**

ES-401

Form ES-401-2

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	A5	Number	K/A Topic	Imp	Q#
035 Steam Generator												A2.06	Ability to (a) predict the impacts of the following malfunctions or operations on the S/GS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: - Small break LOCA	4.5	60
041 Steam Dump/Turbine Bypass Control									X			A3.03	Ability to monitor automatic operation of the SDS, including: - Steam flow	2.7	61
045 Main Turbine Generator												2.1.43	Conduct of Operations - Ability to use procedures to determine the effects on reactivity of plant changes, such as reactor coolant system temperature, secondary plant, fuel depletion, etc.	4.1	62
075 Circulating Water		X										K2.03	Knowledge of bus power supplies to the following: - Emergency/essential SWS pumps	2.6	64
075 Circulating Water											X	2.2.15	Conduct of Operations - Knowledge of administrative requirements for temporary management directives, such as standing orders, night orders, Operations memos, etc.	4.3	93
086 Fire Protection										X		A4.01	Ability to manually operate and/or monitor in the control room: - Fire water pumps	3.3	65

Generic Knowledge and Abilities Outline (Tier 3)

PWR RO/SRO Examination Outline

Facility: Indian Pont Unit 3

Form ES-401-3

Facility	Indian Point Unit 3		Date of Exam		10/4/2010	
Category	K/A #	Topic	RO		SRO-Only	
1. Conduct of Operations			IR	Q#	IR	Q#
	2.1.39	Knowledge of conservative decision making practices.	3.6	67		
	2.1.40	Conduct of Operations - Knowledge of refueling administrative requirements.	2.8	68		
	2.1.6	Ability to manage the control room crew during plant transients.			4.8	94
	Subtotal		2		1	
2. Equipment Control	2.2.25	Equipment Control - Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.2	69		
	2.2.37	Equipment Control - Ability to determine operability and/or availability of safety related equipment.	3.6	66		
	2.2.39	Knowledge of less than or equal to one hour Technical Specification action statements for systems.	3.9	70		
	2.2.7	Knowledge of the process for conducting special or infrequent tests.			3.6	95
	2.2.14	Knowledge of the process for controlling equipment configuration or status.			4.3	96
	Subtotal		3		2	

Generic Knowledge and Abilities Outline (Tier 3)

PWR RO/SRO Examination Outline

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Form ES-401-3

Facility	Indian Point Unit 3		Date of Exam		10/4/2010	
Category	K/A #	Topic	RO		SRO-Only	
			IR	Q#	IR	Q#
3. Radiological Controls	2.3.12	Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.	3.2	71		
	2.3.14	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.	3.4	72		
	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions.			3.7	97
	2.3.5	Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personal monitoring equipment, etc.			2.9	98
	Subtotal				2	
4. Emergency Procedures/plan	2.4.20	Knowledge of operational implications of EOP warnings, cautions, and notes.	3.8	73		
	2.4.34	Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects.	4.2	74		
	2.4.45	Ability to prioritize and interpret the significance of each annunciator or alarm.	4.1	75		
	2.4.11	Knowledge of abnormal condition procedures.			4.2	99
	2.4.32	Knowledge of operator response to loss of all annunciators.			4.0	100
	Subtotal				3	
Tier 3 Point Totals				10		7

Tier / Group	Randomly Selected K/A		Reason for Rejection
R-1/1	000008 AK1.02	Knowledge of the operational implications of the following concepts as they apply to a Pressurizer Vapor Space Accident: - Change in leak rate with change in pressure	Rejected due to similarities to Question # 2
R-1/1	000009 G 2.2.40	Equipment Control - Ability to apply technical specifications for a system.	This Generic KA is not applicable to off-normal procedures
R-1/1	000011 EA2.09	Ability to determine and interpret the following as they apply to a Large Break LOCA: - Existence of adequate natural circulation	KA is not applicable. Natural Circulation does not exist during a Large Break LOCA.
R-1/1	000022 1.08	Ability to operate and/or monitor the following as they apply to the Loss of Reactor Coolant Pump Makeup: - VCT level	KA is not applicable. Makeup to RCP standpipe if from primary water not CVCS
R-1/1	000027 G2.2.15	Equipment Control – Ability to determine the expected plant configuration using design and configuration control documentation, such as drawings, line ups, tag outs, etc.	This Generic KA is not applicable for APE/EPE written examination. This KA is evaluated during Simulator and/or JPM Examinations.
R-1/1	000027 AK3.03	Knowledge of the reasons for the following responses as they apply to the Pressurizer Pressure Control Malfunctions: - Actions contained in EOP for PZR PCS malfunction	KA Rejected due to similarity with Simulator Examination
R-1/1	000062 G2.1.3	Conduct of Operations – Ability to perform specific system and integrated plant procedures during all modes of plant operation.	This Generic KA is evaluated during Simulator Exam
R-1/2	000076 G2.2.41	Ability to obtain and interpret station electrical and mechanical drawings.	This Generic KA is not applicable for APE/EPE written examination. This KA is evaluated during Simulator and/or JPM Examinations.
R-1/2	000024 AK3.02	Knowledge of the reasons for the following responses as they apply to the Emergency Boration: - Actions contained in EOP for emergency boration	This concept is evaluated on JPM exam

S-1/2	000051 G2.3.14	Radiological Controls – Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.	This Generic KA is not applicable to Loss of Condenser Vacuum off-normal procedure.
R-1/2	000067 AA1.08	Ability to operate and/or monitor the following as they apply to the Plant Fire on Site: - Fire fighting equipment used on each class of fire	Unable to write a discriminatory RO level question for this KA
S-1/2	000068 G2.3.14	Radiological Controls – Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.	Unable to write a discriminatory SRO level question for this KA
S-1/2	000068 G2.2.37	Equipment Control - Ability to determine operability and/or availability of safety related equipment.	This generic KA is not applicable to Control Room Evacuation APE.
R-1/2	W/E16 G2.4.47	Emergency Procedures/Plan - Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.	This Generic KA is evaluated during Simulator Exam
R-2/1	004000 K4.13	Knowledge of CVCS design feature(s) and/or interlock(s) which provide for the following: - Interlock between letdown isolation valve and flow control valve	NA at IPEC – No Interlock exists.
R-2/1	006000 K3.02	Knowledge of the effect that a loss or malfunction of the ECCS will have on the following: - Fuel	KA Rejected due to similarity with question 26
R-2/1	007000 G2.2.42	Equipment Control - Ability to recognize system parameters that are entry level conditions for Technical Specifications.	NA at IPEC – No Tech Spec or TRM exist for the PRT
R-2/1	010000 G2.4.47	Emergency Procedures/Plan - Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.	This KA is evaluated during Simulator Exam
R-2/1	039000 K3.06	Knowledge of the effect that a loss or malfunction of the MRSS will have on the following: - SDS	Rejected due to similarity with question 61

S-2/1	012000 A2.06	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: - Failure of RPS signal to trip the reactor	Rejected due to similarities with Question 38
R-2/1	062000 A3.01	Ability to monitor automatic operation of the A.C. Distribution System, including: - Vital ac bus amperage	NA at IPEC – Not able to monitor Vital AC bus amp in the control room
R-2/2	028000 K2.01	Knowledge of bus power supplies to the following: - Hydrogen recombiners	Unable to write a discriminatory question for this KA
R-2/2	034000 K4.02	Knowledge of Fuel Handling System design feature(s) and/or interlock(s) which provide for the following: - Fuel movement	Rejected RO are not directly involved in Fuel Handling activities at IPEC.
R-2/2	072000 K4.02	Knowledge of ARM system design feature(s) and/or interlock(s) which provide for the following: - Fuel building isolation	KA rejected due to similarity with question 22
R-2/2	079000 A4.01	Ability to manually operate and/or monitor in the control room: - Cross-tie valves with IAS	KA rejected due to similarity with question 14
R-3	2.1.19	Ability to use plant computers to evaluate system or component status.	This is evaluated during Simulator Exam
R-3	2.2.13	Knowledge of tagging and clearance procedures.	This concept is evaluated during JPM Exam
R-3	2.2.20	Knowledge of the process for managing troubleshooting activities.	KA rejected because ROs do not manage troubleshooting activities.

Suppressed K/As

KA Number	KA Statement	Basis for Supression
0000012203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000012204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
000001K114	Knowledge of the operational implications of the following concepts as they apply to Continuous Rod Withdrawal: Interaction of ICS control stations as well as purpose, function, and modes of operation of ICS	Equipment NA at IPEC
0000032203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000032204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
000003K113	Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod: Interaction of ICS control stations as well as purpose, function, and modes of operation of ICS	Equipment NA at IPEC
000003K301	Knowledge of the reasons for the following responses as they apply to the Dropped Control Rod: When ICS logic has failed on a dropped rod, the load must be reduced until flux is within specified target bank	Equipment NA at IPEC
0000052203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000052204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
000005K104	Knowledge of the operational implications of the following concepts as they apply to Inoperable/Stuck Control Rod: Definitions of axial imbalance, neutron error, power demand, actual power tracking mode, ICS tracking	Equipment NA at IPEC
0000072203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000072204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000082203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000082204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000092203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC

Suppressed K/As

0000092204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000112203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000112204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000152203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000152204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000222203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000222204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000242203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000242204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000252203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000252204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000262203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000262204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000272203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000272204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000282203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000282204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC

Suppressed K/As

0000292203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000292204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000322203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000322204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000332203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000332204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000362203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000362204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000372203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000372204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000382203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000382204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000402203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000402204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000512203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000512204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000542203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC

Suppressed K/As

0000542204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000552203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000552204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000562203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000562204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000572203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000572204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000582203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000582204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000592203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000592204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000602203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000602204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000612203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000612204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000622203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000622204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC

Suppressed K/As

0000652203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000652204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000672203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000672204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000682203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000682204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000692203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000692204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000742203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000742204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000762203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000762204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0000772203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0000772204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0010002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0010002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0020002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC

Suppressed K/As

0020002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0030002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0030002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
003000K305	Knowledge of the effect that a loss or malfunction of the RCPS will have on the following: ICS	Equipment NA at IPEC
0040002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0040002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0050002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0050002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0060002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0060002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0070002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0070002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0080002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0080002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE012203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE012204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE022203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC

Suppressed K/As

00WE022204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE032203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE032204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE042203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE042204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE052203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE052204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE062203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE062204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE072203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE072204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE082203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE082204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE092203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE092204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE102203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE102204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC

Suppressed K/As

00WE112203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE112204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE122203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE122204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE132203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE132204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE142203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE142204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE152203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE152204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
00WE162203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
00WE162204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0100002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0100002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0110002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0110002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0120002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC

Suppressed K/As

0120002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0130002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0130002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0140002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0140002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0150002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0150002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
015000K105	Knowledge of the physical connections and/or cause-effect relationships between the NIS and the following systems: ICS	Equipment NA at IPEC
015000K304	Knowledge of the effect that a loss or malfunction of the NIS will have on the following: ICS	Equipment NA at IPEC
0160002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0160002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0170002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0170002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0220002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0220002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0250002101	System 025 is Ice Condenser System	NA for IPEC
0250002102	System 025 is Ice Condenser System	NA for IPEC
0250002103	System 025 is Ice Condenser System	NA for IPEC
0250002104	System 025 is Ice Condenser System	NA for IPEC
0250002105	System 025 is Ice Condenser System	NA for IPEC
0250002106	System 025 is Ice Condenser System	NA for IPEC
0250002107	System 025 is Ice Condenser System	NA for IPEC

Suppressed K/As

0250002108	System 025 is Ice Condenser System	NA for IPEC
0250002109	System 025 is Ice Condenser System	NA for IPEC
0250002113	System 025 is Ice Condenser System	NA for IPEC
0250002114	System 025 is Ice Condenser System	NA for IPEC
0250002115	System 025 is Ice Condenser System	NA for IPEC
0250002117	System 025 is Ice Condenser System	NA for IPEC
0250002118	System 025 is Ice Condenser System	NA for IPEC
0250002119	System 025 is Ice Condenser System	NA for IPEC
0250002120	System 025 is Ice Condenser System	NA for IPEC
0250002121	System 025 is Ice Condenser System	NA for IPEC
0250002123	System 025 is Ice Condenser System	NA for IPEC
0250002125	System 025 is Ice Condenser System	NA for IPEC
0250002126	System 025 is Ice Condenser System	NA for IPEC
0250002127	System 025 is Ice Condenser System	NA for IPEC
0250002128	System 025 is Ice Condenser System	NA for IPEC
0250002129	System 025 is Ice Condenser System	NA for IPEC
0250002130	System 025 is Ice Condenser System	NA for IPEC
0250002131	System 025 is Ice Condenser System	NA for IPEC
0250002132	System 025 is Ice Condenser System	NA for IPEC
0250002134	System 025 is Ice Condenser System	NA for IPEC
0250002135	System 025 is Ice Condenser System	NA for IPEC
0250002136	System 025 is Ice Condenser System	NA for IPEC
0250002137	System 025 is Ice Condenser System	NA for IPEC
0250002138	System 025 is Ice Condenser System	NA for IPEC
0250002139	System 025 is Ice Condenser System	NA for IPEC
0250002140	System 025 is Ice Condenser System	NA for IPEC
0250002141	System 025 is Ice Condenser System	NA for IPEC
0250002142	System 025 is Ice Condenser System	NA for IPEC
0250002143	System 025 is Ice Condenser System	NA for IPEC
0250002144	System 025 is Ice Condenser System	NA for IPEC
0250002145	System 025 is Ice Condenser System	NA for IPEC
0250002201	System 025 is Ice Condenser System	NA for IPEC
0250002202	System 025 is Ice Condenser System	NA for IPEC
0250002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0250002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0250002205	System 025 is Ice Condenser System	NA for IPEC
0250002206	System 025 is Ice Condenser System	NA for IPEC
0250002207	System 025 is Ice Condenser System	NA for IPEC
0250002211	System 025 is Ice Condenser System	NA for IPEC
0250002212	System 025 is Ice Condenser System	NA for IPEC
0250002213	System 025 is Ice Condenser System	NA for IPEC
0250002214	System 025 is Ice Condenser System	NA for IPEC
0250002215	System 025 is Ice Condenser System	NA for IPEC
0250002217	System 025 is Ice Condenser System	NA for IPEC
0250002218	System 025 is Ice Condenser System	NA for IPEC
0250002219	System 025 is Ice Condenser System	NA for IPEC
0250002220	System 025 is Ice Condenser System	NA for IPEC
0250002221	System 025 is Ice Condenser System	NA for IPEC

Suppressed K/As

0250002437	System 025 is Ice Condenser System	NA for IPEC
0250002438	System 025 is Ice Condenser System	NA for IPEC
0250002439	System 025 is Ice Condenser System	NA for IPEC
0250002440	System 025 is Ice Condenser System	NA for IPEC
0250002441	System 025 is Ice Condenser System	NA for IPEC
0250002442	System 025 is Ice Condenser System	NA for IPEC
0250002443	System 025 is Ice Condenser System	NA for IPEC
0250002444	System 025 is Ice Condenser System	NA for IPEC
0250002445	System 025 is Ice Condenser System	NA for IPEC
0250002446	System 025 is Ice Condenser System	NA for IPEC
0250002447	System 025 is Ice Condenser System	NA for IPEC
0250002449	System 025 is Ice Condenser System	NA for IPEC
0250002450	System 025 is Ice Condenser System	NA for IPEC
025000A101	System 025 is Ice Condenser System	NA for IPEC
025000A102	System 025 is Ice Condenser System	NA for IPEC
025000A103	System 025 is Ice Condenser System	NA for IPEC
025000A201	System 025 is Ice Condenser System	NA for IPEC
025000A202	System 025 is Ice Condenser System	NA for IPEC
025000A203	System 025 is Ice Condenser System	NA for IPEC
025000A204	System 025 is Ice Condenser System	NA for IPEC
025000A205	System 025 is Ice Condenser System	NA for IPEC
025000A206	System 025 is Ice Condenser System	NA for IPEC
025000A301	System 025 is Ice Condenser System	NA for IPEC
025000A302	System 025 is Ice Condenser System	NA for IPEC
025000A401	System 025 is Ice Condenser System	NA for IPEC
025000A402	System 025 is Ice Condenser System	NA for IPEC
025000A403	System 025 is Ice Condenser System	NA for IPEC
025000K101	System 025 is Ice Condenser System	NA for IPEC
025000K102	System 025 is Ice Condenser System	NA for IPEC
025000K103	System 025 is Ice Condenser System	NA for IPEC
025000K201	System 025 is Ice Condenser System	NA for IPEC
025000K202	System 025 is Ice Condenser System	NA for IPEC
025000K203	System 025 is Ice Condenser System	NA for IPEC
025000K301	System 025 is Ice Condenser System	NA for IPEC
025000K401	System 025 is Ice Condenser System	NA for IPEC
025000K402	System 025 is Ice Condenser System	NA for IPEC
025000K501	System 025 is Ice Condenser System	NA for IPEC
025000K502	System 025 is Ice Condenser System	NA for IPEC
025000K503	System 025 is Ice Condenser System	NA for IPEC
025000K601	System 025 is Ice Condenser System	NA for IPEC
0260002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0260002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0270002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0270002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC

Suppressed K/As

0280002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0280002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0290002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0290002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0330002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0330002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0340002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0340002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0350002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0350002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0390002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0390002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0410002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0410002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
041000A401	Ability to manually operate and/or monitor in the control room: ICS voltage inverter	Equipment NA at IPEC
041000K201	Knowledge of bus power supplies to the following: ICS, normal and alternate power supply	Equipment NA at IPEC
041000K202	Knowledge of bus power supplies to the following: ICS, normal and alternate power supply	Equipment NA at IPEC
041000K401	Knowledge of SDS design feature(s) and/or interlock(s) which provide for the following: RRG/ICS system	Equipment NA at IPEC

Suppressed K/As

041000K415	Knowledge of SDS design feature(s) and/or interlock(s) which provide for the following: "Measured variable" readings on ICS hand-automatic stations and required action if reading is out of the acceptable band	Equipment NA at IPEC
0450002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0450002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0550002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0550002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0560002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0560002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0590002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0590002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
059000A307	Ability to monitor automatic operation of the MFW System, including: ICS	Equipment NA at IPEC
059000A410	Knowledge of MFW System design feature(s) and/or interlock(s) which provide for the following: Bearing oil signal to the turning gear start sequence	Equipment NA at IPEC
059000K107	Knowledge of the physical connections and/or cause-effect relationships between the MFW System and the following systems: ICS	Equipment NA at IPEC
0610002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0610002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0620002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0620002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0630002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC

Suppressed K/As

0630002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0640002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0640002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0680002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0680002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0710002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0710002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0720002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0720002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0730002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0730002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0750002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0750002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0760002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0760002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0780002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0780002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC

Suppressed K/As

0790002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0790002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
0860002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
0860002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
1030002203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
1030002204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC
1940012203	(multi-unit license) Knowledge of the design, procedural and operational differences between units.	NA for IPEC
1940012204	(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	NA for IPEC

Facility: <u>Indian Point Unit 3</u>		Date of Examination: <u>October 4, 2010</u>
Examination Level: RO <input type="checkbox"/> SRO <input checked="" type="checkbox"/>		Operating Test Number: _____
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N, R	Review a gross leakrate determination calculation 2.1.7 (4.7) Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretations
Conduct of Operations	M, R,	Determine Reactor Vessel Venting Time Per FR-I.3, Attachment 4 2.1.25 (4.2) Ability to interpret reference materials, such as graphs, curves, tables, etc.
Equipment Control	N, R	Perform a Safety Function Determination 2.2.37 (4.6) Ability to determine operability and/or availability of safety related equipment
Radiation Control	N, R	Review a Manual Gaseous Rad Waste Release Permit 2.3.6 (3.8) Ability to approve release permits
Emergency Procedures/Plan	M, R, P	Classify E-Plan Event and Complete Part 1 Form 2.4.38 (4.4) Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required.
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.		
* Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 ; randomly selected)		

Facility: <u>Indian Point Unit 3</u>		Date of Examination: <u>October 4, 2010</u>
Exam Level: RO <input type="checkbox"/> SRO-I X SRO-U <input type="checkbox"/>		Operating Test No.: _____
Control Room Systems [@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
a. Emergency Borate	M, A, P, S, L	1
b. Transfer to Cold Leg Recirculation	D, A, E, EN, L	2
c. Respond to a Pressurizer Controlling Channel Fail High	D	3
d. Respond to Loss of Main Boiler Feedpump Speed Control	N, A	4-S
e. Start the Hydrogen Recombiner	N, E, L	5
f. Remove a Power Range Nuclear Instrument from Service	D	7
g. Transfer a Circ Water Pump from Standby Drive to Normal	N	8
h. NA for SRO-I		
In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Locally Start 32 Auxiliary Boiler Feed Pump	D, A, E, L	4-S
j. Start a CCW Pump from MCC 310A	D, E, L	6
k. Perform Local Containment Isolation Valve Lineup IVSW (SOP-CB-11 steps 1-5)	N, EN, L, R	5
<p>[@] All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>		
* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path	4-6 / 4-6 / 2-3	
(C)ontrol room		
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4	
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1	
(EN)gineered safety feature	- / - / ≥ 1 (control room system)	
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1	
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1	
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)	
(R)CA	≥ 1 / ≥ 1 / ≥ 1	
(S)imulator		

SRO I
INDIAN POINT UNIT 3 NRC RO EXAMINATION

CONDUCT OF OPERATIONS: Review a gross leakrate determination calculation. The candidate will be given a set of conditions and appropriate indications and a manual leakrate calculation. The candidate will review the leakrate calculation and locate errors.

- This is a New JPM
- SRO Only

CONDUCT OF OPERATIONS: Determine Reactor Vessel Venting Time Per FR-I.3, Attachment 4 The candidate will be given a set of plant conditions with a void in the reactor vessel head. The candidate will be given directions to calculate the reactor vessel venting time in accordance with Functional Restoration Procedure FR-I.3

- This is a bank JPM
- This JPM is common to both RO and SRO candidates

EQUIPMENT CONTROL: Perform a Safety Function Determination. The candidate will be given a set of plant/equipment conditions including degraded power sources and equipment failures. The candidate will be directed to perform a Safety Function Determination in accordance with OAP-034.

- This is a New JPM
- SRO Only.

RADIATION CONTROL: Review a Manual Gaseous Rad Waste Release Permit. The candidate will be given a set of plant conditions for the VC Pressure Relief and a manually prepared release permit. The candidate will be directed to review the release permit in accordance with 3-SOP-WDS-013. The candidate must locate errors on the permit.

- This is a Modified Bank JPM
- SRO Only.

EMERGENCY PROCEDURES/PLAN: Classify E-Plan Event and Complete Part 1 Form. The candidate will be given a set of plant conditions. The candidate must evaluate the conditions, determine the emergency plan classification and complete the New York State Part 1 form

- This is a Modified Bank JPM.
- This is a Time Critical JPM
- SRO Only.

- a. **Emergency Borate:** The candidate will enter the simulator following a reactor trip with 2 stuck rods. The turbine failed to automatically trip on the reactor trip resulting in a cooldown below 540°F. Emergency boration valve MOV-333 will not open. The candidate must use Attachment 1 of ONOP-CVCS-3 to establish emergency boration Using Normal Boration. The candidate must first borate for temperature and then borate for the additional stuck rod.
- This is an Alternate Path JPM.
 - This is a Modified Bank JPM
 - Failure to properly perform this task will result in possible inadequate shutdown margin.
- b. **Transfer to Cold Leg Recirculation:** The candidate will enter the simulator following a large break LOCA. The RWST will be at the level requiring transfer to cold leg recirculation. The candidate will be directed to establish cold leg recirculation using 3-ES-1.3. The recirculation pumps will not start and the candidate will be required to establish recirculation using the RHR pumps
- This is a bank JPM.
 - Failure to properly perform this JPM will result in inadequate cooling of the core and possible core damage.
- c. **Respond to a Pressurizer Controlling Channel Fail High:** The candidate will enter the simulator at normal full power lineup. The controlling pressurizer pressure channel will fail resulting in maximum spray flow and pressurizer pressure decreasing rapidly. The candidate must take manual control of the master pressurizer pressure controller and stabilize pressure. The candidate must then take appropriate actions to trip bistables associated with pressurizer pressure.
- This is a bank JPM.
 - Failure to properly perform this task will result in a reactor trip.
- d. **Respond to Loss of Main Boiler Feedpump Speed Control:** The candidate will enter the simulator with the plant at 100% power. (NOTE: Actual power level is not required. Any simulator Initial Condition with both Main Boiler Feed Pumps operating is satisfactory.) One of the Main Boiler Feed Pumps has experienced a malfunction and is in Track and Hold. The candidate will be directed to respond to a loss of Main Boiler Feed Pump Speed Control in accordance with 3-AOP-FW-1. The candidate will not be able to reset Track and Hold initially and will be required to override the FW signal and control the Feed Pump speed using manual startup control.
- This is an Alternate Path JPM.
 - This JPM directly from the JPM bank; however, it has not been used on the previous 2 NRC Exams.
 - Failure to properly perform this task will result in trip of an operating Main Boiler Feed Pump
- e. **Start a Hydrogen Recombiner:** The candidate will enter the simulator following a large break LOCA. The plant will be lined up for cold leg recirculation near the end of 3-ES-1.3, Transfer to Cold Leg Recirculation. The hydrogen concentration has been determined to be approximately 2%. The candidate will be directed to place the hydrogen recombiner in service using 3-SOP-CB-007. (NOTE: The hydrogen recombiner panel is a separate panel and the actual simulator setup conditions are not required).
- This is a New JPM.

- f. **Remove a Power Range Nuclear Instrument from Service:** The candidate will enter the simulator at any power level. The candidate will be told that one Power Range NI channel is indicating erratically and the Shift Manager has declared the channel inoperable. The candidate will be directed to remove the Power Range Channel from service in accordance with 3-SOP-NI-001.
- This is a bank JPM.
 - Failure to properly perform this task will result in a Tech Spec violation/
- g. **Transfer a Circ Water Pump from Standby Drive to Normal:** The candidate will enter the simulator with one of the Circulating Water Pumps operating on the Standby LCI drive. The repairs to the normal drive will be completed and the candidate will be directed to return the Circulating Water Pump to the Normal Drive.
- This is a New JPM.
 - Failure to properly perform this task will result in possible loss of a circulating water pump.
- h. **Not Used for SRO-I candidates.**

In Plant JPMs

- i. **Locally Start 32 Auxiliary Boiler Feed Pump:** This JPM locally starts the Steam Driven Aux Feedwater Pump. During the startup the steam pressure control valve will not maintain pressure at 600 psig. The candidate will be required to control steam pressure using PCV-1139 Auto/Manual station.
- In Plant JPM
 - This is an Alternate Path JPM
 - This is a Bank JPM.
 - Failure to properly perform this task will result in inability to control SG level during a control room evacuation.
- j. **Start a CCW Pump from MCC 310A:** This JPM locally starts a CCW pump from outside the control room due to a control room evacuation. Loads must be stripped from the MCC that supplies the Appendix R MCC.
- In Plant JPM
 - This is a Bank JPM.
 - Failure to properly perform this task will result in loss of cooling to the RCP seals
- k. **Perform Local Containment Isolation Valve Lineup IVSW (SOP-CB-11 steps 1-5).** This JPM isolates lines that penetrate containment when equipment is shutdown during a post-accident condition. The candidate will be required to locate and simulate opening/closing valves and circuit breakers for containment isolation valves.
- In Plant JPM
 - This a New JPM.
 - Failure to properly perform this task will result in inability to maintain RCS inventory and possible core damage.

Facility: <u>Indian Point Unit 3</u>		Date of Examination: <u>October 4, 2010</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: _____
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N, R	Calculate a Power Reduction Reactivity Plan per POP-2.1 2.1.43 (4.1) Ability to use procedures to determine the effects on reactivity of plant changes, such as reactor coolant system temperature, secondary plan, fuel depletion, etc..
Conduct of Operations	M, R	Determine Reactor Vessel Venting Time Per FR-I.3, Attachment 4 2.1.25 (3.9) Ability to interpret reference materials, such as graphs, curves, tables, etc.
Equipment Control	M, R	Perform a Peer Review of a Surveillance Test 2.2.21 (2.9) Knowledge of pre- and post-maintenance operability requirements
Radiation Control	N, R	Perform a SG Tube Leakrate Determination using 3-AOP-SG-1 2.3.5 (2.9) Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, ets.
Emergency Procedures/Plan	na	NA for ROs
<p>NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.</p>		
<p>* Type Codes & Criteria:</p> <ul style="list-style-type: none"> (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1; randomly selected) 		

Facility: Indian Point Unit 3 Date of Examination: October 4, 2010
 Exam Level: **RO X** SRO-I SRO-U Operating Test No.: _____

Control Room Systems [@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)			
	System / JPM Title	Type Code*	Safety Function
a.	Emergency Borate	M, A, P, S, L	1
b.	Transfer to Cold Leg Recirculation	D, A, E, EN, L	2
c.	Respond to a Pressurizer Controlling Channel Fail High	D	3
d.	Respond to Loss of Main Boiler Feedpump Speed Control	N, A	4-S
e.	Start the Hydrogen Recombiner	N, E, L	5
f.	Remove a Power Range Nuclear Instrument from Service	D	7
g.	Transfer a Circ Water Pump from Standby Drive to Normal	N	8
h.	Transfer buses 1 – 4 to the Station Aux Transformer	N	6

In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)			
i.	Locally Start 32 Auxiliary Boiler Feed Pump	D, A, E, L	4-S
j.	Start a CCW Pump from MCC 310A	D, E, L	6
k.	Perform Local Containment Isolation Valve Lineup IVSW (SOP-CB-11 steps 1-5)	N, EN, L, R	5

@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

INDIAN POINT UNIT 3 NRC RO EXAMINATION**CONDUCT OF OPERATIONS: Calculate a Power Reduction Reactivity Plan per POP 2.1.**

The candidate will be given appropriate graphs and tables and directed to calculate a reactivity plan for a power reduction from 100% to 75% power.

- This is a New JPM
- SRO Only

CONDUCT OF OPERATIONS: Perform a Peer Review of a Surveillance Test. The candidate will be given a completed Surveillance Test and directed to perform a Peer Review. The Surveillance Test will have inaccurate information

- This is a New JPM
- The SRO Only

EQUIPMENT CONTROL: Prepare a Tagout for 31 Auxiliary Feed Water Pump. The candidate will be given plant prints and associated procedures and directed to prepare a manual tagout for the 31 Auxiliary Feedwater Pump for bearing replacement. NOTE: Manual tagout JPMs exist in the JPM Bank; however, this component (31 Auxiliary Feedwater Pump) is new and has not been used before.

- This is a New JPM
- RO Only

RADIATION CONTROL: Perform a SG Tube Leakrate Determination using 3-AOP-SG-1.

The candidate will be given Radiation Monitor and the worksheet from 3-AOP-SG-1 and directed to calculate SG Tube leakage.

- This is a New JPM
- RO Only.

- a. **Emergency Borate:** The candidate will enter the simulator following a reactor trip with 2 stuck rods. The turbine failed to automatically trip on the reactor trip resulting in a cooldown below 540°F. Emergency boration valve MOV-333 will not open. The candidate must use Attachment 1 of ONOP-CVCS-3 to establish emergency boration Using Normal Boration. The candidate must first borate for temperature and then borate for the additional stuck rod.
- This is an Alternate Path JPM.
 - This is a Modified Bank JPM
 - Failure to properly perform this task will result in possible inadequate shutdown margin.
- b. **Transfer to Cold Leg Recirculation:** The candidate will enter the simulator following a large break LOCA. The RWST will be at the level requiring transfer to cold leg recirculation. The candidate will be directed to establish cold leg recirculation using 3-ES-1.3. The recirculation pumps will not start and the candidate will be required to establish recirculation using the RHR pumps
- This is a bank JPM.
 - Failure to properly perform this JPM will result in inadequate cooling of the core and possible core damage.
- c. **Respond to Loss of Main Boiler Feedpump Speed Control:** The candidate will enter the simulator with the plant at 100% power. (NOTE: Actual power level is not required. Any simulator Initial Condition with both Main Boiler Feed Pumps operating is satisfactory.) One of the Main Boiler Feed Pumps has experienced a malfunction and is in Track and Hold. The candidate will be directed to respond to a loss of Main Boiler Feed Pump Speed Control in accordance with 3-AOP-FW-1. The candidate will not be able to reset Track and Hold initially and will be required to override the FW signal and control the Feed Pump speed using manual startup control.
- This is an Alternate Path JPM.
 - This JPM directly from the JPM bank; however, it has not been used on the previous 2 NRC Exams.
 - Failure to properly perform this task will result in
- d. **Respond to a Pressurizer Controlling Channel Fail High:** The candidate will enter the simulator at normal full power lineup. The controlling pressurizer pressure channel will fail resulting in maximum spray flow and pressurizer pressure decreasing rapidly. The candidate must take manual control of the master pressurizer pressure controller and stabilize pressure. The candidate must then take appropriate actions to trip bistables associated with pressurizer pressure.
- This is a bank JPM.
 - Failure to properly perform this task will result in a reactor trip.
- e. **Start a Hydrogen Recombiner:** The candidate will enter the simulator following a large break LOCA. The plant will be lined up for cold leg recirculation near the end of 3-ES-1.3, Transfer to Cold Leg Recirculation. The hydrogen concentration has been determined to be approximately 2%. The candidate will be directed to place the hydrogen recombiner in service using 3-SOP-CB-007. (NOTE: The hydrogen recombiner panel is a separate panel and the actual simulator setup conditions are not required).
- This is a New JPM.

- f. **Remove a Power Range Nuclear Instrument from Service:** The candidate will enter the simulator at any power level. The candidate will be told that one Power Range NI channel is indicating erratically and the Shift Manager has declared the channel inoperable. The candidate will be directed to remove the Power Range Channel from service in accordance with 3-SOP-NI-001.
- This is a bank JPM.
 - Failure to properly perform this task will result in a Tech Spec violation/
- g. **Transfer a Circ Water Pump from Standby Drive to Normal:** The candidate will enter the simulator with one of the Circulating Water Pumps operating on the Standby LCI drive. The repairs to the normal drive will be completed and the candidate will be directed to return the Circulating Water Pump to the Normal Drive.
- This is a New JPM.
 - Failure to properly perform this task will result in possible loss of a circulating water pump.
- h. **Transfer buses 1 – 4 to the Station Aux Transformer.** The candidate will enter the simulator at low power during a plant shutdown. Turbine load will be less than 40 MWe. The candidate will be directed to transfer 6.9 kV buses 1 – 4 from the Unit Aux Transformer to the Station Aux Transformer in preparation for a turbine shutdown.
- This is a New JPM.
 - Failure to properly perform this task may result in the loss of 6.9 kV buses 1 – 4.

In Plant JPMs

- i. **Locally Start 32 Auxiliary Boiler Feed Pump:** This JPM locally starts the Steam Driven Aux Feedwater Pump. During the startup the steam pressure control valve will not maintain pressure at 600 psig. The candidate will be required to control steam pressure using PCV-1139 Auto/Manual station.
- In Plant JPM
 - This is an Alternate Path JPM
 - This is a Bank JPM.
 - Failure to properly perform this task will result in inability to control SG level during a control room evacuation.
- j. **Start a CCW Pump from MCC 310A:** This JPM locally starts a CCW pump from outside the control room due to a control room evacuation. Loads must be stripped from the MCC that supplies the Appendix R MCC.
- In Plant JPM
 - This is a Bank JPM.
 - Failure to properly perform this task will result in loss of cooling to the RCP seals
- k. **Perform Local Containment Isolation Valve Lineup IVSW (SOP-CB-11 steps 1-5).** This JPM isolates lines that penetrate containment when equipment is shutdown during a post-accident condition. The candidate will be required to locate and simulate opening/closing valves and circuit breakers for containment isolation valves.
- In Plant JPM
 - This a New JPM.
 - Failure to properly perform this task will result in inability to maintain RCS inventory and possible core damage.

Facility: <u>Indian Point Unit 3</u>		Date of Examination: <u>October 4, 2010</u>
Examination Level: RO <input type="checkbox"/> SRO <input checked="" type="checkbox"/>		Operating Test Number: _____
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N, R	Review a gross leakrate determination calculation 2.1.7 (4.7) Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretations
Conduct of Operations	M, R	Determine Reactor Vessel Venting Time Per FR-I.3, Attachment 4 2.1.25 (4.2) Ability to interpret reference materials, such as graphs, curves, tables, etc.
Equipment Control	N, R	Perform a Safety Function Determination 2.2.37 (4.6) Ability to determine operability and/or availability of safety related equipment
Radiation Control	N, R	Review a Manual Gaseous Rad Waste Release Permit 2.3.6 (3.8) Ability to approve release permits
Emergency Procedures/Plan	M, R, P	Classify E-Plan Event and Complete Part 1 Form 2.4.38 (4.4) Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required.
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.		
* Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1; randomly selected)		

Facility: Indian Point Unit 3 Date of Examination: October 4, 2010
 Exam Level: RO SRO-I **SRO-U X** Operating Test No.: _____

Control Room Systems [@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)			
	System / JPM Title	Type Code*	Safety Function
a.	NA for SRO-U	na	na
b.	Transfer to Cold Leg Recirculation	D, A, E, EN, L	2
c.	NA for SRO-U	na	na
d.	NA for SRO-U	na	na
e.	NA for SRO-U	na	na
f.	Remove a Power Range Nuclear Instrument from Service	D	7
g.	Transfer a Circ Water Pump from Standby Drive to Normal	N	8
h.	NA for SRO-U	na	na

In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)			
i.	Locally Start 32 Auxiliary Boiler Feed Pump	D, A, E, L	4-S
j.	NA for SRO-U	na	na
k.	Perform Local Containment Isolation Valve Lineup IVSW (SOP-CB-11 steps 1-5)	N, EN, L, R	5

@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

SRO V
INDIAN POINT UNIT 3 NRC RO EXAMINATION

CONDUCT OF OPERATIONS: Review a gross leakrate determination calculation. The candidate will be given a set of conditions and appropriate indications and a manual leakrate calculation. The candidate will review the leakrate calculation and locate errors.

- This is a New JPM
- SRO Only

CONDUCT OF OPERATIONS: Determine Reactor Vessel Venting Time Per FR-I.3, Attachment 4 The candidate will be given a set of plant conditions with a void in the reactor vessel head. The candidate will be given directions to calculate the reactor vessel venting time in accordance with Functional Restoration Procedure FR-I.3

- This is a bank JPM
- This JPM is common to both RO and SRO candidates

EQUIPMENT CONTROL: Perform a Safety Function Determination. The candidate will be given a set of plant/equipment conditions including degraded power sources and equipment failures. The candidate will be directed to perform a Safety Function Determination in accordance with OAP-034.

- This is a New JPM
- SRO Only.

RADIATION CONTROL: Review a Manual Gaseous Rad Waste Release Permit. The candidate will be given a set of plant conditions for the VC Pressure Relief and a manually prepared release permit. The candidate will be directed to review the release permit in accordance with 3-SOP-WDS-013. The candidate must locate errors on the permit.

- This is a Modified Bank JPM
- SRO Only.

EMERGENCY PROCEDURES/PLAN: Classify E-Plan Event and Complete Part 1 Form. The candidate will be given a set of plant conditions. The candidate must evaluate the conditions, determine the emergency plan classification and complete the New York State Part 1 form

- This is a Modified Bank JPM.
- This is a Time Critical JPM
- SRO Only.

- a. NA for SRO-U
- b. **Transfer to Cold Leg Recirculation:** The candidate will enter the simulator following a large break LOCA. The RWST will be at the level requiring transfer to cold leg recirculation. The candidate will be directed to establish cold leg recirculation using 3-ES-1.3. The recirculation pumps will not start and the candidate will be required to establish recirculation using the RHR pumps
- This is a bank JPM.
 - Failure to properly perform this JPM will result in inadequate cooling of the core and possible core damage.
- c. NA for SRO-U
- d. NA for SRO-U
- e. NA for SRO-U
- f. **Remove a Power Range Nuclear Instrument from Service:** The candidate will enter the simulator at any power level. The candidate will be told that one Power Range NI channel is indicating erratically and the Shift Manager has declared the channel inoperable. The candidate will be directed to remove the Power Range Channel from service in accordance with 3-SOP-NI-001.
- This is a bank JPM.
 - Failure to properly perform this task will result in a Tech Spec violation/
- g. **Transfer a Circ Water Pump from Standby Drive to Normal:** The candidate will enter the simulator with one of the Circulating Water Pumps operating on the Standby LCI drive. The repairs to the normal drive will be completed and the candidate will be directed to return the Circulating Water Pump to the Normal Drive.
- This is a New JPM.
 - Failure to properly perform this task will result in possible loss of a circulating water pump.
- h. NA for SRO-U

In Plant JPMs

- i. **Locally Start 32 Auxiliary Boiler Feed Pump:** This JPM locally starts the Steam Driven Aux Feedwater Pump. During the startup the steam pressure control valve will not maintain pressure at 600 psig. The candidate will be required to control steam pressure using PCV-1139 Auto/Manual station.
- In Plant JPM
 - This is an Alternate Path JPM
 - This is a Bank JPM.
 - Failure to properly perform this task will result in inability to control SG level during a control room evacuation.
- j. NA for SRO-U.

- k. **Perform Local Containment Isolation Valve Lineup IVSW (SOP-CB-11 steps 1-5).**
This JPM isolates lines that penetrate containment when equipment is shutdown during a post-accident condition. The candidate will be required to locate and simulate opening/closing valves and circuit breakers for containment isolation valves.
- In Plant JPM
 - This a New JPM.
 - Failure to properly perform this task will result in inability to maintain RCS inventory and possible core damage.

Facility: IPEC Unit 3 Scenario No.: 1Op-Test No.: 1Examiners: _____ Operators: _____

Initial Conditions:

Plant is at 65%. 31 EDG is OOS for an oil system modification.

Turnover:

Return power to 100%. 31 EDG is OOS and not expected back on this shift.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R(ATC) N(BOP) N(CRS)	Perform power ascension.
2	MAL- PRS006 B	I(ALL) TS(CRS)	Controlling PZR level instrument fails low causing letdown to isolate. Channel is defeated and letdown is restored.
3	MAL- CVC003	C(ALL) TS(CRS)	Letdown leak inside containment. Leak will be isolated.
4	MAL- EPS005 D	C(ALL)	480V Bus 6A fault.
5	MAL- ATS004 A/B	M(ALL)	Sequential loss of Main Feedwater Pumps leading to plant trip
6	MAL- PRS003 D	C(ALL)	PORV fails open, cannot be isolated.
7	MAL- SIS004A /B	C(CRS)	31 and 32 Safety Injection Pumps will not auto-start. (Neither board operator credited since either one may start pump.)
8	MAL- EPS006	C(ALL)	Loss of Station Aux Transformer when Containment Phase A is reset.

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

Session Outline:

The session begins with power at 65% and 31 EDG out of service for an oil system modification. The team has been instructed to return the plant to 100% at 10% an hour. They will begin raising power per POP-2.1, "Operation above 45% Power".

When sufficient load ascension has been observed, the controlling PZR Level channel will fail low causing Letdown to isolate. The team will respond and restore Letdown per AOP-INST-1, "Instrument or Controller Failures".

When Letdown has been restored, a leak will occur on the Letdown line inside containment. This can be isolated per AOP-LEAK-1, "Sudden Increase in Reactor Coolant System Leakage".

Following leak isolation, a fault of 480V Bus 6A will occur. The team will respond per AOP-480V-1, "Loss of Normal Power to any Safeguards 480V Bus".

When the team has had time to address Charging, Service Water and RCP seal cooling, the Main Boiler Feed Pumps will sequentially trip. In response, the Team will trip the reactor as per the guidance of AOP_FW-1, "Loss of Feedwater" (although formal entry into the AOP is not required).

On the trip, PORV PCV-456 will fail open. Since Bus 6A is faulted, the MOV Block valve for this PORV cannot be closed. 31 and 32 SI pumps will not auto-start, but can be started manually. RCPs will be tripped due to loss of subcooling. A LOOP will occur when Containment Isolation Phase A is reset. The team will have to respond per EOP LOOP-1, "Loss of Offsite Power after SI Reset". When the team announces transition to E-1, the scenario will be terminated.

Procedure flowpath: POP-2.1, AOP-INST-1, AOP-Leak-1, AOP-480V-1, E-0, LOOP-1, E-1

Critical Tasks:

CT 1: Start at least 1 High Head Safety Injection Pump.

CT 2: Trip RCPs when RCP trip criteria are met.

Facility: IPEC Unit 3 Scenario No.: 2Op-Test No.: 1Examiners: _____ Operators: _____

Initial Conditions:

Plant is at 5%. 31 Charging Pump is OOS for maintenance.

Turnover:

Come up to 10% power, then warm up the MTG and place it in service. 31 Charging Pump is OOS and not expected back on this shift.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R(ATC) N(CRS)	Perform power ascension.
2	XMT-040A	I(ALL) TS(CRS)	32 SG Pressure Channel Failure causing ADV to open.
3	MAL-CCW001A/B	C(CRS) C(BOP) TS(CRS)	31 CCW Pump trips and 32 CCW fails to auto-start.
4	MAL-CCW005A	C(CRS) C(BOP) TS(CRS)	CCW leak at 31 HX. Can be isolated
5	MAL-MSS009A	C(CRS) C(ATC)	Main Steam header break with no MSIVs auto-closing and 1 MSIV failing open.
6	MAL-RPS002A/B	M(ALL)	Failure of the Reactor to trip both Auto and Manual. Team will emergency borate and manually insert control rods.
7	MAL-HVA001A1	C(BOP)	31 Fan Cooler Unit fails to auto-start.

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

Session Outline:

The evaluation begins with the plant at 5% power ready to raise power and place the MTG in service. The following equipment is out of service:

- 31 Charging pump for PM.

The team has been instructed to raise power to 10 and begin warming up the MTG to bring the unit on line.

When sufficient ^{power} ~~load~~ ascension has occurred, a failure of the 32 SG Pressure C channel (PT-429C) will occur. This will cause the Atmospheric Dump Valve for that SG to go full open. The ATC will place the valve in manual and closed. The team will enter AOP-INST-1 and trip bistables to satisfy Tech Specs.

When PT-429C bistables are tripped, 31 CCW pump will trip and 32 will fail to auto-start. Manual start of 32 CCW pump will work. After flow has been re-established a leak in CCW will occur at 31 CCW HX. The team will take actions in accordance with AOP-CCW-1, Loss of Component Cooling.

Prior to completion of the Subsequent Actions of AOP-CCW-1, a steam break will occur in the Turbine Building. The team will attempt to manually trip the plant, close MSIVs, and perform actions of E-0, Reactor Trip or Safety Injection.

The reactor will not trip from the Control Room and the team will respond per FR-S.1, Response to Nuclear Power Generation / ATWS and will S/D the reactor by manually inserting control rods and initiating Emergency Boration. The reactor trip breakers will be locally opened and the team will transition to E-0, Reactor Trip or Safety Injection. Following SI actuation, 31 FCU does not auto start. A loss of the Station Auxiliary Transformer will occur when the control rods are inserted.

The MSIVs will fail to auto close. All but 34 MSIV will be able to be closed in manual from the control room. The team will respond to the faulted SG per E-2, Faulted Steam Generator Isolation and transition to E-1, Loss of Reactor or Secondary Coolant. The scenario may be terminated when after the transition.

Procedure flow path: POP-1.3, AOP-INST-1, AOP-CCW-1, AOP-UC-1, E-0, FR-S.1, E-0, E-2, E-1

Critical Task:

CT 1: Insert negative reactivity when reactor fails to trip.

CT 2: Isolated faulted SG.

Facility: IPEC Unit 3 Scenario No.: 3Op-Test No.: 1Examiners: _____ Operators: _____

Initial Conditions:

Plant is at 100%. 31 AFW Pump is OOS due to high vibrations. PORV 455C is inoperable due to blowing fuses.

Turnover:

Maintain 100% power conditions. 31 AFW Pump is OOS due to high vibrations. PORV 455C is inoperable due to blowing fuses.

Event No.	Malf. No.	Event Type*	Event Description
1	XMT-CVC049	I(ALL)	VCT level instrument fails low.
2	MAL-CVC005C	C(ALL) TS(CRS)	33 Charging Pump Trip.
3	MAL-SGN005C	C(ALL) TS(CRS)	900 gpd SGTL on 33 SG.
4		R(ATC) N(CRS) N(BOP)	Tech Spec required shutdown.
5	MAL-SGN005C	M(ALL)	SGTL becomes SGTR. PORV failure, LOOP and Aux Spray Valve failure will lead to loss of pressure control.
6	MAL-EPS006	C(ALL)	Loss of Station Auxiliary Transformer.
6	MAL-CFW001C	C(CRS) C(ATC)	33 AFW Pump fails to auto-start.
7	MAL-SIS004A	C(BOP)	31 Safety Injection Pump fails to auto-start.
8	MAL-PRS003D SWI-CVC031A	C(ALL)	PORV and Aux Spray failures lead to loss of pressure control

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

SESSION OUTLINE:

The evaluation begins with the plant at 100% power steady state operation. The following equipment is out of service:

- # 31 ABFP was declared inoperable 3 hours ago due to high vibrations during its PT (TS 3.7.5 – 72 hr AOT)
- PORV 455C was declared inoperable 1 hour ago due to blowing its control power fuses. T/S is in progress. Per TS 3.4.11, the block valve has been closed with power removed and a 7 day AOT entered.

After taking the watch, the VCT Level instrument fails low. The team will respond per AOP-CVCS-1, "Chemical and Volume Control Malfunction".

When the VCT level failure has been addressed, the running Charging Pump will trip. The team will re-enter and take actions per AOP-CVCS-1, "Chemical and Volume Control Malfunction".

After performing actions for the Charging pump trip, a SG tube leak ramped to a SGTR will occur. The team should take actions per AOP-SG-1, "Steam Generator Tube Leak". This will include begin a plant shutdown.

When the team has sufficiently progressed through the shutdown, the SGTL will become a SGTR. The team will trip the Reactor and initiate SI.# 33 ABFW pump will trip after auto starting requiring manual action to be taken in E-0. 31 SI pump will have to be manually started. The station auxiliary transform will fail resulting in a loss of offsite power when 6.9KV buses transfer following the reactor trip.

The team will transition to and take actions per E-3, "Steam Generator Tube Rupture". Spray will not be available due to the loss of offsite power. This, along with the PORV failure to open, will require the team to transition to ECA-3.3, "SGTR Response without Pressurizer Pressure Control" until SI pumps are secured.

Procedure flow path: AOP-CVCS-1, AOP-SG-1, E-0, E-3, ECA-3.3

Critical Tasks:

CT 1: Establish 365 gpm AFW flow.

CT 2: Isolate AFW flow to ruptured SG.

CT 3: Establish and maintain cooldown in E-3.

CT 4: Terminate SI before SG overfill in ECA-3.3.