

Facility: <u>Hope Creek Generating Station</u>		Date of Examination: <u>2/22/21</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: <u>1</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	D, S	<p>Perform a Reactor Recirculation Pump Quick Restart</p> <p>Task Standard: Operator completes Step G.12 of HC.OP-AB.RPV-0003 for restart of Reactor Recirculation Pump</p> <p>KA - 2.1.18 - Ability to make accurate, clear, and concise logs, records, status boards, and reports.</p>
Conduct of Operations	D, S	<p>Perform Steps 5.1 through 5.6.3 of HC.OP-ST.SH-0001</p> <p>Task Standard: Operator performs Steps 5.1 through 5.6.3 of HC.OP-ST.SH-0001(Q) and notifies CRS and/or system engineering of any variance</p> <p>KA - 2.1.45 - Ability to identify and interpret diverse indications to validate the response of another indication.</p>
Equipment Control	N, R	<p>ISOLATE AND DRAIN CRD PP "A" to perform the a pump internal inspection. Using controlled station drawings (provided):</p> <ol style="list-style-type: none"> <li>1. IDENTIFY the Mechanical components that are required to be tagged, and their required positions.</li> <li>2. IDENTIFY the Electrical component(s) that is/are required to be tagged, and required position.</li> </ol> <p>KA - 2.2.41 – Ability to Obtain and Interpret Station Electrical &amp; Mechanical Drawings</p>
Radiation Control	D	<p>Determine Liquid Radwaste Rad Monitor CTB Weir Flow</p> <p>Task Standard: Operator completes the Day Shift reading for HC.OP-DL.ZZ-0026, Attachment 1a, ITEM 47, for the RMS Cooling Tower Blowdown Weir Flow Rate Monitor and identifies any variance.</p> <p>KA - 2.3.11 - Ability to control radiation releases.</p>

Emergency Plan		N/A
<b>NOTE:</b> All items (five total) are required for SROs. RO applicants require only four items unless they are retaking only the administrative topics (which would require all five items).		
<b>* Type Codes and Criteria:</b> (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank ( $\leq 3$ for ROs; $\leq 4$ for SROs and RO retakes) (N)ew or (M)odified from bank ( $\geq 1$ ) (P)revious 2 exams ( $\leq 1$ , randomly selected)		

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Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	M, R	<p>PERFORM the Shift Manager review of the OP-AA-105-102, Attachment 2, for an SRO license renewal for the Control Room Supervisor position</p> <p>Task Standard: Determines license reactivation requirements have not been met (and why) in accordance with OP-AA-105-102.</p> <p>KA 2.1.5 Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.</p>
Conduct of Operations	P, R	<p>Complete Daily Surveillance log</p> <p>Task Standard: Operator implements the log at the beginning of the day by completing Attachment 1, Section A, of HC.OP-DL.ZZ-0026 and identifies attachments required IAW the answer key</p> <p>KA – 2.1.18 – Ability to make accurate, clear, and concise, logs, records, status boards and reports</p>
Equipment Control	N, R	<p>Review and approve Work Clearance Documents (WCDs). You have been presented with the WCD for Independent Review and Pre-Approval in accordance with OP-AA-109-115, Safety Tagging Operations for CRD PP "A"</p> <p>Task Standard: Identify discrepancies IAW answer key</p> <p>KA - 2.2.41 – Ability to Obtain and Interpret Station Electrical &amp; Mechanical Drawings</p>
Radiation Control	D, R	<p>PERFORM step 5.1.11 of HC.OP-GP.ZZ-0004 to determine the leakage into the Core Spray Loop A Injection Header. Determine any required actions and RECORD them below</p> <p>Task Standard: Operator completes the CRS/SM review of a completed HC.OP-GP.ZZ-0004 and notes actions required.</p> <p>KA - 2.3.11 Ability to control radiation releases.</p>

<p>Emergency Plan</p>	<p>D, R</p>	<p>Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition</p> <p>Task Standard: Operator appropriate declaration in accordance with answer key; initiates a PAR; and makes notifications within identified Critical Times in accordance with EP-HC-111-101.</p> <p>KA 2.4.38 - Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required.</p>
<p>NOTE: All items (five total) are required for SROs. RO applicants require only four items unless they are retaking only the administrative topics (which would require all five items).</p>		
<p>* Type Codes and Criteria: (C)ontrol room, (S)imulator, or Class(R)oom                  (D)irect from bank (<math>\leq 3</math> for ROs; <math>\leq 4</math> for SROs and RO retakes)                  (N)ew or (M)odified from bank (<math>\geq 1</math>)                  (P)revious 2 exams (<math>\leq 1</math>, randomly selected)</p>		

Facility: <u>Hope Creek Generating Station</u>	Date of Examination: <u>2/22/21</u>	
Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	Operating Test Number: <u>1</u>	
Control Room Systems: * 8 for RO, 7 for SRO-I, and 2 or 3 for SRO-U		
System/JPM Title	Type Code*	Safety Function
a. Respond to Rising Drywell Pressure	S,D,A,L	5
b. Place HPCI in full flow Test Operation	S,P,A,EN,L	4
c. Place RCIC in service from the RSP	S,D,EN	2
d. Perform Non-Emergency Operation of the EDG	S,D	6
e. Swap RACs pumps	S,N, A	8
f. Enabling Automatic Backup Stability Protection for an APRM IAW HC.OP-SE-0001 Step 4.10	S,N	7
g. Resetting RPS Trips	S,P,A	1
h. Swap Control Room Vent trains IAW HC.OP-SO.GK-0001	S,D	9
In-Plant Systems: * 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U		
i. Transfer RPS Bus A/B Power from Alternate Source to RPS MG Set	D,A	7
j. Shift in-service CRD flow control valves	D,R	1
k. Respond to a Failed Open SRV	D,E	3
* All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions, all five SRO-U systems must serve different safety functions, and in-plant systems and functions may overlap those tested in the control room.		
* Type Codes	Criteria for R /SRO-I/SRO-U	
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (EN)gineered safety feature (L)ow-Power/Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (R)CA (S)imulator	4-6/4-6 /2-3  $\leq 9/\leq 8/\leq 4$ $\geq 1/\geq 1/\geq 1$ $\geq 1/\geq 1/\geq 1$ (control room system) $\geq 1/\geq 1/\geq 1$ $\geq 2/\geq 2/\geq 1$ $\leq 3/\leq 3/\leq 2$ (randomly selected) $\geq 1/\geq 1/\geq 1$	

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Exam Level: RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	Operating Test Number: <u>1</u>	
Control Room Systems: * 8 for RO, 7 for SRO-I, and 2 or 3 for SRO-U		
System/JPM Title	Type Code*	Safety Function
a. Respond to Rising Drywell Pressure	S,D,A,L	5
b. Place HPCI in full flow Test Operation	S,D,A,EN	4
c. Place RCIC in service from the RSP	S,D,EN	2
d. Perform Non-Emergency Operation of the EDG	S,D	6
e. Swap RACs pumps	S,N,A	8
f. Enabling Automatic Backup Stability Protection for an APRM IAW HC.OP-SE-0001 Step 4.10	S,N	7
g. Resetting RPS Trips	S,P,A	1
In-Plant Systems: * 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U		
i. Transfer RPS Bus A/B Power from Alternate Source to RPS MG Set	D,A	7
j. Shift in-service CRD flow control valves	D,R	1
k. Respond to a Failed Open SRV	D,E	3
* All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions, all five SRO-U systems must serve different safety functions, and in-plant systems and functions may overlap those tested in the control room.		
* Type Codes	Criteria for R /SRO-I/SRO-U	
(A)lternate path	4-6/4-6 /2-3	
(C)ontrol room		
(D)irect from bank	≤ 9/≤ 8/≤ 4	
(E)mergency or abnormal in-plant	≥ 1/≥ 1/≥ 1	
(EN)gineered safety feature	≥ 1/≥ 1/≥ 1 (control room system)	
(L)ow-Power/Shutdown	≥ 1/≥ 1/≥ 1	
(N)ew or (M)odified from bank including 1(A)	≥ 2/≥ 2/≥ 1	
(P)revious 2 exams	≤ 3/≤ 3/≤ 2 (randomly selected)	
(R)CA	≥ 1/≥ 1/≥ 1	
(S)imulator		

Facility: Hope Creek	Date of Exam: 2/22/21	Scenario Numbers: 1 / 2 / 3	Operating Test No.:1		
QUALITATIVE ATTRIBUTES		Initials			
		a	b*	c#	
1. The initial conditions are realistic in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.		SD	J	TF	
2. The scenarios consist mostly of related events.		SD	J	TF	
3. Each event description consists of the following: <ul style="list-style-type: none"> <li>the point in the scenario when it is to be initiated</li> <li>the malfunction(s) or conditions that are entered to initiate the event</li> <li>the symptoms/cues that will be visible to the crew</li> <li>the expected operator actions (by shift position)</li> <li>the event termination point (if applicable)</li> </ul>		SD	J	TF	
4. The events are valid with regard to physics and thermodynamics.		SD	J	TF	
5. Sequencing and timing of events is reasonable and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.		SD	J	TF	
6. If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.		SD	J	TF	
7. The simulator modeling is not altered.		SD	J	TF	
8. The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.		SD	J	TF	
9. Scenarios are new or significantly modified in accordance with Section D.5 of ES-301.		SD	J	TF	
10. All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).		SD	J	TF	
11. The scenario set provides the opportunity for each applicant to be evaluated in each of the applicable rating factors. (Competency rating factors as described on Forms ES-303-1 and ES-303-3.)		SD	J	TF	
12. Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).		SD	J	TF	
13. Applicants are evaluated on a similar number of preidentified critical tasks across scenarios, when possible.		SD	J	TF	
14. The level of difficulty is appropriate to support licensing decisions for each crew position.		SD	J	TF	
Target Quantitative Attributes per Scenario (See Section D.5.d)	Actual Attributes	-	-	-	
1. Malfunctions after EOP entry (1-2)	2 / 2 / 3	SD	J	TF	
2. Abnormal events (2-4)	3 / 2 / 3	SD	J	TF	
3. Major transients (1-2)	1 / 1 / 1	SD	J	TF	
4. EOPs entered/requiring substantive actions (1-2)	2 / 2 / 3	SD	J	TF	
5. Entry into a contingency EOP with substantive actions (≥ 1 per scenario set)	2 / 1 / 1	SD	J	TF	
6. Preidentified critical tasks (≥ 2)	2 / 2 / 3	SD	J	TF	
* The facility licensee signature is not applicable for NRC-developed tests. # An independent NRC reviewer initials items in column "c"; chief examiner concurrence is required.					

Facility: Hope Creek			Date of Exam: 2/22/21			Operating Test No.:1											
A P P L I C A N T	E V E N T  T Y P E	Scenarios												T O T A L	M I N I M U M (*)		
		1			2			3			4						
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N						
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P				
												R	I	U			
SRO-I #1	RX	1			2		1									3	1
	NOR				1								1	1	1	1	
	I/C	2-5, 7,8			4,5		2,3,5, 6,7						13	4	4	2	
	MAJ	6			6		4						3	2	2	1	
	TS	2,3,4					1,2,3						6	0	2	2	
SRO-I #2	RX		1		2								2	1	1	0	
	NOR				1								1	1	1	1	
	I/C		2,5		3,4,5, 7,8				1,3,6				10	4	4	2	
	MAJ		6		6				4				3	2	2	1	
	TS				1,3,4								3	0	2	2	
SRO-I #3	RX	1			2		1						3	1	1	0	
	NOR				1								1	1	1	1	
	I/C	2-5, 7,8			4,5		2,3,5, 6,7						13	4	4	2	
	MAJ	6			6		4						3	2	2	1	
	TS	2, 3,4					1,2,3						6	0	2	2	
SRO-I #4	RX		1		2								2	1	1	0	
	NOR				1								1	1	1	1	
	I/C		2,5		3,4,5, 7,8				1,3,6				10	4	4	2	
	MAJ		6		6				4				3	2	2	1	
	TS				1,3,4								3	0	2	2	

Instructions:

- Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the at-the-controls (ATC) and balance-of-plant (BOP) positions. Instant SROs (SRO-I) must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an SRO-I *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
- Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (\*) Reactivity and normal evolutions may be replaced with additional I/C malfunctions on a one-for-one basis.
- Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.
- For new reactor facility licensees that use the ATC operator primarily for monitoring plant parameters, the chief examiner may place SRO-I applicants in either the ATC or BOP position to best evaluate the SRO-I in manipulating plant controls.



Facility: Hope Creek			Date of Exam: 2/15/21									Operating Test No.:1					
A P P L I C A N T	E V E N T  T Y P E	Scenarios												T O T A L	M I N I M U M (*)		
		1			2			3			4						
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N						
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P				
												R	I	U			
SRO-I #5	RX	1			2												2
	NOR				1									1	1	1	1
	I/C	2-5, 7,8			4,5									8	4	4	2
	MAJ	6			6									2	2	2	1
	TS	2,3,4												3	0	2	2
SRO-I #6	RX		1		2									2	1	1	0
	NOR				1									1	1	1	1
	I/C		2,5		3,4, 5,7, 8									7	4	4	2
	MAJ		6		6									2	2	2	1
	TS				1,3, 4									3	0	2	2
RO #1	RX							1						1	1	1	0
	NOR					1								1	1	1	1
	I/C			2,3,7 ,8		4,5,7 ,8		2,5,7						11	4	4	2
	MAJ			6		6		4						3	2	2	1
	TS													0	0	2	2
RO #2	RX							1						1	1	1	0
	NOR					1								1	1	1	1
	I/C			2,3,7 ,8		4,5,7 ,8		2,5,7						11	4	4	2
	MAJ			6		6		4						3	2	2	1
	TS													0	0	2	2

## Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the at-the-controls (ATC) and balance-of-plant (BOP) positions. Instant SROs (SRO-I) must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an SRO-I *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (\*) Reactivity and normal evolutions may be replaced with additional I/C malfunctions on a one-for-one basis.
3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.
4. For new reactor facility licensees that use the ATC operator primarily for monitoring plant parameters, the chief examiner may place SRO-I applicants in either the ATC or BOP position to best evaluate the SRO-I in manipulating plant controls.

Facility:	HOPE CREEK	Date of Exam:	2/22/21	Operating Test: 1:												
Competencies	APPLICANTS															
	RO-1 <input checked="" type="checkbox"/>	RO-2 <input checked="" type="checkbox"/>	RO <input type="checkbox"/>	RO <input type="checkbox"/>												
	SRO-I <input type="checkbox"/>	SRO-I <input type="checkbox"/>	SRO-I-1 <input checked="" type="checkbox"/>	SRO-I-2 <input checked="" type="checkbox"/>												
	SRO-U <input type="checkbox"/>	SRO-U <input type="checkbox"/>	SRO-U <input type="checkbox"/>	SRO-U <input type="checkbox"/>												
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions	2,3,6,7,8	1,4,5,6,7,8	1,2,3,4,7		2,3,6,7,8	1,4,5,6,7,8	1,2,3,4,7		All	1,2,4,5,6	All		1,2,5,6	All	1,3,4,6	
Comply with and Use Procedures (1)	All	All	All		All	All	All		All	All	All		All	All	All	
Operate Control Boards (2)	2,3,6,7,8	1,4,5,6,7,8	1,2,3,4,7		2,3,6,7,8	1,4,5,6,7,8	1,2,3,4,7			1,2,4,5,6			1,2,5,6		1,3,4,6	
Communicate and Interact	All	All	All		All	All	All		All	All	All		All	All	All	
Demonstrate Supervisory Ability (3)									All		All			All		
Comply with and Use TS (3)									2,3,4		1,2,3			1,3,4		
Notes: (1) Includes TS compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs.																

**Instructions:**

Check the applicants' license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant. (This includes all rating factors for each competency.) (Forms ES-303-1 and ES-303-3 describe the competency rating factors.)

Facility:	HOPE CREEK	Date of Exam:	2/15/21	Operating Test No.1												
Competencies	APPLICANTS															
	RO <input type="checkbox"/>	RO <input type="checkbox"/>	RO <input type="checkbox"/>	RO <input type="checkbox"/>												
	SRO-I-3 <input checked="" type="checkbox"/>	SRO-I-4 <input checked="" type="checkbox"/>	SRO-I-5 <input checked="" type="checkbox"/>	SRO-I-6 <input checked="" type="checkbox"/>												
	SRO-U <input type="checkbox"/>	SRO-U <input type="checkbox"/>	SRO-U <input type="checkbox"/>	SRO-U <input type="checkbox"/>												
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions	All	1,2,4,5,6	All		1,2,5,6	All	1,3,4,6		All	1,2,4,5,6			1,2,5,6	All		
Comply with and Use Procedures (1)	All	All	All		All	All	All		All	All			All	All		
Operate Control Boards (2)		1,2,4,5,6			1,2,5,6		1,3,4,6			1,2,4,5,6			1,2,5,6			
Communicate and Interact	All	All	All		All	All	All		All	All			All	All		
Demonstrate Supervisory Ability (3)	All		All			All			All					All		
Comply with and Use TS (3)	2,3,4		1,2,3			1,3,4			2,3,4					1,3,4		
Notes: (1) Includes TS compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs.																

**Instructions:**

Check the applicants' license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant. (This includes all rating factors for each competency.) (Forms ES-303-1 and ES-303-3 describe the competency rating factors.)

Facility: Hope Creek Scenario No.: 1 Op-Test No.: 1

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Initial Conditions: ≈79% power. B RFPT in Recirc

Turnover: ≈81% Power. Power was reduced to remove RFPT B from feeding.

Raise power to 88% IAW IO-6 and REMA.

Critical Tasks: Described on next page

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R	Raise Power with Recirculation Pumps
2	PC07A	C	Earthquake (TS)
3	QQ09	C	Trip of SSW Pump (TS)
4	RM01A	I	MSLRMS Channel A Fails upscale (TS)
5	RR31A1	I	Instrument Line Break in Drywell
6	RP06	M	ATWS
7	HP06E	C	HPCI Auto Initiation Failure
8	CU11B	C	RCIC Auto Initiation Failure

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

**Critical Tasks Scenario #1**

1.

- \* ***CREW prevents an uncontrolled depressurization during ATWS conditions by preventing ADS ACTUATION, OR if actuated, closes ADS valves before Reactor Pressure drops below 550 psig.***

**K/A 218000 Automatic Depressurization System****A4 Ability to manually operate and/or monitor in the control room:****A4.04 ADS inhibit RO 4.1 SRO 4.1**

Given the current ATWS conditions of this scenario, preventing ADS automatic operation and potential uncontrolled reactor level flood up prevents a significant transient and subsequent positive reactivity addition to the reactor. EOPs direct this action under the current conditions. This critical task is only applicable if RPV water level goes below -129". Failure to satisfactorily complete the task is demonstrated by an automatic ACTUATION of ADS such that the ADS SRVs open and reduce reactor pressure to less than 550 psig.

2.

- \* ***CREW maintains or restores adequate core cooling by restoring/maintaining Compensated Reactor water level to >-185" IAW HC.OP-EO.ZZ-0101A without Emergency Depressurizing.***

**K/A 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown****EA2 Ability to determine and/or interpret the following as they apply to SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown:****EA2.02 Reactor water level RO 4.1 SRO 4.2**

Maintaining adequate Core cooling under ATWS conditions is accomplished by maintaining/restoring level above -185". HPCI and RCIC are capable of maintaining level under the current conditions. AB.ZZ-0001 provides directions on manual initiation of HPCI which will mitigate the automatic initiation failure. An Emergency Depressurization is not warranted and would result in a large injection of cold water and the potential displacement of boron from the core.

Facility: Hope Creek Scenario No.: 2 Op-Test No.: 1

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Initial Conditions: 100% Power

Turnover: RPS MG Set 1BG401 has a noisy bearing. Transfer RPS Bus B Power to its Alternate Supply in accordance with HC.OP-SO.SB-0001.

Critical Tasks: See next page

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N	Transfer 'B' RPS to Alternate Power Supply (TS)
2	N/A	R	Reduce Power to 95%
3	RZ02A	C	RRCS Pressure Transmitter Failure (TS)
4	CU11A	C	RWCU Leak w/Failure to Automatically Isolate (TS)
5	TC02-2	C	High Reactor Pressure
6	RR31A2	M	LOCA
7	PC04	C	Downcomer Failure
8.	PC03E	I	A/C Channel Initiation Failures

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

**Critical Tasks Scenario #2****1. Crew initiates isolation of RWCU (e.g., closure of RWCU HV-F001 OR HV-F004) BEFORE differential flow exceeds 65 gpm.**

K/A 223002 Primary Containment Isolation System / Nuclear Steam Supply Shut-Off

A4 Ability to operate and/or monitor in the Control Room

A4.01 Valve Closures RO 3.6 SRO 3.5

A4.06 Confirm initiation to completion RO 3.6 SRO 3.7

The RWCU System has failed to isolate automatically. Failure of the Crew to manually isolate the system will result in a bypass of the Reactor Coolant and Primary Containment boundaries and release of radioactive materials to the Reactor Building.

**2. Crew maintains Suppression Chamber Pressure below the Action Required region of the PSP curve.**

K/A 295024 High Drywell Pressure

EA1 Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE:

EA1.11 Drywell Spray RO 4.2 SRO 4.2

EA2 Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE:

EA2.04 Suppression chamber pressure RO 3.9 SRO 3.9

K/A 223001 Primary Containment Systems and Auxiliaries

A2. Ability to (a) predict the impacts of the following on the PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions of operations:

A2.02 Steam bypass of the suppressions pool RO 3.9 SRO 4.1

If suppression chamber pressure cannot be maintained below the pressure suppression pressure, EOPs direct actions to emergency depressurize the reactor. A LOCA condition while in the action required region of the Pressure Suppression Pressure curve, could cause design containment limits to be exceeded. Based upon the rate of pressure increase in this scenario, the Crew has over ten minutes to initiate Drywell Sprays and prevent entry into the Action Required region of the PSP curve. This will prevent an unnecessary Emergency Depressurization, which is a significant challenge to the Suppression Pool and would cause the Cooldown Limit for the Reactor Coolant system to be unnecessarily exceeded. Reducing reactor pressure within the cooldown limit may also delay/prevent entry into the action required region.



Facility: Hope Creek Scenario No.: 3 Op-Test No.: 1

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Initial Conditions: 100% power

Turnover: 100% power

Critical Tasks: See next page

Event No.	Malf. No.	Event Type*	Event Description
1	FW12B	R, C	FWH Leak (TS)
2	SL03A	C	Inadvertent SBLC System Actuation (TS)
3	ED11A	I	Loss of 10D410 (TS)
4	EG12	M	Loss of Offsite Power
5	DG03B DG04B	C	Auto Start Failure of EDGs
6	RC01	C	RCIC Trip on Overspeed
7	QQ15	C	SACS Pump Trip

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

**Critical Tasks Scenario #3**

**1. Crew restores/maintains APRM Power to  $\leq 100\%$  within five minutes of the Core Thermal Power 5 Minute Average exceeding 3910 MWth.**

**K/A 295001 Reactor Feedwater System**

**A2 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 of operations:**

**A2.04 Loss of Extraction Steam RO 3.3 SRO 3.4**

**K/A 2.2 Equipment Control**

**2.2.22 Knowledge of limiting conditions for operations and safety limits RO.3.4 SRO 4.1**

The loss of Feedwater heating due to the trip of the FWH will drive reactor power to above the licensed limit. Peak power in this transient with no operator action is just over 102% power. This would constitute a violation of our Operating License. HC.OP-IO.ZZ-0006 defines a 5 minute average of 3904 MWth during steady state operations as exceeding the Licensed Power Limit. Taking the Immediate Operator Actions IAW either AB.BOP-0001 or AB.RPV-0001 will prevent this violation.

**2. CREW starts SACS Pump B to provide cooling to EDG B, OR cross-connects to SACS Loop A, to prevent an EDG B emergency trip from cooling related problems.**

**K/A 295003**

**AA1.03 Systems necessary to assure safe plant shutdown RO 4.4 SRO 4.4**

The continued availability of EDG B is required to maintain the capability to place the plant in a cold shutdown condition. If EDG B becomes inoperable: (with EDG A currently inoperable), both loops of shutdown cooling will be inoperable and will: prevent placing and maintaining the plant in a cold shutdown condition; and the inability to cool the Suppression Pool to maintain temperatures less than 212F. Starting of this pump, or cross-connecting to SACS Loop A is required due to the failure of SACS Pump D. This Critical Task is valid only if EDG B has been started.

**3. BEFORE Compensated RPV water level lowers below -185": Crew determines entry into EOP-202 is required and initiates actions to Emergency Depressurize the reactor. Then restores RPV water level to above -185".**

**K/A 295031 Reactor Low Water Level**

**EA1. Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL:**

**EA1.01 Low Pressure Coolant Injection RO: 4.4 SRO 4.4**

**EA1.06 Automatic depressurization system RO 4.4 SRO 4.4**

**EA2 Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL:**

**EA2.04 Adequate core cooling RO 4.6 SRO 4.8**

When Reactor water level cannot be maintained above -185" with injection to the RPV, adequate core cooling cannot be assured (MSCRWL). EOPs direct action to initiate emergency depressurization when RPV water level reaches this value if there are injection sources available. To restore adequate core cooling, the Crew must Emergency Depressurize and restores level with low pressure ECCS.

Facility:		HC21-2		Date of Exam:		02/21											
Tier	Group	RO K/A Category Points										SRO-Only Points					
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total	
1. Emergency & Plant Evolutions	1	3	5	3				4	4			1	20	4	3	7	
	2	1	2	0				1	2			1	7	2	1	3	
	Tier Totals	4	7	3				5	6			2	27	6	4	10	
2. Plant Systems	1	2	2	2	3	2	2	2	2	3	4	2	26	2	3	5	
	2	1	1	2	1	1	1	1	1	1	1	1	12	0	1	3	
	Tier Totals	3	3	4	4	3	3	3	3	4	5	3	38	3	5	8	
3. Generic Knowledge & Abilities Categories				1		2		3		4		10	1	2	3	4	7
				2		3		3		2			2	2	1	2	

- Note:
1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outline sections (i.e., except for one category in Tier 3 of the SRO-only section, the "Tier Totals" in each K/A category shall not be less than two). (One Tier 3 radiation control K/A is allowed if it is replaced by a K/A from another Tier 3 category.)
  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 outline. Systems or evolutions that do not apply at the facility should be deleted with justification. 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. 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' 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 a category 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.
- G\* Generic K/As
- \* These systems/evolutions must be included as part of the sample (as applicable to the facility) when Revision 3 of the K/A catalog is used to develop the sample plan. They are not required to be included when using earlier revisions of the K/A catalog.
  - \*\* These systems/evolutions may be eliminated from the sample (as applicable to the facility) when Revision 3 of the K/A catalog is used to develop the sample plan.

**HC21-2**  
**Written Examination Outline**  
**Emergency and Abnormal Plant Evolutions – Tier 1 Group 1**

EAPE # / Name Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp	Q#
295026 Suppression Pool High Water Temp. / 5					X		EA2.01 - Ability to determine and/or interpret the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Suppression pool water temperature	4.2	76
295016 Control Room Abandonment / 7					X		AA2.03 - Ability to determine and/or interpret the following as they apply to CONTROL ROOM ABANDONMENT : Reactor pressure	4.4	77
295037 SCRAM Conditions Present and Reactor Power Above APRM Downscale or Unknown / 1					X		EA2.07 - Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN : Containment conditions/isolations	4.2	78
295021 Loss of Shutdown Cooling / 4						X	2.2.40 - Equipment Control: Ability to apply Technical Specifications for a system.	4.7	79
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4						X	2.4.50 - Emergency Procedures / Plan: Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	4.0	80
295018 Partial or Total Loss of CCW / 8						X	2.4.4 – Emergency Procedure/Plan: Ability to recognize abnormal indications for system operating parameters that are entry level conditions for emergency and abnormal operating procedures	4.7	81
600000 Plant Fire On-site / 8					X		AA2.03 - Ability to determine and interpret the following as they apply to PLANT FIRE ON SITE: Fire alarm	3.2	82
295024 High Drywell Pressure / 5	X						EK1.01 - Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL PRESSURE Drywell integrity: Plant-Specific	4.1	39
295037 SCRAM Conditions Present and Reactor Power Above APRM Downscale or Unknown / 1	X						EK1.03 - Knowledge of the operational implications of the following concepts as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Boron effects on reactor power (SBLC)	4.2	40
295030 Low Suppression Pool Water Level / 5	X						EK1.03 - Knowledge of the operational implications of the following concepts as they apply to LOW SUPPRESSION POOL WATER LEVEL: Heat capacity	3.8	41
295038 High Off-site Release Rate / 9		X					EK2.06 - Knowledge of the interrelations between HIGH OFF-SITE RELEASE RATE and the following: Process liquid radiation monitoring system	3.4	42
295003 Partial or Complete Loss of AC / 6		X					AK2.02 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF A.C. POWER and the following: Emergency generators	4.1	43
600000 Plant Fire On-site / 8		X					AK2.03 - Knowledge of the interrelations between PLANT FIRE ON SITE and the following: Motors	2.5	44
295004 Partial or Total Loss of DC Pwr / 6			X				AK3.02 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER : Ground isolation/fault	2.9	45

**HC21-2**  
**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#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4			X				AK3.03 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION : Idle loop flow	2.8	46
700000 Generator Voltage and Electric Grid Disturbances			X				AK3.02 - Knowledge of the reasons for the following responses as they apply to GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES: Actions contained in abnormal operating procedure for voltage and grid disturbances.	3.6	47
295026 Suppression Pool High Water Temp. / 5				X			EA1.03 - Ability to operate and/or monitor the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Temperature monitoring	3.9	48
295023 Refueling Accidents Cooling Mode / 8				X			AA1.07 - Ability to operate and/or monitor the following as they apply to REFUELING ACCIDENTS : Fuel pool cooling and cleanup system	2.9	49
295025 High Reactor Pressure / 3				X			EA1.05 - Ability to operate and/or monitor the following as they apply to HIGH REACTOR PRESSURE: RCIC: Plant-Specific	3.7	50
295006 SCRAM / 1					X		AA2.04 - Ability to determine and/or interpret the following as they apply to SCRAM : Reactor pressure	4.1	51
295005 Main Turbine Generator Trip / 3					X		AA2.03 - Ability to determine and/or interpret the following as they apply to MAIN TURBINE GENERATOR TRIP : Turbine valve position	3.1	52
295019 Partial or Total Loss of Inst. Air / 8					X		AA2.01 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR : Instrument air system pressure	3.5	53
295018 Partial or Total Loss of CCW / 8		X					AK2.02 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER and the following: Plant operations	3.4	54
295016 Control Room Abandonment / 7				X			AA1.06 - Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT: Reactor water level	4.0	55
295031 Reactor Low Water Level / 2		X					EK2.12- Knowledge of the interrelations between REACTOR LOW WATER LEVEL and the following: Primary containment isolation system/NS4	4.5	56
295021 Loss of Shutdown Cooling / 4					X		AA2.02 - Ability to determine and/or interpret the following as they apply to LOSS OF SHUTDOWN COOLING : RHR/shutdown cooling system flow	3.4	57
295028 High Drywell Temperature / 5						X	2.4.18 - Emergency Procedures / Plan: Knowledge of the specific bases for EOPs	3.3	58
K/A Category Totals:	3	5	3	4	4/4	1/3	Group Point Total:	20/7	

**HC21-2**  
**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#
295015 Incomplete SCRAM / 1					X		AA2.01 - Ability to determine and/or interpret the following as they apply to INCOMPLETE SCRAM : Reactor power	4.3	83
295012 High Drywell Temperature / 5						X	2.1.25 - Conduct of Operations: Ability to interpret reference materials, such as graphs, curves, tables, etc.	4.2	84
295010 High Drywell Pressure / 5					X		AA2.02 - Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE : Drywell pressure	3.9	85
295008 High Reactor Water Level / 2	X						AK1.03 - Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR WATER LEVEL : Feed flow/steam flow mismatch	3.2	59
295022 Loss of CRD Pumps / 1		X					AK2.04 - Knowledge of the interrelations between LOSS OF CRD PUMPS and the following: Reactor water level	2.5	60
295009 Low Reactor Water Level					X		AA2.01 - Ability to determine and/or interpret the following as they apply to LOW REACTOR WATER LEVEL: Reactor water level	4.2	61
295034 Secondary Containment Ventilation High Radiation / 9				X			EA1.03 - Ability to operate and/or monitor the following as they apply to SECONDARY CONTAINMENT VENTILATION HIGH RADIATION : Secondary Containment Ventilation	4.0	62
295032 High Secondary Containment Area Temperature / 5					X		EA2.01 - Ability to determine and/or interpret the following as they apply to HIGH SECONDARY CONTAINMENT AREA TEMPERATURE : Area temperature	3.8	63
295020 Inadvertent Cont. Isolation / 5 & 7						X	2.1.31 - Conduct of Operations: Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.	4.6	64
500000 High CTMT Hydrogen Conc. / 5		X					EK2.03 - Knowledge of the interrelations between HIGH CONTAINMENT HYDROGEN CONCENTRATIONS and the following: Containment Atmosphere Control System	3.3	65
K/A Category Totals:	1	2	0	1	2/2	1/1	Group Point Total:		7/3



**HC21-2  
Written Examination Outline  
Plant Systems – Tier 2 Group 1**

System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	Imp	Q#
262001 AC Electrical Distribution			X									3.5	5
262002 UPS (AC/DC)			X									2.9	6
259002 Reactor Water Level Control				X								3.1	7
205000 Shutdown Cooling				X								3.6	8
263000 DC Electrical Distribution					X							2.6	9
264000 EDGs					X							3.4	10
212000 RPS						X						2.8	11
211000 SLC						X						3.2	12
217000 RCIC							X					3.7	13
400000 Component Cooling Water							X					2.8	14



**HC21-2  
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#
261000 SGTS								X				3.2	15
215005 APRM / LPRM								X				2.7	16
223002 PCIS/Nuclear Steam Supply Shutoff									X			3.5	17
206000 HPCI									X			3.6	18
300000 Instrument Air										X		2.6	19
215004 Source Range Monitor										X		3.2	20
209001 LPCS										X		3.7	21
211000 SLC											X	4.4	22
400000 Component Cooling Water System (CCWS)				X								3.4	23
259002 Reactor Water Level Control										X		3.8	24
262001 AC Electrical Distribution											X	4.6	25

**HC21-2  
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#
261000 SGTS									X			3.2	26
K/A Category Totals:	2	2	2	3	2	2	2	2/2	3	4	2/3	Group Point Total: 26/5	

A3.02 - Ability to monitor automatic operations of the STANDBY GAS TREATMENT SYSTEM including: Fan start

**HC21-2  
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	A 2	A 3	A 4	G	Imp	Q #
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215002 RBM								X						A2.03 - Ability to (a) predict the impacts of the following on the ROD BLOCK MONITOR SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of associated reference APRM channel: BWR-3,4,5	3.3	91
290003 Control Room HVAC 3.3.7.1											X			2.4.31 - Emergency Procedures / Plan: Knowledge of annunciator alarms, indications, or response procedures.	4.1	92
272000 Radiation Monitoring											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	93
256000 Reactor Condensate	X													K1.07 - Knowledge of the physical connections and/or cause- effect relationships between REACTOR CONDENSATE SYSTEM and the following: SJAE condenser	2.9	27
223001 Primary CTMT and Aux.		X												K2.10 - Knowledge of electrical power supplies to the following: Drywell chillers: Plant-Specific	2.7	28
234000 Fuel Handling Equipment K3.03			X											K3.04 - Knowledge of the effect that a loss or malfunction of the FUEL HANDLING EQUIPMENT will have on following: Reactor manual control system: Plant-Specific	2.9	29
271000 Off-gas				X										K4.01 - Knowledge of OFFGAS SYSTEM design feature(s) and/or interlocks which provide for the following: Dilution of hydrogen gas concentration	2.9	30
230000 RHR/LPCI: Torus/Pool Spray Mode						X								K5.04 - Knowledge of the operational implications of the following concepts as they apply to RHR/LPCI: TORUS/SUPPRESSION POOL SPRAY MODE : Evaporative cooling	2.5	31
216000 Nuclear Boiler Inst.							X							K6.01 - Knowledge of the effect that a loss or malfunction of the following will have on the NUCLEAR BOILER INSTRUMENTATION : A.C. electrical distribution	3.1	32

**HC21-2  
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 #
202001 Recirculation							X					3.1	33
201003 Control Rod and Drive Mechanism								X				4.1	34
219000 RHR/LPCI: Torus/Pool Cooling Mode									X			3.3	35
201006 RWM										X		3.0	36
204000 RWCU											X	3.8	37
201002 RMCS			X									3.4	38
<b>K/A Category Totals:</b>	1	1	2	1	1	1	1	1/1	1	1	1/2	<b>Group Point Total:</b>	
												12/3	

Facility:		HC21-2		Date:		02/01/21	
Category	K/A #	Topic	RO		SRO-Only		
			IR	Q#	IR	Q#	
1. Conduct of Operations	2.1.45	Ability to identify and interpret diverse indications to validate the response of another indicator.			4.3	94	
	2.1.23	Ability to perform specific system and integrated plant procedures during all modes of plant operation.			4.4	98	
	2.1.7	Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrument interpretation.	4.4	66			
	2.1.32	Ability to explain and apply all system limits and precautions.	3.8	67			
	Subtotal			2	2		
2. Equipment Control	2.2.11	Knowledge of the process for controlling temporary design changes.			3.3	95	
	2.2.7	Knowledge of the process for conducting special or infrequent tests.			3.6	99	
	2.2.12	Knowledge of surveillance procedures.	3.7	68			
	2.2.15	Ability to determine the expected plant configuration using design and configuration control documentation, such as drawings, line-ups, tag-outs, etc.	3.9	69			
	2.2.42	Ability to recognize system parameters that are entry-level conditions for Technical Specifications.	3.9	74			
	Subtotal			3	2		
3. Radiation Control	2.3.6	Ability to approve release permits.			3.8	96	
	2.3.7	Ability to comply with radiation work permit requirements during normal or abnormal conditions.	3.5	70			
	2.3.13	Knowledge of Radiological Safety Procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high radiation areas, aligning filters, etc.	3.4	71			

	2.3.14	Knowledge of radiation or containment hazards that may arise during normal, abnormal, or emergency conditions or activities.	3.4	75		
	Subtotal			3		1
4. Emergency Procedures / Plan	2.4.40	Knowledge of SRO responsibilities in emergency plan implementation.			4.5	97
	2.4.6	Knowledge of EOP mitigation strategies.			4.7	100
	2.4.35	Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects.	3.8	72		
	2.4.28	Knowledge of procedures relating to a security event.	3.2	73		
		Subtotal			2	
Tier 3 Point Total				10		7

Tier / Group	Randomly Selected K/A	Reason for Rejection
2/1 (#2)	239002/K1.06	<p>K1.02 - Knowledge of the physical connections and/or cause-effect relationships between RELIEF/SAFETY VALVES and the following: SPDS/ERIS/CRIDS/GDS: Plant-Specific</p> <p>There is no specific physical connection to SPDS/ERIS/CRIDS/GDS with a cause-effect relationship for SRVs. No license level question can be written for this specific K/A for SRVs.</p> <p>Randomly reselected: Drywell instrument air/ drywell pneumatics: Plant-Specific (PCIG)</p>
2/1 (#14)	400000/A1.04	<p>A1.03 - Ability to predict and / or monitor changes in parameters associated with operating the CCWS controls including: CCW Pressure</p> <p>There is no pressure setpoint or value for the CCW systems that is specifically monitored. Flows, Temperatures, and Surge Tank levels are continuously monitored along with setpoints.</p> <p>Randomly reselected: Surge Tank Level</p>
2/1 (#21)	209001/A4.11	<p>2.1.23 - Conduct of Operations: Ability to perform specific system and integrated plant procedures during all modes of plant operation.</p> <p>There is no reference to the Core Spray system in the integrated procedures at a level for a license exam question.</p> <p>Randomly reselected: Ability to manually operate and/or monitor in the control room: System flow.</p>
2/1 (#22)	211000/ 2.1.30	<p>2.2.38 - Equipment Control: Knowledge of conditions and limitations in the facility license.</p> <p>This K/A references Tech Specs which is at the SRO level.</p> <p>Randomly reselected: Conduct of Operations: Ability to locate and operate components, including local controls.</p>
2/1 (#24)	259002/A4.01	<p>A4.09 - Ability to manually operate and/or monitor in the control room: TDRFP lockout reset: TDRFP</p> <p>There is no lockout parameter for the RFP's at Hope Creek.</p> <p>Randomly reselected: All individual component controllers in the manual mode.</p>

2/1 (#25)	262001/ 2.1.20	<p>2.1.27 - Conduct of Operations: Knowledge of system purpose and / or function.</p> <p>Cannot write a license level question with a purpose of a system. Too low of a cognitive level question.</p> <p>Randomly reselected: Ability to interpret and execute procedure steps.</p>
2/1 (#26)	261000/ A3.02	<p>A1.05 - Ability to predict and/or monitor changes in parameters associated with operating the STANDBY GAS TREATMENT SYSTEM controls including: Primary containment oxygen level: Mark-I&amp;II</p> <p>There is no Oxygen parameter that directly interfaces with the FRVS system.</p> <p>Randomly reselected: A3.02 - Ability to monitor automatic operations of the STANDBY GAS TREATMENT SYSTEM including: Fan start</p>
2/2 (#38)	201002/ K3.01	<p>K3.02 - Knowledge of the effect that a loss or malfunction of the REACTOR MANUAL CONTROL SYSTEM will have on following: Rod block monitor: Plant-Specific</p> <p>Any malfunction or inoperability of the RMCS would not recognize any input from the RBM. Cannot write a license level question without plausible distractors.</p> <p>Randomly selected: K3.01- Ability to move control rods.</p>
1/1 (#40)	295037/ EK1.03	<p>EK1.06 - Knowledge of the operational implications of the following concepts as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Cooldown effects on reactor power.</p> <p>A cooldown of the RPV prior to being shutdown under all conditions would not be allowed IAW emergency operating procedures.</p> <p>Randomly reselected: Boron effects on reactor power (SBLC).</p>
1/1 (#42)	295038/ EK2.06	<p>EK2.12 Knowledge of the interrelations between HIGH OFF-SITE RELEASE RATE and the following: Feedwater leakage control: BWR-6</p> <p>There are no Hope Creek procedures that reference Feedwater leakage control with Offsite Release. Cannot write a license level question for this K/A.</p> <p>Randomly reselected: Process liquid radiation monitoring system</p>



1/1 (#45)	295004/ AK3.02	<p>AK3.01 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER : Load shedding</p> <p>There is no automatic "load shedding" due to a loss of D.C. Load shedding occurs from a loss of A.C.</p> <p>Randomly reselected: Ground isolation/fault determination</p>
1/1 (#49)	295023/ AA1.02	<p>AA1.07 - Ability to operate and/or monitor the following as they apply to REFUELING ACCIDENTS : Standby gas treatment/FRVS</p> <p>The above concept (K/A) is similar to Question #26 which would cause "Double Jeopardy" on the exam.</p> <p>Randomly reselected: Fuel pool cooling and cleanup system</p>
1/1 (#51)	295006/ AA2.04	<p>AA2.01 - Ability to determine and/or interpret the following as they apply to SCRAM : Reactor power</p> <p>L.O.D for a question on what happens to reactor power on a scram (power lowers, APRMs downscale) would be 1.</p> <p>Randomly reselected: Reactor pressure</p>
1/1 (#58)	295028 2.4.18	<p>2.4.6 - Emergency Procedures / Plan: Knowledge of EOP mitigation strategies.</p> <p>EOP mitigation strategies are at the SRO level due to selection of EOP procedures and actions within the legs of the EOP procedures to satisfy the mitigation strategy.</p> <p>Randomly selected: Knowledge of the specific bases for EOPs.</p>
2/1 (#89)	300000 2.4.11	<p>2.4.41- Emergency Procedures / Plan: Knowledge of the emergency action level thresholds and classifications.</p> <p>There are no ECG/classifications for the Instrument Air System IAW the Hope Creek EALs and RALs.</p> <p>Randomly reselected: Knowledge of abnormal condition procedures.</p>

<p>2/2 (#91)</p>	<p>215002/ A2.03</p>	<p>A2.01- Ability to (a) predict the impacts of the following on the ROD BLOCK MONITOR SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:                      Withdrawal of control rod in high power region of core: BWR-3,4,5</p> <p>There is no procedure that directly addresses or mitigates the consequences of a control rod withdrawal in the higher power region of the core. This is more of a GFES type K/A.</p> <p>Randomly reselected: Loss of associated reference APRM channel: BWR-3,4,5                      Loss of associated reference APRM channel: BWR-3,4,5 Loss of associated reference APRM channel: BWR-3,4,5 Loss of associated reference APRM channel: BWR-3,4,5</p>
<p>3/4 (#97)</p>	<p>2.4.40</p>	<p>2.4.26 Knowledge of facility protection requirements, including fire brigade and portable firefighting equipment usage.</p> <p>There is no fire brigade (separate fire department) at Hope Creek. Cannot write a SRO license level question to this K/A.</p> <p>Randomly reselected: Knowledge of SRO responsibilities in emergency plan implementation.</p>