JOB PERFORMANCE MEASURE

STATION: Hope Creek

Copy _____ of _____

SYSTEM: Administrative

TASK NUMBER: 2990010101

TASK: Perform The Watchstanding Duties Of The Nuclear Control Room Operator

JPM NUMBER: 305H-JPM.ZZXXX   **REVISION:** 00

SAP BET: NOH05JPZZXXE

K/A NUMBER: 2.1.5   Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.
(CFR: 41.10 / 43.5 / 45.12)

                              IMPORTANCE FACTOR: RO: 2.9   SRO: 3.9

ALTERNATE PATH: ☐

APPLICABILITY: RO ☒   SRO ☐

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: OP-AA-105-102, Rev. 11

TOOLS, AND EQUIPMENT: None

                              ESTIMATED COMPLETION TIME: _____15_____ Minutes

          TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____   **GRADE:** SAT ☐   UNSAT ☐

                              ACTUAL COMPLETION TIME: _____ **Minutes**

          ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ **Minutes**

REASON IF UNSATISFACTORY:

          EVALUATOR: _____   **DATE:** _____
                              Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2990010101

TASK: Perform The Watchstanding Duties Of The Nuclear Control Room Operator

INITIAL CONDIITONS:

1. You were issued a Reactor Operator (RO) License on May 15, 2016, and assigned as the Tagging NCO in Work Control.
2. The computer system is down and the status of your active license must be verified.
3. All shifts stood have been confirmed to be part of the Narrative Log.
4. All shifts included turnovers.

INITIATING CUE:

1. Fill out OP-AA-105-102 Attachment 1 for the third quarter of 2016.
2. Assume no other watchstanding will occur for the remainder of the third quarter of 2016.
3. **REVIEW** AND **DETERMINE** IF you will meet the requirements to maintain an active license into the fourth quarter of 2016.
4. Document how you did, or did not, meet the requirements on the following page.

Examiner's Note: Provide past work schedule and a copy of OP-AA-105-102.

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
OP-AA-105-102				
4.	<u>MAIN BODY</u>			
<u>**NOTE:**</u>	The quarterly shift watch requirement may be completed with a combination of complete 8 and 12-hour shifts (in a position appropriately credited for watch-standing proficiency as discussed below) at sites having a mixed shift schedule, and watches shall not be truncated when the minimum quarterly requirement (56 hours) is satisfied. (NUREG 1021, Revision 9)	Operator reads NOTE.		
4.1	<u>Active License Maintenance</u>			

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
NOTE:	As specified in 10 CFR 55.4, "Definitions," "Actively performing the functions of an operator or senior operator," means that "the individual carries out and is responsible for the duties covered by that position". For RO and SRO watches being credited for license maintenance, administrative tasks not related to the licensed position should be minimized. Non-position related administrative tasks performed outside the control room, e.g., NRC physicals, all hands meetings, etc., shall not be scheduled during a credited shift. Non-position related administrative tasks performed inside the control room are allowed during a credited shift provided the activities do not impact the individual's ability to perform assigned licensed responsibilities; i.e., the individual is in a position to provide prompt assistance to or oversight of the RO at the controls.	Operator reads NOTE.		
4.1.1.	**MAINTAIN** an active license by actively performing the functions of RO, SRO or LSRO. 1. RO licenses by performing the duties of the Unit RO and/or Unit PO for a minimum of seven 8-hour or five 12-hour shifts per calendar quarter, including turnover to the next shift.	Operator reads Step.		
4.1.2	**DOCUMENT** the required number of shifts on Attachment 1, Active License Tracking Log or similar computer-based tracking method.	***Operator documents the shifts on 7/10, 7/31, and 8/6 as the required shifts on Attachment 1.** Examiner Note: Refer to Examiner's Copy of Attachment 1. The order of shifts is not critical.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		*Operator documents that the requirements to maintain an active license into the fourth quarter have NOT been met. Examiner Note: Operator is considered current for the third quarter.		
		*Operator documents that additional watches need to be completed by September 30, 2016 to maintain proficiency.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN RECORD the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete". **STOP TIME:** _____			

Task Standard: Operator determines license maintenance requirements have not been met. Specifically only 4 12 hour shifts were worked in the second quarter.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. [IER L1-11-3 Rec. 3b]

JOB PERFORMANCE MEASURE

STATION: Hope Creek

Copy _____ of _____

SYSTEM: Administrative

TASK NUMBER: 4010260201

TASK: Complete A Sunday Shift Routine Log

JPM NUMBER: 305H-JPM.ZZ0XX   **REVISION:** 00

SAP BET: NOH05JPZZXXE

K/A NUMBER: 2.1..25   Ability to interpret reference materials, such as graphs, curves, tables, etc.
(CFR: 41.10 / 43.5 / 45.12)

                                 IMPORTANCE FACTOR: RO: 3.9   SRO: 4.2

ALTERNATE PATH: ☐

APPLICABILITY: RO ☒   SRO ☐

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: OP-HC-108-116-1001 Rev. 3   HC.OP-DL.ZZ-0020, Rev. 38

TOOLS, AND EQUIPMENT: OP-HC-108-116-1001; Straight-edge, Calculator

                              ESTIMATED COMPLETION TIME: _____7_____ Minutes

            TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____   **GRADE:** SAT ☐   UNSAT ☐

                                 ACTUAL COMPLETION TIME: _____ Minutes

                ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ Minutes

REASON IF UNSATISFACTORY:

           EVALUATOR: _____   **DATE:** _____
                                Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 4010260201

TASK: Complete A Sunday Shift Routine Log

INITIAL CONDIITONS:

1. Plant is operating at 100% power fifteen (15) days following a refueling outage.
2. HC.OP-DL.ZZ-0020, Sunday Shift Routine Log, is in progress at Step 3.6.7.
3. CRIDS A3175, FUEL POOL HX COMMON INLET TEMP, indicates 83F.
4. The Reactor Engineer is not available.

INITIATING CUE:

DETERMINE the time for the Hope Creek Spent Fuel Pool (SFP) to reach 200 degrees Fahrenheit (bulk temperature) in the event that normal cooling is lost IAW OP-HC-108-116-1001. **ENTER** your determination on Attachment 3.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue, modified OP-HC-108-116-1001, <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
OP-HC-108-116-1001 **4. MAIN BODY**				
4.1	Utilizing Attachment 1, Spent Fuel Pool Decay Heat Load Determination, determine the approximate SFP decay heat rate for the current date.	***#Operator determines that the approximate SFP decay heat rate for the current date is approximately 9.5 ±0.1 MBtu/hr.**		
4.2	Select the series of curves from Attachment 2 for loss of cooling, with the initial pool temperature that most closely matches current pool temperature, (round up to the next highest Fuel Pool Temperature curve).	***#Operator selects Page 4 of ATTACHMENT 2.**		
4.3	Utilizing the decay heat rate determined in 4.1, determine the time in hours for the SFP to reach 200 °F in the event normal cooling is lost. IF necessary, interpolate the heat load between lines.	***# Operator determines the time in hours for the SFP to reach 200°F in the event normal cooling is lost to be 44 ±2 hours,** and enters this time on Attachment 3.		
4.4	Submit the completed time to CRS for review.	Operator submits the completed time to CRS for review.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator determines the Spent Fuel Pool decay heat load IAW OP-HC-108-116-1001.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

2016 NRC EXAM **RO-JPM A3**	Copy _____ of _____

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: 2990020301

TASK: Perform A Manual Tagout With SAP System Inoperable

JPM NUMBER: 305H-JPM.ZZXXX   **REVISION:** 00

SAP BET: NOH05JPZZXXE

K/A NUMBER: 2.2.41   Ability to obtain and interpret station electrical and mechanical drawings. (CFR: 41.10 / 45.12 / 45.13)

IMPORTANCE FACTOR: RO: 3.5   SRO: 3.9

ALTERNATE PATH: ☐

APPLICABILITY: RO ☒   SRO ☐

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: M-51-1 Sheets 1 and 2, Rev. 50/44   OP-AA-109-115, Rev. 7

TOOLS, AND EQUIPMENT: Highlighters; M-51-1 Sheets 1 and 2 [Large Size]

ESTIMATED COMPLETION TIME: _____17_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____   **GRADE: SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
                          Signature

Page 1 of 11

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2990020301

TASK: Perform A Manual Tagout With SAP System Inoperable

INITIAL CONDIITONS:
1.   The plant is operating at 100% power.
2.   The Residual Heat Removal (RHR) System is in its normal standby lineup.
3.   HV-F007C, RHR Pump C Min Flow Valve, is scheduled for in-body repair work.

INITIATING CUE:
HV-F007C, RHR Pump C Min Flow Valve, and its associated piping and electrical components need to be **ISOLATED, VENTED, AND DRAINED** to perform the repairs. Using controlled station drawing M-51-1, sheets 1 and 2 (provided):
1.   **IDENTIFY** the Mechanical components that are required to be tagged, and their required positions.
2.   **IDENTIFY** the Electrical components that are required to be tagged, and their required positions,

NOTE: The following are NOT required to be identified:
*   Electrical Breaker number(s)
*   Control switches
*   Type of tag (Red blocking Tag, Worker Blocking Tag, etc)
*   Current position
*   Tag Sequence

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator: the initiating cue; M-51-1, Sheets 1 and 2; <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
OP-AA-109-115				
4.1.2	**Determine Blocking Points and Tag Types (Initiator)** 1. Review the following: – Controlled Documents and Drawings from the TDR or DCRMS. If…	Operator reviews provided M-51-1, Sheets 1 and 2.		
	2. Perform the following: – Select blocking points and tag types.	Operator determines the blocking points AND required positions by reviewing the controlled drawing.		
		Applicant identifies the following mechanical isolation valves:		
		Applicant identifies the following mechanical isolation valves **AND** the required positions: • *V132, SHUT • *V317, SHUT • *HV-F024A (V124), SHUT • *HV-F010A (V125), SHUT • *HV-F011A (V126), SHUT • *V205, SHUT • *HV-F007A (V128), SHUT		
		Applicant identifies the following mechanical VENT **AND** the required positions: • *V372, OPEN • *V373, OPEN Examiner Note: V338 and V339 would satisfy this vent path.		

Page 3 of 11

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		Applicant identifies the following mechanical DRAIN valves **AND** the required positions: • *V554, OPEN • *V555, OPEN		
		Applicant identifies the following ELECTRICAL components **AND** the required positions: • *HV-F007C (V131) MOV breaker, OPEN • *HV-F024A (V124) MOV breaker, OPEN • *HV-F010A (V125) MOV breaker, OPEN • *HV-F007A (V128) MOV breaker, OPEN Examiner Note: Breaker numbers are not required.		
		Examiner Note: The Applicant may identify the following additional components as part of the tagout for equipment protection or safety precaution (not considered critical): • HV-F007C (V131), OPEN (to allow proper draining on both upstream/downstream sides of valve) • CP202 RHR Pump 4kV Breaker, OPEN/PTL • AP202 RHR Pump 4kV Breaker, OPEN/PTL • V338 AND/OR V339, CLOSED (test connection). Unless opened as vent path. • V9988 AND V9989, CLOSED (flow ports for FE4436C) • AP202 and CP202 control room hand switches		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator **IDENTIFIES** the mechanical and electrical components, and their required positions, to **ISOLATE**, **VENT**, <u>AND</u> **DRAIN** the affected pipe using controlled station Mechanical Drawings as noted.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Conduct of Operations

Copy _____ of _____

TASK NUMBER: 4010010201

TASK: Complete the Daily Surveillance Logs

JPM NUMBER: 305H-JPM.ZZ017   **REVISION:** 04

SAP BET: NOH05JPZZ17E

K/A NUMBER: 2.1.18 Ability to make accurate, clear, and concise logs, records, status boards, | and reports. (CFR: 41.10 / 45.12 / 45.13)

                              IMPORTANCE FACTOR: RO: 3.6   SRO: 3.8

ALTERNATE PATH: ☐

APPLICABILITY: RO ☐   SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-DL.ZZ-0026 Rev. 153

TOOLS, AND EQUIPMENT: HC.OP-DL.ZZ-0026; HC.OP-IS.BD-0001

                              ESTIMATED COMPLETION TIME: ___13___ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: ___N/A___ Minutes

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JPM PERFORMED BY: _____   **GRADE: SAT** ☐   **UNSAT** ☐

                              ACTUAL COMPLETION TIME: _____ **Minutes**

              ACTUAL TIME CRITICAL COMPLETION TIME: ___N/A___ **Minutes**

REASON IF UNSATISFACTORY:

          EVALUATOR: _____   **DATE:** _____
                              Signature

JOB PERFORMANCE MEASURE

SYSTEM: Conduct of Operations

TASK NUMBER: 4010010201

TASK: Complete the Daily Surveillance Logs

INITIAL CONDIITONS:
1. The Plant is in OPCON 1 at 35% power
2. A plant startup from a forced outage is in progress IAW HC.OP-IO.ZZ-0003.
3. RCIC IST is in progress and being turned over.
4. River level is at 96.1 feet due to recent heavy rains.
5. River temperature is 83 degF but is NOT expected to exceed 85 degF.
6. All EDGs, SACS, and SSW pumps are operable.
7. The SPV Effluent RMS Skid (all components) is inoperable and has been C/T for repairs.

INITIATING CUE:

You are the Control Room Supervisor.
IMPLEMENT the log at the beginning of today by completing Attachment 1, Section A; Log Initiation, **IDENTIFYING** those Attachments that require performance due to the present conditions.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator the initiating cue; a paper copy of HC.OP-DL.ZZ-0026; Attachment 1 of HC.OP-DL.ZZ-0026; AND ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME:			
	If requested, provide copy of HC.OP-IS.BD-0001.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 2.1.		
2.1	**Shift Manager/Control Room Supervisor -** the SM/CRS is responsible to implement, review, and ensure completion of the log including (CRS has primary responsibility for all log reviews and documentation): 2.1.1 The SM/CRS shall implement the log at the beginning of each day by completing Attachment 1, Section A; Log Initiation, listing those Attachments that require performance due to present conditions. Also, the present Operational Condition shall be listed.	Examiner Note: Examiner Copy Exhibit 1 is provided for reference. Operator determines Attachment 1 is required due to current Operational Condition.		
		Operator checks Attachment 1 on Attachment 1 Section A Log Initiation.		
		Operator determined Attachment 3m is required due to RCIC IST adding heat to the Suppression Pool. ***Operator checks Attachment 3m on Attachment 1 Section A Log Initiation.**		
		Operator determines Attachment 3k is required IAW Item 1 and T/S 4.7.3 due to current River Water level. ***Operator checks Attachment 3k on Attachment 1 Section A Log Initiation.**		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		Operator determines Attachment 3h is required IAW Item 1 and T/S 4.7.1.3.b.1 due to current River Water temperature. *Operator checks Attachment 3h on Attachment 1 Section A Log Initiation.		
		Operator determines Attachment 3t is required IAW Item 42 due to SPV RMS Inoperable. *Operator checks Attachment 3t on Attachment 1 Section A Log Initiation.		
		Operator places a "1" in the Operational Condition blank.		
		Operator determines Attachment 3z is required for tracking purposes. Operator checks Attachment 3z on Attachment 1 Section A Log Initiation.		
		Operator checks Attachment 5 on Attachment 1 Section A Log Initiation. Examiner Note: Although not specifically required by the current conditions, Attachment 5 is typically used each day to track surveillance procedures and would be needed the first time a surveillance procedure with an action time is actually logged on.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN RECORD the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete". STOP TIME: _____		

Task Standard: Operator implements the log at the beginning of the day by completing Attachment 1, Section A, of HC.OP-DL.ZZ-0026.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

· Copy _____ of _____

TASK NUMBER: 2990750302

TASK: Ensure The Operating Shift Is Adequately Manned

JPM NUMBER: 305H-JPM.ZZXXX   **REVISION:** 00

SAP BET: NOH05JPZZXXE

K/A NUMBER: 2.1.5   Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.
(CFR: 41.10 / 43.5 / 45.12)

IMPORTANCE FACTOR: RO: 2.9   SRO: 3.9

ALTERNATE PATH: ☐

APPLICABILITY: RO ☐   SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: OP-AA-105-102, Rev. 11

TOOLS, AND EQUIPMENT: OP-AA-105-102

ESTIMATED COMPLETION TIME: _____6_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____   **GRADE: SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
                        Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2990750302

TASK: Ensure The Operating Shift Is Adequately Manned

INITIAL CONDIITONS:
1. John Smith is in the process of license re-activation for the Control Room Supervisor position in accordance with OP-AA-105-102, NRC Active License Maintenance. Refer to the provided OP-AA-105-102, Attachment 2.
2. The Operations Training Manager has signified that the license holder is current in the Requal Program and Completion of plant-specific activation guide.
3. The License Coordinator has verified that medical/respiratory protection qualifications are current.
4. SRO John Smith and the Operations Support Manager have verified that the license holder is compliant with & concurs with restrictions on current NRC license.
5. SRO John Smith has completed the following:
   - Main Control Room Tour: Completed with a current CRS on July 3, 2016
   - Turbine Building Tour: Completed with the on watch SM on July 14, 2016
   - Reactor Building Tour: Completed with a current NCO on July 15, 2016
   - Station Service Water and Yard Tour: Completed with the on watch Yard Equipment Operator on July 20, 2016
   - Auxiliary Building Tour: Completed with a Current CRS on August 4, 2016.
   - Reviewed Shift Turnover responsibilities / procedure.
6. SRO John Smith completed the Hours on Shift as shown.

INITIATING CUE:

Today is August 23, 2016.

PERFORM the Shift Manager review of the OP-AA-105-102, Attachment 2, for John Smith's SRO license renewal for the Control Room Supervisor position.

COMPLETE the review <u>AND</u> **SIGN** the attachment, <u>IF</u> appropriate, <u>OR</u> **LIST** all gaps that require resolution before the form can be signed.

JPM NUMBER:	ZZXXX	NAME:
REV NUMBER:	00	DATE:

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator: the initiating cue, a copy of OP-AA-105-102; the marked up Attachment 2 of OP-AA-105-102; <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			

OP-AA-105-102

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.2.3.	**DOCUMENT** the reactivation on Attachment 2, Reactivation of License Log . 1. The Shift Manager shall signify that the required OJT hours were completed.	*Operator reviews the Attachment 2 and the Initial Conditions. The operator identifies that not all tours were completed with an ACTIVE SRO license holder.		
		*Operator reviews the Attachment 2 and the Initial Conditions. The operator identifies that the watch hours stood as the CRS ONLY [20 hours total] could be used towards the 40 hours of watchstanding requirements.		
		* Operator does NOT sign as the Shift Manager.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete".** **STOP TIME:** _____			

Task Standard: Operator determines license reactivation requirements have not been met in accordance with OP-AA-105-102.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: WCD_CRS_001

TASK: Perform WCD Review and Pre-Approval

JPM NUMBER: 305H-JPM.ZZXXX   **REVISION:** 00

SAP BET: NOH05JPZZXXE

K/A NUMBER: 2.2.41   Ability to obtain and interpret station electrical and mechanical drawings. (CFR: 41.10 / 45.12 / 45.13)

                            IMPORTANCE FACTOR: RO: 3.5   SRO: 3.9

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☐   **SRO** ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: OP-AA-109-115, Rev. 9   M-51-1 Sheet 2, Rev. 44

TOOLS, AND EQUIPMENT: M-51-1 Sheet 1 and 2, Rev. 50/44 [Large size]; OP-AA-109-115, Rev. 9; Technical Specifications, Amendment 199

                                ESTIMATED COMPLETION TIME: _____16_____ Minutes

         TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____   **GRADE:** SAT ☐   UNSAT ☐

                              ACTUAL COMPLETION TIME: _____ Minutes

                ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ Minutes

REASON IF UNSATISFACTORY:

       EVALUATOR: _____   **DATE:** _____
                           Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: WCD_CRS_001

TASK: Perform WCD Review and Pre-Approval

INITIAL CONDIITONS:
1. The plant is operating at OPERATIONAL CONDITION 1.
2. The Core Spray, ADS, HPCI and RCIC systems are OPERABLE.
3. BC-HV-F007C, OP/V131 RHR PMP C MIN FL VLV, requires internal repair work.
4. SAP is unavailable.

INITIATING CUE:

You are the licensed Authorizing Supervisor designated to 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.

PERFORM the following:
1. Independently check that the WCD adequately isolates the equipment to be worked.
   NOTE: Electrical breaker numbers are <u>NOT</u> required to be identified. Additionally, the type of tag (Red blocking Tag, Worker Blocking Tag, etc.), and the sequence of blocking points, are <u>NOT</u> required to be identified.
2. **REVIEW** Technical Specifications for applicable Limiting Conditions for Operation (LCOs):
   • **IDENTIFY** <u>AND</u> **ENTER ON THE WCD** <u>ONLY</u> those Technical Specifications required to be entered (ACTIVE) when the system is to be placed in this configuration.
   • Of the LCOs entered, **IDENTIFY** the most limiting.
3. **PRE-APPROVE** the WCD; **OR** <u>IF</u> changes are required, <u>THEN</u> **IDENTIFY/ENTER** the changes on the WCD.

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue; M-52-1, sheets 1 and 2; OP-AA-109-115; marked up OP-AA-109-115 FORMS 1 AND 4; <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.2.3.		
4.2.3.	**Perform WCD Independent Review and Pre-Approval (Approving Supervisor)** 1. The Approving Supervisor shall be designated by the Operations Director to approve WCDs.	Operator reads Step.		
<u>**NOTE:**</u>	Independence is maintained as follows: • Do not discuss the clearance with the clearance writer until the approving supervisor has developed his or her own idea of the clearance boundary • Use appropriate references (procedures, drawings, manuals, planning documents, etc.) • Separately assess and understand the work scope • Separately assess and understand the hazards • Separately walk down the work area, if needed • Mark up prints from a clean copy, especially for clearances on complex equipment where no historical/archived clearance is referenced • Do not read the draft boundary tag list until the above is complete	Operator reads NOTE.		
	2. The Initiator and Approving Supervisor shall be different individuals and independent. At least one individual must be a currently licensed SRO. **[CD-538E]**	Operator reads Step.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	3. Perform the following: – Review applicable documents and drawings. – Independently check that the WCD adequately isolates the equipment to be worked.	Examiner Note: Only specific portions of 4.2.3.3 are being performed. ***Operator: Reviews M-52-1 and the WCD; Determines that H1BC -1-BC-V205 in the closed position needs to be added to the WCD; Adds this information to the WCD.** Examiner Note: Tagging Point Description is NOT critical.		
CUE:	<u>If</u> operator requests additional information to complete the Tagging Point Description, STATE exact description is not required at this time.			
	– Review applicable Limiting Conditions for Operation (LCO) and ensure that potential Technical Specification Action Statements are identified.	***Operator lists the following Technical Specification on the WCD:** • **TS 3.6.2.3** Action a.-One suppression pool cooling loop inoperable – 72 hr. LCO Examiner Note: The following Technical Specifications may be listed by are NOT critical: 3.5.1.b; 3.6.2.2; 3.6.2.3; 3.6.3; 3.3.7.4; and 3.3.7.5.		
	4. <u>IF</u> changes are required, <u>THEN</u> return the tagging package to the Initiator.	Operator does NOT sign for approval, and returns the package.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator completes the required portions of the Approving Supervisor's Independent Review of the WCD in accordance with OP-AA-109-115.				

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

	2016 NRC EXAM RO/SRO-JPM A4	Copy _____ of _____

TASK NUMBER: 4000270401

TASK: Respond To An Abnormal Release Of Gaseous Radioactivity

JPM NUMBER: 305H-JPM.ZZ019   **REVISION:** 04

SAP BET: NOH05JPZZ19E

K/A NUMBER: 2.3.11 Ability to control radiation releases. (CFR: 41.11 / 43.4 / 45.10)

                                          IMPORTANCE FACTOR: RO: 3.8   SRO: 4.3

ALTERNATE PATH: ☐

APPLICABILITY: RO ☒   SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.CONT-0004, Rev. 6   HC.OP-DL.ZZ-0026, Rev. 152

TOOLS, AND EQUIPMENT: Calculator

                         ESTIMATED COMPLETION TIME: _____ 10 _____ Minutes

          TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____ N/A _____ Minutes

---

JPM PERFORMED BY: _____   **GRADE: SAT** ☐   **UNSAT** ☐

                              ACTUAL COMPLETION TIME: _____ **Minutes**

             ACTUAL TIME CRITICAL COMPLETION TIME: _____ N/A _____ **Minutes**

REASON IF UNSATISFACTORY:

          EVALUATOR: _____   **DATE:** _____

                                       Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 4000270401

TASK: Respond To An Abnormal Release Of Gaseous Radioactivity

INITIAL CONDIITONS:

1. North Plant Vent (NPV) Stack radiation monitoring activity was rising on RM-11 point 9RX590.
2. SPDS is unavailable.
3. HC.OP-AB.CONT-0004 is being executed to determine and stop the release of activity.
4. NPV Exh Flow instrumentation channel 9AX300 is inoperable. Flow is being estimated in accordance with HC.OP-DL.ZZ-0026(Q), Attachment 3u (Provided).
5. Monitor Item 136 display is 001.

INITIATING CUE:

DETERMINE the Release Rate of **NOBLE GAS** from the **NPV** in accordance with HC.OP-AB.CONT-0004, Action A.4.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue; HC.OP-DL.ZZ-0026(Q), Attachment 3u; AND **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-AB.CONT-0004.		
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be A.4		
A.4	**DETERMINE** the Total Release Rates of Noble Gas and Iodine as follows: • USE the SPDS Noble Gas Total. <u>OR</u> • USE one of the Formulas in Table "A".	Operator determines that to calculate the Noble Gas release from the NPV the formula in Table "A" must be used.		

<u>IF</u> the effluent (µCi/sec) channel on the RM-11 is NOT operating for a specific plant vent, <u>THEN</u> **CALCULATE** the Noble Gas release rate for that vent using the following:

$$\underline{\qquad\qquad} \;\; X \; \underline{\qquad\qquad} \;\; X \;\; 472 \;\; = \;\; \underline{\qquad\qquad}$$
µCi/cc (n.g.)   Plant Vent Exh   µCi/sec (n.g.)
                       Flow in cfm

Where:

µCi/cc (n.g.)	The concentration of Noble Gas obtained from the RM-11 (the operable channel is indicated on monitor Item 136 at RM-23A**) <u>OR</u> from an actual sample of the plant vent
472	The conversion factor in units of cc/sec/cfm
µCi/sec (n.g.)	The calculated release rate from the specified plant vent (Noble Gas)

** Monitor Item 136 display: (This monitor item is not accessible from the RM-11)
001 = Channel 1, Low Range
002 = Channel 2, Mid Range
003 = Channel 3, High Range

| | | Operator manipulates the RM-11 terminal to obtain the value of NPV Noble Gas release from the 9RX602 Low Range detector and enters the value into the formula. *3.65E-5 uCi/cc. | | |

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
		Operator transfers the Plant Vent Exh Flow value from Attachment 3u of HC.OP-DL.ZZ-0026 (provided). *49613.9 CFM (49614 CFM acceptable)		
		Operator calculates the NPV Noble Gas release rate. Calculated Value = 3.65E-5 µCi/cc * 49613.9 CFM * 472= *854.7 µCi/sec (+ 0.5)		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____		

Task Standard: Operator calculates the Release Rate of NOBLE GAS from the NPV in accordance with HC.OP-AB.CONT-0004, Action A.4.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

Copy _____ of _____

SYSTEM: Emergency Procedures/Plan

TASK NUMBER: 2000500302/2000020505

TASK: Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition

JPM NUMBER: 305H-JPM.ECG006   **REVISION:** 10

SAP BET: NOH05JPCL06E

K/A NUMBER: 2.4.38   Ability to take actions called for in the facility emergency plan, including | supporting or acting as emergency coordinator if required. (CFR: 41.10 / 43.5 / 45.11)

<div align="center">

IMPORTANCE FACTOR: RO: 2.4   SRO: 4.4

</div>

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☐   **SRO** ☒

EVALUATION SETTING/METHOD: Classroom(Simulator)/Perform

REFERENCES: EP-HC-111-100 Rev. 18   EP-HC-111-101 Rev. 1

EAL Flowcharts and EAL Wallcharts   HCGS ECG – EAL Technical Basis

TOOLS, AND EQUIPMENT: EP-HC-111-F*[1-5, 24]; EP-HC-111-101; EAL Flowcharts and EAL Wallcharts: HCGS ECG – EAL Technical Basis; Phone with EP Aid-031-Simulator Only.

<div align="right">

ESTIMATED COMPLETION TIME: _____16_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: ___15/13___ Minutes

</div>

JPM PERFORMED BY: _____   **GRADE:** **SAT** ☐   **UNSAT** ☐

<div align="right">

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: _____/_____ **Minutes**

</div>

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
<div align="center">Signature</div>

JOB PERFORMANCE MEASURE

SYSTEM: Emergency Procedures/Plan

TASK NUMBER: 2000500302/2000020505

TASK: Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition

INITIAL CONDIITONS:

1. The plant was operating at 100% power with Plant Effluent activity of:
    - 1.17E+01 µCi/sec Noble Gas
    - 1.17E-02 µCi/sec I-131
2. Hope Creek experienced an earthquake which indicated a magnitude of > 0.1g.
3. The earthquake was felt inside the Main Control Room.
4. Control Room Annunciator C6-C4 (SEISMIC MON PNL C673) is in alarm.
5. ON Panel 10C673:
    - The SMA-3 Event Indicator is White.
    - The Strong Motion Accelerograph Tape Machines have advanced but are not currently running.
    - The AMBER alarm light on the Seismic Switch Power Supply Drawer is lit.
6. Numerous amber lights and 3 red lights are lit on the response Seismic Response Spectrum Annunciator.
7. A LOCA results. The Reactor is successfully scrammed, with RPV level dropping rapidly to –250"; then stabilizing between –225" and –205", and being maintained using all available ECCS (2 LPCI Loops only).
8. Drywell Pressure peaked at 44 psig, then dropped to < 2 psig over the next 90 seconds, and continues to slowly drop.
9. The current 33 ft. elevation wind direction is from 163° at 11 mph.
10. Plant Effluent activity is:
    - 1.17E+01 µCi/sec Noble Gas
    - 1.17E-02 µCi/sec I-131
11. DAPA monitors indicate:
    - 2.000E+00 DAPA A
    - 1.500E+00 DAPA B

INITIATING CUE:

Based on this information, **CLASSIFY** this event <u>AND</u> **MAKE** the initial notifications.

This is a time critical task, and has two time critical elements.
Time zero for the event is **<u>NOW</u>**.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
EP-HC-111-101				
8.4	Classification	N/A	N/A	N/A
NOTE	Comparison of redundant instrumentation, indications, and/or alarms should be used to confirm actual plant conditions.	Operator reads Note.		
	The primary tools for determining the emergency classification level are the EAL flowcharts or EAL wallcharts. The user of the EAL flowcharts or wallcharts may (but is not required to) consult the EAL Technical Basis in order to obtain additional information concerning the EALs under classification consideration. To use the EAL flowcharts or wallcharts, follow this sequence:	Operator reads text.		
	1. **ASSESS** the event and/or plant conditions and **DETERMINE** which ECG - EAL Group/Section is most appropriate.	Operator assesses the initial conditions, and determines that EALs that are applicable under all plant Operational Conditions (OPCONs), AND EALs applicable only under hot OPCONs apply to this classification.		
	2. **REVIEW** EAL categories and subcategories on the appropriate flowcharts/wallcharts.	Operator assesses the initial conditions, and determines that H, and R, are appropriate ECG categories; and H1, and R1 are appropriate subcategories.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	3. If using the ECG – EAL flowcharts, for each applicable subcategory, **REVIEW** EALs in the subcategory beginning with the lowest emergency classification level to the highest classification level (left to right). **ENSURE** all pages of a particular subcategory being considered are reviewed.	Operator refers to Flowchart Diagrams and/or Wallcharts and reviews EALs in H1, and R1. Operator determines that HA1.1, and HU1.1 apply to the event.		
	4. If using the ECG – EAL Wallcharts, for each applicable subcategory, **REVIEW** EALs in the subcategory beginning with the highest emergency classification level to the lowest classification level (left to right).			
	5. If in OPCON 1, 2 or 3, also **REVIEW** the Fission Product Barrier (FPB) Table:			
	a. **EXAMINE** the FPB categories in the left column of the table.	Operator examines the FPB categories in the left column of the table.		
	b. **SELECT** the category that most likely coincides with event conditions.	Operator selects categories RPV Level; and RPV/Drywell Pressure /Temperature/H2 & O2 Levels most likely coincide with event conditions.		
	c. **REVIEW** all thresholds in this category for each fission product barrier.	Operator reviews all thresholds in each of the categories identified in 5.b for each fission product barrier, and determines FB1.L, RB1.L, RB2.L, and CB1.L apply to this event.		

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STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	d. For each threshold that is exceeded, **IDENTIFY** its point value and **DETERMINE** the classification level in accordance with the instructions on the Fission Product Barrier Table (or in EAL Technical Bases, Attachment 1).	Operator proceeds to the FPB Table to determine the point values and classification level.		
Hope Creek-Fission Product Barrier Table				
NOTE 1	The Primary Containment Barrier should not be declared lost or potentially lost based on exceeding Technical Specification action statement criteria, unless there is an event in progress requiring mitigation by the Primary Containment barrier. When no event is in progress (Loss or Potential Loss of either Fuel Clad and/or RCS barrier) the Primary Containment Barrier status is addressed by Technical Specifications.	Operator reads NOTE.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	Use of Fission Product Barrier Table OPCONs 1 2 3 A point system is used to determine the Emergency Classification Level based on the Fission Product Barrier Table. Each Fission Product Barrier Loss and Potential Loss threshold is assigned a point value as noted below. Perform the following: 1. Review all columns of the Fission Product Barrier Table and identify which need further review. 2. For each of the three barriers, determine the EAL with the highest point value. No more than one EAL should be selected for each barrier. 3. Add the point values for the three barriers. 4. Classify based on the point value sum as follows: <table><tr><td>If sum is:</td><td>Classify as:</td><td>Emergency Action Levels (EALs)</td><td>Refer to ECG ATT#</td></tr><tr><td>2, 3</td><td>UNUSUAL EVENT (NOTE 1)</td><td>ANY loss or ANY potential loss of Containment</td><td>1</td></tr><tr><td>4, 5</td><td>ALERT</td><td>ANY loss or ANY potential loss of either Fuel Clad or RCS</td><td>2</td></tr><tr><td>6 - 11</td><td>SITE AREA EMERGENCY</td><td>Loss or potential loss of ANY two barriers.</td><td>3</td></tr><tr><td>12, 13</td><td>GENERAL EMERGENCY</td><td>Loss of ANY two barriers AND Loss or potential loss of the third barrier</td><td>4</td></tr></table>	Operator identifies the point values FB1.L = 5 points, RB1.L(OR RB2.L) = 5 points, and CB1.L = 3 points. ***Operator adds the values, for a total of:** **13 points – General Emergency.** Examiners Note: Determining this value for future use is critical; marking it on the FPB Table is not.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
EP-HC-111-101				
	6. **REVIEW** the associated EALs as compared to the event and **SELECT** the <u>highest</u> appropriate emergency. If identification of an EAL is questionable refer to paragraph 8.1 above. If there is any doubt with regard to assessment of a particular EAL, the <u>ECG EAL Technical Bases Document</u> should be reviewed. Words contained in an EAL that appear in uppercase and bold print (e.g., VALID) are defined at the end of the bases for the particular EAL or in ECG – EAL Technical Basis Document, Attachment 3, EP-HC-111-232, EAL Definitions. Words or numbers contained in an EAL that are in bold print but not uppercase are EAL threshold values (e.g., ≥ 15 minutes).	Operator reviews the EALs identified in Step 8.4.3 and 4, and selects EAL HA1.1 as the highest emergency action level met or exceeded (ALERT). However, the classification determined by the FPB Table (GENERAL EMERGENCY) is the highest.		
	7. If an EAL has been exceeded, equal level EALs or lower level EALs are not required to be seperately reported as long as the applicable information is communicated to the NRC using ECG Attachment 5, EP-HC-111-F5, NRC Data Sheet & Completion Reference.	Examiner Note: Filling out the NRC Data Sheet is beyond the scope of this JPM.	N/A	

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	8. When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.	Operator requests STA/IA verification of classification. Examiner Note: Due to time spent assessing and/or nature of JPM administration, Operator may not request verification.		
CUE:	**IF the Operator requests the STA/IA to independently verify the EAL Classification, <u>THEN</u> INFORM the Operator the STA/IA is not available.**			
	9. **IDENTIFY** and **IMPLEMENT** the referenced ECG form based on the Emergency Classification Level. • Unusual Event Implement EP-HC-111-F1 • Alert Implement EP-HC-111-F2 • Site Area Emergency Implement EP-HC-111-F3 • General Emergency Implement EP-HC-111-F4 • Unusual Event (Common Site) Implement EP-HC-111-F24 **REFER** to EP-HC-111-102, Hope Creek Emergency Classification Description Table, as a guide for correct description wording for entry on the Initial Contact Message Form (ICMF) for all EALs.	Operator identifies and implements EP-HC-111-F4, and refers to EP-HC-111-102 as a guide for correct description wording for entry on the ICMF for all EALs.		
EP-HC-111-F4 ATTACHMENT 4 GENERAL EMERGENCY				
A.	**CLASSIFICATION**			
	1. **CALL** communicators to the Control Room.	Operator calls communicators to the Control Room and initials Step.		
CUE:	**After 2 minutes, report as the Primary and Secondary Communicators.**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	2. **IF** a **Security Event** is in progress, **THEN IMPLEMENT** the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification.	Operator determines Step is not applicable and marks Step N/A.		
	3. If time allows, **DIRECT** Classification **Independent Verification** to be performed	Operator requests STA/IA verification of classification and initials Step. Examiner Note: Due to time spent assessing and/or nature of JPM administration, Operator may not request a verification.		
CUE:	**IF the Operator requests the STA/IA to independently verify the EAL Classification, <u>THEN</u> INFORM the Operator the STA/IA is not available.**			
	4. After Classification **Independent Verification** is obtained: • **DECLARE** the GENERAL EMERGENCY (enter time and date on ICMF)	Operator commences filling out ICMF and initials Step. *Operator declares a General Emergency, places time and date** in the appropriate spots in the ICMF, and initials the step as the EC. Examiners Note: NOTE the declaration time that the operator entered on the ICMF. The difference between the START TIME and the "DECLARED AT" TIME is the first critical time (15 min). Time: _____		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	• **COMPLETE / APPROVE** the ICMF	*Operator places the EAL #(s): FB1.L, RB1.L(OR RB2.L) and CB1.L, a description of the event, checks NO Release in progress, enters the wind direction and speed, determines PAR, and initials as EC in the appropriate spots in the ICMF, and initials the step as the EC. Examiners Note: See the attached ICMF for an example of what the form should look like when filled out properly. Note that the exact words do not have to be in the "DESCRIPTION OF EVENT", but the description must convey the sense of the Initiating Condition for EALs FB1.L, RB1.L(OR RB2.L), and CB1.L. The operator may place the Examiner's name as the Communicator, or tell the Examiner to place his/her name as the Communicator.		
	5. If time allows **OBTAIN** accuracy peer check of the completed ICMF	Operator requests STA/IA perform an accuracy peer check of the completed ICMF.		
CUE:	**IF the Operator requests the STA/IA to perform an accuracy peer check of the completed ICMF, THEN INFORM the Operator the STA/IA is not available.**			
	6. Continue with **NOTIFICATION AND ACTIVATION** as follows: • If not previously performed, **ACTIVATE / DIRECT ACTIVATION** of ERO Emergency Callout **(EP 96-003)**	Operator activates the ERO per posted instructions titled Training Use Emergency Callout Activation and initials Step. Examiner Note: ENSURE the operator is using the Simulator Training Activation instructions.		
CUE:	**If asked/requested to activate the ERO Emergency Callout, STATE "The ERO Callout is complete."**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	• **DIRECT** the Primary Communicator to implement ECG Attachment 6	*Operator provides the ICMF to Primary Communicator and directs implementation of Att.6** and initials Step. Examiner Note: The difference between the "DECLARED AT" TIME and this LOG TIME is the second critical time (13 min.). Time: _____		
CUE:	Role-play as Primary Communicator and repeat back the directions given.			
	• **DIRECT** the Secondary Communicator to implement ECG Attachment 8 for a GENERAL EMERGENCY	*Operator directs CM2 to implement Att. 8 for a GENERAL EMERGENCY** and initials Step.		
CUE:	Role-play as Secondary Communicator and repeat back the directions given. Provide Terminating Cue.			
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator declares a General Emergency in accordance with EALs FB1.L, RB1.L(OR RB2.L), and CB1.L; initiates a PAR; and makes notifications within identified Critical Times in accordance with EP-HC-111-101.				

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Control Rod and Drive Mechanism

2016 NRC EXAM	Copy _____ of _____
JPM A	

TASK NUMBER: 4000040401

TASK: Respond To An Uncoupled Control Rod

JPM NUMBER: 305H-JPM.BF011   **REVISION:** 04

SAP BET: NOH05JPBF11E

K/A NUMBER: 201003 A2. Ability to (a) predict the impacts of the following on the CONTROL ROD AND DRIVE MECHANISM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6)
A2.02 Uncoupled rod

IMPORTANCE FACTOR: RO: 3.7   SRO: 3.8

ALTERNATE PATH: ☒

APPLICABILITY: RO ☒   SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-ST.BF-0001 Rev. 31

HC.OP-AB.IC-0001 Rev. 16

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____33_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

---

JPM PERFORMED BY: _____   **GRADE:** SAT ☐   UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
Signature

JOB PERFORMANCE MEASURE

SYSTEM: Control Rod and Drive Mechanism

TASK NUMBER: 4000040401

TASK: Respond To An Uncoupled Control Rod

INITIAL CONDIITONS:
1. The Plant is operating at 100% power.
2. Maintenance was performed on the position indication circuit of rod 38-03
3. The maintenance is complete.
4. As part of the retest requirements, performance of HC.OP-ST.BF-0001 Control Rod Drive Exercise – Weekly is required for control rod 38-03 only.
5. The "ON DUTY" Reactor Engineer has been notified that control rod 38-03 will be exercised IAW HC.OP-ST.BF-0001.
6. Use CRIDS for OD-7 control rod positions.
7. The Reactor Engineer has approved exercising rod 38-03 at 100% power.
8. Stall flows are NOT required.
9. HC.OP-ST.BF-0001, retest for control rod 38-03, has been entered in the Control Room log.

INITIATING CUE:
> **EXERCISE** control rod 38-03 IAW HC.OP-ST.BF-0001.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue, marked-up copy of HC.OP-ST.BF-0001, <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	**IF** excessive time is taken reviewing precautions and limitations, <u>THEN</u> **INFORM** operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.1.		
5.1	**LOG** test start time in the Control Room log(s).	Operator requests the procedure be logged in the Control Room log and initials Step.		
CUE:	The start time for HC.OP-ST.BF-0001 for retest of rod 38-03 only, has been logged in the Control Room log.			
5.2	**ENSURE** all prerequisites of Section 2.0 are satisfied.	Operator ensures that all prerequisites have been satisfied and initials Step.		
CUE:	If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.			
5.3	**ENSURE** Attachment 1, Section 1.0 has been completed <u>AND</u> Regular Surveillance <u>OR</u> Retest is indicated.	Operator observes Attachment 1, Section 1.0 has been completed <u>AND</u> Retest is indicated and initials Step.		
5.4	**OBTAIN** a computer printout of the current Control Rod positions. (e.g. OD-7)	Operator displays OD-7 from CRIDS terminal and initials Step.		
CUE:	Provide operator printout of OD-7 from CRIDS.			
5.5	**OBSERVE** proper response of the Nuclear Instrumentation while withdrawing <u>OR</u> inserting all Control Rods.	Operator reviews the requirement to observe proper response of the Nuclear Instrumentation while withdrawing <u>OR</u> inserting all Control Rods and initials Step.		
5.6	**SELECT** the next Control Rod <u>AND</u> **RECORD** or verify the initial Control Rod position on Attachment 2.	*#Operator presses ROD SELECT MODULE 38-03 pushbutton and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.7	IF Control Rod is at position 00, **RECORD** final Control Rod position on Attachment 2. All other blocks are N/A for this rod.	Operator determines that this step is N/A and marks Step N/A.		
5.8	**OBSERVE** approximately 6 gpm total flow through both the insert AND withdraw Stabilizing Valves as indicated on CRID's point B2117. **[70044199]**	Operators observes approximately 6 gpm total flow through both the insert AND withdraw Stabilizing Valves as indicated on CRID's point B2117 and initials Step.		
NOTE	The following two steps will exercise the 1-BF-V138, Cooling Water Header Check Valve, as required by T/S 4.0.5. If a "failed position" is encountered when a single notch insertion is attempted, an alternate position may be selected to insert the rod, provided that guidance is obtained from Reactor Engineering. In this situation the remarks section of Attachment 3 should document the alternate position utilized.	Operator reads NOTE and initials Note.		
5.9	**INSERT** the selected Control Rod one notch (or as directed by Reactor Engineering) AND **PERFORM** the following: **[T/S 4.1.3.1.2, T/S 4.1.3.7]**	*#**Operator momentarily presses the ROD MOTION CONTROLS INSERT pushbutton** and initials Step.		
5.9.1	**ENSURE** proper operation of the RPIS.	Operator observes the CONTROL ROD POSITION FOUR ROD DISPLAY, RWM, or CRIDS indicates control rod movement to position 46 and initials Step.		
5.9.2	IF a Control rod is inadvertently positioned at other than the desired position, THEN **IMPLEMENT** the associated guidance contained in the Reactor Engineering Weekly Guidance AND **CONTACT** Reactor Engineering.	Operator determines that this step is N/A and marks Step N/A.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.9.3	IF the control rod does not insert to the next notch after one attempt, **PERFORM** the following: …	Operator determines that this step is N/A and marks Step N/A.		
5.9.4	**INDICATE** the condition of RPIS indication on Attachment 2.	Operator then indicates the RPIS indication is SAT on Attachment 2 and initials Step.		
5.10	IF the position recorded in Step 5.6 is an intermediate position, THEN **PERFORM** Step 5.10.1, OTHERWISE, **GO TO** Step 5.10.2 to return the control rod to its original position: …	Operator determines the position recorded in Step 5.7 is NOT an intermediate position, continues at step 5.10.2 and initials Step.		
NOTE	IF drive water pressure was increased to withdraw a control rod from position 46, the same or slightly higher pressure should be used to perform the uncoupling check. **[80009340]** Control Rods experiencing coupling problems should be single-notched to 48 (with settle) prior to using continuous withdraw to verify coupling.	Operator reads NOTE and determines the NOTE is not applicable and initials NOTE.		
5.10.2	**WITHDRAW** the control rod to position 48 AND **PERFORM** the following while giving the selected Control Rod a continuous withdraw signal: **[T/S 4.1.3.6, T/S 4.1.3.7]**	***#Operator simultaneously presses AND holds both the WITHDRAW pushbutton AND the CONTINUOUS WITHDRAW pushbutton** and initials Step.		
A.	**OBSERVE** the following as indication of the Control Rod being coupled: 1. ROD OVERTRAVEL alarm does NOT annunciate.	Operator observes OHA C6-F3 ROD OVERTRAVEL DOES annunciate. CRIDS C071, ROD OVERTRAVEL, in alarm. Operator releases both the WITHDRAW pushbutton AND the CONTINUOUS WITHDRAW pushbutton.		
	2. Red Full Out light illuminates on the Full Core Display.	Operator observes the red FULL OUT light on the Full Core Display EXTINGUISHES.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	3. RPIS indicates the Control Rod is full out (48).	Operator observes RPIS does indicate position 48 on OD-7. However, indicates 49, in alarm, on CRIDS page 249.		
	4. Proper response of the Nuclear Instrumentation while withdrawing the Control Rod.	Operator recognizes the expected response of the Nuclear Instrumentation while withdrawing the Control Rod. Examiner Note: The expected response for a rod from 46 to 48 is negligible.		
B.	**INDICATE** on Attachment 2 the condition of Coupling Check.	Operator indicates the coupling check is UNSAT on Attachment 2.		
NOTE	Stall flows need to be taken at least each month. Stall flows should be recorded the first time this test is performed each month OR as requested by System Engineer.	Operator reads NOTE and initials NOTE.		
C.	**PERFORM** the following for stall flow: …	Based on the Initial Conditions, Operator determines Stall Flow is NOT required. Operator marks the step N/A.		
D.	IF the CRD over travels, THEN **IMPLEMENT** HC.OP-AB.IC-0001(Q), Control Rod.	Operator informs the CRS of uncoupled control rod and entry condition into HC.OP-AB.IC-0001 and initials Step.		
CUE:	Acknowledge the report, and DIRECT the Operator to implement Condition D of HC.OP-AB.IC-0001.			
HC.OP-AB.IC-0001 CONDITION D, Uncoupled Rod AND Movement Permitted by the RWM				
NOTE 1	1. Tech Spec 3.1.3.6 has a 2 hour time limit associated with it.	Operator reads NOTE 1.		
D.1	**OBTAIN** Reactor Engineering guidance to recouple the Control Rod.	Operator requests Reactor Engineering guidance to recouple the Control Rod and initials Step.		
CUE:	INFORM the Operator that Reactor Engineer's guidance in NOT available.			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
D.2	IF Reactor Engineering guidance CANNOT be obtained, THEN **RECOUPLE** the Control Rod as follows: a. **INSERT** the CRD no more than 2 notches from the point of discovery.	Operator determines step D.2 is applicable and initials Step. Operator single notch inserts rod 38-03 to position 46 (no more than position 44) using INSERT PB and initials Step. Examiner Note: Due to the rod being at Overtravel, it will take two single notch insertions to insert the rod to 46. The first insertion will settle the rod at 48 and may bring in OHA C6 E3 ROD DRIFT. IF ROD DRIFT alarm comes in, THEN operator will respond using OHA C6-E3 Alarm Response Procedure and determine rod 38-03 caused the alarm.		
	b. Single Notch **WITHDRAW** the Control Rod to its original position AND **VERIFY** expected response.	***#Operator single notch withdraws rod 38-03 to position 48.** Operator observes correct response of the control rod and initials Step.		
	c. **PERFORM** a coupling check on the associated control rod IAW ST.BF-0001.	Operator requests copy of HC.OP-ST.BF-0001.		
CUE:	**Provide operator 2nd marked up copy of HC.OP-ST.BF-0001 IF requested.**			

HC.OP-ST.BF-0001

STEP NUMBER	ELEMENT	STANDARD	SAT/ UNSAT	COMMENTS
5.10.2	**WITHDRAW** the control rod to position 48 AND **PERFORM** the following while giving the selected Control Rod a continuous withdraw signal: **[T/S 4.1.3.6, T/S 4.1.3.7]**	***#Operator simultaneously presses AND holds both the WITHDRAW pushbutton AND the CONTINUOUS WITHDRAW pushbutton.**		
A.	**OBSERVE** the following as indication of the Control Rod being coupled: 1. ROD OVERTRAVEL alarm does NOT annunciate.	Operator observes OHA C6 F3 ROD OVERTRAVEL does NOT annunciate and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	2. Red Full Out light illuminates on the Full Core Display.	Operator observes the red FULL OUT light on the Full Core Display illuminates and initials Step.		
	3. RPIS indicates the Control Rod is full out (48).	Operator observes RPIS indicates the Control Rod is full out (48) and initials Step.		
	4. Proper response of the Nuclear Instrumentation while withdrawing the Control Rod.	Operator recognizes the expected response of the Nuclear Instrumentation while withdrawing the Control Rod and initials Step. Examiner Note: The expected response for a rod at 48 is negligible.		
B.	**INDICATE** on Attachment 2 the condition of Coupling Check.	Operator indicates the coupling check is SAT on Attachment 2 and initials Step. Examiner Note: Operator may initial D.2.c or HC.OP-AB.IC-0001 at this time.		
HC.OP-AB.IC-0001 **CONDITION D, Uncoupled Rod AND Movement Permitted by the RWM**				
D.3	**RESTRICT** all further withdrawals of this rod to Single Notch movement until repairs have been completed.	Operator informs the CRS that all further withdrawals of this rod should be restricted to Single Notch movement until repairs have been completed.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator exercises, and re-couples, control rod 38-03 IAW HC.OP-ST.BF-0001.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Feedwater

TASK NUMBER: 2590120101

TASK: Place The First RFPT In Service

JPM NUMBER: 305H-JPM.AE005   **REVISION:** 10

SAP BET: NOH05JPAE05E

K/A NUMBER: 259001 A4. Ability to manually operate and/or monitor in the control room:
          (CFR: 41.7 / 45.5 TO 45.8)
          A4.02 Manually start/control a RFP/TDRFP

                              IMPORTANCE FACTOR: RO: 3.9   SRO: 3.7

ALTERNATE PATH: ☐

APPLICABILITY: RO ☒   SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.AE-0001 Rev. 72

TOOLS, AND EQUIPMENT: None

                           ESTIMATED COMPLETION TIME: _____ 11 _____ Minutes

     TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____ N/A _____ Minutes

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JPM PERFORMED BY: _____   **GRADE: SAT** ☐   **UNSAT** ☐

                                 ACTUAL COMPLETION TIME: _____ Minutes

                   ACTUAL TIME CRITICAL COMPLETION TIME: _____ N/A _____ Minutes

REASON IF UNSATISFACTORY:

       EVALUATOR: _____   **DATE:** _____
                                  Signature

JOB PERFORMANCE MEASURE

SYSTEM: Feedwater

TASK NUMBER: 2590120101

TASK: Place The First RFPT In Service

INITIAL CONDIITONS:

1. A plant startup from cold shutdown is in progress IAW HC.OP-IO.ZZ-0003.
2. Reactor Pressure is approximately 500 psig.
3. AP101 and BP101 RFPs are on Recirc IAW Section 5.3 of HC.OP-SO.AE-0001.
4. Startup level control is in AUTO Reactor Vessel level control.
5. Chemistry is ready to place Condensate Polisher Vessels in service as required.

INITIATING CUE:

PLACE Reactor Feed Pump AP101 in service in Manual control in accordance with 5.4 of HC.OP-SO.AE-0001.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains and locates procedure HC.OP-SO.AE-0001.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	<u>IF</u> excessive time is taken reviewing precautions and limitations, <u>THEN</u> **INFORM** operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.4.		
5.4.1	**ENSURE** all prerequisites of Section 2.4 are satisfied.	Operator ensures that all prerequisites have been satisfied, and initials Step.	'	
<u>CAUTION</u>	Opening the HV-1769A(B,C) REACTOR FEED PUMP A(B,C) DISCH STOP CHK VLV MOT OPER completes the RFP start logic. IF adequate SCP(s) are NOT in service, a RFP trip will occur. (REFER to Attachment 1.)	Operator reads and initials CAUTION.		
5.4.2	**ENSURE** HV-1769A(B,C), REACTOR FEED PUMP A(B,C) DISCH STOP CHK VLV MOT OPER, is open.	*#Operator opens HV-1769A, and initials Step.		
<u>NOTE</u>	Placing the initial Reactor Feed Pump in service will cause a transient on the pump rotating assembly. Vibration and/or axial displacement alarms are possible immediately after placing the pump in service, and are expected to clear after the pump is in service and the discharge pressure is stable.	Operator reads and initials NOTE.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CAUTION	Reactor Feed Pump Turbine Critical Speed is approximately 3400 rpm. Operation in the range of 3250 rpm to 3550 rpm should be minimized.	Operator reads and initials CAUTION.		
5.4.3	**PRESS** RFPT A(B,C) SPEED CTRLR SPD DEMAND INC ↑ pushbutton as required to establish approximately 150 to 450 psid across the Startup Valves to achieve positive response on the startup valves.	*#Operator presses RFPT A SPEED CTRLR SPD DEMAND INC ↑ pushbutton as required to establish approximately 150 to 450 psid across the Startup Valve, and initials Step.		
5.4.4	**CLOSE** HV-1772A(B,C), RFPT A(B,C) STEAM LOW PRESSURE SUPPLY STOP VLV BELOW SEAT DRAIN MOV.	*Operator closes HV-1772A, and initials Step.		
5.4.5	**CLOSE** HV-1786, RFP BYPASS STOP VLV.	*#Operator closes HV-1786, and initials Step.		
NOTE	For RFP Turbine speed ≥ 5000 rpm increase the RFPT RECIRC FLOW CTRL A(B,C) setpoint to 4500 gpm. If possible, maintain RFP DISCH Press such that level control is accomplished via LV-1785. Valve differential pressure of < 450 psid should be attempted to be maintained.	Operator reads and initials NOTE.		
CAUTION	Carefully monitor for vessel level swings AND RFPT hunting when controlling differential pressure across the S/U valves in AUTO AND below 900 psig RX Pressure.	Operator reads and initials CAUTION.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
5.4.6	**CONTROL** the differential pressure across the startup valves automatically or manually by performing the following: A. MANUAL 1. Intermittently **PRESS** RFPT A(B,C) SPEED CONTROLLER SPD DEMAND INC ↑ OR DEC ↓ pushbutton as necessary to maintain RFP discharge press above Reactor pressure to allow Startup Valve to Control Reactor Vessel level.	Examiner Note: Operator may adjust A RFP speed again to ensure dp in the range of 150 to 450 psid. Operator reads and initials Step.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator places AP101 Reactor Feed Pump in service in Manual control in accordance with HC.OP-SO.AE-0001.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

Copy _____ of _____

SYSTEM: Integrated Operating Procedures

TASK NUMBER: 30002090101

TASK: Perform a Cooldown Using Bypass Valves

JPM NUMBER: 305H-JPM.AC008   **REVISION:** 01

SAP BET: NOH05JPAC08E

K/A NUMBER: 241000 A4. Ability to manually operate and/or monitor in the control room:
                            (CFR: 41.7 / 45.5 TO 45.8)
                            A4.02 Reactor pressure

                              IMPORTANCE FACTOR: RO: 4.1   SRO: 4.1

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☒   **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-IO.ZZ-0004, Rev. 100

TOOLS, AND EQUIPMENT: None

                    ESTIMATED COMPLETION TIME: _____16_____ Minutes

    TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____   **GRADE:** SAT ☐   UNSAT ☐

                                ACTUAL COMPLETION TIME: _____ Minutes

            ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ Minutes

REASON IF UNSATISFACTORY:

        EVALUATOR: _____   **DATE:** _____
                                    Signature

JOB PERFORMANCE MEASURE

SYSTEM: Integrated Operating Procedures

TASK NUMBER: 30002090101

TASK: Perform a Cooldown Using Bypass Valves

INITIAL CONDIITONS:

1. A plant shut down is in progress for a refueling outage.
2. HC.OP-IO.ZZ-0004 has been implemented through Step 5.1.48.

INITIATING CUE:

COMMENCE a Reactor Cooldown and Depressurization to 530 psig in accordance with Step 5.2.1.B of HC.OP-IO.ZZ-0004. Another operator will plot cooldown rate.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains procedure HC.OP-IO.ZZ-0004.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations, and initials each one.		
CUE:	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**			
2.0	<u>**PREREQUISITES**</u> **ENSURE** all personnel who are to perform any step(s) in this procedure have completed Attachment 1, Section 1.0, prior to performing any part of this procedure.	Operator completes Attachment 1, Section 1.0, prior to performing any part of this procedure, and initials Step.		
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.2.1.B.		
<u>**NOTE**</u>	Steam Loads, Decay Heat, and Feed will directly affect Cooldown / Depressurization. Impact of these variables, regardless of DEHC Control mode selected, MUST be continuously evaluated for impact on the cooldown. The cooldown rate should be limited to 60°F per hour when above 200 psig to preclude RWCU flashing. At approximately 200 psig reactor pressure, the cooldown rate should be limited to approximately 30° F/hr to prevent excessive cavitation of the RWCU pump.	Operator reads and initials NOTE.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.2.1.	CONTINUE/MAINTAIN a cooldown rate of ≤ 60°F/hr using Rx Cooldown mode, Pressure Control mode OR Bypass Valve Manual Jack as follows: A. Establish PRESSURE CONTROL as …	Operator determines and marks this Step as N/A.		
NOTE	When Rx Cooldown mode is initiated with a bypass valve open, a minor Pressure Rise will occur. This pressure rise should be anticipated when placing Rx Cooldown controller in service. Any cooldown that has occurred since the shutdown must be considered prior to establishing Rx Cooldown mode in determining initial cooldown so as NOT to exceed 60°F/hr. Once Rx Cooldown mode is established, the INTENT is to remain on the Rx Cooldown controller for the duration of the Cooldown / Depressurization. An In-Progress Cooldown can be interrupted to support plant manipulations without exiting the Rx Cooldown mode by establishing the temperature Setpoint at the desired hold point on the Cooldown Controller.	Operator reads and initials NOTE.		
5.2.1.B.	B. IF desired, Establish **REACTOR COOLDOWN** as follows: 1. **SELECT** Control , RX Cooldown	*#Operator selects Control , and RX Cooldown , and initials Step.		
	2. **SELECT** Ramp Rate AND **ENTER** desired rate not to exceed 60 deg F/hr.	*#Operator selects Ramp Rate and enters a desired rate that does not exceed 60 deg F/hr, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	3. **SELECT** Temperature AND **ENTER** desired temperature.	*#**Operator selects** Temperature **and enters a value for the desired temperature,** and initials Step. Examiner Note: Desired temperature is approximately 470F +20F.		
	4. **SELECT** Reactor Cooldown ON AND **VERIFY** Rx Cooldown Controlling indication is observed.	*#**Operator selects Reactor Cooldown** ON, verifies Rx Cooldown Controlling indication is observed, and initials Step.		
	5. **MAINTAIN** Throttle Pressure Set, Pressure Setpoint approximately 50-100 psig above Throttle Pressure not to exceed 905 psig.	Operator maintains Throttle Pressure Set, Pressure Setpoint approximately 50-100 psig above Throttle Pressure not to exceed 905 psig, and initials Step. Examiner Note: Pressure Setpoint is currently 905 psig.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator establishes a cooldown in accordance with Step 5.2.1.B of HC.OP-IO.ZZ-0004.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: High Pressure Coolant Injection

| 2016 NRC EXAM |
| JPM D |

Copy _____ of _____

TASK NUMBER: 2060180201

TASK: Place HPCI in Full Flow Test Operation

JPM NUMBER: 305H-JPM.BJ014   **REVISION:** 04

SAP BET: NOH05JPBJ14E

K/A NUMBER: 206000 A4. Ability to manually operate and/or monitor in the control room:
(CFR: 41.7 / 45.5 TO 45.8)
A4.06 Reactor pressure: BWR-2,3,4

                                        IMPORTANCE FACTOR: RO: 4.3   SRO: 4.3

ALTERNATE PATH: ☒

APPLICABILITY: RO ☒   SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.ZZ-0001, Rev 31

TOOLS, AND EQUIPMENT: None

                    ESTIMATED COMPLETION TIME: _____13_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____   **GRADE:** SAT ☐   UNSAT ☐

                              ACTUAL COMPLETION TIME: _____ Minutes

              ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ Minutes

REASON IF UNSATISFACTORY:

        EVALUATOR: _____   **DATE:** _____
                                Signature

JOB PERFORMANCE MEASURE

SYSTEM: High Pressure Coolant Injection

TASK NUMBER: 2060180201

TASK: Place HPCI in Full Flow Test Operation

INITIAL CONDIITONS:
1. The Reactor has scrammed due to a spurious Group 1 isolation.
2. All control rods are full in.
3. RCIC has automatically initiated on low reactor water level and is injecting to the RPV.
4. HPCI has automatically initiated on low reactor water level.
5. Reactor water level is currently approximately -10 inches and slowly rising.
6. RHR Loop B is in Suppression Pool Cooling.
7. Another operator is controlling RPV level and pressure.

INITIATING CUE:

> **PLACE** HPCI into the Full Flow Test Mode in order to commence a plant cooldown in accordance with HC.OP-AB.ZZ-0001(Q), Attachment 6.
> The simulator will remain in FREEZE until you are ready to start the task.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue, **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue <u>AND</u> states ready to begin. **START TIME:** _____			
CUE:	**PLACE the simulator in RUN, and inform the Operator that the simulator is in RUN.**			
	Operator obtains and locates procedure.	Operator obtains the correct procedure.		
<u>NOTE</u>	Loss of 1AD481, 1CD481, 1AD482, or 1CD482 may affect controls and indication.	Operator reads and initials NOTE.		
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 2.0 on page 6 of 6.		
2.0	<u>IF</u> HPCI is in the Injection Mode of Operation, <u>THEN</u> **PERFORM** the following: A. <u>IF</u> necessary, **RESET** HPCI INITIATION LOGIC.	*Operator depresses the RESET HPCI INITIATION LOGIC pushbutton, and initials Step.		
	B. **ADJUST** FIC R600 HPCI FLOW setpoint (STPT) to zero %	Operator observes zero % indication is reached on FIC-R600, and initials Step. Examiner Note: Setpoint is already at zero %.		
	C. <u>WHEN</u> FLOW indicates zero gpm <u>THEN</u> **CLOSE** HV-F006.	*Operator observes zero gpm is reached, and depresses the CLOSE pushbutton for HV-F006, and initials Step. Examiner Note: HPCI flow is currently zero gpm.		
	D. **CLOSE** HV-8278.	*Operator depresses the CLOSE pushbutton for HV-8278,		
	E. **ENSURE** HPCI AND RCIC Suctions are lined up to the CST.	Operator observes HPCI AND RCIC Suctions are lined up to the CST. (OPEN lights for BJ-HV-F004 and BD-HV-F010 are illuminated) and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	F. **PRESS** HV-F008 INCR PB for ≈ 20 seconds	*Operator depresses the INCR pushbutton for approximately 20 seconds and observes the OPEN light illuminate, resulting in dual indication for the F008, and initials Step. Examiner Note: Any timing method is acceptable, as the time requirement is "approximately" 20 seconds.		
	G. **OPEN** AP-HV-F011.	*Operator depresses the AP-HV-F011 OPEN pushbutton, and initials Step.		

Examiner Note: Pressing the AP-HV-F011 pushbutton will activate ET-1, starting a slow rise in Suppression Pool water level.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	H. **ADJUST** FIC-R600 setpoint to achieve 3000 gpm flow.	*Operator depresses the Raise and/or Lower Setpoint Pushbutton(s) until HPCI flow indicates approximately 3000 gpm on FIC-R600, and initials Step.		

Examiner Note: WHEN Suppression Pool Water Level reaches 78.5 inches, Overhead Annunciator B1-C3 SUPPRESSION POOL LEVEL HI/LO alarm and HPCI suction transfer occur. Performance of the next Step may/may not be observed.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	J. **THROTTLE** HV-F008 <u>AND</u> **ADJUST** FIC-R600 setpoint, as necessary, up to and including full flow rate, to control HPCI pump parameters/reactor pressure.	Operator throttles and adjusts FIC-R600 setpoint, as necessary, up to and including full flow rate, to control HPCI pump parameters/ reactor pressure.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		Operator identifies HPCI Suction Swap is occurring based on OHA B1-C3 and HPCI Pump suction auto-transferring from the CST (HV-F004) to the Torus (HV-F042). Operator announces 'Suppression Pool Level Hi(/Lo)', and informs CRS.		
		Examiner Note: The following actions may be performed by the Operator using the guidance from HC.OP-AB.ZZ-0001, Attachment 6 section for HPCI Suction Transfer to CST without/prior to direction from the CRS based on the direction in step 1.0 of that section.		
Operator identifies the need to perform HC.OP-AB.ZZ-0001, Attachment 6 section for HPCI Suction Transfer to CST and take the required actions from that section.				
CUE:	**IF necessary, DIRECT the Operator to transfer HPCI suction back to the CST and place HPCI in Full Flow Test mode to continue plant cooldown in accordance with HC.OP-AB.ZZ-0001.**			
NOTE	Loss of 1AD481 may affect controls and indication.	Operator reads and initials NOTE.		
1.0	IF a HPCI Suction Transfer has occurred while in Full Flow Test, OR HPCI is in Full Flow Test AND a Suction Swap is anticipated, THEN **PERFORM** the following: A. **ADJUST** FIC R600 Flow Setpoint to zero gpm.	*Operator depresses the Lower Setpoint Pushbutton until zero gpm flow indication is reached on FIC-R600, and initials Step.		
	B. IF required, **CLOSE** AP-HV-F011.	Operator may depress the CLOSE Pb for AP-HV-F011, and initials Step. Examiner Note: Valve will auto close when BJ-HV-F042 is full open.		
	C. WHEN Suction Swap to Suppression Pool is completed, (HV-F042 OPEN, HV-F004 and AP-HV-F011 are CLOSED) THEN **PROCEED** in this Attachment.	Operator observes position indication and when the CST Suction valve HV-F004 indicates CLSD and the Torus Suction valve HV-F042 indicates open, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
2.0	**PRESS** HV-F042 AUTO OPEN OVRD Pushbutton <u>AND</u> **VERIFY** the HV-F042 OVRD Light is LIT.	*Operator depresses the OVRD Pb for HV-F042, and initials Step.		
3.0	<u>IF</u> a HPCI Initiation Signal is present, <u>THEN</u> **PERFORM** the following:	Operator identifies that the HPCI Initiation Signal is **NOT** present, marks Step as N/A, and proceeds to Step 4.0. Examiner Note: The initiation signal was reset during the initial actions to place HPCI in Full Flow Test.		
4.0	<u>IF</u> a HPCI Initiation Signal is NOT present, <u>THEN</u> **PERFORM** the following: A. **PRESS** the HV-F042 CLOSE Pushbutton	*Operator depresses the HV-F042 CLOSE Pb, and initials Step.		
	B. <u>WHEN</u> HV-F042 indicates dual position, <u>THEN</u> **OPEN** HV-F004.	Operator observes both the OPEN and CLSD lights are illuminated for HV-F042, *Operator depresses the HV-F004 OPEN Pb, and initials Step.		
CUE:	<u>IF</u> the CRS is asked about restoring HPCI to full flow test, DIRECT the Operator to restore HPCI to the Full Flow Test mode to continue plant cooldown.			
5.0	<u>IF</u> required, **RESTORE** HPCI to Full Flow Test as follows: A. **ADJUST** FIC-R600 HPCI FLOW setpoint to 1000 gpm.	*Operator depresses the Raise and/or Lower Setpoint Pushbutton(s) until HPCI flow setpoint indicates approximately 1000 gpm on FIC-R600, and initials Step.		
	B. **IMMEDIATELY OPEN** AP-HV-F011.	*Operator depresses the AP-HV-F011 OPEN pushbutton, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	C. <u>WHEN</u> Discharge Pressure turns **ADJUST** FIC-R600 setpoint to 3000 gpm.	WHEN HPCI discharge pressure begins to lower, Operator depresses the Raise and/or Lower Setpoint Pushbutton(s) until HPCI flow setpoint indicates approximately 3000 gpm on FIC-R600, and initials Step. Examiner note: The termination statement by the Operator may be a report to the CRS that HPCI is in Full Flow Test mode of operation. At that time it is acceptable to terminate the JPM.		
	D. **THROTTLE** HV-F008 <u>AND</u> **ADJUST** FIC-R600 setpoint, as necessary, to control HPCI pump parameters/reactor pressure.	Operator throttles and adjusts FIC-R600 setpoint, as necessary, up to and including full flow rate, to control HPCI pump parameters/ reactor pressure.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. STOP TIME: _____			

Task Standard: Operator places HPCI in Full Flow Test mode and returns to Full Flow Test mode after HPCI Suction Transfer to CST in accordance with HC.OP-AB.ZZ-0001.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Residual Heat Removal

| 2016 NRC EXAM JPM E | Copy _____ of _____ |

TASK NUMBER: 4000400401

TASK: Respond To A Loss Of Shutdown Cooling

JPM NUMBER: 305H-JPM.BC003   **REVISION:** 09

SAP BET: NOH05JPBC03E

K/A NUMBER: 205000 A2. Ability to (a) predict the impacts of the following on the SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6)
A2.06 SDC/RHR pump trips

IMPORTANCE FACTOR: RO: 3.4   SRO: 3.5

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☒   **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.RPV-0009, Rev. 11

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____8_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____   **GRADE: SAT** ☐ **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
Signature

JOB PERFORMANCE MEASURE

SYSTEM: Residual Heat Removal

TASK NUMBER: 4000400401

TASK: Respond To A Loss Of Shutdown Cooling

INITIAL CONDIITONS:
1.   The plant was is OPCON 4.
2.   The reactor has been shut down for 200 hours.
3.   RHR Pump B was in shutdown cooling at 10,000 gpm for several days.
4.   RCS temperature was 120F.
5.   A worker inadvertently tripped the RHR Pump B breaker locally.
6.   The breaker has been inspected and is undamaged.
7.   The Shutdown Cooling suction line did NOT isolate.
8.   NSSSS and PCIS are reset.
9.   The pump has been tripped for 5 minutes.
10. HC.OP-AB.RPV-0009 Shutdown Cooling is being implemented.

INITIATING CUE:

PERFORM Condition A, Steps A.5 and A.6, of HC.OP-AB.RPV-0009.
The required shutdown cooling flow for the 'B' RHR pump is between 9500 -10,000 gpm.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains and locates procedure HC.OP AB.RPV-0009.	Operator obtains the correct procedure.		
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be A.5.		
A.5	**ENSURE** the following: • HV-F008, HV-F009 and HV-F006A(B) are OPEN. (If necessary, dispatch operators to operate manually). **[CD-065X]**	Operator determines the HV-F008, HV-F009, and HV-F006B are open by observing the red OPEN lights are illuminated and green CLSD lights are extinguished, and initials Step.		
	• HV-F006B(A) and HV-F007A(B) are CLOSED.	Operator determines the HV-F006A is closed by observing the red OPEN lights are extinguished and green CLSD lights are illuminated, and initials Step.		
A.6	**RESTORE** tripped RHR pump as follows: a. **CLOSE** F015A(B).	***#Operator presses the HV-F015B DECR pushbutton until the OPEN light extinguishes,** and initials Step.		
	b. **RESTART** RHR Pump A(B).	***#Operator presses the BP202 START push button,** observes the RUNNING indicator illuminates and the STOPPED indicator extinguishes, and initials Step.		
	c. IMMEDIATELY **THROTTLE** OPEN F015A(B) to establish Shutdown Cooling flow between 3000 gpm and 10,000 gpm.	***#Operator presses HV-F015B INCR pushbutton until Shutdown Cooling flow is between 9500 gpm and 10,000 gpm,** and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator performs Steps A.5 and A.6 of HC.OP-AB.RPV-0009.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: System

| | 2016 NRC EXAM JPM F | Copy _____ of _____ |

TASK NUMBER: 3620190101

TASK: Shift A 4160 V 1E Bus To Alternate Feeder

JPM NUMBER: 305H-JPM.PB001   **REVISION:** 00

SAP BET: NOH05JPPB01E

K/A NUMBER: 262001 A4.01   **IMPORTANCE FACTOR:**   RO: 3.4   SRO: 3.7

ALTERNATE PATH: ☒

APPLICABILITY: RO ☒   SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.PB-0001, Rev. 29

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____15_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____   **GRADE:** SAT ☐   UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____

Signature

Page 1 of 10

JOB PERFORMANCE MEASURE

SYSTEM: System

TASK NUMBER: 3620190101

TASK: Shift A 4160 V 1E Bus To Alternate Feeder

INITIAL CONDIITONS:

1. Maintenance is required on the 40201 breaker.

INITIATING CUE:

SHIFT 10A402 supply to the Alternate Feeder Breaker in accordance with Section 5.6 of HC.OP-SO.PB-0001.

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains and locates procedure.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	**IF excessive time is taken reviewing precautions and limitations, <u>THEN</u> INFORM operator that all are satisfied.**			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.6.1.		
<u>**NOTE**</u>	The Normal (Alternate) Feeder Breaker should have the AUTO CLOSE BLOCK PB set (illuminated) when the breaker...	Operator reads and initials NOTE.		
5.6.1.	**ENSURE** that the prerequisites of Section 2.6 have been satisfied.	Operator completes Attachment 1 Section 2.0 and ensures that all prerequisites have been satisfied, and initials each prerequisite.		
<u>**CAUTION**</u>	When transferring the A vital bus, the CRS should determine...	Operator reads NOTE, determines it is not applicable, and initials NOTE.		
5.6.2.	<u>IF</u> desired, **OPEN** breakers 52-212071 and 52-212072 for RACS valves 1EDHV-2598 and 1EDHV-2599.	Operator determines that the Step is not applicable, and marks Step as N/A.		
5.6.3.	**ENSURE** Bus Voltage is adjusted to the higher band required for the Bus alignment prior to transfer <u>AND</u> if necessary, **PLACE** 1AX501 (1BX501) Tap Changer in Manual. (**REFER** TO HC.OP-DL.ZZ-0002(3)(Q), Control Console Log(s))	Operator refers to HC.OP-DL.ZZ-0003 and determines Bus Voltage adjustment is required, ***#** **places 1AX501 Tap Changer in Manual and adjusts Bus Voltage to 4.276 KV - 4.370 KV (CRIDS A7066),** and initials Step. Examiner Note: Operator may also place the 1BX501 Tap Changer in Manual in anticipation of future adjustments.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.6.4.	SHIFT breaker alignment on the desired Class 1E 4160V busses (listed in Table PB-002, Section 5.4) as follows: A. IF the Alternate (Normal) AUTO CLOSE BLOCK PB backlight is ON, THEN PRESS the Alternate (Normal) AUTO CLOSE BLOCK AND VERIFY that the PB backlight is OFF. [CD-056H]	Operator observes the Alternate AUTO CLOSE BLOCK PB backlight is OFF, and initials Step.		
	B. PRESS Normal (Alternate) AUTO CLOSE BLOCK AND VERIFY that the PB backlight is OFF. [CD-056H] AND INITIAL Attachment 1.	*#Operator presses the 40201 AUTO CLOSE BLOCK PB and verifies that the PB backlight is OFF, and initials Step.		
	C. PRESS CLOSE PB on Alternate (Normal) FEED BRKR.	*#Operator presses CLOSE PB on Alternate Feed Breaker 40208, and initials Step.		
	D. ENSURE that the Alternate (Normal) FEED BRKR closes AND that the Normal (Alternate) FEED BRKR trips. AND INITIAL Attachment 1.	Operator observes the 40208 CLOSE PB backlight is lit, and the TRIP PB is extinguished, and the 40201 CLOSE PB backlight is extinguished and the TRIP PB is lit, and initials Attachment 1.		
	E. PRESS the AUTO CLOSE BLOCK PB for the Alternate (Normal) Feed Breaker AND VERIFY that the AUTO CLOSE BLOCK PB is illuminated. [CD-056H] AND INITIAL Attachment 1.	*#Operator presses the AUTO CLOSE BLOCK PB for the Alternate Feed Breaker 40208, verifies that the AUTO CLOSE BLOCK PB is illuminated, and initials Step.		
5.6.5.	ENSURE Bus Voltage is adjusted, as necessary, within required range. (REFER TO HC.OP-DL.ZZ-0002(3)(Q), Control Console Log(s))	Operator refers to HC.OP-DL.ZZ-0003 and determines Bus Voltage to be within the required range.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.6.6.	IF opened in Step 5.6.2, **CLOSE** breakers 52-212071 and 52-212072 for RACS isolation valves 1EDHV-2598 and 1EDHV-2599 <u>AND</u> **INITIAL** Attachment 1.	Operator determines that this Step is not applicable and marks N/A.		
5.6.7.	**PERFORM** independent verification that the system is aligned IAW Attachment 1.	Operator provides the procedure for an independent review.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator shifts 10A402 supply to the Alternate Feeder in accordance with HC.OP-SO.PB-0001.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Control Area Ventilation System

| | **2016 NRC EXAM JPM G** | Copy _____ of _____ |

TASK NUMBER: 4880060101

TASK: Isolate the Control Room HVAC System

JPM NUMBER: 305H-JPM.GK002   **REVISION:** 04

SAP BET: NOH05JPGK02E

K/A NUMBER: 290003 A4. Ability to manually operate and/or monitor in the control room:
(CFR: 41.7 / 45.5 TO 45.8)
A4.01 Initiate/reset system

IMPORTANCE FACTOR: RO: 3.2   SRO: 3.2

ALTERNATE PATH: ☒

APPLICABILITY: **RO** ☒   **SRO** ☒

EVALUATION SETTING/METHOD:

REFERENCES: HC.OP-AB.HVAC-0002 Rev.10

HC.OP-SO.GK-0001 Rev. 22

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____7_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____ **GRADE: SAT** ☐ **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____
                        Signature

JOB PERFORMANCE MEASURE

SYSTEM: Control Area Ventilation System

TASK NUMBER: 4880060101

TASK: Isolate the Control Room HVAC System

INITIAL CONDIITONS:
1. The plant is at 100% power.
2. Control Room Ventilation Train A is in service.
3. The Aux Building Operator has been briefed and is standing by on location.
4. Chiller BK400 is ready for a start.

INITIATING CUE:
   SWAP Control Room Ventilation Trains IAW Section 5.4 of HC.OP-SO.GK-0001.

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains and locates procedure.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	<u>IF</u> excessive time is taken reviewing precautions and limitations, <u>THEN</u> INFORM operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.4.1.		
5.4.1	**ENSURE** that all prerequisites have been satisfied IAW Section 2.4.	Operator ensures that all prerequisites have been satisfied and initials each.		
<u>NOTE</u>	All operations are performed from 10C651E unless otherwise noted. Procedure describes transfer from A Control Chilled Water Loop in service to the B Loop in service, values in parentheses used to transfer back to A in service. SACS Pump Room Unit Coolers 1AVH214 AND 1BVH214 are interlocked to operate in AUTO only IF Chilled Water Pump AP400 is in service. SACS Pump Room Unit Coolers 1CVH214 and 1DVH214 are interlocked to operate in AUTO only IF Chilled Water Pump BP400 is in service.	Operator reads and initials NOTE.		

JPM NUMBER:	GK002	NAME:	
REV NUMBER:	04	DATE:	

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.4.2	**PRESS** CH W CIRC PUMP B(A)P400 MAN PB. **VERIFY** MAN comes on.	*Operator presses the BP400 MAN PB, and observes the MAN push button illuminated and the AUTO push button extinguished. Examiner Note: Operator may place BP400 in AUTO when proceeding to respond to smoke.		
CUE:	"REPORT as Yard Operator that there is a large fire north of the HC Million Gallon Fuel Oil Storage Tank and smoke is headed towards the power block." "Light smoke is coming out of the Control Room ventilation supply ductwork into the Main Control Room. [SRO] Take any required actions. [SRO] If requested state, "Implement HC.OP-AB.HVAC-0002 and take any required actions."			
CUE:	ENSURE ET-1 TRIGGERS; advance Fire Computer, OR PROVIDE Fire Computer Alarm Summary.			
HC.OP-AB.HVAC-0002				
		Operator reviews HC.OP-AB.HVAC-0002 CONTROL ROOM ENVIRONMENT. EXAMINER NOTE: The directions to HC.OP-AB.HVAC-0002 are contained within HC.OP-AR.QK-0001(2). The operator may respond to the fire alarm and not go directly to HC.OP-AB.HVAC-0002.		
CUE:	If operator responds to OHA A2-A5 in accordance with HC.OP-AR.ZZ-0002, and HC.OP-AR.QK-0001/2, respond as appropriate to implement HC.OP-AB.HVAC-0002 and take any required actions.			
I.	Smoke OR Toxic Gases are ENTERING the Control Room from an Outside source. Date/Time: _____	Operator determines Retainment Override Condition I. applies.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	I.a. PRESS the ISOLATE PB for the I/S Control Room Ventilation Train.	***#Operator presses the ISOLATE PB for the A Control Room Ventilation Train.** Operator observes the HD9598A ISOLATE PB for the A Control Room Ventilation Train illuminates. Operator observes the HD9588AA and HD9588BA NORMAL ISOLATED lights are illuminated. Operator observes the AV400 START PB illuminates, and the STOP PB extinguish.		
	I.b. PRESS the RECIRC PB for the I/S CREF Unit.	***#Operator presses the RECIRC PB for AV400.** Operator observes the OA DMPR HD9593A OPEN PB extinguish and HD9593A CLOSED PB illuminate.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____		

Task Standard: Operator Isolates the Control Room HVAC System in accordance with HC.OP-AB.HVAC-0002.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

Copy _____ of _____

SYSTEM: Safety & Turbine Auxiliaries Cooling

TASK NUMBER: 3080050101

TASK: Transfer TACS to the Standby SACS Loop

JPM NUMBER: 305H-JPM.EG002   **REVISION:** 13

SAP BET: NOH05JPEG02E

K/A NUMBER: 400000 A.4.Ability to manually operate and / or monitor in the control room: (CFR: 41.7 / 45.5 TO 45.8) A4.01 CCW indications and control

IMPORTANCE FACTOR: RO: 3.1   SRO: 3.0

ALTERNATE PATH: ☐

APPLICABILITY: RO ☒   SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.ZZ-0001, Rev. 31

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____9_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____   **GRADE:** SAT ☐   UNSAT ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
                          Signature

JOB PERFORMANCE MEASURE

SYSTEM: Safety & Turbine Auxiliaries Cooling

TASK NUMBER: 3080050101

TASK: Transfer TACS to the Standby SACS Loop

INITIAL CONDIITONS:
1. The plant is at 100% power.
2. TACS is being supplied by SACS Loop A.
3. SACS Pump AP210 has developed an oil leak on the inboard pump bearing and there is no oil level in the bubbler.
4. There is no line break in the system.
5. SACS Pump DP210 has been checked for a start.

INITIATING CUE:

TRANSFER TACS to the B SACS loop IAW HC.OP-AB.ZZ-0001 Attachment 10 (Hard Card).
STOP SACS Pump AP201.
ENSURE SACS cooling is aligned to the A RHR Heat Exchanger <u>AND</u> secured to the B RHR Heat Exchanger.
There are no additional operators available to assist in the swap.

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains procedure HC.OP-AB.ZZ-0001 Attachment 10, Page 2 of 2, TACS TRANSFER TO B LOOP.	Operator obtains the correct procedure.		
	Operator determines beginning step of the procedure.	Operator enters the Date and Time, and determines correct beginning step to be 1.0.		
1.0	<u>IF</u> 'A' Loop TACS is isolating, <u>THEN</u> **LOCKOUT**: • HV-2522 / 2496A • HV-2522 / 2496C	Operator determines this step is not applicable and marks the Steps N/A.		
2.0	**VERIFY** no Line Break in the TACS System.	Operator reviews Initiating Cue and/or observes normal SACS Head Tank Levels, and determines no line break exists, and initials Step		
3.0	**ENSURE** B and D SACS Pumps in service, <u>IF</u> required, <u>THEN</u> **START** the B(D) Pump as follows: A. **ENSURE** REMOTE PB is OFF.	Operator observes the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D REMOTE light is extinguished, and initials Step.		
	B. **PLACE** the B(D) Pump in MAN.	***#Operator presses the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D MAN pushbutton,** observes the MAN light illuminates and the AUTO light extinguishes, and initials Step.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	C. **START** the B(D) SACS Pump. ____/____ Date/Time	***#Operator presses the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D DP210 START pushbutton,** observes the PUMP D DP210 START light illuminates and the STOP light extinguishes, enters the Date and Time, and initials Step.		
CUE:	**IF asked for status of 'D' SACS pump after the start, REPORT post start checks are satisfactory.**			
	D. **OBSERVE** LOW DIFF PRESS light extinguishes.	Operator observes the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D LOW DIFF PRESS light is not illuminated, and initials Step.		
4.0	**ENSURE** the following valves are OPEN/OPENING: • HV-2522/2496B	***#Operator presses the LOOP B ISLN TACS CLG/HYDR PNEU ACCUM AIR TACS INBD SPLY/RTN HV 2522B HV 2496B OPEN pushbutton,** observes the HV 2522B HV 2496B OPEN light illuminates, and the CLOSE light extinguishes, and initials Step.		
	• HV-2522/2496D	***#Operator presses the LOOP B ISLN TACS CLG/HYDR PNEU ACCUM AIR TACS OUTBD SPLY/RTN HV-2522D/HV-2496D OPEN pushbutton,** observes the HV 2522D HV 2496D OPEN light illuminates, and the CLOSE light extinguishes, and initials Step.		
5.0	WHEN a positive indication is observed that valves in Step 4.0 are OPEN/OPENING, THEN **ENSURE** the following valves are CLOSED/CLOSING: • HV-2522 / 2496A	***#Operator presses the LOOP A ISLN TACS CLG/HYDR PNEU ACCUM AIR TACS INBD SPLY/RTN CLOSE pushbutton for HV 2522 HV 2496A,** observes the CLOSE lights illuminate and the HV 2522A HV 2496A OPEN light extinguishes, and initials Step.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	• HV-2522 / 2496C	***#Operator presses the LOOP A ISLN TACS CLG/HYDR PNEU ACCUM AIR TACS OUTBD SPLY/RTN CLOSE pushbutton for HV 2522 HV 2496C,** observes the CLOSE lights illuminate and the HV 2522C HV 2496C OPEN light extinguishes, and initials Step.		
6.0	**ENSURE** the B AND D SACS Pumps are in AUTO.	Operator observes the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP B AUTO light is illuminated and MAN light is extinguished, ***#Operator presses the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D AUTO pushbutton,** observes the AUTO light illuminates and the MAN light extinguishes, and initials Step.		
7.0	**PERFORM** the following <u>IF</u> required: A. **ADJUST OPEN** HV-2512A to ≈4500 gpm SACS flow to "A" RHR Hx.	***#Operator presses the HV2512A INCR pushbutton until flow on FI- 2511A (CRIDS, or equivalent) indicates ≈4500 gpm,** and initials Step.		
	B. **CLOSE** HV-2512B	***#Operator presses the HV2512B DECR pushbutton until the HV2512B OPEN light extinguishes** and initials Step.		
CUE:	**DIRECT the operator to secure SACS Pump AP210.**			
	C. **PLACE** the A(C) SACS Pump in MAN.	Operator presses the SAFETY AUXILIARIES COOLING LOOP A PUMPS PUMP A MAN pushbutton, and/or observes the MAN light illuminates and the AUTO light extinguishes(d), and initials Step. EXAMINER NOTE: The pump should have already swapped to MAN.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	D. **STOP** the A(C) SACS Pump.	***#Operator presses the SAFETY AUXILIARIES COOLING LOOP A PUMPS PUMP A STOP pushbutton,** observes the PUMP A STOP light illuminates and the AP210 START light extinguishes, and initials Step.		
8.0	**ENSURE** proper Service Water pump alignment IAW HC.OP-SO.EA-0001	Operator observes that a SSW pump is operating in each loop, and initials Step.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator transfers TACS to SACS Loop B in accordance with HC.OP-AB.ZZ-0001 Attachment 10.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Reactor Protection

| 2016 NRC EXAM |
| JPM I |

Copy _____ of _____

TASK NUMBER: 2120050101

TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set

JPM NUMBER: 305H-JPM.SB015   **REVISION:** 06

SAP BET: NOH05JPSB15E

K/A NUMBER: 212000 A2. Ability to (a) predict the impacts of the following on the REACTOR PROTECTION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6)
A2.01 RPS Motor-Generator Set Failure

                               IMPORTANCE FACTOR: RO: 3.7   SRO: 3.9

ALTERNATE PATH: ☒

APPLICABILITY: **RO** ☒   **SRO** ☒

EVALUATION SETTING/METHOD: Plant/Simulate

REFERENCES: HC.OP-SO.SB-0001, Rev 34

TOOLS, AND EQUIPMENT: None

                          ESTIMATED COMPLETION TIME: _____ 12 _____ Minutes

         TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____ N/A _____ Minutes

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JPM PERFORMED BY: _____   **GRADE: SAT** ☐   **UNSAT** ☐

                            ACTUAL COMPLETION TIME: _____ **Minutes**

         ACTUAL TIME CRITICAL COMPLETION TIME: _____ N/A _____ **Minutes**

REASON IF UNSATISFACTORY:

         EVALUATOR: _____   **DATE:** _____
                                    Signature

JOB PERFORMANCE MEASURE

SYSTEM: Reactor Protection

TASK NUMBER: 2120050101

TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set

INITIAL CONDIITONS:
1. The plant is at 100% power.
2. RPS A is being powered from the ALTERNATE A FEED.
3. Maintenance has been completed on 1A-G-401, RPS MG set.
4. Once the MG Set is running, Maintenance needs to check/adjust MG Set output voltage in accordance with Step 5.5.2.D.

INITIATING CUE:

START the 1A-G-401, RPS MG SET A, in preparation to transfer RPS Bus A power from RPS Alternate Transformer A to RPS MG SET A in accordance with Section 5.5 of HC.OP SO.SB 0001.
CONTACT Maintenance when ready for MG set output voltage check/adjust.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains procedure HC.OP-SO.SB-0001.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.5.1		
5.5.1	**ENSURE** all prerequisites of Section 2.5 are satisfied.	Operator ensures that all prerequisites have been satisfied.		
CUE:	**If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.**			
CUE:	**IF asked about the current status/indications, state: The Red MOTOR ON lamp is extinguished, and the Green MOTOR OFF lamp is illuminated. The output breaker is open.**			
5.5.2	<u>IF</u> start of 1A(B)G401, RPS MG Set, is necessary, <u>THEN</u> **PERFORM** the following (A[B] MG Set Local Panel):	Operator determines that this Step applies and initials Step.		
<u>NOTE</u>	<u>IF</u> the MOTOR ON push-button is <u>NOT</u> held in for long enough, <u>THEN</u> the starting sequence will <u>NOT</u> be completed. This may result in an undervoltage condition in the generator, which may result in generator damage.	Operator reads and initials NOTE.		
	A. **PRESS** <u>AND</u> **HOLD** the MOTOR ON push-button (Red MOTOR ON lamp illuminates).	***#Operator presses and holds the AG401 MOTOR ON push-button,** and initials Step.		
CUE:	**The Red MOTOR ON lamp is illuminated, and the Green MOTOR OFF lamp is extinguished.**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
	B. **VERIFY** A-C VOLTS Generator Output Voltage <u>AND</u> PERFORM the following: 1. <u>IF</u> voltage increases to 115 - 125 volts AND has been stabilized for approximately 5 seconds, <u>THEN</u> **RELEASE** the MOTOR ON push-button.	Operator observes A-C VOLTS Generator Output Voltage and EXPECTS a voltage increase to 115-125 volts which stabilizes for approximately 5 seconds. Following the next Cue, the Operator determines need to proceed to Step 5.5.2.B.2.		
CUE:	**The meter identified has risen from 0 volts, and has stabilized at approximately 100 volts.**			
	2. <u>IF</u> voltage does <u>NOT</u> increase to 115 - 125 volts, <u>THEN</u> **PERFORM** the following: a. **RELEASE** the MOTOR ON push-button.	***#Operator releases the AG401 MOTOR ON push-button,** and initials Step.		
	b. **PRESS** <u>AND</u> **HOLD** MOTOR OFF push-button.	***#Operator presses and holds the AG401 MOTOR OFF push-button,** and initials Step.		
	c. <u>WHEN</u> the MOTOR ON light extinguishes, <u>THEN</u> **RELEASE** the MOTOR OFF push-button.	When the AG401 MOTOR ON light extinguishes, the operator releases the AG401 MOTOR OFF push-button. Following the next Cue, the ***Operator releases the MOTOR OFF push-button,** and initials Step.		
CUE:	**The Red MOTOR ON lamp is extinguished, and the Green MOTOR OFF lamp is illuminated.**			
	d. **REPEAT** Step 5.5.2.A.	Operator returns to Step 5.5.2.A.		
CUE:	**If asked about restarting the MG Set, inform the operator that one restart attempt is allowed and restart can be attempted while the MG Set is spinning.**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
5.5.2	A. **PRESS** <u>AND</u> **HOLD** the MOTOR ON push-button (Red MOTOR ON lamp illuminates).	*#**Operator presses and holds the AG401 MOTOR ON push-button,** and initials Step.		
CUE:	**The Red MOTOR ON lamp is illuminated, and the Green MOTOR OFF lamp is extinguished.**			
	B. **VERIFY** A-C VOLTS Generator Output Voltage <u>AND</u> PERFORM the following: 1. <u>IF</u> voltage increases to 115 - 125 volts AND has been stabilized for approximately 5 seconds, <u>THEN</u> **RELEASE** the MOTOR ON push-button.	Operator observes A-C VOLTS Generator Output Voltage and EXPECTS a voltage increase to 115-125 volts which stabilizes for approximately 5 seconds. Following the next Cue, the *#**Operator releases the AG401 MOTOR ON push-button,** and initials Step.		
CUE:	**The meter identified has risen from 0 volts, and has stabilized at approximately 120 volts for approximately 5 seconds.**			
	2. <u>IF</u> voltage does <u>NOT</u> increase to 115 - 125 volts, <u>THEN</u> **PERFORM** the following:	Operator determines this step no longer applies.		
	C. <u>WHEN</u> 1 minute of MG Set operation has elapsed, <u>THEN</u> **PLACE** RPS MG Set 1A(B)G401 GENERATOR OUTPUT breaker to ON <u>AND</u> **INITIAL** Attachment 1.	Operator waits one minute, and *#**places the RPS MG Set 1AG401 GENERATOR OUTPUT breaker to ON,** initials Attachment 1, and initials the Step.		
CUE:	**The breaker identified is in the stated position.**			
<u>**NOTE**</u>	The RPS MG Set output voltage shall <u>NOT</u> be set using the local panel meter. Use of the local panel meter ...			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
	D. **REQUEST** Maintenance Department to **CHECK** <u>AND</u> **ADJUST** (as necessary), the RPS MG Set(s) output voltage at the input to Electrical Protection Assembly (EPA) Circuit Breaker 1AN410 (1AN411) (unloaded) IAW HC.MD-PM.SB-0001(Q), <u>OTHERWISE</u>, **VERIFY** A-C VOLTS at local panel meter is 115 to 125 volts.	Operator requests maintenance to check and adjust if necessary RPS MG Set A output voltage at the input to Electrical Protection Assembly (EPA) Circuit Breaker 1AN410 (unloaded) IAW HC.MD-PM.SB-0001(Q).		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete".** **STOP TIME:** _____			
Task Standard: Operator starts the 1A-G-401, RPS MG SET A, in accordance with Section 5.5 of HC.OP SO.SB-0001.				

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Control Rod Drive Hydraulic

| 2016 NRC EXAM |
| JPM J |

Copy _____ of _____

TASK NUMBER: 2010090104

TASK: Shift In-Service CRD Stabilizing Valves

JPM NUMBER: 305H-JPM.BF002   **REVISION:** 12

SAP BET: NOH05JPBF02E

K/A NUMBER: 201001 A2. Ability to (a) predict the impacts of the following on the CONTROL ROD DRIVE HYDRAULIC SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6)
A2.02 Valve closures

IMPORTANCE FACTOR: RO: 3.2   SRO: 3.3

ALTERNATE PATH: ☐

APPLICABILITY: RO ☒   SRO ☒

EVALUATION SETTING/METHOD: Reactor Building/Simulate

REFERENCES: HC.OP-SO.BF-0001 Rev. 34

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____10_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____   **GRADE:** SAT ☐   UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
                                    Signature

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JOB PERFORMANCE MEASURE

SYSTEM: Control Rod Drive Hydraulic

TASK NUMBER: 2010090104

TASK: Shift In-Service CRD Stabilizing Valves

INITIAL CONDIITONS:
1. The plant is operating at 80% power.
2. Stabilizing Valves A(B) is in service.
3. Stabilizing Valves A(B) has failed closed due to a malfunction in the Reactor Manual Control System.

INITIATING CUE:

PLACE Stabilizing Valves B(A) in service; **SECURE** Stabilizing Valves A(B) in accordance with HC.OP-SO.BF-0001, Section 5.2.

[Evaluator: **DETERMINE** the in service and standbys Stabilizing Valves based on current plant conditions, AND **MODIFY** the Initial Conditions and STANDARDS appropriately.]

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue, a marked up copy of HC.OP-SO.BF-0001, AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	IF excessive time is taken reviewing precautions and limitations, THEN INFORM operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.2.1.		
5.2.1	**ENSURE** all prerequisites of Section 2.2 are satisfied.	Operator ensures all prerequisites are satisfied; completes Attachment 1 and initials each prerequisite.		
5.2.5	IF Stabilizing Valve B(A) is to be alternated, THEN **PERFORM** the following: A. Slowly **OPEN** 1-BF-V054(1-BF-V071), CRD Drive Wtr Stabilizing Vlvs "B(A)" Inlet Vlv.	*Operator simulates rotating the 1-BF-V054(1-BF-V071) handwheel in the counterclockwise direction until the handwheel reaches full open, and initials Step.		
CUE:	The handwheel of the valve indicated rotates in the direction indicated and comes to a hard stop.			
	B. Slowly **OPEN** 1-BF-V060(1-BF-V059), CRD Drive Wtr Stabilizing Vlvs "B(A)" Outlet Vlv.	*Operator simulates rotating the 1-BF-V060(1-BF-V059) handwheel in the counterclockwise direction until the handwheel reaches full open, and initials Step.		
CUE:	The handwheel of the valve indicated rotates in the direction indicated and comes to a hard stop.			
	C. **PRESS** (STABILIZER VALVES) VALVE SELECTOR AND **VERIFY** that B(A) VALVE SELECTED is illuminated. (10C651C)	Operator requests that the Control Room press the VALVE SELECTOR push button and verify B(A) VALVE SELECTED is illuminated.		
CUE:	Respond as the Control Room, B(A) Valve Selected is illuminated.			

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	D. **CLOSE** 1-BF-V059(1-BF-V060),CRD Drive Wtr Stabilizing Vlvs "A(B)" Outlet Vlv.	***#Operator simulates rotating the 1-BF-V059(1-BF-V060) handwheel in the clockwise direction until valve handwheel reaches a hard stop,** and initials Step.		
CUE:	The handwheel of the valve indicated rotates in the direction indicated and comes to a hard stop.			
	E. **CLOSE** 1-BF-V071(1-BF-V054), CRD Drive Wtr Stabilizing Vlvs "A(B)" Inlet Vlv.	***#Operator simulates rotating the 1-BF-V071(1-BF-V054) handwheel in the clockwise direction until valve handwheel reaches a hard stop,** and initials Step.		
CUE:	The handwheel of the valve indicated rotates in the direction indicated and comes to a hard stop.			
	F. **OBSERVE** that approximately 6 gpm total flow through both the Insert AND Withdraw Stabilizing valves is indicated on 1BF-FI-R004 C11, Stabilizing Header Flow Indicator.	Operator observes approximately 6 gpm total flow through both the Insert AND Withdraw Stabilizing valves is indicated on 1BF-FI-R004 C11, Stabilizing Header Flow Indicator, and initials Step.		
CUE:	The meter indicates as seen.			
	G. **PERFORM** valve lineup IAW Attachment 1.	Operator completes valve lineup in accordance with Attachment 1 and requests verification.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator alternates CRD Hydraulic System Stabilizing Valves in accordance with HC.OP-SO.BF-0001.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: 120 VAC Electrical Distribution

2016 NRC EXAM **JPM K**	Copy _____ of _____

TASK NUMBER: 4000020404

TASK: Respond To A Station Blackout

JPM NUMBER: 305H-JPM.PN005   **REVISION:** 00

SAP BET: NOH05JPPN05E

K/A NUMBER: 295003 AA1. Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER :(CFR: 41.7 / 45.6)
AA1.01 A.C. Electrical Distribution System

IMPORTANCE FACTOR: RO: 3.7   SRO: 3.8

ALTERNATE PATH: ☐

APPLICABILITY: RO ☒   SRO ☒

EVALUATION SETTING/METHOD: Auxiliary Building/Simulate

REFERENCES: HC.OP-AB.ZZ-0135 Rev. 41

TOOLS, AND EQUIPMENT: HC.OP-AB.ZZ-0135 Equipment stored in the EOP locker in the shift clerks office in the Main Control Room

ESTIMATED COMPLETION TIME: _____15_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____30_____ Minutes

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JPM PERFORMED BY: _____   **GRADE: SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: _____ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
Signature

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JOB PERFORMANCE MEASURE

SYSTEM: 120 VAC Electrical Distribution

TASK NUMBER: 4000020404

TASK: Respond To A Station Blackout

INITIAL CONDIITONS:
1. The plant is in OPCON 3.
2. A loss of all offsite and onsite AC power has occurred.
3. HC.OP-AB.ZZ-0135, STATION BLACKOUT //LOSS OF OFFSITE POWER//DIESEL GENERATOR MALFUNCTION is being implemented.

INITIATING CUE:

>   **PERFORM** the 30 MINUTE SBO Actions of HC.OP-AB.ZZ-0135, Attachment 10A, Auxiliary Building Actions For SBO – Operator #1.
>   This is a **Time Critical JPM**.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator the initiating cue AND ENTER START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains and locates procedure.	Operator obtains HC.OP AB.ZZ-0135.		
	Operator determines beginning step of the procedure.	Operator obtains copy of Attachment 10A.		
ATTACHMENT 10A, AUXILIARY BUILDING ACTIONS FOR SBO – OPERATOR #1				
	EQUIPMENT REQUIRED: (Equipment below is stored in the EOP locker in the shift clerk's office) 7 Door Stops 4 Keys, all #172 (PA 2235) in Work Control Key Cabinet	***#Operator obtains equipment required by Attachment 10A,** (stored in the EOP locker in the shift clerks office) and initials Attachment 10A. Note: It is critical that the equipment is obtained before the performance of the following actions. However, the following actions can be completed in any order.		
CUE:	After the operator has obtained the equipment, inform the operator to return equipment to storage, and to assume that the Equipment Required has been obtained.			
1.	**BYPASS** HPCI and RCIC high temperature isolation trips at the following (Key 172, PA2235, for all switches): • HPCI panel 10-C-620, Switch B21B-S6A	***Operator inserts one #172 (PA 2235) key into switch B21B-S6A and rotates to the BYPASS position,** and initials Attachment 10A.		
CUE:	The switch you have indicated is in the stated position.			
	• HPCI panel 10-C-641, Switch B21B-S6C	***Operator inserts one #172 (PA 2235) key into switch B21B-S6C and rotates to the BYPASS position,** and initials Attachment 10A.		
CUE:	The switch you have indicated is in the stated position.			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	• RCIC panel 10-C-621, Switch B21B-S5B	*Operator inserts one #172 (PA 2235) key into switch B21B-S5B and rotates to the BYPASS position, and initials Attachment 10A.		
CUE:	The switch you have indicated is in the stated position.			
	• RCIC panel 10-C-640, Switch B21B-S5D	*Operator inserts one #172 (PA 2235) key into switch B21B-S5D and rotates to the BYPASS position, and initials Attachment 10A.		
CUE:	The switch you have indicated is in the stated position.			
2.	**BLOCK OPEN** the following doors in the Lower Relay Room. 5335A, 5302A, 5302C, 5316B, 5318C	*Operator opens and blocks open door 5335A using a Door Stop, Note: The doors may be blocked open in any order.		
CUE:	The door you have identified is blocked open.			
		*Operator opens and blocks open door 5302A using a Door Stop,		
CUE:	The door you have identified is blocked open.			
		*Operator opens and blocks open door 5302C using a Door Stop,		
CUE:	The door you have identified is blocked open.			
		*Operator opens and blocks open door 5316B using a Door Stop,		
CUE:	The door you have identified is blocked open.			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		*Operator opens and blocks open door 5318C using a Door Stop, and initials Attachment 10A.		
CUE:	The door you have identified is blocked open.			
3.	**OPEN** the circuit breakers in the following tables to shed non-essential loads.	Operator reads and initials Step when complete. Note: All of the following actions are located in 54' CONTROL DIESEL, RM 5102A.		
	LOCATION / PANEL # 54' CONTROL DIESEL RM 5102A / 1BJ483 CIRCUIT #6 FUSE PANEL 1YF406	*Operator locates 1BJ483, and simulates opening circuit breaker #6, and initials block.		
CUE:	The breaker you have indicated is open.			
	CIRCUIT #10 ELECTRICAL PROTECTION ASSEMBLY 1AN414	*Operator simulates opening circuit breaker #10, and initials block.		
CUE:	The breaker you have indicated is open.			
	CIRCUIT #22 FEEDWATER & RECIRC INSTR. CAB. 10C612	*Operator simulates opening circuit breaker #22, and initials block.		
CUE:	The breaker you have indicated is open.			
	LOCATION / PANEL # 54' CONTROL DIESEL RM 5102A / 1AJ483 CIRCUIT #7 FUSE PANEL 1YF405	*Operator locates 1AJ483, and simulates opening circuit breaker #7, and initials block.		
CUE:	The breaker you have indicated is open.			

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STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	CIRCUIT #9 ELECTRICAL PROTECTION ASSEMBLY 1AN413	*Operator simulates opening circuit breaker #9, and initials block.		
CUE:	The breaker you have indicated is open.			
	CIRCUIT #15 ROD POSITION INFO CAB 10C615	*Operator simulates opening circuit breaker #15, and initials block.		
CUE:	The breaker you have indicated is open.			
	CIRCUIT #21 PROCESS INSTR. VERT. BOARD 10C613	*Operator simulates opening circuit breaker #21, and initials block.		
CUE:	The breaker you have indicated is open.			
	LOCATION: 54' CONTROL DIESEL RM 5102A / PANEL # 1CJ483 — CIRCUIT #6 ROD SEQUENCE CONTROL CAB 10C659	*Operator locates 1CJ483, and simulates opening circuit breaker #6, and initials block.		
CUE:	The breaker you have indicated is open.			
4.	**NOTIFY CONTROL ROOM THAT 30 MINUTE SBO ACTIONS FOR ATTACHMENT 10A ARE COMPLETE and that you are continuing on with the remainder of the Attachment.**	Operator notifies the control room, and initials Step.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN RECORD the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator performs the 30 MINUTE SBO Actions of HC.OP-AB.ZZ-0135 Attachment 10A, Auxiliary Building Actions For SBO – Operator #1.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

SIMULATOR

COPY _____ OF _____

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: **2016 NRC EXAM SCENARIO-1**

SCENARIO NUMBER: **ESG-2016 NRC-1**

EFFECTIVE DATE: Effective When Approved

EXPECTED DURATION: 1 Hour

REVISION NUMBER: **1**

PROGRAM: ☐ **LICENSED OPERATOR REQUALIFICATION**

                        ☒ **INITIAL LICENSE**

                        ☐ **OTHER:** _____

REVISION SUMMARY:

1. Minor editorial comments made from validation.

I. OBJECTIVE(S):

Enabling Objectives:

A. The crew must demonstrate the ability to operate effectively as a team while completing a series of CREW CRITICAL TASKS, which measure the crew's ability to safely operate the plant during normal, abnormal, and emergency plant conditions.
(Crew critical tasks within this examination scenario guide are identified with an "*".)

II. MAJOR EVENTS:

A. Remove EDG From Service
B. EDG Trip
C. Raise Reactor power using Control Rods.
D. Stuck Control Rod
E. Seismic Event (>OBE) / EHC Filter Clogging
F. Safety Relief Valve Stuck Open
G. ATWS
H. SBLC Failure to Auto Start / SBLC Pump B Failure on Start
I. RWCU Failure to Automatically Isolate
J. Loss of EHC
K. RHR Pump Trip

III. SCENARIO SUMMARY:

The scenario begins with the plant at approximately 88% power; with power ascension in progress following maintenance on RFPT AP101, and an Emergency Diesel Generator test in progress. The EDG will trip during its removal from testing, making the EDG inoperable. After Technical Specifications are addressed, the crew will continue with the power ascension. A stuck rod will require actions to raise drive pressure to move the rod. EHC Filter clogging will occur during a seismic event. Actions will be successful in preventing a loss of EHC pressure. A SRV will open requiring a Reactor Scram to comply with Technical Specifications. An ATWS occurs on the scram. The Standby Liquid Control System will fail to automatically initiate, and one pump will fail after the system is manually placed in service. Reactor Water Cleanup System will need to be manually isolated following SLC initiation. A loss of EHC will remove the Main Turbine and Bypass Valves from the pressure control strategy. The first RHR pump to be placed in service will trip requiring another pump be placed in service for containment control.

IV. INITIAL CONDITIONS:

I.C.
Initial

_____ **INITIALIZE** the simulator to 100% power, MOL, TACS on SACS A.
REDUCE Reactor Power to 88% with Recirculation Pumps, and inserting Groups 10A and 10B rods.
_____ **ENSURE** Recirculation Pump A speed is NOT 68-71% AND Pump B speed is NOT 67-73%.

_____ **STABILIZE** Xenon concentration.

_____ **ENSURE** SACS Pump BP210 is in service, <u>AND</u> SACS Pump DP210 is in standby.

_____ **ENSURE** RACS Pumps B and C are in service.

_____ **ENSURE** EHC Pump AP116 is in service.

_____ **START** AG400 and load IAW HC.OP-ST.KJ-0001 to 1000 kw and 50-200 KvAR.

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)
Initial

_____ **INITIAL** IO.ZZ-0006 for the power ascension.

_____ **ENSURE** REMA is provided to support power ascension. Withdrawing 10A rods then TCF adjustment.

_____ **MARKUP** HC.OP-ST.KJ-0001to Step 5.4.13.D.
_____ **REVIEW** the Scenario Reference section and CLEAN the bolded EOPs, ABs and SOPs listed (at a minimum). (80091396 0270)

_____ **COMPLETE** the Simulator Ready for Training/Examination Checklist.

EVENT FILE:			
Initial	Event		
	4	Event Code: Description:	**ET_ARRAY(2) & ZLTUEHSB** ET-2 ACTIVE & EHC B STARTED
	5	Event Code: Description:	**lcvposx(1) <= 700** Rod 18-03 Position
	6	Event Code: Description:	**sl_pmbrn** SLC Pump B Running
	13	Event Code: Description:	**rh_bkr(1) & !et_array(14)** RHR A Running First
	14	Event Code: Description:	**rh_bkr(2) & !et_array(13)** RHR B Running First
	15	Event Code: Description:	**ZLLCWHIT(123) & (A3015_V >=308)** Rod 30-39 Selected AND Drive Pressure >=308 psid
	16	Event Code: Description:	**MONVAR(18) $\leq$ 700** RPV Pressure $\leq$ 700 psig

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction CU11A	RWCU isolation valve F001 failure to auto close
	None	None	Insert malfunction CU11B	RWCU isolation valve F004 failure to auto close
	None	None	Insert malfunction SL04A	SBLC pump A failure of auto start signal
	None	None	Insert malfunction SL04B	SBLC pump B failure of auto start signal
	None	None	Insert malfunction RP06	Half-core ATWS - left side
	None	None	Insert malfunction CD033039	Control Rod 30-39 stuck
	None	None	Insert malfunction PC07A on event 2	Seismic Event I
	None	None	Insert malfunction TC16 to 30.00000 in 120 on event 2	EHC pump discharge filter plugging
	None	None	Insert malfunction AD02DO on event 3	ADS/Relief valve F013D (MS LINE D) sticks open
	None	None	Insert malfunction TC16 to 0 on event 4 delete in 1	EHC pump discharge filter plugging
	None	None	Insert malfunction RP07 after 2 on event 5	Half-core ATWS - right side
	None	None	Insert malfunction SL01B after 5 on event 6	SBLC injection pump BP208 failure
	None	None	Insert malfunction TC07A after 300 on event 6	EHC pump A trip
	None	None	Insert malfunction TC07B after 300 on event 6	EHC pump B trip
	None	None	Insert malfunction TC01-10 after 420 on event 6	All turbine bypass valves fail closed
	None	None	Insert malfunction QQ20 to SHORT on event 13	RHR pump AP202 Malfunctions
	None	None	Insert malfunction QQ21 to SHORT on event 14	RHR pump BP202 Malfunctions
	None	None	Insert malfunction CD033039 on event 15 delete in 1	Control Rod 30-39 stuck
	None	None	Insert malfunction AD02DO on event 16 delete in 1	ADS/Relief valve F013D (MS LINE D) sticks open
	None	None	Insert malfunction DG02A on event 17	Diesel generator A failure

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote EP01 after 360 to BYPASS on event 8	EP01 EOP-301, bypass MSIV (-129") isolation interlock
	None	None	Insert remote EP02 after 480 to BYPASS on event 9	EP02 EOP-311, bypass PCIG (-129") isolation interlock
	None	None	Insert remote EP38 after 180 to Emergency on event 10	EP38 EOP-319, Restoring Instrument Air in an Emergency
	None	None	Insert remote EP09 after 240 to REMOVED on event 11	EP09 EOP-320 (step 5.1.2), ARI valve fuses F6A/F5A
	None	None	Insert remote EP10 after 240 to REMOVED on event 11	EP10 EOP-320 (step 5.1.4), ARI valve fuses F6B/F5B
	None	None	Insert remote EP11 after 360 to INSTALLED on event 11	EP11 EOP-320 (step 5.2.2), RPS division 1 jumper
	None	None	Insert remote EP12 after 360 to INSTALLED on event 11	EP12 EOP-320 (step 5.2.4), RPS division 2 jumper
	None	None	Insert remote EP13 after 360 to INSTALLED on event 11	EP13 EOP-320 (step 5.2.3), RPS division 3 jumper
	None	None	Insert remote EP14 after 360 to INSTALLED on event 11	EP14 EOP-320 (step 5.2.5), RPS division 4 jumper
	None	None	Insert remote EP35 after 180 to FAIL_CLOSE on event 12	EP35 EOP-322 HV-F006 HPCI to CS

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Removing AG400 From Service:	• CRS directs unloading and securing 1AG400 in accordance with HC.OP-ST.KJ-0001.	
	• PO unloads and secures 1AG400 IAW HC.OP-ST.KJ-0001: ⇒ Presses DIESEL ENG GOV DECR PB and lowers load to 50-200 kw ⇒ Presses TRIP for EDG AG400 40107 Gen Brkr. ⇒ Uses GEN VR RAISE OR LOWER PBs CYCLE Generator terminal voltage between 4056V and 4394V (one complete cycle) then returns voltage to approximately 4160V. ⇒ Presses GEN VR MAN PB and ensures the MAN light is on. ⇒ Uses GEN VR RAISE OR LOWER PBs, CYCLE Generator terminal voltage between 4056V and 4394V (one complete cycle), then returns voltage to approximately 4160V. ⇒ Presses GEN VR AUTO PB and ensures the AUTO light is on.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
EDG Trip **BEFORE** the operator stops the EDG, or at the discretion of the Lead Examiner, **TRIGGER ET-17** **REPORT** as ABEO that there is a large oil leak from EDG A.	• Crew recognizes EDG problem by: ⇒ OHA E4-A3 DIESEL ENG PNL A/B/C/D C423 ⇒ OHA E4-A2 DIESEL GEN PNL A/B/C/D C422 ⇒ CRIDS D3776 DG A REGULAR LOCKOUT RELAY	
Report as EO that the oil leak is stopped. Cleanup is in progress. If notified as SM/Work Control state that ST.ZZ-0001 will be performed by another operator. Continue with power ascension.	• CRS declares EDG A inoperable and enters Tech Spec 3.8.1.1.	Perform Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. Restore the inoperable diesel generator to OPERABLE status within 72 hours, OR Verify the Salem Unit 3 gas turbine generator (GTG) is available within 72 hours and once per 12 hours thereafter*, and restore the inoperable diesel generator to OPERABLE status within 14 days.
Power Ascension:	• CRS directs power ascension IAW IO-6.	
As RE, **PROVIDE** the following guidance: • Withdraw Control Rods IAW REMA. • Emergency Load reductions will be performed using SPRG.	• CRS directs withdrawing control rods IAW RE guidance.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO withdraws control rods IAW REMA guidance and HC.OP-SO.SF-0001. ⇒ Presses the desired Control Rod Select PB ⇒ Momentarily presses the WITHDRAW PB ⇒ After the withdrawal cycle is completed, ENSURE that the rod position indicates that the rod is in the correct, even numbered position and initials REMA.	
Rod 30-39 Stuck: Rod 30-39 Stuck is pre-inserted.	• RO determines rod 30-39 is stuck and informs the CRS.	
	• CRS Implements AB.IC 0001 ⇒ Condition F	CRS refers to T/S 3.1.3.1 if rod is determined to be non-moveable.
	• RO performs actions of Condition F of AB.IC-0001: ⇒ Verifies NO Rod Blocks are present. ⇒ Attempts to operate the drive in both directions to determine the exact condition of the Control Rod.	
	⇒ Vent Control Rod using Continuous Insert PB. ⇒ Attempts to withdraw Control Rod using Withdraw PB (including Continuous Withdraw PB).	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	⇒ Simultaneously presses and holds both the Withdraw PB and the Continuous Withdraw PB.	
	⇒ Momentarily presses and then releases the CONTINUOUS INSERT PB(this step may be repeated).	
	⇒ Releases both the Withdraw PB and the Continuous Withdraw PB.	
	⇒ Raises the drive water pressure in approximately 50 psid increments, not to exceed 500 psid (to approximately 315 psig) by throttling closed HV-F003	
	⇒ Attempts to notch in OR notch out the control rod at each new pressure increment.	
	• RO determines that the control rod is freed and returns the drive water pressure to the normal operating range (260-270 psid on A3015).	
	• RO ensures that rod 30-39 is at the desired position and initials REMA.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
Earthquake: After CRD is returned to normal and at the discretion of the Lead Examiner, • **PLAY** the Earthquake Sound Effect (if available) at medium volume for about 15 seconds <u>OR</u> **ANNOUNCE** "You feel motion then it stops", <u>AND</u> **TRIGGER ET-2**	• Crew recognizes Seismic Event by: ⇒ OHA C6-C4 "SEISMIC MON PNL C673" ⇒ CRIDS D3977 "SEISMIC TROUBLE ALARM TRBL" ⇒ Response Spectrum Analyzer indications on 10C650C ⇒ Loud rumbling noise (if available)	
	• Crew monitors critical parameters to determine if plant is stable.	
<u>IF</u> Crew calls National Earthquake Center, <u>THEN</u> **REPORT** a seismic event of 6.0 on Richter scale centered 12 miles east of Wilmington, DE.	• CRS implements AB.MISC-0001: ⇒ Condition E ⇒ Condition F	
<u>IF</u> Crew calls Security, <u>THEN</u> **REPORT** the Security system is intact.	• RO/PO implements AR.ZZ-0011 Attachment C4.	
<u>IF</u> dispatched to 10C673, <u>THEN</u> **REPORT**: • The Event Indicator is WHITE • The tape machines have advanced but are not running • The Amber Alarm light on the Seismic Switch Power Supply drawer is lit.	• Crew dispatches ABEO to 10C673. • Crew recognizes a seismic event >0.1g has occurred	
<u>IF</u> directed to reset 10C673, <u>THEN</u> **DELETE** Malfunction **PC07A**.	• RO/PO directs ABEO to reset 10C673 IAW SO.SG-0001.	
	• RO/PO record Seismic Response Spectrum Analyzer lights on AR.ZZ-0011 Att. C4-1.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO reset Seismic Response Spectrum Analyzer IAW SO.SG-0001.	
IF directed to investigate EDG alarms, THEN REPORT alarms were Fuel Oil Day Tank Hi/Lo alarms.	• RO/PO investigates A EDG LO and HI Priority Alarms.	
EHC Filter Clogging: EHC Filter Clogging is automatically inserted on ET-2.	• Crew recognizes clogging of AP116 EHC pump discharge filter by: ⇒ OHA D3-F5 "TURB HYDR PUMP TROUBLE" ⇒ CRIDS D3627 "MAIN TURB EHC PUMP A FILTER DP"	
InSight Item: • EHC Header Pressure **tupehchd** • EHC Pump Disch Pressure **tupehc(1-2)** • EHC Pump Filter D/P **tupehcdp(1-2)**	• RO/PO responds to OHA IAW HC.OP-AR.ZZ-0014 and HC.OP-AR.ZZ-0024.	CRS may refer to AB.BOP-0003.
IF dispatched to the EHC pump, THEN **REPORT** AP116 discharge filter dp is very high.	• RO/PO directs EO to the EHC skid to investigate the problem	
ENSURE ET-4 actuates when BP116 is started.	• RO/PO presses HYDR FLUID PUMP B MAN Pb. • RO/PO presses BP116 START Pb and ensures HDYR FLUID PUMP B LOW DISCH PRESS is OFF.	
IF dispatched to swap EHC filters, THEN **REPORT** EHC Pump AP116 filters have been swapped.	• RO/PO directs EO to SWAP the AP116 HYDR FLUID PUMP in service Discharge Filter IAW HC.OP-SO.CH-0001(Q).	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO presses HYDR FLUID PUMP A STOP Pb. • RO/PO presses HYDR FLUID PUMP A AUTO Pb.	
Stuck Open SRV: At the discretion of the Lead Examiner, **TRIGGER ET-3** (PSV F013D Inadvertent Opening).	• Crew recognizes SRV open by: ⇒ OHA C1-A3 "ADS/SAFETY RELIEF VALVE NOT CLOSED" ⇒ Acoustic Monitor Indication on 10C650C ⇒ Tailpipe temperature on TR-R614 ⇒ Lowering MWe ⇒ Steam Flow to Feed Flow mismatch ⇒ RPV level swell	
InSight Items: • PSV-F013D Position **advpos(4)** • F013D B Channel Switch **zdads1(4)** • F013D D Channel Switch **zdads2(4)**	• PO cycles SRV control switch in attempt to close the SRV.	
	• CRS implements AB.RPV-0006.	
	• CRS recognizes SRV will not close within two minutes, directs: ⇒ Reducing recirc pumps to minimum speed ⇒ Locking the Mode Switch in SHUTDOWN	Action taken to comply with T/S 3.4.2.1.b.

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO performs the following: ⇒ Reduces Recirc Pumps A & B to minimum speed ⇒ Locks the Mode Switch in SHUTDOWN ⇒ Performs scram actions IAW AB.ZZ- 0001 Att. 1.	
ATWS >4%: The half core ATWS is already inserted on the right side of the core.	• Crew recognizes Scram Condition and Reactor Power Above 4% EOP entry condition: ⇒ Rod FULL IN lights on Full Core Display Not lit as expected ⇒ APRM indications show higher than expected power levels	
	• CRS enters EOP-101A.	
	• Crew recognizes RPV Level Below 12.5" EOP entry condition by: ⇒ OHA C5-A4 "RPV WATER LEVEL LO" ⇒ OHA A7-D5 "RPV LEVEL 3" ⇒ Various water level indicators	
	• CRS directs: ⇒ Initiating SLC ⇒ Verifying RWCU Isolates	
	* ***Crew starts AP208 SLC pump before Suppression Pool temperature reaches 110 degrees.***	**ENTER** Suppression Pool temp when AP208 SLC pump is started: Temp: _____

Event / Instructor Activity	Expected Plant/Student Response	Comments
RWCU Failure to Isolate: RWCU failure is pre-inserted.	• RO/PO manually initiates SLC identifies that RWCU FAILS to isolate, isolates RWCU by closing HV-F001 and HV-F004, and notifies CRS of responses and actions taken.	
Failure of SLC to Auto-Start/Trip of SLC Pump: The BP208 SLC pump will trip 5 seconds after starting.	• Crew recognizes trip of BP208 SLC pump by: ⇒ OHA C1-B1 "SLC PUMP/VALVE O/PF" ⇒ OHA C1-F1 "SLC/RRCS INITIATION FAILURE" ⇒ CRIDS D3023 "SLC INJ PMP BP208 TROUBLE TRBL" ⇒ Flashing STOP light for BP208	
IF dispatched to investigate trip of BP208, THEN **REPORT** the motor is hot to the touch and the breaker will not reset. (52-222101)	• Crew dispatches NEO and Maintenance to investigate trip of BP208 SLC pump.	
	• CRS directs: ⇒ Verifying Recirc runback to minimum ⇒ Tripping reactor recirc pumps	
	• RO/PO: ⇒ Verifies Recirc runback to minimum ⇒ Trips reactor Recirc Pumps	
	• CRS directs inhibiting ADS.	
	• RO/PO inhibits ADS IAW AB.ZZ-0001 Att. 13.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	* **CREW prevents an uncontrolled depressurization during ATWS conditions by preventing ADS ACTUATION.**	This Critical Task is not applicable if RPV level never reaches –129". See justification for failure criteria.
REFER to the appropriate EOP and **SUPPORT** Crew requests for EOPs IAW with the following. Validated execution time delays are built-in: EOP-301: **ET-8** EOP-311: **ET-9** EOP-319: **ET-10** EOP-320: **ET-11** EOP-322: **ET-12** STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Promptly initiate actions IAW the 300 series EOPs to shutdown the reactor. Timely actions will reduce the potential continued challenges to containment. In addition, once the post scram hard card actions have been completed and RPV level has stabilized in the required band, an NCO should be assigned the responsibility to insert control rods IAW the post ATWS CRD operation hard card and CRAM move sheets. When control room portions of EOP-320 have been completed and the NCO is ready to re-insert a manual scram, the NCO should perform a crew update and utilize the post scram hard card to implement the applicable post scram actions following the manual scram attempt.	• CRS directs performance of the following EOPs: ⇒ EO.ZZ-0320 "Defeating ARI and RPS Interlocks" ⇒ EO.ZZ-0301 "Bypassing MSIV Isolation Interlocks" ⇒ EO.ZZ-0311 "Bypassing Primary Containment Instrument Gas Isolation Interlocks" ⇒ EO.ZZ-0319 "Restoring Instrument Air in an Emergency" ⇒ EO.ZZ-0322 "Core Spray Injection Valve Override"	The timing, order, and priority of the EOP performance may vary.
	• CRS directs terminating and preventing injection to the RPV with the exception of: ⇒ SLC ⇒ CRD ⇒ RCIC	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO terminate and prevent injection IAW AB.ZZ-0001: ⇒ Attachment 16 (10C651) ⇒ Attachment 17 (10C650)	
	• CRS directs maintaining RPV water level between –50" and -185".	The first RHR pump to be started will trip. Refer to RHR Pump Trip event description on page 19.
	• RO/PO control level as directed by CRS with: ⇒ Feedwater IAW AB.ZZ-0001 Att. 14 ⇒ RCIC IAW AB.ZZ-0001 Att. 6 ⇒ HPCI IAW EOP-322	
	* ***Crew maintains or restores adequate core cooling by maintaining or restoring RPV level above –185" IAW EOP-101A without Emergency Depressurizing.***	
	• CRS directs bypassing the RWM and commencing manual rod insertion.	
	• RO/PO aligns CRD for ATWS operation IAW AB.ZZ-0001 Attachment 18.	
	• RO/PO bypasses RWM and inserts control rods IAW RE-AB.ZZ-0001 Attachment 1.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Total Loss of EHC: Ensure **ET-** is active following the trip of SLC Pump B. The bypass valves will fail shut about 2 minutes later.	• RO/PO recognizes loss of both EHC Pumps and informs CRS.	
	• RO/PO aligns CRD for ATWS operation IAW AB.ZZ-0001 Attachment 18.	
	• Crew recognizes turbine bypass valves failing shut by: ⇒ OHA D3-D5 "EHC UNIT PANEL 10C363" ⇒ DEHC Bypass Valve Positioning Error alarms ⇒ Reactor pressure rising above Pressure Setpoint	
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Pressure Leg Direct initial pressure control as Stabilize pressure 800 psig to 1000 psig. The lower limit of 800 psig will not complicate RPV level maintenance and will prevent an unwanted cooldown. The upper limit of 1000 psig is a round number below 1047 psig.	• CRS directs stabilizing pressure below 1037 psig with: ⇒ Main Steam Line Drains ⇒ SRVs ⇒ RPFT	When pressure control swaps to SRVs, maintaining RPV water level between −50" and −129" will be very challenging due to shrink and swell and changing reactor pressure with the RFPTs in MAN.
	• RO/PO control pressure as directed by CRS with: ⇒ Main Steam Line Drains IAW AB.ZZ-0001 Att. 15 ⇒ SRVs IAW AB.ZZ-0001 Att. 13 ⇒ RFPTs	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH" ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833/834 alarm ⇒ Various Suppression Pool temperature indicators	
Strategies For Successful Transient Mitigation Torus Temperature Leg Start all available Torus cooling as soon as possible to remove heat from containment.	• CRS implements EOP-102.	
	• CRS directs placing RHR in Suppression Pool Cooling.	
	• RO/PO place RHR in Suppression Pool Cooling IAW AB.ZZ-0001 Att. 2 or 3.	
Trip of RHR Pump: RHR Pump will trip after placing it in service, or it starting automatically.	• RO/PO recognizes RHR Pump trip.	
	• CRS directs placing remaining A/B RHR pump in Suppression Pool Cooling.	
	• RO/PO place remaining A/B RHR pump in Suppression Pool Cooling IAW AB.ZZ-0001 Att. 2 or 3.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>IF</u> dispatched to investigate the trip of the A/B RHR pump, <u>THEN</u> **REPORT**: • The breaker has target flags dropped on the 51A and 51B Time Overcurrent relays (401/402 bkr 06) • The pump motor is hot to the touch and bearing oil levels are normal	• Crew dispatches operator and Maintenance to the tripped RHR pump and breaker.	
	• <u>IF</u> Suppression Pool temperature is >110 degrees, <u>AND</u> Reactor power is >4%, <u>AND</u> SRVs are open or cycling, <u>THEN</u> Crew terminates and prevents injection to the RPV with the exception of SLC, CRD, and RCIC, <u>UNTIL</u> Reactor power is <4%, <u>OR</u> RPV level reaches −129", <u>OR</u> SRVs remain closed.	
	• <u>IF</u> RPV level reaches −129", THEN RO/PO terminate and prevents injection from Core Spray IAW AB.ZZ-0001 Attachment 16.	
<u>WHEN</u> the Crew has reset RPS, <u>THEN</u> **DELETE** Malfunctions **RP06 AND RP07** to allow full rod insertion on the next scram.	• <u>WHEN</u> EOP-320 Section 5.1 and 5.2 are complete, <u>THEN</u> the Crew implements EOP-320 Section 5.3 and reset RPS.	
At the Lead Examiners discretion, **MODIFY** InSight Item **lclsdv** to accelerate draining of the SDV.	• <u>WHEN</u> OHA C5-B4 clears, <u>THEN</u> the Crew initiates a manual scram IAW EOP-320 Section 5.3.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CREW fully inserts all control rods via RMCS and/or manual scram(s) IAW HC.OP-EO.ZZ-0320.	
	* ***CREW fully inserts all control rods via RMCS and/or manual scram(s) IAW HC.OP-EO.ZZ-0320; OR inserts Cold Shutdown Boron Weight.***	
	• Crew recognizes the reactor is shutdown by: ⇨ SPDS ALL RODS IN ⇨ RWM Confirm Shutdown ⇨ CRIDS Rod positions	
	• CRS directs terminating SLC injection.	
	• RO/PO terminates SLC injection.	
Termination Requirement: The scenario may be terminated at the discretion of the Lead Examiner when: • RPV Level is being maintained above −185" AND • All rods are fully inserted	• CRS exits EOP-101A, enters EOP-101.	

<div align="center">

SIMULATOR

</div>

COPY _____ OF _____

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***EXAMINATION* SCENARIO GUIDE**

</div>

SCENARIO TITLE: 2016 NRC EXAM SCENARIO

SCENARIO NUMBER: ESG-**2016NRC-2**

EFFECTIVE DATE: Effective When Approved

EXPECTED DURATION: 60 Minutes

REVISION NUMBER: 0

PROGRAM: ☐ **LICENSED OPERATOR REQUALIFICATION**

☒ **INITIAL LICENSE**

☐ **OTHER:** _____

REVISION SUMMARY:

- Incorporated minor Editorial comments from validation.

I. OBJECTIVE(S):

Enabling Objectives:

A. The crew must demonstrate the ability to operate effectively as a team while completing a series of CREW CRITICAL TASKS, which measure the crew's ability to safely operate the plant during normal, abnormal, and emergency plant conditions.
(Crew critical tasks within this examination scenario guide are identified with an "*".)

II. MAJOR EVENTS:

A. Place Remaining Circulating Water Pumps In-Service
B. Raise Power with Control Rods
C. Flow Unit Failure
D. Loss of BD481 120 VAC 1E Inverter
E. Steam Leak in the Steam Tunnel-Scram-MSIV Isolation Failure
F. LOCA
G. Suppression Pool Leak

II. SCENARIO SUMMARY:

A Reactor startup is in progress following a forced outage. Nitrogen Makeup to the Drywell is in progress following Inerting the Containment. The crew will place remaining Circulating Water Pumps in-service. Power will then be raised using Control Rods. During rod movement a Recirculation Flow Unit will fail initiating a ½ Scram and Rod Block. The crew will take action to bypass the failed Flow Unit and reset RPS in order to continue with the startup. A loss of a Class 1E 120VAC Inverter will cause a trip of the running Fuel Pool Cooling System (FPCS) pump and cause a loss of Reactor Building Ventilation. The crew will restore FPCS flow and cooling, and put FRVS in service. A steam leak develops in the Steam Tunnel that requires a scram and closure of the Main Steam Isolation Valves (MSIVs). Manual action will be required to ensure isolation of the Main Steam Lines. A small break LOCA will develop during pressure control operations which will raise Drywell Pressure to above the High-High Pressure setpoint. A break develops on the suction line to RHR Pump D when the pump starts. The crew will be required to isolate the leak to maintain Suppression Pool level without Emergency Depressurizing the Reactor.

V. INITIAL CONDITIONS:

I.C.	
Initial	

_____ **INITIALIZE** to IC at approximately 9% power with Reactor Startup in progress.

_____ **INSERT** Control Rods (Reverse Pull) to stabilize power at approximately 5%.

_____ **DE-INERT** Containment.

_____ **ENSURE** HC.OP-IO.ZZ-0003 complete through Step 5.3.38, and 5.3.39A, B, and G.

_____ **ENSURE** Containment is inerted, and Drywell makeup is in progress.

_____ **ENSURE** TACS is supplied by SACS A.

_____ **ENSURE** HV-2173, CLG TWR BYPASS VALVE is CLOSED.

_____ **ENSURE** sufficient Condensate Demineralizers are in service/standby to support startup

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)	
Initial	

_____ **MARKUP** HC.OP-IO.ZZ-0003 through Step 5.3.38, and 5.3.39A and G; N/A E and F.

_____ **MARKUP** HC.OP-SO.DA-0001 through Step 5.1.31.

_____ **MARKUP** HC.OP-SO.AC-0001 through Step 5.2.7.R.5.

_____ **MARKUP** HC.OP-SO.CG-0001 through Step 5.9.3 [5.9.2 is N/A]; and Att 3 to 1.4.D for degraded vacuum.

_____ **MARKUP** HC.OP-SO.GS-0001 through Step 5.2.10.

_____ **MARKUP** Rod Pull List to Step 359, Rod 42-43 @ 06.

_____ **ENSURE** REMA available for Startup
At a minimum review the Scenario Reference section and CLEAN the bolded EOPs, ABs and SOPs listed. (80091396 0270)

_____ **COMPLETE** "Simulator Ready-for-Training/Examination Checklist".

EVENT FILE:			
Initial	*Event*		
	6	Event Code: Description:	**rh_bkr(4)** RHR Pump D Start
	7	Event Code: Description:	**rhv004(4) <= 0** HV-F004D Closed

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction NM12D to 0 on event 1	Flow summer K607D failure
	None	None	Insert malfunction ED09B1 on event 2	Loss of 120 VAC class 1E inst bus 1BD481
	None	None	Insert malfunction MS04B to 80.00000 in 180 on event 3	Steam line B leak in tunnel
	None	None	Insert malfunction MS19B	MSIV F022B fail to auto isolation
	None	None	Insert malfunction MS20B	MSIV F028B fail to auto isolation
	None	None	Insert malfunction RR31A1 to 40.00000 in 300 on event 4	Recirc loop A small break [V] (10%~60 gpm, 100%~600 gpm)
	None	None	Insert malfunction RH07D after 5 on event 6	RHR Leak via Pump Suction, Loop D
	None	None	Insert malfunction PC06 to 2.00000 on event 6	Suppression pool break
	None	None	Insert malfunction PC06 to 0 on event 7 delete in 1	Suppression pool break
	None	None	Insert malfunction HP06E	HPCI aux oil pump failure to auto start

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote HV011 to STOP on event 3	HV011 Steam tunnel unit cooler AVH216
	None	None	Insert remote HV006 to STOP on event 9	HV006 RBVS Supply fan C
	None	None	Insert remote HV005 to STOP on event 9	HV005 RBVS Supply fan B
	None	None	Insert remote HV004 to STOP on event 9	HV004 RBVS Supply fan A
	None	None	Insert remote HV003 after 5 to STOP on event 9	HV003 RBVS Exhaust fan C
	None	None	Insert remote HV002 after 6 to STOP on event 9	HV002 RBVS Exhaust fan B
	None	None	Insert remote HV001 after 7 to STOP on event 9	HV001 RBVS Exhaust fan A

OVERRIDE SCHEDULE:				
Initial	*@Time*	*Event*	*Action*	*Description*

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
PLACE REMAINING CIRCULATING WATER PUMPS IN-SERVICE	• CRS directs placing remaining Circulating Water Pumps in-service IAW HC.OP-SO.DA-0001.	
INSERT Remote AN-06 to NORM when necessary to acknowledge local alarm on pump start.	• PO places remaining Circulating Water Pumps in-service IAW HC.OP-SO.DA-0001: ⇒ OBSERVE CIRCULATING WATER PUMP STR ENBL is illuminated ⇒ PRESS Pump START push-button. ⇒ OBSERVE DISCH VALVE OPEN/CLOSE MID illuminates ⇒ PRESS Pump START push-button. ⇒ OBSERVE DISCH VALVE OPEN/CLOSE MID illuminates ⇒ PRESS DISCH VALVE HV-2152A(B,C,D) OPEN FULL push-buttons to open fully each valve.	
RAISE POWER WITH CONTROL RODS	• CRS directs power ascension IAW IO-3 and REMA.	
	• CRS directs withdrawing control rods IAW REMA guidance.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO withdraws control rods IAW REMA guidance and HC.OP-SO.SF-0001. ⇒ Presses the desired Control Rod Select PB ⇒ Momentarily presses the WITHDRAW PB ⇒ After the withdrawal cycle is completed, ENSURE that the rod position indicates that the rod is in the correct, even numbered position. ⇒ Initials Rod Pull Sheet	
Flow summer K607D failure: After the Crew raises power, OR, at the discretion of the Lead Examiner, **TRIGGER ET-1**.	• Crew monitors Reactor power, pressure, and level and ensure plant conditions are stable.	
	• Crew recognizes K607D failure Downscale by: ⇒ [C6-D1] "APRM/RBM FLOW REF OFF NORMAL". ⇒ Flow Units C & D "COMPAR" status lights. ⇒ CRIDS C049 "RECIRC FLOW COMPAR".	
If panels are opened, state that indications on 10C608 indicate K607D meter is downscale. Flow Unit D COMPARATOR and Flow Unit C Comparator lights on 10C608 should be illuminated.	• RO refers to HC.OP-AR.ZZ-0020, CRIDS C049: ⇒ CHECK flow unit readings AND under the direction of the SM/CRS BYPASS the unit having an off normal reading.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments

	• Crew enters OP-AB.IC-0004
	⇒ Condition F
	   ⇒ Crew bypasses the affected Flow Unit.
	   ⇒ Crew refers to DD.ZZ-0020 for a failed PPC Sensor.
	   ⇒ Crew directs Reactor Engineering to evaluate the flow unit failure on the PPC.	

<u>NOTE:</u> <u>WHEN</u> directed by the crew to place the flow unit mode switch to the "unlabeled" position, <u>THEN</u> **MODIFY** NM12D to 100%.	⇒ Crew directs I&C to PLACE the MODE Switch, on the D flow unit, to the "UNLABELED" position between STANDBY and ZERO.	
	⇒ Crew verifies RPS Trip clear.	
If panels are opened, state that indications on 10C608 indicate K607D is INOP.	• PO may check indications on 10C608 and reports K607D is now BYPASSED.	
	• Crew contacts Maintenance to troubleshoot K607D failure.	
	• Crew contacts Operations Management.	
	• CRS enters Tracking LCOs for Tech Spec 3.3.6 [since Mode 2], and may enter a Tracking LCO for 3.1.4.3 [since Mode 2].	

V.   SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
LOSS OF BD481 120 VAC 1E INVERTER AFTER actions are completed for the stuck control rod, OR at the discretion of the Lead Examiner, **TRIGGER ET-2**.	• Crew identifies the loss of BD481 by: ⇒ OHA D3-E3 120VAC UPS TROUBLE ⇒ CRIDS Page 167 ⇒ CRIDS D4971 in alarm	
	• CRS enters AB.ZZ-0136 and directs actions IAW AB.ZZ-0136: ⇒ Assess all plant systems and enter appropriate Abnormal Procedures ⇒ Determine failed inverter	Note: M/U to the drywell will isolate on the inverter loss. RCIC is inoperable due to no power to the Flow Controller.
	• CRS implements AB.COOL-0004 for the loss of FPC Flow: ⇒ Condition I	
	• PO restores Fuel Pool Cooling System flow IAW AB.COOL-0004 by restarting at least one Fuel Pool Cooling Pump as follows: ⇒ Ensures Skimmer Surge Tank > 22". ⇒ Opens 1-EC-HV-4689A(B), FILTER DEMIN BYPASS VALVE. ⇒ Closes 1-EC-HV-4689B(A), FILTER DEMIN BYPASS VALVE. ⇒ Closes either 1-EC-HV-4676A OR 1-EC-HV-4676B, F/D INL ISLN. ⇒ Starts one Fuel Pool Cooling Pump A(B)P211.	
	• CRS implements AB.COMP-0002 for the Inadvertent B Channel Isolation.: ⇒ Condition E	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• PO ensures Isolations per Attachment 5 for B Channel. ⇒ KL-HV5126B ⇒ KL-HV5172B	
	• Crew recognizes Loss of RBVS by: ⇒ RB D/P indication on 10C650E ⇒ SPDS RB PARAMETERS D/P indication. ⇒ OHA E1-F5 "COMPUTER PT IN ALARM" ⇒ CRIDS B7164 "REACTOR BLDG DIFF PRESS" ⇒ OHA E6-C5 "RBVS & WING AREA HVAC PNL 10C382" ⇒ CRIDS D3960 "RBVS EXH RMT PNL C382 TRBL" ⇒ CRIDS D3961 "RBVS SUPPLY RMT PNL C382 TRBL"	
	• CRS implements AB.CONT-003: ⇒ Condition A ⇒ Condition D	
	• CRS recognize the following Tech Specs actions apply for the loss of Secondary Containment Integrity. ⇒ 3.6.5.1, IF unable to draw down the secondary containment to greater than or equal to 0.25" vac wg	
IF directed to secure RBVS, THEN **TRIGGER ET-9**.	• RO/PO places FRVS in service IAW SO.GU-0001, or AB.ZZ-0001 Attachment 20.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
If sent to investigate Inverter problem, report Blown Main Fuse indicated on the Inverter Section.	• CRS recognize the following Tech Specs actions apply for the loss of BD481: ⇒ Distribution – Operating 3.8.3.1 action a AND d	8 hours to reenergize panel and restore inverter within 24 hours, or Hot SD in 12 hours and Cold SD in following 24.
STEAM LEAK IN THE STEAM TUNNEL-SCRAM AFTER FPCCU System flow has been restored, OR at the discretion of the Lead Examiner, **TRIGGER ET-3**.	• Crew recognizes rising temperature in the Steam Tunnel by: ⇒ CRIDS A2541 "ST TUNNEL 10 VH216 INLET AIR" ⇒ OHA D3-A3 "MN STM/RWCU AREA LEAK TEMP HI" ⇒ CRIDS D5866 "RWCU/MAIN ST LEAK DET TMP CH W"	
IF dispatched to check the status of Steam Tunnel Unit Coolers, THEN **REPORT** both Steam Tunnel Unit Coolers are in service (Do NOT actually place the coolers in service).	• CRS implements AB.BOP 0005: ⇒ Condition A	
At the Lead Examiners discretion, **RAISE** Steam Tunnel temperature to 165 degrees in 2 degree increments using Insight Item **mstunl**.	• WHEN the Crew determines Steam Tunnel temperature cannot be maintained below 145 degrees THEN CRS *DIRECTS*: ⇒ Lock the Mode Switch in Shutdown	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Reactor Scram Reports Following a Reactor scram, the NCO should make an initial scram report by announcing reactor status IAW HC.OP-AB.ZZ-0001. Crew personnel should hold all other non-essential communications until after the initial scram report is complete. The Control Room Supervisor should silence alarms during the scram report and the SM/CRS is not required to make a statement directing the NCO to check the overhead alarms, since these actions are already expected immediately following the scram. During the scram report, the NCO should report reactor level and pressure and their trends to the Control Room staff IAW HC.OPAB.ZZ-0001.	• RO observes Recirc pump speeds at minimum and locks the Mode Switch in SHUTDOWN and performs scram actions IAW AB.ZZ-0001 Att. 1.	
	• CRS implements AB-000.	
	• CRS may direct placing FRVS in service.	
MSIV ISOLATION FAILURE MSIV isolation failure is pre-inserted.	• Crew recognizes isolation signal has been generated by: ⇒ OHAs C8-A1-4, NSSSS MSIV LOGIC A(B,C,D) INITIATED ⇒ OHA C8-C4, NSSSS ISLN SIG-STM TNL TEMP HI	Crew may isolate the MSLs before isolation signal is received.
	• RO recognizes all MSIVs are NOT closed, closes at least one valve in the failed line, and informs CRS.	Immediate Operator Actions AB-CONT-0002.

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	Crew prevents an uncontrolled leak of steam outside of secondary containment by closing at least one MSIV in each Main Steam Line.	
LOCA AFTER the MSIVs have been closed, OR at the discretion of the Lead Examiner, **TRIGGER ET-4**.	• Crew recognizes LOCA condition: ⇒ OHA C6 B1 "DLD SYSTEM ALARM/TRBL" ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm ⇒ Rising Drywell Pressure	
	• CRS implements AB.CONT-001: ⇒ Condition A	
	• RO/PO ensures drywell cooling maximized.	
	• Crew checks ⇒ Recirc pump seal parameters ⇒ SRV temperatures	
	• Crew recognizes High Drywell Pressure EOP-101 and 102 entry condition: ⇒ OHA A7-D4 "DRYWELL PRESSURE HI/HI" ⇒ OHA C5-B5 "DRYWELL PRESSURE HI" ⇒ Various system initiations and isolations	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes High Drywell Temperature EOP-102 entry condition: ⇒ CRIDS B5070 SPDS DRYWELL AVG TEMP in alarm.	
	• CRS enters EOP-102, and EOP-101.	
	• Crew recognizes LOCA Sequencer failure and starts/imitates various system initiations and isolations as necessary	
SUPPRESSION POOL LEAK **ENSURE ET-6** activates when RHR D pump starts.	• Crew recognizes lowering torus water level.	
	• Crew recognizes Supp Pool Level Below 74.5 In EOP entry condition by: ⇒ OHA B1-C3 "SUPPRESSION POOL LEVEL HI/LO" ⇒ Various Suppression Pool level indicators	
	• CRS re-enters EOP-102.	
NOTE: Entry into EOP-103 may not be made until reports of high water levels or Room Flood Alarm is received.	• CRS implements EOP 103/104.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>IF</u> dispatched to 'D' RHR pump room, <u>THEN</u> **REPORT** there is about three inches of water on the floor. Water is coming from a cracked weld on an elbow of the 'D' RHR pump suction line.	• Crew dispatches NEO and Maintenance to 'D' RHR pump room.	
<u>IF</u> directed to place the DP202 RHR pump breaker in PTL, <u>THEN</u> **INSERT REMOTE ET109T TO TAGGED.**	• RO/PO close 'D' RHR suction valve.	
	Crew isolates Suppression Pool leak and prevents a required Emergency Depressurization.	
<u>IF</u> directed to implement EOP-315, <u>THEN</u> **REPORT** operators will be briefed and sent into the field. Do NOT open makeup valves until after leak is isolated.	• RO/PO coordinates implementation of EOP-315 with NEO.	
<u>**TERMINATION REQUIREMENT:**</u> The scenario should be terminated at the discretion of the Lead Examiner when: • RPV Level and Pressure Control is established and • The RHR leak has been isolated.		

SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: PCIG Leak/Loss of 10A110/Loss of Feedwater/HPCI Trip/LOCA

SCENARIO NUMBER: **ESG-2016 NRC-3**

EFFECTIVE DATE: Effective When Approved

EXPECTED DURATION: 1.0 Hour

REVISION NUMBER: 1

PROGRAM:

X	L.O. REQUAL
X	INITIAL LICENSE
	OTHER _____

REVISION SUMMARY:

1. Incorporated Editorial comments from validation.

I. OBJECTIVE(S):

Enabling Objectives
A. The crew must demonstrate the ability to operate effectively as a team while completing a series of CREW CRITICAL TASKS, which measure the crew's ability to safely operate the plant during normal, abnormal, and emergency plant conditions. (Crew critical tasks within this examination scenario guide are identified with an " *.")

II. MAJOR EVENTS:

A. Recirculation Pump Runaway
B. Primary Containment Instrument Gas Leak
C. Loss of 10A110
D. Loss of Feedwater with Automatic Scram Failure
E. Trip of HPCI
F. LOCA
G. Failure of 'A' Channel Core Spray and RHR Logics

III. SCENARIO SUMMARY:

The scenario begins with the plant at 95% power with power ascension in progress. A Recirculation Pump runaway will occur during power ascension. The crew will need to lower power to less than the license maximum power level. After actions have been taken for the power excursion a Primary Containment Instrument Gas Leak will develop and require the crew to isolate a portion of the PCIG System to stop the leak. After the leak has been isolated, the 10A110 7.2 KV bus is lost. The plant stabilizes in the OPRM Enable Region and power will rise to Region 1 due to the loss of Feedwater heating from the load reduction. The Crew must insert control rods to maintain the plant outside of Region 1. After exiting Region 1, 'C' PCP and all SCPs trip causing a complete loss of Feedwater. RPS fails to actuate on LVL 3 or the Mode Switch, and RPS or ARI must be manually initiated to shutdown the Reactor. Shortly after the reactor is scrammed, HPCI will trip due to a failed turbine exhaust pressure transmitter. A LOCA will occur which will be beyond the capacity of available high pressure injection. The 'A' Channels of Core Spray and RHR will fail to automatically initiate, but can be manually initiated. The Crew must Emergency Depressurize and restore level with low pressure ECCS.

IV.   INITIAL CONDITIONS:

I.C.

Initial	

_____ **INITIALIZE** the simulator to 100% power, MOL, TACS on SACS Loop A

_____ **ENSURE** 'D' SACS pump is in service and 'B' SACS pump in STBY.

_____ **LOWER** power to 95% with Recirculation Pumps.

_____ **EQUALIZE** Xenon concentration.

_____ **ENSURE** CROSSFLOW is BLOCKED and NOT APPLIED.

_____ **ENSURE** associated Schedule file open and running.

_____ **ENSURE** associated Events file open.

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)

Initial	Description

_____ **ENSURE** Data Collection is trending the following variables:

_____ • Instrument Air Header Pressure: **iapiarca/iapiarcb** or equivalent

_____ • W/R Reactor Water Level: **rrln091a** or equivalent

_____ • Fuel Zone Reactor Water Level: **rrlfzcha** or equivalent

_____ At a minimum review the Scenario Reference section and **CLEAN** the <u>bolded</u> EOPs, ABs and SOPs listed. (80091396 0270)

_____ **COMPLETE** the Simulator Ready for Training/Examination Checklist.

Initial	ET #		
	3	Event code:	**crqnmi <= 10**
		Description:	Reactor Power <= 10%
	4	Event code:	**hpnt >= 2500 & monvar(174) >= -50**
		Description:	HPCI running and RPV Water Level >= -50"
	7	Event code:	**zcrpsudn**
		Description:	Mode Switch in SHUTDOWN
	8	Event code:	**zcrpsudn**
		Description:	Mode Switch in SHUTDOWN
	10	Event code:	**crqnmi <= 7.0**
		Description:	Reactor Power <= 7%
	11	Event code:	**crqnmi <= 7.0**
		Description:	Reactor Power <= 7%
	12	Event code:	**rrprv <= 765**
		Description:	Reactor Pressure <750 psig
	13	Event code:	**ZDRRS621(5) & !et_array(14)**
		Description:	RR A raise pb first
	14	Event code:	**ZDRRS621(6) & !et_array(13)**
		Description:	RR B raise pb first

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction AD01	Failure of ADS valves to open
	None	None	Insert malfunction PC03E from 0.40000 to 0.40000	Drywell pressure transmitter N094E failure
	None	None	Insert malfunction RR20E from 30.00000 to 30.00000	ECCS level transmitter N091E failure
	None	None	Insert malfunction RZ01E to 31	RRCS Level Transmitter LT-N402E Failure
	None	None	Insert malfunction RZ01F to 31	RRCS Level Transmitter LT-N402F Failure
	None	None	Insert malfunction IA03 from 0.00000 to 25.00000 in 600 on event 1	Loss of drywell instrument gas
	None	None	Insert malfunction ED03 on event 2	Loss of 7.2 KV bus E 10A110
	None	None	Insert malfunction QQ02 to SEIZE on event 3	Condensate pump BP102 trip
	None	None	Insert malfunction QQ03 to SEIZE on event 3	Condensate pump CP102 trip
	None	None	Insert malfunction FW04B after 3 on event 3	Secondary condensate pump BP137 trip
	None	None	Insert malfunction FW04C after 3 on event 3	Secondary condensate pump CP137 trip
	None	None	Insert malfunction HP03 on event 4	HPCI turbine trip
	None	None	Insert malfunction AN-B1C4 on event 4	CRYWOLF ANN B1C4 HPCI TURBINE TROUBLE
	None	None	Insert malfunction CD08A on event 4	CRD suction filter AF201 clogging
	None	None	Insert malfunction CD08B on event 4	CRD suction filter BF201 clogging
	None	None	Insert malfunction RR31A2 after 120 to 5.00000 in 600 on event 4	Recirc loop A large break [V] (10%~6000 gpm, 100%~60000 gpm)
	None	None	Insert malfunction TC01-10 on event 12	All turbine bypass valves fail closed
	None	None	Insert malfunction RZ01E to 31 on event 10 delete in 1	RRCS Level Transmitter LT-N402E Failure
	None	None	Insert malfunction RZ01F to 31 on event 11 delete in 1	RRCS Level Transmitter LT-N402F Failure
	None	7	SET rp_k14b = 0.0	Allows Mode Sw to trip B1 RPS
	None	8	SET rp_k14d = 0.0	Allows Mode Sw to trip B2 RPS

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote EP11 to INSTALLED	EP11 EOP-320 (step 5.2.2), RPS division 1 jumper
	None	None	Insert remote EP13 to INSTALLED	EP13 EOP-320 (step 5.2.3), RPS division 3 jumper
	None	None	Insert remote CD04 to OPEN on event 5	CD04 CRD suction filter isolation valve V030

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert override 3S22_D_DI to On	RPS MODE SWITCH - RUN (DI)
	None	None	Insert override 10S200_A_DI to Off	HV-F021B OPEN (DI)
	None	None	Insert override 9DS41_A_LO to On on event 4	TRIP UNIT IN CAL OR GROSS FAIL (LO)
	None	None	Insert override 3A28_C_DI to On on event 13	SIC-R621A RAISE-RECIRC PUMP A (DI)
	None	None	Insert override 3A46_C_DI to On on event 14	SIC-R621B RAISE-RECIRC PUMP B (DI)

Event / Instructor Activity	Expected Plant/Student Response	Comments
Recirculation Pump Runaway: Ensure **ET-13(14)** (Stuck RAISE push button) is triggered when RR Pump speed is increased.	• Crew recognizes Reactor Recirculation pump runaway by: ⇒ OHA C1-A5 "COMPUTER POINT IN ALARM" ⇒ Reactor power >100% ⇒ CRIDS D2899(2900) "RECIRC MG A(B) SPEED CONTROL SIG FAIL" ⇒ CRIDS D2930(1) "RECIRC MG A(B) DRIVE TUBE LOCK TRBL" ⇒ SIC-R621A(B) SPEED DEMND and SPEED Upscale ⇒ 10C650C Recirc and Jet pump indications	
	• RO performs the following: ⇒ Presses SCOOP TUBE TRIP for 'A' Recirc Pump ⇒ Reduces A(B) Recirc Pump speed to reduce power to pre-transient value	Immediate Operator Action IAW AB.RPV-0001. Note: RR lockup may occur before pressing SCOOP TUBE TRIP pb.
	• CRS implements AB.RPV-001: ⇒ Condition F	
	* ***Crew reduces power to ≤ 3840 MWt as indicated by the PPC 5 minute average following the Recirc Pump runaway.***	**RECORD** the time that power was above 3840 MWt. TIME: _____
	• Crew checks Recirc Loop Flow mismatch IAW ST.BB-0001.	
SUPPORT requests for local control of Recirc MG Oil Temperatures. ADJUST **REMOTES CW15** and **CW16** as necessary.	• Crew ensures Recirc MG Oil Temperatures are maintained in the normal band.	
	• Crew Monitors Offgas Pretreatment AND Main Steam Line Radiation Monitors for indications of Fuel Damage.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF called as RE to determine maximum thermal power reached, THEN **REPORT** APRM power peaked at 103.6%.	• Crew determines peak thermal power during the transient.	
	• CRS recognize the following Tech Specs/actions apply: ⇒ 2.C(1) Maximum Power Level ⇒ 3.4.1.3 Recirculation Loop Flow	IF mismatch is observed, then must restore recirc loop flow mismatch within two hours or declare the A(B) loop inoperable.
PCIG Leak: After the Crew has taken actions for the runaway Recirculation Pump, and at the discretion of the Lead Examiner, **TRIGGER ET-1** (PCIG Leak on Supply Line to Torus).	• Crew recognizes PCIG leak by: ⇒ CRIDS A3460 "PCIG RECEIVER AT201 PRESS" lowering ⇒ CRIDS A3461 "PCIG RECEIVER BT201 PRESS" lowering ⇒ OHA A1-A3 "INST GAS RECEIVER A PRESSURE LO" ⇒ OHA A1-A4 "INST GAS RECEIVER B PRESSURE LO" ⇒ CRIDS D4480 "INSTRUMENT GAS PNL AC213 ALARM" ⇒ CRIDS D4481 "PCIG RECEIVER AT201 PRESSURE" ⇒ CRIDS D4482 INSTRUMENT GAS PANEL BC213" ⇒ CRIDS D4483 "PCIG RECEIVER BT201 PRESSURE" ⇒ Both PCIG compressors running	With no operator action, PCIG receiver pressures will reach 50 psig in about 10 minutes.
Insight Items: • 'A' PCIG Receiver press **iapigrca** • 'B' PCIG Receiver press **iapigrcb**	• CRS implements AB.COMP-002: ⇒ Condition A	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew announces lowering PCIG pressure on plant page.	
	• RO/PO closes: ⇒ HV-5156A ⇒ HV-5156B	
	• Crew recognizes leak isolated by rising PCIG receiver pressures.	
IF dispatched as Site Protection to check O2 levels, THEN **REPORT** all samples are normal.	• Crew dispatches Site Protection to conduct O2 samples in Reactor Building.	
IF dispatched to look for PCIG leak, THEN **REPORT** no evidence of leak in PCIG rooms. You will begin walking down the lines isolated by the 5156A/B. IF directed to reset local panel alarms, THEN **TOGGLE** Remote **AN-01A** and **AN-01B** to NORMAL. REPORT alarm was "Low Low Pressure".	• Crew dispatches RBEO and Maintenance to investigate loss of PCIG.	
Loss of 10A110 Bus: After the Crew takes actions for the PCIG Leak, OR at the discretion of the Lead Examiner, **TRIGGER ET-2**.	• Crew recognizes: ⇒ Reactor power lowering ⇒ Reactor level swell	
	• Crew monitors Reactor power, pressure, and level until plant conditions are stable.	
	• PO ensures Feedwater restores and maintains RPV level between LVL 4 and LVL 7.	

V.   SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes trip of 'A' Recirc pump by: ⇒ OHA C1-D4 "REACTOR RECIRC A TROUBLE" ⇒ OHA B3-F2 CROSSFLOW ALARM/TRBL ⇒ 10C651C pump d/p and flow indications ⇒ Flashing Reactor Recirculation PUMP A MOTOR GENERATOR TRIP light	
	• RO ensures at least one Reactor Recirc pump remains running.	
*Only if INST AIR HDR PRESS reaches the LO Pressure alarm.	• Crew recognizes loss of 10K107 by: ⇒ OHA A2-B2 "COMPRESSED AIR PANEL 00C188" ⇒ 10K107 CPRSR MOT OVLD/PWR FAIL light ⇒ *OHA A2-A1/A2 "INST AIR HEADER A/B PRESS LO" ⇒ *CRIDS D4601 "INSTR AIR SPLY HDR A PRESS LO" ⇒ *CRIDS D4602 "INSTR AIR SPLY HDR B PRESS" LO ⇒ Lowering Service and Instrument Air pressures	
	• PO places 00K107 in service IAW AB.ZZ-0001 Attachment 7.	Immediate Operator Action IAW AB.COMP-0001.
	• CRS enters AB.COMP-0001 and verifies immediate operator actions complete.	May enter Condition A, but success path remains starting of 00K107.
	• Crew recognizes trip of AP102 PCP and AP137 SCP by: ⇒ OVLD/PWR FAIL lights ⇒ STOP lights lit ⇒ Motor amps zero	The trips of AP102 and AP137 are silent and may not be immediately recognized by the Crew.

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew validates automatic actions: ⇒ Feedwater PCP Speed Limiter on ⇒ Feedwater SCP Speed Limiter on ⇒ Recirc pump Intermediate Runback	
	• Crew recognizes loss of AK111 TB chiller by: ⇒ Solid OVLD/PWR FAIL lights ⇒ STOP lights lit ⇒ Motor amps zero	The trip of AK111 is silent and may not be immediately recognized by the Crew.
	• Crew recognizes loss of 10A110 bus from: ⇒ OHA E3-E1 7.2 KV SYS INCOMING BRKR MALF ⇒ OVLD/PWR FAIL lights on loads lost ⇒ Flashing TRIP light for infeed bkr 52-11001 ⇒ CRIDS D3677 "SWGR BUS A110 DIFF LOCKOUT" ⇒ CRIDS D3679 "SWGR BUS A110 UNDERVOLTAGE" ⇒ CRIDS D5447 "SWGR BUS A110 OVERCURRENT LKOUT"	
	• Crew announces loss of 10A110 on the plant page.	The order of the AOP implementation may vary.
	• Crew recognizes entry into the OPRM Enable Region by: ⇒ OHA C3-F1 "OPRM TRIP ENABLED" ⇒ CRIDS D5941-5948 "OPRM TRIP ENABLED"	

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF directed to monitor/control recirc MG oil temps, THEN **INSERT CW15** and **CW16** and **MONITOR**: • **rrtoila(1)** for 'A' MG • **rrtoila(2)** for 'B' MG	• CRS implements AB.RPV-0003: ⇒ Condition B ⇒ Condition A	Rx Power ≈56% Core Flow ≈43 Mlbm/hr on recorder Core Flow ≈44 Mlbm/hr by adding JP loop flows
		The pace of the scenario will not allow the Crew to fully address single loop requirements.
IF the Crew manually scrams, THEN the Loss of Feedwater and LOCA will be automatically inserted.	• IF in Region 1 of the Pwr/Flow map, THEN RO inserts rods IAW ESG guidance as necessary to exit Region 1.	
	• RO/PO close HV-F031A Recirc pump discharge valve for 5 minutes, then re-open.	
	• RO/PO implements DL.ZZ-0026 Att. 3v.	
	• CRS implements AB.RPV-0001: ⇒ Condition B	
	• CRS implements AB.RPV-0004: ⇒ Condition D ⇒ Condition G	May not enter if RPV level alarms not reached.
	• PO closes HV-1680A PCP discharge valve.	
	• PO closes HV-1651A SCP discharge valve.	
	• PO bypasses Feedwater Runbacks.	
	• CRS references AB.CONT-0001: ⇒ Condition A ⇒ Condition E	Due to pace of scenario and relatively small effect of AK111 loss on drywell pressure, may NOT enter at this time.

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
WHEN dispatched, THEN **REPORT** the 10A110 Bus Differential Overcurrent Relays are tripped. There is no visible indication of damage to the bus.	• Crew dispatches TBEO and Maintenance to investigate loss of 10A110 bus.	
	• CRS recognize the following actions apply: ⇒ Recirculation Loops 3.4.1.1 action a 4.4.1.1.1 ⇒ Reactor Coolant System Specific Activity T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f)	
	• CRS notifies Shift Rad Pro and Shift Chem Tech to take samples IAW: ⇒ T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f)	
	• CRS implements IO.ZZ-0006.	
IF asked as RE, THEN **REPORT** that inserting the first 12 steps of the CRAM rods can be used to achieve an 80% rod line. **ACKNOWLEDGE** any direction to evaluate single loop operation IAW SE-PR.ZZ-0003.	• Crew contacts RE for guidance.	

V.   SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew contacts ESOC and Trading Floor, gives estimate of MWe output limitations and duration of limitation.	
Loss of Feedwater / ATWS: 20 minutes after the Loss of 10A110 bus, <u>OR</u> at the discretion of the Lead Examiner, **TRIGGER ET-3**.	• Crew recognizes loss of Feedwater by: ⇒ OHA A6-F2 "CONDENSATE TRAIN B TROUBLE ⇒ OHA A6-F3 "CONDENSATE TRAIN C TROUBLE ⇒ OHA B3-E1 "RFP TURBINE TRIP" ⇒ Flashing SCP TRIP lights ⇒ RFPT Governor Valve Positions ⇒ Feed flow indications ⇒ Lowering RPV level	
	• RO locks the Mode Switch in SHUTDOWN when RPV level drops to 15" IAW AB.RPV-0004 Retainment Override. (May scram earlier if the loss of RFPT's is recognized.)	
	• Crew recognizes Scram Condition and Reactor Power Above 4% EOP entry condition.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION **Reactor Scram Reports** Following a Reactor scram, the NCO should make an initial scram report by announcing reactor status IAW HC.OP-AB.ZZ-0001. Crew personnel should hold all other non-essential communications until after the initial scram report is complete. The Control Room Supervisor should silence alarms during the scram report and the SM/CRS is not required to make a statement directing the NCO to check the overhead alarms, since these actions are already expected immediately following the scram. During the scram report, the NCO should report reactor level and pressure and their trends to the Control Room staff IAW HC.OPAB.ZZ-0001.	• RO performs scram actions IAW AB.ZZ-0001 Att. 1.	The Mode Switch will not actuate A1/A2 RPS, but the Arm & Depress Pushbuttons will. ARI will not automatically initiate, but can be manually initiated.
	* ***Before Reactor Water Level reaches LVL 1, the Crew manually actuates RPS and/or ARI to shutdown the reactor.***	**RECORD** the RPV level at which RPS or ARI is actuated. RPV Level: _____
	• Crew recognizes RPV LVL 3 EOP entry condition: ⇒ OHA C5-A4 "RPV WATER LEVEL LO" ⇒ OHA A7-D5 "RPV LEVEL 3" ⇒ Various water level indicators	RPS A1/A2 will not actuate on ANY automatic scram signals.
	• CRS enters EOP-101A.	
	• <u>AFTER</u> the reactor is verified to be shutdown, <u>THEN</u> CRS exits EOP-101A, implements EOP-101.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION **EOP 101 RPV Control**. Level Leg Direct an initial band of +12.5" to +54" Rx level. This gives a manageable band with level control still in the indicating range. If controlling Reactor Pressure with SRVs and the MSIVs are closed, then the RPV level band assigned should be -30" to +30" to avoid high level trips of injection systems when the reactor is being depressurized and to maintain forced circulation in the RPV. When maintaining RPV level is challenged by a lack of high pressure feed sources, and RPV level can not be maintained above -129", the crew should anticipate the actions that are necessary to implement EOP-202 and emergency depressurize the reactor prior to RPV level reaching -185". Reducing reactor pressure under these conditions in anticipation of implementing EOP-202 is not permitted since RPV level would be further challenged without sufficient high pressure feed sources available to maintain level.	• Crew recognizes RPV LVL 2 by: ⇒ OHA A7-E5 "RPV LEVEL 2" ⇒ OHA C8-C3 "NSSSS ISLN SIG – RPV LEVEL LO" ⇒ OHA C1-D3 "REACTOR RECIRC PUMPS TRIP" ⇒ OHA E3-E3 "USS FEEDER BRKR TRBL"	
	• PO verifies HPCI/RCIC initiation.	HPCI will <u>NOT</u> initiate until the reactor is scrammed.
<u>LOCA with Trip of HPCI</u>: After HPCI recovers RPV water level to –50", **ENSURE ET-4** triggers to insert the LOCA with trip of HPCI, OR, at the discretion of the Lead Examiner, **TRIGGER ET-4** manually. (The LOCA will start two minutes after HPCI trips)	• PO recognizes trip of HPCI by: ⇒ OHA B1-A4 "HPCI TURBINE TRIP" ⇒ OHA B1-B5 "HPCI OUT OF SERVICE" ⇒ OHA B1-C4 "HPCI TURBINE TROUBLE" ⇒ OHA B1-E5 "HPCI PUMP DISCHARGE FLOW LO" ⇒ HPCI Stop Valve & Control Valve failure to open ⇒ HPCI speed and flow indications	
	• PO informs CRS of HPCI trip.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to investigate HPCI trip units, THEN **REPORT**: • E41-N656E Turb Exhaust Pressure is reading upscale with trip and gross fail lights lit. • E41-N656A Turb Exhaust Pressure is reading 0	• Crew dispatches ABEO and Maintenance to investigate trip of HPCI.	
IF dispatched to 'C' PCP, THEN **REPORT** the 51A and 51C Time Overcurrent relays are tripped on the breaker (52-10208) and the motor is hot to the touch.	• Crew may dispatch TBEO and Maintenance to investigate trip of 'C' PCP.	
IF dispatched to 'B/C' SCP's, THEN **REPORT** there are no apparent problems with the pumps or their breakers.		
	• Crew recognizes LOCA condition: ⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL" ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm ⇒ RM11 9AX317/318/320 DLD CCM alarms ⇒ OHA D3-C3 "DRYWELL SUMP LEVEL HI/LO" ⇒ OHA A4-F5 "COMPUTER PT IN ALARM" ⇒ OHA A7-E4 "DRYWELL PRESSURE HI/LO" ⇒ Rising Drywell Pressure on various indicators	
	• CRS references AB.CONT-0006	
	• CRS references AB.CONT-0001 ⇒ Condition A	
	• RO/PO ensures drywell cooling is maximized.	

Event / Instructor Activity	Expected Plant/Student Response	Comments

	• Crew checks
	  ⇒ Recirc pump seal parameters
	  ⇒ SRV temperatures	

	• Crew recognizes High Drywell Pressure EOP entry condition:
	  ⇒ OHA A7-D4 "DRYWELL PRESSURE HI/HI"
	  ⇒ OHA C5-B5 "DRYWELL PRESSURE HI"
	  ⇒ Various system initiations and isolations.	

	• CRS implements EOP-102, re-enters EOP-101.	
	• RO/PO verifies automatic actions.	

Failure of 'A' Channel Initiations:
The failure of 'A' Core Spray and RHR logics to auto initiate is already inserted.
	• Crew recognizes failure of the A Core Spray logics to initiate by:
	  ⇒ A INIT AND SEALED IN light extinguished
	  ⇒ Pump STOPPED indication
	  ⇒ A channel breaker status on 10C650E NON CLASS 1E LOAD ISLN CIRCUIT BREAKER STATUS AND CONTROL
	  ⇒ A EDGs not running
	  ⇒ Various valve failures to isolate
		PCIS LOCA LVL 2 initiations <u>WILL</u> occur.

	• RO/PO manually initiates Core Spray 'A' logic.	

	• Crew recognizes failure of the 'A' RHR logic to initiate by:
	  ⇒ A INIT AND SEALED IN light extinguished
	  ⇒ Pump STOPPED indication	

	• RO/PO manually initiates 'A' RHR logic.	
	• RO/PO trips 'B' recirc pump if not already tripped by RPV Level 2.	

V.   SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS directs restoring PCIG to SRVs and Rx Bldg to Torus Vac Bkrs.	
	• RO/PO restores PCIG to SRVs and Rx Bldg to Torus Vac Bkrs IAW AB.ZZ-0001 Att. 9.	
	• <u>IF</u> the Crew attempts to reduce pressure with the bypass valves, <u>THEN</u> Crew recognizes the bypass valves fail shut at 750# by: ⇒ OHA E1-F4 "COMPUTER PT RETURN TO NORMAL" ⇒ OHA D3-D5 "EHC UNIT PANEL 10C363" ⇒ Bypass valve indication ⇒ BPV Positioning Error alarms	
<u>IF</u> directed to align for two CRD pump injection, <u>THEN</u> **PERFORM** the following: **REFER** to SO.BF-0001 Sect 5.4. **TRIGGER ET-5** (Suction filter). **SET** Remote Function for Stby CRD pump discharge valve to 0% (**CD01/CD02**). **REPORT** Stby CRD pump ready for start. <u>WHEN</u> Stby CRD is running, <u>THEN</u> **RAMP** discharge valve to 100% open. Due to suction filter clogging, the CRD pumps will trip before the remainder of the lineup can be completed.	• CRS orders injection with two CRD pumps. • CRS orders injection with SLC pumps. • <u>WHEN</u> RPV water level drops to -129", <u>THEN</u> the Crew inhibits ADS.	CRD pumps will trip on low suction pressure due to suction filter clogging.

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• WHEN the Crew determines RPV water level cannot be maintained above −185", THEN the CRS implements EOP 202. ∗ ***Crew determines that Emergency Depressurization is required before compensated RPV water level reaches -185"; <u>AND</u> subsequently restores and maintains RPV water level to above −161".***	**RECORD** compensated RPV water level when the Crew determines that Emergency Depressurization is required. LEVEL: _____
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Emergency Depressurization Level Response And Control The Control Room Supervisor should ensure that all ECCS is lined up for injection as required prior to initiating an emergency depressurization. Only ECCS required to support RPV reflood needs to be lined up for injection.	• <u>WHEN</u> directed, <u>THEN</u> RO/PO open five ADS SRVs IAW AB.ZZ-0001 Att. 13.	
	• RO/PO restore RPV level IAW AB.ZZ-0001: ⇒ Att. 4 for RHR ⇒ Att. 5 for Core Spray	IF the 'A' Core Spray logic was NOT manually initiated, THEN the 'A' Core Spray loop will need to be manually aligned for injection during the blowdown.

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Emergency Depressurization Level Response And Control For non-ATWS emergency depressurizations, the Control Room Supervisor should establish and maintain an RPV level band between -38" to +54" on Wide Range indication. This transient level band will prevent adverse hydraulic effects caused by high outside shroud reactor level while maintaining adequate core submergence based on Fuel Zone indication. Following the emergency depressurization, level will be restored and maintained to the preferred EOP reactor level band by using a suggested Wide Range compensated level band of +12.5" to +54" if possible using Condensate and Startup Level Control or the Control Room Supervisor can maintain an RPV level band of -38" to +54" if still batch feeding with low pressure ECCS to maintain RPV level.	• AFTER adequate core cooling is restored, THEN CRS directs placing RHR in Suppression Pool Cooling and Spray.	
	• RO/PO place RHR in Suppression Pool Cooling and Spray as directed by CRS IAW AB.ZZ-0001 Attachment 3.	
	• AFTER adequate core cooling is restored, THEN CRS directs placing one loop of RHR in Drywell Spray.	
Termination Requirement: The scenario may be terminated at the discretion of the Lead Examiner when the RPV has been depressurized and level is being maintained above −129".	• RO/PO place RHR in Drywell Spray as directed by CRS IAW AB.ZZ-0001 Attachment 2.	The HV-F021B will NOT open. The 'A' RHR pump CANNOT be placed in drywell spray UNLESS the 'A' RHR logic has been manually initiated.