

Facility: Hope Creek Station		Date of Exam: August 23, 2010																
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 Evaluations	1	3	4	2				4	5				2	20	4		3	7
	2	1	1	1				2	1				1	7	2		1	3
	Tier Totals	4	5	3				6	6				3	27	6		4	10
2. Plant Systems	1	2	1	1	4	4	3	2	2	3	2	2	26	2		3	5	
	2	1	1	1	1	1	1	1	1	1	2	1	12	0	1	2	3	
	Tier Totals	3	2	2	5	5	4	3	3	4	4	3	38	3		5	8	
3. Generic Knowledge & Abilities				1		2		3		4		10	1		2	3	4	7
				3		3		2		2			2		2	1	2	
Note	<p>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).</p> <p>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.</p> <p>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 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.</p> <p>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.</p> <p>5. 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.</p> <p>6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.</p> <p>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/A's</p> <p>8. 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.</p> <p>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 10CFR55.43</p>																	

Test
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#
295018 Partial or Total Loss of CCW / 8					X		AA2.05 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER : System pressure	2.9	76
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	77
295004 Partial or Total Loss of DC Pwr / 6					X		AA2.02 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER: Extent of partial or complete loss of D.C. power	3.9	78
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	4.2	79
295023 Refueling Accidents / 8						X	2.2.38 - Equipment Control: Knowledge of conditions and limitations in the facility license.	4.5	80
295037 SCRAM Conditions Present and Reactor Power Above APRM Downscale or Unknown / 1						X	2.2.40 - Equipment Control: Ability to apply technical specifications for a system.	4.7	81
295006 SCRAM / 1						X	2.4.30 - Emergency Procedures / Plan; 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	82

Test

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#
600000 Plant Fire On-site / 8					X		AA2.02 - Ability to determine and interpret the following as they apply to PLANT FIRE ON SITE: Damper position	2.8	39
295031 Reactor Low Water Level / 2	X						EK1.02 - Knowledge of the operational implications of the following concepts as they apply to REACTOR LOW WATER LEVEL : Natural circulation: Plant-Specific	3.8	40
295006 SCRAM / 1	X						AK1.03 - Knowledge of the operational implications of the following concepts as they apply to SCRAM: Reactivity control	3.7	41
295019 Partial or Total Loss of Inst. Air / 8		X					AK2.09 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR and the following: Containment	3.3	42
295024 High Drywell Pressure / 5		X					EK2.07 - Knowledge of the interrelations between HIGH DRYWELL PRESSURE and the following: PCIS/NSSSS	3.9	43
295025 High Reactor Pressure / 3		X					EK2.01 - Knowledge of the interrelations between HIGH REACTOR PRESSURE and the following: RPS	4.1	44
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	45
295030 Low Suppression Pool Water Level / 5			X				EK3.02 - Knowledge of the reasons for the following responses as they apply to LOW SUPPRESSION POOL WATER LEVEL: HPCI operation: Plant-Specific	3.5	46

Test

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#
295016 Control Room Abandonment / 7				X			AA1.08 - Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT: Reactor Pressure	4.0	47
295038 High Off-site Release Rate / 9				X			EA1.03 - Ability to operate and/or monitor the following as they apply to HIGH OFF-SITE RELEASE RATE: Process liquid radiation monitoring system	3.7	48
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	49
295005 Main Turbine Generator Trip / 3				X			AA1.01 - Ability to operate and/or monitor the following as they apply to MAIN TURBINE GENERATOR TRIP : Recirculation system: Plant-Specific	3.1	50
295003 Partial or Complete Loss of AC / 6					X		AA2.02 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER: Reactor power, pressure, and level	4.2	51
295037 SCRAM Conditions Present and Reactor Power Above APRM Downscale or Unknown / 1					X		EA2.04 - Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Suppression pool temperature	4.0	52
295026 Suppression Pool High Water Temp. / 5					X		EA2.03 - Ability to determine and/or interpret the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Reactor Pressure	3.9	53

Test

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#
700000 Generator Voltage and Electric Grid Disturbances						X	2.1.28 - Conduct of Operations: Knowledge of the purpose and function of major system components and controls.	4.1	54
295023 Refueling Accidents / 8			X				AK3.02 - Knowledge of the reasons for the following responses as they apply to REFUELING ACCIDENTS: Interlocks associated with fuel handling equipment.	3.4	55
295028 High Drywell Temperature / 5						X	2.2.25 - Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.	3.2	56
295004 Partial or Total Loss of DC Pwr / 6	X						AK1.05 - Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER: Loss of breaker protection	3.3	57
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4					X		AA2.01 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Power/flow map	3.5	58
K/A Category Totals	3	4	2	4	5/4	2/3	Group Point Total:	20/7	

Test

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#
295009 Low Reactor Water Level / 2					X		AA2.02 - Ability to determine and/or interpret the following as they apply to LOW REACTOR WATER LEVEL : Steam flow/feed flow mismatch	3.7	83
295002 Loss of Main Condenser Vacuum / 3						X	2.4.45 - Emergency Procedures / Plan: Ability to prioritize and interpret the significance of each annunciator or alarm.	4.3	84
295032 High Secondary Containment Area Temperature / 5					X		EA2.02 - Ability to determine and/or interpret the following as they apply to HIGH SECONDARY CONTAINMENT AREA TEMPERATURE: Equipment operability	3.5	85
295022 Loss of CRD Pumps / 1	X						AK1.02 - Knowledge of the operational implications of the following concepts as they apply to LOSS OF CRD PUMPS: Reactivity control	3.6	59
295012 High Drywell Temperature / 5		X					AK2.01 - Knowledge of the interrelations between HIGH DRYWELL TEMPERATURE and the following: Drywell ventilation	3.4	60
295036 Secondary Containment High Sump/Area Water Level / 5			X				EK3.02 - Knowledge of the reasons for the following responses as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL: Reactor SCRAM	2.8	61
295009 Low Reactor Water Level / 2				X			AA1.03 - Ability to operate and/or monitor the following as they apply to LOW REACTOR WATER LEVEL: Recirculation system: Plant-Specific	3.0	62

Test

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#
500000 High CTMT Hydrogen Conc. / 5					X		EA2.02 - Ability to determine and / or interpret the following as they apply to HIGH PRIMARY CONTAINMENT HYDROGEN CONCENTRATIONS: Oxygen monitoring system availability	3.0	63
295029 High Suppression Pool Water Level / 5						X	2.1.30 - Conduct of Operations: Ability to locate and operate components, including local controls.	4.4	64
295010 High Drywell Pressure / 5				X			AA1.02 - Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE: Drywell floor and equipment drain sumps	3.6	65
K/A Category Totals	1	1	1	2	1/2	1/1	Group Point Total:	7/3	

Test
Written Examination Outline
Plant Systems - Tier 2 Group 1

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Q#
264000 EDGs								X				A2.09 - Ability to (a) predict the impacts of the following on the EMERGENCY GENERATORS (DIESEL/JET) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of A.C. power	4.1	86
211000 SLC								X				A2.07 - Ability to (a) predict the impacts of the following on the STANDBY LIQUID CONTROL SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Valve closures	3.2	87
209001 LPCS											X	2.4.50 - Emergency Procedures / Plan: Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	4.0	88
262001 AC Electrical Distribution											X	2.2.36 - Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.	4.2	89
259002 Reactor Water Level Control											X	2.4.11 - Emergency Procedures / Plan: Knowledge of abnormal condition procedures.	4.2	90

Test
Written Examination Outline
Plant Systems - Tier 2 Group 1

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Q#
215004 Source Range Monitor	X											K1.02 - Knowledge of the physical connections and/or cause- effect relationships between SOURCE RANGE MONITOR (SRM) SYSTEM and the following: Reactor manual control	3.4	1
262001 AC Electrical Distribution	X											K1.01 - Knowledge of the physical connections and/or cause- effect relationships between A.C. ELECTRICAL DISTRIBUTION and the following: Emergency generators	3.8	2
215003 IRM		X										K2.01 - Knowledge of electrical power supplies to the following: IRM channels/detectors	2.5	3
259002 Reactor Water Level Control									X			A3.02 - Ability to monitor automatic operations of the REACTOR WATER LEVEL CONTROL SYSTEM including: Changes in reactor water level	3.4	4
218000 ADS			X									K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on following: Ability to rapidly depressurize the reactor	4.5	5
239002 SRVs					X							K5.06 - Knowledge of the operational implications of the following concepts as they apply to RELIEF/SAFETY VALVES: Vacuum breaker operation	2.7	6

Test
Written Examination Outline
Plant Systems - Tier 2 Group 1

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Q#
209001 LPCS				X								K4.04 - Knowledge of LOW PRESSURE CORE SPRAY SYSTEM design feature(s) and/or interlocks which provide for the following: Line Break Detection	3.0	7
264000 EDGs				X								K4.04 – Knowledge of EMERGENCY GENERATORS (DIESEL/JET) design feature(s) and/or interlocks which provide for the following: Field flashing	2.6	8
215005 APRM / LPRM					X							K5.06 – Knowledge of the operational implications of the following concepts as they apply to AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM: Assignment of LPRM's to specific APRM channels	2.5	9
211000 SLC					X							K5.01 – Knowledge of the operational implications of the following concepts as they apply to STANDBY LIQUID CONTROL SYSTEM: Effects of the moderator temperature coefficient of reactivity on the boron	2.7	10
262002 UPS (AC/DC)						X						K6.01 – Knowledge of the effect that a loss or malfunction of the following will have on the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.): A.C. electrical power	2.7	11

Test
Written Examination Outline
Plant Systems - Tier 2 Group 1

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Q#
400000 Component Cooling Water						X						K6.05 – Knowledge of the effect that a loss or malfunction of the following will have on the CCWS: Motors	2.8	12
206000 HPCI							X					A1.08 – Ability to predict and/or monitor changes in parameters associated with operating the HIGH PRESSURE COOLANT INJECTION SYSTEM controls including: System lineup: BWR-2,3,4	4.1	13
203000 RHR/LPCI: Injection Mode							X					A1.02 – Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) controls including: Reactor pressure	3.9	14
205000 Shutdown Cooling								X				A2.10 – Ability to (a) predict the impacts of the following on the SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE); and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions: Valve operation	2.9	15

Test
Written Examination Outline
Plant Systems - Tier 2 Group 1

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Q#
217000 RCIC								X				A2.01 – Ability to (a) predict the impacts of the following on the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: System initiation signal	3.8	16
263000 DC Electrical Distribution									X			A3.01 – Ability to monitor automatic operations of the D.C. ELECTRICAL DISTRIBUTION including: Meters, dials, recorders, alarms, and indicating lights	3.2	17
261000 SGTS									X			A3.02 – Ability to monitor automatic operations of the STANDBY GAS TREATMENT SYSTEM including: Fan start	3.2	18
223002 PCIS/Nuclear Steam Supply Shutoff									X			A4.01 – Ability to manually operate and/or monitor in the control room: Valve closures	3.6	19
212000 RPS									X			A4.04 – Ability to manually operate and/or monitor in the control room: Bypass SCRAM instrument volume high level SCRAM signal	3.9	20
300000 Instrument Air										X		2.4.35 – Emergency Procedures / Plan: Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects.	3.8	21

Test
Written Examination Outline
Plant Systems - Tier 2 Group 1

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Q#
205000 Shutdown Cooling											X	2.2.39 – Equipment Control: Knowledge of less than or equal to one hour technical specification action statements for systems.	3.9	22
212000 RPS				X								K4.02 – Knowledge of REACTOR PROTECTION SYSTEM design feature(s) and/or interlocks which provide for the following: The prevention of a reactor SCRAM following a single component failure	3.5	23
217000 RCIC					X							K5.03 – Knowledge of the operational implications of the following concepts as they apply to REACTOR CORE ISOLATION COOLING SYSTEM (RCIC): Differential pressure indication	2.6	24
262001 AC Electrical Distribution						X						K6.02 – Knowledge of the effect that a loss or malfunction of the following will have on the A.C. ELECTRICAL DISTRIBUTION: Offsite power	3.6	25
206000 High Pressure Coolant Injection				X								K4.09 – Knowledge of HIGH PRESSURE COOLANT INJECTION SYSTEM design feature(s) and/or interlocks which provide for the following: Automatic flow control: BWR-2,3,4	3.8	26
K/A Category Totals	2	1	1	4	4	3	2	2/2	3	2	2/3	Group Point Total:	26/5	

Test
Written Examination Outline
Plant Systems - Tier 2 Group 2

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Q#
290001 Secondary Containment								X				A2.02 – Ability to (a) predict the impacts of the following on the SECONDARY CONTAINMENT ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Excessive outleakage	3.7	91
272000 Radiation Monitoring											X	2.1.32 – Conduct of Operations: Ability to explain and apply all system limits and precautions.	4.0	92
241000 Reactor/Turbine Pressure Regulator											X	2.1.20 – Conduct of Operations: Ability to interpret and execute procedure steps.	4.6	93
259001 Reactor Feedwater	X											K1.05 – Knowledge of the physical connections and/or cause- effect relationships between REACTOR FEEDWATER SYSTEM and the following: Condensate system	3.2	27
201001 CRD Hydraulic		X										K2.03 – Knowledge of electrical power supplies to the following: Backup SCRAM valve solenoids	3.5	28
202001 Recirculation			X									K3.05 – Knowledge of the effect that a loss or malfunction of the RECIRCULATION SYSTEM will have on following: Recirculation system MG sets: Plant-Specific	3.3	29

Test
Written Examination Outline
Plant Systems - Tier 2 Group 2

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Q#
233000 Fuel Pool Cooling/Cleanup				X								K4.03 – Knowledge of FUEL POOL COOLING AND CLEAN-UP design feature(s) and/or interlocks which provide for the following: Maintenance of adequate pool temperature	2.8	30
272000 Radiation Monitoring					X							K5.01 – Knowledge of the operational implications of the following concepts as they apply to RADIATION MONITORING SYSTEM: Hydrogen injection operation's effect on process radiation indications: Plant-Specific	3.2	31
219000 RHR/LPCI: Torus/Pool Cooling Mode						X						K6.06 – Knowledge of the effect that a loss or malfunction of the following will have on the RHR/LPCI: TORUS/SUPPRESSION POOL COOLING MODE: Suppression Pool	3.7	32
226001 RHR/LPCI: CTMT Spray Mode							X					A1.10 – Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI: CONTAINMENT SPRAY SYSTEM MODE controls including: Emergency generator loading	3.0	33

Test
Written Examination Outline
Plant Systems - Tier 2 Group 2

System #/Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Q#
215001 Traversing In-core Probe								X				A2.07 – Ability to (a) predict the impacts of the following on the TRAVERSING IN-CORE PROBE ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Failure to retract during accident conditions: Mark-I&II(Not-BWR1)	3.4	34
245000 Main Turbine Gen. / Aux.									X			A3.06 – Ability to monitor automatic operations of the MAIN TURBINE GENERATOR AND AUXILIARY SYSTEMS including: Turbine lube oil pressure	2.5	35
230000 RHR/LPCI: Torus/Pool Spray Mode										X		A4.06 – Ability to manually operate and/or monitor in the control room: Valve logic reset following automatic initiation of LPCI/RHR in injection mode	4.0	36
215002 RBM											X	2.1.31 – Conduct of Operations: Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.	4.6	37
271000 Off-gas										X		A4.06 – Ability to manually operate and/or monitor in the control room: System indicating lights and alarms	3.3	38
K/A Category Totals	1	1	1	1	1	1	1	1/1	1	2	1/2	Group Point Total:	12/3	

Facility: Hope Creek Generating Station Date: 08/23/2010						
Category	KA #	Topic	RO		SRO-Only	
			IR	Q#	IR	Q#
1. Conduct of Operations	2.1.32	Ability to explain and apply all system limits and precautions.	3.8	66		
	2.1.37	Knowledge of procedures, guidelines, or limitations associated with reactivity management.	4.3	67		
	2.1.25	Ability to interpret reference materials, such as graphs, curves, tables, etc.	3.9	75		
	2.1.41	Knowledge of the refueling process.			3.7	94
	2.1.39	Knowledge of conservative decision making practices.			4.3	99
	Subtotal			3		2
2. Equipment Control	2.2.2	Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.	4.6	68		
	2.2.39	Knowledge of less than or equal to one hour technical specification action statements for systems.	3.9	73		
	2.2.12	Knowledge of surveillance procedures.	3.7	74		
	2.2.1	Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.			4.4	95
	2.2.21	Knowledge of pre- and post-maintenance operability requirements.			4.1	98
	Subtotal			3		2

3. Radiation Control	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	70		
	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	71		
	2.3.11	Ability to control radiation releases.			4.3	96
Subtotal				2		1
4. Emergency Procedures / Plan	2.4.1	Knowledge of EOP entry conditions and immediate action steps.	4.6	69		
	2.4.4	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.5	72		
	2.4.6	Knowledge of EOP mitigation strategies.			4.7	97
	2.4.25	Knowledge of fire protection procedures			3.7	100
Subtotal				2		2
Tier 3 Point Total:				10		7

Tier / Group	Randomly Selected KA	Reason for Rejection
2 / 1	215004 / K1.03	<p>(RO #1) – Knowledge of the physical connections and/or cause-effect relationships between SOURCE RANGE MONITOR (SRM) SYSTEM and the following: Rod Control and Information System: Plant Specific. This topic does not apply at HC.</p> <p>Randomly selected K1.02 – Reactor manual control</p>
2 / 1	259002 / K2.02	<p>(RO #4) – Knowledge of electrical power supplies to the following: Feedwater Coolant Injection (FWCI) initiation logic: FWCI/HPCI. FWCI does not apply at Hope Creek</p> <p>Randomly selected – A3.02 – Ability to monitor automatic operations of the REACTOR WATER LEVEL CONTROL SYSTEM including: Changes in reactor water level</p>
2 / 1	239002 / K3.03	<p>(RO #6) – Knowledge of the effect that a loss or malfunction of the RELIEF/SAFETY VALVES will have on following: Ability to rapidly depressurize the reactor. Same topic as RO #5</p> <p>Randomly selected K5.06 – Knowledge of the operational implications of the following concepts as they apply to RELIEF/SAFETY VALVES: Vacuum breaker operation</p>
2 / 1	209001 / K4.02	<p>(RO #7) - Knowledge of LOW PRESSURE CORE SPRAY SYSTEM design feature(s) and/or interlocks which provide for the following: Prevents Water Hammer. Not discriminating at the license level.</p> <p>Randomly selected K4.04 Line Break Detection</p>
2 / 1	215005 / K5.02	<p>(RO #9) - K5.02 - Knowledge of the operational implications of the following concepts as they apply to AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM: Effects of voids on LPRM indication. Topic is GFES knowledge and is not referenced in system operating or lesson plan procedures.</p> <p>Randomly selected K5.06 - Assignment of LPRM's to specific APRM channels</p>
2 / 1	262001 / K1.04	<p>(RO #2) - K1.04 - Knowledge of the physical connections and/or cause- effect relationships between A.C. ELECTRICAL DISTRIBUTION and the following: Uninterruptible power supply. Similar to RO #11 topic K6.01 - Knowledge of the effect that a loss or malfunction of the following will have on the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) : A.C. electrical power.</p> <p>Randomly selected K1.01 – Emergency generators</p>
2 / 1	217000 / A2.05	<p>(RO #16) - A2.05 - Ability to (a) predict the impacts of the following on the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC); and (b) based on those predictions, use</p>

		<p>procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: D.C. power loss. D.C. is oversampled. See questions 17, 57, 78.</p> <p>Randomly selected A2.01 - System initiation signal</p>
2 / 1	212000 / A4.08	<p>(RO #20) - Ability to manually operate and/or monitor in the control room: Individual system relay status: Plant-Specific. Does not apply at Hope Creek.</p> <p>Randomly selected A4.04 - Bypass SCRAM instrument volume high level SCRAM signal</p>
2 / 1	262001 / K6.01	<p>(RO #25) - Knowledge of the effect that a loss or malfunction of the following will have on the A.C. ELECTRICAL DISTRIBUTION: D.C. power. DC Topic is oversampled. See #17,57,78</p> <p>Randomly selected K6.02 – Offsite Power</p>
2 / 1	211000 / A2.02	<p>(RO #26) -Ability to (a) predict the impacts of the following on the STANDBY LIQUID CONTROL SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Inadequate system flow. System is oversampled. See questions 10 & 87</p> <p>Randomly selected 206000 K4.09 - Knowledge of HIGH PRESSURE COOLANT INJECTION SYSTEM design feature(s) and/or interlocks which provide for the following: Automatic flow control: BWR-2,3,4</p>
2 / 2	202001 / K3.12	<p>(RO #29) - Knowledge of the effect that a loss or malfunction of the RECIRCULATION SYSTEM will have on following: Isolation condenser: Plant-Specific. Does not apply at Hope Creek</p> <p>Randomly selected K3.05 - Knowledge of the effect that a loss or malfunction of the RECIRCULATION SYSTEM will have on following: Recirculation system MG Sets: Plant-Specific</p>
1 / 1	600000 / AK1.02	<p>(RO #39) - Knowledge of the operation applications of the following concepts as they apply to Plant Fire On Site: Fire Fighting. This does not apply at Hope Creek. A separate Fire Fighting department exists.</p> <p>Randomly selected AA2.05 - Ability to determine and interpret the following as they apply to PLANT FIRE ON SITE: Ventilation alignment necessary to secure affected area</p>
1 / 1	295021 / AK3.01	<p>(RO #45) - AK3.01 - Knowledge of the reasons for the following responses as they apply to LOSS OF SHUTDOWN COOLING: Raising reactor water level. Same concept as RO #40.</p> <p>Randomly selected AK2.03 - Knowledge of the interrelations between LOSS OF SHUTDOWN COOLING and the following: RHR/Shutdown Cooling</p>

1 / 1	295016 / AK3.01	<p>(RO #47) - Knowledge of the reasons for the following responses as they apply to CONTROL ROOM ABANDONMENT: Reactor SCRAM. No procedural guidance to support the reason for a scram</p> <p>Randomly selected AA1.08 - Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT: Reactor Pressure</p>
1 / 1	295018 / AA1.03	<p>(RO #49) - Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER: Affected systems so as to isolate damaged portions. Limited procedural guidance for discriminating question.</p> <p>Randomly selected AA1.02- System loads.</p>
1 / 1	700000 / 2.4.6	<p>(RO #54) – 2.4.6 Emergency Procedures/Plan: Knowledge of EOP Mitigation Strategies (grid disturbances). No EOP mitigation strategies associated with grid disturbances.</p> <p>Randomly selected 2.1.28 - Conduct of Operations: Knowledge of the purpose and function of major system components and controls.</p>
1 / 1	295023 / 2.4.8	<p>(RO #55) - Emergency Procedures / Plan: Knowledge of how abnormal operating procedures are used in conjunction with EOP's. Question #69 covers similar topic/system.</p> <p>Randomly selected K3.02 - Knowledge of the reasons for the following responses as they apply to REFUELING ACCIDENTS: Interlocks associated with fuel handling equipment.</p>
1 / 2	295010 / 2.4.41	<p>(RO #65) - 2.4.41 - Emergency Procedures / Plan: Knowledge of the emergency action level thresholds and classifications. This function is not performed by ROs at Hope Creek.</p> <p>Randomly selected AA1.02 - Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE: Drywell floor and equipment drain sumps</p>
1 / 1	295028 / 2.2.12	<p>(RO #56) - Equipment Control: Knowledge of surveillance procedures. There are no surveillance procedures associated with High Drywell Temperature.</p> <p>Randomly selected 2.2.25 Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits. (High Drywell Temperature)</p>
1 / 1	600000 / AA2.05	<p>(RO #39) Ability to determine and interpret the following as they apply to PLANT FIRE ON SITE: Ventilation alignment necessary to secure affected area. Oversampled due to overlap with operating exam.</p> <p>Randomly selected AA2.02- Damper position</p>
1 / 1	295030 / 2.4.35	<p>(SRO # 79) – Unable to produce a discriminating question at the SRO</p>

		level. Randomly selected A2.01 – Ability to determine and/or interpret the following as they apply to LOW SUPPRESSION POOL WATER LEVEL Suppression pool level
1 / 2	295034 / 2.4.45	(SRO #84) - Emergency Procedures / Plan: Ability to prioritize and interpret the significance of each annunciator or alarm. (Secondary Containment Ventilation Hi Rad). This topic was oversampled. See # 18, 71, 80. Randomly selected 295002 – Loss of Main Condenser Vacuum
2 / 2	268000 / 2.1.20	(SRO #93) Conduct of Operations: Ability to interpret and execute procedure steps. (Radwaste). Procedure steps for Radwaste are performed by operators at the local radwaste control room and not directed by the SRO. Randomly selected 241000 Reactor/Turbine Pressure Regulator
2 / 2	233000 / A2.08	(SRO #91) Ability to (a) predict the impacts of the following on the FUEL POOL COOLING & CLEANUP; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Closed cooling water failure. Topic/system covered in RO exam - oversampled Randomly selected 290001 A2.02 - Ability to (a) predict the impacts of the following on the SECONDARY CONTAINMENT ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Excessive out leakage
3	2.4.28	(SRO #100) Knowledge of procedures relating to a security event (non-safeguards information). These procedures except for generic information are designated as confidential or safeguards. Could not write a discriminating SRO question using non-safeguards information. Randomly selected 2.4.25 – Knowledge of fire protection procedures

HC ILT 2010 NRC EXAM

ES-301

Administrative Topics Outline

Form ES-301-1

Facility: Hope Creek

Date of Examination: 8/23/10

Examination Level: ☒ RO ☐ SRO

Operating Test Number: NRC 2010

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N, S, A	2.1.18 Ability to make accurate, clear, concise logs, records, status boards and reports. RO: 3.6 Perform surveillance HC.RE.ST.ZZ-0001 Core Thermal Limits with 2 limits out of spec. (NEW)
Conduct of Operations	D, R, P	2.1.29 Knowledge of how to conduct system lineups, such as valves, breakers, switches, etc. RO: 4.1 ZZ030 Generate Off Normal Report. (Shiftly Routine for Control Room NCO) (2009 NRC RO)
Equipment Control	D, S, A	2.2.12 Knowledge of surveillance procedures. RO 3.7 ZZ025 Perform an Accident Monitoring Instrumentation Channel Check.
Radiation Control	D, S	295038 A1.01 Ability to operate and/or monitor the following as they apply to HIGH OFF-SITE RELEASE RATE: Stack gas monitoring system RO: 3.9 ZZ020 Calculate Total Noble Gas Release Rate.
Emergency Plan		NA

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.

*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)
(A)lternate Path

HC ILT 2010 NRC EXAM

ES-301

Administrative Topics Outline

Form ES-301-1

 Facility: Hope Creek

 Date of Examination: 8/23/2010

 Examination Level: ☐ RO ☒ SRO

 Operating Test Number: NRC 2010

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	M, R	2.1.18 Ability to make accurate, clear, concise logs, records, status boards and reports SRO 3.8 (MODIFIED Bank) ZZ041 Verify DL-26 log requirements for resuming Core Alterations.
Conduct of Operations	D, R, A	2.1.29 Knowledge of how to conduct system lineups, such as valves, breakers, switches, etc. SRO 4.0 ZZ031 Initiate And Review System Lineup Sheets. (2 valves out of position)
Equipment Control	D, R	2.2.23 Ability to track limiting conditions for operation and safety limits. SRO 4.6 ZZ029 Complete an Action Statement in the TSAS log
Radiation Control	D, P, R, A	2.3.11 Ability to control radiation releases. SRO: 4.3 ZZ032 Perform Leak Rate Measurement Data Sheet (Review of completed surveillance determines math error made and actual leakage exceeds Tech Spec. Determine required actions) (2009 NRC SRO)
Emergency Plan	M, R	2.4.38 Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required. SRO: 4.4 (MODIFIED Bank) ECG004 Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition.

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.

*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)
- (A)lternate Path

Facility: <u>Hope Creek</u>		Date of Examination: <u>8/23/10</u>
Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test No.: <u>NRC2010</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. AE009 Start a Secondary Condensate Pump (256000 A4.01)	S, D, L	2
b. CH002 Respond To A Low Turbine Hydraulic Pressure (241000 A2.06)	S, D, E, A	3
c. BJ006 Place HPCI In Full Flow Recirc (206000 A4.06)	S, D, E, L	4
d. KL003 Operate The PCIG System During Post LOCA/Isolation Conditions (223001 A4.11)	S, A, E, EN, N	5
e. EG008 Respond To A Safety Auxiliaries Cooling Water Malfunction (295018 AA1.02)	S, D, E, A	6
f. SB004 Respond To A Control Rod System Malfunction (295015 AA1.02)	S, D, E, A	7
g. ED001 Manually Switch between Chill Water and The Reactor Auxiliary Cooling System (RACS) (295018 AA1.01)	S, D, E	8
h. GK002 Isolate Control Room HVAC (290003 A4.01)	S, A, E, N	9

In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. SA001 Defeat ARI Interlocks (295037 EA1.03)	D, E	1
j. BE002 Perform Torus Makeup Via Core Spray System (NRC2009) (295030 EA1.06)	D, E, R, P, L	2
k. KJ003 Manually Emergency Start A Diesel Generator From The Local Panel (295003 EA1.02)	D, E, L	6

@	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.
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* 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	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Facility: <u>Hope Creek</u>		Date of Examination: <u>8/23/10</u>
Exam Level: RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test No.: <u>NRC2010</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. AE009 Start a Secondary Condensate Pump (256000 A4.01)	S, D, L	2
b. CH002 Respond To A Low Turbine Hydraulic Pressure (241000 A2.06)	S, D, E, A	3
c. BJ006 Place HPCI In Full Flow Recirc (206000 A4.06)	S, D, E, L	4
d. KL003 Operate The PCIG System During Post LOCA/Isolation Conditions (223001 A4.11)	S, A, E, EN, N	5
e. EG008 Respond To A Safety Auxiliaries Cooling Water Malfunction (295018 AA1.02)	S, D, E, A	6
f. SB004 Respond To A Control Rod System Malfunction (295015 AA1.02)	S, D, E, A	7
g. NA	-	-
h. GK002 Isolate Control Room HVAC (290003 A4.01)	S, A, E, N	9

In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. SA001 Defeat ARI Interlocks (295037 EA1.03)	D, E	1
j. BE002 Perform Torus Makeup Via Core Spray System (NRC2009) (295030 EA1.06)	D, E, R, P, L	2
k. KJ003 Manually Emergency Start A Diesel Generator From The Local Panel (295003 EA1.02)	D, E, L	6

<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>		
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* 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	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Facility: Hope CreekDate of Examination: 8/23/10Exam Level: RO ☐ SRO-I ☐ SRO-U ☒Operating Test No.: NRC2010Control 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	-	-
b. NA	-	-
c. BJ006 Place HPCI In Full Flow Recirc (206000 A4.06)	S, D, E, L	4
d. KL003 Operate The PCIG System During Post LOCA/Isolation Conditions (223001 A4.11)	S, A, E, EN, N	5
e. EG008 Respond To A Safety Auxiliaries Cooling Water Malfunction (295018 AA1.02)	S, D, E, A	6
f. NA	-	-
g. NA	-	-
h. NA	-	-

In-Plant Systems[@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)

i. SA001 Defeat ARI Interlocks (295037 EA1.03)	D, E	1
j. BE002 Perform Torus Makeup Via Core Spray System (NRC2009) (295030 EA1.06)	D, E, R, P, L	2
k. NA	-	-

@ 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	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Facility: Hope CreekScenario No.: 1Op-Test No.: NRC2010Examiners: _____

_____Operators: _____(SRO)
_____(RO)
_____(BOP)

Initial Conditions: Rx Power is at 90%.

Turnover:

Swap SJAE's for planned maintenance and raise reactor power to 95% using Group 9B Move Sheet. Hold at 95% for RE data collection.

Event No.	Malf. No.	Event Type*	Event Description
1	NA	R (RO) N (SRO)	Raise Reactor Power From 90% To 95% With Control Rods
2	NA	N (PO)	Swap Steam Jet Air Ejectors
3	NM11D	I (RO) I (SRO)	APRM D Fails Upscale (TS SRO)
4	MS09D	I (SRO)	Steam line header pressure transmitter N076D fails (TS SRO)
5	5A92 F	C (PO) C (SRO)	Steam Jet Air Ejector Malfunction (HV-2016B Fails Closed)
6	MC01 FW26A,B,C	C (ALL)	Loss Of Main Condenser Vacuum (Variable Air Leak) Manual Scram Trip of All Reactor Feedwater Pumps
7	EG12 DG07B	M (ALL)	Loss Of Offsite Power On Main Generator Trip EDG B Failure
8	DG07A	C (RO) C (SRO)	EDG A Fails To Auto Start
9	RC01	C (PO) C (SRO)	RCIC Overspeed
10	HP04	C (PO) C (SRO)	HPCI F001 Fails to Open
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Facility: Hope CreekScenario No.: 2Op-Test No.: NRC2010Examiners: _____

_____Operators: _____ (SRO)
_____ (RO)
_____ (BOP)Initial Conditions: 100% reactor power.
RCIC is tagged for planned maintenance.

Turnover: Perform Turbine Bypass Valves - Monthly.

Event No.	Malf. No.	Event Type*	Event Description
1	NA	N (PO) N (SRO)	Perform Turbine Bypass Valves - Monthly
2	RZ02E	I (SRO)	RRCS Pressure Transmitter PT-N403E Failure - Low (TS SRO)
3	FW12C	R (RO) C (PO) C (SRO)	6C Feedwater Heater Tube Leak Reduce Reactor Power To 80%
4	FW29C	I (SRO)	Feedwater Level Sensor N004C Failure (TS SRO)
5	RR5B RR6B	C (RO) C (SRO)	Recirc Pump B Dual Seal Failure
6	3A43 B	C (RO) C (SRO)	Recirc Pump B Discharge Valve Fails To Close
7	CD03	C (ALL)	Manual Scram With 5 Rods Out
8	NA	M (ALL)	High Drywell Pressure
9	TC01	C (ALL)	Turbine Bypass Valve Fails Full Open Uncontrolled Cooldown
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Facility: Hope CreekScenario No.: 3Op-Test No.: NRC2010Examiners: _____

_____Operators: _____ (SRO)
_____ (RO)
_____ (BOP)

Initial Conditions: 84.5% reactor power.

Turnover: Raise reactor power to 89.5% using reactor recirc.

Place "A" Containment H2/O2 Analyzer in service for surveillance.

Event No.	Malf. No.	Event Type*	Event Description
1	NA	N (PO)	Place Containment H2/O2 Analyzer In Service.
2	NA	R (RO) N (SRO)	Raise Reactor Power Using Recirc.
3	AD02LO	C (PO) C (SRO)	Stuck Open SRV "L" (TS SRO)
4	CW10A CW15D	C (SRO)	"A" SACS Pump Trip With D Fail To Auto Start (TS SRO)
5	CW09 5A53D	C (ALL)	Spurious TACS Isolation TACS Valve Does Not Re-Open Manual Scram
6	5A159	C (ALL)	Feedwater Heater Bypass Valve Fails To Open
7	HP07 FW30A FW30B FW30C PC04	M (ALL)	HPCI Steam Line Leak (Variable) To Drywell With Loss Of Feedwater And Downcomer Break/Emergency Depressurization
8	RH04B	C (PO)	"B" RHR Pump Trip
9	RC05	I (PO)	RCIC Flow Transmitter Failure
10	RH20A	C (ALL)	Containment Spray Valve Failure

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

Facility: Hope CreekScenario No.: 4Op-Test No.: NRC2010Examiners: _____

_____Operators: _____(SRO)
_____(RO)
_____(BOP)

Initial Conditions: 90% Power

Turnover: Reduce power to 84.5% and remove A RFPT from service for planned maintenance.

Event No.	Malf. No.	Event Type*	Event Description
1	NA	R (RO) N (SRO)	Reduce Reactor Power Using Recirc To 84.5%.
2	NA	N (PO)	Remove RFPT "A" From Service.
3	NM12C	I (RO) I (SRO)	Recirc Flow Unit Failure Downscale. (TS SRO)
4	FW01B RR30B	C (ALL)	Primary Condensate Pump Trip with Partial Runback Failure. (TS SRO)
5	TU1508	C (ALL)	Main Turbine Vibrations
6	RP07	M (ALL)	Manual Main Turbine Trip ATWS Half Core
7	FW11	C (PO) C (SRO)	SULCV Fails Closed
8	MS15	C (PO)	MSIV Spurious Closure
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Facility: Hope CreekScenario No.: 5Op-Test No.: NRC2010Examiners: _____

_____Operators: _____(SRO)
_____(RO)
_____(BOP)

Initial Conditions: 95% reactor power. B EHC Pump tagged for planned maintenance.

Turnover: Lower reactor power to 90% using Reactor Recirc Pumps for control rod pattern adjustment.

Swap SSW pump alignment to remove D SSW Pump from service for planned maintenance.

Event No.	Malf. No.	Event Type*	Event Description
1	NA	R (RO) N(SRO)	Reduce Reactor Power With Reactor Recirc
2	NA	N (PO)	Swap Service Water Pumps
3	CW11B CW05D	C (PO) C (SRO)	Service Water Pump Malfunction (TS SRO)
4	RR08B	C (RO) C (SRO)	Single Reactor Recirc Pump Runaway
5	RR26B2	C (RO) C (SRO)	Reactor Recirc Pump Trip (TS SRO)
6	CR01	C (ALL)	Fuel Failure With Manual Scram
7	PC06	M (ALL)	Torus Leak/Emergency Depressurization

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