

Facility:		Oyster Creek ILT 08-1 NRC Exam		Date of Exam:		6/15/09											
Tier	Group	RO K/A Category Points										SRO-Only Points					
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total	
1. Emergency & Plant Evolutions	1	4	3	4				3	3			3	20	4	3	7	
	2	1	1	1				2	1			1	7	1	2	3	
	Tier Totals	5	4	5				5	4			4	27	5	5	10	
2. Plant Systems	1	2	2	2	3	2	2	2	3	3	3	2	26	2	3	5	
	2	1	2	1	1	1	1	1	1	1	1	1	12	0	1	2	
	Tier Totals	3	4	3	4	3	3	3	4	4	4	3	38	3	5	8	
3. Generic Knowledge & Abilities Categories				1		2		3		4		10	1	2	3	4	7
				2		2		3		3			1	2	2	2	

Note:

- 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).
- 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.
- 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 that are not included on the outline should be added. Refer to section D.1.b of ES-401, for guidance regarding elimination of inappropriate K/A statements.
- 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.
- Absent a plant specific priority, only those KAs 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.
- Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- * 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/A's
- On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IR) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above. 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.
- 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 10CFR55.43

**Oyster Creek ILT 08-1 NRC Exam
Written Examination Outline
Emergency and Abnormal Plant Evolutions – Tier 1 Group 1**

EAPE # / Name Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
295019 Partial or Total Loss of Inst. Air / 8					X		AA2.01 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR : Instrument air system pressure	3.6	1
600000 Plant Fire On-site / 8					X		AA2.13 - Ability to determine and interpret the following as they apply to PLANT FIRE ON SITE: Need for emergency plant shutdown	3.5	2*
295006 SCRAM / 1					X		AA2.06 - Ability to determine and/or interpret the following as they apply to SCRAM : Cause of reactor scram	3.8	3*
295037 SCRAM Conditions Present and Reactor Power Above APRM Downscale or Unknown / 1						X	2.4.37 Knowledge of the lines of authority during implementation of the emergency plan.	3.6	4*
295031 Reactor Low Water Level / 2						X	2.4.30 - Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.	4.1	5*
295018 Partial or Total Loss of CCW / 8						X	2.1.23 - Conduct of Operations: Ability to perform specific system and integrated plant procedures during all modes of plant operation.	4.4	6*
295004 Partial or Total Loss of DC Pwr / 6					X		AA2.03 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER : Battery voltage	2.9	7
295028 High Drywell Temperature / 5	X						EK1.02 - Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL TEMPERATURE : Equipment environmental qualification	2.9	39
295038 High Off-site Release Rate / 9	X						EK1.02 - Knowledge of the operational implications of the following concepts as they apply to HIGH OFF-SITE RELEASE RATE : Protection of the general public	4.2	40*
295025 High Reactor Pressure / 3	X						EK1.05 - Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR PRESSURE : Safety/relief valve tailpipe temperature/pressure relationships	3.6	41*
295016 Control Room Abandonment / 7		X					AK2.01 - Knowledge of the interrelations between CONTROL ROOM ABANDONMENT and the following: Remote shutdown panel	4.4	42*
295004 Partial or Total Loss of DC Pwr / 6		X					AK2.01 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF D.C. POWER and the following: Battery charger	3.1	43
295021 Loss of Shutdown Cooling / 4		X					AK2.03 - Knowledge of the interrelations between LOSS OF SHUTDOWN COOLING and the following: RHR/shutdown cooling	3.6	44
295024 High Drywell Pressure / 5			X				EK3.01 - Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE : Drywell spray operation: Mark-I&II	3.6	45

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EAPE # / Name Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
295003 Partial or Complete Loss of AC / 6			X				AK3.07 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER: Initiation of isolation condensers	3.8	46*
295019 Partial or Total Loss of Inst. Air / 8			X				AK3.01 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR : Backup air system supply: Plant-Specific	3.3	47
295018 Partial or Total Loss of CCW / 8				X			AA1.02 - Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER : System loads	3.3	48
295026 Suppression Pool High Water Temp. / 5				X			EA1.01 - Ability to operate and/or monitor the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Suppression pool cooling	4.1	49*
295023 Refueling Acc Cooling Mode / 8				X			AA1.06 - Ability to operate and/or monitor the following as they apply to REFUELING ACCIDENTS : Neutron monitoring	3.3	50
295030 Low Suppression Pool Water Level / 5					X		EA2.01 - Ability to determine and/or interpret the following as they apply to LOW SUPPRESSION POOL WATER LEVEL : Suppression pool level	4.1	51
295005 Main Turbine Generator Trip / 3					X		AA2.04 - Ability to determine and/or interpret the following as they apply to MAIN TURBINE GENERATOR TRIP : Reactor pressure	3.7	52
700000 Generator Voltage and Electric Grid Disturbances					X		AA2.01 - Ability to determine and/or interpret the following as they apply to GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES: Operating point on the generator capability curve.	3.5	53
295006 SCRAM / 1						X	2.4.18 - Emergency Procedures / Plan: Knowledge of the specific bases for EOPs.	3.3	54
295037 SCRAM Conditions Present and Reactor Power Above APRM Downscale or Unknown / 1						X	2.4.35 - Emergency Procedures / Plan: Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects.	3.8	55
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4						X	2.2.44 Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.	3.6	56*
600000 Plant Fire On-site / 8	X						AK1.02 - Knowledge of the operation applications of the following concepts as they apply to Plant Fire On Site: Fire fighting	2.9	57*
295031 Reactor Low Water Level / 2			X				EK3.02 - Knowledge of the reasons for the following responses as they apply to REACTOR LOW WATER LEVEL : Core coverage	4.4	58
K/A Category Totals:	4	3	4	3	3/4	3/3	Group Point Total:	20/7	

Oyster Creek ILT 08-1 NRC Exam
 Written Examination Outline
 Emergency and Abnormal Plant Evolutions – Tier 1 Group 2

EAPE # / Name Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Q#
295020 Inadvertent Cont. Isolation / 5 & 7					X		AA2.04 - Ability to determine and/or interpret the following as they apply to INADVERTENT CONTAINMENT ISOLATION : Reactor pressure	3.9	8
295007 High Reactor Pressure						X	2.4.34 - Emergency Procedures / Plan: Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects.	4.1	9*
295036 Secondary Containment High Sump/Area Water Level / 5						X	2.4.8 - Emergency Procedures / Plan: Knowledge of how abnormal operating procedures are used in conjunction with EOP's.	4.5	10
295014 Inadvertent Reactivity Addition / 1	X						AK1.01 - Knowledge of the operational implications of the following concepts as they apply to INADVERTENT REACTIVITY ADDITION : Prompt critical	3.7	59
295036 Secondary Containment High Sump/Area Water Level / 5		X					EK2.01 - Knowledge of the interrelations between SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL and the following: Secondary containment equipment and floor drain system	3.1	60*
295032 High Secondary Containment Area Temperature / 5			X				EK3.01 - Knowledge of the reasons for the following responses as they apply to HIGH SECONDARY CONTAINMENT AREA TEMPERATURE : Emergency/normal depressurization	3.5	61*
295008 High Reactor Water Level / 2				X			AA1.03 - Ability to operate and/or monitor the following as they apply to HIGH REACTOR WATER LEVEL : Main steam system: Plant-Specific	3.1	62
295007 High Reactor Pressure / 3					X		AA2.02 - Ability to determine and/or interpret the following as they apply to HIGH REACTOR PRESSURE : Reactor power	4.1	63
295009 Low Reactor Water Level / 2						X	2.4.31 - Emergency Procedures / Plan: Knowledge of annunciator alarms, indications, or response procedures.	4.2	64
295033 High Secondary Containment Area Radiation Levels / 9				X			EA1.03 - Ability to operate and/or monitor the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS : Secondary containment ventilation	3.8	65*
K/A Category Totals:	1	1	1	2	1/1	1/2	Group Point Total:		7/3

Oyster Creek ILT 08-1 NRC Exam
 Written Examination Outline
 Plant Systems – Tier 2 Group 1

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	Imp	Q#
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262002 UPS (AC/DC)								X				A2.01 - Ability to (a) predict the impacts of the following on the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Under voltage	2.8	11
215003 Intermediate Range Monitors (IRMs)								X				A2.04 - Ability to (a) predict the impacts of the following on the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Upscale or downscale trips	3.8	12*
209001 Low Pressure Core Spray											X	2.1.25 - Conduct of Operations: Ability to interpret reference materials, such as graphs, curves, tables, etc.	4.2	13*
215004 Source Range Monitor											X	2.1.20 - Conduct of Operations: Ability to interpret and execute procedure steps.	4.6	14
211000 Standby Liquid Control System											X	2.4.6 - Emergency Procedures / Plan: Knowledge of EOP mitigation strategies.	4.7	15*
262002 UPS (AC/DC)	X											K1.08 - Knowledge of the physical connections and/or cause- effect relationships between UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) and the following: Containment isolation system: Plant-Specific	2.9	1
212000 RPS	X											K1.01 - Knowledge of the physical connections and/or cause- effect relationships between REACTOR PROTECTION SYSTEM and the following: Nuclear instrumentation	3.7	2
263000 DC Electrical Distribution		X										K2.01 - Knowledge of electrical power supplies to the following: Major DC loads	3.1	3
207000 Isolation (Emergency) Condenser		X										K2.01 - Knowledge of electrical power supplies to the following: Motor operated valves: BWR-2,3	3.6	4
400000 Component Cooling Water			X									K3.01 - Knowledge of the effect that a loss or malfunction of the CCWS will have on the following: Loads cooled by CCWS	2.9	5

Oyster Creek ILT 08-1 NRC Exam
 Written Examination Outline
 Plant Systems – Tier 2 Group 1

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	Imp	Q#
215003 IRM			X									3.6	6
215004 Source Range Monitor				X								2.8	7
223002 PCIS/Nuclear Steam Supply Shutoff				X								3.5	8
218000 ADS					X							3.8	9
300000 Instrument Air					X							2.5	10
205000 Shutdown Cooling						X						3.3	11
239002 SRVs						X						2.7	12
211000 SLC							X					3.6	13
261000 SGTS							X					2.9	14

Oyster Creek ILT 08-1 NRC Exam
 Written Examination Outline
 Plant Systems – Tier 2 Group 1

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A2	A 3	A 4	G	Imp	Q#	
259002 Reactor Water Level Control								X				A2.01 - Ability to (a) predict the impacts of the following on the REACTOR WATER LEVEL CONTROL SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of any number of main steam flow inputs	3.3	15
209001 LPCS								X				A2.03 - Ability to (a) predict the impacts of the following on the LOW PRESSURE CORE SPRAY SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A.C. failures	3.4	16
215005 APRM / LPRM									X			A3.03 - Ability to monitor automatic operations of the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM including: Meters and recorders	3.3	17
264000 EDGs									X			A3.06 - Ability to monitor automatic operations of the EMERGENCY GENERATORS (DIESEL/JET) including: Load shedding and sequencing	3.4	18*
263000 DC Electrical Distribution										X		A4.01 - Ability to manually operate and/or monitor in the control room: Major breakers and control power fuses	3.3	19*
215004 Source Range Monitor										X		A4.02 - Ability to manually operate and/or monitor in the control room: SRM recorder	3.0	20
207000 Isolation Condenser											X	2.4.8 - Emergency Procedures / Plan: Knowledge of how abnormal operating procedures are used in conjunction with EOP's.	3.8	21*
259002 Reactor Water Level Control											X	2.4.9 - Emergency Procedures / Plan: Knowledge of low power / shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.	3.8	22
212000 RPS										X		A4.05 - Ability to manually operate and/or monitor in the control room: Reactor power	4.3	23
239002 SRVs								X				A2.02 - Ability to (a) predict the impacts of the following on the RELIEF/SAFETY VALVES ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Leaky SRV	3.1	24

Oyster Creek ILT 08-1 NRC Exam
 Written Examination Outline
 Plant Systems – Tier 2 Group 1

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A2	A 3	A 4	G	Imp	Q#
262001 AC Electrical Distribution				X								3.0	25
263000 DC Electrical Distribution									X			3.2	26
K/A Category Totals:	2	2	2	3	2	2	2	3/2	3	3	2/3	Group Point Total: 26/5	

Oyster Creek ILT 08-1 NRC Exam
 Written Examination Outline
 Plant Systems – Tier 2 Group 2

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A2	A 3	A 4	G	Imp.	Q #
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214000 RPIS								X				A2.02 - Ability to (a) predict the impacts of the following on the ROD POSITION INFORMATION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Reactor SCRAM	3.7	16
271000 Off-gas											X	2.2.22 - Equipment Control: Knowledge of limiting conditions for operations and safety limits.	4.7	17
272000 Radiation Monitoring System											X	2.4.45 - Ability to prioritize and interpret the significance of each annunciator or alarm.	4.3	18*
201003 Control Rod and Drive Mechanism	X											K1.02 - Knowledge of the physical connections and/or cause- effect relationships between CONTROL ROD AND DRIVE MECHANISM and the following: Reactor water	2.9	27
239001 Main and Reheat Steam		X										K2.01 - Knowledge of electrical power supplies to the following: Main steam isolation valve solenoids	3.2	28
288000 Plant Ventilation			X									K3.05 - Knowledge of the effect that a loss or malfunction of the PLANT VENTILATION SYSTEMS will have on following: Reactor building pressure: Plant-Specific	3.1	29
241000 Reactor/Turbine Pressure Regulator				X								K4.16 - Knowledge of REACTOR/TURBINE PRESSURE REGULATING SYSTEM design feature(s) and/or interlocks which provide for the following: Reactor cooldown	3.3	30
233000 Fuel Pool Cooling/Cleanup					X							K5.03 - Knowledge of the operational implications of the following concepts as they apply to FUEL POOL COOLING AND CLEAN-UP : Spent fuel decay heat generation	2.6	31
245000 Main Turbine Gen. / Aux.						X						K6.04 - Knowledge of the effect that a loss or malfunction of the following will have on the MAIN TURBINE GENERATOR AND AUXILIARY SYSTEMS : Hydrogen cooling	2.6	32
219000 RHR/LPCI: Torus/Pool Cooling Mode							X					A1.07 - Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI: TORUS/SUPPRESSION POOL COOLING MODE controls including: Emergency generator loading	4.0	33*

Oyster Creek ILT 08-1 NRC Exam
 Written Examination Outline
 Plant Systems – Tier 2 Group 2

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A2	A 3	A 4	G		Imp.	Q #
202002 Recirculation Flow Control System								X				A2.05 - Ability to (a) predict the impacts of the following on the RECIRCULATION FLOW CONTROL SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Scoop tube lockup BWR-2, 3, 4	3.1	34*
214000 RPIS									X			A3.01 - Ability to monitor automatic operations of the ROD POSITION INFORMATION SYSTEM including: Full core display	3.4	35
290003 Control Room HVAC										X		A4.04 - Ability to manually operate and/or monitor in the control room: Environmental conditions	2.8	36
202001 Recirculation											X	2.4.4 - Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.	2.9	37*
286000 Fire Protection		X										K2.03 - Knowledge of electrical power supplies to the following: Fire detection system: Plant-Specific	2.5	38
K/A Category Totals:	1	2	1	1	1	1	1	1/1	1	1	1/2	Group Point Total:	12/3	

Facility:		Oyster Creek ILT 08-1 NRC		Date:			
Exam							
Category	K/A #	Topic	RO		SRO-Only		
			IR	Q#	IR	Q#	
1. Conduct of Operations	2.1.40	Knowledge of refueling administrative requirements			3.9	19	
	2.1.27	Knowledge of system purpose and / or function.	3.9	66			
	2.1.7	Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrument interpretation.	4.4	67			
	Subtotal			2	1		
2. Equipment Control	2.2.6	Knowledge of the process for making changes to procedures.			3.6	20	
	2.2.21	Knowledge of pre- and post-maintenance operability requirements.			4.1	21*	
	2.2.14	Knowledge of the process for controlling equipment configuration or status.	3.9	68*			
	2.2.2	Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.	4.6	69			
	Subtotal			2	2		
3. Radiation Control	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions.			3.7	22*	
	2.3.14	Knowledge of radiation or containment hazards that may arise during normal, abnormal, or emergency conditions or activities.			3.8	23	
	2.3.11	Ability to control radiation releases.	3.8	70			
	2.3.14	Knowledge of radiation or containment hazards that may arise during normal, abnormal, or emergency conditions or activities.	3.4	71			

	2.3.13	Knowledge of Radiological Safety Procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high radiation areas, aligning filters, etc.	3.4	72		
	Subtotal			3		2
4. Emergency Procedures / Plan	2.4.46	Ability to verify that the alarms are consistent with the plant conditions.			4.2	24
	2.4.40	Knowledge of the SRO's responsibilities in emergency plan implementation.			4.5	100
	2.4.17	Knowledge of EOP terms and definitions.	3.9	73*		
	2.4.21	Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc.	4.0	74		
	2.4.39	Knowledge of RO responsibilities in emergency plan implementation	3.9	75		
	Subtotal				3	
Tier 3 Point Total				10		7

Tier / Group	Randomly Selected K/A	Reason for Rejection
SRO 1/1	600000 AA2.13	600000 AA2.15 A new question was written to match this KA. Further review revealed that the question was not SRO-only knowledge. Therefore, an operationally relevant SRO-only question cannot be written for this KA. KA 600000 AA2.13 was randomly selected as a replacement.
SRO 1/1	295037 G2.4.37	295037 G2.2.4 This KA is for a multi-unit license. Oyster Creek is a single-unit license. KA 295037 G2.4.37 was randomly selected as a replacement.
SRO 2/1	211000 G2.4.6	400000 G2.4.6 An operationally relevant SRO-only question cannot be written for this KA 211000 2.4.6. was randomly selected as a replacement.
SRO 2/2	272000 G2.4.45	223001 G2.4.50 An operationally relevant SRO-only question cannot be written for this KA. 272000 G2.4.45 was randomly selected as a replacement.
SRO 3	G2.2.21	G2.2.19 An operationally relevant SRO-only question cannot be written for this KA. G2.2.21 was randomly selected as a replacement.
RO 2/1	263000 A4.01	263000 A4.04 This KA was already selected for the Candidates' certification exam. KA 263000 A4.01 was randomly selected as a replacement.
RO 2/1	207000 G2.4.8	264000 G2.4.8 An operationally relevant RO question cannot be written for this KA. 207000 G2.4.8 was randomly selected as a replacement.
RO 2/2	219000 A1.07	219000 A1.01 This KA has been rejected because it is very similar in intent to one on the Candidates' certification exam. 219000 A1.07 was randomly selected as a replacement.
RO 2/2	202002 A2.05	268000 A2.01 An operationally relevant RO question cannot be written for this KA. 202002 A2.05 was randomly selected as a replacement.
RO 2/2	202001 G2.4.4	202001 G2.4.41 This KA is an SRO-only KA and is not suitable to the RO portion of the exam. KA 202001 G2.4.4 was randomly selected as a replacement.
RO 1/1	295038 EK1.02	295038 EK 1.03 This KA is not related to the RO position and is not suitable to the RO portion of the exam. 295038 EK1.02 was randomly selected as a replacement.
RO 1/1	295016 AK2.01	295016 AK2.03 No interrelationship exists between Control Room Abandonment and Control Room HVAC. 295016 AK2.01 was randomly selected as a replacement.
RO 1/1	295003 AK3.07	295003 AK3.06 This KA was already selected for the Candidates' certification exam. KA 295003 AK3.07 was randomly selected as a replacement.
RO 1/1	295026 EA1.01	295026 EA1.03 This KA was already selected for the Candidates' certification exam. KA 295026 EA1.01 was randomly selected as a replacement.
RO 1/1	295001 G2.2.44	295001 G2.2.37 An operationally relevant RO question cannot be written for this KA. 295001 G2.2.44 was randomly selected as a replacement.
RO 1/1	600000 AK1.02	600000 AK1.01 An operationally relevant RO question cannot be written for this KA. 600000 AK1.02 was randomly selected as a replacement.

RO 1/2	295036 EK2.01	295036 EK2.02 There is no interrelationship between Secondary Containment sumps and the Post Accident Sampling System. 295036 EK2.01 was randomly selected as a replacement.
RO 1/2	295032 EK3.01	295032 EK3.03 The KA 295033 (reasons for isolating systems as they apply to high radiation levels) was already selected for the Candidates' certification exam and is very similar in content and intent. KA 295032 EK3.01 was randomly selected as a replacement.
RO 1/2	295033 EA1.03	295033 EA1.06 There is no relation to the RO function of secondary containment high radiation levels and portable radiation instruments. KA 295033 EA1.03 was randomly selected as a replacement.
RO 3	G2.2.14	G2.2.13 This KA was already selected for the Candidates' certification exam for Tier 3. G2.2.14 was randomly selected as a replacement.
RO 3	G2.4.17	G2.4.28 This KA, knowledge of procedures relating to a security event, would most likely be related to information contained in ABN-41, Security Event. Information in this ABN is exempt from public disclosure IAW 10CFR2.390. G2.4.17 was randomly selected as a replacement.
SRO 1/1	295006 AA2.06	295026 AA2.04 An operationally relevant SRO question cannot be written for this KA. 295006 AA2.06 was randomly selected as a replacement.
RO 2/1	263000 K2.01	262001 K2.01 An operationally relevant RO question cannot be written for this KA. 263000 K2.01 was randomly selected as a replacement.
RO 1/1	295025 EK1.03	295025 EK1.05 An operationally relevant RO question cannot be written for this KA. 295025 EK1.03 was randomly selected as a replacement.
RO 3	G2.4.39	G2.4.42 An operationally relevant RO question cannot be written for this KA. G2.4.39 was randomly selected as a replacement.
SRO 1/1	295031 G2.4.30	295031 G2.4.2 A new question was written to address this KA and was determined that the question was not SRO only. 295031 G2.4.30 was randomly selected as a replacement.
SRO 1/1	295018 G2.1.23	295018 G2.1.31 A new question was written to address this KA and was determined that the question was not SRO only. 295018 G2.1.23 was randomly selected as a replacement.
SRO 3	G2.3.4	G2.3.15 An operationally relevant SRO question cannot be written for this KA. G2.3.4 was randomly selected as a replacement.
SRO 2/1	215003 A2.04	215005 A2.10 An operationally relevant SRO question cannot be written for this KA. 215003 A2.04 was randomly selected as a replacement.
SRO 1/2	295007 G2.4.34	295029 G2.4.34 An operationally relevant SRO question cannot be written for this KA. 295007 G2.4.34 was randomly selected as a replacement.
SRO 2/1	209001 G2.1.25	264000 G2.1.25 An operationally relevant SRO question cannot be written for this KA. 209001 G2.1.25 was randomly selected as a replacement.
RO 2/1	264000 A3.05	264000 A3.06 An operationally relevant RO question cannot be written for this KA. 264000 A3.05 was randomly selected as a replacement.
RO 2/2	245000 K6.03	245000 K6.05 Another question (53) asks a question which would be used for hydrogen cooling. A second operationally relevant RO question cannot be written for this KA. 245000 K6.03

		was randomly selected as a replacement.
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This question outline was generated by WTS Inc. GE BWR Outline Generator software, version 2.02, developed by Western Technical Services.

Facility: <u>Oyster Creek</u>		Date of Examination: <u>6/15/09</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: <u>OC-2009</u>
Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R, D	2.1.25 (3.9) Plot Reactor Heatup Rate during a Reactor Startup
Conduct of Operations	R, N	2.1.32 (3.8) Initiate Attachment 403-2 for failed LPRMs
Equipment Control	R, D	2.2.44 (4.2) Determine Impact on the Core Spray System IAW SP-4
Radiation Control		
Emergency Procedures/Plan	R, N	2.4.39 (3.1) Review a Completed State/Local Notification Form (EP-MA-114-100-F-03)
<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 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) 		

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Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R, M	2.1.8 (4.1) Determine Operator Qualifications From LMS [NRC ADMIN JPM SRO1]
Conduct of Operations	R, N	2.1.23 (4.4) Review a Completed Pre-Critical Checkoff IAW Attachment 201-2 [NRC ADMIN JPM SRO2]
Equipment Control	R, M	2.2.12 (4.1) Review Completed Surveillance Test 609.3.002 [NRC ADMIN JPM SRO3]
Radiation Control	R, D, P	2.3.4 (3.7) Authorize Emergency Exposures IAW EP-AA-113 [NRC Admin JPM SRO4]
Emergency Procedures/Plan	S, M	2.4.41 (4.6) Determine Emergency Classification IAW the Scenario Guides [NRC Admin JPM SRO 5]
<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 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: <u>Oyster Creek</u>		Date of Examination: <u>6/15/09</u>
Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test Number: <u>OC-2009</u>
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. Recirculation System: Perform Recirculation Pumps Trip Circuitry Test, 603.4.001 [NRC SIM JPM1] 202001 A2.04 (3.7/3.8)	D, S, A	1
b. Startup a Feedwater Pump at Power [NRC SIM JPM2] 259001 A4.02 (3.9/3.7)	D, S	2
c. Re-open the MSIVs and initiate a Cooldown with the MPR [NRC SIM JPM3] 239001 A4.01 (4.2/4.0)	N, S, L	3
d. Main Turbine Generator and Auxiliary Systems: Perform Anticipatory Scram Turbine Stop Valve Closure Test with RPS Actuation [NRC SIM JPM4] 245000 A4.07 (2.9/2.9)	D, S, A, P	4
e. Primary Containment Isolation System/Nuclear Steam Supply Shutoff: Reset Primary Containment Isolation Signal and Restart Reactor Water Cleanup System [NRC SIM JPM5] 223002 A4.03 (3.6/3.5)	N, S, A, L	5
f. DC Electrical Distribution: Swap from the Static Charger to the Battery Charger MG Set B [NRC SIM JPM6] 263000 K1.02 (3.2/3.3) (RO Only)	D, S	6
g. Rod Worth Minimizer System: Insert a Control Rod Position into the Rod Worth Minimizer [NRC SIM JPM7] 201006 A4.06 (3.2/3.2)	N, S	7
h. Plant Ventilation Systems: Startup the Turbine Building Ventilation System [NRC SIM JPM8] 288000 A4.01 (3.1/2.9)	N, S, A	9
In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Standby Liquid Control System: Add Water to the SLC Tank IAW SP-7 [NRC PLANT JPM1] 211000 A1.01 (3.6/3.7)	D, R, E	1
j. Emergency Diesel Generator: Startup EDG1 for Peaking Operation IAW Procedure 341 [NRC PLANT JPM2] 264000 K4.07 (3.3/3.4)	D, E	6
k. Instrument Air System: Bypass Air Dryers, Pre/Post Filters IAW ABN-35 [NRC PLANT JPM3] 300000 A2.01 (2.9/2.8)	N, R, E	8
<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	

Facility: <u>Oyster Creek</u>		Date of Examination: <u>6/15/09</u>
Exam Level: RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test Number: <u>OC-2009</u>
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. Recirculation System: Perform Recirculation Pumps Trip Circuitry Test, 603.4.001 [NRC SIM JPM1] 202001 A2.04 (3.7/3.8)	D, S, A	1
b. Startup a Feedwater Pump at Power [NRC SIM JPM2] 259001 A4.02 (3.9/3.7)	D, S	2
c. Re-open the MSIVs and initiate a Cooldown with the MPR [NRC SIM JPM3] 239001 A4.01 (4.2/4.0)	N, S, L	3
d. Main Turbine Generator and Auxiliary Systems: Perform Anticipatory Scram Turbine Stop Valve Closure Test with RPS Actuation [NRC SIM JPM4] 245000 A4.07 (2.9/2.9)	D, S, A, P	4
e. Primary Containment Isolation System/Nuclear Steam Supply Shutoff: Reset Primary Containment Isolation Signal and Restart Reactor Water Cleanup System [NRC SIM JPM5] 223002 A4.03 (3.6/3.5)	N, S, A, L	5
f.		
g. Rod Worth Minimizer System: Insert a Control Rod Position into the Rod Worth Minimizer [NRC SIM JPM7] 201006 A4.06 (3.2/3.2)	N, S	7
h. Plant Ventilation Systems: Startup the Turbine Building Ventilation System [NRC SIM JPM8] 288000 A4.01 (3.1/2.9)	N, S, A	9
In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Standby Liquid Control System: Add Water to the SLC Tank IAW SP-7 [NRC PLANT JPM1] 211000 A1.01 (3.6/3.7)	D, R, E	1
j. Emergency Diesel Generator: Startup EDG1 for Peaking Operation IAW Procedure 341 [NRC PLANT JPM2] 264000 K4.07 (3.3/3.4)	D, E	6
k. Instrument Air System: Bypass Air Dryers, Pre/Post Filters IAW ABN-35 [NRC PLANT JPM3] 300000 A2.01 (2.9/2.8)	N, R, E	8
@ 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	

OC ILT 08-1 NRC Exam Simulator Scenario 1

Scenario Outline

Facility: Oyster Creek **Scenario No.:** NRC Sim 1 **Op Test No.:** OC-2009

Evaluators **Operators** **Crew Position**

Initial Conditions:

- 100% power
- Service Water Pump 1-2 is OOS
- The RWM is inoperable and in BYPASS

Turnover:

- Remove Recirculation Pump E from service

Event No.	Malf. No.	Event Type*		Event Description
1	ICH-RFC010A	N, R	ATC BOP	Remove Recirculation Pump E from service IAW 301.2 while maintaining power at rated
2	MAL-NIS020B	I	ATC	Upscale failure of APRM 2 and resultant ½ scram on RPS 1
3	SWI-ADS001C	C TS	BOP SRO	Inadvertent opening of EMRV NR108A Tech Spec application required
4	RLY-RPS045B, 046B, 049B, 050B, 058B, 059B, 060B MAL-EDS003E	C TS	All	Loss of 460 VAC Bus USS 1B2 Tech Spec application required
5	MAL-NSS025A	C	All	EMRV NR108A leaks by
6	MAL-CFW012B SRV-CFW002B SRV-CFW003B	M	All	Feedwater line break in the TB with failure of feedwater check valves
7	MAL-CFW003A, B, C	C	All	Loss of all Condensate and Feedwater Pumps
8	VLV-CSS004, 006, 011, 012,	C	ALL	Core Spray Parallel Isolation Valves fails to auto open

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

OC ILT 08-1 NRC Exam Simulator Scenario 2

Scenario Outline

Facility: Oyster Creek

Scenario No.: NRC Sim 2

Op Test No.: OC-2009

Evaluators

Operators

Crew Position

Initial Conditions:

- 80% power due to Turbine Control Valve oscillations
- RBCCW Pump 1-2 is OOS
- The RWM is bypassed
- PPC screens for EGD 2 are unreliable

Turnover:

- Complete EDG2 surveillance 636.4.013

Event No.	Malf. No.	Event Type*		Event Description
1	IND-DGN006	N	BOP	Start EDG 2 IAW surveillance 636.4.013
2	MAL-CRD001A	C	ATC	The in-service CRD FCV fails closed
3	MAL-CRD005	C TS	ATC SRO	A control rod will drift outward from the core Tech Spec application required
4	PSW-TBC001A MAL-EDS003D	C	BOP	Loss of 460 VAC USS Bus 1B1
5	CNH-FWH001B, 04B, 07B	R	ATC	Several Feedwater Heaters will trip requiring a reactor power reduction with Recirculation Flow
6	SWI-ICS007D VLV-ICS007, 008, 012 PSW-ICS005A	C TS	BOP SRO	Isolation Condenser B will inadvertently initiate and show conditions of a pipe rupture with failure to auto isolate Tech Spec application required
7	MAL-GEA005A	C	ALL	The running Stator Water Cooling Pump will trip requiring a manual reactor scram
8	MAL-CRD21A	M	ALL	A hydraulic ATWS will occur allowing partial control rod insertion

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

OC ILT 08-1 NRC Exam Simulator Scenario 3

Scenario Outline

Facility: Oyster Creek

Scenario No.: NRC Sim 3

Op Test No.: OC-2009

Evaluators

Operators

Crew Position

Initial Conditions:

- 97% power
- Condenser Backwash in progress
- RWCU Pump B is OOS
- The RWM is inoperable and is bypassed

Turnover:

- Complete Condenser Backwash
- Raise reactor power to 100%

Event No.	Malf. No.	Event Type*		Event Description
1	NA	N	BOP	Complete the Condenser Backwash evolution for Condenser Half B South IAW 323.6
2	NA	R	ATC	Raise reactor power to 100% with Recirculation Flow
3	NA	C TS	ATC SRO	The CRD System Engineer notifies the SRO of impending failure of CRD PUMP A Tech Spec application required
4	MAL-RCU007 VLV-RCU001, 004	C TS	BOP SRO	The Cleanup System will fail to trip and isolate on high system pressure Tech Spec application required
5	MAL-CRD013	C	ATC	A control rod high temperature limit is exceeded
6	MAL-TCS010	C	BOP	The EPR setpoint oscillates resulting in oscillating RPV pressure
7	MAL-RCU013	M	ALL	An unisolable leak begins in the RWCU System leads to manual reactor scram and Emergency Depressurization

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

OC ILT 08-1 NRC Exam Simulator Scenario 4

Scenario Outline

Facility: Oyster Creek Scenario No.: NRC Sim 4 Op Test No.: OC-2009

Evaluators Operators Crew Position

Initial Conditions:

- Plant startup in progress with power at approximately 4%
- IRM 17 has failed upscale and is bypassed
- The RWM is inoperable

Turnover:

- Remove RWCU Pump B from service
- Continue withdrawing control rods IAW the pull sheet

Event No.	Mal. No.	Event Type*		Event Description
1	NA	N	BOP	Remove the second RWCU Pump from service
2	NA	R	ATC	Withdraw control rods
3	MAL-CRD007	C	ATC	A control rod will not initially withdraw when attempted
4	MAL-NIS010A	I	ATC	An IRM will experience an INOP failure and RPS generates a ½ scram signal
5	MAL-RBC001A	C	BOP	The in-service RBCCW Pump will trip
6	MAL-RCP003A MAL-RCP004A LOA-RCP001 VLV-NSS006	C TS TS	BOP SRO	Recirculation Pump will experience failures of the inner and outer seals and loop isolation valve will fail partially open Tech Spec applications required
7	MAL-RCP002B, 002C, 002D	M	ALL	Three recirculation Pumps will lose RBCCW cooling requiring a manual scram
8	MAL-CRD022	C	ALL	Several control rods will fail to scram but can be manually inserted
9	MAL-NSS017A	M	ALL	A steam line break in the Primary Containment will occur and Drywell Sprays will be manually initiated

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

OC ILT 08-1 NRC Exam Simulator Scenario 5 (Backup)

Scenario Outline

Facility: Oyster Creek Scenario No.: NRC Sim B/U Op Test No.: OC-2009

Evaluators **Operators** **Crew Position**

Initial Conditions:

- 95% power
- Alternate Shutdown Monitoring Instrumentation Channel Check surveillance, 680.4.001, is in progress

Turnover:

- Complete control rods for flow swap
- Perform Core Spray surveillance 610.4.003

Event No.	Malf. No.	Event Type*		Event Description
1	NA	R	ATC	The ATC will withdraw control rods
2	MAL-CRD008	C	ATC	A control rod will be uncoupled
3	VLV-CSS003	N TS	BOP SRO	Performance of Core Spray surveillance 610.4.003 results in Core Spray valve V-20-12 failing closed Tech Spec application required
4	IND-CFW019 ANN-K2c	C	ATC BOP	Condensate Pump experiences high amps requiring a rapid power reduction
5	NA	TS	SRO	Local CST water level indicator LI-424-993 indicates downscale Tech Spec application required
6	MAL-GEN007	C	BOP	The main generator will experience voltage oscillations
7	ANN-R4a	M C	ALL	The main generator will develop a field ground and visible damage requiring a reactor scram. Several control rods will stick in their original positions.
8	MAL-NSS017A	M	ALL	A steam leak in the Primary Containment with the failure of Containment Sprays requires Emergency Depressurization

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