Facility: Hop	oe Creek Statio	on				D.	ate (of Ex	kam	: 03	/05/	2012	2					
					RO K/A Category Points										SRO-Only Points			
Tier	Group	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	А	2	G)*	Total
1. Emergency &	1	3	3	4				3	4			3	20	4	4	;	3	7
Abnormal Plant	2	1	1	2		N/A		1	1	N	/A	1	7		1	2	2	3
Evolutions	Tier Totals	4	4	6				4	5			4	27		5	į	5	10
2.	1	2	1	4	2	2	2	2	2	3	3	3	26	(3	2	2	5
Plant Systems	2	1	1	1	1	1	1	2	1	1	1	1	12	0	1	2	2	3
Cystems	Tier Totals	3	2	5	3	3	3	4	3	4	4	4	38		4	4	1	8
3. Generic k	Generic Knowledge and Abilities		s	,		- 2	2	;	3	3 4		10	1	2	3	4	7	
	Categories					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).
 - The point total for each group and tier in the proposed outline must match that specified in the table. 2. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
 - Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply 3. 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.
 - Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
 - Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. 5. 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

295005 Main Turbine Generator Trip / 3				X Federical		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				×		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				×		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					×	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					Х	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				×		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	×					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	х			The charge		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		х				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		Х				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		Х				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			х			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			х			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			×			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	К3	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				х			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					Village Control	- 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			х				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)	lmp.	Q#	
-------------------------------	-------	-------	------	--------------	------	----	--

295013 High Suppression Pool Temperature / 5					×		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						×	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		Х					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			×				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				х			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					×		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						Х	2.1.27 - Conduct of Operations: Knowledge of system purpose and / or function.	3.9	64
295020 Inadvertent Cont. Isolation / 5 & 7			Х				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

206000 HPCI 20600													
206000 HPCI X binages 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-2,34 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-energyzed, would hinder plant operation. 261000 SGTS X 27 281000 SGTS X 29 201000 SGTS X 201000 SGTS										1 9 1	A2.04 - Ability to (a) predict the		
206000 HPCI X BHIGH PRESSURE COOLANT INJECTION SYSTEM: and to be based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A. C. failures: BWR-2,34 A. 204 - A high tyo (a) predict the impacts of the following on the A. C. FLECTRICAL DISTRIBUTION; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions, see 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. 22.244 - Fajument 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. 22.238 (Rowledge of conditions and limitations in the facility license and control of the plant operation. X 223002 PCIS/Nuclear Steam Supply Shutoff X X X X X X X X X X X X										X - F			
262001 AC X X X X X X X X X X X X X										in rights			
based on those predictions, use procedures to correst, control, or mitigate the consequences of those abnormal conditions or operations: A.C. failures: BWR-2,34 A.2.04 - Abilty 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. 262001 AC 262001 AC X X 262001 AC X X X 262001 AC X X X X X X X X X X X X X													
procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations. A. C. fallures: BWR-2.34 A. 2.04 - 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-emergized, would hinder plant operation. Z. 2.44 - Equipment Control: Ability to interpret control room indications to very five status and operation of a system, and understand how operator actions and directions and directions and continuous and the facility license. A. 2.93 - Knowledge of conditions and limitations in the facility license. A. 2.90 - 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 that a base or malituation of the ALTOMATIC DEPRESSURIZATION SYSTEM and the following: Core spray line break detection: Plant-Specific that a base or malituation of the ALTOMATIC DEPRESSURIZATION SYSTEM and the following: Core spray line break detection: Plant-Specific that a base or malituation of the ALTOMATIC DEPRESSURIZATION SYSTEM will be a power supplies to the following: SRY solenoids X. S. Rowledge of the effect that a base or malituation of the ALTOMATIC DEPRESSURIZATION SYSTEM and the following: One spray line break detection: Plant-Specific power supplies to the following: Altiput the construction of the ALTOMATIC DEPRESSURIZATION SYSTEM and the following: One spray line break detection: Plant-Specific power supplies to the following: Altiput the construction of the ALTOMATIC DEPRESSURIZATION SYSTEM and the following will have on the following shability.	206000 HPCI							χl		- Charles		3.0	86
mitigate the consequences of those abnormal conditions or operations: A. C. failures: BWR-2,34 A													
ahonomal conditions or operations: A C. fallures BWR-2.3 4 A 2.04 - 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. 2.244 - Equipment Control: Ability to interpret control room indications to verify the status and operation of a system, and understand how operation actions and directives effect plant and system conditions are limited to interpret control room indications to verify the status and operation of a system, and understand how operations and interestives effect plant and system conditions and limitations in the facility license A 2.09 - Ability to (a) predict the impacts of the following on the PRIMARY CONTAINMENT SOLATION SYSTEM MUNICLEAR STEAM SUPPLY SHUT-OFF; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of the following connections and/or cause-effect relationships between EMERGENCY GENERATORS (DIESEL/JET) and the following: Emergency generator fall of its supply system 24000 EDGs X 211000 SLC X 2299002 SRVs X X 218000 ADS X 218000 ADS X 4.2 87 8.7 88 4.5 4 8.8 8 8.7 80-energine and system conditions and limitations or operations. System initiation 4.5 89 4.5 99 4.5 4 8.7 80-energine and system conditions and limitations or operations. System initiation 4.6 10 Section and connections and connections and or cause effect relationships between Effect													
A. C. failures: BWR-2.3.4 A. 20.4 - 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 a bnormal conditions or operations. Types of leads that, if de-energized, would hinder plant operation. 261000 SGTS 261000 SGTS 27								0.4					
262001 AC X X A2.04 - Ability to (a) predict the impacts of the following: on the A.C. ELECTRICAL. DISTRIBUTIONs; 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. 22.44 - Equipment Control Ability to interpret 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. 215004 SRM X 223002 PCIS/Nuclear Steam X X X X X X X X X X X X X										2. 2. 200	Δ C failures: RWR-2 3.4		
262001 AC	-			 -			-	7e.			A2.04 Ability to (a) predict the		
262001 AC X X X X X X X X X X X X X										146867			
262001 AC X DISTRIBUTION; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those ahonormal conditions or operations: Types of loads that, if 4e-energized, would hinder plant operation to mitigate the consequences of those ahonormal conditions or operations: Types of loads that, if 4e-energized, would hinder plant operation of a system, and understand how operator actions and directives effect plant and system conditions. 215004 SRM X 22.38 Knowledge of conditions and limitations in the facility license effect plant and system conditions. X 22.3002 PCIS/Nuclear Steam Supply Shutoff X X X X X X X X X X X X													
those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations. Types of loads that, if de-nergized, would hinder plant operation. 2.2.4.4 Equipment Control: Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and friendly license effect plant and system conditions. 2.2.38 Knowledge of conditions and limitations in the facility license along the control of a system, and understand how operator actions and friendly license along the control of a system, and understand how operator actions and friendly license along the control of a system, and understand how operator actions and friendly license along the control of a system, and understand how operator actions and friendly license along the control operator actions and friendly license along the property of a system conditions. 2.2.38 Knowledge of conditions and limitations in the facility license along the facility license along the control operator actions and friendly license. 2.2.38 Knowledge of the physical conditions or operations. System initiation in the facility license and the property of the physical connections and/or cause-effect relationships between STANDBY LIQUID CONTROL SYSTEM and the following: Emergency generator facil oil supply system. 2.2.4000 EDGs X 2.2.50 A Dilyt System and the following: Emergency generator facil oil supply system. X LI, 01 - Knowledge of the physical connections and/or cause-effect relationships between STANDBY LIQUID CONTROL SYSTEM and the following: Capacity								A si					
2000 AC Correct, control, or mitigate the correct, control, or mitigate the correct period abnormal conditions or operations. Types of loads that, if de-energized, would hinder plant operation. 2.2.44 - Equipment Control: Ability to interpret control midications to verify the status and operation of a system, and understand how operator actions and directives effect plant and system conditions and limitations in the facility license effect plant and system conditions. 2.2.38 Knowledge of conditions and limitations in the facility license effect plant and the following on the PRIMARY CONTAINMENT ISOLATION SYSTEMNUCLEAR 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 mititation X 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 mititation X 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 mititation X 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 mititation or supplies to correct, control, or mitigate the consequences of the physical connections and/or cause-effect relationships between Effect relationships between Effect plant and the following: Supply system of the physical connections and or cause-effect relationships between STANDBY LIQUID CONTROL SYSTEM and the following: SRV solenoids X SLO2 - Knowledge of the effect that at loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability will have on the following: Ability will be able to							ľ			5 A Co. 1			
261000 SGTS 261000 SGTS 261000 SGTS 261000 SGTS 271000 SGTS 27100	262001 AC							- x		All C	those predictions, use procedures to	4.2	87
261000 SGTS 26100								1886					
loads that, if de-energized, would hinder plant operation.								1.580 Yell?					
261000 SGTS 1								5		1576			
261000 SGTS 22. 24.4 - 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. 215004 SRM 215004 SRM 215004 SRM 215004 SRM 215004 SRM 216005 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 21500 SDG System initiation 21600 EDGs X 21700 SLC X 218000 ADS X 228002 SRVs X 228002 SRVs X 228002 SRVs X 228003 Ability (a) predict the impacts of the following: Lemergency generator fuel oil supply system of the following: Lemergency generator fuel oil supply system of the following: Lemergency generator fuel oil supply system KI.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 K2.01 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM and Will have on the following: Ability and the following: Ability will have on the following: Ability will have on the following: Ability will have on the following: Ability will have one to the following: Ability will have one to the following: Ability and the f													
261000 SGTS X X X X X X X X X X X X X X X X X X										487			
261000 SGTS X a system, and understand how operations and directives effect plant and system conditions. 215004 SRM 215004 SRM 2215004 SRM 222308 Knowledge of conditions and limitations in the facility license of the following on the PRIMARY CONTAINMENT ISOLATION SYSTEMMUCLEAR 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 or operations system initiation or operations and/or cause-effect relationships between EMERCENCY CENERATORS (DIESEL/ET) and the following: Emergency generator fuel oil supply system X LI.01 - Knowledge of the physical connections and/or cause-effect relationships between SELIJET) and the following: Connections and/or cause-effect relationships between SELIJET) and the following: Correspany line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and SELIJET Relationships between SELIJET Relationships betwee							1				2.2.44 - Equipment Control: Ability		
261000 SGTS X a system, and understand how operations and directives effect plant and system conditions. 215004 SRM 215004 SRM 2215004 SRM 222308 Knowledge of conditions and limitations in the facility license of the following on the PRIMARY CONTAINMENT ISOLATION SYSTEMMUCLEAR 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 or operations system initiation or operations and/or cause-effect relationships between EMERCENCY CENERATORS (DIESEL/ET) and the following: Emergency generator fuel oil supply system X LI.01 - Knowledge of the physical connections and/or cause-effect relationships between SELIJET) and the following: Connections and/or cause-effect relationships between SELIJET) and the following: Correspany line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and the following: Core spray line break detection: Plant-Specific Relationships between SELIJET and SELIJET Relationships between SELIJET Relationships betwee											to interpret control room indications		
215004 SRM 215004	261000 SGTS							ŧ		V	to verify the status and operation of	11	
215004 SRM 2.2.38 Knowledge of conditions and limitations in the facility license A.5 89	201000 3313										a system, and understand how	4.4	00
215004 SRM X 2.238 Knowledge of conditions and limitations in the facility license 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 eprocedures to correct, control, or operations: System initiation According to the physical connections and/or cause- effect relationships between EMERGENCY GENERATORS (DIESEL/JET) and the following: Emergency generator fuel oil supply system KI.01 - Knowledge of the physical connections and/or cause- effect relationships between EMERGENCY GENERATORS According to the physical connections and/or cause- effect relationships between EMERGENCY GENERATORS According to the physical connections and/or cause- effect relationships between Emergency generator fuel oil supply system KI.01 - Knowledge of the physical connections and/or cause- effect relationships between STANDBY LQUID CONTROL SYSTEM and the following: Core spray line break detection: Plant-Specific According to the physical connections and/or cause- effect relationships between STANDBY LQUID CONTROL SYSTEM and the following: Core spray line break detection: Plant-Specific According to the physical connections and core are effect relationships between STANDBY LQUID CONTROL SYSTEM and the following: Core spray line break detection: Plant-Specific According to the following: According to the following: According to the physical connections of the physical connections and con								,		44	operator actions and directives		
213004 SRM X 2.2.38 Knowledge of conditions and limitations in the facility license 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 KI.05 - Knowledge of the physical connections and/or cause - effect relationships between EMERGENCY GENERATORS (DIESEUJET) and the following: Emergency generator fuel oil supply system KI.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 239002 SRVs X 218000 ADS X 3 2 3 3 SRV solenoids X 4 5 4 4 Will have on the following: Ability w							ſ				effect plant and system conditions.		
223002 PCIS/Nuclear Steam X 223002 PCIS/Nuclear Steam X 3.7 90	045004.0044					-		6.14		7,383	2.2.38 Knowledge of conditions and		
223002 PCIS/Nuclear Steam Supply Shutoff 223002 PCIS/Nuclear Steam Supply Shutoff X STEAM SUPPLY SHUT-OFF; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of the physical connections and/or cause- effect relationships between EMERGENCY GENERATORS (DIESE/JET) and the following: Emergency generator fuel oil supply system X 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 KI.05 - Knowledge of the physical connections and/or cause- effect relationships between EMERGENCY GENERATORS (DIESE/JET) and the following: Emergency generator fuel oil supply system KI.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 K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids X SRV solenoids	215004 SRM									X		4.5	89
223002 PCIS/Nuclear Steam Supply Shutoff X 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 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 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 K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM and lawy on the following: Ability 4.5 4 AUTOMATIC DEPRESSURIZATION SYSTEM and lawy on the following: Ability							 	Seta .		11.8.5	A2.09 - Ability to (a) predict the		
223002 PCIS/Nuclear Steam Supply Shutoff X 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 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 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 K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM and lawy on the following: Ability 4.5 4 AUTOMATIC DEPRESSURIZATION SYSTEM and lawy on the following: Ability										1/4/	impacts of the following on the		
223002 PCIS/Nuclear Steam Supply Shutoff X X 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 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 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 K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids X Z18000 ADS X SRV solenoids X X Z18000 ADS Z18000 AD								100		Cas			
and (6) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: System initiation XI.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 XI.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 X239002 SRVs X X X X X X X X X X X X X							Į.	1400		2.00			
and (6) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: System initiation KI.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 KI.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 K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids K3.02 - Knowledge of electrical power supplies to the following: SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability	223002 PCIS/Nuclear Steam												
264000 EDGs X ENDING THE CONTROL SYSTEM AND								X				3.7	90
264000 EDGs X Endeath of the consequences of those abnormal conditions or operations: System initiation KI.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 KI.01 - Knowledge of the physical connections and/or cause- effect relationships between STANDBY LIQUID CONTROL SYSTEM and the following: Cornections Plant-Specific K2.01 - Knowledge of electrical power supplies to the following: 2.8 3 SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability	Supply Struton									642.3			
those abnormal conditions or operations: System initiation 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 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 K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids X							į.			1000			
264000 EDGs X EMERGENCY GENERATORS (DIESEL/JET) and the following: Emergency generator fuel oil supply system K1.01 - Knowledge of the physical connections and/or cause- effect relationships between EMERGENCY GENERATORS (DIESEL/JET) and the following: Emergency generator fuel oil supply system 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 K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability							1			350			
264000 EDGs X X X X X X X X X X								1 29 16 16 2		NA KA			
264000 EDGs X EMERGENCY GENERATORS (DIESEL/JET) and the following: Emergency generator fuel oil supply system KI.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 K2.01 - Knowledge of electrical power supplies to the following: 2.8 3 SRV solenoids X Z18000 ADS X EMERGENCY GENERATORS (DIESEL/JET) and the following: Ability will have on the following: 4.5 4		ļ								1 1:45			
264000 EDGs X EMERGENCY GENERATORS (DIESEL/JET) and the following: Emergency generator fuel oil supply system 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 K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability							à-	· * *		1 1			
264000 EDGs X EMERGENCY GENERATORS (DIESEL/JET) and the following: Emergency generator fuel oil supply system 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 K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids X Z18000 ADS X Elationships between K1.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability							-						
211000 SLC X EMERGENCY GENERATORS (DIESEL/JET) and the following: Emergency generator fuel oil supply system 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 K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids X 218000 ADS X EMERGENCY GENERATORS 3.2 1 EMERGENCY GENERATORS 3.2 1 EMERGENCY GENERATORS 3.2 LIQUID CONTROL SYSTEM And the following: Core spray line break detection: Plant-Specific K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability							'						
211000 SLC X Emergency generator fuel oil supply system 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 K2.01 - Knowledge of electrical power supplies to the following: X EMERGENCY SYSTEM and the following: Ability will have on the following: 4.5 AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability	264000 EDGs	X						311.892		2 40		3.2	1
supply system 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 K2.01 - Knowledge of electrical power supplies to the following: 2.8 3 SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability													
supply system 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 K2.01 - Knowledge of electrical power supplies to the following: 2.8 3 SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability										1.0			
211000 SLC X connections and/or cause- effect relationships between STANDBY LIQUID CONTROL SYSTEM and the following: Core spray line break detection: Plant-Specific K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability								o 50 3 504		7 M			
211000 SLC X Connections and/or cause- effect relationships between STANDBY LIQUID CONTROL SYSTEM and the following: Core spray line break detection: Plant-Specific K2.01 - Knowledge of electrical power supplies to the following: 2.8 3 SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have an ability will have on the following: Ability will have on the following: Ability will have on the following: Ability will have							ľ				K1.01 - Knowledge of the physical		
211000 SLC X relationships between STANDBY LIQUID CONTROL SYSTEM and the following: Core spray line break detection: Plant-Specific K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability		1						204		1.35			
239002 SRVs X ElQUID CONTROL SYSTEM and the following: Core spray line break detection: Plant-Specific K2.01 - Knowledge of electrical power supplies to the following: SRV solenoids X SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability	211000 SLC	~											
the following: Core spray line break detection: Plant-Specific K2.01 - Knowledge of electrical power supplies to the following: 2.8 3 SRV solenoids K3.02 - Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability	211000 SLC	X					- 1	96 . W				3.0	2
239002 SRVs X		1						p.c \$4		1300			
239002 SRVs X		1									detection: Plant-Specific		
239002 SRVs X power supplies to the following: 2.8 3 SRV solenoids K3.02 – Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability		 	\vdash				1			1 200			-
SRV solenoids K3.02 – Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability	239002 SRVs	1	l x				1			P175		28	વ
XX X3.02 – Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability	=====================================	1	^`					44		Comment.		2.0	ا
that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability	-	┼──	\vdash	\vdash	\vdash		 		_				
218000 ADS X Ital a loss or maininction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following: Ability will have on the following: Ability										1.0053			
DEPRESSURIZATION SYSTEM will have on the following: Ability							- [400		1487			
will have on the following: Ability	218000 ADS			X			ſ					4.5	4
will have on the following: Ability to rapidly depressurize the reactor	210000 ADS						ŀ						'
to rapidly depressurize the reactor							Ŀ			reessalt Y class			
to replicative the reactor		Ц.						र १ ८५५ के		480	to rapidly depressurize the reactor		

262001 AC Electrical Distribution	×							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	×							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					view.	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				×		Section of the sectio		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				х				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

System # / Name	K 1	K 2	K 3	K 4	К 5	K 6	A 1	A2	A 3	A 4	G		lmp	Q#	
-----------------	--------	--------	--------	--------	--------	--------	--------	----	--------	--------	---	--	-----	----	--

			I					
209001 LPCS		X			on the state of th	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		×				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		×				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			×			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			×			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		- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		×		A4.02 - Ability to manually operate and/or monitor in the control room: Manually initiate the system	3.9	19
212000 RPS				х		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		13,75			X	2.1.32 – Ability to explain system and apply system limits and precautions.	3.8	22
212000 RPS		14274 			X	2.4.11 - Emergency Procedures / Plan: Knowledge of abnormal condition procedures.	4.0	23
264000 Emergency Generators (Diesel/Jet)				×		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

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								7.4	х			A3.01 - Ability to monitor automatic operations of the RELIEF/SAFETY VALVES including: SRV operation after ADS actuation	3.8	25
217000 RCIC			×									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:	20	6/5

								44		100	A2.03 - Ability to (a) predict the		
								Ģ.			impacts of the following on the		
								944. 861			REACTOR FEEDWATER		
								\$500		"i. ".:	SYSTEM; and (b) based on		
											those predictions, use		
259001 Reactor Feedwater								Χ		1 4 50	procedures to correct, control,	3.6	91
								* 1			or mitigate the consequences of		
						ļ		442		1 60 8	those abnormal conditions or		
											operations: Loss of condensate		
										1 3 4	'		
							\sqcup				pump(s)		
											2.2.42 - Equipment Control:		
226001 RHR/LPCI: CTMT										144	Ability to recognize system		
Spray Mode								200		X	parameters that are entry-level	4.6	92
Opray Wode											conditions for Technical		
								,		1 43	Specifications.		
								į.		1938	2.2.37 - Equipment Control:		
223001 Primary CTMT and											Ability to determine operability		
Aux.								7		x	and / or availability of safety	4.6	93
Adx.								2			related equipment.		
				_				. 1.01		ļ			
										1 4	K1.08 - Knowledge of the		
								. A 26.		500	physical connections and/or		
215001 Traversing In-core								23		- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	cause- effect relationships		
Probe	X										between TRAVERSING IN-	2.5	27
11000					ļ			1.55.0		100.200	CORE PROBE and the		
											following: Reactor pressure		
	1	'						2 4		Jung Sagarif.	vessel: (Not-BWR1)		
								37.7			K2.02 - Knowledge of electrical		
286000 Fire Protection		Х								2.0400	power supplies to the following:	2.9	28
20000011101100000011		^`						upri ni			Pumps	2.0	
						├	\vdash	4 10	_		K3.02 - Knowledge of the effect		
								1			ا میا یو د دی		
00,4000 504/014			١.,					X 200		araz yak			
204000 RWCU			X							- Grik	REACTOR WATER CLEANUP	3.1	29
											SYSTEM will have on following:		
						L		A			Reactor water level		
								n day			K4.06 - Knowledge of		
										64	RECIRCULATION FLOW		
000000 Basineviation Floor										34700	CONTROL SYSTEM design		
202002 Recirculation Flow				Ιx							feature(s) and/or interlocks	3.1	30
Control										5.7	which provide for the following:		
								55.4		2.7	Recirculation pump adequate		
											NPSH: Plant-Specific		
			├					M			K5.04 - Knowledge of the		
		l	1		l	1		23			operational Implications of the		
		l	1		l	1		35			following appoints at the control		
241000 Reactor/Turbine		l	1		,	1		300			following concepts as they apply		
Pressure Regulator		l	1		X	1		196°-		6,5%	to REACTOR/TURBINE	3.3	31
		l	1		l	1		i jili		1.1	PRESSURE REGULATING		
		l	1		l	1		3.75%		- Mar	SYSTEM : Turbine inlet		
	Ш							7,735	L	.874.1	pressure vs. reactor pressure		
			_						T		K6.01 - Knowledge of the effect		
		l	1	l	l	1					that a loss or malfunction of the		
004000 BMOC		l	1	l	l	.,		23		- 57.	following will have on the		
201002 RMCS		l	1	l	l	X		i mištr altri		7 (2).e. 1	REACTOR MANUAL	2.5	32
		l	1	l	l	1		167 I			CONTROL SYSTEM : Select		
		l	1	l	l	1		54.		365	matrix power		
	\vdash	<u> </u>		_		\vdash	$\vdash\vdash$	12.7					
					l	1				6.5136	A1.08 - Ability to predict and/or		
					l	1				07 Jr. J. 180	monitor changes in parameters	[
239001 Main and Reheat					l	1	x			1/200	associated with operating the	3.8	33
Steam					l	1	^			200	MAIN AND REHEAT STEAM	3.0	33
					l	1		å.		2/4	SYSTEM controls including:		
					l	1		2.1		1	Reactor pressure		
	1						ш			1 1 10 10 10 1			L

		1			1			133. 1			Figures.	ACOE Abilities (a) and 1.11		1 1
								334				A2.05 - Ability to (a) predict the impacts of the following on the		
												PLANT VENTILATION		
												SYSTEMS; and (b) based on		
								130%				those predictions, use		
288000 Plant Ventilation								l x l				procedures to correct, control,	2.6	34
200000 Flant Ventilation												or mitigate the consequences of	2.0	54
								2.2				those abnormal conditions or		
								1 1				operations: Extreme outside		
								2				weather conditions: Plant-		
												Specific		
-								rivin.			98.	A3.03 - Ability to monitor		
								2			White '	automatic operations of the		
201001 CRD Hydraulic									х		1/2	CONTROL ROD DRIVE	2.7	35
201001 CRD Hydraulic								1.3	^			HYDRAULIC SYSTEM	2.1	35
						1						including: System pressure		
								. 2 E.S				A4.15 - Ability to manually		+
226001 RHR/LPCI: CTMT											15	operate and/or monitor in the		
								4: *		X		control room: Suppression	3.6	36
Spray Mode												chamber pressure: Mark-I-II		
			-	_				35			2255	2.4.2 - Emergency Procedures /		+
								100			(80000000000000000000000000000000000000	Plan: Knowledge of system set		
259001 Reactor Feedwater								1 43			X	points, interlocks and automatic	4.5	37
209001 Neactor Feedwater								30 ,			^	actions associated with EOP	4.5	31
											13.5	entry conditions.		
											2.53	A1.04 - Ability to predict and/or		
								lana.				monitor changes in parameters		
216000 Nuclear Boiler Inst.							X	68.			14.5	associated with operating the NUCLEAR BOILER	2.6	38
								78			200	INSTRUMENTATION controls		
											lisas 1			
				_	-						Secretary 1	including: System venting		
K/A Category Totals:	1	1	1	1	1	1	2	1/1	1	1	1/2	Group Point Total:		12/3
								w .				·		

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

Facility:	Hope Cr	eek Station Date:	03/05/1	2			
Catagory	K/A #	Topic		R)	SRO	-Only
Category	IVA#	Торіс		IR	Q#	IR	Q#
	2.1.43	Ability to use procedures to determ effects on reactivity of plant change RCS temperature, secondary plant depletion, etc.	es, such as			4.3	94
	2.1.35	Knowledge of the fuel-handling responsibilities of SRO's.				3.9	98
1.	W						
Conduct of Operations	2.1.26	Knowledge of industrial safety proc (such as rotating equipment, electri temperature, high pressure, caustic oxygen and hydrogen).	cal, high c, chlorine,	3.4	66		
	2.1.29	Knowledge of how to conduct system lineups, such as valves, breakers, setc.		4.1	67		
	Subtotal				2		2
	2.2.17	Knowledge of the process for man maintenance activities during powe operations, such as risk assessment prioritization, coordination with the transmission system operator.	r			3.8	95
2.							
Equipment Control	2.2.6	Knowledge of the process for mak changes to procedures.	_	3.0	68		
	2.2.39	Knowledge of less than or equal to Technical Specification action state systems.		3.9	69		
	0.11.11					1 2 30 30 30 50	
	Subtotal	Manufada af madistra a a a constituita de la constituita del constituita de la constituita del constituita de la constit			2		1
3. Radiation Control	2.3.14	Knowledge of radiation or containr hazards that may arise during norm abnormal, or emergency conditions activities.	nal, s or			3.8	96
	2.3.15	Knowledge of radiation monitoring such as fixed radiation monitors an portable survey instruments, person monitoring equipment, etc.	d alarms,			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		316.1	3		2
	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
4. Emergency						
Procedures / Plan	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		17 (17 (17 (17 (17 (17 (17 (17 (17 (17 (3		2
Tier 3 Point Tot	al			10		7

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
		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.
1/2	295035 / EA2.01	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.

	1	The state of the 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 oversampled, see Q's #60 and #76 Randomly selected 215004 SRMs and 2.2.38 - Knowledge of conditions and limitations in the facility license.

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)

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
2/1	215003 / 2.2.44	de-energized, would hinder plant operation. 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)

HC ILT 2012 NRC EXAM

ES-301 **Administrative Topics Outline** Form ES-301-1 Date of Examination: Facility: Hope Creek 3/5/2012 ⊠ RO **SRO** Examination Level: Operating Test Number: NRC 2012 Administrative Topic Type Describe activity to be performed (See Note) Code* 2.1.31 ZZ024 Perform power distribution lineup. Conduct of Operations S, D 2.1.18 ZZ016 Complete the Daily Logs S, D, P (Complete Att 1A for 609, 611, MSLRMS) Conduct of Operations (2009 NRC) 2.2.40 ZZ011 Re-start Reactor Recirc Pump IAW **Equipment Control** S, M 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 (\leq 3 for ROs; \leq 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥1) (P)revious 2 exams (≤1; randomly selected)

HC ILT 2012 NRC EXAM

ES-301	Administrative Topics Outline Form ES-301							
	- W							
Facility: Hope Cree	k	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 Co	ntrols Evaluation					
Conduct of Operations	R, D, P	2.1.18 ZZ017 Review DL-26 (2009 NR)	C)					
Equipment Control	R, M	2.2.12 ZZ027 Review OP-IS.ZZ-0003 for and Compliance with Acceptance Criteri	•					
Radiation Control	R, D	2.3.6 ZZ003 Approve Containment Pur	ge permit.					
Emergency Plan	R, M	2.4.38 ECG003 Utilize the ECG to Clas (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)Iternate Path								

Facility: <u>Hope Creek</u> Exam Level: RO 🗵 SRO-I 🔲 SRO-U 🗆	7	mination: <u>3/5/2012</u> est No.: <u>NRC2012</u>		
Control Room Systems [®] (8 for RO); (7 for SRO-I);	(2 or 3 for SRO-U, includi	ing 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 Stand Loop (K/A 205000 A4.03)	by Shutdown Cooling	S, A, L, N	4	
c. CG003 Respond to Main Condenser Low Vacu	um (K/A 271000 A4.04)	S, E, M	9	
d. GS005 Vent To Control Containment Pressure \ Level Less Than 180 Inches (K/A 29502-		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 S, D, EN 7 212000 A2.02)				
g. ED002 Respond To A Reactor Auxiliary Cooling Malfunction (K/A S, A, D, P 8 295018 AA2.02) (NRC 2009)			8	
h. AB001 Bypass MSIV Isolation Interlocks With MSIVs Closed/Open (K/A S, D, E 3 239001 A2.03)			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)				
j. AB003 Respond To A Failed Open Safety Relief Valve (K/A 239002 D, E A2.03)			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)Iternate path $4-6/4-6/2-3$ (C)ontrol room $\leq 9/\leq 8/\leq 4$ (E)mergency or abnormal in-plant $\geq 1/\geq 1/\geq 1$ (EN)gineered safety feature $-/-/\geq 1$ (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 $\geq 1/\geq 1/\geq 1$			·	

Facility: <u>Hope Creek</u> Exam Level: RO ☐ SRO-I ☒ SRO-U ☐	7	mination: <u>3/5/2012</u> est No.: <u>NRC2012</u>	
Control Room Systems [®] (8 for RO); (7 for SRO-I);	(2 or 3 for SRO-U, includ	ing 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 Stand Loop (K/A 205000 A4.03)	by Shutdown Cooling	S, A, L, N	4
c. CG003 Respond to Main Condenser Low Vacu	um (K/A 271000 A4.04)	S, E, M	9
d. GS005 Vent To Control Containment Pressure V Level Less Than 180 Inches (K/A 29502		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 S, D, EN 7 212000 A2.02)			7
g. ED002 Respond To A Reactor Auxiliary Cooling Malfunction (K/A S, A, D, P 8 295018 AA2.02) (NRC 2009)			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 D, R 400000 A2.01)			
j. AB003 Respond To A Failed Open Safety Relief Valve (K/A 239002 D, E A2.03)			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)Iternate path (C)ontrol room (D)irect from bank $ \leq 9 / \leq 8 / \leq 4 $ (E)mergency or abnormal in-plant $ (EN) \text{gineered safety feature} $ (C)ow-Power / Shutdown $ (N) \text{ew or (M)odified from bank including 1(A)} $ (P)revious 2 exams $ (R)CA $ (S)imulator			

Facility: <u>Hope Creek</u> Exam Level: RO SRO-I SRO-U SRO-U	-	mination: <u>3/5/2012</u> est No.: <u>NRC2012</u>	
Control Room Systems [®] (8 for RO); (7 for SRO-I);	(2 or 3 for SRO-U, includ	ing 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 Stand Loop (K/A 205000 A4.03)	by Shutdown Cooling	S, A, L, N	4
c. NA		-	-
d. NA		-	-
e. NA		-	-
f. SB010 Respond To A Reactor Protection Syste 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 A2.03)	Valve (K/A 239002	D, E	3
k. PK001 Respond To A Station Blackout (K/A 295	003 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			
$ \begin{array}{llllllllllllllllllllllllllllllllllll$		·	

Appendix D	Scenario Outline	Form ES-D-1

Facility: <u>Hope Creek</u>	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.

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)e	eactivity, (I)nstru	ıment, (C)omponent, (M)ajor

Appendix D	Scenario Outline	Form ES-D-1

Facility: <u>Hope Creek</u>	Scenario No.: 2	Op-Test No.: NRC2012
Examiners:	Operators:	(SRO) (ATC) (BOP)
Lateral Canadistana of EO/ account		

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

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)e	activity, (I)nstru	ment, (C)omponent, (M)ajor