Facility: Hope Creek 2016 NRC Date of Exam: 08/22/16

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	2				4	4			3	20	3		4	7
	2	1	2	1				1	1			1	7	2		1	3
	Tier Totals	5	5	3				5	5			4	27	5		5	10
2. Plant Systems	1	2	2	2	4	2	3	2	1	3	2	3	26	2		3	5
	2	1	0	1	1	1	1	2	1	2	1	1	12	0	2	1	3
	Tier Totals	3	2	3	5	3	4	4	2	5	3	4	38	4		4	8
3. Generic Knowledge & Abilities Categories		1			2			3			4		10	1	2	3	4	7
		3			2			3			2			2	2	1	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 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.
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 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.
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/A's
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.
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

Hope Creek 2016 NRC
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#
295024 High Drywell Pressure / 5					X		EA2.02 - Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE: Drywell temperature	4.0	76
295031 Adequate Core Cooling / 2					X		EA2.04 – Ability to determine and/or interpret the following as they apply to Reactor Low water level: adequate core cooling	4.8	77
295026 Suppression Pool High Water Temp. / 5					X		EA2.01 - Ability to determine and/or interpret the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Suppression pool water temperature	4.2	78
295006 SCRAM / 1						X	2.2.39 - Equipment Control: Knowledge of less than one hour technical specification action statements for systems.	4.5	79
295038 High Off-site Release Rate / 9						X	2.4.41 - Emergency Procedures / Plan: Knowledge of the emergency action level thresholds and classifications.	4.6	80
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4						X	2.4.21 - Emergency Procedures / Plan: 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.	4.6	81
295004 Partial or Total Loss of DC Pwr / 6						X	2.2.40 - Equipment Control: Ability to apply technical specifications for a system.	4.7	82
295006 SCRAM / 1	X						AK1.02 - Knowledge of the operational implications of the following concepts as they apply to SCRAM : Shutdown margin	3.4	39
295031 Reactor Low Water Level / 2	X						EK1.03 - Knowledge of the operational implications of the following concepts as they apply to REACTOR LOW WATER LEVEL : Water level effects on reactor power	3.7	40
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	41
295005 Main Turbine Generator Trip / 3		X					AK2.03 - Knowledge of the interrelations between MAIN TURBINE GENERATOR TRIP and the following: Recirculation system	3.2	42
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4		X					AK2.06 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION and the following: Reactor power	3.8	43
295019 Partial or Total Loss of Inst. Air / 8		X					AK2.14 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR and the following: Plant air systems	3.2	44
295025 High Reactor Pressure / 3			X				EK3.02 - Knowledge of the reasons for the following responses as they apply to HIGH REACTOR PRESSURE : Recirculation pump trip: Plant-Specific	3.9	45

Hope Creek 2016 NRC
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#
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	46
295016 Control Room Abandonment / 7			X				AK3.01 - Knowledge of the reasons for the following responses as they apply to CONTROL ROOM ABANDONMENT : Reactor SCRAM	4.1	47
295004 Partial or Total Loss of DC Pwr / 6				X			AA1.01 - Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER : D.C. electrical distribution systems	3.3	48
295024 High Drywell Pressure / 5				X			EA1.17 - Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE: Containment spray: Plant-Specific	3.9	49
295023 Refueling Acc Cooling Mode / 8				X			AA1.02 - Ability to operate and/or monitor the following as they apply to REFUELING ACCIDENTS : Fuel pool cooling and cleanup system	2.9	50
295028 High Drywell Temperature / 5					X		EA2.06 - Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE : reactor water level	3.7	51
295038 High Off-site Release Rate / 9					X		EA2.03 - Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE : Radiation levels	3.5	52
295003 Partial or Complete Loss of AC / 6					X		AA2.04 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : System lineups	3.5	53
295018 Partial or Total Loss of CCW / 8						X	2.4.11 – Knowledge of abnormal condition procedures	4.0	54
700000 Generator Voltage and Electric Grid Disturbances						X	2.1.27 - Conduct of Operations: Knowledge of system purpose and / or function.	3.9	55
295021 Loss of Shutdown Cooling / 4						X	2.1.7- Conduct of Operations: ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrument interpretation.	4.4	56
295030 Low Suppression Pool Water Level / 5					X		EA2.04 - Ability to determine and/or interpret the following as they apply to LOW SUPPRESSION POOL WATER LEVEL : Drywell/ suppression chamber differential pressure: Mark-I&II	3.5	57
295037 SCRAM Conditions Present and Reactor Power Above APRM Downscale or Unknown / 1	X						EK1.03 - Knowledge of the operational implications of the following concepts as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Boron effects on reactor power (SBLC)	4.2	58
K/A Category Totals:	4	3	3	3	4/3	3/4	Group Point Total:		20/7

Hope Creek 2016 NRC
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		EA2.03 Ability to determine and/or interpret the following as they apply to high primary containment hydrogen concentrations: combustible limits for drywell.	3.8	83
295015 Incomplete SCRAM / 1						X	2.1.32 - Conduct of Operations: Ability to explain and apply all system limits and precautions.	4.0	84
295008 High Reactor Water Level / 2					X		AA2.04 - Ability to determine and/or interpret the following as they apply to HIGH REACTOR WATER LEVEL : Heatup rate: Plant-Specific	3.3	85
500000 High CTMT Hydrogen Conc. / 5	X						EK1.01 - Knowledge of the operational implications of the following concepts as they apply to HIGH CONTAINMENT HYDROGEN CONCENTRATIONS: Containment integrity	3.3	59
295010 High Drywell Pressure / 5		X					AK2.04 - Knowledge of the interrelations between HIGH DRYWELL PRESSURE and the following: Nitrogen makeup system: Plant-Specific	2.6	60
295014 Inadvertent Reactivity Addition / 1			X				AK3.02 - Knowledge of the reasons for the following responses as they apply to INADVERTENT REACTIVITY ADDITION: Control rod blocks	3.7	61
295015 Incomplete SCRAM / 1				X			AA1.02 - Ability to operate and/or monitor the following as they apply to INCOMPLETE SCRAM : RPS	4.0	62
295009 Low Reactor Water Level / 2					X		AA2.01 - Ability to determine and/or interpret the following as they apply to LOW REACTOR WATER LEVEL : Reactor water level	4.2	63
295008 High Reactor Water Level / 2						X	2.4.49 - Emergency Procedures / Plan: Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4.6	64
295012 High Drywell Temperature / 5		X					AK2.01 - Knowledge of the interrelations between high drywell temperature and the following: Drywell ventilation.	3.4	65
K/A Category Totals:	1	1	2	1	1/2	1/1	Group Point Total:		7/3

Hope Creek 2016 NRC
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#

Hope Creek 2016 NRC
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#
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	86
264000 EDGs								X				A2.07 - 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 off-site power during full-load testing	3.7	87
263000 DC Electrical Distribution											X	2.2.37 Ability to determine operability and/or availability of safety related equipment.	4.4	88
212000 RPS											X	2.2.22 - Equipment Control: Knowledge of limiting conditions for operations and safety limits.	4.7	89
215003 IRM											X	2.2.42 - Ability to recognize system parameters that are entry-level conditions for Technical Specifications.	4.6	90
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 (diesel/jet)	3.8	1
206000 HPCI	X											K1.08 - Knowledge of the physical connections and/or cause- effect relationships between HIGH PRESSURE COOLANT INJECTION SYSTEM and the following: A.C. power: BWR-2,3,4	3.0	2
218000 ADS		X										K2.01 - Knowledge of electrical power supplies to the following: ADS logic	3.1	3
205000 Shutdown Cooling		X										K2.01 - Knowledge of electrical power supplies to the following: Pump motors	3.1	4
212000 RPS			X									K3.06 - Knowledge of the effect that a loss or malfunction of the REACTOR PROTECTION SYSTEM will have on following: Scram air header solenoid operated valves	4.0	5
300000 Instrument Air			X									K3.02 - Knowledge of the effect that a loss or malfunction of the (INSTRUMENT AIR SYSTEM) will have on the following: Systems having pneumatic valves and controls	3.3	6

Hope Creek 2016 NRC
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#
264000 EDGs				X								K4.07 - Knowledge of EMERGENCY GENERATORS (DIESEL/JET) design feature(s) and/or interlocks which provide for the following: Local operation and control	3.3	7
261000 SGTS				X								K4.01 - Knowledge of STANDBY GAS TREATMENT SYSTEM design feature(s) and/or interlocks which provide for the following: Automatic system initiation	3.7	8
211000 SLC					X							K5.04 - Knowledge of the operational implications of the following concepts as they apply to STANDBY LIQUID CONTROL SYSTEM : Explosive Valve operation	3.1	9
239002 SRVs					X							K5.05 - Knowledge of the operational implications of the following concepts as they apply to RELIEF/SAFETY VALVES : Discharge line quencher operation	2.6	10
209001 LPCS						X						K6.08 - Knowledge of the effect that a loss or malfunction of the following will have on the LOW PRESSURE CORE SPRAY SYSTEM : Keep fill system	2.9	11
203000 RHR/LPCI: Injection Mode						X						K6.12 - Knowledge of the effect that a loss or malfunction of the following will have on the RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) : ECCS room integrity	2.7	12
215004 Source Range Monitor							X					A1.04 - Ability to predict and/or monitor changes in parameters associated with operating the SOURCE RANGE MONITOR (SRM) SYSTEM controls including: Control rod block status	3.5	13
263000 DC Electrical Distribution							X					A1.01 - Ability to predict and/or monitor changes in parameters associated with operating the D.C. ELECTRICAL DISTRIBUTION controls including: Battery charging/discharging rate	2.5	14
223002 PCIS/Nuclear Steam Supply Shutoff								X				A2.03 - Ability to (a) predict the impacts of the following on the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: system logic failures	3.0	15

Hope Creek 2016 NRC
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#
262002 UPS (AC/DC)				X								K4.01 – Knowledge of UPS (A.C./D.C.) design feature(s) and/or interlocks which provide for the following: Transfer from preferred power to alternate power supplies.	3.1	16
215003 IRM									X			A3.01 - Ability to monitor automatic operations of the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM including: Meters and recorders	3.3	17
215005 APRM / LPRM									X			A3.08 - Ability to monitor automatic operations of the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM including: Control rod block status	3.7	18
259002 Reactor Water Level Control										X		A4.02 - Ability to manually operate and/or monitor in the control room: All individual component controllers in the automatic mode	3.7	19
217000 RCIC										X		A4.01 - Ability to manually operate and/or monitor in the control room: RCIC turbine speed	3.7	20
400000 Component Cooling Water											X	2.4.11 - Emergency Procedures / Plan; Knowledge of abnormal condition procedures	2.7	21
206000 HPCI											X	2.2.39 – Knowledge of less than or equal to one hour tech spec action statements for systems.	3.9	22
300000 Instrument Air				X								K4.02 - Knowledge of (INSTRUMENT AIR SYSTEM) design feature(s) and or interlocks which provide for the following: Cross-over to other air systems	3.0	23
400000 Component Cooling Water									X			A3.01 - Ability to monitor automatic operations of the CCWS including: Setpoints on instrument signal levels for normal operations,warnings, and trips that are applicable to the CCWS	3.0	24
217000 RCIC						X						K6.01 - Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC): Electrical power	3.4	25
211000 SLC											X	2.4.20 - Emergency Procedures / Plan: Knowledge of operational implications of EOP warnings, cautions, and notes.	3.8	26
K/A Category Totals:	2	2	2	3	2	3	2	2/2	3	2	3/3	Group Point Total:		26/5

Hope Creek 2016 NRC
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 #

Hope Creek 2016 NRC
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 #
290001 Secondary CTMT								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
245000 Main Turbine Gen. / Aux.											X	2.4.45 - Ability to prioritize and interpret the significance of each annunciator or alarm.	4.2	92
215002 RBM								X				A2.03 - Ability to (a) predict the impacts of the following on the ROD BLOCK MONITOR SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of associated reference APRM channel: BWR-3,4,5	3.3	93
290001 Secondary CTMT	X											K1.01 - Knowledge of the physical connections and/or cause- effect relationships between SECONDARY CONTAINMENT and the following: Reactor building ventilation: Plant-Specific	3.3	27
226001 RHR/LPCI: CTMT Spray Mode									X			A3.05 – Ability to monitor automatic operations of the RHR/LPCI: Containment spray system mode including: containment pressure.	4.0	28
223001 Primary CTMT and Aux.			X									K3.08 - Knowledge of the effect that a loss or malfunction of the PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES will have on following: Pneumatically operated valves internal to containment/drywell: Plant-Specific	2.7	29
201001 CRD Hydraulic				X								K4.05 - Knowledge of CONTROL ROD DRIVE HYDRAULIC SYSTEM design feature(s) and/or interlocks which provide for the following: Control rod SCRAM	3.8	30
271000 Off-gas							X					A1.08 – ability to predict and/or monitor changes in parameters associated with operating the offgas system controls including system flow.	3.1	31
290003 Control Room HVAC						X						K6.01 - Knowledge of the effect that a loss or malfunction of the following will have on the CONTROL ROOM HVAC : Electrical power	2.7	32
216000 Nuclear Boiler Inst.							X					A1.01 - Ability to predict and/or monitor changes in parameters associated with operating the NUCLEAR BOILER INSTRUMENTATION controls including: recorders and meters	3.4	33

Hope Creek 2016 NRC
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 #
272000 Radiation Monitoring								X				A2.16 - Ability to predict the impacts of the following on the RADIATION MONITORING SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Instrument malfunctions	2.7	34
241000 Reactor/Turbine Pressure Regulator									X			A3.10 - Ability to monitor automatic operations of the REACTOR/TURBINE PRESSURE REGULATING SYSTEM including: Main stop/throttle valve operation	3.3	35
215001 Traversing In-core Probe										X		A4.03 - Ability to manually operate and/or monitor in the control room: Isolation valves: Mark-I&II(Not-BWR1)	3.0	36
259001 Reactor Feedwater											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.	4.2	37
233000 Fuel Pool Cooling/Cleanup					X							K5.06 - Knowledge of the operational implications of the following concepts as they apply to FUEL POOL COOLING AND CLEAN-UP : maximum normal heat load	2.5	38
K/A Category Totals:	1	1	1	1	2	1	1	1/2	1	1	1/1	Group Point Total:		12/3

Facility:	Hope Creek 2016 NRC	Date:	08/22/16			
Category	K/A #	Topic	RO		SRO-Only	
			IR	Q#	IR	Q#
1. Conduct of Operations	2.1.41	Knowledge of the refueling process.			3.7	94
	2.1.29	Knowledge of how to conduct system lineups, such as valves, breakers, switches, etc.	4.1	66		
	2.1.3	Knowledge of shift or short-term relief turnover practices	3.7	67		
	2.1.27	Knowledge of the refueling process	2.8	75		
	Subtotal			3		2
2. Equipment Control	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 effect plant and system conditions.			4.4	95
	2.2.40	Ability to apply technical specifications for a system.			4.7	98
	2.2.5	Knowledge of the process for making a design or operating changes to the facility			3.2	100
	2.2.39	Knowledge of less than one hour technical specification action statements for systems.	3.9	68		
	2.2.14	Knowledge of controlling equipment configuration	3.4	69		
	Subtotal			2		2
3. Radiation Control	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions.			3.17	96
	2.3.15	Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.	2.9	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	74		

	Subtotal			3		1
4. Emergency Procedures / Plan	2.4.11	Knowledge of abnormal condition procedures.			4.2	97
	2.4.22	Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.			4.4	99
	2.4.49	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls	4.6	70		
	2.4.6	Knowledge of EOP mitigation strategies.	3.7	72		
	2.4.28	Knowledge of procedures relating to a security event.	3.2	73		
	Subtotal			2		2
Tier 3 Point Total				10		7

Tier / Group	Randomly Selected K/A	Reason for Rejection
2/1	K5.02	#9: Cannot write an operationally valid question. Randomly selected K5.04
2/1	A2.08	#15: Cannot write an operationally valid question. Randomly selected A2.03
2/1	A2.01	#16: Cannot write an operationally valid question. Randomly selected K4.01
2/1	2.4.30	#21: Cannot write an operationally valid question. Randomly selected 2.4.11
2/1	2.2.22	#22: Cannot write an RO level of knowledge question on this K/A. Randomly selected 2.2.39
2/2	K2.02	#28: K/A subject is oversampled (same as question #4). Randomly selected A3.05
2/2	K5.06	#31: Cannot write an operationally valid question. Randomly selected A1.08
2/2	A1.04	#33: Cannot write an operationally valid question. Randomly selected A1.01
2/2	2.2.36	#37: Cannot write an operationally valid question. Randomly selected 2.2.44
2/2	K5.07	#38: Cannot write an operationally valid question. Randomly selected K5.06
1/1	EA2.06	#51: Cannot write an operationally valid question. Randomly selected EA2.03
1/1	2.4.8	#54: Cannot write an operationally valid question. Randomly selected 2.4.11
1/1	2.1.19	#56: Cannot write question based on computer read-out. Randomly selected 2.1.7
3	2.1.34	#66: Cannot write an operationally valid question. Randomly selected 2.1.3
3	2.2.40	#69: Cannot write an operationally valid question. Randomly selected 2.2.14
3	2.3.5	#70: K/A is oversampled. Randomly selected 2.4.49

3	2.1.27	#75: Cannot write an operationally valid question. Randomly selected 2.1.41
1/1	295016 AA2.05	#77: Cannot write an operationally valid question. Randomly selected 295031, EA2.04
1/1	EA2.02	#78: Cannot write SRO level question. Randomly selected EA2.01
1/2	295017	#83: Cannot write an operationally valid question. Randomly selected 500000
2/1	2.4.49	#88: Cannot write an SRO level question. Randomly selected 2.2.37
2/1	2.4.2	#90: Cannot write an operationally valid question. Randomly selected 2.2.42
2/2	290003 A2.04	#91: JPM already tests this subject (oversample). Randomly selected 290001 A2.02
2/2	2.4.46	#92: Cannot write an operationally valid question. Randomly selected 2.4.45
2/2	A2.02	#93: Operating scenario already tests this K/A (oversample). Randomly selected A2.03
3	2.3.15	#96: K/A is already selected for Tier 3 (oversample). Randomly selected 2.3.4
3	2.1.6	#100: K/A is tested in the operating test. Randomly selected 2.2.5.

Facility: Hope Creek Generating Station Date of Examination: 8/22/16

Examination Level: RO ☒ SRO ☐ Operating Test Number: 1

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N, R	ROA.1 Perform The Watchstanding Duties Of The Nuclear Control Room Operator
Conduct of Operations	M, R	ROA.2 Respond to A Fuel Pool Cooling Malfunction
Equipment Control	N, R	ROA.3 Perform A Manual Tagout With SAP System Inoperable
Radiation Control	D, P, S	ROA.4 Respond To An Abnormal Release Of Gaseous Radioactivity
Emergency Plan		

NOTE: All items (five total) are required for SROs. RO applicants require only four items unless they are retaking only the administrative topics (which would require all five items).

* 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: Hope Creek Generating Station Date of Examination: 8/22/16

Examination Level: RO ☐ SRO ☒ Operating Test Number: _____

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	D, R	SROA.1 Complete the Daily Surveillance Logs
Conduct of Operations	N, R	SROA.2 Ensure The Operating Shift Is Adequately Manned
Equipment Control	N, R	SROA.3 Perform WCD Review and Pre-Approval
Radiation Control	D, P, S	SROA.4 Respond To An Abnormal Release Of Gaseous Radioactivity
Emergency Plan	D, R	SROA.5 Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition

NOTE: All items (five total) are required for SROs. RO applicants require only four items unless they are retaking only the administrative topics (which would require all five items).

* 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: Hope Creek Generating Station Date of Examination: 8/22/16

Exam Level: RO ☒ SRO-I ☐ SRO-U ☐ Operating Test No:

Control Room Systems:* 8 for RO; 7 for SRO-I; 2 or 3 for SRO-U

System / JPM Title	Type Code*	Safety Function
a. BF011 Exercise Control Rod, Respond To Uncoupled Rod	A, D, EN, S	1
b. AE005 Place The First RFPT In Service	D, S	2
c. AC008 Perform a Cooldown Using Bypass Valves	D, L, S	3
d. BJ014 Place HPCI in Full Flow Test Operation	A, D, EN, L, S	4
e. BC003 Respond To A Loss Of Shutdown Cooling	D, L	5
f. PB001 Shift A 4160 V 1E Bus To Alternate Feeder	A, N, S	6
g. GK002 Isolate the Control Room HVAC System	A, EN, M, S	9
h. EG002 Transfer TACS to the Standby SACS Loop	D, S	8
In-Plant Systems* (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. SB015 Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set	A, D	7
j. BF002 Shift In-Service CRD Stabilizing Valves	D, R	2
k. PN005 Respond To A Station Blackout	E, L, N	6

* All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all five 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 / ≥ 1 / ≥ 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: Hope Creek Generating Station Date of Examination: 8/22/16

Exam Level: RO ☐ SRO-I ☒ SRO-U ☐ Operating Test No:

Control Room Systems:* 8 for RO; 7 for SRO-I; 2 or 3 for SRO-U

System / JPM Title	Type Code*	Safety Function
a. BF011 Exercise Control Rod, Respond To Uncoupled Rod	A, D, EN, S	1
b. AE005 Place The First RFPT In Service	D, S	2
c. AC008 Perform a Cooldown Using Bypass Valves	D, L, S	3
d. BJ014 Place HPCI in Full Flow Test Operation	A, D, EN, L, S	4
e. BC003 Respond To A Loss Of Shutdown Cooling	D, L	5
f. PB001 Shift A 4160 V 1E Bus To Alternate Feeder	A, N, S	6
g. GK002 Isolate the Control Room HVAC System	A, EN, M, S	9
h.		
In-Plant Systems* (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. SB015 Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set	A, D	7
j. BF002 Shift In-Service CRD Stabilizing Valves	D, R	2
k. PN005 Respond To A Station Blackout	E, L, N	6

* All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all five 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 / ≥ 1 / ≥ 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: Hope Creek Generating Station Date of Examination: 8/22/16

Exam Level: RO ☐ SRO-I ☐ SRO-U ☒ Operating Test No:

Control Room Systems:* 8 for RO; 7 for SRO-I; 2 or 3 for SRO-U

System / JPM Title	Type Code*	Safety Function
a.		
b.		
c.		
d. BJ014 Place HPCI in Full Flow Test Operation	A, D, EN, L, S	4
e. BC003 Respond To A Loss Of Shutdown Cooling	D, L	5
f.		
g. GK002 Isolate the Control Room HVAC System	A, EN, M, S	9
h.		

In-Plant Systems* (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)

i. SB015 Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set	A, D	7
j.		
k. PN005 Respond To A Station Blackout	E, L, N	6

* All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all five 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 / ≥ 1 / ≥ 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: HOPE CREEK Scenario No.: 1 Op-Test No.: _____

Examiners: _____ Operators: _____

Initial Conditions: The plant at approximately 88% power. Power ascension in progress following maintenance on RFPT AP101, and an Emergency Diesel Generator test in progress.

Turnover: Complete EDG Surveillance. Continue with power ascension to Rated Thermal Power.

Event No.	Malf. No.	Event Type*	Event Description
		N	Remove EDG From Service
		TS	EDG Trip
		R	Raise Reactor power using Control Rods.
		C	Stuck Control Rod
		C	Seismic Event (>OBE) / EHC Filter Clogging
		C,TS	Safety Relief Valve Stuck Open
		M	ATWS
		C	SBLC Failure to Auto Start
		C	RWCU Failure to Automatically Isolate
		C	Loss of EHC
		C	RHR Pump Trip

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

(TS) Technical Specification

Facility: HOPE CREEK Scenario No.: 2 Op-Test No.: _____

Examiners: _____ Operators: _____

Initial Conditions: A Reactor startup is in progress following a forced outage. Current power is 9%. Nitrogen Makeup to the Drywell is in progress following Inerting the Containment.

Turnover: Continue with Reactor startup.

Event No.	Malf. No.	Event Type*	Event Description
		N	Start Circulating Water Pumps
		R	Raise Power With Control Rods
		I, TS	Flow Unit Failure
		C, TS	Loss of BD481 120 VAC 1E Inverter
		M	Steam Leak in the Steam Tunnel
		C	MSIV Failure to Automatically Isolate
		C	Small Break LOCA
		C	Suppression Pool Leak

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

(TS) Technical Specification

Facility: HOPE CREEK Scenario No.: 3 Op-Test No.: _____

Examiners: _____ Operators: _____

Initial Conditions: The plant is at 95% power with power ascension in progress.

Turnover: Continue power ascension to Rated Thermal Power.

Event No.	Malf. No.	Event Type*	Event Description
		R, TS	Recirculation Pump Runaway
		C	Primary Containment Instrument Gas Leak
		C, TS	Loss of 10A110
		C	Loss of Feedwater with Automatic Scram Failure
		C	Trip of HPCI
		M	LOCA
		C	Failure of 'A' Channel Core Spray and RHR Logics

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

(TS) Technical Specification