Facility: Hope Creek Station Date of Exam: 03/05/2012

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 & Abnormal Plant Evolutions	1	3	3	4	N/A			3	4	N/A		3	20	4	3	7
	2	1	1	2				1	1			1	7	1	2	3
	Tier Totals	4	4	6				4	5			4	27	5	5	10
2. Plant Systems	1	2	1	4	2	2	2	2	2	3	3	3	26	3	2	5
	2	1	1	1	1	1	1	2	1	1	1	1	12	0 1	2	3
	Tier Totals	3	2	5	3	3	3	4	3	4	4	4	38	4	4	8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7
		2			2			3			3			2	1	2	2	

Note:

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

Hope Creek Station
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#
295005 Main Turbine Generator Trip / 3					X		AA2.07 - Ability to determine and/or interpret the following as they apply to MAIN TURBINE GENERATOR TRIP : Reactor water level	3.6	76
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	77
295006 SCRAM / 1					X		AA2.02 - Ability to determine and/or interpret the following as they apply to SCRAM : Control rod position	4.4	78
295021 Loss of Shutdown Cooling / 4						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	79
295004 Partial or Total Loss of DC Pwr / 6						X	2.1.23 – Ability to perform specific system and integrated plant procedures during all modes of plant operation.	4.4	80
295024 High Drywell Pressure / 5						X	2.4.41 - Emergency Procedures / Plan: Knowledge of the emergency action level thresholds and classifications.	4.6	81
295031 Reactor Low Water Level / 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	82
600000 Plant Fire On-site / 8	X						AK1.01 - Knowledge of the operation applications of the following concepts as they apply to Plant Fire On Site: Fire Classifications by type	2.5	39
295006 SCRAM / 1	X						AK1.02 - Knowledge of the operational implications of the following concepts as they apply to SCRAM : Shutdown margin	3.4	40
295023 Refueling Acc Cooling Mode / 8	X						AK1.03 - Knowledge of the operational implications of the following concepts as they apply to REFUELING ACCIDENTS : Inadvertent criticality	3.7	41
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	42
295004 Partial or Total Loss of DC Pwr / 6		X					AK2.02 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF D.C. POWER and the following: Batteries	3.0	43
295031 Reactor Low Water Level / 2		X					EK2.14 - Knowledge of the interrelations between REACTOR LOW WATER LEVEL and the following: Emergency generators	3.9	44
295003 Partial or Complete Loss of AC / 6			X				AK3.01 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : Manual and auto bus transfer	3.3	45
295026 Suppression Pool High Water Temp. / 5			X				EK3.05 - Knowledge of the reasons for the following responses as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Reactor SCRAM	3.9	46
295037 SCRAM Conditions Present and Reactor Power Above APRM Downscale or Unknown / 1			X				EK3.03 - Knowledge of the reasons for the following responses as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN : Lowering reactor water level	4.1	47

Hope Creek Station
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#
295021 Loss of Shutdown Cooling / 4				X			AA1.04 - Ability to operate and/or monitor the following as they apply to LOSS OF SHUTDOWN COOLING : Alternate heat removal methods	3.7	48
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4				X			AA1.07 - Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION : Nuclear boiler instrumentation system	3.1	49
295016 Control Room Abandonment / 7				X			AA1.02 - Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT : Reactor/turbine pressure regulating system	2.9	50
295024 High Drywell Pressure / 5					X		EA2.01 - Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE: Drywell pressure	4.2	51
295038 High Off-site Release Rate / 9					X		EA2.04 - Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE : Source of off-site release	4.1	52
700000 Generator Voltage and Electric Grid Disturbances					X		AA2.02 - Ability to determine and/or interpret the following as they apply to GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES: Voltage outside the generator capability curve.	3.5	53
295005 Main Turbine Generator Trip / 3						X	2.1.31 – Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.	4.6	54
295030 Low Suppression Pool Water Level / 5						X	2.2.12 - Equipment Control: Knowledge of surveillance procedures.	3.7	55
295028 High Drywell Temperature / 5						X	2.2.42 - Equipment Control: Ability to recognize system parameters that are entry-level conditions for Technical Specifications.	3.9	56
295018 Partial or Total Loss of CCW / 8					X		AA2.03 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER : Cause for partial or complete loss	3.2	57
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	58
K/A Category Totals:	3	3	4	3	4/4	3/3	Group Point Total:		20/7

Hope Creek Station
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#
295013 High Suppression Pool Temperature / 5					X		AA2.01 High Suppression Pool Temperature, Ability to determine and/or interpret the following as they apply to HIGH SUPPRESSION POOL TEMPERATURE: Suppression Pool Temperature	4.0	83
295032 High Secondary Containment Area Temperature / 5						X	2.1.20 - Conduct of Operations: Ability to interpret and execute procedure steps.	4.6	84
295017 High Off-site Release Rate / 9						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	85
295010 High Drywell Pressure / 5	X						AK1.03 - Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL PRESSURE : Temperature increases	3.2	59
295009 Low Reactor Water Level / 2		X					AK2.02 - Knowledge of the interrelations between LOW REACTOR WATER LEVEL and the following: Reactor water level control	3.9	60
295034 Secondary Containment Ventilation High Radiation / 9			X				EK3.03 - Knowledge of the reasons for the following responses as they apply to SECONDARY CONTAINMENT VENTILATION HIGH RADIATION : Personnel evacuation	4.0	61
295035 Secondary Containment High Differential Pressure / 5				X			EA1.02 - Ability to operate and/or monitor the following as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: SBGT/FRVS	3.8	62
295036 Secondary Containment High Sump/Area Water Level / 5					X		EA2.02 - Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL : Water level in the affected area	3.1	63
295008 High Reactor Water Level / 2						X	2.1.27 - Conduct of Operations: Knowledge of system purpose and / or function.	3.9	64
295020 Inadvertent Cont. Isolation / 5 & 7			X				AK3.06 - Knowledge of the reasons for the following responses as they apply to INADVERTENT CONTAINMENT ISOLATION: Suppression pool water level response	3.3	65
K/A Category Totals:	1	1	2	1	1/1	1/2	Group Point Total:		7/3

Hope Creek Station
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#
206000 HPCI								X				A2.04 - Ability to (a) predict the impacts of the following on the HIGH PRESSURE COOLANT INJECTION 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: BWR-2,3,4	3.0	86
262001 AC								X				A2.04 - Ability to (a) predict the impacts of the following on the A.C. ELECTRICAL DISTRIBUTION; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Types of loads that, if de-energized, would hinder plant operation.	4.2	87
261000 SGTS											X	2.2.44 - Equipment Control: 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	88
215004 SRM											X	2.2.38 Knowledge of conditions and limitations in the facility license	4.5	89
223002 PCIS/Nuclear Steam Supply Shutoff								X				A2.09 - 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 initiation	3.7	90
264000 EDGs	X											K1.05 - Knowledge of the physical connections and/or cause- effect relationships between EMERGENCY GENERATORS (DIESEL/JET) and the following: Emergency generator fuel oil supply system	3.2	1
211000 SLC	X											K1.01 - Knowledge of the physical connections and/or cause- effect relationships between STANDBY LIQUID CONTROL SYSTEM and the following: Core spray line break detection: Plant-Specific	3.0	2
239002 SRVs		X										K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids	2.8	3
218000 ADS			X									K3.02 – Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability to rapidly depressurize the reactor	4.5	4

Hope Creek Station
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									K3.01 - Knowledge of the effect that a loss or malfunction of the A.C. ELECTRICAL DISTRIBUTION will have on following: Major System Loads	3.5	5
206000 HPCI			X									K3.01 - Knowledge of the effect that a loss or malfunction of the HIGH PRESSURE COOLANT INJECTION SYSTEM will have on following: Reactor water level control: BWR-2,3,4	4.0	6
205000 Shutdown Cooling				X								K4.03 - Knowledge of SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) design feature(s) and/or interlocks which provide for the following: Low reactor water level: Plant-Specific	3.8	7
262002 UPS (AC/DC)				X								K4.01 - Knowledge of UNINTERRUPTABLE POWER SUPPLY (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	8
300000 Instrument Air					X							K5.01 - Knowledge of the operational implications of the following concepts as they apply to the INSTRUMENT AIR SYSTEM: Air compressors	2.5	9
263000 DC Electrical Distribution					X							K5.01 - Knowledge of the operational implications of the following concepts as they apply to D.C. ELECTRICAL DISTRIBUTION : Hydrogen generation during battery charging.	2.6	10
261000 SGTS						X						K6.01 - Knowledge of the effect that a loss or malfunction of the following will have on the STANDBY GAS TREATMENT SYSTEM : A.C. electrical distribution	2.9	11
217000 RCIC						X						K6.04 - Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC): Condensate storage and transfer system	3.5	12
215005 APRM / LPRM							X					A1.07 - Ability to predict and/or monitor changes in parameters associated with operating the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM controls including: APRM (gain adjustment factor)	3.0	13

Hope Creek Station
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#
209001 LPCS							X					A1.03 - Ability to predict and/or monitor changes in parameters associated with operating the LOW PRESSURE CORE SPRAY SYSTEM controls including: Reactor water level	3.8	14
215003 IRM								X				A2.06 - 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: Faulty Range Switch	3.0	15
215004 Source Range Monitor								X				A2.01 - Ability to (a) predict the impacts of the following on the SOURCE RANGE MONITOR (SRM) SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Power supply degraded	2.7	16
203000 RHR/LPCI: Injection Mode									X			A3.06 - Ability to monitor automatic operations of the RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) including: Indicating lights and alarms	3.7	17
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	18
223002 PCIS/Nuclear Steam Supply Shutoff										X		A4.02 - Ability to manually operate and/or monitor in the control room: Manually initiate the system	3.9	19
212000 RPS										X		A4.01 - Ability to manually operate and/or monitor in the control room: Provide manual SCRAM signal(s)	4.6	20
259002 Reactor Water Level Control											X	2.1.30 - Conduct of Operations: Ability to locate and operate components, including local controls.	4.4	21
211000 SLC											X	2.1.32 – Ability to explain system and apply system limits and precautions.	3.8	22
212000 RPS											X	2.4.11 - Emergency Procedures / Plan: Knowledge of abnormal condition procedures.	4.0	23
264000 Emergency Generators (Diesel/Jet)										X		A4.04 Ability to manually operate and/or monitor in the Control Room: Manual start, loading, and stopping of emergency generator. Plant Specific	3.7	24

Hope Creek Station
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#
239002 SRVs									X			A3.01 - Ability to monitor automatic operations of the RELIEF/SAFETY VALVES including: SRV operation after ADS actuation	3.8	25
217000 RCIC			X									K3.04 - Knowledge of the effect that a loss or malfunction of the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) will have on following: Adequate core cooling	3.6	26
K/A Category Totals:	2	1	4	2	2	2	2	2/3	3	3	3/2	Group Point Total:		26/5

Hope Creek Station
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 #
259001 Reactor Feedwater								X				A2.03 - Ability to (a) predict the impacts of the following on the REACTOR FEEDWATER SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of condensate pump(s)	3.6	91
226001 RHR/LPCI: CTMT Spray Mode											X	2.2.42 - Equipment Control: Ability to recognize system parameters that are entry-level conditions for Technical Specifications.	4.6	92
223001 Primary CTMT and Aux.											X	2.2.37 - Equipment Control: Ability to determine operability and / or availability of safety related equipment.	4.6	93
215001 Traversing In-core Probe	X											K1.08 - Knowledge of the physical connections and/or cause- effect relationships between TRAVERSING IN-CORE PROBE and the following: Reactor pressure vessel: (Not-BWR1)	2.5	27
286000 Fire Protection		X										K2.02 - Knowledge of electrical power supplies to the following: Pumps	2.9	28
204000 RWCU			X									K3.02 - Knowledge of the effect that a loss or malfunction of the REACTOR WATER CLEANUP SYSTEM will have on following: Reactor water level	3.1	29
202002 Recirculation Flow Control				X								K4.06 - Knowledge of RECIRCULATION FLOW CONTROL SYSTEM design feature(s) and/or interlocks which provide for the following: Recirculation pump adequate NPSH: Plant-Specific	3.1	30
241000 Reactor/Turbine Pressure Regulator					X							K5.04 - Knowledge of the operational Implications of the following concepts as they apply to REACTOR/TURBINE PRESSURE REGULATING SYSTEM : Turbine inlet pressure vs. reactor pressure	3.3	31
201002 RMCS						X						K6.01 - Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR MANUAL CONTROL SYSTEM : Select matrix power	2.5	32
239001 Main and Reheat Steam							X					A1.08 - Ability to predict and/or monitor changes in parameters associated with operating the MAIN AND REHEAT STEAM SYSTEM controls including: Reactor pressure	3.8	33

Hope Creek Station
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 #
288000 Plant Ventilation								X				A2.05 - Ability to (a) predict the impacts of the following on the PLANT VENTILATION SYSTEMS ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Extreme outside weather conditions: Plant-Specific	2.6	34
201001 CRD Hydraulic									X			A3.03 - Ability to monitor automatic operations of the CONTROL ROD DRIVE HYDRAULIC SYSTEM including: System pressure	2.7	35
226001 RHR/LPCI: CTMT Spray Mode										X		A4.15 - Ability to manually operate and/or monitor in the control room: Suppression chamber pressure: Mark-I-II	3.6	36
259001 Reactor Feedwater											X	2.4.2 - Emergency Procedures / Plan: Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.	4.5	37
216000 Nuclear Boiler Inst.							X					A1.04 - Ability to predict and/or monitor changes in parameters associated with operating the NUCLEAR BOILER INSTRUMENTATION controls including: System venting	2.6	38
K/A Category Totals:	1	1	1	1	1	1	2	1/1	1	1	1/2	Group Point Total:		12/3

Hope Creek Station
Written Examination Outline
Generic Knowledge and Abilities Outline (Tier 3)

Facility:	Hope Creek Station	Date: 03/05/12				
Category	K/A #	Topic	RO		SRO-Only	
			IR	Q#	IR	Q#
1. Conduct of Operations	2.1.43	Ability to use procedures to determine the effects on reactivity of plant changes, such as RCS temperature, secondary plant, fuel depletion, etc.			4.3	94
	2.1.35	Knowledge of the fuel-handling responsibilities of SRO's.			3.9	98
	2.1.26	Knowledge of industrial safety procedures (such as rotating equipment, electrical, high temperature, high pressure, caustic, chlorine, oxygen and hydrogen).	3.4	66		
	2.1.29	Knowledge of how to conduct system lineups, such as valves, breakers, switches, etc.	4.1	67		
	Subtotal			2		2
2. Equipment Control	2.2.17	Knowledge of the process for managing maintenance activities during power operations, such as risk assessments, work prioritization, coordination with the transmission system operator.			3.8	95
	2.2.6	Knowledge of the process for making changes to procedures.	3.0	68		
	2.2.39	Knowledge of less than or equal to one hour Technical Specification action statements for systems.	3.9	69		
	Subtotal			2		1
3. Radiation Control	2.3.14	Knowledge of radiation or containment hazards that may arise during normal, abnormal, or emergency conditions or activities.			3.8	96
	2.3.15	Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.			3.1	100

Hope Creek Station
Written Examination Outline
Generic Knowledge and Abilities Outline (Tier 3)

	2.3.11	Ability to control radiation releases.	3.8	70		
	2.3.12	Knowledge of Radiological Safety Principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.	3.2	71		
	2.3.7	Ability to comply with radiation work permit requirements during normal or abnormal conditions.	3.5	74		
	Subtotal			3		2
4. Emergency Procedures / Plan	2.4.34	Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects.			4.1	97
	2.4.38	Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required.			4.4	99
	2.4.22	Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.	3.6	72		
	2.4.28	Knowledge of procedures relating to a security event.	3.2	73		
	2.4.18	Knowledge of the specific bases for EOPs.	3.3	75		
	Subtotal			3		2
Tier 3 Point Total				10		7

Record of Rejected K/A's

Tier / Group	Randomly Selected K/A	Reason for Rejection
1 / 1	295023 / AK1.02	Question #41 - Knowledge of the operational implications of the following concepts as they apply to REFUELING ACCIDENTS : Shutdown margin. Over-sampled topic, see question #40, almost identical subject matter. Randomly selected AK1.03 - Knowledge of the operational implications of the following concepts as they apply to REFUELING ACCIDENTS : Inadvertent criticality.
1 / 1	295003 / AK.307	Question #45, - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER: Initiation of isolation condenser: Plant-Specific Hope Creek does not have isolation condensers. Randomly selected AK3.01 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : Manual and auto bus transfer
1 / 1	295016 / AA1.03	Question #50, - Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT : RPIS Control Rod Position Indication (RPIS) is not available outside of the Control Room. Randomly selected AA1.02 - Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT : Reactor/turbine pressure regulating system
1 / 2	295035 / EA2.01	Question #83, - Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: Secondary containment pressure: Plant-Specific. Over-sampled topic, see question #62 – almost identical subject matter. Randomly selected 201003/A2.10 Ability to (a) predict the impacts of the following on the CONTROL ROD AND DRIVE MECHANSIM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Excessive SCRAM time for a given drive mechanism
2 / 1	262001 / K3.04	Question #5 - Knowledge of the effect that a loss or malfunction of the A.C. ELECTRICAL DISTRIBUTION will have on following: Uninterruptible power supply. Over-sampled topic, see question #8 – almost identical subject matter. Randomly selected K3.01 - Knowledge of the effect that a loss or malfunction of the A.C. ELECTRICAL DISTRIBUTION will have on following: Major system loads.

Record of Rejected K/A's

2 / 1	218000 / K2.01	Question #4, - Knowledge of electrical power supplies to the following: ADS logic. Over-sampled topic, see question #3 – almost identical subject matter. Randomly selected K3.02 – Ability to rapidly depressurize the reactor
2 / 1	259002 / A4.09	Question #24, - Ability to manually operate and/or monitor in the Control Room: TDRFP lockout reset. TDRFP Over-sampled topic, see questions #21 and #89 very similar subject matter. Randomly selected 264000/A4.04 Emergency Generators (Diesel/Jet) Manual start, loading, and stopping of emergency generator. Plant Specific
2 / 2	259001 / A2.08	Question #91, - Ability to (a) predict the impacts of the following on the REACTOR FEEDWATER SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of D.C. electrical power. Unable to write an SRO discriminating question for this topic. Randomly selected 259001/A2.03 - Ability to (a) predict the impacts of the following on the REACTOR FEEDWATER SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of condensate pump(s).
3	2.2.23	Question #69, - Ability to track Technical Specification limiting conditions for operations. Reactor Operators are not responsible for this task. Randomly selected 2.2.39 - Knowledge of less than or equal to one hour Technical Specification action statements for systems.
1 / 1	295005 / 2.1.7	Question #54 Conduct of Operations: Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation. Unable to write a discriminating question to adequately address all the attributes of the selected K/A. Randomly selected 2.1.31 - Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.
2 / 1	259002 / 2.4.46	Question #89 - Emergency Procedures / Plan: Ability to verify that the alarms are consistent with the plant conditions. Topic is over-sampled, see Q's #60 and #76 Randomly selected 215004 SRMs and 2.2.38 – Knowledge of conditions and limitations in the facility license.

Record of Rejected K/A's

1 / 1	295004 / 2.4.4	Question # 80, - Emergency Procedures / Plan: Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures. After review of question selected, question #78 is very similar in nature and will be retained, however #80 will be reselected. Randomly selected 295004/2.1.23 – Ability to perform specific system and integrated plant procedures during all modes of plant operation (Partial or Complete Loss of DC power)
2 / 1	211000 / 2.2.36	Question #22, - Equipment Control: Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations. Determining the status of limiting conditions for operations (LCOs) is an SRO task at Hope Creek and is an unsuitable K/A for the RO section of the exam. Randomly selected 211000/2.1.32 – Ability to explain system and apply system limits and precautions. (SLC)

Record of Rejected K/A's

1 / 2	201003/A2.10	Question #83, - Had randomly selected: Ability to (a) predict the impacts of the following on the CONTROL ROD AND DRIVE MECHANSIM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Excessive SCRAM time for a given drive mechanism. This was chosen in error and was rejected due to being in the Tier 2 Group 2 NOT Tier 2 Group 1 as required by the outline. The original K/A, 295035 / EA2.01, Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: Secondary containment pressure: Plant-Specific. Was an over-sampled topic, see question #62 – almost identical subject matter. Randomly selected 295013/A2.01 High Suppression Pool Temperature, Ability to determine and/or interpret the following as they apply to HIGH SUPPRESSION POOL TEMPERATURE: Suppression Pool Temperature
2 / 1	215005 / A2.10	Question #87, - A2.10 - Ability to (a) predict the impacts of the following on the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions Changes in void concentration. Due to a heavy concentration of Nuclear Instrumentation topics. Rejected this K/A and reselected an additional topic. Randomly selected 262001/A2.04 - Ability to (a) predict the impacts of the following on the A.C. ELECTRICAL DISTRIBUTION; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Types of loads that, if de-energized, would hinder plant operation.
2 / 1	215003 / 2.2.44	Question #88, - Equipment Control: 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. Due to a heavy concentration of Nuclear Instrumentation topics. Reselected a different system and retained the original generic part of the K/A. This was done to maintain the balance of the outline. Randomly selected 261000/2.2.44 – 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. (SGTS)

ES-301 **Administrative Topics Outline** **Form ES-301-1**

Facility: Hope Creek Date of Examination: 3/5/2012

Examination Level: ☒ RO ☐ SRO Operating Test Number: NRC 2012

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	S, D	2.1.31 ZZ024 Perform power distribution lineup.
Conduct of Operations	S, D, P	2.1.18 ZZ016 Complete the Daily Logs (Complete Att 1A for 609, 611, MSLRMS) (2009 NRC)
Equipment Control	S, M	2.2.40 ZZ011 Re-start Reactor Recirc Pump IAW Attachment 2.
Radiation Control	S, M	2.3.5 ZZ019 Calculate Noble Gas Release Rate.
Emergency Plan		N/A

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)

ES-301 **Administrative Topics Outline** **Form ES-301-1**

Facility: Hope Creek Date of Examination: 3/5/2012

Examination Level: ☐ RO ☒ SRO Operating Test Number: NRC 2012

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	R, N	2.1.25 ZZ045 Perform On-Line Risk Controls Evaluation
Conduct of Operations	R, D, P	2.1.18 ZZ017 Review DL-26 (2009 NRC)
Equipment Control	R, M	2.2.12 ZZ027 Review OP-IS.ZZ-0003 for Completeness and Compliance with Acceptance Criteria.
Radiation Control	R, D	2.3.6 ZZ003 Approve Containment Purge permit.
Emergency Plan	R, M	2.4.38 ECG003 Utilize the ECG to Classify an Event (Barrier Table General Emergency/PAR)

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: Hope Creek Date of Examination: 3/5/2012

Exam Level: RO ☒ SRO-I ☐ SRO-U ☐ Operating Test No.: NRC2012

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. AE004 Respond To Rising Drywell Pressure (K/A 223001 A2.01)	S, A, L, D	2
b. BC015 Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop (K/A 205000 A4.03)	S, A, L, N	4
c. CG003 Respond to Main Condenser Low Vacuum (K/A 271000 A4.04)	S, E, M	9
d. GS005 Vent To Control Containment Pressure With Suppression Pool Level Less Than 180 Inches (K/A 295024 EA1.19)	S, A, D, E, L	5
e. BF011 Respond To An Uncoupled Control Rod (K/A 201003 A2.02)	S, A, D	1
f. SB010 Respond To A Reactor Protection System Malfunction (K/A 212000 A2.02)	S, D, EN	7
g. ED002 Respond To A Reactor Auxiliary Cooling Malfunction (K/A 295018 AA2.02) (NRC 2009)	S, A, D, P	8
h. AB001 Bypass MSIV Isolation Interlocks With MSIVs Closed/Open (K/A 239001 A2.03)	S, D, E	3
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. EG003 Respond To A Safety Auxiliaries Cooling Water Malfunction (K/A 400000 A2.01)	D, R	8
j. AB003 Respond To A Failed Open Safety Relief Valve (K/A 239002 A2.03)	D, E	3
k. PK001 Respond To A Station Blackout (K/A 295003 AA1.04)	D, E, R	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.

* 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: Hope Creek Date of Examination: 3/5/2012

Exam Level: RO ☐ SRO-I ☒ SRO-U ☐ Operating Test No.: NRC2012

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. AE004 Respond To Rising Drywell Pressure (K/A 223001 A2.01)	S, A, L, D	2
b. BC015 Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop (K/A 205000 A4.03)	S, A, L, N	4
c. CG003 Respond to Main Condenser Low Vacuum (K/A 271000 A4.04)	S, E, M	9
d. GS005 Vent To Control Containment Pressure With Suppression Pool Level Less Than 180 Inches (K/A 295024 EA1.19)	S, A, D, E, L	5
e. BF011 Respond To An Uncoupled Control Rod (K/A 201003 A2.02)	S, A, D	1
f. SB010 Respond To A Reactor Protection System Malfunction (K/A 212000 A2.02)	S, D, EN	7
g. ED002 Respond To A Reactor Auxiliary Cooling Malfunction (K/A 295018 AA2.02) (NRC 2009)	S, A, D, P	8
h. NA	-	-
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. EG003 Respond To A Safety Auxiliaries Cooling Water Malfunction (K/A 400000 A2.01)	D, R	8
j. AB003 Respond To A Failed Open Safety Relief Valve (K/A 239002 A2.03)	D, E	3
k. PK001 Respond To A Station Blackout (K/A 295003 AA1.04)	D, E, R	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.

* 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: Hope Creek Date of Examination: 3/5/2012

Exam Level: RO ☐ SRO-I ☐ SRO-U ☒ Operating Test No.: NRC2012

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. AE004 Respond To Rising Drywell Pressure (K/A 223001 A2.01)	S, A, L, D	2
b. BC015 Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop (K/A 205000 A4.03)	S, A, L, N	4
c. NA	-	-
d. NA	-	-
e. NA	-	-
f. SB010 Respond To A Reactor Protection System Malfunction (K/A 212000 A2.02)	S, D, EN	7
g. NA	-	-
h. NA	-	-
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. NA	-	-
j. AB003 Respond To A Failed Open Safety Relief Valve (K/A 239002 A2.03)	D, E	3
k. PK001 Respond To A Station Blackout (K/A 295003 AA1.04)	D, E, R	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.

* 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: Hope Creek Scenario No.: 1 Op-Test No.: NRC2012

Examiners: _____ Operators: _____(SRO)
_____ _____(ATC)
_____ _____(BOP)

Initial Conditions: 93% power.

Turnover: Raise reactor power to 98% per Load Dispatcher request.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R (ATC) N (SRO)	Raise power to 98% with recirculation flow.
2	MS09A	I (SRO)	PT-N076A MSL Pressure Fails Upscale (TS)
3	CD10A	C (ATC) C (SRO)	"A" CRD Pump Trip
4	PC07A ED16	C (All)	OBE Earthquake w/ 10A403 Bus Fault & Lockout (TS)
5	RR31A1	C (All)	Small break LOCA / Manual Scram
6	PC07B EG12 DG08B DG02A DG02C DG02D	M (All)	Aftershock w/ LOP, Main Generator Lockout, "B" EDG Start Failure (recoverable), "A" & "D" EDG fail resulting in unrecoverable loss of 10A401 & 10A404 Buses
7	HP01 HP06M RC02 RC05	C (BOP)	HPCI & RCIC auto start failure (RCIC recoverable)

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

Facility: Hope Creek Scenario No.: 2 Op-Test No.: NRC2012

Examiners: _____ Operators: _____(SRO)
_____ _____(ATC)
_____ _____(BOP)

Initial Conditions: 84.5% power

Turnover: Power ascension in progress. Raise power 84.5% to 90% using control rods. Place C RFPT in service.

Event No.	Malf. No.	Event Type*	Event Description
1	NA	R (ATC) N (BOP) N (SRO)	Raise power 84.5% to 90% using control rods. Place C RFPT in service.
2	CD032631	C (ATC) C (SRO)	Stuck Control Rod. (TS SRO)
3	NM12B	I (ATC) I (SRO)	Flow Unit Fails Downscale w/half scram. (TS SRO)
4	TC07A	C (ATC) C (SRO)	A EHC Pump trip
5	TC16	C (All)	Loss of EHC due to Filter Clogging w/ Manual Scram
6	RP07	M (All)	ATWS
7	CU11A CU11B	C (ATC)	Failure of RWCU to auto isolate.
8	HP06E HP14 HP15 HP16	C (BOP)	HPCI components failure to auto initiate

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

Facility: Hope Creek Scenario No.: 4-LP Op-Test No.: NRC2012

Examiners: _____ Operators: _____(SRO)
_____ _____(ATC)
_____ _____(BOP)

Initial Conditions: 3% power.

Turnover: Continue Reactor Startup using control rods.
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 (ATC) N (SRO)	Raise Reactor power with control rods.
2	CD022603	C (ATC) C (SRO)	Rod drifts out. (TS SRO)
3	NA	N (BOP)	Swap Service Water Pumps
4	CW05A	C (BOP) C (SRO)	Service Water Pump Malfunction (TS SRO)
5	RR08B	C (ATC) C (SRO)	Single Reactor Recirc Pump Runaway (TS SRO) Recirc Pump Vibrations
6	CR01	C (ALL)	Fuel Failure With Scram
7	PC06	M (ALL)	Torus Leak/Emergency Depressurization
8	RH03B	C (BOP)	RHR HX inlet valve F047B fails closed

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