PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

SRO	00.AD.1021.101	0	8/2/10	215002	2.1.37	4.6
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Authorize Bypassing the Rod Block Monitor In Accordance With NDAP-QA-0338, "Reactivity Management and Controls Program"

Completed By:		Validated:	
T. North	11/11/10	P. Moran	11/29/10
Writer	Date	Instructor/Writer	Date

Approval:

M Jacquette for M. Diltz	11/30/10
Nuclear Trng. Supv.	Date

	20	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name:

Last	First	M.I.	Employee # / S.S. #

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name:

Signature	Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
SRO 00.AD.1021.101

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.

2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self-Checking is required.

II. REFERENCES

A. NDAP-QA-0338, "Reactivity Management and Controls Program", Rev. 14

B. AR-103-001 (C04), "RBM UPSCALE OR INOP ROD BLOCK", Rev 15

C. TS 3.3.2.1, "Control Rod Block Instrumentation", Amendment 242

D. TRM 3.2.1, "Core Operating Limits Report", Rev 11

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

A. A plant startup is in progress on Unit 1:

- Reactor Power is 30%
- Total Core flow is 50 Mlbm/Hr.

B. When PCOM selected Rod 10-43 (A2SU Step 313 position 04-08), the RBM UPSCALE OR INOP ROD BLOCK, AR-103-001 (C04), annunciator alarmed.

C. The PCOM verified the correct rod was selected per the pull sheet.

D. It has been determined that Rod Block Monitor A has a Critical Self Test Fault.

E. All external inputs to the Rod Block Monitor A have been determined to be valid.

F. The PCOM has suggested bypassing Rod Block Monitor A and continuing with the rod withdrawals and reactor startup.

G. Reactor Engineering determined that MCPR is 1.5.

V. INITIATING CUE

Determine if it is allowable to bypass Rod Block Monitor A under these circumstances, and complete all necessary documentation to justify your decision.

VI. TASK STANDARD

Completes the Reactivity Control System Bypass Authorization Form, determines entry into LCO 3.3.2.1 is required, and authorizes bypassing the Rod Block Monitor.

VII. TASK SAFETY SIGNIFICANCE

Limiting Conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a Limiting Condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the Technical Specifications until the condition can be met. [10CFR50.36(c)(1)(B)(ii)(B)(2)(i)]

PERFORMANCE CHECKLIST

Appl. To/JPM No.: SRO 00.AD.1021.001 Student Name: _____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE: Ensure the following material is available to support performance of this JPM: • A copy of NDAP-QA-0338 • A blank copy of NDAP-QA-0338, Attachment A • Unit 1 Technical Specifications • Unit 1 TRM (COLR) • AR-103-001 (C04), "RBM UPSCALE OR INOP ROD BLOCK" **EVALUATOR CUE:** To begin this JPM, provide the candidate with the Task Conditions and Initiating Cue Sheet.			
1.	Obtain a controlled copy of NDAP-QA-0338. **EVALUATOR CUE** When the candidate indicates NDAP-QA-0338, Attachment A, must be completed, give him/her the blank form. If asked, provide AR-103-001 (C04)	Controlled copy obtained.		

Step	Action	Standard	Eval	Comments
2.	Complete NDAP-QA-0338, Attachment A.	Review NDAP-QA-0338, Section 6.4 and/or Attachment A.		
3.	Enter initiating condition data.	Enter the following data for Initiating Condition: • Rod ID 10-43 • Notch 04 • Unit 1 • Circle RBM Channel A • Power Level 30 percent • Date/Time		
4.	Determine if power is <28%.	Place checkmark in "NO" Box, from Task Conditions Reactor Power is 30%.		
5.	Determine if Rod Block Monitor A is providing a valid rod block per TRM 3.2 Table 7.2-1. **EVALUATOR CUE:** If asked, provide student with a Unit 1 TRM.	Refers to Table 7.2-1 and cue sheet. Determines Rod Block is being generated due to the Critical Self Test Fault, not as a result of exceeding a Table 7.2-1 setpoint. Place a checkmark in the "NO" Box.		

Step	Action	Standard	Eval	Comments
6.	Determine if inputs to the Rod Block Monitor A are valid.	Refer to provided task conditions, and place a checkmark in the "NO" Box.		
7.	Contact I&C to repair the Rod Block Monitor A. **EVALUATOR CUE:** I&C has been contacted.	Contact I&C to investigate and repair the Rod Block Monitor A failure.		
*8.	Determine Technical Specification impact.	Refer to TS LCO 3.3.2.1, Table 3.3.2.1-1 for Functions 1.a. – 1.d., and associated footnotes. Refer to cue sheet, and: • TRM 3.2 COLR Figure 5.2-1 and determines MCPR value of 1.5 is below the MCPR Operating Limit for current core flow. **AND** • Refers to TRM 3.2 COLR Figure 5.2-2 and determines MCPR value of 1.5 is below the MCPR Operating Limit for current core power level. **OR** Refer to cue sheet and Table 7.2-2 and determines MCPR of 1.5 is below the valve required for RBM operability. (continued)		

Step	Action	Standard	Eval	Comments
		(continued from Step 8) Determines LCO 3.3.2.1 Condition A: Required Action A.1 requires the RBM channel to be restored to operable within 24 hours.		
*9.	Determine that it is allowable to bypass Rod Block Monitor A.	Determine that Rod Block Monitor A can be bypassed.		
*10.	Authorize bypassing Rod Block Monitor A. **EVALUATOR NOTE:** The correct authorization block is on the lower right-hand side of the page.	Sign, date, and enter time on Attachment A in the "*Shift Supervision Authorization To bypass the RBM channel*" block on the lower right-hand side of the page, and enter current time/date.		
	EVALUATOR NOTE: If student indicates need to address TS /TRM for MCPR not within limits, tell them it is not required for this JPM. **EVALUATOR CUE:** This completes the JPM.			

Step	Action	Standard	Eval	Comments
	EVALUATOR: Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

*Critical Step #Critical Sequence

TASK CONDITIONS

A. A plant startup is in progress on Unit 1:

- Reactor power is 30%.
- Total Core flow is 50 Mlbm/hr.

A. When PCOM selected Rod 10-43 (A2SU Step 313 position 04-08), the RBM UPSCALE OR INOP ROD BLOCK, AR-103-001 (C04), annunciator alarmed.

B. The PCOM verified the correct rod was selected per the pull sheet.

C. It has been determined that Rod Block Monitor "A" has a Critical Self Test Fault.

D. All external inputs to Rod Block Monitor A have been determined to be valid.

E. The PCOM has suggested bypassing Rod Block Monitor A and continuing with the rod withdrawals and reactor startup.

F. Reactor Engineering determined that MCPR is currently 1.5.

INITIATING CUE

Determine if it is allowable to bypass Rod Block Monitor A under these circumstances, and complete all necessary documentation to justify your decision.

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	45.ON.1829.101	0	11/1/10	Generic	2.1.25	3.9/4.2
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Implement ON-145-004, "Reactor Water Level Anomaly", Determine Cause For Erroneous RPV Water Level Indications, And Identify Required Tech Spec Actions

Completed By: Validated:

Tracy North	11/1/10	M Jaeger	11/22/10
Writer	Date	Instructor/Writer	Date

Approval:

M Jaeger for M. Diltz	11/30/10
Nuclear Trng. Supv.	Date

	25	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name: _____ _____

Last First M.I. Employee # / S.S. #

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: _____ _____

Signature Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 45.ON.1829.101

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.

2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

A. ON-145-001, "RPV Water Level Anomaly" (Rev 18)

B. ON-117-001, "Loss Of Instrument Bus" (Rev 31)

C. Tech Spec 3.3.3.1, PAM Instrumentation (Rev 2), and Bases (Rev 8)

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

A. Unit 1 is in MODE 1 at full power.

B. The following 1C601 RPV Water Level indicators are ENERGIZED, but indicate FULL DOWNSCALE:

- LI-14201B Extended Range
- LI-14201B Wide Range
- LI-14203B Extended Range
- LI-14203B Wide Range

C. The following 1C651 RPV Water Level indicators are ENERGIZED, but indicate FULL DOWNSCALE:

- LI-14201B1 Extended Range
- LI-14201B1 Wide Range

D. UR-14201B is ENERGIZED, but ALL THREE (3) parameters are indicating FULL DOWNSCALE.

E. RPV Water Level has been verified to be +36" on narrow range instruments.

V. INITIATING CUE

Implement ON-145-001 "RPV Water Level Anomaly" to determine the cause of the erroneous RPV Water Level Indicators.

SRO CANDIDATES ONLY: Determine the required Tech Spec actions.

Document your results on the task condition sheet in the space provide on the task condition sheet.

VI. TASK STANDARD

Identify that the faulty instrument readings are due to Instrument Bus 1Y125 breaker 05 tripped or de-energized.

SRO Only; Determine that Tech Spec 3.3.3.1, action A is applicable.

VI. TASK SAFETY SIGNIFICANCE

Post accident monitoring instrumentation is required by technical specifications to be operable. The operability of PAM instrumentation ensures that there is sufficient information available on selected parameters to monitor and assess plant status and behavior following an accident.

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 45.ON.1829.101 Student Name: _____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE: This JPM may be performed in the Classroom, Simulator, or other similar environment. Ensure a copy of ON-145-004, "RPV Water Level Anomaly" (rev 18), and Unit 1 Tech Specs & Bases are available for candidate use. **EVALUATOR CUE:** Read the Task Conditions (for the list of erroneous W/L indicators refer the candidate to the task condition sheet provided), and the initiating cue. Provide the task condition sheet to the candidate.			
1.	Obtain a controlled copy of ON-145-004. **EVALUATOR CUE:** Provide a copy of ON-145-004	Controlled copy obtained.		
2.	Review procedure Symptoms and Observations.	Review procedure.		
3.	Record Date/Time	Record date and time in procedure step 3.1		
4.	Determine steps 3.2, 3.3, 3.4 not applicable.	Mark steps 3.2, 3.3, 3.4 N/A.		

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 45.ON.1829.101 Student Name: _____

Step	Action	Standard	Eval	Comments
5.	Refer to Attachment B per step 3.5.1.	Determine step 3.5 is applicable, and refer to Attachment B to perform step 3.5.1.		
*6.	Check for instruments with common REFERENCE leg condensing chambers or excess flow check valves (3.5.1.a).	Evaluate failed water level instruments against Attachment B page 1 and 2 to determine if the instruments share a common REFERENCE leg or excess flow check valve. Determine that these instruments DO NOT share these components.		
*7.	Check for instruments with common VARIABLE leg supplies or excess flow check valves (3.5.1.b)	Evaluate failed water level instruments against Attachment B page 1 and 2 to determine if the instruments share a common VARIABLE leg or excess flow check valve. Determine that these instruments DO NOT share these components.		

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 45.ON.1829.101 Student Name: _____

Step	Action	Standard	Eval	Comments
*8.	Check for instruments with common POWER SUPPLIES (3.5.1.c) **EVALUATOR NOTE:** Although the indicators themselves all share a common power supply, 1Y125-01, the initial conditions state that the indicators are energized so candidates must determine that this is NOT the cause. Additionally, the wide range pressure indication on UR-14201B is also downscale since its signal comes from a transmitter powered by 1Y125-05. Recognition of this helps ensure the candidate determines the correct cause.	Evaluate failed water level instruments against Attachment B page 1 and 2 to determine if the instruments share a common POWER SUPPLIES. Determine that ALL the erroneous RPV Water Level indicators are provided signals by transmitters LT-14201B, LT-14202B and LT-14203B and ALL are powered by 1Y125 breaker 05.		
9.	Check for automatic actions and alarms.	Evaluate Attachment B and determine that there are NO automatic actions or alarms associated with these instruments.		
10.	Evaluate level, if level cannot be determined to be ≥ +13", Enter EO-100-102.	Determine that level can be determined to be ≥ +13" by referring to task conditions provided.		
11.	Comply with TS 3.3.1.1, 3.3.2.2, 3.3.6.1, 3.3.6.2, 3.3.5.1, 3.3.4.2, 3.3.5.2	Inform Unit Supervisor to refer to Technical Specifications for the failed instruments.		

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 45.ON.1829.101 Student Name: _____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE: Acknowledge report of Tech Spec review requirement. ***FOR RO ONLY***: This completes the JPM, ensure results are entered on task condition sheet.			
*12.	*SRO Candidates ONLY*: Obtain and evaluate Tech Specs	Evaluate Tech Spec 3.3.3.1, "PAM Instrumentation", and determine that Condition A is applicable since there are less than the required number of operable channels of Wide Range Level, Extended Range Level, and Fuel Zone Level in accordance with Table 3.3.3.1-1 Functions 2a, 2b and 2c; and the following action is required: Restore required channels to OPERABLE status within 30 days.		
	EVALUATOR CUE: This completes the JPM; ensure results are entered on task condition sheet.			

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 45.ON.1829.101 Student Name: _____

Step	Action	Standard	Eval	Comments
	EVALUATOR: Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

TASK CONDITIONS

A. Unit 1 is in MODE 1 at full power.

B. The following 1C601 RPV Water Level indicators are ENERGIZED, but indicate FULL DOWNSCALE:

- LI-14201B Extended Range
- LI-14201B Wide Range
- LI-14203B Extended Range
- LI-14203B Wide Range

C. The following 1C651 RPV Water Level indicators are ENERGIZED, but indicate FULL DOWNSCALE:

- LI-14201B1 Extended Range
- LI-14201B1 Wide Range

D. UR-14201B is ENERGIZED, but ALL THREE (3) parameters are indicating FULL DOWNSCALE.

E. RPV Water Level has been verified to be +36" on narrow range instruments.

INITIATING CUE

Implement ON-145-001 "RPV Water Level Anomaly" to determine the cause of the erroneous RPV Water Level Indicators.

SRO CANDIDATES ONLY: Determine the required Tech Spec actions (if any).

Document your results on the task condition sheet in the space provided below.

Cause for Erroneous Instrument Readings:

_____

_____

SRO ONLY; Tech Spec Required Actions (If Any):

_____

_____

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	78.AD.2319.102	0	11/2/10	Generic	2.2.14	4.3/3.9
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Perform LPRM Upscale Alarm Operability Tracking In Accordance With OI-078-001 and Determine Required Actions.

Completed By: Validated

Tracy North	11/2/10	M. Jacopetti	11/27/10
Writer	Date	Instructor/Writer	Date

Approval:

M. Jacopetti for M. D. Hay — 11/30/10

Nuclear Trng. Supv. — Date

	30 (RO) 35 (SRO)	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name: _____ _____

Last First M.I. Employee # / S.S. #

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: _____ _____

Signature Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 78.AD.2319.102

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.

2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

A. OI-078-001 LPRM STATUS CONTROL, (Rev. 11)

B. TRM 3.3.9. rev 3

C. LCO 3.3.1.1 rev 3

III. OPERATIONAL ACTIVITIES

This JPM satisfies the requirements of Operational Activity(s):

None

IV. TASK CONDITIONS

A. Unit 1 is in MODE 1 at 80% power.

B. ALL OPRM channels are OPERABLE

C. APRM Gain Calibration was last performed 30 days ago.

D. LPRM detector 40-57A caused a downscale alarm, I & C determined the detector failed, and Reactor Engineering requested bypassing the detector.

E. The PCOP has just bypassed LPRM detector 40-57A in the lower relay room.

V. INITIATING CUE

Perform LPRM Upscale Alarm operability tracking for LPRM detector 40-57A in accordance with OI-078-001.

VI. TASK STANDARD

For both RO and SRO:

- Zone 8 is identified as having LESS THAN 50% upscale alarms operable.
- APRM Channel 1 determined to be INOPERABLE based on < 3 operable LPRM inputs to the "A" Level.

For SROs only: Determine that LCO 3.3.3.1 IS MET for APRM trip functions.

VII. TASK SAFETY SIGNIFICANCE

Operability of the APRM system and associated LPRM detectors provides the primary indication of neutron flux within the core and the resulting Reactor Protection System inputs.

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE: Ensure the following material is available to support performance of this JPM: • A working copy of rev 11 of OI-078-001. **CAUTION: Ensure the answer key, which precedes the two Cue Sheet pages in the JPM package, is NOT given to the student.** • Previously filled out Attachments A -D (with zone 8 having exactly 50% operable LPRM upscale alarms.) • Blank copy of attachments A - D. • A copy of SO-100-008			
	EVALUATOR CUE: To begin this JPM, provide the candidate with: • Task Conditions and Initiating Cue Sheet • Working copy of OI-078-001, and blank attachments A - D • Previously filled out attachments A - D			
1.	Obtain a controlled copy of procedure. (Provided with initiating cue)	Controlled copy of OI-078-001 obtained.		

PERFORMANCE CHECKLIST

Appl. To/JPM No.: S/RO 78.AD.2319.102 Student Name:_____

Step	Action	Standard	Eval	Comments
2.	Refer to correct section.	Refer to section 4.		
3.	Determine current LPRM status.	Refer to the previously completed copy of Attachments A & B.		
4.	Complete new Attachment A.	Enter 1 for Unit. Transfer the previous LPRM data to the new Attachment A		
5.	Enter a check (√) in column (2) for LPRM alarms determined inoperable or bypassed for all other reasons.	Place a checkmark in column 2 adjacent to LPRM detector 40-57A in Zone 8.		
*6.	Determine if ≥50% of LPRM Upscale alarms in each zone are operable.	Consider all LPRM Upscale Alarms with a check in column (1) or (2) of Attachment A as inoperable, and evaluate the number of inoperable LPRMs for each zone. Circle YES for zone 1, 2, 3, 4, 5, 6, 7, and 9. Conclude that there are LESS THAN 50% operable LPRMs in zone 8, AND circle NO for zone 8.		
7.	Notify Reactor Engineering of all LPRM upscale alarms determined inoperable.	N/A Previously stated in JPM task conditions.		

*Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 78.AD.2319.102 Student Name:_____

Step	Action	Standard	Eval	Comments
8.	Evaluate the need to place placard to 1C651 indicating < required # of LPRM Upscale Alarms. (requires completion of Attachments C & D, which appears in Step 11, below.)	Determine that placard is NOT required since ALL OPRM channels are OPERABLE.		
*9.	Complete an LPRM vs. APRM/LPRM Group Status Control Log (Attachment B) each time LPRM operability status is changed. Circle all inoperable LPRM's on LPRM vs. APRM/LPRM Group Status Control Log (Attachment B).	Transfer the previous LPRM data to the new Attachment B. Circle LPRM detector 40-57A for APRM 1, under the column 'A' Level, and enter today's date.		
*10.	Refer to weekly surveillance SO-100-008 to confirm APRM operability requirements maintained.	Compare the following criteria to current APRM/LPRM operability status: • ≥ 20 total operable LPRMs per APRM channel • ≥ 3 LPRM inputs per level (A, B, C, or D) • ≤ 9 LPRMs inop since last APRM gain calibration (after date provided in task conditions) Determine that APRM channel 1 does NOT meet operability requirements due to LESS THAN 3 operable level "A" LPRMs. (The only operable Level A LPRMs in APRM 1 are 40-17A and 08-49A)		

Step	Action	Standard	Eval	Comments
11	Identifies Inoperable OPRM cells.	Transfers the previous LPRM data to the new Attachment C and circles "A LEVEL" for LPRM 40-57. Determines it inputs to APRM1 Cell 03 Transfers the previous LPRM data to the new Attachment D and circles LPRM 40-57A in the Cell 03 row, in the LPRM#2 column. Determines OPRM cell remains operable due to at least three operable LPRMs.		
	EVALUATOR CUE FOR ROs: This completes the JPM			
12.	**SRO ONLY PORTION** **EVALUATOR NOTE:** Inform the SRO that they need to determine actions required (if any). Evaluate Tech Spec 3.3.1.1 for RPS Instrumentation and TR 3.1.3 for Control Rod Block Instrumentation **EVALUATOR NOTE:** LCO 3.3.1.1 and TRM 3.1.3 Condition A is met and action A.1 is NOT required since only one APRM channel is inoperable.	Refer to Tech Spec 3.3.1.1 and determine that a minimum of 3 operable APRM channels are required in MODE 1 per table 3.3.1.1-1, therefore NO TS actions are required. Refer to TRM 3.1.3 and determine that a minimum of 3 operable APRM channels are required in MODE 1 per table 3.1.3-1, therefore NO TRM actions are required.		

PERFORMANCE CHECKLIST

Appl. To/JPM No.: S/RO 78.AD.2319.102 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE FOR SROs: This completes the JPM.			
	EVALUATOR: Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

JPM Key

(next 11 pages)

Do **Not** Provide To Student

(They are given the 11 pages that follow the 2nd cue sheet.)

LPRM UPSCALE ALARM STATUS CONTROL LOG

UNIT 1

																	As least 50% LPRMs Operable per Zone (Circle YES or NO)
		(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)		
Zone 1	16-49A			16-41A			24-49A			24-41A		√					
	16-49B	√		16-41B			24-49B			24-41B							YES/NO
	16-49C			16-41C	√		24-49C	√		24-41C							
Zone 2	40-49A	√		40-41A	√		48-49A			48-41A							
	40-49B			40-41B			48-49B	√		48-41B	√						YES/NO
	40-49C	√		40-41C	√		48-49C			48-41C							
Zone 3	16-17A			16-25A			24-17A			24-25A							
	16-17B			16-25B			24-17B			24-25B							YES/NO
	16-17C			16-25C		√	24-17C			24-25C							
Zone 4	40-17A			40-25A		√	48-17A			48-25A							
	40-17B			40-25B			48-17B			48-25B							YES/NO
	40-17C			40-25C			48-17C			48-25C	√						
Zone 5	24-33A		√	32-25A			32-33A			32-41A			40-33A				
	24-33B		√	32-25B			32-33B			32-41B		√	40-33B				YES/NO
	24-33C		√	32-25C			32-33C			32-41C			40-33C				
Zone 6	16-09A			24-09A			32-09A			40-09A			32-17A				
	16-09B			24-09B			32-09B		√	40-09B			32-17B				YES/NO
	16-09C			24-09C	√		32-09C			40-09C		√	32-17C				
Zone 7	08-17A	√		08-25A	√		08-33A			08-41A			16-33A				
	08-17B			08-25B			08-33B			08-41B			16-33B				YES/NO
	08-17C			08-25C			08-33C	√		08-41C			16-33C				
Zone 8	24-57A			32-57A			40-57A		√	32-49A		√					
	24-57B			32-57B		√	40-57B		√	32-49B		√					YES/NO
	24-57C	√		32-57C			40-57C			32-49C		√					
Zone 9	48-33A			56-25A			56-33A		√	56-41A		√					
	48-33B			56-25B			56-33B			56-41B							YES/NO
	48-33C			56-25C			56-33C		√	56-41C							

LPRM Upscale Alarm Status Assessment Complete

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LPRM vs. APRM Status Control Log
(Inoperable LPRM's are circled)

UNIT (1) or 2 (Circle Unit)	LPRM LOCATIONS							
APRM CHANNEL	A LEVEL	Date inop.	B LEVEL	Date inop.	C LEVEL	Date inop	D LEVEL	Date inop.
APRM1	(56-33A)	04/05/10	(32-09B)	06/15/10	(08-33C)	11/02/10	32-57D	
	(40-49A)	06/10/10	16-25B		40-33C		(16-41D)	03/05/10
	40-17A		16-57B		24-17C		48-09D	
	(24-33A)	07/08/10	48-25B		(24-49C)	03/10/10	32-25D	
	(08-17A)	09/10/10	(32-41B)	07/07/10	56-17C		16-09D	
	08-49A		32-33B		56-25C		48-41D	
	(08-25A)	05/29/10	16-17B		(40-41C)	05/06/10	(32-49D)	05/07/10
	(40-57A)	TO/DA/Y	(16-49B)	09/16/10	24-25C		32-17D	
	(24-41A)	04/20/10	48-17B		(24-57C)	12/01/10	48-33D	
	(24-09A)	10/26/10	(48-49B)	10/31/10	08-41C		16-33D	
	(56-41A)	07/11/10			(40-09C)	10/25/10		
	(40-25A)	09/09/10						
APRM2	32-57A		56-33B		32-09C		08-33D	
	16-41A		40-17B		32-41C		24-17D	
	48-41A		08-49B		(16-25C)	05/01/10	56-17D	
	32-25A		40-49B		16-57C		(40-33D)	07/09/10
	16-09A		(24-33B)	08/08/10	(48-25C)	04/11/10	24-49D	
	(48-09A)	05/10/10	08-17B		56-41C		32-33D	
	08-41A		32-17B		40-25C		48-49D	
	24-25A		(32-49B)	05/07/10	24-09C		48-17D	
	40-09A		16-33B		24-41C		16-17D	
	24-57A		48-33B		40-57C		(16-49D)	09/10/10
	56-25A				08-25C			
	40-41A							
APRM3	08-33A		(32-57B)	06/05/10	(56-33C)	08/29/10	32-09D	
	24-49A		48-41B		(24-33C)	08/08/10	48-25D	
	24-17A		16-41B		40-49C		(16-25D)	08/12/10
	40-33A		48-09B		08-17C		16-57D	
	(56-17A)	04/01/10	32-25B		08-49C		32-41D	
	32-33A		16-09B		40-17C		(08-25D)	09/05/10
	16-17A		56-25B		(32-49C)	05/07/10	24-41D	
	48-17A		40-41B		32-17C		24-09D	
	48-49A		24-57B		48-33C		56-41D	
	16-49A		24-25B		16-33C		40-57D	
			08-41B				40-25D	
			40-09B					

LPRM vs. APRM Status Control Log
(Inoperable LPRM's are circled)

UNIT (1) or 2 (Circle Unit)	LPRM LOCATIONS							
APRM4	32-09A		08-33B		32-57C		56-33D	
	16-25A		24-49B		32-25C		40-49D	
	48-25A		24-17B		16-41C		(08-17D)	08/11/10
	32-41A		(56-17B)	04/01/10	48-41C		24-33D	
	16-57A		40-33B		16-09C		08-49D	
	32-17A		56-41B		48-09C		40-17D	
	(32-49A)	05/07/10	40-25B		32-33C		08-41D	
	16-33A		24-41B		16-49C		(40-09D)	04/12/10
	48-33A		08-25B		48-49C		24-25D	
			(40-57B)	05/30/10	16-17C		56-25D	
			24-09B		48-17C		(24-57D)	05/06/10
							40-41D	

LPRM Operability Assessment Complete

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LPRM vs. OPRM Status				
LPRM	OPRM Cells (APRM/OPRM – Cell)			
08-17	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	APRM1-Cell 21	2-21	3-21	4-21
08-25	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	1-15	4-15	2-15	3-15
	1-21	4-21	2-21	3-21
08-33	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	3-09	4-09	1-09	2-09
	3-15	4-15	1-15	2-15
08-41	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	2-04	3-04	1-04	4-04
	2-09	3-09	1-09	4-09
08-49	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	1-04	2-04	3-04	4-04
16-09	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	2-27	3-27	4-27	1-27
16-17	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	3-21	1-21	4-21	2-21
	3-22	1-22	4-22	2-22
	3-27	1-27	4-27	2-27
16-25	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	4-15	1-15	2-15	3-15
	4-16	1-16	2-16	3-16
	4-21	1-21	2-21	3-21
	4-22	1-22	2-22	3-22
16-33	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	4-09	2-09	3-09	1-09
	4-10	2-10	3-10	1-10
	4-15	2-15	3-15	1-15
	4-16	2-16	3-16	1-16
16-41	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	2-04	3-04	4-04	1-04
	2-05	3-05	4-05	1-05
	2-09	3-09	4-09	1-09
	2-10	3-10	4-10	1-10
16-49	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	3-01	1-01	4-01	2-01
	3-04	1-04	4-04	2-04
	3-05	1-05	4-05	2-05
16-57	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	4-01	1-01	2-01	3-01
24-09	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	1-27	4-27	2-27	3-27
	1-28	4-28	2-28	3-28
24-17	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	3-22	4-22	1-22	2-22
	3-23	4-23	1-23	2-23
	3-27	4-27	1-27	2-27
	3-28	4-28	1-28	2-28

LPRM vs. OPRM Status				
LPRM	OPRM Cells (APRM/OPRM – Cell)			
24-25	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	APRM2-Cell16	3-16	1-16	4-16
	2-17	3-17	1-17	4-17
	2-22	3-22	1-22	4-22
	2-23	3-23	1-23	4-23
24-33	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	1-10	2-10	3-10	4-10
	1-11	2-11	3-11	4-11
	1-16	2-16	3-16	4-16
	1-17	2-17	3-17	4-17
24-41	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	1-05	4-05	2-05	3-05
	1-06	4-06	2-06	3-06
	1-10	4-10	2-10	3-10
	1-11	4-11	2-11	3-11
24-49	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	3-01	4-01	1-01	2-01
	3-02	4-02	1-02	2-02
	3-05	4-05	1-05	2-05
	3-06	4-06	1-06	2-06
24-57	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	2-01	3-01	1-01	4-01
	2-02	3-02	1-02	4-02
32-09	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	4-28	1-28	2-28	3-28
	4-29	1-29	2-29	3-29
32-17	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	4-23	2-23	3-23	1-23
	4-24	2-24	3-24	1-24
	4-28	2-28	3-28	1-28
	4-29	2-29	3-29	1-29
32-25	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	2-17	3-17	4-17	1-17
	2-18	3-18	4-18	1-18
	2-23	3-23	4-23	1-23
	2-24	3-24	4-24	1-24
32-33	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	3-11	1-11	4-11	2-11
	3-12	1-12	4-12	2-12
	3-17	1-17	4-17	2-17
	3-18	1-18	4-18	2-18
32-41	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	4-06	1-06	2-06	3-06
	4-07	1-07	2-07	3-07
	4-11	1-11	2-11	3-11
	4-12	1-12	2-12	3-12
32-49	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	4-02	2-02	3-02	1-02
	4-03	2-03	3-03	1-03
	4-06	2-06	3-06	1-06
	4-07	2-07	3-07	1-07

LPRM vs. OPRM Status				
LPRM	OPRM Cells (APRM/OPRM – Cell)			
32-57	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	APRM2-Cell 02	3-02	4-02	1-02
	2-03	3-03	4-03	1-03
40-09	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	2-29	3-29	1-29	4-29
	2-30	3-30	1-30	4-30
40-17	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	1-24	2-24	3-24	4-24
	1-25	2-25	3-25	4-25
	1-29	2-29	3-29	4-29
	1-30	2-30	3-30	4-30
40-25	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	1-18	4-18	2-18	3-18
	1-19	4-19	2-19	3-19
	1-24	4-24	2-24	3-24
	1-25	4-25	2-25	3-25
40-33	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	3-12	4-12	1-12	2-12
	3-13	4-13	1-13	2-13
	3-18	4-18	1-18	2-18
	3-19	4-19	1-19	2-19
40-41	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	2-07	3-07	1-07	4-07
	2-08	3-08	1-08	4-08
	2-12	3-12	1-12	4-12
	2-13	3-13	1-13	4-13
40-49	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	1-03	2-03	3-03	4-03
	1-07	2-07	3-07	4-07
	1-08	2-08	3-08	4-08
40-57	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	1-03	4-03	2-03	3-03
48-09	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	2-30	3-30	4-30	1-30
48-17	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	3-25	1-25	4-25	2-25
	3-26	1-26	4-26	2-26
	3-30	1-30	4-30	2-30
48-25	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	4-19	1-19	2-19	3-19
	4-20	1-20	2-20	3-20
	4-25	1-25	2-25	3-25
	4-26	1-26	2-26	3-26
48-33	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	4-13	2-13	3-13	1-13
	4-14	2-14	3-14	1-14
	4-19	2-19	3-19	1-19
	4-20	2-20	3-20	1-20

LPRM vs. OPRM Status				
LPRM	OPRM Cells (APRM/OPRM – Cell)			
48-41	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	APRM2-Cell 08	3-08	4-08	1-08
	2-13	3-13	4-13	1-13
	2-14	3-14	4-14	1-14
48-49	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	3-08	1-08	4-08	2-08
56-17	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	3-26	4-26	1-26	2-26
56-25	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	2-20	3-20	1-20	4-20
	2-26	3-26	1-26	4-26
56-33	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	1-14	2-14	3-14	4-14
	1-20	2-20	3-20	4-20
56-41	A LEVEL	B LEVEL	C LEVEL	D LEVEL
	1-14	4-14	2-14	3-14

OPRM Status Control Log

OPRM Cell Assignments for APRM 1

LPRM(s): 40-57A (to be bypassed)
Impacted Cell(s): 3 (from Attachment C)
Operable Cells: 24 (from ODA STABILITY display)
Circle LPRMs inoperable in cell with LPRM(s) to be bypassed (already and one to be bypassed).

CELL ID:	LPRM #1	LPRM #2	LPRM #3	LPRM #4
01	16-57B	(24-57C)	(24-49C)	(16-49B)
02	(24-57C)	32-57D	32-49D	(24-49C)
03	32-57D	(40-57A)	40-49A	32-49D
04	08-49A	(16-49B)	16-41D	08-41C
05	(16-49B)	(24-49C)	(24-41A)	16-41D
06	(24-49C)	32-49D	(32-41B)	(24-41A)
07	32-49D	(40-49A)	(40-41C)	(32-41B)
08	(40-49A)	(48-49B)	48-41D	(40-41C)
09	08-41C	16-41D	16-33D	(08-33C)
10	16-41D	(24-41A)	(24-33A)	16-33D
11	(24-41A)	(32-41B)	32-33B	(24-33A)
12	(32-41B)	(40-41C)	40-33C	32-33B
13	(40-41C)	48-41D	48-33D	40-33C
14	48-41D	(56-41A)	(56-33A)	48-33D
15	(08-33C)	16-33D	16-25B	(08-25A)
16	16-33D	(24-33A)	24-25C	16-25B
17	(24-33A)	32-33B	32-25D	24-25C
18	32-33B	40-33C	(40-25A)	32-25D
19	40-33C	48-33D	48-25B	(40-25A)
20	48-33D	(56-33A)	56-25C	48-25B
21	(08-25A)	16-25B	16-17B	(08-17A)
22	16-25B	24-25C	24-17C	16-17B
23	24-25C	32-25D	32-17D	24-17C
24	32-25D	(40-25A)	40-17A	32-17D
25	(40-25A)	48-25B	48-17B	40-17A
26	48-25B	56-25C	56-17C	48-17B
27	16-17B	24-17C	24-09A	16-09D
28	24-17C	32-17D	(32-09B)	24-09A
29	32-17D	40-17A	(40-09C)	(32-09B)
30	40-17A	48-17B	48-09D	(40-09C)

If bypassing LPRM will results in < 2 LPRMs operable in impacted cell, the cell will become inoperable once the LPRM is bypassed.
Inoperable Cells due to bypassing LPRM(s): None
Operable Cells: 24 (following bypass of LPRM(s))
If <22 cells remain operable, the OPRM will become inoperable following bypass of LPRM(s).

OPRM Cell Assignments for APRM 2

LPRM(s): 40-57A to be bypassed)
Impacted Cell(s): None (from Attachment C)
Operable Cells: 30 (from ODA STABILITY display)
Circle LPRMs inoperable in cell with LPRM(s) to be bypassed (already and one to be bypassed).

CELL ID:	LPRM #1	LPRM #2	LPRM #3	LPRM #4
1	16-57C	24-57A	24-49D	16-49D
2	24-57A	32-57A	(32-49B)	24-49D
3	32-57A	40-57C	40-49B	(32-49B)
4	08-49B	16-49D	16-41A	08-41A
5	16-49D	24-49D	24-41C	16-41A
6	24-49D	(32-49B)	32-41C	24-41C
7	(32-49B)	40-49B	(40-41A)	32-41C
8	40-49B	48-49D	48-41A	(40-41A)
9	08-41A	16-41A	16-33B	08-33D
10	16-41A	24-41C	(24-33B)	16-33B
11	24-41C	32-41C	32-33D	(24-33B)
12	32-41C	(40-41A)	40-33D	32-33D
13	(40-41A)	48-41A	48-33B	40-33D
14	48-41A	56-41C	56-33B	48-33B
15	08-33D	16-33B	(16-25C)	08-25C
16	16-33B	(24-33B)	24-25A	(16-25C)
17	(24-33B)	32-33D	32-25A	24-25A
18	32-33D	40-33D	40-25C	32-25A
19	40-33D	48-33B	(48-25C)	40-25C
20	48-33B	56-33B	56-25A	(48-25C)
21	08-25C	(16-25C)	16-17D	08-17B
22	(16-25C)	24-25A	24-17D	16-17D
23	24-25A	32-25A	32-17B	24-17D
24	32-25A	40-25C	40-17B	32-17B
25	40-25C	(48-25C)	48-17D	40-17B
26	(48-25C)	56-25A	56-17D	48-17D
27	16-17D	24-17D	(24-09C)	16-09A
28	24-17D	32-17B	32-09C	(24-09C)
29	32-17B	40-17B	40-09A	32-09C
30	40-17B	48-17D	48-09A	40-09A

If bypassing LPRM will results in < 2 LPRMs operable in impacted cell, the cell will become inoperable once the LPRM is bypassed.
Inoperable Cells due to bypassing LPRM(s): None
Operable Cells: 30 (following bypass of LPRM(s))
If <22 cells remain operable, the OPRM will become inoperable following bypass of LPRM(s).

OPRM Cell Assignments for APRM 3

LPRM(s): 40-57A to be bypassed)
Impacted Cell(s): None (from Attachment C)
Operable Cells: 29 (from ODA STABILITY display)
Circle LPRMs inoperable in cell with LPRM(s) to be bypassed (already and one to be bypassed).

CELL ID:	LPRM #1	LPRM #2	LPRM #3	LPRM #4
1	16-57D	24-57B	24-49A	16-49A
2	24-57B	(32-57B)	(32-49C)	24-49A
3	(32-57B)	40-57D	(40-49C)	(32-49C)
4	08-49C	16-49A	16-41B	08-41B
5	16-49A	24-49A	24-41D	16-41B
6	24-49A	(32-49C)	32-41D	24-41D
7	(32-49C)	(40-49C)	40-41B	32-41D
8	(40-49C)	48-49A	(48-41B)	40-41B
9	08-41B	16-41B	16-33C	08-33A
10	16-41B	24-41D	(24-33C)	16-33C
11	24-41D	32-41D	32-33A	(24-33C)
12	32-41D	40-41B	40-33A	32-33A
13	40-41B	(48-41B)	48-33C	40-33A
14	(48-41B)	56-41D	(56-33C)	48-33C
15	08-33A	16-33C	16-25D	08-25D
16	16-33C	(24-33C)	24-25B	16-25D
17	(24-33C)	32-33A	32-25B	24-25B
18	32-33A	40-33A	40-25D	32-25B
19	40-33A	48-33C	48-25D	40-25D
20	48-33C	(56-33C)	56-25B	48-25D
21	08-25D	16-25D	16-17A	08-17C
22	16-25D	24-25B	24-17A	16-17A
23	24-25B	32-25B	32-17C	24-17A
24	32-25B	40-25D	40-17C	32-17C
25	40-25D	48-25D	48-17A	40-17C
26	48-25D	56-25B	56-17A	48-17A
27	16-17A	24-17A	24-09D	16-09B
28	24-17A	32-17C	32-09D	24-09D
29	32-17C	40-17C	40-09B	32-09D
30	40-17C	48-17A	48-09B	40-09B

If bypassing LPRM will results in < 2 LPRMs operable in impacted cell, the cell will become inoperable once the LPRM is bypassed.
Inoperable Cells due to bypassing LPRM(s): None .
Operable Cells: 29 (following bypass of LPRM(s))
If <22 cells remain operable, the OPRM will become inoperable following bypass of LPRM(s).

OPRM Cell Assignments for APRM 4

LPRM(s): 40-57A (to be bypassed)
Impacted Cell(s): None (from Attachment C)
Operable Cells: 30 (from ODA STABILITY display)
Circle LPRMs inoperable in cell with LPRM(s) to be bypassed (already and one to be bypassed).

CELL ID:	LPRM #1	LPRM #2	LPRM #3	LPRM #4
1	16-57A	24-57D	24-49B	16-49C
2	24-57D	32-57C	(32-49A)	24-49B
3	32-57C	(40-57B)	40-49D	(32-49A)
4	08-49D	16-49C	(16-41C)	08-41D
5	16-49C	24-49B	24-41B	(16-41C)
6	24-49B	(32-49A)	32-41A	24-41B
7	(32-49A)	40-49D	40-41D	32-41A
8	40-49D	48-49C	48-41C	40-41D
9	08-41D	(16-41C)	16-33A	08-33B
10	(16-41C)	24-41B	24-33D	16-33A
11	24-41B	32-41A	32-33C	24-33D
12	32-41A	40-41D	40-33B	32-33C
13	40-41D	48-41C	48-33A	40-33B
14	48-41C	56-41B	56-33D	48-33A
15	08-33B	16-33A	16-25A	08-25B
16	16-33A	24-33D	24-25D	16-25A
17	24-33D	32-33C	32-25C	24-25D
18	32-33C	40-33B	40-25B	32-25C
19	40-33B	48-33A	48-25A	40-25B
20	48-33A	56-33D	56-25D	48-25A
21	08-25B	16-25A	16-17C	08-17D
22	16-25A	24-25D	24-17B	16-17C
23	24-25D	32-25C	32-17A	24-17B
24	32-25C	40-25B	40-17D	32-17A
25	40-25B	48-25A	48-17C	40-17D
26	48-25A	56-25D	56-17B	48-17C
27	16-17C	24-17B	24-09B	16-09C
28	24-17B	32-17A	32-09A	24-09B
29	32-17A	40-17D	40-09D	32-09A
30	40-17D	48-17C	48-09C	40-09D

If bypassing LPRM will results in < 2 LPRMs operable in impacted cell, the cell will become inoperable once the LPRM is bypassed.
Inoperable Cells due to bypassing LPRM(s): 0 .
Operable Cells: 30 (following bypass of LPRM(s))
If <22 cells remain operable, the OPRM will become inoperable following bypass of LPRM(s).
If <22 cells remain operable, the OPRM will become inoperable following bypass of LPRM(s).

OPRM Operability Assessment Complete — Only SROs sign here (Shift Supervision) / ##/##/## (Date) / #### (Time)

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

SRO	00.AD.1018.001	0	8/9/10	Generic	2.3.11	4.3
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Respond to SGTS Exhaust Radiation Monitor 'A' Failure While Purging Primary Containment.

Completed By: Validated:

Tracy North	8/9/10	M. Jacqueth	11/22/10
Writer	Date	Instructor/Writer	Date

Approval:

M. Jacqueth for M.D.H.	11/30/10
Nuclear Trng. Supv.	Date

	10	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name: _____ _____

Last First M.I. Employee # / S.S. #

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: _____ _____

Signature Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
SRO 00.AD.1018.001

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.
2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

A. NDAP-QA-0309, Primary Containment Access and Control, rev 26

B. Tech Spec 3.3.6.1, Primary Containment Isolation Instrumentation, rev 4

C. TRM 3.6.1, Containment Venting and Purging, rev 0

D. OP-173-001, Containment Atmosphere Control System, rev 37

E. AR-015-001, 13.8/4 KV Switchgear Distribution And Diesel Generators A, B, & C 0C653, rev 36

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

A. Unit 1 is in Mode 3.

B. Primary Containment purge is in progress in preparation for containment entry in accordance with NDAP-QA-0309, Primary Containment Access and Control, and OP-173-001, Containment Atmosphere Control System using the "B" SGTS Train.

C. Annunciator AR-015-001 (H03), SGTS EXH VENT RADIATION MON DNSCALE/INOP has illuminated, and I&C reports that the "A" SGTS Exhaust Radiation Monitor (RE-D12-0N017A) has failed.

V. INITIATING CUE

Determine the procedural, Tech Spec, and TRM actions required due to the SGTS Exhaust Radiation Monitor failure. Document your conclusions on the Task Condition sheet provided.

VI. TASK STANDARD

Determine that BOTH SGTS Exhaust Radiation Monitors are required to be operable while purging containment in Mode 3, and:

- The failed channel must be placed in TRIP per TS LCO 3.3.6.1 action A.1 within 24 hours.
- Primary Containment Purge must be suspended IMMEDIATELY per TRO 3.6.1 action A.1, and NDAP-QA-0309.

VII. TASK SAFETY SIGNIFICANCE

High SGTS exhaust radiation indicates possible gross failure of the fuel cladding. Purging primary containment in Mode 3 without required radiation monitors available could lead to a radiation release to the environment in excess of allowed limits.

PERFORMANCE CHECKLIST

Appl. To: SRO JPM No.: 00.AD.1018.051 Student Name: _____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE: This JPM should be performed in the classroom or similar environment. Ensure copies of Unit 1 Tech Specs, TRM and NDAP-QA-0309, and AR-015-001 (H03) are available for candidate use. **EVALUATOR CUE:** To begin this JPM, provide the candidate with the Task Conditions/Initiating Cue sheet. The steps of this JPM may be performed in any order.			
1.	Obtain and refer to NDAP-QA-0309 section 6.2. **EVALUATOR NOTE:** The candidate may also wish to refer to AR-015-001 (H03). If asked, provide this to the candidate.	Obtain and refer to NDAP-QA-0309, section 6.2. Review AR-015-001 (H03) if desired (not required)		

PERFORMANCE CHECKLIST

Appl. To: SRO JPM No.: 00.AD.1018.051 Student Name: _____

Step	Action	Standard	Eval	Comments
*2.	Determine that BOTH SGTS Exhaust Radiation High trips are required to be operable for containment purge in Mode 3.	Review step 6.2.3 and determine that insufficient SGTS Exhaust Rad Monitors are available to continue containment purge, and TRM 3.6.1 should be evaluated. Document on Task Condition sheet.		
*3.	Evaluate TRM 3.6.1	Refer to TRM 3.6.1, and determine that action A.1 is required with less than the minimum number of SGTS Exhaust High Radiation isolation channels operable, and primary containment purging must be immediately suspended. Document on Task Condition sheet.		
*4.	Evaluate Tech Spec 3.3.6.1 **EVALUATOR CUE:** This completes the JPM.	Refer to TS 3.3.6.1 and determine that action A.1 is required since less than the required number of channels is operable, and the failed channel must be placed in TRIP within 24 hours (function 2.e) Document on Task Condition sheet.		
	EVALUATOR: Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

TASK CONDITIONS

A. Unit 1 is in Mode 3.

B. Primary Containment purge is in progress in preparation for containment entry in accordance with NDAP-QA-0309, Primary Containment Access and Control, and OP-173-001, Containment Atmosphere Control System.

C. Annunciator AR-015-001 (H03), SGTS EXH VENT RADIATION MON DNSCALE/INOP. has illuminated, and I&C reports that the "A" SGTS Exhaust Radiation Monitor (RE-D12-0N017A) has failed.

INITIATING CUE

Determine the procedural, Technical Specification, and TRM actions required due to the SGTS Exhaust Radiation Monitor failure. Document your conclusions below.

Procedural Requirement(s):

_____
_____
_____
_____

Technical Requirement Manual:

_____
_____
_____
_____

Tech Specs:

_____
_____
_____
_____

THIS JPM IS COMPLETE WHEN YOUR CONCLUSIONS ARE DOCUMENTED ABOVE.

TASK CONDITIONS

A. Unit 1 is in Mode 3.

B. Primary Containment purge is in progress in preparation for containment entry in accordance with NDAP-QA-0309, Primary Containment Access and Control, and OP-173-001, Containment Atmosphere Control System.

C. Annunciator AR-015-001 (H03), SGTS EXH VENT RADIATION MON DNSCALE/INOP. has illuminated, and I&C reports that the "A" SGTS Exhaust Radiation Monitor (RE-D12-0N017A) has failed.

INITIATING CUE

Determine the procedural, Technical Specification, and TRM actions required due to the SGTS Exhaust Radiation Monitor failure. Document your conclusions below.

Procedural Requirement(s):

_____
_____
_____
_____

Technical Requirement Manual:

_____
_____
_____
_____

Tech Specs:

_____
_____
_____
_____

THIS JPM IS COMPLETE WHEN YOUR CONCLUSIONS ARE DOCUMENTED ABOVE.

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

SRO	00.EP.001.087	0	11/3/10	Generic	2.4.44	4.0
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Classify A Site Area Emergency Under Shutdown Conditions And Complete The Emergency Notification Report; Upgrade To A General Emergency And Make Protective Action Recommendations

Completed By:

Tracy North	11/3/10	M. Jacopetti	11/27/10
Writer	Date	Instructor/Writer	Date

Validated

Approval:

m Jacopetti for MDB — 11/30/10

Nuclear Trng. Supv. — Date

Time Critical #1: 15 **Time Critical #1: _____**

Time Critical #2: 15 **Time Critical #2: _____**

Time Critical #3: 15 **Time Critical #3: _____**

Date of Performance: | Validation Time (Min.) | Time Taken (Min.)

JPM Performed By:

Candidate Name: _____ (Last, First, M.I.) _____ (Employee # / S.S. #)

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: _____ (Signature) _____ (Typed or Printed)

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
SRO 00.EP.001.087

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.

2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self-Checking is required.

II. REFERENCES

A. EP-PS-100, Revision 26

B. EP-PS-100, Tab E, Revision 28

C. Emergency Plan – Units 1 and 2

D. EP-TP-001, Emergency Classification Level Manual, Revision 3

E. EP-TP-001, Section C, Revision 3

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

A. Unit 1 in Mode 4.

B. "A" RHR Pump is in service for Shutdown Cooling.

C. A rigging incident inside the Containment resulted in damage to Recirc Loop 'A' suction piping causing a rapid reduction in RPV level.

D. Division 2 Core Spray and LPCI are injecting full flow.

E. Primary Containment was evacuated and the personnel hatch is closed with interlocks maintained prior to and during the transient.

F. RPV level has been stabilized at -168 inches Fuel Zone.

G. Secondary Containment pressure is -0.28 inches WG with Standby Gas Treatment in service.

V. INITIATING CUE

Classify the Event, and implement the Emergency Plan as the Control Room Emergency Director in accordance with EP-PS-100.

VI. TASK STATEMENT

A. Declaration of a Site Area Emergency based on classification CS4 within 15 minutes.

B. Declaration of a General Emergency based on classification CG4 within 15 minutes of second set of conditions.

C. Make Protective Action Recommendation (PAR) [evacuate 0 to 2 miles, shelter 2 to 10 miles, and advise citizens take KI per state plans] within 15 minutes of declaring a General Emergency.

VII. TASK SAFETY SIGNIFICANCE

Proper Emergency Plan implementation is required to provide reasonable assurance that public health and safety is not endangered by operation of the facility, and that adequate protective measures can and will be taken in the event of an emergency. [10CFR50.47(c)(1)(iii)]

PERFORMANCE CHECKLIST

Appl. To/JPM No.: SRO 00.EP.001.086 Candidate Name: _____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE: To begin this JPM provide the candidate with CUE SHEET#1: • When the candidate is ready to begin the JPM, inform the candidate that this is a TIME CRITICAL JPM. Record START TIME _____ .			
✱1.	Classify the emergency as conditions indicate. **EVALUATOR CUE:** If asked, conditions have not changed. **EVALUATOR NOTE:** When candidate declares the initial EAL classification, Record TIME _____ **Time to determine correct EAL must be within 15 minutes of START TIME**	Evaluate updated information. Review Emergency Classification Level Manual, EP-TP-001. Declare a SITE AREA EMERGENCY in accordance with Classification CS4 (< -161" with Secondary Containment)		

Step	Action	Standard	Eval	Comments
2.	Refer to EP-PS-100, "Emergency Director, Control Room; Emergency-Plan Position Specific Instruction"	Obtain a copy of EP-PS-100 and refer to tab D, Manage the SITE AREA EMERGENCY.		
3.	Document and communicate the emergency classification.	Announce to Control Room personnel 1) Assuming duties of Emergency Director 2) Emergency Classification 3) Time and Date of Classification		
4.	Appoint E-Plan Communicator. **EVALUATOR CUE:** Acknowledge the appointment of the E-Plan Communicator, when given the ENR form indicate that the E-Plan Communicator will transmit the form.	Appoint E-Plan Communicator. Instruct E-Plan Communicator to immediately perform EP-PS-126.		
5.	Appoint NRC Communicator. **EVALUATOR CUE:** Acknowledge the appointment of the NRC Communicator.	Appoint NRC Communicator. Instruct NRC Communicator to perform EP-PS-135, NRC Communicator.		

Step	Action	Standard	Eval	Comments
✱6.	Generate and approve ENR Form for transmittal. **EVALUATOR CUE:** If JPM is not performed in the simulator, when requested, inform the student that: • Wind Direction is 210 degrees • Wind Speed is 5 mph If performed in the Simulator, student should use current PICSY data.	Fill out ENR Form from Tab 9 and authorizes Form for transmittal. Review ENR Form with E-Plan Communicator prior to transmittal.		
	EVALUATOR CUE: 1. Inform the student that no further EP-PS-100 actions are required with respect to the previous classification. 2. Provide candidate with CUE SHEET #2. 3. Record START TIME _____			
✱7.	Refer to EP-TP-001 and evaluate the impact of new conditions. **EVALUATOR NOTE:** When candidate identifies the upgrade EAL classification Record TIME _____ **Time to determine correct EAL must be within 15 minutes of START TIME noted in 3., above.**	Refer to EP-TP-001 Category C, and determine that the HPCI blowout panel failure renders Secondary Containment NOT established and water level has been < -161 inches for >30 mins, AND an escalation to GENERAL EMERGENCY CG4 is now required; EP-PS-100 tab E must now be implemented.		

Step	Action	Standard	Eval	Comments
✱8.	Generate and approve ENR Form for transmittal. **EVALUATOR CUE:** If JPM is not performed in the simulator, when requested, inform the student that: • Wind Direction is 205 degrees • Wind Speed is 7 mph If performed in the Simulator, student should use current PICSY data.	Fill out ENR Form from Tab 9 and authorizes Form for transmittal. Review ENR Form with E-Plan Communicator prior to transmittal.		
9.	Refer to EP-PS-100	Refer to EP-PS-100 tab E and determine that a PAR must also be performed in accordance with EP-PS-100-6		
	EVALUATOR CUE: After the candidate determines a PAR is required, direct the candidate to determine the correct PAR for current plant conditions			

✱10.	Perform EP-PS-100 Tab 5, "PPL Emergency Dose Assessment and Protective Action Recommendation (PAR) Guide"
	
	EVALUATOR CUE:
	When asked, inform student that a valid offsite dose projection is NOT available yet.
	
	EVALUATOR NOTE:
	When candidate completes PAR and indicates need to transmit it to the Senior State Official:
	Record TIME _____
	
	Time to determine PAR must be within 15 minutes of General Emergency declaration time noted in Step 7.
		Refer to EP-PS-100 Tab 5 and determine:
		• PA-2: Has a GE been declared? **YES**
		• PA-3: Release via controlled direct containment vent < 1 hr? **NO**
		• PA-6: Valid Dose projection? **NO**
		• Per PA-7:
		  • **Evacuate 0-2 miles**
		  • **Shelter 2-10 miles**
		  • **Citizens take KI per state plans**
		
		Notify Senior State Official, using PAR State Notification Form, at 717-651-2148.		

	EVALUATOR CUE: When student indicates need to transmit PAR to Senior State Official, inform student "This completes the JPM."			
	EVALUATOR: Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

*Critical Step #Critical Sequence

CUE SHEET #1:

TASK CONDITIONS

A. Unit 1 in Mode 4.

B. "A" RHR Pump is in service for Shutdown Cooling.

C. A rigging incident inside the Containment resulted in damage to Recirc Loop 'A' suction piping causing a rapid reduction in RPV level.

D. Division 2 Core Spray and LPCI are injecting full flow.

E. Primary Containment was evacuated and the personnel hatch is closed with interlocks maintained prior to and during the transient.

F. RPV level has been stabilized at -168 inches Fuel Zone.

G. Secondary Containment pressure is -0.28 inches WG with Standby Gas Treatment in service.

INITIATING CUE

Classify the Event, and implement the Emergency Plan as the Control Room Emergency Director in accordance with EP-PS-100.

CUE SHEET #1:

TASK CONDITIONS

A. Unit 1 in Mode 4.

B. "A" RHR Pump is in service for Shutdown Cooling.

C. A rigging incident inside the Containment resulted in damage to Recirc Loop 'A' suction piping causing a rapid reduction in RPV level.

D. Division 2 Core Spray and LPCI are injecting full flow.

E. Primary Containment was evacuated and the personnel hatch is closed with interlocks maintained prior to and during the transient.

F. RPV level has been stabilized at -168 inches Fuel Zone.

G. Secondary Containment pressure is -0.28 inches WG with Standby Gas Treatment in service.

INITIATING CUE

Classify the Event, and implement the Emergency Plan as the Control Room Emergency Director in accordance with EP-PS-100.

CUE SHEET #2: (Do not provide until directed to by JPM.)

1. At time T= 40 minutes,
   - It has just been discovered by an NPO that the Unit 1 HPCI blowout panel has been dislodged and the HPCI room is open to outside atmosphere.
   - The Standby Gas Treatment system is now maintaining Secondary Containment at –0.16 inches WG.

2. Assuming the other initial conditions are still valid, determine if this new condition will affect the current EAL classification, AND if so perform any other additional actions that may be required.

CUE SHEET #2: (Do not provide until directed by JPM)

1. At time T= 40 minutes,
   - It has just been discovered by an NPO that the Unit 1 HPCI blowout panel has been dislodged and the HPCI room is open to outside atmosphere.
   - The Standby Gas Treatment system is now maintaining Secondary Containment at –0.16 inches WG.

2. Assuming the other initial conditions are still valid, determine if this new condition will affect the current EAL classification, AND if so perform any other additional actions that may be required.

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	00.AD.3246.052	0	8/3/10	Generic	2.1.5	2.9/3.9
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Evaluate Overtime Request With Respect to Work Hour Limits per NDAP-QA-0025

Completed By:		Validated:	
Tracy North	8/3/10	P. Moran	11/29/10
Writer	Date	Instructor/Writer	Date

Approval:

M Sawyer for M.D.L. — Nuclear Trng. Supv.

11/30/10 — Date

	15	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name: _____ (Last First M.I.) _____ (Employee # / S.S. #)

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: _____ (Signature) _____ (Typed or Printed)

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 00.AD.3246.052

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.

2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

A. NDAP-QA-0025, Work Hour Limits for Station Staff, rev 8

B. 10CFR26.205, Work Hours

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

A. Shift Supervision has called you at home on Sunday, 9/12 (a scheduled day off), to report to the control room to work a 12 hour overtime shift from 0600-1800.

B. Your work history for the previous week is as follows:

Sunday 9/5	**Monday 9/6**	**Tuesday 9/7**	**Wednesday 9/8**	**Thursday 9/9**	**Friday 9/10**	**Saturday 9/11**
Worked 0600-1800	Worked 0600-1800	OFF	Worked 0600-1800	Worked 0600-1800	Worked 0800-1600	Worked 0600-2100

C. Prior to Sunday 9/5 you were on two weeks of vacation.

V. INITIATING CUE

Using the work history provided, determine whether or not you are able to cover the requested shift *and* state the reason. Document your conclusion on the Task Condition sheet provided.

VI. TASK STANDARD

The candidate determines that they are unable to work the requested shift without an approved waiver because they will not have had a 10 hour break prior to the work start and/or will exceed 26 hours worked within a 48 hour period.

VI. TASK SAFETY SIGNIFICANCE

Federal requirements stated in 10CFR26.205 provide limitations on work hours for "covered workers" such as licensed operators in order to manage fatigue and prevent fatigue-related operator errors from threatening the health and safety of the public.

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 00.AD.3246.052 Student Name: _____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE: This JPM should be performed in the classroom (or similar environment). Ensure a copy of the current revision of NDAP-QA-0025 is available for candidate use if requested. **EVALUATOR CUE:** To begin this JPM provide the task conditions/Initiating cue sheet to the candidate.			
1.	The candidate may review NDAP-QA-0025, Work Hour Limits for Station Staff. **EVALUATOR CUE:** If asked, provide procedure.	Student refers to NDAP-QA-0025.		
*2.	Refer to work history and analyze for additional requested work hours	Refer to and analyze work hours		

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 00.AD.3246.052 Student Name: _____

Step	Action	Standard	Eval	Comments
*3.	Determine that working the requested shift will result in exceeding limits.	Determine that the required 10 hour break between work periods will not be met. And/or that the additional hours will result in exceeding 26 hours worked within a 48 hour period		12 hours Sunday 9/12 + 15 hours Saturday 9/11 = 27 hour in a 48 hour period. 2100 to 0600 = 9 hours vs. 10 hours.
4.	Report to Shift Supervision that the overtime request CANNOT be honored due to the 10 hour break between work periods will not be met and/or exceeding 26 hours within 48 hours if the requested hours were to be worked. **EVALUATOR CUE:** When candidate reports results, report that this JPM is complete.	Makes report to shift supervision.		
	EVALUATOR NOTE: Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

TASK CONDITIONS

A. Shift Supervision has called you at home on Sunday, 9/12 (a scheduled day off), to report to the control room to work a 12 hour overtime shift from 0600-1800, as the Unit 1 PCOM.

B. Your work history for the previous week is as follows:

Sunday 9/5	**Monday 9/6**	**Tuesday 9/7**	**Wednesday 9/8**	**Thursday 9/9**	**Friday 9/10**	**Saturday 9/11**
Worked 0600-1800	Worked 0600-1800	OFF	Worked 0600-1800	Worked 0600-1800	Worked 0800-1600	Worked 0600-2100

C. Prior to Sunday 9/5 you were on two weeks of vacation.

INITIATING CUE

Using the work history provided, determine whether or not you are able to cover the requested shift *and* state the reason. . Document your conclusion on the Task Condition sheet provided.

Circle One: CAN / CANNOT work the requested shift.

Reason: _____

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

RO	00.EP.1135.081	0	11/3/10	Generic	2.4.43	3.2
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Control Room Communicator Emergency Notification

Completed By:

T. North	11/3/10	M. Jacpeth	11-22-10
Writer	Date	Instructor/Writer	Date

Validated:

Approval:

M Jacpeth for M. Diltz — 11/30/10

Nuclear Trng. Supv. — Date

	Time Critical 15 Minutes	
Date of Performance:	Validated Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name: _____ (Last / First / M.I.) _____ (Employee # / S.S. #)

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: _____ (Signature) _____ (Typed or Printed)

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
RO 00.EP.1135.081

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.

2. Whenever entering any plant area where specific safety equipment; such as hearing or eye protection, safety shoes, hardhats, etc; is required and/or posted as being necessary.

C. If in the judgment of the evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

A. EP-PS-100 "Emergency Director, Control Room: Emergency-Plan-Position Specific Instruction" (Rev. 26)
B. EP-PS-126, "Emergency Plan Communicator: Emergency Plan-Position Specific Instruction" (Rev. 27
C. EP-TP-003, "Communication Process" (Rev. 5)
D. EP-AD-000-301, "Emergency Notification Report" (Rev. 12)

III. REACTIVITY MANIPULATIONS

This JPM satisfies the following Operational Activity(s):
None

IV. TASK CONDITIONS

A. A General Emergency has been declared due to "Loss of RPV Inventory Affecting Fuel Clad Integrity with Containment Challenged with Irradiated Fuel in the RPV" (CG4).
B. An airborne release is in progress.

V. INITIATING CUE

You have been assigned as the Control Room Communicator.
Transmit initial information about the Emergency Condition to required organizations, IAW the appropriate procedure.

A. TASK STANDARD

Identify the ENR form is incorrectly completed; Contact the offsite agencies within 15 minutes from "time of declaration"; Communicate the Emergency Classification, Unit, Declaration Time and Date to the offsite agencies.

B. Task Safety Significance

Proper notification of state and local agencies is essential to ensure the health and safety of the general public.

Appl. To/JPM No.: RO 00.EP.1135.081 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE: • This is a time critical JPM. • Ensure a copy of EP-PS-100, EP-TP-003, and EP-PS-126 are available to support performance of this JPM. • Have current, filled-out copy of ENR Form available **with the INCORRECT line 4 label attached. (a table C label CS5 should be used)** • Ensure an ENR form with the correct CG4 label is available			
	EVALUATOR NOTE: To begin this JPM, provide the candidate with the Task Conditions and Initiating Cue Sheet. Role play as Control Room ED and give student filled-out ENR Form. **Time ENR form is given: _____** **Start time is above time MINUS 5 MINUTES (declaration time).** **Enter time of declaration(start time): _____** **The TIME CRITICAL portion of the JPM begins.**			

Appl. To/JPM No.: RO 00.EP.1135.081 Student Name:_____

Step	Action	Standard	Eval	Comments
*1.	Obtain and review Event Notification Report (ENR) form with the Shift Manager/ED.	Review ENR form to verify Lines 1, 3, 4, 5, 6, and 7 are all filled out. **Determine that the line 4 label is NOT the correct label for CG4.** Report to ED that line 4 is incorrect		
2.	**EVALUATOR CUE:** Role Play as ED and provide the ENR form with the correct CG4 label to the candidate.	Reviews the ENR from with the correct CG4 label in block on line 4.		
	EVALUATOR NOTE: **If the JIC does not answer, do not wait. Transmit the ENR form information to the emergency agencies.** **Do not communicate the control number to offsite agencies. This block is gray shaded on the ENR form.**			

*Critical Step #Critical Sequence

Appl. To/JPM No.: RO 00.EP.1135.081 Student Name:_____

Step	Action	Standard	Eval	Comments
*3.	Within 15 minutes of declaration, using the purple colored phone button, dial "191" to transmit the ENR form to the following: (Dialing 191 will simultaneously connect the listed agencies in a conference call.) **EVALUATOR CUE:** If candidate is concerned about the button not being CLEARLY purple, Inform the candidate that the CTN 4915 button is PURPLE! **EVALUATOR/BOOTH CUE:** Role-play the receiving agencies and confirm each agency is on the line and you are "Ready to Copy" **EVALUATOR NOTE:** **After contact with the FIRST offsite agency has been confirmed, the Time Critical Portion of the JPM ends.** **Record stop Time _____**	Dial "191" on the purple colored button Verify the following agencies are on the line: (1) Penna. Emergency Management Agency (2) Columbia County EMA (3) Luzerne County EMA (4) Joint Information Center **Within 15 minutes of "time of declaration" previously recorded.**		
	EVALUATOR NOTE: **When you communicate your phone number to the offsite agencies, the prefix for 4XXX numbers is (570) 759. (The 191 call originates from a 4XXX number, if the purple button is used.)**			

*Critical Step #Critical Sequence

Appl. To/JPM No.: RO 00.EP.1135.081 Student Name:_____

Step	Action	Standard	Eval	Comments
3.	Communicate ENR Form: Line 1	Communicate the following for line1 Call status: **This is a Drill**		
4.	Communicate Line 2	Communicate the following for line 2: This is: **Candidate's Name** at Susquehanna Steam Electric Station. My telephone number is: **570-759-4915** Notification time is: **Current Time**		

Appl. To/JPM No.: RO 00.EP.1135.081 Student Name:_____

Step	Action	Standard	Eval	Comments
*5.	Communicate Line 3 **EVALUATOR NOTE:** "Initial Declaration" statement is not critical	Communicate the following for line 3: EMERGENCY CLASSIFICATION: **GENERAL EMERGENCY** UNIT: **ONE** Declaration Time: **FROM ENR FORM** DATE: **<TODAY'S DATE>** THIS REPRESENTS A/AN: **INITIAL DECLARATION**		
*6.	Communicate Line 4	Communicate the following for line 4: The Classification Designation is: **CG4** BRIEF NON-TECHNICAL DESCRIPTION OF THE EVENT: **"The water level inside the Unit 1 reactor has dropped and does not completely cover the uranium fuel. The unit had been shut down prior to the event and remains shut down. Protective actions will be made for the public"**		

*Critical Step #Critical Sequence

Appl. To/JPM No.: RO 00.EP.1135.081 Student Name:_____

Step	Action	Standard	Eval	Comments
*7.	Communicate Line 5	Communicate the following for line 5: THERE IS: **AN AIRBORNE RADIOLOGICAL RELEASE IN PROGRESS**		
8.	Communicate Line 6	Communicate the following for line 6: WIND DIRECTION IS FROM: **277°** WIND SPEED IS: **5 mph**		
9.	Communicate Line 7	Communicate the following for line 7: **THIS IS A DRILL**		
	EVALUATOR/BOOTH CUE: Candidate may request one of the offsite agencies "REPEAT" back the communicated information. If necessary, role-play the offsite agency and "Repeat" back the information.			

*Critical Step #Critical Sequence

Appl. To/JPM No.: RO 00.EP.1135.081 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE: This completes the JPM			
	EVALUATOR NOTE: In order for the candidate to pass the Time Critical element of this JPM, they must complete step 2 of this JPM within 15 minutes.			
	EVALUATOR: Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

TASK CONDITIONS

A. A General Emergency has been declared due to "Loss of RPV Inventory Affecting Fuel Clad Integrity with Containment Challenged with Irradiated Fuel in the RPV" (CG4).
B. An airborne release is in progress.

INITIATING CUE

You have been assigned as the Control Room Communicator.
Transmit initial information about the Emergency Condition to required organizations, IAW the appropriate procedure.

TASK CONDITIONS

A. A General Emergency has been declared due to "Loss of RPV Inventory Affecting Fuel Clad Integrity with Containment Challenged with Irradiated Fuel in the RPV" (CG4).
B. An airborne release is in progress.

INITIATING CUE

You have been assigned as the Control Room Communicator.
Transmit initial information about the Emergency Condition to required organizations, IAW the appropriate procedure.

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	44.ON.1792.101	0	11/22/10	256000	A4.08	3.7/3.7
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Emergency Operation of Condensate System

Completed By:

Bob Pudish — Writer

11/22/10 — Date

Validated:

Instructor/Writer

11/22/10 — Date

Approval:

M. Dilz — Nuclear Trng. Supv.

11/30/10 — Date

Date of Performance: _____

20 — Validation Time (Min.)

Time Taken (Min.): _____

JPM Performed By:

Student Name: _____ (Last, First, M.I.)

Employee # / S.S. #: _____

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: _____ (Signature) _____ (Typed or Printed)

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 44.ON.1792.101

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.

2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

A. ON-144-001, Emergency Operation of Condensate System (Rev. 10)

B. OP-AD-001, Operations Standards for System and Equipment Operation (Rev. 44)

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

A. Unit 1 has experienced a loss of coolant accident.

B. No injection sources are currently injecting into the Vessel.

C. RPV pressure has been between 700-800 psig for 1 hour.

D. RPV level is approximately -180 inches, steady on Compensated Fuel Zone Indicator.

E. TBCCW is unavailable

F. Instrument Air has been cross tied to U2.

V. INITIATING CUE

Restore and maintain RPV level > -161 inches on Compensated Fuel Zone Indicator, via LV-10641, using the Condensate system, in accordance with ON-144-001 (Emergency Operation of Condensate System).

VI. TASK STANDARD

RPV pressure is lowered below the shutoff head of the Condensate Pump to allow restoration of RPV level. Condensate is injected into the Vessel to raise Level.

VII. TASK SAFETY SIGNIFICANCE

Restoring and maintaining RPV level > -161 inches assures Adequate Core Cooling which will prevent Cladding Damage.

Appl. To/ S/RO JPM No 44.ON.1792.101 Student Name _____

Step	Action	Standard	Eval	Comments
	This JPM must be performed in the simulator. Setup the simulator to IC-11. Insert the following malfunctions: **IMF mfHP152015** **IMF mfRC150011** **IMF mfAD183001** **IMF cmfPM03_1P206A** **IMF cmfPM03_1P206C** **IMF cmfPM03_1P206B** **IMF cmfPM03_1P206D** **IMF cmfPM02_1P103A** **IMF cmfPM02_1P103B** **IMF cmfPM03_1P132A** **IMF cmfPM03_1P132B** **IRF rfIA019001 f:100** Consider snapping an IC for multiple performances of this JPM. When student is ready to begin **JPM**, place the simulator in **RUN**. The simulator booth operator should role play as the NPO when required.	 HPCI trip RCIC trip ADS failed CS tripped " " " " " " CRD trip " " TBCCW trip IA cross tied to U2 Recirc Leak 2% to obtain -180" on Comp FZWL then modify to 0%. DW has been sprayed once to lower pressure. MSIVs closed. FV-10604A(B)(C) in Auto. Shut off all Condensate Pumps immediately after Scram. Start 'C' Condensate Pump immediately before beginning JPM. Ensure FIC-10508 in Auto. RPV pressure approx 700 psig		Setup was snapped to IC-396 for LOC-23 NRC Exam.

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 44.ON.1792.101 Student Name _____

Step	Action	Standard	Eval	Comments
1.	Obtain ON-144-001.	Student obtains procedure. • Reviews Notes • Determines Section 4.3 is applicable based on Plant conditions		
2.	Ensure a Rx Scram has been initiated.	Student recognizes the Unit is scrammed. • Mode Switch in Shutdown • All Rods In		
3.	If the Rx is Shutdown and any Rx Feed Pump is still in service...	N/A		
4.	If the injection flow path is through any RFP Discharge Isolation Valve...	N/A		
5.	Ensure all Rx Feed Pumps are tripped.	Student confirms RFPs are tripped on HMI • Pump Icon states Tripped • Pump Icon Gray		
✳6.	Ensure all RFP Recirc valves FV-10604A,B,C controller FIC-10604A,B,C are in Manual and Closed.	Student observes RFP Recirc valves FV-10604A,B,C are in Auto Student closes the valves by: • Opens the overlay for FV-10604A,B,C • Touches the Manual button • Observes controller output 0	A B C	

✳Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 44.ON.1792.101 Student Name _____

Step	Action	Standard	Eval	Comments
7.	If RPV pressure is < 650 psig…	N/A		
8.	If RPV pressure > 650 psig: • Shutdown all but one Condensate Pump	Student observes Control Room indications and recognizes only one Cond Pump is running. (1 Red light on: 3 Amber lights on)		
✳9.	• Place the Condensate Recirc Flow controller FIC-10508 in Manual with a controller output of 0% (FW Startup/shutdown HMI screen)	Student touches FV08 on HMI. • Touches MAN • Sets % CTLR OUTPUT to 0 by depressing DEC button		
✳10.	• Shutdown the last remaining in-service Condensate pumps.	Student depresses the Stop pushbutton. • Red light off, Amber light on		
✳11.	• Then lower RPV Pressure using Bypass Valves and/or SRVs.	Student lowers RPV pressure by either: • Opening Bypass valves (not an option due to MSIVs being closed) or • Opens SRV(s): Switch to Open Student observes RPV pressure lowering.		

✳Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 44.ON.1792.101 Student Name _____

Step	Action	Standard	Eval	Comments
✳12.	• After RPV Pressure is < 650 psig and RPV Level is at the lower range of the assigned band, Start a Condensate Pump.	Student depresses Start pushbutton for one Condensate Pump after RPV Pressure is < 650 psig and Level is at the lower range of band. • RPV pressure < 650 psig • RPV level -180" on Comp FZWL • One Condensate Pump "Start" pushbutton depressed (Red light on, Amber light off)		
✳13.	Maintain RPV Pressure between 450-650 psig using Bypass Valves and/or SRVs.	Student reduces RPV pressure to 450-650 psig by opening SRV(s).		
✳14.	If feeding through LV-10641, Manually Throttle LV-10641 FW LOW LOAD VALVE to maximize Injection Flow and minimize time above 143 amps on in service Condensate Pump.	Student manually throttles LV-10641 by: • Touches 641 on HMI • Touches INC / DEC as necessary • Monitors Cond Pump amps (minimize time above 143 amps)		
15.	Ensure Condensate Recirc Flow controller FIC-10508 in Manual with a controller output of 0%.	Student recognizes FIC-10508 already in manual from previous manipulation in procedure.		
16.	Dispatch Field Operators to Isolate the Condensate Recirc & Rx Feedpump Recirc Flow paths in accordance with Attachment F.	Student contacts Field Operator to isolate Cond and RFP Recirc Flow paths.		

✳Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 44.ON.1792.101 Student Name _____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE Role play as Field Operator and inform Student that you will isolate Condensate and Feedpump Recirc Flow paths.			
17.	Operate Condensate Pumps one at a time, sequentially, to maintain bearing temp below 265°F (PICSY display CNDPP)	Student monitors Cond Pump bearing temp on PICSY display CNDPP.		
18.	If the RPV injection is lost due to the degraded Instrument Air Header Pressure prior to completion of Attachment F…	N/A		
19.	If reactor is not shutdown, maintain level per EO-100-113…	N/A		

Appl. To/ S/RO JPM No 44.ON.1792.101 Student Name _____

Step	Action	Standard	Eval	Comments
✱20.	If reactor is shutdown, to minimize condensate pump starts, Maintain a maximum level band of -129" to +54". • Shutdown condensate pump prior to reaching a bearing temperature of 265°F or when level reaches +54" • Start next sequential pump when RPV level drops to -129" • Repeat the previous Steps 4.3.15.a and b as necessary until there are no Condensate Pumps available for use or TBCCW has been restored.	**Student raises RPV level above -161" by throttling LV-10641.** • **RPV level > -161" on Compensated Fuel Zone Level instrument** **(EVALUATOR: SEE CUE ON NEXT PAGE FOR TERMINATION CRITERIA)** Student monitors Cond Pump bearing temp. Student monitors RPV level. Student shuts down Condensate Pump prior to bearing temp reaching 265°F. • Stop pushbutton depressed (Red light off, Amber light on) Student shuts down Condensate Pump when RPV level reaches +54". • Stop pushbutton depressed (Red light off, Amber light on)		
21.	Request TSC to pursue providing alternate means of cooling for TBCCW and/or Condensate Pumps.	Student contacts TSC to pursue providing alternate means of cooling for TBCCW and/or Condensate Pumps.		
	EVALUATOR CUE Role Play as TSC that alternate means of cooling are being pursued.			

✱Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 44.ON.1792.101 Student Name _____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE **Once RPV level has been restored > -161 inches on Compensated Fuel Zone Level indicator and showing a rising trend, inform the Candidate this completes the JPM.**			
	EVALUATOR Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

*Critical Step #Critical Sequence

TASK CONDITIONS

- Unit 1 has experienced a loss of coolant accident.
- No injection sources are currently injecting into the Vessel.
- RPV pressure has been between 700-800 psig for 1 hour.
- RPV level is approximately -180 inches, steady on Compensated Fuel Zone Indicator.
- TBCCW is unavailable
- Instrument Air has been cross tied to U2.

INITIATING CUE

Restore and maintain RPV level > -161 inches on Compensated Fuel Zone Indicator, via LV-10641, using the Condensate system, in accordance with ON-144-001 (Emergency Operation of Condensate System).

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	64.OP.4841.101	0	11/22/10	202001	A4.01	3.7/3.7
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Post SCRAM Recovery of "A" Reactor Recirculation Pump

Completed By:

Bob Pudish — Writer

11/22/10 — Date

Validated:

Instructor/Writer

11/22/10 — Date

Approval:

M Jayne for M.D.Ib

Nuclear Trng. Supv.

11/30/10 — Date

Date of Performance:

25 — Validation Time (Min.)

Time Taken (Min.)

JPM Performed By:

Student Name: Last First M.I.

Employee # / S.S. #

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: Signature

Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 64.OP.4841.101

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.

2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

A. OP-164-001, Reactor Recirculation System (Rev. 56)

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

A. A Reactor SCRAM has occurred and all control rods inserted.

B. Both Reactor Recirculation Pumps have tripped due to -38 inches Reactor Water Level being reached during the scram.

C. The "A" MG Set Generator and Drive Motor Lockout Relays have been reset.

V. INITIATING CUE

Restore the "A" Reactor Recirculation Pump to service in accordance with the OP-164-001 Hard Card.

VI. TASK STANDARD

The "A" Reactor Recirculation Pump is placed in service in accordance with OP-164-001.

VII. TASK SAFETY SIGNIFICANCE

Restoring the reactor recirculation pump to service provides forced circulation preventing thermal stratification in the reactor vessel.

Appl. To/ S/RO JPM No 64.OP.4841.101 Student Name _____

Step	Action	Standard	Eval	Comments
	This JPM must be performed in the simulator. Setup the simulator to a full power IC. Insert a manual scram and perform the immediate operator actions. RRPs will trip on -38". Reset containment isolations to get cooling back to RRPs. Press and release the **STOP** pushbutton for **HS-14001A**, MG SET A DRV MTR BKR. Insert the following commands: **IRF rfRR164011 f:TRIP_RESET** **IRF rfRR164011 f:NORM** Assign the following Keys: **{Key[1]} IRF rfRP158035 f:CL_CB3A** **{Key[2]} IRF rfRP158036 f:CL_CB4A** Consider snapping an IC for multiple performances of this JPM. The simulator booth operator should role play as the NPO when required. When student is ready to begin **JPM**, place the simulator in **RUN**.	Resets 1C063A L/O relay. Resets 1A101-10 L/O relay. Resets RPT Breaker at 1C609 (URR) Resets RPT Breaker at 1C611 (LRR)		Setup was snapped to IC-394 for LOC-23 NRC Exam.
1.	Obtains OP-164-001, Attachment D, Hard Card.	Student obtains OP-164-001, Attachment D Hard Card.		
2.	Procedure section shall only be used to Startup the First Recirc Pump Post Scram.	Student determines that no other Recirc Pump has been started post SCRAM.		

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 64.OP.4841.101 Student Name _____

Step	Action	Standard	Eval	Comments
3.	Recirculation pump trip is understood and trip condition has cleared and all control rods are fully inserted.	Student determines from task conditions and state of the plant that the pump trip is understood, the trip condition has cleared and that all control rods are fully inserted.		
4.	MG Set Generator and Drive Motor Lockout Relays reset.	Student determines from task conditions that the MG Set Generator and Drive Motor Lockout Relays are reset.		
5.	This section shall not be used when at power (mode 1 or 2).	Student confirms that the plant is not in mode 1 or 2.		
6.	Ensure MG Set Ventilation System in operation.	Student confirms MG Set Ventilation in operation.		
7.	Ensure Reactor Recirc Pump motor winding cooling water is aligned to "A" pump as follows: • RRP A Clg Wtr OB Iso Valves HV-18791 A1/A2 **OPEN** • RRP A Clg Wtr IB Iso Valves HV-18792 B1/B2 **OPEN**	Student confirms on 1C681: • HV-18791 A1/A2 **OPEN** • HV-18792 B1/B2 **OPEN**		
8.	Ensure Reactor Recirc Pump Seal Package cooling water is aligned to "A" pump as follows: • RBCCW OB CONTN ISO MOVS HV-11313/14 **OPEN** • RBCCW IB CONTN ISO MOVS HV-11345/46 **OPEN**	Student confirms on 1C668: • RBCCW OB CONTN ISO MOVS HV-11313/14 **OPEN** • RBCCW IB CONTN ISO MOVS HV-11345/46 **OPEN**		

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 64.OP.4841.101 Student Name _____

Step	Action	Standard	Eval	Comments
9.	Ensure Reactor Recirc Pump RPT breakers at 1C609 (URR) 1A20501 and 1C611 (LRR) 1A20502 are closed by observing the RED indicating light illuminated.	Student contacts an NPO for confirmation that Reactor Recirc Pump RPT breakers at 1C609 (URR) 1A20501 and 1C611 (LRR) 1A20502 are closed.		
	BOOTH OPERATOR CUE Press **{Key[1]}** and **{Key[2]}** to ensure RPT breakers are closed at 1C609 (URR) and 1C611 (LRR).			
	EVALUATOR CUE Role play as NPO and report that RRP RPT breakers at 1C609 (URR) and 1C611 (LRR) are closed.			
10.	Ensure Reactor Recirc Pump A Speed SY-B31-1R621A Controller in MANUAL with a speed setting of approximately 0%.	At HMI student confirms / adjust: • SY-B31-1R621A Controller in MANUAL with a controller output setting of approximately 0%		
11.	Comply with TRO 3.8.2.1.	Student informs Shift Supervision to comply with TRO 3.8.2.1.		
	EVALUATOR CUE Role play as Shift Supervision indicating that TRO 3.8.2.1 will be taken for action that will be occurring in the next step.			

✳Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 64.OP.4841.101 Student Name _____

Step	Action	Standard	Eval	Comments
12.	Place Recirc A MOV OL BYPS HV-143-F031A / F032A switch to TEST position.	Student places Recirc A MOV OL BYPS HV-143-F031A / F032A switch to TEST position. Student confirms Recirc Loop "A" Discharge Valves In Test annunciator ALARMS.		
13.	Ensure Recirc Pump "A" Suct HV-143-F023A OPEN.	Student ensures Recirc Pump "A" Suct HV-143-F023A OPEN.		
14.	Ensure Recirc Pump "A" Dsch Byps HV-143-F032A OPEN.	Student ensures Recirc Pump "A" Dsch Byps HV-143-F032A OPEN.		
✳15.	Ensure CLOSED or CLOSE Recirc Pump "A" Dsch HV-143-F031A.	Student ensures CLOSED or CLOSES Recirc Pump "A" Dsch HV-143-F031A.		
16.	Depress Scoop Tube "A" Lock or Reset HS-B31-1S03A Reset pushbutton ~ 4 to 5 seconds (to allow position amplifier timer to clear and reset logic to seal in).	Student depresses Scoop Tube "A" Lock or Reset HS-B31-1S03A Reset pushbutton ~ 4 to 5 seconds.		
17.	Observe Recirc MG "A" Scoop Tube Drive Lock Annunciator NOT ALARMING.	Confirms Recirc MG "A" Scoop Tube Drive Lock Annunciator **NOT ALARMING.**		
	NOTE (1) Utilize steam dome temperature, Comp. Pt. NFA05 or Steam Tables. **NOTE (2)** RPV Bottom Head Drain temperature is valid even if RWCU is isolated.	**(PICSY format: GD HUCD)**		

✳Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 64.OP.4841.101 Student Name _____

Step	Action	Standard	Eval	Comments
✳18.	In Mode 3 or 4, within 15 minutes prior to recirculation pump start (SR 3.4.10.3 & SR 3.4.10.4): • Record ΔT between bottom head coolant temperature and reactor pressure vessel coolant temperatures in Unit 1 log. • Ensure ΔT **between** bottom head coolant temperature and reactor vessel coolant temperature ≤ 145 °F. • Record ΔT between reactor coolant temperature in recirculation loop to be started and reactor pressure **vessel** coolant temperature in Unit 1 log. • Ensure ΔT between reactor coolant temperature in recirculation loop to be started and reactor pressure vessel coolant temperature ≤ 50 °F.	Student records and confirms ΔT's within limits specified.		
	EVALUATOR CUE **Ensure the student SIMULATES the announcement over the page.**			
19.	Announce twice over Plant PA System: "Attention all personnel, a recirc pump start is about to take place causing a potential loss of lighting, personnel should take precautions with work in progress".	Student **SIMULATES** making the PA announcement.		

✳Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 64.OP.4841.101 Student Name _____

Step	Action	Standard	Eval	Comments
✳20.	START Reactor Recirc Pump 1P401A by DEPRESSING MG SET A DRV MTR BKR HS-14001A START pushbutton ~ one (1) second (to allow start sequence relay to seal in).	Student depresses MG SET A DRV MTR BKR HS-14001A START pushbutton for approximately one second.		
21.	Observe the following: • MG SET A DRIVE MTR BKR **CLOSES** • GEN 1A SPEED indication **INCREASES** • After 11 seconds, GENERATOR A FIELD BREAKER closed indicator light **ILLUMINATES** • RECIRC A DRIVE FLOW indication **INCREASES**	Student confirms the following actions occur: • MG SET A DRIVE MTR BKR **CLOSES** • GEN 1A SPEED indication **INCREASES** • After 11 seconds, GENERATOR A FIELD BREAKER closed indicator light **ILLUMINATES** • RECIRC A DRIVE FLOW indication **INCREASES**		
✳22.	WHEN GEN 1A SPEED indication and RECIRC A DRIVE FLOW indication reached a settled state, approximately 40-60 seconds, OPEN RECIRC PUMP A DSCH HV-143-F031A.	When RECIRC A DRIVE FLOW indication reaches a settled state, student **OPENS** RECIRC PUMP A DSCH HV-143-F031A.		
23.	Slowly ADJUST REACTOR RECIRC PUMP A SPEED SY-B31-1R621A controller to achieve approximately 30% generator speed as indicated on SI-14032A.	At HMI, student slowly adjusts REACTOR RECIRC PUMP A SPEED SY-B31-1R621A controller to achieve ~ 30% generator speed as indicated on SI-14032A.		
24.	After 2 minutes, place RECIRC A MOV OL BYPS HV-143-F031A / F032A switch to NORM position.	After 2 minutes, student places RECIRC A MOV OL BYPS HV-143-F031A / F032A switch to NORM position.		

✳Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 64.OP.4841.101 Student Name _____

Step	Action	Standard	Eval	Comments
25.	Clear TRO 3.8.2.1.	Student informs Shift Supervision that they may clear TRO 3.8.2.1.		
	EVALUATOR CUE Role play as Shift Supervision indicating that TRO 3.8.2.1 will be cleared.			
	EVALUATOR CUE This completes the JPM.			
	EVALUATOR Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

*Critical Step #Critical Sequence

TASK CONDITIONS

A A Reactor SCRAM has occurred and all control rods inserted.

B Both Reactor Recirculation Pumps have tripped due to -38 inches reached during the scram.

C The "A" MG Set Generator and Drive Motor Lockout Relays have been reset.

INITIATING CUE

Restore the "A" Reactor Recirculation Pump to service in accordance with the OP-164-001 Hard Card.

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JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	34.EO.1619.151	0	11/22/10	400000	A4.01	3.1/3.0
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Reset Drywell Cooling Isolation and Restore Drywell Cooling IAW ES-134-001 (Control Room Actions) Alternate Path

Completed By: Validated:

Bob Pudish	11/22/10	RM Pudish	11/23/10
Writer	Date	Instructor/Writer	Date

Approval:

M Jaup for M. Dilly	11/30/10
Nuclear Trng. Supv.	Date

	10	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name: _____ _____
Last First M.I. Employee # / S.S. #

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: _____ _____
Signature Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 34.EO.1619.151

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:
   1. Whenever any electrical panel is opened for inspection during JPM performance.
   2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

ES-134-001, Restoring Drywell Cooling With A LOCA Signal Present (Rev. 17)

III. OPERATIONAL ACTIVITIES

This JPM satisfies the requirements of Operational Activity(s):
NONE

IV. TASK CONDITIONS

A. An ATWS has occurred coincident with a loss of drywell cooling.
B. EO-100-113 is being implemented for level/power control.
C. EO-100-103 is being executed for primary containment control.
D. ES-134-001 is being implemented and is complete through Step 4.2.
E. CIG 90 # header has been restored.
F. MSIVs have been opened IAW ES-184-002, REOPENING MSIVS BYPASSING ISOLATIONS.

V. INITIATING CUE

Reset Drywell Cooling Logic isolations and restore Drywell Cooling in accordance with ES-134-001.

VI. TASK STANDARD

Drywell Cooling Logic isolations reset and Drywell cooling restored.

VII. TASK SAFETY SIGNIFICANCE

Re-establish containment cooling.

Appl. To/JPM No.: S/RO 34.EO.1619.151 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE • This JPM must be performed on the simulator. • Load a Mode 1 IC. • Set up simulator according to the task conditions. • Place the simulator in Freeze. Consider snapping an IC for multiple performances of this JPM. When student is ready to begin **JPM**, place the simulator in **RUN**. The FAULTED step in this JPM is preceded by a fault statement in **BOLD TYPE WITH ALL CAPITAL LETTERS**. **Fill out and approve for use a blank copy of ES-134-001 up to step 4.3; Initial as SS, steps 4.1: the three bullets and 4.3. Check off Section 4.2 as complete.** **PROVIDE THIS TO THE STUDENT FOR USE IN COMPLETING THE TASK.**			Setup was snapped to IC-392 for LOC-23 NRC Exam.
1.	Obtain a controlled copy of ES-134-001, RESTORING DRYWELL COOLING WITH A LOCA SIGNAL PRESENT.	Student obtains Controlled copy.		
2.	Review Sections 1.0 through 3.0. • Section 1,2,3 reviewed.	Student review Sections 1.0 through 3.0.		

*Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 34.EO.1619.151 Student Name:_____

Step	Action	Standard	Eval	Comments
3.	Check for approval in Section 4.1. • Approval verified.	Student verifies Shift Manager approval at step 4.1.		
4.	Verify step 4.2 is marked as complete • Step 4.2 verified completed.	Student verifies step 4.2 is marked as complete.		
5.	Selects the correct section to perform. • Goes to Section 4.3.	Student selects section 4.3.		
	NOTE Steps 4.3.1.a through d are performed at Panel 1C681, Heat and Ventilation Control Panel.			
	FAULT STATEMENT **B CLRS CLG WTR OB ISO VLVS HV-18781B1 and HV-18781B2 did not automatically close. Student should recognize this condition and place the Control Switch for B CLRS CLG WTR OB ISO VLVS HV-18781B1 and HV-18781B2 to Close. (this will close the valves). Student may elect to place the control switches to "CLOSE" for all the valves listed in step 6 below. If the student places these switches to "CLOSE", then it will be "Critical" that they place all of the control switches back to "OPEN" in step 17 of this JPM. At a minimum, the Control Switch for B CLRS CLG WTR OB ISO VLVS HV-18781B1 and HV-18781B2 must be taken to Open in step 17.**			

*Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 34.EO.1619.151 Student Name:_____

Step	Action	Standard	Eval	Comments
✳6.	Ensure the following valves are closed prior to resetting isolation logic: A CLRS CLG WTR OB ISO VLVS HV-18781A1 and HV-18781A2. • Amber light LIT and red light NOT LIT A CLRS CLG WTR IB ISO VLVS HV-18782B1 and HV-18782B2. • Amber light LIT and red light NOT LIT ✳B CLRS CLG WTR OB ISO VLVS HV-18781B1 and HV-18781B2. • Initially: Amber light NOT LIT and red light LIT • Switch to Close : Amber light LIT and red light NOT LIT B CLRS CLG WTR IB ISO VLVS HV-18782A1 and HV-18782A2. • Amber light LIT and red light NOT LIT	Student verifies position of the following valves: A CLRS CLG WTR OB ISO VLVS HV-18781A1 and HV-18781A2. A CLRS CLG WTR IB ISO VLVS HV-18782B1 and HV-18782B2. B CLRS CLG WTR OB ISO VLVS HV-18781B1 and HV-18781B2. **(Recognizes valves Initially Open, manually closes the valves)** B CLRS CLG WTR IB ISO VLVS HV-18782A1 and HV-18782A2.		
7.	If Containment Instrument Gas has not been restored by ES-184-002, Ensure the following are closed at Panel 1C601 prior to resetting isolation logic: INSTR GAS TO CONTN ISO SV-12651. INSTR GAS CMP IB SUCT ISO HV-12603. INSTR GAS CMP OB SUCT ISO SV-12605. • N/A	Based on initial conditions: Student determines that CIG 90# header has been restored.		

✳Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 34.EO.1619.151 Student Name:_____

Step	Action	Standard	Eval	Comments
✳8.	Reset Drywell Cooling (HVAC LOCA Trip 1A and 1B) Logic: On 1C601 momentarily Depress CHAN A DRWL CLG HS-14141A RESET pushbutton. • CHAN A DRWL CLG HS-14141A RESET push button depressed.	Student resets A Isolation.		
9.	Observe CHAN A DRWL CLG RESET green ISO light extinguishes. • Green light above the pushbutton NOT LIT.	Student observes A Isolation reset.		
✳10.	On 1C601 momentarily Depress CHAN B DRWL CLG HS-14141B RESET pushbutton. • CHAN B DRWL CLG HS-14141B RESET push button depressed.	Student resets B Isolation.		
11.	Observe CHAN B DRWL CLG RESET green ISO light extinguishes. • Green light above the pushbutton NOT LIT.	Student observes B Isolation reset.		
✳12.	On 1C681 Heat and Ventilation Control Panel momentarily Depress Chan A RBCW ISO VALVE POS RESET HS-14140A pushbutton. • Chan A RBCW ISO VALVE POS RESET HS-14140A pushbutton depressed.	Student resets CHAN A RBCW ISO VALVE POS HS-14140A.		

✳Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 34.EO.1619.151 Student Name:_____

Step	Action	Standard	Eval	Comments
13.	Observe Chan A RBCW ISO VALVE POS RESET white Iso light extinguishes. • White light NOT LIT.	Student observes A RBCW Isolation valve reset.		
✳14.	On 1C681 Heat and Ventilation Control Panel momentarily Depress Chan B RBCW ISO VALVE POS RESET HS-14140B push button.	Student resets CHAN B RBCW ISO VALVE POS HS-14140B.		
15.	Observe Chan B RBCW ISO VALVE POS RESET white Iso light extinguishes. • White light NOT LIT.	Student observes B RBCW Isolation valve reset.		
16.	If Containment Instrument Gas has not been restored by ES-184-002, Restore CIG in accordance with section 4.4 of this procedure. • N/A	Based on initial conditions: Determines that CIG 90# header has been restored.		
	NOTE Following valves may not open if CIG header pressure is low. Drywell cooling will occur after the following steps if RBCCW is in service and the drywell cooling swap valves have re-aligned.			

✳Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 34.EO.1619.151 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE Previously, in step 6 of this JPM, the Student may have placed the control switches to "CLOSE" for the valves listed in step 17 below. If the student placed these switches to "CLOSE", then it is "Critical" that they place the same control switches back to "OPEN" in step 17 below. At a minimum, the Control Switch for B CLRS CLG WTR OB ISO VLVS HV-18781B1 and HV-18781B2 must be taken to Open.			
✳17.	On 1C681 Heat and Ventilation Control Panel, Ensure following valves open: A CLRS CLG WTR OB ISO VLVS HV-18781A1 and HV-18781A2. • Amber light NOT LIT and red light LIT. A CLRS CLG WTR IB ISO VLVS HV-18782B1 and HV-18782B2. • Amber light NOT LIT and red light LIT. ✳B CLRS CLG WTR OB ISO VLVS HV-18781B1 and HV-18781B2. • Control Switch to Open • Amber light NOT LIT and red light LIT. B CLRS CLG WTR IB ISO VLVS HV-18782A1 and HV-18782A2. • Amber light NOT LIT and red light LIT.	Student verifies position of the following valves: A CLRS CLG WTR OB ISO VLVS HV-18781A1 and HV-18781A2. A CLRS CLG WTR IB ISO VLVS HV-18782B1 and HV-18782B2. B CLRS CLG WTR OB ISO VLVS HV-18781B1 and HV-18781B2. B CLRS CLG WTR IB ISO VLVS HV-18782A1 and HV-18782A2.		

✳Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 34.EO.1619.151 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE This completes the JPM.			
	EVALUATOR Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

*Critical Step #Critical Sequence

TASK CONDITIONS

A. An ATWS has occurred coincident with a loss of drywell cooling.
B. EO-100-113 is being implemented for level/power control.
C. EO-100-103 is being executed for primary containment control.
D. ES-134-001 is being implemented and is complete through Step 4.2.
E. CIG 90 # header has been restored.
F. MSIVs have been opened IAW ES-184-002, REOPENING MSIVS BYPASSING ISOLATIONS.

INITIATING CUE

Reset Drywell Cooling Logic isolations and restore Drywell Cooling in accordance with ES-134-001.

TASK CONDITIONS

A. An ATWS has occurred coincident with a loss of drywell cooling.
B. EO-100-113 is being implemented for level/power control.
C. EO-100-103 is being executed for primary containment control.
D. ES-134-001 is being implemented and is complete through Step 4.2.
E. CIG 90 # header has been restored.
F. MSIVs have been opened IAW ES-184-002, REOPENING MSIVS BYPASSING ISOLATIONS.

INITIATING CUE

Reset Drywell Cooling Logic isolations and restore Drywell Cooling in accordance with ES-134-001.

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	04.ON.1203.251	0	11/22/10	262001	A2.07	3.0/3.2
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Energize "Dead" 4KV ESS Bus '2D' (Alternate Path)

Completed By: Validated:

Bob Pudish	11/22/10		11/22/10
Writer	Date	Instructor/~~Writer~~	Date

Approval:

M.D.H. for M.D.H.	11/30/10
Nuclear Trng. Supv.	Date

	15	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name: _____ _____
Last First M.I. Employee # / S.S. #

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: _____ _____
Signature Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 04.ON.1203.251

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:
   1. Whenever any electrical panel is opened for inspection during JPM performance.
   2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

A. ON-004-002, Energizing Dead 4KV ESS Bus (Rev. 20)

B. OP-024-001, Diesel Generators (Rev. 56)

C. OP-AD-001, Operations Standards for System and Equipment Operation (Rev. 44)

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

A. Unit 2 is in a Shutdown Condition.

B. An Electrical transient has occurred on the 2D ESS bus.

C. DG D has failed to auto start and is in standby alignment.

D. No electrical Bus fault is present.

E. You are the On-Shift U2 PCOP.

V. INITIATING CUE

Implement ON-004-002 to re-energize the 2D ESS bus.

VI. TASK STANDARD

ESS Bus 2D is re-energized from DG 'D' iaw ON-004-002 (Energizing Dead 4KV ESS Bus) recognizing that the DG Output breaker fails to automatically close and ESW cooling water for the DG did not start.

VII. TASK SAFETY SIGNIFICANCE

ESS Busses are the power supply to ECCS components necessary to mitigate Core Damage. ESW is the cooling medium for the DG to prevent component damage.

Appl. To/ S/RO JPM No 04.ON.1203.251 Student Name _____

Step	Action	Standard	Eval	Comments
	This JPM must be performed in the simulator. Setup the simulator to IC-18. Insert the following malfunctions: **IMF mfDG024001D** **IMF cmfBR05_2A20401** **IMF cmfBR04_2A20404** **IMF cmfBR03_2A20408** **IMF cmfPM04_0P504D** This JPM uses the following Event Trigger: **aet 04ON1203151** Which consists of conditions: **diHS00051D.CurrValue=#OR.diHS00051D.RESET** And linked commands: **DMF mfDG024001D** Consider snapping an IC for multiple performances of this JPM. When student is ready to begin **JPM**, place the simulator in **RUN**. The FAULTED step in this JPM is preceded by a fault statement in **BOLD TYPE WITH ALL CAPITAL LETTERS**. The simulator booth operator should role play as the NPO when required.	DG D Fails to Start Bkr 01 Fails AsIs Bkr 04 Auto Logic Fails Bkr 08 Overcurrent Trip ESW Pump D Auto Logic Fails DG D Start Pushbutton Delete DG D Fails to Start		Setup was snapped to IC-394 for LOC-23 NRC Exam.

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 04.ON.1203.251 Student Name _____

Step	Action	Standard	Eval	Comments
1.	Select the correct section to perform.	Student selects Attachment A Step 1.3.		
2.	Confirm the normal, alternate and DG breakers for the dead 4KV ESS bus are open.	Student confirms the following breakers open: • 2A20408 (Red light off–Amber light on) • 2A20401 (Red light off–Amber light on) • 2A20404 (Red light off–Amber light on)		
3.	Check status of following lockout relays: • Determine if any relays Tripped. • Do Not reset any tripped relays. • If any relays Tripped: Perform Att B, Exit Att A.	Student contacts an NPO to check the following Lockout relays not tripped: • 86A-204 • 86A1-204 • 86A2-204		
	EVALUATOR CUE Role Play as NPO and report **no** lockout relays are tripped.			
	NOTE 4.16 KV bus will shed all loads except 480 volt load centers (feeder breaker remains closed).			

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 04.ON.1203.251 Student Name _____

Step	Action	Standard	Eval	Comments
4.	Ensure appropriate breakers supplied from 4.16 KV ESS Bus 2D listed on Attachment D are open.	Student contacts an NPO to check the following breakers open: • 2A20405 (Red light off–Amber light on) • 2A20402 (Red light off–Amber light on) • 2A20403 (Red light off–Amber light on) • 2A20409 (Red light off–Amber light on)		
	EVALUATOR CUE Role Play as NPO and report **all** breakers listed on Attachment D are open.			
5.	Ensure DG 'D' aligned for Standby Automatic operation iaw OP-024-001.	Student recalls from Task Conditions that DG 'D' is aligned for standby operation.		
	EVALUATOR CUE If necessary, role play as the Unit Supervisor and report that the DG 'D' is available for manual operation.			
6.	If DG failure has occurred, if possible substitute DG E for affected DG iaw OP-024-004. • N/A	N/A, DG failure has not occurred.		
✳7.	To start diesel at 0C653, perform the following: • Place HS-00055D DG D Gov Mode Sel switch to ISOCH.	Student places HS-00055D DG D Gov Mode Sel switch in ISOCH position.		

✳Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 04.ON.1203.251 Student Name _____

Step	Action	Standard	Eval	Comments
8.	To start diesel at 0C653, perform the following (continued): • Ensure HS-00056D DG D Volt Reg Mode Sel switch to Auto.	Student ensures HS-00056D DG D Volt Reg Mode Sel switch is in Auto.		
✳9.	To start diesel at 0C653, perform the following (continued): • Depress HS-00051D DG D Start pushbutton.	Student depresses HS-00051D DG D Start pushbutton.		
	FAULT STATEMENT **THE NEXT STEP HAS THE DG OUTPUT BREAKER FAILING TO AUTO CLOSE, STUDENT SHOULD RECOGNIZE FAILURE AND MANUALLY CLOSE BREAKER.**			
11.	Observe DG D starts and DG D to Bus 2D Bkr 2A20404 automatically closes.	Student observes: • DG D volts and Hz rise to 4160V and 60 Hz. • Bkr 2A20404 did **NOT** close (Red light off-Amber light on).		
12.	Observe white ESS Bus available light Illuminated on mimic bus on Panel 0C653.	Student observes white ESS Bus available light **NOT** Illuminated on mimic bus on Panel 0C653.		

✳Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 04.ON.1203.251 Student Name _____

Step	Action	Standard	Eval	Comments
✳13.	If DG D to Bus 2D Bkr 2A20404 did not close automatically, manually close DG D Output Breaker 2A20404 onto dead 4.16KV Bus 2D as follows: • Ensure all synchroscope switches off on 0C653.	Student recognizes Bkr 2A20404 did **NOT** close automatically. • Student ensures all synchroscope switches off on 0C653.		
✳14.	• Place HS-00042B DG D to Bus 2D Synch Sel keyswitch to On.	Student places HS-00042B DG D to Bus 2D Synch Sel keyswitch to On.		
✳15.	• Close DG D to Bus 2D Bkr 2A20404.	Student closes DG D to Bus 2D Bkr 2A20404 (Red light on-amber light off).		
16.	• Observe voltage on 4.16KV Bus 2D.	Student observes voltage on 4.16KV Bus 2D.		
17.	• Observe white ESS Bus available light Illuminated on mimic bus on Panel 0C653.	Student observes white ESS Bus available light Illuminated on mimic bus on Panel 0C653.		
✳18.	• Place HS-00042B DG D to Bus 2D Synch Sel keyswitch to Off.	Student places HS-00042B DG D to Bus 2D Synch Sel keyswitch to Off.		
20.	Ensure ESW supplying adequate cooling to DG iaw OP-054-001.	Student recognizes ESW Pump D not running. May inform SRO.		

✳Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 04.ON.1203.251 Student Name _____

Step	Action	Standard	Eval	Comments
21.	Select correct procedure / section.	Student selects OP-054-001 Section 2.2. Student may start ESW Pumps without referring to OP due to auto action failing to occur.		
*22.	Place ESW Loop B in service by depressing ESW Pump D or B Run pushbutton.	Student depresses ESW Pump D or B Run pushbutton (Red light on-Amber light off).		
23.	Place ESW Loop A in service by depressing ESW Pump A or C Run pushbutton.	Student depresses ESW Pump A or C Run pushbutton (Red light on-Amber light off).		
24.	As soon as possible, station Operator at DG to monitor conditions that would cause normal shutdown of DG.	Student dispatches NPO to monitor DG parameters.		
	EVALUATOR CUE Role play as NPO and report conditions normal for DG D.			
	EVALUATOR CUE This completes the JPM.			
	EVALUATOR Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

*Critical Step #Critical Sequence

TASK CONDITIONS

- Unit 2 is in a Shutdown Condition.
- An Electrical transient has occurred on the 2D ESS bus.
- DG D has failed to auto start and is in standby alignment.
- No electrical Bus fault is present.
- You are the On-Shift U2 PCOP.

INITIATING CUE

Implement ON-004-002 to re-energize the 2D ESS bus.

TASK CONDITIONS

- Unit 2 is in a Shutdown Condition.
- An Electrical transient has occurred on the 2D ESS bus.
- DG D has failed to auto start and is in standby alignment.
- No electrical Bus fault is present.
- You are the On-Shift U2 PCOP.

INITIATING CUE

Implement ON-004-002 to re-energize the 2D ESS bus.

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	35.ON.1662.101	0	11/22/10	233000	A2.02	3.1/3.3
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Add Water to Fuel Pool via RHRSW IAW ON-135-001

Completed By: Validated:

Bob Pudish	11/22/10		11/22/10
Writer	Date	Instructor/Writer	Date

Approval:

M. Jaeger for M.D.Ib	11/30/10
Nuclear Trng. Supv.	Date

	20	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name: _____ _____

Last First M.I. Employee # / S.S. #

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: _____ _____

Signature Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 35.ON.1662.101

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:
   1. Whenever any electrical panel is opened for inspection during JPM performance.
   2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

ON-135-001, Loss Fuel Pool Cooling / Coolant Inventory (Rev. 30)

III. OPERATIONAL ACTIVITIES

This JPM satisfies the requirements of Operational Activity(s):
NONE

IV. TASK CONDITIONS

A. A Seismic event has occurred.
B. Unit 1 is in Mode 3
C. Unit 1 Fuel Pool inventory is lowering due to a system breach.
D. Normal Fuel Pool makeup is unavailable.
E. A system walkdown was unable to locate the leak, however the rate of inventory loss is not severe.
F. The Unit 1 Fuel Pool Cooling System has been shutdown.
G. The Cask Storage Pit Gate is closed
H. The Unit 1 Fuel Pool has been isolated from Non-Q piping by another operator.
I. Adding water to the fuel pool was attempted using the ESW System, but was unsuccessful.
J. Current Unit 1 Pool level is 21' 11" down slow.

V. INITIATING CUE

Add water to the Unit 1 Fuel Pool via RHRSW through RHR Loop 'A' IAW ON-135-001.

VI. TASK STANDARD

Water is added to Fuel Pool using the RHRSW system.

VII. TASK SAFETY SIGNIFICANCE

Maintaining Fuel Pool inventory will prevent fuel element overheating and cladding damage.

Appl. To/JPM No.: S/RO 35.ON.1662.101 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE • This JPM must be performed on the simulator. • Insert the following malfunctions: **IMF annAR016G06 f:ALARM_ON** **IMF annAR016H14 f:ALARM_ON** **IMF annAR016H16 f:ALARM_ON** **IMF annAR106A17 f:ALARM_ON** • Insert the following remote function: **IRF rfFP135007 f:RHR_BACKUP** • Insert the following over-ride: **IOR aoLRTR15347A f:815.92** • This JPM uses the following Event Trigger: **aet 35ON1662101** Which consists of conditions: **diHS11275A.CurrValue = #OR.diHS11275A.OPEN** And linked commands: **DOR aoLRTR15347A** • Assign the following Keys: **{Key[1]} MOR aoLRTR15347A r:30:00 i:Asls f:815.75** **{Key[2]} IRF rfRH149026 f:100** • Place the simulator in Run, take the M/S to S/D, override HPCI and RCIC, perform immediate operator actions following a scram to control FW. • Place the simulator in Freeze. • Consider snapping an IC for multiple performances of this JPM. • When student is ready to begin **JPM**, place the simulator in **RUN**. • Press **{Key[1]}** to begin lowering the level in the fuel pool.	Turns on the annunciator for seismic. Turns on the annunciator for 0C211. Turns on the annunciator for 0C207. Turns on the annunciator for 1C206. Closes suction valve to trip FPC Pps. Sets fuel pool level at 21'11". Delete FP lowering when HV112F075A is open. Start lowering level in the fuel pool. Open manual valve151070.		Setup was snapped to IC-393 for LOC-23 NRC Exam.

*Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 35.ON.1662.101 Student Name:_____

Step	Action	Standard	Eval	Comments
1.	Obtain a controlled copy of ON-135-001, Loss of Fuel Pool Cooling / Coolant Inventory.	Student obtains Controlled copy.		
2.	Review Sections 1.0 through 3.0. • Sections 1 through 3 reviewed.	Student review Sections 1 through 3.		
	EVALUATOR CUE If asked about Step 3.2, inform Candidate that Unit 1 is in Mode 3. If asked about Step 3.3.2, inform Candidate that TS are being complied with.			
3.	Selects the correct section to perform. • Goes to Section 3.6.	Student selects section 3.6.		

✳Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 35.ON.1662.101 Student Name:_____

Step	Action	Standard	Eval	Comments
4.	Ensure the following valves are Closed: (a) HV-151F023 RHR Rx Head Spray Flow Cntrl Vlv. • Amber light On, Red light Off (b) HV-151F015A RHR Loop A Inj OB Iso Vlv. • Amber light On, Red light Off (c) HV-151F010A RHR Loop A Cross-tie. • Amber light Off, Red light Off (d) HV-151F010B RHR Loop B Cross-tie. • Amber light Off, Red light Off (e) HV-11210A U1 RHRSW Hx A Inlet. • Amber light On, Red light Off (f) HV-21210A U2 RHRSW Hx A Inlet. • Amber light On, Red light Off	Student checks valve positions. This valve is normally closed and de-energized. This valve is normally closed and de-energized. Student contacts Unit 2 PCOP and asks for the position of HV-21210A.		
	EVALUATOR CUE Role Play as Unit 2 PCOP and report valve HV-21210A is Closed.			
5.	Momentarily place HS-E11-1S17A LOCA Isolation Manual Override Keylock Switch to override. • Key inserted • Switch turned to Override	Student overrides LOCA Iso logic.		

✱Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 35.ON.1662.101 Student Name:_____

Step	Action	Standard	Eval	Comments
6.	Observe the following: (a) LOCA Isolation Manual Override White Indicating Light Illuminated. • White light momentarily LIT (b) LOCA Iso Switch Loop A Manual Override Annunciator Alarmed. • Annunciator AR-109-C05 LIT (n\a)	Student observes override condition. No LOCA signal is present		
✳7.	Close the following valves: (a) HV-151F048A RHR Hx Shell Side Bypass Vlv. • Switch to Close • Amber light LIT, Red light NOT LIT (b) HV-151F017A RHR Loop A Injection Flow Cntrl Vlv. • Switch to Close • Amber light LIT, Red light NOT LIT (c) HV-151F003A RHR Hx A Shell Side Outlet Vlv. • Switch to Close • Amber light LIT, Red light NOT LIT	Student begins lineup.		
8.	Ensure the following valves Closed: (a) HV-151F016A RHR Loop A Drwl Spray OB Iso Vlv. • Amber light LIT, Red light Not Lit (b) HV-151F028A RHR Loop A Supp Cbr Spray Test Shutoff Vlv. • Amber light LIT, Red light Not Lit	Student verifies lineup.		

✳Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 35.ON.1662.101 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE The following valves are located In-Plant. Student will contact In-Plant Operator and direct these valves opened.			
9.	Open the following valves: (a) 151070 - RHR to Refuel Pool Clg and Clnup Return (b) 153070A - Fuel Pool Fill Vlv from RHR (c) 153070B - Fuel Pool Fill Vlv from RHR	Student directs an In-Plant Operator to open these valves. (RB 683' in 'B' RHR pipeway) (RB 749' in FP pump & Hx room) (RB 749' in FP pump & Hx room)		
	BOOTH OPERATOR CUE Press **{Key[2]}** to open manual valve 151070. (Found on **P&ID RH1**) Valves 153070A/B are already open. (Found on **P&ID FP1**)			
	EVALUATOR CUE Role Play as In-Plant Operator and report the valves are Open.			
10.	If necessary, Momentarily Place HS-11202A3 RHRSW Pump A LOCA-Trip to Reset. • Switch to Reset not necessary	Student does not need to reset LOCA-trip logic to RHRSW Pump.		

*Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 35.ON.1662.101 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE AR-109-H03 and H04 will come in when 1P506A is started.			
✳11.	Start 1P506A RHRSW Pump A. • Control Switch to Start. • Red light LIT, Amber light Not LIT	Student starts pump.		
✳12.	Open HV112F073A RHRSW Crosstie. • Switch to Open • Red light LIT, Amber light Not LIT	Student opens HV112F073A RHRSW Crosstie.		
✳13.	Open HV112F075A RHRSW Crosstie. • Switch to Open • Red light LIT, Amber light Not LIT	Student opens HV112F075A RHRSW Crosstie.		
14.	Ensure HV-112F074A RHRSW/RHR Loop A Crosstie Drain Vlv Closes (Rm I-104 29-645').	Student contacts an NPO to ensure that HV-112F074A Closes.		
	EVALUATOR CUE As In-Plant operator, when asked about valve, report valve is closed.			

✳Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 35.ON.1662.101 Student Name:_____

Step	Action	Standard	Eval	Comments
	NOTE The pump and valves in the next step may be cycled to maintain fuel pool level.			
	EVALUATOR CUE Role Play as In-Plant Operator that Fuel Pool level is at the Weir overflow level.			
15.	When desired fuel pool level reached, Stop adding water to fuel pool as follows: (a) Stop 1P506A RHRSW Pump A. • Control Switch to Stop • Amber light LIT, Red light Not LIT (b) Close HV112F075A RHRSW Crosstie. • Switch to Close • Amber light LIT, Red light Not LIT (c) Close HV112F073A RHRSW Crosstie. • Switch to Close • Amber light LIT, Red light Not LIT	Student secures makeup based on reports / direction.		
	EVALUATOR CUE This completes the JPM.			

*Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 35.ON.1662.101 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

*Critical Step #Critical Sequence

TASK CONDITIONS

A. A Seismic event has occurred.

B. Unit 1 Fuel Pool inventory is lowering due to a system breach.

C. Normal Fuel Pool makeup is unavailable.

D. A system walkdown was unable to locate the leak, however the rate of inventory loss is not severe.

E. The Unit 1 Fuel Pool Cooling System has been shutdown.

F. The Cask Storage Pit Gate is closed.

G. The Unit 1 Fuel Pool has been isolated from Non-Q piping by another operator.

H. Adding water to the fuel pool was attempted using the ESW System, but was unsuccessful.

I. Current Unit 1 Pool level is 21' 11" down slow.

INITIATING CUE

Add water to the Unit 1 Fuel Pool via RHRSW through RHR Loop 'A' IAW ON-135-001.

TASK CONDITIONS

A. A Seismic event has occurred.

B. Unit 1 Fuel Pool inventory is lowering due to a system breach.

C. Normal Fuel Pool makeup is unavailable.

D. A system walkdown was unable to locate the leak, however the rate of inventory loss is not severe.

E. The Unit 1 Fuel Pool Cooling System has been shutdown.

F. The Cask Storage Pit Gate is closed.

G. The Unit 1 Fuel Pool has been isolated from Non-Q piping by another operator.

H. Adding water to the fuel pool was attempted using the ESW System, but was unsuccessful.

I. Current Unit 1 Pool level is 21' 11" down slow.

INITIATING CUE

Add water to the Unit 1 Fuel Pool via RHRSW through RHR Loop 'A' IAW ON-135-001.

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	55.ON.2000.152	2	11/22/10	201003	A2.01	3.4/3.6
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Respond to a Stuck Control Rod IAW ON-155-001

Completed By: Validated:

Bob Pudish — Writer; 11/22/10 — Date; Instructor/Writer; 11/22/10 — Date

Approval:

M.D.Ib — Nuclear Trng. Supv.; 11/30/10 — Date

Date of Performance: ____ Validation Time (Min.): 30 Time Taken (Min.): ____

JPM Performed By:

Student Name: ____ (Last First M.I.) ____ (Employee # / S.S. #)

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: ____ (Signature) ____ (Typed or Printed)

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 55.ON.2000.152

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.

2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

A. ON-155-001, CONTROL ROD PROBLEMS (Rev. 34)

III. OPERATIONAL ACTIVITIES

This JPM satisfies the requirements of Operational Activity(s):

None

IV. TASK CONDITIONS

A. Unit 1 is at 90% power.
B. A rod pattern adjustment is scheduled.

V. INITIATING CUE

The Unit Supervisor directs you to perform the rod pattern adjustment by **SINGLE NOTCH** Withdrawing Rods in accordance with the reactivity manipulation request form and control rod movement sheet. The reactivity briefing for this power change has been completed.

VI. TASK STANDARD

Rods 22-39 withdrawn to notch 12; Rod 38-39 withdrawn to notch 08.

VII. TASK SAFETY SIGNIFICANCE

Ability to safely add positive Reactivity with control rod motion.

Appl. To/JPM No.: S/RO 55.ON.2000.152 Student Name:_____

Step	Action	Standard	Eval	Comments
	Simulator Setup • Load MODE 1 IC-20. • Place Simulator in RUN, lower power to ~90% with rods and RRPs. • Insert the following malfunction: **IMF mfRD1550063839 f:AsIs** • Ensure FWFE is on LEFM. • Ensure PICYS screen is on CRDA. • Clear / acknowledge all RWM alarms. • Place the simulator in Freeze. Have a reactivity manipulation request form and control rod movement sheet ready. Consider snapping an IC for multiple performances of this JPM. The FAULTED step in this JPM is preceded by a fault statement in **BOLD TYPE WITH ALL CAPITAL LETTERS**. When student is ready to begin **JPM**, place the simulator in **RUN**.			Setup was snapped to IC-391 for LOC-23 NRC Exam.

* Critical Step # Critical Sequence

Appl. To/JPM No.: S/RO 55.ON.2000.152 Student Name:_____

Step	Action	Standard	Eval	Comments
*1.	Selects Rod 22-39 for withdraw.	Depresses 22 – 39 Verifies 22 and 39: White lights – LIT Four rod display reads notch 06.		
*2.	Withdraws Rod 22-39 to notch 12.	Depresses W/DRAW ROD pushbutton. Verifies: Four rod display changes to notch 08. Depresses W/DRAW ROD pushbutton. Verifies: Four rod display changes to notch 10. Depresses W/DRAW ROD pushbutton. Verifies: Four rod display changes to notch 12.		
*3.	Selects Rod 38-39 for withdraw.	Depresses 38-39 Verifies 38 and 39: White lights – LIT Four rod display reads notch 06.		

* Critical Step # Critical Sequence

Appl. To/JPM No.: S/RO 55.ON.2000.152 Student Name:_____

Step	Action	Standard	Eval	Comments
	FAULT STATEMENT **ROD 38-39 WILL NOT MOVE IN THE NEXT STEP.**			
4.	Withdraws Rod 38-39 to notch 12.	Depresses W/DRAW ROD pushbutton. Verifies: Four rod display **DID NOT CHANGE** to notch 08.		
	EVALUATOR CUE Student may request permission to attempt to move rod **ONE MORE** time before proceeding to the Off-Normal procedure. IF necessary, Role-play Unit Supervisor and grant permission to attempt **ONE MORE** withdrawal sequence. If necessary, Role-Play unit supervisor and direct entry into ON-155-001.			
5.	Proceed to applicable section of OFF-Normal procedure ON-155-001, Control Rod Problems as indicated. • Stuck Control Rod Step 4.3 • Rod Drift or Rod Scram Step 4.4 • Rod Overtravel Step 4.5 • Mispositioned Rod Step 4.6 • Multiple Rod Notching Step 4.7 • Slow to Settle Rod Step 4.8	Determines step 4.3 is applicable based on initial conditions.		

* Critical Step # Critical Sequence

Appl. To/JPM No.: S/RO 55.ON.2000.152 Student Name:_____

Step	Action	Standard	Eval	Comments
6.	IF rod position indication does not change when valid withdraw OR insert signal applied, Perform the following: Confirm control rod position using any 3 of the available rod position indication as follows: • CRT and SIP 4 ROD DISPLAY. • FULL IN/FULL OUT DISPLAY push button. • OD 7 • Alarm logging printer, System Event Display Message • RWM Main Display when below Low Power Alarm Point.	Uses any 3 of the following to confirm Rod 38-39 is **STILL AT NOTCH 06.** • CRT and SIP 4 ROD DISPLAY. • FULL IN/FULL OUT DISPLAY push button. • OD 7 • Alarm logging printer, System Event Display Message • RWM Main Display when below Low Power Alarm Point.		
	CAUTION Scramming a stuck control rod will cause damage to CRD mechanism.			
7.	IF rod failed to move, Attempt to move control rod, as follows: Complete rod data on Attachment A.	Records the following on Attachment A Date Time Rod 38-39 Reactor Pressure "S" for Stuck Position 06		

* Critical Step # Critical Sequence

Appl. To/JPM No.: S/RO 55.ON.2000.152 Student Name:_____

Step	Action	Standard	Eval	Comments
*8.	In ~ 50 psid increments, Increase drive water pressure AND Perform following at each increment until ≤ 350 psid reached:	Places DRIVE WTR PRESS THLTG PV-146F003 to CLOSE UNTIL DRIVE WATER DIFF PRESSURE PDI-C12-1R602 INCREASES FROM ~250 TO ~300 PSID.		
	CAUTION Elevated drive pressure increases the risk of multiple notch movement.			
9.	Attempt to operate drive one notch in intended direction, authorized by procedure governing original Control Rod motion, while observing drive water flows (4 gpm insert/2.5 gpm withdraw).	Depresses W/DRAW ROD pushbutton Verifies: Full core display FOR ROD 38-39 **DID NOT CHANGE** to notch 08 AND Verifies: DRIVE WATER FLOW FI-C12-1R604 RAISE to ~2.5 gpm		
	EVALUATOR CUE Normally, another operator would be assigned to observe drive water flows. If necessary, inform student that drive water flow was 2.5 gpm during the withdrawal attempt.			

* Critical Step # Critical Sequence

Appl. To/JPM No.: S/RO 55.ON.2000.152 Student Name:_____

Step	Action	Standard	Eval	Comments
10.	If rod position does not change on 4-rod display, confirm control rod position using available rod position indications.	Uses any other available rod position indication to confirm rod 38-39 is **STILL AT NOTCH 06.**		
*11.	In ~ 50 psid increments, Increase drive water pressure AND Perform following at each increment until ≤ 350 psid reached:	Places DRIVE WTR PRESS THLTG PV-146F003 to CLOSE UNTIL DRIVE WATER DIFF PRESSURE PDI-C12-1R602 INCREASES FROM ~300 TO ≤ 350 PSID.		
	BOOTH OPERATOR CUE **Remove ROD 38-39 Stuck Rod malfunction by deleting the malfunction:** **DMF mfRD1550063839**			
	CAUTION Elevated drive pressure increases the risk of multiple notch movement.			

* Critical Step # Critical Sequence

Appl. To/JPM No.: S/RO 55.ON.2000.152 Student Name:_____

Step	Action	Standard	Eval	Comments
*12.	Attempt to operate drive one notch in intended direction, authorized by procedure governing original Control Rod motion, while observing drive water flows (4 gpm insert/2.5 gpm withdraw).	Depresses W/DRAW ROD pushbutton Verifies: Full core display FOR ROD 38-39 **CHANGES to notch 08** AND Verifies: DRIVE WATER FLOW FI-C12-1R604 RAISE to ~2.5 gpm Reports ROD 38-39 is at NOTCH 08 to Unit Supervisor.		
	EVALUATOR CUE Normally, another operator would be assigned to observe drive water flows. If necessary, inform student that drive water flow was 2.5 gpm during the withdrawal attempt.			
	EVALUATOR CUE Role-play Unit Supervisor and acknowledge the report and direct student to complete the ON procedure.			
13.	IF rod moves one notch in intended direction, Go to step 4.3.1.f.	Proceeds to step 4.3.1.f.		

* Critical Step # Critical Sequence

Appl. To/JPM No.: S/RO 55.ON.2000.152 Student Name:_____

Step	Action	Standard	Eval	Comments
14.	Record drive water pressure required to move control rod on Attachment A.	Records the following on Attachment A: 350 psid drive water pressure required to move control rod.		
15.	Record drive water flow that is indicated while attempting to move stuck control rod on Attachment A.	Records the following on Attachment A: Indicated drive water flow required to move control rod.		
	NOTE (1): IF control rod testing is being performed IAW TP-055-001 or TP-055-006, multiple control rod notch movement is allowed at elevated drive water pressure. Drive water pressure must be returned to 250 psid prior to testing next control rod. **NOTE (2):** Multiple notch movement is permitted for control rods with identified friction (except during startup single notch restraint). If excessive control rod speed is observed, control rod movement must be stopped and drive pressure returned to 250 psid.			

* Critical Step # Critical Sequence

Appl. To/JPM No.: S/RO 55.ON.2000.152 Student Name:_____

Step	Action	Standard	Eval	Comments
*16.	Return drive water pressure to ~ 250 psid, for each subsequent rod notch. Document on Attachment A.	Places DRIVE WTR PRESS THLTG PV-146F003 to OPEN UNTIL DRIVE WATER DIFF PRESSURE PDI-C12-1R602 DECREASES TO ~250 PSID AND Records the following on Attachment A: 250 psid		
	EVALUATOR CUE This completes the JPM.			
	EVALUATOR Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

* Critical Step # Critical Sequence

TASK CONDITIONS

A. Unit 1 is at 90% power
B. A control rod pattern adjustment is scheduled.

INITIATING CUE

The Unit Supervisor directs you to perform the control rod pattern adjustment by **SINGLE NOTCH** Withdrawing Rods in accordance with the reactivity manipulation request form and control rod movement sheet. The reactivity briefing for this power change has been completed.

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	78.OP.3680.101	0	11/22/10	215005	A2.04	3.8/3.9
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Inserting APRM Rod Block and Scram Setpoints for Single Loop Ops IAW OP-178-002

Completed By:

Bob Pudish — Writer

11/22/10 — Date

Validated:

Instructor/Writer

11/22/10 — Date

Approval:

Nuclear Trng. Supv.

11/30/10 — Date

Date of Performance:

10 — Validation Time (Min.)

Time Taken (Min.)

JPM Performed By:

Student Name: Last First M.I.

Employee # / S.S. #

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: Signature

Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 78.OP.3680.101

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.

2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

OP-178-002, PRNMS (Rev. 2)

III. OPERATIONAL ACTIVITIES

This JPM satisfies the requirements of Operational Activity(s):
NONE

IV. TASK CONDITIONS

A. Unit 1 has entered Single Loop Operation (SLO) 1 hour ago.
B. Condition C of TS LCO 3.4.1 is to be performed.

V. INITIATING CUE

Insert APRM Rod block and Scram Setpoints for Single Loop Operation for APRM 3 in accordance with OP-178-002.

VI. TASK STANDARD

SLO setpoints are inserted for APRM 3.

VII. TASK SAFETY SIGNIFICANCE

Correct ARPM Rod Block and Scram setpoints are required for Single Loop operation.

Appl. To/JPM No.: S/RO 78.OP.3680.101 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE: • This JPM must be performed on the simulator. • Reset to Single Loop IC with SLO setpoints NOT inserted yet. • Due to Simulator modeling, APRM 3 is the only Module that is modeled. • Place the simulator in Freeze. • When student is ready to begin **JPM**, place the simulator in **RUN**.			Setup was snapped to IC-393 for LOC-23 NRC Exam.
1.	Obtain a controlled copy of OP-178-002, PRNMS.	Student obtains Controlled copy.		
2.	Review Pre-reqs, Precautions, Notes. • Pre-reqs, Precautions, Notes reviewed	Student reviews Pre-reqs, Precautions, Notes.		
3.	Selects the correct section to perform. • Goes to Section 2.5.3	Student selects section 2.5.3.		
	NOTE This section revises APRM trip and alarm setpoints as required by Tech. Spec. for single loop operation in accordance with LCO 4.3.1.			

*Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 78.OP.3680.101

Student Name:_____

Step	Action	Standard	Eval	Comments
4.	Insert APRM setpoints for SLO: (a) Establish communication with PCO.	Student establishes coms with PCO.		
	EVALUATOR CUE Role Play as PCO and inform Student coms are established.			
✳5.	(b) Request PCO bypass APRM to be adjusted. • APRM Bypass Joystick to 3 position	Student bypasses APRM.		
	EVALUATOR CUE Inform Student that for this JPM, he/she is responsible for bypassing the APRM.			
6.	(c) Confirm at All four 2/4 Voters, Bypassed LEDs for bypassed APRM Illuminated.	Student acknowledges cue.		
	EVALUATOR CUE Inform Student that All four 2/4 Voters, Bypassed LEDs for APRM 3 are Illuminated.			

✳Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 78.OP.3680.101

Student Name:_____

Step	Action	Standard	Eval	Comments
✳7.	(d) Press ETC soft key as required until Enter Set Mode is shown above soft key pushbutton across bottom of display. • Enter Set Mode is displayed	Student presses ETC soft key as required until Enter Set Mode is displayed.		
	NOTE The password for entry into OPER-SET mode of the NUMAC must be entered within approximately 10 seconds or the screen will revert to the main bargraph display.			
✳8.	(e) Press Enter Set Mode soft key. • Enter Set Mode soft key pressed • Password entry display screen appears	Student presses Enter Set Mode soft key.		
✳9.	(f) Enter Password "1234" and Press Ent. • 1 2 3 4 depressed • Ent depressed	Student enters Password "1234" and Press Ent.		
10.	(g) Confirm Oper-Set mode indicated at APRM or ODA. • Oper-Set confirmed at either APRM or ODA	Student confirms Oper-Set mode indicated at APRM or ODA.		

✳Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 78.OP.3680.101

Student Name:_____

Step	Action	Standard	Eval	Comments
✳11.	(h) Select Single Loop Operation using (↑↓) Cursor keys to scroll. • Single Loop Operation selected.	Student selects Single Loop Operation using (↑↓) Cursor keys.		
✳12.	(i) Press Set Parameters soft key. • Set Parameter pressed	Student presses Set Parameters soft key.		
13.	(j) Ensure APRM indicates Set Parameters: Single Loop Operation. • Set Parameters: Single Loop Operation displayed	Student ensures APRM indicates Set Parameters: Single Loop Operation.		
✳14.	(k) Change the Desired: Enabled field to YES using the (↑↓) Cursor keys. • YES displayed	Student changes the Desired: Enabled field to YES using the (↑↓) Cursor keys.		
✳15.	(l) Press Accept soft key. • Accept soft key pressed	Student presses Accept soft key.		
16.	(m) Confirm Present:Enabled field changed to YES. • Yes displayed	Student confirms Present:Enabled field changed to YES.		

✳Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 78.OP.3680.101 Student Name:_____

Step	Action	Standard	Eval	Comments
17.	(n) Press Exit soft key. • Exit depressed	Student presses Exit soft key.		
18.	(o) Press Exit Set Mode soft key. • Exit Set Mode depressed	Student presses Exit Set Mode soft key.		
19.	(p) Press Yes soft key. • Yes soft key depressed	Student presses Yes soft key.		
20.	(q) Confirm the APRM display header indicated Operate. • Operate displayed	Student confirms the APRM display header indicates Operate.		
21.	(r) Confirm the APRM display header indicates SLO. • SLO displayed	Student confirms the APRM display header indicates SLO.		
	EVALUATOR CUE **Steps (s), (t) and (u) have been performed satisfactorily by another Operator.**			
*22.	(v) Remove applicable APRM from Bypass. • APRM 3 Bypass Joystick taken out of Bypass	Student unbypasses APRM.		

*Critical Step #Critical Sequence

Appl. To/JPM No.: S/RO 78.OP.3680.101 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE This completes the JPM.			
	EVALUATOR Do you have ALL your JPM materials? Task Cue Sheets? Procedures?			

*Critical Step #Critical Sequence

TASK CONDITIONS

A. Unit 1 has entered Single Loop Operation (SLO) 1 hour ago.
B. Condition C of TS LCO 3.4.1 is to be performed.

INITIATING CUE

Insert APRM Rod block and Scram Setpoints for Single Loop Operation for APRM 3 in accordance with OP-178-002.

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	59.ON.2084.151	0	11/22/10	223002	A3.02	3.5/3.5
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: -38 Inch Primary Containment Isolation Verification per ON-159-002 (Alt Path)

Completed By: Validated:

Bob Pudish	11/22/10		11/22/10
Writer	Date	Instructor/Writer	Date

Approval:

M Jaeger for M. Dilts	11/30/10
Nuclear Trng. Supv.	Date

	15	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name: _____ _____
Last First M.I. Employee # / S.S. #

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: _____ _____
Signature Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 59.ON.2084.151

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, OPERATIONS STANDARDS FOR SHIFT OPERATIONS.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.
2. Whenever entering any plant area where specific safety equipment; such as hearing or eye protection, safety shoes, hardhats, etc; is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator, any safety issue occurs during JPM performance, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

A. ON-159-002 Containment Isolation (Rev. 29)

III. OPERATIONAL ACTIVITIES

This JPM satisfies the requirements of Operational Activity(s):
NONE

IV. TASK CONDITIONS

A. The Rx is in Mode 3.

B. The Safety Parameter Display System (SPDS) is out of service for maintenance.

C. A Level 2 isolation signal has been processed by the Primary Containment Isolation System.

V. INITIATING CUE

Perform Containment Isolation verification for -38 inch RPV level isolation signal in accordance with ON-159-002, Containment Isolation.

VI. TASK STANDARD

Recirculation System dampers and the SGTS fan OV109A do not actuate. The dampers must be opened and the fan started.

VII. TASK SAFETY SIGNIFICANCE

Incomplete Containment Isolation could lead to a loss of the ability to maintain secondary containment.

Appl. To/ S/RO JPM No 59.ON.2084.151 Student Name _____

Step	Action	Standard	Eval	Comments
	The simulator should be set up for the following conditions: • Insert the following malfunctions: **IMF cmfAV03_HD17657A** **IMF cmfAV03_HD17602A** **IMF cmfAV03_HD17601A** **IMF cmfAV03_HD07543A** **IMF cmfPM04_0V109A** • This JPM uses the following 3 Event Triggers: **aet 59ON2084151_1(2)(3)** Which consists of conditions: **diHS17657(02)(01)A.CurrValue =#** **OR.diHS17657(02)(01)A.OPEN** And linked commands: **DMF cmfAV03_HD17657(02)(01)A** • Place M/S to S/D, perform immediate operator actions, stabilize plant, snap IC. When student is ready to begin **JPM**, place the simulator in **RUN**. The FAULTED step in this JPM is preceded by a fault statement in **BOLD TYPE WITH ALL CAPITAL LETTERS**.	Auto Logic Fails for HD17657A. Auto Logic Fails for HD17602A. Auto Logic Fails for HD17601A. Auto Logic Fails for HD07543A. Auto Logic Fails for 0V109A.		Setup was snapped to IC-395 for LOC-23 NRC Exam.
1.	Obtains ON-159-002. • Reviews Symptoms, Observations, Alarms, Automatic Actions, Notes sections.	Student executes ON-159-002.		

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 59.ON.2084.151 Student Name _____

Step	Action	Standard	Eval	Comments
2.	As time permits, record date and time of event. • Enters Shift Supervision name, date, time	Student records Name, date, time.		
	EVALUATOR CUE If Student requests name, date, time: provide "John Doe, current date, current time"			
3.	Immediately evaluate status of Containment Isolation using SPDS. • Student recalls SPDS is unavailable from Task Conditions	Student recalls SPDS unavailable.		
	EVALUATOR CUE If Student reports unable to perform Step 3.2, Role Play as Shift Manager and direct Student to visually ensure component by component isolation status.			
4.	If -38" RPV level **AND** 1.72# isolation signals are received, Perform... • N/A (both signals not received)	Student recognizes -38" **AND** 1.72# signals not received.		
5.	Notify SM to refer to EP-PS-100 to determine if any E-Plan entry is required.	Student informs SM to refer to E-Plan.		

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 59.ON.2084.151 Student Name _____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE E-Plan will be referred to by the SM.			
*6.	Perform one of the following Attachments for lowest level isolation signal received: If -38" RPV water level isolation signal received, perform Attachment B. • Student performs Attachment B	Student selects Attachment B.		
	EVALUATOR CUE **ONCE THE STUDENT HAS SELECTED ATTACHMENT B, HAND THE STUDENT THE MARKED-UP COPY OF ATTACHMENT B IN THIS PACKAGE.**			
7.	Ensure component in required isolation position per the following: • Student ensures component position per Attachment B	Student ensures component positions per Attachment B.		
	EVALUATOR CUE **INFORM THE STUDENT THAT ATTACHMENT B STEPS 1.1 THROUGH 1.48 HAVE BEEN COMPLETED, ALL COMPONENTS WERE IN THE PROPER POSITION.**			

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 59.ON.2084.151 Student Name _____

Step	Action	Standard	Eval	Comments
8.	Att B 1.49 TIP System Ball Valves are closed. • 4 Green lights LIT	Student observes TIP System Ball Valves position.		
	FAULT STATEMENT **NEXT STEP, STUDENT RECOGNIZES HD17657A FAILED TO AUTO OPEN AND MANUALLY OPENS HD17657A. STUDENT MAY INFORM SRO AND/OR ASK FOR DIRECTION.**			
	EVALUATOR CUE If student asks for direction, inform student to proceed using any/all station policies for observed condition.			
*9.	Att B 1.50 Recirc Sys to Zone 1 Sup Sys Dmp HD17657A is open. • Red light NOT LIT • Amber light LIT	Student recognizes HD17657A failed to auto open, places switch to OPEN position. Student observes HD17657A OPENS.		
	FAULT STATEMENT **NEXT STEP, STUDENT RECOGNIZES HD17602A FAILED TO AUTO OPEN AND MANUALLY OPENS HD17602A. STUDENT MAY INFORM SRO AND/OR ASK FOR DIRECTION.**			

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 59.ON.2084.151 Student Name _____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE If student asks for direction, inform student to proceed using any/all station policies for observed condition.			
*10.	Att B 1.51 Zone 1 Exh Sys to Recirc Sys Dmp HD17602A is open. • Red light NOT LIT • Amber light LIT	Student recognizes HD17602A failed to auto open, places switch to OPEN position. Student observes HD17602A OPENS.		
	FAULT STATEMENT **NEXT STEP, STUDENT RECOGNIZES HD17601A FAILED TO AUTO OPEN AND MANUALLY OPENS HD17601A. STUDENT MAY INFORM SRO AND/OR ASK FOR DIRECTION.**			
	EVALUATOR CUE If student asks for direction, inform student to proceed using any/all station policies for observed condition.			
*11.	Att B 1.52 Zone 1 Filt Exh to Recirc Sys Dmp HD17601A is open. • Red light NOT LIT • Amber light LIT	Student recognizes HD17601A failed to auto open, places switch to OPEN position. Student observes HD17601A OPENS.		

Appl. To/ S/RO JPM No 59.ON.2084.151 Student Name _____

Step	Action	Standard	Eval	Comments
12.	Att B 1.53 SGTS Unit 1 Contn Burp & Purge Iso Dmp HD17508A is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17508A position.		
13.	Att B 1.54 RRP A Clg Wtr OB Iso Vlvs HV-18791A1 & HV-18791A2 are closed. • Red light NOT LIT • Amber light LIT	Student observes HV-18791A1 & HV-18791A2 position.		
14.	Att B 1.55 Zone 1 Exh Sys Isolation Dmp HD17576A is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17576A position.		
15.	Att B 1.56 Zone 1 Equip Compt Exh Sys Dmp HD17524A is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17524A position.		
16.	Att B 1.57 Zone 1 Sup Sys Isolation Dmp HD17586A is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17586A position.		
17.	Att A 1.58 Zone 3 Exh Sys Isolation Dmp HD17502A is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17502A position.		

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 59.ON.2084.151 Student Name _____

Step	Action	Standard	Eval	Comments
18.	Att B 1.59 Zone 3 Filt Exh Sys Dmp HD17514A is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17514A position.		
19.	Att B 1.60 Zone 3 Sup Sys Isolation Dmp HD17564A is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17564A position.		
20.	Att B 1.61 RRP B Clg Wtr IB Iso Vlvs HV-18792A1 & HV-18792A2 are closed. • Red light NOT LIT • Amber light LIT	Student observes HV-18792A1 & HV-18792A2 position.		
21.	Att B 1.62 Recirc Sys to Zone 1 Sup Sys Dmp HD17657B is open. • Red light LIT • Amber light NOT LIT	Student observes HD17657B position.		
22.	Att B 1.63 Zone 1 Exh Sys to Recirc Sys Dmp HD17602B is open. • Red light LIT • Amber light NOT LIT	Student observes HD17602B position.		
23.	Att B 1.64 Zone 1 Filt Exh to Recirc Sys Dmp HD17601B is open. • Red light LIT • Amber light NOT LIT	Student observes HD17601B position.		

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 59.ON.2084.151 Student Name _____

Step	Action	Standard	Eval	Comments
24.	Att B 1.65 RRP B Clg Wtr OB Iso Vlvs HV-18791B1 & HV-18791B2 are closed. • Red light NOT LIT • Amber light LIT	Student observes HV-18791B1 & HV-18791B2 position.		
25.	Att B 1.66 SGTS Unit 1 Contn Burp & Purge Iso Dmp HD17508B is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17508B position.		
26.	Att B 1.67 Zone 1 Exh Sys Isolation Dmp HD17576B is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17576B position.		
27.	Att B 1.68 Zone 1 Equip Compt Exh Sys Dmp HD17524B is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17524B position.		
28.	Att B 1.69 Zone 1 Sup Sys Isolation Dmp HD17586B is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17586B position.		
29.	Att B 1.70 Zone 3 Exh Sys Isolation Dmp HD17502B is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17502B position.		

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 59.ON.2084.151 Student Name _____

Step	Action	Standard	Eval	Comments
30.	Att B 1.71 Zone 3 Filt Exh Sys Dmp HD17514B is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17514B position.		
31.	Att B 1.72 Zone 3 Sup Sys Isolation Dmp HD17564B is closed. • Red light NOT LIT • Amber light LIT	Student observes HD17564B position.		
32.	Att B 1.73 RRP A Clg Wtr IB Iso Vlvs HV-18792B1 & HV-18792B2 are closed. • Red light NOT LIT • Amber light LIT	Student observes HV-18792B1 & HV-18792B2 position.		
	EVALUATOR CUE **INFORM STUDENT THAT ATTACHMENT B STEPS 1.74 THROUGH 1.81 ARE COMPLETED, WITH ALL COMPONENTS IN THE PROPER POSITION.**			
	FAULT STATEMENT **NEXT STEP, STUDENT RECOGNIZES HD07543A FAILED TO AUTO OPEN AND MANUALLY OPENS HD07543A. STUDENT MAY INFORM SRO AND/OR ASK FOR DIRECTION.**			

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 59.ON.2084.151 Student Name _____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE If student asks for direction, inform student to proceed using any/all station policies for observed condition.			
*32.	Att B 1.82 RB Recirc Sys to SGTS Dmp HD07543A is open. • Red light NOT LIT • Amber light LIT	Student recognizes HD07543A failed to auto open, places switch to OPEN position. Student observes HD07543A OPENS.		
	FAULT STATEMENT **NEXT STEP, STUDENT RECOGNIZES 0V109A FAILED TO AUTO START AND MANUALLY STARTS 0V109A. STUDENT MAY INFORM SRO AND/OR ASK FOR DIRECTION.**			
	EVALUATOR CUE If student asks for direction, inform student to proceed using any/all station policies for observed condition.			
*33.	Att B 1.83 SGTS Fan 0V109A is RUNNING. • Red light NOT LIT • Amber light LIT	Student determines 0V109A status is incorrect and STARTS the 0V109A fan.		

*Critical Step #Critical Sequence

Appl. To/ S/RO JPM No 59.ON.2084.151 Student Name _____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE This completes the JPM.			
	EVALUATOR Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

*Critical Step #Critical Sequence

TASK CONDITIONS

A. The Rx is in Mode 3.

B. The Safety Parameter Display System (SPDS) is out of service for maintenance.

C. A Level 2 isolation signal has been processed by the Primary Containment Isolation System.

INITIATING CUE

Perform Containment Isolation verification for -38 inch RPV level isolation signal in accordance with ON-159-002, Containment Isolation.

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	24.OP.1443.051	0	11/24/10	264000	A4.04	3.7/3.7
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Manual Emergency Shutdown of Diesel Generator 'A' from Panel 0C521A (Alt Path)

Completed By: Validated:

Bob Pudish	11/24/10		11/24/10
Writer	Date	Instructor/Writer	Date

Approval:

for M.D. Hg	11/30/10
Nuclear Trng. Supv.	Date

	20	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name: _____ _____
Last First M.I. Employee # / S.S. #

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: _____ _____
Signature Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 24.OP.1443.051

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, OPERATIONS STANDARDS FOR SHIFT OPERATIONS.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.
2. Whenever entering any plant area where specific safety equipment; such as hearing or eye protection, safety shoes, hardhats, etc; is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator, any safety issue occurs during JPM performance, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

A. OP-024-001 Diesel Generators (Rev. 56)

III. OPERATIONAL ACTIVITIES

N\A

IV. TASK CONDITIONS

A. The Rx has experienced a small Loss of Coolant Accident.

B. Drywell pressure is 2.1 psig up slow.

C. All Emergency Diesel Generators (EDG) have started in Emergency Mode.

D. EDG 'A' output breaker failed to close and cannot be closed.

E. There is no Emergency Service Water (ESW) cooling being supplied to EDG 'A'.

V. INITIATING CUE

Perform Manual Emergency Shutdown of Diesel Generator 'A' in accordance with OP-024-001.

VI. TASK STANDARD

EDG 'A' is shutdown using the Overspeed Fuel Shutdown Valve and Fuel Quadrant Lever due to Emergency Stop pushbutton failing to stop EDG 'A'.

VII. TASK SAFETY SIGNIFICANCE

EDG operation without cooling would lead to catastrophic failure of engine.

Appl. To/ S/RO JPM No 24.OP.1443.051 Student Name _____

Step	Action	Standard	Eval	Comments
	NOTE **All steps of this JPM are to be simulated. No component manipulations are to be made.**			
1.	Obtains OP-024-001. • Reviews Notes, Prerequisites, Precautions, Caution sections.	Student executes OP-024-001, Section 2.7.		
	CAUTION LOCA auto start signal is bypassed in local mode.			
2.	If diesel generator running in Emergency Mode, place DG 'A' 43CM Control Mode Select Switch in Local. • 43CM simulated in Local position	Student simulates positioning 43CM switch clockwise to Local.		
	EVALUATOR CUE 43CM switch "clicks" and is simulated in the Local position.			
3.	At Diesel engine Control Panel 0C521A 5ES, Depress Emergency Stop pushbutton. • Emergency Stop pushbutton simulated depressed	Student simulates depressing the Emergency Stop pushbutton.		

* = Critical Step # = Critical Sequence

Appl. To/ S/RO JPM No 24.OP.1443.051 Student Name _____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE Spring resistance is felt as Emergency Stop pushbutton is depressed. Emergency Stop pushbutton "bottoms out" or stops inward motion. Emergency Stop pushbutton spring returns to full out / normal position.			
	FAULT STATEMENT **THE NEXT STEP HAS THE STUDENT OBSERVE THE EDG STOPS. THE EVALUATOR WILL CUE THE STUDENT THAT THE EDG CONTINUES TO RUN. THE STUDENT WILL TAKE FURTHER ACTIONS TO SHUTDOWN THE EDG.**			
4.	At Diesel Engine Control Panel 0C521A, Observe following: a. Master Trip Circuit Tripped Green light Illuminates b. Running Idle light Extinguishes c. At 280 rpm, DG 'A' Pre-Lube Pump 0P532A Starts	Student monitors for EDG shutdown. Student determines, from Evaluator Cue, that EDG is still running and continues in procedure.		

* = Critical Step # = Critical Sequence

Appl. To/ S/RO JPM No 24.OP.1443.051 Student Name _____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE a. Master Trip Circuit Tripped Green light **NOT LIT** b. Running Idle light **LIT** c. Engine speed **600 rpm**			
	CAUTION Personnel safety must be considered before proceeding with this step. Do not perform if area is not safe.			
	EVALUATOR CUE Inform student that Maintenance is present to assist in the following step.			
✳5.	If the diesel engine fails to stop as expected, Obtain maintenance assistance and Perform the following: a. Pull the black knob labeled SX-03483A, Overspeed Fuel shutdown Vlv Reset. This knob is located on top of engine on the right side by the overspeed governor. • SX-03483A simulated pulled	Student simulates pulling SX-03483A.		

✳ = Critical Step # = Critical Sequence

Appl. To/ S/RO JPM No 24.OP.1443.051 Student Name _____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE SX-03483A is simulated pulled to end of travel.			
	NOTE This action may cause engine overspeed alarms, similar to an actual overspeed trip of the engine. This action will NOT trip the combustion butterfly valve as it does not move the linkage.			
✳6.	b. Pull the fuel quadrant lever down and hold until the engine comes to a complete stop. The fuel quadrant lever is located on the engine left side above the turning gear motor. • Fuel quadrant lever simulated pulled down and held	Student simulates pulling and holding Fuel quadrant lever.		
	EVALUATOR CUE Fuel quadrant lever is simulated pulled down to end of travel and is being held in that position.			

✳ = Critical Step # = Critical Sequence

Appl. To/ S/RO JPM No 24.OP.1443.051 Student Name _____

Step	Action	Standard	Eval	Comments
7.	When diesel generator comes to stop, Depress Emergency Stop Reset pushbutton • Emergency Stop Reset pushbutton simulated depressed	Student simulates depressing Emergency Stop Reset pushbutton.		
	EVALUATOR CUE Spring resistance felt while depressing Emergency Stop Reset pushbutton. Pushbutton "bottomed out" and stays latched when released.			
8.	Depress Reset pushbutton for Annunciator and System Reset to reset emergency trip. • Reset pushbutton simulated depressed	Student simulates depressing Reset pushbutton.		
	EVALUATOR CUE Spring resistance felt while depressing Reset pushbutton. Pushbutton "bottomed out" and returned to normal when released.			
9.	Observe DG A Master Trip Circuit Reset Amber light Illuminates. • Amber light simulated LIT	Student simulates observing DG A Master Trip Circuit Reset Amber light Illuminated.		

✳ = Critical Step # = Critical Sequence

Appl. To/ S/RO JPM No 24.OP.1443.051 Student Name _____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE Amber light is lit.			
10.	Observe DG A Master Trip Circuit Tripped Green light extinguishes. • Green light simulated NOT LIT	Student simulates observing DG A Master Trip Circuit Tripped Green light extinguished.		
	EVALUATOR CUE Green light is not lit.			
11.	Comply with TS 3.8.1 for Unit 1 and Unit 2. • SRO simulated informed of TS LCO	Student simulates informing SRO of TS.		
	EVALUATOR CUE SRO has been informed.			
12.	Ensure auto initiation signal Reset.	Student inquires about DW pressure.		
	EVALUATOR CUE High DW pressure condition still present. No further EDG manipulations required.			

✳ = Critical Step # = Critical Sequence

Appl. To/ S/RO JPM No 24.OP.1443.051 Student Name _____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE This completes the JPM.			
	EVALUATOR Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

* = Critical Step # = Critical Sequence

TASK CONDITIONS

A. The Rx has experienced a small Loss of Coolant Accident.

B. Drywell pressure is 2.1 psig up slow.

C. All Emergency Diesel Generators (EDG) have started in Emergency Mode.

D. EDG 'A' output breaker failed to close and cannot be closed.

E. There is no Emergency Service Water (ESW) cooling being supplied to EDG 'A'.

INITIATING CUE

Perform Manual Emergency Shutdown of Diesel Generator 'A' in accordance with OP-024-001.

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	55.EO.1995.101	1	11/24/10	201003	A2.01	3.4/3.6
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Venting CRD to Insert Control Rods

Completed By:

Bob Pudish — Writer

11/24/10 — Date

Validated:

Instructor/Writer

11/24/10 — Date

Approval:

M. Mayo for M.D.Lb

Nuclear Trng. Supv.

11/30/10 — Date

Date of Performance:

20 — Validation Time (Min.)

Time Taken (Min.)

JPM Performed By:

Student Name: Last First M.I.

Employee # / S.S. #

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: Signature

Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 55.EO.1995.101

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.

2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self Checking is required.

II. REFERENCES

A. ES-155-001 Venting CRD to Insert Control Rods (Rev. 13)

B. EO-000-113-1, Sheet 2 (Rev. 10)

III. OPERATIONAL ACTIVITIES

NONE.

IV. TASK CONDITIONS

A. Unit 1 was at 100 percent power when a transient occurred.

B. A hydraulic ATWS is in progress.

C. All but the following seven Control Rods have been fully inserted.

1C2227; 1C2231; 1C2631; 1C2635; 1C2643; 1C3031; 1C3035

D. The CRD Hydraulic system main supply header ruptured and has been shutdown.

E. All scram valves are open.

F. Power to RPS bus A and B is unavailable.

G. The Unit Supervisor has authorized performance of ES-155-001.

V. INITIATING CUE

Insert Control Rods in accordance with ES-155-001.

VI. TASK STANDARD

Control rods correctly grouped on Attachment A of ES-155-001, one control rod fully inserted IAW ES-155-001.

VII. TASK SAFETY SIGNIFICANCE

ES-155-001 provides a method of inserting the control rods using the differential pressure available between the reactor and the reactor building atmosphere. This method is used only when all other methods for inserting control rods are unsuccessful because it is difficult, time consuming, dangerous or could cause the spread of contamination.

Appl. To/JPM No.: S/RO 55.EO.1995.101 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE This JPM must be performed in the Plant. Consider signing out an HCU ES Tool Box key in advance to permit ready access during the JPM. Have a copy of ES-155-001 available for the student.			
1.	Obtain a controlled copy of ES-155-001.	Controlled copy obtained		
2.	Obtains keys to HCU ES Tool Box. • Informs Evaluator how to obtain	Obtains HCU ES Tool Box key from Shift Manager's office or FUS office key locker.		
	EVALUATOR NOTE Have student demonstrate ability to obtain proper key. It is not necessary to sign out the key.			
3.	Review the precautions and limitations.	Follows all precautions as applicable. Notes US authorization to perform procedure from Cue Sheet.		

Appl. To/JPM No.: S/RO 55.EO.1995.101 Student Name:_____

Step	Action	Standard	Eval	Comments
4.	Check Off, on Attachment A, HCU's to be vented. • Marks Attachment A to reflect the 7 HCU's to be vented: • 1C2227 – Group A • 1C2231 – Group B • 1C2631 – Group C • 1C2635 – Group D • 1C2643 – Group B • 1C3031 – Group A • 1C3035 – Group B	Student fills out Attachment A of ES-155-001.		
5.	Confirmed By... **EVALUATOR CUE** Role-play the second operator, and inform the student that you confirm the HCU's to be vented. **Do not agree or disagree with Student marks.**	Contacts a second operator to confirm the correct HCU's have been identified on Attachment A.		
6.	Notify HP that CRDs will be vented.	Uses plant page or telephone to contact HP and report that CRDs will be vented.		
	EVALUATOR CUE Role-play HP and acknowledge the report.			

* = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 55.EO.1995.101 Student Name:_____

Step	Action	Standard	Eval	Comments
✳7.	Install floor drain plug with quick disconnect fitting (located in ES tool Box): • Locate Floor Drain • Remove floor drain cover • Remove drain plug and obstructions, if any • Install threaded floor drain plug with quick disconnect fitting into floor drain. • Connect Stainless Steel hose to floor drain quick disconnect	Locates Floor Drain. Removes floor drain cover. Removes drain plug and obstructions, if any. Installs threaded floor drain plug with quick disconnect fitting into floor drain. Connects Stainless Steel hose to floor drain quick disconnect.		
	EVALUATOR CUE Stainless Steel hose to floor drain connected with quick disconnect, and drain plug installed with no obstructions.			
8.	Perform following for all HCU's checked off on Attachment A: • Establish AND Maintain communication with the Control Room Operator.	Contacts control room, using plant radio, and reports that the first HCU is about to be vented.		
	EVALUATOR CUE Role-play PCO in Control Room and acknowledge communications.			

✳ = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 55.EO.1995.101 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE 147F102 is located at top right of upper platform area above the valve bank on the line connecting to the 102 valve.			
9.	Refer to Attachment B for HCU's location on Reactor Building elevation 719'. • Select the correct HCU for rod to be inserted.	Physically locates in the plant first HCU in group to be inserted.		
	EVALUATOR NOTE Student should select group B for insertion first since there are three rods in the group.			
	CAUTION Potential Exists For Possible Personnel Contamination And Unisolable Primary System Leak When Removing Threaded Vent Plug (A). Ensure Proper PPE Is Worn.	Student reviews CAUTION.		
10.	Don appropriate PPE.	At a minimum, Dons: Rubber gloves and Face Shield.		

* = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 55.EO.1995.101 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE After Student states PPE minimum requirement, inform Student that PPE is donned.			
*11.	Referring to Attachment D, Remove threaded vent plug (A) from top of HCU's Withdraw Line High Point Vent Valve 1F102, to gain access to Needle Valve operator.	Attaches adjustable wrench to threaded vent plug (A) **AND** SLOWLY turns wrench in the counter clockwise (CCW) direction. Verifies **NO** leakage present while removing threaded vent plug (A). Removes threaded vent plug (A).		
	EVALUATOR CUE As Student simulates removing plug, inform Student that plug is twisting in the CCW direction, **NO** leakage observed. Threaded vent plug (A) is removed.			
12.	IF leakage is present during removal of vent plugs, Perform Step 4.4.7 to restore plugs.	N/A. Determines venting may proceed.		
13.	Ensure Needle Valve closed.	Installs high Point Vent Operator onto Needle valve **AND** turns high Point Vent Operator in the Clockwise (CW) direction.		

* = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 55.EO.1995.101 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE High Point Vent Operator fully clockwise and hard resistance is now felt.			
	CAUTION Potential Exists For Possible Personnel Contamination And Unisolable Primary System Leak When Removing Threaded Vent Plug (A). Ensure Proper PPE Is Worn.	Student reviews CAUTION.		
*14.	Referring to Attachment D, Cautiously Remove threaded vent plug (B) from Withdraw Line High Point Vent Valve 1F102.	Attaches adjustable wrench to threaded vent plug (B) **AND** SLOWLY turns wrench in the counter clockwise (CCW) direction. Verifies **NO** leakage present while removing threaded vent plug (B). Removes threaded vent plug (B).		
	EVALUATOR CUE Vent plug B is moving in the CCW direction. **NO** leakage observed. Threaded vent plug (B) is removed.			

* = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 55.EO.1995.101 Student Name:_____

Step	Action	Standard	Eval	Comments
15.	If any leakage is present, Perform following: • Immediately Retighten threaded vent plug to stop leak. • On Attachment A, Record location of HCU with leaking 1F102 valve. • Notify following of a leak location: 1. Health Physics. 2. Mechanical Maintenance. • IF required, Replace threaded vent plug (A) in top of HCU Withdraw Line High Point Vent Valve 1F102.	N/A. Determines venting may proceed.		
✳16.	Install quick disconnect fitting to Vent Plug (B) at Withdraw Line High Point Vent Valve 1F102 (Attachment D).	Attaches quick disconnect fitting to Vent Plug (B) at Withdraw Line High Point Vent Valve 1F102.		
	EVALUATOR CUE Quick disconnect fitting ATTACHED to Vent Plug (B) at Withdraw Line High Point Vent Valve 1F102.			
✳17.	Connect Stainless Steel Hose to quick disconnect at Withdraw Line High Point Vent Valve 1F102.	Attaches stainless Steel Hose to quick disconnect at Withdraw Line High Point Vent Valve 1F102.		
	EVALUATOR CUE Stainless Steel Hose ATTACHED to quick disconnect at Withdraw Line High Point Vent Valve 1F102.			

✳ = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 55.EO.1995.101 Student Name:_____

Step	Action	Standard	Eval	Comments
	CAUTION Fully Opening Withdraw Line High Point Vent Valve 1F102 With Locking Ring Not Installed May Result In Following: • Primary System Unisolable Leak • Valve Damage • Eject Needle Valve Operator	Student reviews CAUTION.		
✳18.	Using High Point Vent Lock Ring Operator, Ensure Withdraw Line High Point Vent Valve 1F102 locking ring installed and remains stationary.	High Point Vent Lock Ring Operator is used to ensure Withdraw Line High Point Vent Valve 1F102 locking ring installed and remains stationary.		
	EVALUATOR CUE Withdraw Line High Point Vent Valve 1F102 locking ring is installed and did not move.			
19.	Notify Control Room Operator to observe rod motion and reactor power response, **THEN**	Contacts control room, using plant radio, and requests PCO to observe rod motion and reactor power response.		
	EVALUATOR CUE Role-play PCO in Control Room and acknowledge the request.			

✳ = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 55.EO.1995.101 Student Name:_____

Step	Action	Standard	Eval	Comments
✳20.	Using High Point Vent Operator, Crack Open Withdraw Line High Point Vent Valve 1F102.	Installs High Point Vent Operator onto Needle valve **AND** SLOWLY turns High Point Vent Operator in the Counter Clockwise (CCW) direction.		
	EVALUATOR CUE 1F102 is "cracked" open.			
	EVALUATOR CUE Role-play PCO in Control Room and report slow inward rod motion, **THEN** report rod fully inserted, rod motion stopped.			
✳21.	When Control Room Operator communicates inward rod motion has stopped, Close Withdraw Line High Point Vent Valve 1F102 with High Point Vent Operator.	Installs High Point Vent Operator onto Needle valve **AND** SLOWLY turns High Point Vent Operator in the Clockwise (CW) direction.		
	EVALUATOR CUE High Point Vent Operator fully clockwise.			
22.	Confirm HCU vented by recording initials in applicable space on Attachment A. • Initials Att A	Initials venting completed column on Attachment A for the vented HCU.		

✳ = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 55.EO.1995.101 Student Name:_____

Step	Action	Standard	Eval	Comments
23.	Remove Stainless Steel Hose from quick disconnect at Withdraw Line High Point Vent Valve 1F102.	Removes Stainless Steel Hose from quick disconnect at Withdraw Line High Point Vent Valve 1F102.		
	EVALUATOR CUE Stainless Steel Hose from quick disconnect at Withdraw Line High Point Vent Valve 1F102 is removed.			
	EVALUATOR CUE This completes the JPM.			
	EVALUATOR Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

* = Critical Step # = Critical Sequence

TASK CONDITIONS

A. Unit 1 was at 100 percent power when a transient occurred.

B. A hydraulic ATWS is in progress.

C. All but the following seven Control Rods have been fully inserted.

- 1C2227
- 1C2231
- 1C2631
- 1C2635
- 1C2643
- 1C3031
- 1C3035

D. The CRD Hydraulic system main supply header ruptured and has been shutdown.

E. All scram valves are open.

F. Power to RPS bus A and B is unavailable.

G. The Unit Supervisor has authorized performance of ES-155-001.

INITIATING CUE

Insert Control Rods in accordance with ES-155-001.

PPL SUSQUEHANNA, LLC

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	73.OP.2289.103	0	11/24/10	223001	A2.01	4.3/4.4
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Start a Containment H_2 Recombiner in Manual IAW OP-173-001

Completed By: Validated:

Bob Pudish	11/24/10		11/24/10
Writer	Date	Instructor/Writer	Date

Approval:

	11/30/10
Nuclear Trng. Supv.	Date

	20	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name: _____ _____
Last First M.I. Employee # / S.S. #

Performance Evaluation: ( ) Satisfactory ( ) Unsatisfactory

Evaluator Name: _____ _____
Signature Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 73.OP.2289.103

I. SAFETY CONSIDERATIONS

A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.

B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:

1. Whenever any electrical panel is opened for inspection during JPM performance.

2. Whenever entering any plant area where specific safety equipment such as hearing or eye protection, safety shoes, hardhats, etc., is required and/or posted as being necessary.

C. If, in the judgment of the Evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

D. Peer checking is the expectation for all evolutions; however, since a JPM is an individual effort, no peer check will be provided and Self-Checking is required.

II. REFERENCES

A. OP-173-001, CONTAINMENT ATMOSPHERE CONTROL SYSTEM (Rev. 38)

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

A. The plant is in a post-LOCA condition 24 hours after an event.

B. Containment pressure is 7.0 psig, steady.

C. Containment temperature was 135°F before the LOCA.

D. H_2/O_2 concentrations are below combustible limits.

V. INITIATING CUE

Start Containment Hydrogen Recombiner 1E440A in Manual.

VI. TASK STANDARD

Selected Recombiner operating manually IAW OP-173-001.

VII. TASK SAFETY SIGNIFICANCE

Recombiners are the primary means or hydrogen reduction in containment post-LOCA. Failure to place the Recombiner(s) in service post-LOCA may result in excessive hydrogen concentrations in containment and raise the risk of containment damage due to hydrogen detonation deflagration.

Appl. To/JPM No.: S/RO 73.OP.2289.103 Student Name:_____

Step	Action	Standard	Eval	Comments
	This JPM must be performed in the Plant. **EVALUATOR NOTE** Recombiner A is in the Upper Relay Room.			
1.	Obtain a controlled copy of OP-173-001.	Controlled copy obtained.		
2.	Select the correct procedure section to perform.	Selects Section 2.10.		
3.	Review the prerequisites / precautions.	Ensures all prerequisites have been met. Reviews precautions.		
	EVALUATOR CUE Inform student that all prerequisites have been met.			
4.	Ensure H2 Recombiner aligned as follows prior to startup: • Turn H2 Rcb A Heater Power Adj Control HC-15796A in counter clockwise direction until potentiometer STOPS	Student turning H2 Rcb A Heater Power Adj Control HC-15796A in counter clockwise direction until potentiometer STOPS.		

* = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 73.OP.2289.103 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE Control turned counter clockwise until potentiometer STOPS.			
5.	• Set H2 Rcb A Heater Power Adj Control HC-15796A to ZERO (000)	Student sets H2 Rcb A Heater Power Adj Control HC-15796A to ZERO (000).		
	EVALUATOR CUE Control set to ZERO (000).			
6.	• Observe H2 RCB A Power In Available White light illuminated indicating MCC feeder closed	Student observes H2 RCB A Power In Available White light illuminated indicating MCC feeder closed.		
	EVALUATOR CUE White light illuminated indicating MCC feeder is closed.			
*7.	To start H2 Recombiner in Manual: a) Place H2 Rcb A Temp Ctl Select HSS-15796A to Man. • H2 Rcb A Temp Ctl Select HSS-15796A placed to Man	Student simulates placing H2 Rcb A Temp Ctl Select HSS-15796A to Man.		

* = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 73.OP.2289.103 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE Switch clicks and is in Man position.			
*8.	b) Place H2 Rcb A Power Out Switch HS-15796A to ON. • H2 Rcb A Power Out Switch HS-15796A placed to ON	Student simulates placing H2 Rcb A Power Out Switch HS-15796A placed to ON.		
	EVALUATOR CUE Switch clicks and is in ON position. Red light is ON.			
9.	Determine required power setting from Attachment A. • 56KW is determined to be power setting	Student determines required power setting from ATT A to be 56KW based on Initial Conditions.		

* = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 73.OP.2289.103 Student Name:_____

Step	Action	Standard	Eval	Comments
	NOTE Potentiometer settings vary from recombiner to recombiner. Initial power increase may occur at settings as low as 70 and as high as 170. The actual setting value is not important as long as proper power level is observed on the "Power Out to Heater" Wattmeter.	Student reviews NOTE.		
	CAUTION Turn H2 RCB Power Adj Control Slowly because there is a lag between Power Out Indication and potentiomenter adjustment. Power out indication must be continuously monitored when power level is being changed.	Student reviews CAUTION.		
*10.	Increase power out to heater as follows: 1) Adjust H2 RCB A Heater Power Adj Control HC-15796A until H2 Rcb A Power Out to Heater XI-15796A indicates 5 KW. • H2 RCB A Heater Power Adj Control HC-15796A slowly adjusted in the CW direction until H2 Rcb A Power Out to Heater XI-15796A indicates 5 KW	Students simulates slowly adjusting H2 RCB A Heater Power Adj Control HC-15796A until H2 Rcb A Power Out to Heater XI-15796A indicates 5 KW.		

* = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 73.OP.2289.103 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE Inform Student HC-15796A is slowly turning in the CW direction. KW indication is rising. KW indication reads 5KW.			
*11.	2) After 10 minutes, Adjust HC-15796A until XI-15796A indicates 10 KW.	Student simulates waiting 10 min based on Evaluator Cue then simulates slowly adjusting H2 RCB A Heater Power Adj Control HC-15796A until H2 Rcb A Power Out to Heater XI-15796A indicates 10 KW.		
	EVALUATOR CUE 10 minutes has elapsed. After Evaluator Cue, HC-15796A is slowly adjusted CW until XI-15796A indicates 10 KW.			
	EVALUATOR CUE Inform Student HC-15796A is slowly turning in the CW direction. KW indication is rising. KW indication reads 10KW.			
*12.	3) After 10 minutes, Adjust HC-15796A until XI-15796A indicates 20 KW.	Student simulates waiting 10 min based on Evaluator Cue then simulates slowly adjusting H2 RCB A Heater Power Adj Control HC-15796A until H2 Rcb A Power Out to Heater XI-15796A indicates 20 KW.		

* = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 73.OP.2289.103 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE 10 minutes has elapsed. After Evaluator Cue, HC-15796A is slowly adjusted CW until XI-15796A indicates 20 KW.			
	EVALUATOR CUE Inform Student HC-15796A is slowly turning in the CW direction. KW indication is rising. KW indication reads 20KW.			
*13.	4) After 5 minutes, Adjust HC-15796A until required power setting determined in 2.10.5.c of this procedure observed on XI-15796A.	Student simulates waiting 5 min based on Evaluator Cue then simulates slowly adjusting H2 RCB A Heater Power Adj Control HC-15796A until H2 Rcb A Power Out to Heater XI-15796A indicates 56 KW.		
	EVALUATOR CUE 5 minutes has elapsed. After Evaluator Cue, HC-15796A is slowly adjusted CW until XI-15796A indicates 56 KW.			

* = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 73.OP.2289.103 Student Name:_____

Step	Action	Standard	Eval	Comments
	EVALUATOR CUE Inform Student HC-15796A is slowly turning in the CW direction. KW indication is rising. KW indication reads 56KW.			
14.	Monitor temperature periodically placing H_2 Rcb A Temp Chan Select TSS-15796A in following while observing temperature: (1) Position #1 (2) Position #2 (3) Position #3	Student simulates placing TSS-15796A in Positions #1, #2, and #3.		
	EVALUATOR CUE Temp Chan Select TSS-15796A clicks into position 1, temperature is rising. Temp Chan Select TSS-15796A clicks into position 2, temperature is rising. Temp Chan Select TSS-15796A clicks into position 3, temperature is rising.			

* = Critical Step # = Critical Sequence

Appl. To/JPM No.: S/RO 73.OP.2289.103 Student Name:_____

Step	Action	Standard	Eval	Comments
15.	Adjust HC-15796A between 0 KW and calculated required power setting to maintain following: a) H2 Recombiner temp ~ 1250°F not to exceed 1400°F b) Required power setting on H2 Rcb A Power Out to Heater XI-15796A not to exceed 75KW.	Student verifies TIC-15796A temperature is rising towards 1250°F not to exceed 1400°F.		
	EVALUATOR CUE Temperature is 1250°F steady. Inform the Student that they are relieved by another Operator to monitor Rcb operation.			
	EVALUATOR CUE This completes the JPM.			
	EVALUATOR Do you have ALL your JPM exam materials? Task Cue Sheets? Procedures?			

* = Critical Step # = Critical Sequence

TASK CONDITIONS

- The plant is in a post-LOCA condition 24 hours after an event.
- Containment pressure is 7.0 psig, steady.
- Containment temperature was 135°F before the LOCA.
- H_2/O_2 concentrations are below combustible limits.

INITIATING CUE

Start Containment Hydrogen Recombiner 1E440A in Manual.

TASK CONDITIONS

- The plant is in a post-LOCA condition 24 hours after an event.
- Containment pressure is 7.0 psig, steady.
- Containment temperature was 135°F before the LOCA.
- H_2/O_2 concentrations are below combustible limits.

INITIATING CUE

Start Containment Hydrogen Recombiner 1E440A in Manual.

NRC Scenario #~~Spare~~ Summary

Redesignated Scenario #1

The Crew takes the shift with the Rx operating at approximately 75%. Activities for the shift are to secure RHR Suppression Pool cooling and return the Rx to Full Power.

After the Suppression Pool cooling lineup is secured, the Crew will begin raising Rx Power. During the power ascension the Crew will recognize that the Control Valves begin to oscillate. The Crew will enter ON-193-001 (Turbine EHC System Malfunction). The Off Normal procedure directs Rx power to be lowered and Load Limit Set reduced to transfer the oscillations to the Bypass Valves.

Once plant parameters have stabilized, Reactor Building Closed Cooling Water (RBCCW) pump 'A' trips and RBCCW pump 'B' fails to automatically start. The Crew will enter ON-114-001 (Loss of RBCCW) and manually start the 'B' pump.

After RBCCW is restored and system parameters are stable, the Standby Liquid Control Injection Valve, HV-148-F006, comes "off" its Full Open seat. This will result in the SRO determining that two SBLC subsystems are Inoperable and enter TS 3.1.7.

Once the SRO has determined TS 3.1.7 is applicable, the High Pressure Coolant Injection (HPCI) pump inadvertently starts and injects into the RPV. The Crew will enter ON-156-001 (Unanticipated Reactivity Change) and secure the HPCI pump. The SRO will consult TS 3.5.1.

As the HPCI transient is being mitigated, the crew will receive a report that there is a vacuum leak coming from the Main Turbine area. The crew will enter ON-143-001 (Main Condenser Vacuum and Offgas System Off-Normal Operation) and begin a power reduction in an attempt to maintain Turbine Exhaust Pressure within limits. They will receive another report that the leak is un-isolable and perform Scram-Scram Imminent actions and attempt to Scram the Rx prior to the Main Turbine Low Vacuum trip, however, the Reactor fails to scram when the Mode Switch is placed in Shutdown.

Immediate Operator Actions of ON-100-101 (Scram-Scram Imminent) directs the Operator to Arm and Depress the Manual Scram pushbuttons, which also fails to Scram the Reactor, and initiate Alternate Rod Insertion (ARI). ARI results in all Rods fully inserting. EO-000-102 (RPV Control) will be entered and executed.

Following the Reactor Scram the Condenser Vacuum leak increases significantly, causing the Reactor Feed Pumps to trip and the Turbine Bypass Valves and Main Steam Isolation valves closing. This will force the Crew to use Safety Relief Valves (SRV) for RPV pressure control. When the first SRV is manually opened, its Tailpipe will rupture and the SRV will not close. This results in Suppression Chamber pressure, then Drywell pressure rising fairly fast (the SRV sticks open). EO-000-103 (Primary Containment Control) will be executed and the SRO will monitor the PSL Curve.

The crew will initiate Suppression Chamber Sprays, then when Suppression Chamber exceeds 13 psig, they will initiate Drywell Sprays. Once Drywell Sprays are placed in service, an ESS Bus Lockout occurs, forcing the crew to utilize the other division of RHR to resume sprays.

The Scenario will be terminated when DW pressure is being controlled and RPV level is in assigned band.

NRC Scenario #Spare Summary

Critical Tasks

★ Overrides HPCI and prevents uncontrolled injection.
(BOP)

★ Manually initiate ARI.
(ATC)

★ Spray the Drywell when Suppression Chamber pressure exceeds 13 psig.
(BOP)

★ Limits Drywell Spray flow to between 1000 and 2800 gpm for the first 30 seconds.
(BOP)

Qualitative Attributes

Total Malfs (5-8):	9 (EHC osc, RBCCW pump trip, SBLC valve, HPCI inadvertent start, Loss Condenser Vacuum, Failure Auto Scram, Failure of Scram pushbuttons, SRV tailpipe break, ESS bus Lockout)
Malf > EOP (1-2):	2 (SRV tailpipe break, ESS bus Lockout)
ABN Events (2-4):	4 (EHC Malf, Loss RBCCW, HPCI start, Main Cond Vac)
MAJ Events (1-2):	1 (SRV Tailpipe rupture-PC pressure)
EOPs entered (1-2):	2 (RPV Control, PC Control)
EOP Contingencies (0-2):	0 (None)
Critical Tasks (2-3):	4 (Overrides HPCI and prevents uncontrolled injection, Manually initiate ARI, Spray the Drywell when Suppression Chamber pressure exceeds 13 psig, Limits Drywell Spray flow to between 1000 and 2800 gpm for the first 30 seconds)

NRC Scenario #Spare Summary

Event	Description	Event Type	Who
1	Secure Supp Pool cool	N	BOP
2	Raise Rx power	N	SRO, ATC
3	EHC oscillation	C R	SRO, BOP ATC
4	RBCCW pump trip	C	SRO, BOP
5	SBLC inj valve	C	SRO
6	HPCI inadvertent start	C	SRO, BOP
7	Loss of Main Cond Vac	R	SRO, ATC
8	Failure to Scram	I	ATC
9	SRV tailpipe rupture \ stuck open	M	All
10	ESS bus Lockout	C	BOP

Scenario # Spare Applicant "Event count"

Position	RX	NOR	I/C	MAJ	TS
SRO	7	2	3,4,6	9	5,6
ATC	3,7	2	8	9	
BOP		1	3,4,6,10	9	

SRO (U) needs minimum total for all Scenarios of:	RX:	0
	NOR:	1
	I/C:	2
	MAJ:	1
	TS:	2
SRO (I) needs minimum total for all Scenarios of:	RX:	1
	NOR:	1
	I/C:	4
	MAJ:	2
	TS:	2
RO needs minimum total for all Scenarios of:	RX:	1
	NOR:	1
	I/C:	4
	MAJ:	2
	TS:	0

PPL–SUSQUEHANNA, LLC
LEARNING CENTER

SIMULATOR SCENARIO

Scenario Title:	**LOC23 NRC SCENARIO SPARE**
Scenario Duration:	**90 Minutes**
Scenario Number:	**LOC23 NRC-Spare**
Revision/Date:	**Rev. 0, 11/19/2010**
Course:	

Prepared By:	D. Kelly / M. Jacopetti Instructor		11/19/10 Date
Reviewed By:	M Jacopetti for M. Dolly Operations Training Supervisor		11/30/10 Date
Approved By:	R. E. Kuntz Supervising Manager/Shift Manager		11/30/10 Date

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SCENARIO SUMMARY

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Once plant parameters have stabilized, Reactor Building Closed Cooling Water (RBCCW) pump 'A' trips and RBCCW pump 'B' fails to automatically start. The Crew will enter ON-114-001 (Loss of RBCCW) and manually start the 'B' pump.

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The Scenario will be terminated when DW pressure is being controlled and RPV level is in assigned band.

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SCENARIO OBJECTIVES

The objective of this scenario is to evaluate the Licensed Operator Candidate's ability to respond to the scenario events. These events will require each candidate to demonstrate the following:

- Knowledge of integrated plant operations
- Ability to diagnose abnormal plant conditions
- Ability to work together as a team
- Ability to mitigate plant transients that exercise their knowledge and use of ONs and EOPs
- Ability to utilize Technical Specifications (SRO Only)

To meet this objective, the Licensed Operator Candidates must demonstrate proficiency in the following competencies:

Reactor Operator Candidates:

1. Interpret/diagnose events and conditions based on alarms, signals, and readings.
2. Comply with and use procedures, references, and Technical Specifications.
3. Operate the control boards.
4. Communicate and interact with other crew members.

Senior Reactor Operator Candidates:

1. Interpret/diagnose events and conditions based on alarms, signals, and readings.
2. Comply with and use procedures and references.
3. Operate the control boards (N/A to upgrade candidates).
4. Communicate and interact with the crew and other personnel.
5. Direct shift operations.

Comply with and use Technical Specifications.

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CRITICAL TASKS

★ **Overrides HPCI and prevents uncontrolled injection.**

Safety Significance

Uncontrolled HPCI injection to a critical reactor will increase core inlet subcooling resulting in a positive reactivity excursion.

Consequences of Failure to Perform the Task

If injection is not stopped, reactor power will increase dramatically which could result in fuel failure. Timely response in recognizing and preventing the cold water injection will minimize the reactivity event.

SSES Procedure Basis for:

OP-AD-001, Operations Standards for System and Equipment Operation.

7. STANDARDS FOR FAILURES OF PROTECTIVE FEATURES

7.4 FAILURE OF EQUIPMENT PROTECTIVE FEATURES TO PERFORM THEIR FUNCTION

7.4.1 Should a situation occur that requires actuation of an equipment protective feature and the protective feature has not automatically actuated, then the operator shall manually initiate the protective feature.

7.4.2 Should a situation occur that an equipment protective feature is found disabled, then the operator shall take prompt action to either:

a. Restore the protective feature

OR

b. Remove the equipment from service.

8. STANDARDS FOR OVERRIDING SYSTEM FEATURES

8.1 OVERRIDING EMERGENCY CORE COOLING SYSTEMS (ECCS)

One of the predominant overlying causes which may result in severe damage and worsening of an event is personnel prematurely overriding automatically actuated ECCS based on erroneous plant indications. To preclude premature shutdown of an automatically actuated ECCS function when it is still required to mitigate an incident, the following guidelines shall be used:

8.1.1 ECCS actuations may be throttled, stopped, prevented or inhibited under the cognizance of a Unit Supervisor or Shift Manager if any of following:

a. Directed to do so per Emergency Operating Procedure.

b. Misoperation in automatic mode confirmed by at least two (2) independent indications.

c. Adequate core cooling assured by at least two (2) independent indications.

Indications/Cues for the Event Requiring Critical Task

HPCI system injecting with the reactor in Mode 1 at normal RPV level and normal Drywell pressures.

Performance Criteria

Take manual control of the HPCI system and stop injection.

Performance Feedback

HPCI system flowrate decreases to zero gpm.

CRITICAL TASKS

★ **Manually initiate ARI.**

Safety Significance

Control rod insertion initiates power reduction immediately

Consequences for Failure to Perform Task

Failure to insert control rods allows power to remain elevated with resultant power oscillations and potential core damage.

Indications/Cues for Event Requiring Critical Task

Exceeding a RPS scram setting with NO reactor scram signal, or RPS/ARI fail to fully insert all control rods.

Performance Criteria

Insert Control Rods by one or more of the following methods:
Maximize CRD to drift control rods.
Drive control rods after bypassing RWM.
Reset and Scram again by performing ES-158-002 Bypass RPS logic trips.
De-energizing RPS solenoids by performing ES-158-001.
Local venting of Scram Air Header.

Performance Feedback

Successful insertion of control rods will be indicated by:

Rod position full in indication for manual insertion of control rods, venting scram air header or de-energizing RPS solenoids.

Rod position full in after resetting scram, draining scram discharge volume and re-scram.

★ **Spray the Drywell when Suppression Chamber pressure exceeds 13 psig.**

Safety Significance

Maintenance of primary containment integrity.

Actions are taken to spray the Drywell during a LOCA when the Suppression Chamber pressure exceeds 13 psig. From the Susquehanna Emergency Operating Procedures basis document, EO-000-103, "The value of 13 psig is the lowest suppression chamber pressure which can occur when 95% of the non-condensables (Nitrogen) in the drywell have been transferred to the suppression chamber." At 13 psig suppression chamber pressure, 5% of the non-condensables remain in the drywell. This 5% value is the limit established to preclude "chugging" – the cyclic condensation of steam at the downcomer openings of the drywell vents. Values in excess of 13 psig are indicative of more non-condensables in the drywell, meaning chugging is more probable.

Chugging (steam bubble collapse at the downcomer exit resulting in a water in-rush to fill the voided areas) induces stresses at the junction of the downcomers and the drywell floor. Repeated such stresses may result in failure of these joints, creating a direct bypass from drywell to suppression chamber. Bypassing the suppression pool will directly pressurize the primary containment during a LOCA may result in failure.

By requiring drywell sprays at 13 psig in the suppression chamber (5% non-condensables in the drywell), a drywell non-condensable value of >1% will be maintained and chugging should not occur.

From Appendix D of NUREG-1021, Draft Revision 9, the critical task listed above has essential safety action that correctly completed, will prevent "degradation of any barrier to fission product release" and the crew will take action to "effectively direct or manipulate engineered safety feature (ESF) controls that would prevent any condition describe in the previous paragraph."

Consequences of Failure to Perform the Task

Potential failure of primary containment.

SSES EOP Basis for:

PC/P-5 **WHEN** SUPP CHMBR PRESS **> 13 PSIG**
CONTINUE
[Directions to initiate drywell sprays]

Drywell spray operation may affect the availability of electrical equipment located in the drywell. Therefore, suppression chamber sprays are given the maximum time allowable to reduce primary containment pressure before operation of drywell sprays is required.

The allowable time is determined by the suppression chamber pressure which is equated to the amount of non-condensables remaining in the drywell.

The value of 13 psig is the lowest suppression chamber pressure which can occur when 95% of the non-condensables (N2) in the drywell have been transferred to the suppression chamber. That is, at least 5% non-condensables remain in the drywell when suppression chamber pressure reaches 13 psig. This non-condensable concentration limit is established to preclude chugging - the cyclic condensation of steam at the downcomer openings of the drywell vents. A suppression chamber pressure greater than 13 psig could be indicative of

a lower concentration of non-condensables in the drywell, thereby meaning that chugging is more probable.

Chugging occurs when a steam bubble collapses at the exit of the downcomers, the rush of water drawn into the downcomers to fill the void induces stresses at the junction of the downcomers and the drywell floor. Repeated occurrence of such stresses could cause fatigue failure of these joints, thereby creating a direct path between the drywell and suppression chamber. Steam discharged through the downcomers could then bypass the suppression pool and directly pressurize the primary containment. Scale model tests have demonstrated that chugging will not occur so long as the drywell contains at least 1% non-condensables. To preclude conditions under which chugging may occur, drywell sprays are conservatively required when at least 5% non-condensables remain in the drywell, i.e., suppression chamber pressure reaches 13 psig.

Both wide range and narrow range suppression chamber pressure indication is available in the control room. Wide range suppression chamber pressure indication is available locally on Containment H2/O2 Analyzer Panel if analyzer is selected to suppression chamber.

Indications/Cues for the Event Requiring Critical Task

Multiple control board and control room indications of suppression chamber and drywell pressures.

Performance Criteria

Start an operable RHR loop
Perform a valve alignment to provide a flowpath for spray.

Performance Feedback

RHR pump, valve and system flow indications are available.

Multiple indications of Drywell pressure dropping

★ **Limits Drywell Spray flow to between 1000 and 2800 gpm for the first 30 seconds.**

Safety Significance

Maintenance of primary containment integrity.

Actions are taken to limit the system flowrates when first initiating drywell sprays (1000 to 2800 gpm for the first 30 seconds). The reason for this restriction is to limit the magnitude of the drywell pressure reduction such that it will not go less than atmospheric (prevents air from being drawn in to containment) and ensures a margin to the negative design pressure of the containment.

The BWR Owners Group Emergency Operating Procedures Basis document discusses drywell spray limitations utilizing a Drywell Spray Initiation Limit Curve to protect against containment damage from exceeding the design drywell to suppression chamber differential pressure. From the Susquehanna Emergency Operating Procedures basis document, EO-000-103, "A drywell spray initiation limit has been developed by PPL" which provides the same protection guarantees without necessitating the use of an additional curve on the EOP flowcharts. "By limiting drywell spray flow to between 1000 and 2800 gpm for the first 30 seconds of drywell spray operation, drywell sprays can be initiated without concern" in all regions of the BWR Owners Group curve. "After 30 seconds of operation, the drywell atmosphere contains sufficient vapor to allow full drywell sprays flow." In other words, spraying the drywell within these limits will not result in a drywell pressure rapid reduction such that the differential pressure limit would be challenged.

From Appendix D of NUREG-1021, Draft Revision 9, the critical task listed above has essential safety action that correctly completed, will prevent "degradation of any barrier to fission product release" and the crew will take action to "effectively direct or manipulate engineered safety feature (ESF) controls that would prevent any condition describe in the previous paragraph."

Consequences of Failure to Perform the Task

Potential failure of primary containment.

SSES EOP Basis for:

PC/P-7 SHUT DOWN DW COOLERS
SHUT DOWN RECIRC PUMPS
INITIATE DW SPRAYS
UNLESS PUMPS CONTINUOUSLY NEEDED
FOR ADEQUATE CORE COOLING
LIMITING FLOW TO BETWEEN **1000** AND **2800 GPM**
FOR FIRST **30 SEC**

A DWSIL (Drywell Spray Initiation Limit) has been developed by PPL which provides protection against containment damage from exceeding the design differential pressure, yet does not restrict operation of the drywell sprays. By limiting drywell spray flow to between 1000 and 2800 gpm for the first 30 seconds of drywell spray operation, drywell sprays can be initiated without concern in all regions of this curve. After 30 seconds, the drywell atmosphere contains sufficient vapor to allow full drywell sprays flow. For this reason, the curve is not included.

Indications/Cues for the Event Requiring Critical Task

The Unit Supervisor will direct drywell sprays be initiated, limiting flow to between 1000 and 2800 gpm for the first 30 seconds. The PCO will initiate drywell sprays monitoring the flowrate on available digital and analog indications on 1C601, limiting flow to between 1000 and 2800 gpm for at least the first 30 seconds of operation before increasing flow.

Performance Criteria

Manually throttle HV151-F016A and B and monitor drywell spray
Use clock to determine 30 seconds has elapsed

Performance Feedback

Monitor Drywell spray flow indications during first 30 seconds of drywell spray operation

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SCENARIO REFERENCES

1.	OP-149-005	RHR Suppression Pool Cooling
2.	GO-100-012	Power Maneuvers
3.	ON-193-001	Turbine EHC System Malfunction
4.	ON-114-001	Loss of RBCCW
5.	AR107-001 (D03)	SBLC Injection HV-148-F006 not fully open
6.	TS 3.1.7	Standby Liquid Control System
7.	ON-156-001	Unanticipated Reactivity Change
8.	OP-152-001	HPCI System
9.	TS 3.5.1	ECCS Operating
10.	AR-121-001 (F02)	SJAE Condenser Discharge Hi Press
11.	ON-143-001	Main Condenser Vacuum and Offgas Sys Off-Normal Operation
12.	ON-156-001	Unanticipated Reactivity Change
13.	EO-100-102	RPV Control
14.	EO-100-103	Primary Containment Control
15.	OP-149-004	RHR Containment Cooling
16.	ON-183-001	Stuck Open Safety Relief Valve

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SCENARIO SPECIAL INSTRUCTIONS

1. Initialize the simulator to **IC-376**: Unit 1 at 75 percent power EOL, Unit 2 in Startup.

2. Load SCN file **LOC23 NRC Scenario Spare**

3. Place simulator in **RUN** and verify the following pre-inserts and Key assignments

MF	RF	OR	SCN	ET	Conditions
2:2	2:2	4:4	0	0:0	20

IMF mfRP158003	RPS Fails To Auto Actuate
IOR diHSC72A1S03AA f:NORM	RPS Manual Scram Fails
IOR diHSC72A1S03BB f:DISARM	" "
IOR diHSC72A1S03CB f:DISARM	" "
IOR diHSC72A1S03DA f:NORM	" "
IMF cmfPM04_1P210B	RBCCW Pump 'B' Auto Logic Fails
Key[1]} IMF cmfMV08_HV151F028A f:.0001	Leak by to simulate loop venting
Key[1]} IMF cmfMV08_HV151F024A r:60 f:.00000001	Leak by to simulate loop venting
Key[2]} MMF cmfMV08_HV151F028A f:0	Remove leak by
Key[2]} IMMF cmfMV08_HV151F024A f:0	Remove leak by
Key[3]} MMF cmfMV08_HV151F028A	Delete leak by
Key[3]} IMMF cmfMV08_HV151F024A	Delete leak by
{Key[4]} IMF mfTC193026 f:10.0	EHC Steam Flow Gain Unit
{Key[5]} IMF mfRW114003A	RBCCW Pump 'A' Trip
{Key[6]} IMF cmfMV07_HV148F006 f:10	SBCL Inj Vlv Off Open Seat
{Key[7]} IMF mfHP152004	HPCI Inadvertent Start
{Key[8]} IMF mfMC143001 f:0.2	Main Condenser Air In Leakage
{Key[9]} MMF mfMC143001 i:10 f:50	Increase Main Cond Air In Leakage
{Key[10]} IMF mfMS183010A f:100	SRV 'A' Stuck Open
{Key[10]} IMF mfMS183013A f:25	SRV 'A' Tail Pipe Rupture
{Key[11]} IMF mfHP152015	HPCI Turbine trip
{Key[12]} IMF cmfRV06_PSV141F13A	Pull "A" SRV fuses F019 & F020
{Key[13]} IMF cmfEB01_1A201	'A' Bus Lockout
{Key[14]} IMF cmfEB01_1A202	'B' Bus Lockout
{Key[15]} IMF cmfEB01_1A203	'C' Bus Lockout
{Key[16]} IMF cmfEB01_1A204	'D' Bus Lockout

4. **ENSURE** Eccentricity recorder, XR-10116, on 1C652 is displaying BPV POS and CV POS trends.

5. Prepare a turnover sheet indicating:
   - Unit 1 is at 75% power, following a Rod Pattern Adjustment. Unit 2 in Startup ~ 1 hour from synchronizing yo the grid
   - Supp Pool Cooling is in service with RHR Loop 'A' with OP-149-005 is complete up to Step 2.1.20.
   - Shutdown Suppression Pool cooling and leave RHRSW and ESW in service per WWM's request.
   - Once Suppression Pool Cooling is secured, commence returning Rx Power to 100% using Recirc
   - RE directions: raise Power iaw Form OP-AD-338-1 (1% / min from 75% to 85%, then Hold until RE verifications completed)

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SCENARIO EVENT DESCRIPTION FORM

Initial Conditions: Initialize the simulator to **IC-376** Ensure the SCN File is executed per the Special Instructions Sheet. Assign Shift positions. Direct the Crew to begin a five-minute panel walk down.

EVENT	TIME	DESCRIPTION	
1	1 min	Secure Supp Pool cooling	(Normal, BOP)
2	10 min	Raise Rx power	(Normal, SRO, ATC)
3	20 min	EHC oscillation	(Component, SRO, BOP) (Reactivity, ATC)
4	35 min	RBCCW pump trip	(Component, SRO, BOP)
5	40 min	SBLC inj valve	(Component, SRO)
6	50 min	HPCI inadvertent start	(Component, SRO, BOP)
7	60 min	Loss of Main Cond Vac	(Reactivity, SRO, ATC)
8	70 min	Failure to Scram	(Instrument, ATC)
9	75 min	SRV tailpipe rupture \ stuck open	(Major, ALL)
10	85 min	ESS bus Lockout	(Component, BOP)

SCENARIO EVENT FORM

Event No: 1
Brief Description: **Secure Suppression Pool cooling**

POSITION	TIME	STUDENT ACTIVITIES
SRO		Direct Suppression Pool cooling secured per OP-149-005 Section 2.1. Direct not to secure RHRSW and ESW after RHR pump shutdown due to subsequent support of scheduled RHR Surveillance Test Steps up to Step 2.1.20 are complete. Enters TRO 3.8.2.1 for Motor Overload Bypass
BOP		Remove Div 1 RHR from Suppression Pooling Cooling, as follows: ▪ Obtains OP-149-005. ▪ Reviews procedure ▪ Begin at Step 2.1.20 ▪ Informs SRO to enter TRO 3.8.2.1 ▪ Place HS-E11-1S62A to Test, Confirm BIS light Illuminates and Confirm Annunciator RHR Loop A Out of Service alarms AR109-001 (B09) ▪ Close HV-151-F024A by holding control switch in Close for at least 10 seconds after Amber Closed illuminates ▪ Observe HV-151-F007A opens ~30 sec after 3000 gpm flow reached ▪ Stops RHR Pump 1P202A ▪ Closes HV-151-F028A ▪ Ensures HV-151-F017A open ▪ Opens HV-151-F048A ▪ Observes RHR Pump Room Cooler stops ▪ Directs NPO to fill and vent RHR iaw OP-149-001 ▪ After 2 minutes, places HS-E11-1S62A to Normal ▪ Confirms BIS light extinguishes ▪ Confirms Annunciator RHR Loop A Out of Service clears ▪ Directs SRO to exit TRO 3.8.2.1

★ Denotes Critical Task

NOTES:	
Note: Special logs not maintained in Simulator	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 1
Brief Description: Secure Suppression Pool cooling

INSTRUCTOR ACTIVITY:

When directed to fill and vent Div 1 RHR, take following actions::

1. On PNOV Panel_601A insert, monitor INLET PRESS TO HX A PI-E11-1R606A1.
2. Depress soft **Key #1**:

Key 1 IMF cmfMV08_HV151F028A f:.0001	Leak by to simulate loop venting
Key 1 IMF cmfMV08_HV151F024A r:60 f:.00000001	Leak by to simulate loop venting

3. When pressure drops to 150 psig, depress soft **Key #2,** then **Key#3**:

Key 2 MMF cmfMV08_HV151F028A f:0	Simulate venting complete
Key 2 MMF cmfMV08_HV151F024A f:0	Simulate venting complete
Key 3 DMF cmfMV08_HV151F028A	Simulate venting complete
Key 3 DMF cmfMV08_HV151F024A	Simulate venting complete

ROLE PLAY:

If directed as RB NPO to fill and vent RHR iaw OP-149-001 Step 2.5.3, acknowledge directions and once above actions are taken, informs control room that Div 1 RHR is filled and vented.

As necessary.

SCENARIO EVENT FORM

Event No: 2, 3
Brief Description: Raise Rx Power, EHC oscillation

POSITION	TIME	STUDENT ACTIVITIES
SRO		Performs Crew Brief for Rx Manip on U1 ▪ Prepares to raise Rx Power using Recirc flow. ▪ Conduct Reactivity Brief (overview, actual Brief occurred prior to Shift) ▪ Directs power raised per RE instructions and GO-100-012, beginning at Step 5.4
ATC		Raises Rx power by increasing Recirc flow iaw OP-164-002 (approx 1%/min), as follows: ▪ On Recirc HMI, ensure Manual Mode Selected and Manual buttons are yellow for "A" and "B" Recirc Pumps ▪ Slowly adjust RRP 'A' and 'B' Speed Controller Demand with the (Double Chevron) INC pushbuttons as required. ▪ Observes % indications increase ▪ Observe Rx power rises ▪ Monitor Plant response. ▪ Plots position on the Power to Flow Map.
BOP		Provide Peer Check of Recirc HMI operation Monitors Plant response. Maintain Load Set at approximately 100 MWe above actual generator output by depressing Load Selector Decrease pushbutton and watching Load Set meter. Balance the Main Generator Manual Voltage Regulator with the auto regulator by adjusting Man Volt Reg Adjust HC-10002, as necessary

★ Denotes Critical Task

NOTES:	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 2, 3
Brief Description: Raise Rx Power, EHC oscillation

INSTRUCTOR ACTIVITY:

None

ROLE PLAY:

1. As necessary

SCENARIO EVENT FORM

Event No: 3
Brief Description: EHC oscillation

POSITION	TIME	STUDENT ACTIVITIES
ATC		Reports oscillating reactor power, level, and pressure. Reports oscillating generator output. Reports oscillating Turbine Control Valve positions Ceases raising Rx power Depresses TRA Init Button on PCO desk to initiate TRA.
SRO		Acknowledges ATC reports Ensures Rx power raise halted Enters ON-193-001 (Turbine EHC System Malfunction) and directs BOP to perform the ON. Contacts Work Week Manager \ I&C concerning EHC problem Enters ON-156-001 Unanticipated Reactivity Change
ATC		Implements ON-193-001 Section 3.4 Reduces Reactor Power with Recirc flow by 5% with RRP "A" and "B" (Double Chevron) DEC buttons
BOP		Once power is reduced 5%, adjusts EHC to transfer oscillations from the Control Valves to the Bypass Valves, by: ▪ Noting initial Load Limit Setpoint value. ▪ Decreases Load Limit Setpoint, by slowly turning it counter clockwise, until the Load Limit Limiting Light illuminates. ▪ Continues to slowly lower Load Limit Setpoint to open bypass valves enough to stop the control valve oscillations. **(Note 1)** ▪ Check Control Valve oscillations Stop ▪ **(Note 2)**
SRO		Contacts WWM to have FIN investigate the cause of Control Valve oscillations and to notify the Duty Manager. **(Note 3)**

★ Denotes Critical Task

NOTES:
#1: The off-normal directs reducing load limit setpoint until one BPV is 50% open. This is not enough to stop the control valve oscillations.
#2: Crew may contact I & C to have the backup pressure regulator placed in service due to control room indications showing pressure regulator oscillations. This is caused by the scenario's EHC malfunction.
#3: The SRO may refer to TS 3.7.8, Main Turbine Pressure Regulation System, if the crew believes the cause of the oscillations is due to the in-service regulator.

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 3
Brief Description: EHC oscillation

INSTRUCTOR ACTIVITY:

After Rx power has been raised by 3% and at Lead Instructors cue, then insert the EHC Steam Flow Fain Unit oscillations by activating soft **Key 4:**

{Key[4]} IMF mfTC193026 f:10.0 EHC Steam Flow Gain Unit

ROLE PLAY:

As necessary.

When contacted as WWM concerning EHC malfunction, report "FIN has been notified and are in route to investigate."

Five minutes after the above call, contact the Control Room via the PA as I&C (Delroy Artman) and say, "The Unit 1 EHC problem appears to be with the EHC Steam Flow Gain Unit, not the inservice pressure regulator. We need to develop a work package and should be able to repair it within the hour."

SCENARIO EVENT FORM

Event No: 4
Brief Description: RBCCW Pump trip

POSITION	TIME	STUDENT ACTIVITIES
BOP		Report running RBCCW pump tripped and refers to AR-123-001 (E01) Report standby RBCCW pump failed to auto start Execute ON-114-001 Section 3.5 Start standby RBCCW pump
ATC		Report Recirc Pump 'A' Seal Clg Water Lo Flow AR-102-001 (F03) & (F06) Report RWCU Isolation Filter Inlet High Temp AR-101-001 (A01)
SRO		Ensure RWCU F004 Isolation closes Check PICSY point NBA01 to ensure Core Thermal Power is unaffected Enter ON-114-001 Ensure standby RBCCW pump started Contact Work Week Manager concerning the trip of the "A" RBCCW Pump and failure of the standby pump to auto start.
BOP		Report CIG bottle swap (AR-107-001 (C06)) Dispatch NPO to restore CIG and Crosstie Instrument Air

★ Denotes Critical Task

NOTES:	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 4
Brief Description: RBCCW Pump trip

INSTRUCTOR ACTIVITY:

When Pressure Regulator oscillation is complete, on Lead Evaluator cue, insert RBCCW Pump trip by activating **Key #5**:

{Key[5]} IMF mfRW114003A RBCCW Pump 'A' Trip

When contacted as the RB NPO to restore CIG and / or cross tie Instrument Air and CIG wait three minutes, and:

For CIG Compressors, pull up 1C239 PNOV and:
- Depress 1PBCMPA\B Logic Reset pushbutton
- Depress the Flasher Reset Pushbutton

To cross tie CIG and IA, Pull up P&ID **PC3** on the instructor station and open **126172** (which also opens 126167)

ROLE PLAY:

As necessary.

When contacted as RB NPO to investigate 1A RBCCW pump, wait three minutes and report "The Unit 1 A RBCCW Pump outboard pump bearing is extremely hot and discolored."

If directed to check 1B216-103, wait two minutes and report "1B216-103 is tripped."

If directed to check status of RWCU panel, wait two minutes and report "Both RWCU Filters are in Hold."

At CIG Panel on 1C239, report that the "Low cooling water pressure alarms are in for both compressors" (LA-1239-001, windows A04 and B04) and "I am attempting a reset at my panel"

To crosstie CIG and IA: IRF rfPC125001

SCENARIO EVENT FORM

Event No: 5
Brief Description: SBLC Injection Valve off open seat

POSITION	TIME	STUDENT ACTIVITIES
BOP		Report Annunciator AR107-001 (D03) SBLC Injection HV-148-F006 not fully open.
SRO		Acknowledge report Enter LCO 3.1.7 Condition C (Two SLC subsystems inoperable) Required action C.1, restore one system to operable within 8 hours.) Contact Work Week Manager concerning status of HV-148-F006

★ Denotes Critical Task

NOTES:	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 5
Brief Description: SBLC Injection Valve off open seat

INSTRUCTOR ACTIVITY:

When the crew has stabilized the Plant following the RBCCW pump trip and CIG restored and on Lead Evaluator cue, insert SBLC injection valve off open seat by activating **Key #6**:

{Key[6]} IMF cmfMV07_HV148F006 f:10 SBLC Inj Vlv Off Open Seat

ROLE PLAY:

When contacted as RB NPO to determine status of SLC HV-148-F006, wait two minutes, call the control room via radio and state "HV-148-F006 appears to be about 10% open."

If directed to manually open it, report "I can not engage the clutch."

When contacted as the Work Week Manager concerning the SLC valve, state "I will contact Electrical and Mechanical to investigate."

As necessary.

SCENARIO EVENT FORM

Event No: 6
Brief Description: HPCI inadvertent start

POSITION	TIME	STUDENT ACTIVITIES
BOP		Reports HPCI start. Verifies adequate core cooling by two independent means and ensures Drywell pressure is < 1.72 psig Obtains SRO permission to Override HPCI
SRO ★		Verifies no valid initiation signal exists **Direct HPCI overridden per OP-152-001** Directs BOP to enter ON-156-001. Declares HPCI Inoperable Enter TS LCO 3.5.1 Condition D, Required Action D.1: Verify RCIC Operable immediately and Required Action D.2: restore HPCI to Operable within 14 days, Contacts Work Week Manger concerning the HPCI injection, requests FIN support, and notification of the Duty Manager.
BOP ★		Executes OP-152-001 Section 2.16 or Hard Card **Overrides HPCI and prevents uncontrolled injection** ▪ Places HPCI Aux Oil Pump switch to Start ▪ **Places HPCI Turbine Flow Control FC-E41-1R600 in Manual** ▪ **Depresses Close button to reduce discharge pressure less than RPV pressure.** ▪ Ensures HPCI Min Flow to Supp Pool opens when flow < 500 gpm and discharge pressure > 125 psig
SRO ★		Directs BOP to enter ON-156-001. Declares HPCI Inoperable Enter TS LCO 3.5.1 Condition D, Required Action D.1: Verify RCIC Operable immediately and Required Action D.2: restore HPCI to Operable within 14 days, Contacts Work Week Manger concerning the HPCI injection, requests FIN support, and notification of the Duty Manager.
ATC		Refers to ON-156-001 and determines no other reactivity control systems were responsible for the power increase.

★ Denotes Critical Task

NOTES:	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 6
Brief Description: HPCI inadvertent start

INSTRUCTOR ACTIVITY:

When SBLC issue is complete, on Lead Instructors cue, insert HPCI inadvertent start by activating **Key #7**:

{Key[7]} IMF mfHP152004 HPCI Inadvertent Start

ROLE PLAY:

When contacted as the Work Week Manager, state "I will contact FIN to investigate and notify the Duty Manager (if directed to do so)".

As necessary.

SCENARIO EVENT FORM

Event No: 7, 8
Brief Description: **Loss Main Condenser Vacuum, Failure to Scram**

POSITION	TIME	STUDENT ACTIVITIES
ATC / BOP		Responds to page and informs crew. Dispatch NPO / FUS to investigate noise.
SRO		Contacts Work Week Manager to have FIN investigate.
All		Recognize MWe lowering, elevated Offgas Flow, and lowering Main Condenser vacuum. **(Note 1)**
SRO		Enter ON-143-001 Main Condenser Vacuum and Offgas Sys Off-Normal, and direct BOP to perform the ON. Brief Crew on plant system response to loss of vacuum and informs them they will Scram prior to 7.5" Turbine Trip Direct Rx Power reduced iaw GO-100-012 to maintain Turbine Exhaust Pressure within limits of Attachment E or PICSY Display VAC Refer to ON-143-001 Att A
ATC		Reduces Rx Power by depressing RRP "A" and "B" DEC buttons on Recirc HMI in attempt to maintain Turbine Exhaust Pressure limits.
SRO		On report of un-isolable vacuum leak directs Scram Imminent Actions, updates crew on Pressure \ Level strategy after MSIV closure, and directs ATC to Scram the reactor.
ATC		Initiates a Manual Rx Recirc Limiter #2 Runback by touching Manual Flow Reduction Initiation, Limiter #2 48%, and then Initiate RRP Flow Reduction When directed, places Mode Switch to Shutdown Reports Failure to Scram Arms and depresses Manual Scram Pushbuttons Reports Failure to Scram Inserts SRMs and IRMs
BOP ★		**Manually initiate ARI** ▪ **Arms and Depresses Div 1 and 2 HS-147103A1 and B1** ▪ Reports ARI went to completion.

★ Denotes Critical Task

NOTES:	
#1: Initially, the loss of vacuum will be difficult to see on PR-10502 HP/IP/LP Condenser or PI-10502 CDSR C Vacuum indications.	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 7,8
Brief Description: **Loss Main Condenser Vacuum, Failure to Scram**

INSTRUCTOR ACTIVITY:

When HPCI injection has been addressed and TS reviewed and on Lead Instructor's cue, insert Loss of Main Condenser Vacuum by activating soft **Key #8**:

{Key[8]} IMF mfMC143001 f:0.2 Main Condenser Air In Leakage

Then, call Control Room as John Smith via the PA, and say: "I am on the U1 Turbine deck and I hear a very loud whistling noise coming from somewhere inside the area where the LP turbines are." If asked if you can see steam report that you can not.

After all rods are in, increase Condenser Air Leak by activating **Key #9**:

{Key[9]} MMF mfMC143001 i:10 f:50 Increase Main Cond Air In Leakage

ROLE PLAY:

When contacted as the Work Week Manager concerning the noise, state "I am dispatching FIN to investigate."

Five minutes after the call to the WWM, contact the control room via the PA as Jim Paisley FIN, and report "There is a tear in the boot between the Unit 1 LP Turbine and Condenser and it is getting worse. I am leaving the area."

If WWM is not contacted, then five minutes after being contacted as NPO / FUS to investigate, use the radio and make the report as noted above.

As necessary.

SCENARIO EVENT FORM

Event No: 8,9
Brief Description: Failure to Scram, SRV Tailpipe rupture-Stuck Open

POSITION	TIME	STUDENT ACTIVITIES
ATC		Reports all Rods In Executes ON-100-101
SRO		Enters EO-100-102 Directs ATC to place Feedwater / Condensate in Startup Level Control. May direct BOP to close MSIVs due to lowering Condenser vacuum Directs BOP to control RPV pressure between 800-1,087 psig using SRVs. Directs BOP to reset the Main Generator Lockouts
BOP		Opens "A" SRV to maintain RPV pressure in band. Recognizes and reports rapid DW pressure rise and SC pressure leading DW. Attempts to close "A" SRV and reports it failed to close
SRO		Enters ON-183-001, Stuck Open SRV, and directs BOP to perform the ON.
BOP		Executes ON-183-001 as follows: • Places "A" SRV hand switch to Off and notes acoustic monitor light still on. • With SRO permission, places "A" SRV handswitch to open, then to off. • Determines SRV still open • Directs NPO to pull Fuses B21C-F019 and F020 for 'A' SRV iaw ON-183-001 Att A in the URR
ATC		Align FW for SULC per OP-145-001 Att A, as follows: • Stop two Condensate Pumps by depressing 1P102C(D)(A)(B) • Ensure the "A" RFPT realigns to Discharge Pressure Mode and "B" and "C" align to Idle Mode. (**Note 1**) • Trip one of the Idle RFPTs by depressing its Trip pushbutton. (**Note 1**) • Using the HMI display, Reset Setpoint Setdown. (**Note 1**) • Slowly raise LIC-C32-1R602 setpoint to 35"

★ Denotes Critical Task

NOTES:
#1: Due to RRPs tripping and BPVs opening, RPV level may swell to 54" and this action will not apply.
E-Plan classification: MA3 ATWS and ARI reduces power to < 5%

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 9
Brief Description: SRV Tailpipe rupture-Stuck Open

INSTRUCTOR ACTIVITY:

When SRV 'A' is opened, fail the tailpipe and stick it open by activating **Key #10**:

{Key[10]} IMF mfMS183010A f:100	SRV 'A' Stuck Open
{Key[10]} IMF mfMS183013A f:25	SRV 'A' Tail Pipe Rupture

When \ if Operator attempts to place HPCI in Pressure Control Mode, trip HPCI by activating **Key #11:**

{Key[11]} IMF mfHP152015	HPCI Turbine trip

When directed to pull SRV fuses, wait one minute then call the Control Room on the page and tell them you are ready to pull the fuses, then activate following **Key #12:**

{Key[12]} IMF cmfRV06_PSV141F13A	SRV fuse F019 pull
{Key[12]}	SRV fuse F020 pull

ROLE PLAY:

As necessary.

SCENARIO EVENT FORM

Event No: 9,10
Brief Description: SRV Tailpipe rupture \ stuck open – ESS Bus Lockout

POSITION	TIME	STUDENT ACTIVITIES
SRO		Enters EO-100-103 (Primary Containment Control) Directs BOP to initiate Suppression Chamber Sprays Directs BOP to monitor for 13 psig Supp Chamber pressure. Monitors PSL Curve
BOP		Sprays Suppression Chamber iaw OP-149-004 Att. A, as follows: • Places HS-E11-1S17A(B) to Override • Opens HV-151-F028A(B) • Closes HV-151-F017A(B) • Starts RHR Pump A or C (B or D) • Throttles open HV-151-F027A(B) to maintain ≤500 gpm on FI-15120A(B) • Places RHRSW in service iaw OP-149-004 Att A, section 4.0, as time permits.
★SRO		**When Supp Chamber pressure > 13 psig, directs:** • ATC to shut down the DW Coolers and Fans • ATC to shut down Reactor Recirc Pumps • **BOP to initiate DW Sprays, limiting flow between 1,000 and 2,800 gpm for first 30 seconds.**
ATC		Shutdown Recirc Pumps by depressing HS014001A and B. Places all Drywell Cooler / Fan handswitches on 1C681 to Stop
BOP ★ ★		**Spray the DW:** Using OP149-004, Att A: • **Opens HV-151-F021A(B)** • Ensures both RRPs are shutdown • Ensures DW Coolers and Fans are shutdown • **Throttles HV-151-F016A(B) to establish between 1,000 and 2,800 gpm for the first 30 seconds.** [indicated on FI-15120A(B)] • After 30 sec, throttles open HV-151-F016A(B) to between 9,500 and 10,000 gpm • Reports loss of in-service RHR Pump.
Crew		Recognize loss of ESS Bus

★ Denotes Critical Task

NOTES:	
STA SPDS is lost if 1B ESS is de-energized. PICSY is lost if 1C ESS Bus is de-energized.	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 10
Brief Description: ESS Bus Lockout

INSTRUCTOR ACTIVITY:

Once DW spray flow rate is ~ 9,500 gpm, Lockout the ESS bus that supplies the RHR pump being used for DW Sprays by activating the associated Key listed below:

{Key[13]} IMF cmfEB01_1A201; 'A' Bus Lockout **if RHR pump 'A'**
{Key[14]} IMF cmfEB01_1A202; 'B' Bus Lockout **if RHR pump 'B'**
{Key[15]} IMF cmfEB01_1A203; 'C' Bus Lockout **if RHR pump 'C'**
{Key[16]} IMF cmfEB01_1A204; 'D' Bus Lockout **if RHR pump 'D'**

ROLE PLAY:

As necessary.

SCENARIO EVENT FORM

Event No: 9, 10
Brief Description: SRV Tailpipe rupture \ stuck open – ESS bus Lockout continued

POSITION	TIME	STUDENT ACTIVITIES
BOP / ATC		Assesses electrical plant: • Reports 1A(1B)(1C)(1D) ESS Bus is de-energized due to a bus lockout. • References AR-015-001 (D08 if "A"), (D11 if "B"), (D14 if "C"), or AR-016-001 (D01 if "D") • Dispatches NPO to check ESS Bus.
★SRO		**Directs BOP to restore Suppression Chamber and Drywell Sprays using the other division of RHR. (Note 1)** Enters ON-104-201(202)(203)(204)
★BOP ★		Sprays Suppression Chamber iaw OP-149-004 Att. A, as follows: • Place HS-E11-1S17B(A) to Override • Open HV-151-F028B(A) • Close HV-151-F017B(A) • Start RHR Pump B or D (A or C) • Throttle open HV-151-F027B(A) to maintain ≤500 gpm on FI-15120B(A) **Spray the DW:** • **Opens HV-151-F021B(A)** • **Throttles open HV-151-F016B(A) to between 9,500 and 10,000 gpm (Note 2)** Reports DW pressure and temperature lowering. Places RHRSW in service iaw OP-149-004 Att A, section 4.0, as time permits Secures DW spray before DW pressure drops to zero psig by closing HV-151F016B(A).
SRO		Directs RPV level restored and maintained +13 inches to +54 inches with Condensate.
ATC		Monitors operation of LV-10641 using HMI display. Takes manual control, as necessary.

★ Denotes Critical Task

NOTES:
#1: US may direct initiating DW Sprays first, since Suppression Chamber Sprays were ineffective.
#2: It is not necessary to limit DW Spray flow during the first 30 seconds, since that was done the first time DW Sprays were initiated.

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 9, 10
Brief Description: SRV Tailpipe rupture \ stuck open – ESS bus Lockout continued

INSTRUCTOR ACTIVITY:

ROLE PLAY:

As necessary.

TERMINATION CUE:

The Scenario will be terminated when DW pressure is being controlled and RPV level is in assigned band.

Post-scenario Instructor Activity:

After the scenario is terminated and students exit the simulator, perform the following action, as required::

1. If 1B ESS was de-energized, once the simulator is reset and placed in Run, restore the two non-selected SPDS screens.

2. If 1C ESS Bus is de-energized, causing loss of PICSY, the simulator must be placed in Run and the remote function must be run to restore power to PICSY, **PRIOR** to resetting the simulator. This remote function is located on P & ID **DB16**.

NRC Scenario #2 Summary

The Crew takes the Shift with Rx power at approximately 100%. Scheduled activities for the shift are to place the Standby Turbine Building Closed Cooling Water (TBCCW) pump in service and the secure the running pump.

Once TBCCW pumps are swapped, a Drywell Cooling Fan trips. The Crew will respond to the trip in accordance with the Alarm Response Procedure and consult Tech Spec 3.6.3.2.

After Station Management has been informed of the DW Cooler issue, the Crew will be notified by Generation Control Center that a Minimum Generation Emergency has been declared and that a 100 MWe reduction for Unit One is requested ASAP. The Crew will reduce power iaw OI-AD-029 (Emergency Load Control) and GO-100-012 (Power Maneuvers). Coincident with Min Gen Emergency, Control Power to Control Room Emergency Outside Air Supply System (CREOASS) Fan 'A' is lost. This will result in the SRO declaring one train of CREOASS inoperable and enter TS 3.7.3.

Following the Load reduction, the Hydraulic Fluid Temperature Controller for Reactor Recirc Pump 'A' Motor Generator set will fail to automatically control temperature. This failure results in a high temperature condition and the Crew will manually restore temperature of the hydraulic fluid to the RRP MG set.

Once RRP MG temps are stabilized, a loss of Extraction Steam to 4B Feedwater Heater occurs. The Crew will enter ON-147-001, Loss of Feedwater Heater Extraction Steam. The Crew will lower Rx power to approximately 70% and consult MCPR LCO 3.2.2.

Following the power reduction, four Control Rods will drift into the Core. This condition requires an Immediate Operator Action to Scram the Rx per OP-AD-055 and ON-155-001 (Control Rod Problems). The attempt to scram the Rx fails, resulting in a high power Anticipated Transient Without Scram (ATWS). The Crew will enter EO-000-113 (Level/Power Control).

A malfunction with the Electro-Hydraulic Control (EHC) system occurs, resulting in a Turbine Trip and a failure of the Turbine Bypass Valves to open. This will force the Crew to utilize SRVs for pressure control. Suppression Pool temperature will eventually exceed 90°F and EO-000-103, Primary Containment Control, will be entered.

As the Crew is taking actions to mitigate the ATWS, the first Standby Liquid Control (SBLC) pump started, will trip. The Crew should recognize the pump trip and start the other SBLC pump. Additionally, the Reactor Water Cleanup (RWCU) system fails to automatically isolate when the SBLC pump is started. RWCU can be manually isolated.

Crew actions will involve lowering RPV water level and Control Rod insertion. Actions for Control Rod insertion will be iaw EO-000-113 Sheet 2. An order for Venting the Scram Air Header should be directed and when the Scram Air Header is vented, all

Control Rods fully insert. The Crew will exit EO-000-113, enter EO-000-102, RPV Control, and restore RPV water level to +13 to +54 inches.

The Scenario will be terminated once all Rods are in, direction is given to restore RPV level to between 13" and 54" with Feedwater, and Suppression Pool cooling is in service.

Critical Tasks

★ Inhibits ADS
(BOP)

★ Inject SLC
(BOP)

★ Takes Action to Lower RPV level to <-60" but >-161"
(ATC)

★ Inserts control rods IAW EO-000-113 Sh. 2.
(ATC)

Qualitative Attributes

Total Malfs (5-8):	9 (DW Fan trip, CREOASS inop, RRP MG controller, loss FW heat, 4 Rods Drift, ATWS, EHC malfunction, SBLC pump trip, RWCU fails to auto isolate)
Malf > EOP (1-2):	2 (SBLC pump trip, RWCU fails to auto isolate)
ABN Events (2-4):	2 (Loss FW Heating, Control Rod Problems)
MAJ Events (1-2):	1 (ATWS)
EOPs entered (1-2):	1 (Primary Containment Control)
EOP Contingencies (0-2):	1 (Level Power Control)

NRC Scenario #2 Summary

Critical Tasks (2-3):	4 (Inhibits ADS, Inject SLC, Takes Action to Lower RPV level to < -60" but > -161", Inserts control rods IAW EO-100-113 Sht. 2)

NRC Scenario #2 Summary

Event	Description	Event Type	Who
1	Swap TBCCW	N	SRO, BOP
2	DW Cool Fan trip	C	SRO
3	Min Gen Emerg	N	SRO, ATC
4	CREOASS inop	C	SRO, BOP
5	RRP MG hi temp	C	SRO, BOP
6	Loss FW Heating	R	SRO, ATC
7	4 Rods Drift	C	ATC
8	ATWS	M	All
9	EHC malfunction	C	
10	SBLC pump trip	C	BOP
11	RWCU fail to isolate	C	BOP

Scenario #2 Applicant "Event count"

Position	RX	NOR	I/C	MAJ	TS
SRO	6	1,3	2,4,5	8	2,4
ATC	6	3	7	8	
BOP		1	4,5,10,11	8	

SRO (U) needs minimum total for all Scenarios of:	RX:	0
	NOR:	1
	I/C:	2
	MAJ:	1
	TS:	2
SRO (I) needs minimum total for all Scenarios of:	RX:	1
	NOR:	1
	I/C:	4
	MAJ:	2
	TS:	2
RO needs minimum total for all Scenarios of:	RX:	1
	NOR:	1
	I/C:	4
	MAJ:	2
	TS:	0

	PPL–SUSQUEHANNA, LLC **LEARNING CENTER**
	SIMULATOR SCENARIO
Scenario Title:	**LOC23 NRC SCENARIO 2**
Scenario Duration:	**90 Minutes**
Scenario Number:	**LOC23 NRC-2**
Revision/Date:	**Rev. 0, 11/18/2010**
Course:	

Prepared By:	Don Kelly / Mike Jacopetti Instructor		11/18/2010 Date
Reviewed By:	M Jacopetti for M. D. Itz Operations Training Supervisor		11/30/10 Date
Approved By:	R. E. Kuntz Supervising Manager/Shift Manager		11/30/10 Date

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SCENARIO OBJECTIVES

The objective of this scenario is to evaluate the Licensed Operator Candidate's ability to respond to the scenario events. These events will require each candidate to demonstrate the following:

- Knowledge of integrated plant operations
- Ability to diagnose abnormal plant conditions
- Ability to work together as a team
- Ability to mitigate plant transients that exercise their knowledge and use of ONs and EOPs
- Ability to utilize Technical Specifications (SRO Only)

To meet this objective, the Licensed Operator Candidates must demonstrate proficiency in the following competencies:

Reactor Operator Candidates:

1. Interpret/diagnose events and conditions based on alarms, signals, and readings.
2. Comply with and use procedures, references, and Technical Specifications.
3. Operate the control boards.
4. Communicate and interact with other crew members.

Senior Reactor Operator Candidates:

1. Interpret/diagnose events and conditions based on alarms, signals, and readings.
2. Comply with and use procedures and references.
3. Operate the control boards (N/A to upgrade candidates).
4. Communicate and interact with the crew and other personnel.
5. Direct shift operations.
6. Comply with and use Technical Specifications.

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CRITICAL TASKS

★ **Inject SLC**
★ **Inhibits ADS**

Safety Significance

Early boron injection has the following benefits:
Stop or prevent large magnitude Limit Cycle Oscillations which can lead to core damage.
Limit fuel damage from uneven flux patterns that could result from partial rod inserts.
Inhibiting ADS prevents uncontrolled injection of large amounts of relatively cold, unborated low pressure ECCS water when the reactor is not shutdown with control rods.

Consequences for Failure to Perform Task

Failure to inject Boron can result in
Cycle Oscillations which can lead to core damage.
Fuel damage from uneven flux patterns that could result from partial rod inserts.
Failure to inhibit ADS can result in large amounts of positive reactivity addition due to boron dilution and cold water injection.

SSES EOP Basis for:

LQ/Q-3 **IF** INITIAL ATWS PWR **> 5%**
OR CANNOT BE DETERMINED INJECT SLC AND INHIBIT ADS

When scram and ARI have failed, reactor power must be considered to determine if immediate boron injection is required. If initial ATWS power was greater than 5%, then a relatively large number of control rods have failed to insert. The seriousness of this condition requires immediate injection of boron to positively terminate the ATWS event.

ADS initiation may result in the injection of large amounts of relatively cold, unborated water from low pressure injection systems. With the reactor either critical or shutdown on boron, the positive reactivity addition due to boron dilution and temperature reduction through the injection of cold water may result in a reactor power excursion large enough to cause substantial core damage. Preventing ADS is therefore appropriate whenever boron injection is required.

Indications/Cues for Event Requiring Critical Task

ATWS with initial reactor power level greater than 5% APRM power.

Performance Criteria

Inject SLC by inserting key into keylock switch and turning to start selected SLC pump, fire the Squib valves and close the Reactor Water Cleanup isolation valve.
Alternate SLC injection using RCIC (ES-150-002)
Inhibit ADS by placing 1C601 keylock switches to INHIBIT

Performance Feedback

Successful SLC injection would be indicated by a lowering SLC tank level and a corresponding power level decrease.
Successful ADS inhibiting is indicated by Green Indicating Light at switch illuminating.

Takes Action to Lower RPV level to <-60" but >-161".

Safety Significance

Core damage due to unstable operation can be prevented or at least mitigated by promptly reducing feedwater flow so that level is lowered below the feedwater spargers.

Consequences for Failure to Perform Task

A General Electric Company study (NEDO-32047) indicates that the major threat to fuel integrity from ATWS is caused by large-amplitude power/flow instabilities. The power oscillations can become large enough to cause melting of fuel in high-power bundles.

SSES EOP Basis for:

LQ/L-13 MAINTAIN LVL BETWEEN **-60"** AND **-161"**
USING TABLE 15 SYSTEMS
BYPASSING INTERLOCKS AS NECESSARY IAW ANY:

This step identifies the widest, acceptable water level control band. Although level fluctuations within this band are safe, it is very desirable to maintain level within the more restrictive target area of -110" to -60". The target area and expanded band are shown in Figure 8, Water Level Operation Guidance. The intent of this step is to remain within the target band at all times unless prohibited by system perturbations, and remain within the expanded band at all times.

Operation outside the target area has the following disadvantages:

The basis for an upper level of -60" is given in LQ/L-6.

A lower level of -110" is specified for the following reasons:

1. *Provides a margin for core coverage.*

2. *Avoids operation near TAF where core power is more responsive to RPV pressure fluctuations.*

3. *Makes level control easier by maintaining level above the narrow region of the downcomer.*

   Below -110" the downcomer free area reduces from 300 ft^2 to 88 ft^2 resulting in increased magnitude of indicated level oscillations.

4. *Maintains sufficient core flow to carry liquid boron from lower plenum upward into the core.*

   As level is decreased below -110", boron mixing efficiency is reduced because the natural circulation flow rate through the jet pumps is reduced and not as efficient at carrying the injected boron from the lower plenum upward into the core.

   At very low downcomer water levels near or below top of active fuel, there is little water available in the region above the jet pump throat for mixing with boron injected via RCIC. In this situation, there is concern that boron may accumulate in the stagnant region of the downcomer which is below the jet pump throat.

5. *Water level can be determined from wide range level instrumentation.*

6. *Avoids MSIV isolation setpoint of -129".*

RPV level below TAF is not, by itself, a determination of whether or not level can be maintained > -161". The determination that level cannot be maintained > -161" must be made based upon:

- *availability of high pressure injection systems, and,*
- *present level trend*

This decision must not be made prematurely since depressurization of a critical core results in destabilizing affects and has a potential to cause core damage.

Controlling reactor pressure, power and level with condensate and SRVs at 500 psig is difficult because all 3 parameters affect each other. Therefore, rapid depressurization is recommended when high pressure injection cannot be obtained.

The initial influence of reactor depressurization is stabilizing since the additional flashing of liquid phase required for depressurization introduces excess voids in the reactor core which can essentially terminate the fission process if the rate of depressurization is high enough. Once the depressurization is complete, however, the result is the immediate initiation of power excursions. Core damage is expected to occur from high clad stresses induced by: temperature excursions above the rewet temperature, PCI, cyclic fatigue, burnout or having the fuel enthalpy exceed the cladding failure threshold.

Indications/Cues for Event Requiring Critical Task

ATWS with initial reactor power level greater than 5% APRM power.

Performance Criteria

Lower reactor water level by manually controlling injection rate from Feedwater, HPCI and/or RCIC.

★ **Inserts control rods IAW EO-100-113 Sht. 2.**

Safety Significance

Control rod insertion initiates power reduction immediately

Consequences for Failure to Perform Task

Failure to insert control rods allows power to remain elevated with resultant power oscillations and potential core damage.

Indications/Cues for Event Requiring Critical Task

Exceeding a RPS scram setting with NO reactor scram signal, or RPS/ARI fail to fully insert all control rods.

Performance Criteria

Insert Control Rods by one or more of the following methods:
Maximize CRD to drift control rods.
Drive control rods after bypassing RWM.
Reset and Scram again by performing ES-158-002 Bypass RPS logic trips.
De-energizing RPS solenoids by performing ES-158-001.
Local venting of Scram Air Header.

Performance Feedback

Successful insertion of control rods will be indicated by:

Rod position full in indication for manual insertion of control rods, venting scram air header or de-energizing RPS solenoids.

Rod position full in after resetting scram, draining scram discharge volume and re-scram.

SCENARIO REFERENCES

1.	OP-115-001	TBCCW
2.	AR-128-001 (D01)	DRWL FAN 1V414B FAILED
3.	TS 3.6.3.2	CONTAINMENT SYSTEMS DRYWELL AIR FLOW SYSTEM
4.	OI-AD-029	EMERGENCY LOAD CONTROL
5.	GO-100-012	POWER MANEUVERS
6.	AR-029-001 A01	CS EMER OA SUP FAN FAILED
7.	TS 3.7.3	PLANT SYSTEMS CONTROL ROOM EMERGENCY OUTSIDE AIR SUPPLY SYSTEM (CREOASS)
8.	AR-102-001 (C03)	RECIRC MG 'A' FLUID DRIVE OIL HI-LO TEMP
9.	ON-147-001	LOSS FW HEATING EXTRACTION STEAM
10.	ON-164-002	LOSS RECIRC FLOW
11.	ON-155-001	CONTROL ROD PROBLEMS
12.	EO-100-102	RPV CONTROL
13.	EO-100-113	LEVEL/POWER CONTROL
14.	OP-149-004	RHR CONTAINMENT COOLING
15.	OP-145-001	RFP AND RFP LUBE OIL SYSTEM
16.	OP-183-001	AUTOMATIC DEPRESSURIZATION SYSTEM AND SAFETY RELIEF VALVES
17.	OP-184-001, ATT A	EO HARD CARD-BYPASS MSIV AND CIG INTERLOCKS
18.	OP-150-001, ATT A	EO HARD CARD-OVERRIDING RCIC INJECTION
19.	OP-152-001, ATT C	EO HARD CARD-OVERRIDING HPCI INJECTION
20.	OP-145-001, ATT C	EO HARD CARD-ATWS POWER\LEVEL REDUCTION STRATEGY
21.	OP-149-004, ATT A	EO HARD CARD-INITIATE CONTAINMENT COOLING

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SCENARIO SPECIAL INSTRUCTIONS

1. Initialize the simulator to **IC-20**: Unit 1 at 100 percent power EOL, Unit 2 in MODE 1.

2. Load SCN file **LOC23 NRC Scenario 2;** verify the following pre-inserts and Key assignments:

MF	RF	OR	SCN	ET	Conditions
4:4	0:0	4:4	0	0:0	17

IMF mfRP158003	RPS FAILS TO AUTO ACTUATE
IOR diHSC72A1S03AA f:NORM	RPS MANUAL SCRAM FAILS
IOR diHSC72A1S03BB f:DISARM	" "
IOR diHSC72A1S03CB f:DISARM	" "
IOR diHSC72A1S03DA f:NORM	" "
IMF cmfRL03_63X114725D1	ARI FAILS TO ACTUATE
IMF cmfRL03_63X214725D1	" "
IMF cmfMV06_HV144F004	RWCU Valve F004 Fails to Auto Isolate
{Key[1]} IMF cmfPM02_1V414B	DW Cooling Fan Trip
{Key[2]} IMF cmfPM01_0V101A	CREOASS Loss Control Pwr
{Key[3]} IMF cmfCN02_TIC11016A f:0	RRP MG Hyd Fluid Temp Controller
{Key[4]} IMF cmfMV05_HV10241B	Loss FW Heat to 4B
{Key[5]} IMF mfRD1550041839 f:100	Rod Drift
{Key[5]} IMF mfRD1550041835 f:100	Rod Drift
{Key[5]} IMF mfRD1550041807 f:100	Rod Drift
{Key[5]} IMF mfRD1550041031 f:100	Rod Drift
{Key[5]} IMF cmfMV07_PV146F003 d:60 f:4.72	Prevents Opening CRD PCV (can't drift rods)
{Key[6]} IMF cmfPM02_1P208A	SBLC 'A' Thermal Overload
{Key[7]} IMF cmfPM02_1P208B	SBLC 'B' Thermal Overload
{Key[8]} IMF mfTC193001	Turbine Trip
{Key[8]} IMF mfTC193025	TBVs Fail Closed
{Key[9]} IRF rfRD155025 r:1 f:0	Vents Scram Air Header
{Key[9]} IRF rfRD155016 r:5 f:100	" "
{Key[10]} IRF rfRD155025 f:100	Restores Scram Air Header
{Key[10]} IRF rfRD155016 f:0	" "

3. Prepare a turnover sheet indicating the following:

   a. U1 at 100%, U2 at full power
   b. Scheduled activity for the shift is to swap TBCCW pumps
   c. Maintain full power operation

4. Make a copy of shift assignments.

5. Place the Simulator in **RUN.**

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SCENARIO EVENT DESCRIPTION FORM

Initial Conditions: Initialize the simulator to **IC-20** Ensure the SCN File is executed per the Special Instructions Sheet. Assign Shift positions. Direct the Crew to begin a five-minute panel walk down.

EVENT	TIME	DESCRIPTION	
1	2 min	Swap TBCCW	(Normal: SRO, BOP)
2	10 min	DW Cool Fan trip	(Component: SRO)
3	20 min	Min Gen Emerg	(Normal: SRO, ATC)
4	30 min	CREOASS inop	(Component: SRO, BOP)
5	40 min	RRP MG hi temp	(Component: SRO, BOP)
6	45 min	Loss FW Heating	(Reactivity: SRO, ATC)
7	60 min	3 Rods Drift	(Component: ATC)
8	60 min	ATWS	(Major: ALL)
9	65 min	EHC malfunction	(Component)
10	65 min	SBLC pump trip	(Component: BOP)
11	60 min	RWCU fail to isolate	(Component: BOP)
	90 min	Termination	

SCENARIO EVENT FORM

Event No: 1
Brief Description: **Swap TBCCW**

POSITION	TIME	STUDENT ACTIVITIES
SRO		Direct TBCCW Pump swap iaw OP-115-001.
BOP		Swap TBCCW Pumps: ▪ Obtain OP-115-001, review procedure, and begin at Section 2.2 ▪ Start TBCCW PP 1P103B by depressing Run pushbutton ▪ Directs TB1 NPO to slowly close TBCCW PP 'A' discharge valve 114011 ▪ Have NPO check pump discharge pressure between 86 and100 psig ▪ Stop TBCCW PP 1P103A by depressing Stop pushbutton ▪ Check HX outlet temp 92-98F ▪ Check system pressure stabilizes at approx 64 psig ▪ Directs TB1 NPO to open TBCCW PP 'A' discharge valve 114011 ▪ Refer to Attachment A as necessary to verify proper flowrates / temps

★ Denotes Critical Task

NOTES:	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 1
Brief Description: **Swap TBCCW pumps**

INSTRUCTOR ACTIVITY:

Select P & ID TW1, then close and open "A" TBCCW Pump Discharge Valve 114011, as directed.

ROLE PLAY:

1. As NPO at TBCCW, when requested, report "1B TBCCW Pump is ready for a start."
2. When directed to close, then open 114011, report doing so after taking actions as directed above.
3. When directed to report "B" TBCCW Pump Discharge pressure, report "B" TBCCW pump discharge pressure is 98 psig, steady."

SCENARIO EVENT FORM

Event No: 2
Brief Description: DW cooling Fan trip

POSITION	TIME	STUDENT ACTIVITIES
ATC		Report 1C681 Panel Trouble alarm and refer to AR-106-001 (B16)
BOP		Report DW Cooling Fan 1V414B tripped Refer to AR-128-001 (D01) Verifies 1V414A is running Dispatch NPO to check 1B246061 (Note 1) Monitor Drywell Temperature
SRO		Refer to TS 3.6.3.2 and Bases. Enter Condition A, Required Action A.1, restore to operable within 30 days. Contact Work Week Manager to investigate 1V414B trip and to inform the Duty Manager.

★ Denotes Critical Task

NOTES:	
#1: Crew may place 1V414B fan hand switch to Stop prior to directing NPO to attempt overload reset.	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 2
Brief Description: DW cooling Fan trip

INSTRUCTOR ACTIVITY:

When the TBCCW pump swap is complete and on Lead Evaluators cue, insert DW Cooling Fan trip by activating **Key 1**

{Key[1]} IMF cmfPM02_1V414B DW Cooling Fan Trip

ROLE PLAY:

1. As RB1 NPO: three minutes after being directed to check 1B246061, report: "1B246-061 is not tripped, should I check the thermal overloads?." If directed to reset the thermal overloads, report: "1B246-061 thermal overloads will not reset."

2. When contacted as the Work Week Manager concerning 1V414B, report: "I will contact FIN to investigate."

SCENARIO EVENT FORM

Event No: 3,4
Brief Description: **Min Generation Emergency, Loss of CREOASS Fan 'A' Control Power**

POSITION	TIME	STUDENT ACTIVITIES
ATC		Report Min Gen Emergency request from GCC to lower output by 50 MWe.
SRO		Brief Crew on Power Reduction plan Refer to OI-AD-029 Att. D, and CRC Book Direct ATC to reduce power with Recirc at a rate of 1% / minute until MWe is lowered by 50. (Note 1) Refer to GO-100-012 Provide Reactivity oversight Contact the Work Week Manager to notify the Duty Manager and Reactor Engineering.
ATC		Reduce power as directed by the SRO: ▪ Using the RRP Dual Screen HMI, lower "A" and "B" Recirc speeds by depressing the double chevron DEC buttons, as necessary, to reduce power at approximately 1% / minute. ▪ Observe Controller Output, Gen Demand, and Scoop Tube Position lowers ▪ Monitor Plant response \ MWe. ▪ Plot power reduction on Power to Flow Map.
BOP		Provide peer check of RRP speed reduction. Maintain Load Set at approximately 100 MWe above actual generator output by depressing Load Selector Decrease pushbutton and watching Load Set meter. Balance the Main Generator Manual Voltage Regulator with the auto regulator by adjusting Man Volt Reg Adjust HC-10002, as necessary.
BOP		Report HVAC Div 1 Control Panel 0C681 System Trouble alarm, and:. ▪ Report CREOASS Fan 'A' alarm ▪ Refer to AR-029-001 (A01), CS EMER OA SUP FAN FAILED, amber light out ▪ Dispatch Operator to Investigate 0B136-063 ▪ Places 0V101B fan hand switch in Auto Lead and informs SRO.
SRO		Enter TS 3.7.3 Condition A, Required Action A.1, restore to operable w/ in 7 days (for both Units) Contact Work Week Manager to inform him of 'A' CREOASS status and to run EOOS.

★ Denotes Critical Task

NOTES:	
#1: Crew may use insert rods iaw CRC book until below 98% rod line, then reduce Recirc flow.	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 3
Brief Description:

INSTRUCTOR ACTIVITY:

When actions are complete for DW Fan trip, and on Lead Instructors cue, contact the U-1 Control Room via the GCC direct line and state, "This is John Smith. A Minimum Generation Emergency is required and we need Unit 1 Susquehanna to reduce output by 50 MWe as quickly as possible."

When MWe has been reduced by approximately 30 MWe (~1280 MWe), and on Lead Instructors cue, insert CREOASS control power loss by activating **Key 2**:

{Key[2]} IMF cmfPM01_0V101A CREOASS Loss Control Pwr

ROLE PLAY:

1. As Operator dispatched to investigate CREOASS Fan, wait three minutes and report: "Breaker 0B136-063 is closed and still looks good."

2. As Work Week Manager-when contacted concerning CREOASS state, "I will contact FIN to investigate."

3. As FIN wait five minutes and report: "It appears that the 0B136-063 Control Power Fuse is blown".

SCENARIO EVENT FORM

Event No: 5
Brief Description: RRP MG Hi Temp

POSITION	TIME	STUDENT ACTIVITIES
ATC		Report RRP MG set high temp alarm and refer to: ▪ AR-102-001 (C05), Recirc MG 'A\B' Brg or Fluid Drive Oil Hi Temp ▪ AR-102-001 (C03, Recirc MG 'A' Fluid Drive Oil Hi-Lo Temp
BOP		Check MG Set A Hyd Fluid Clr Temp TIC11016A and report that demand is a 0 and temperature is rising based on controller indication and "A" MG Set Hydraulic Fluid Temperature on TI-14020A. Place TIC11016A in Manual and depress the Open button to restore demand to approximately the original value. Adjust controller as necessary to restore temperature to normal of approximately 125°F.
SRO		Direct BOP to take manual control of "A" RR MG Set Hydraulic Oil temperature controller. Inform Work Week Manager of the controller malfunction
ATC		Monitor "A" Recirc Pump operation using Recirc HMI screen / PICSY display.
BOP		Take manual control of TIC11016A by placing it in Manual and depressing the Open button to restore demand to approximate pre-failure value. Adjust controller as necessary to restore temperature to normal of approximately 125°F.

★ Denotes Critical Task

NOTES:	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 5
Brief Description: RRP MG Hi Temp

INSTRUCTOR ACTIVITY:

Once the CREOASS Fan failure is addressed, and on Lead Instructor cue, insert Recirc MG 'A' Fluid Drive Oil automatic Controller failure by activating:

{Key[3]} IMF cmfCN02_TIC11016A f:0 RRP MG Hyd Fluid Temp Controller

ROLE PLAY:

If contacted as TB1 NPO to investigate the 'A' MG Set Lube Oil temperature controller, report the valve is closed (if PCO has not taken manual control yet) (Monitor temperatures on P&ID SW3)

SCENARIO EVENT FORM

Event No: 6
Brief Description: Loss FW Heating

POSITION	TIME	STUDENT ACTIVITIES
BOP		Reports FW Loop B Panel 1C102 Trouble Alarm AR120-001 (H07) then (D07) Reports 4B Heater, HV-10241B, is closed and dispatches NPO to 1C102.
ATC		Reports RPV power, pressure, and level.
SRO		Enter ON-147-001 (Loss FW Heating Extraction Steam) ▪ Direct immediate Power reduction iaw RE Instructions in CRC Book to ≤71% (**NOTE 1**) ▪ Enter ON-156-001 (Unanticipated Reactivity Change) and ON-164-002 (Loss Recirc Flow)
ATC		Reduces power to ≤ 71% power, based on SRO's direction, as follows: ▪ If directed to reduce Recirc first, per the CRC book, then performs one of the following using the Recirc HMI screen: 1. Initiates a Manual Rx Recirc Limiter #2 Runback by touching Manual Flow Reduction Initiation, then Limiter #2 48%, and then Initiate RRP Flow Reduction. **or** 2. Touches the double chevron DEC buttons on the RRP A & B Speed controllers as required to establish the final Core Flow value stated in CRC Book ▪ If directed to insert rods first to get < 98% rod line, then selects control rods beginning with the first one in the CRC book (30-31), depresses the Insert Rod pushbutton, monitors rod position, and releases the button after 00 is observed. Documents move in CRC, then proceeds with in sequence rods. ▪ Insert additional Rods iaw CRC to reduce \ maintain < 71% power. ▪ Plots position on Power to Flow Map using Core Flow and APRM power.
BOP		Provides peer check of Recirc / Control Rod manipulations. Per ON-147-001, once ≤ 71% power, closes HV-10242B Extraction Steam to 5B FW Heater (coordinates with ATC due to power increase)
ATC		Maintain Rx power ≤ 71% by inserting Control Rods iaw the CRC Book.
SRO		Refer to MCPR LCO 3.2.2. Determine extraction steam must be restored within two hours or the string must be isolated. Contact Reactor Engineering and WWM

★ Denotes Critical Task

NOTES:	
#1: SRO may direct ATC to insert control rods first per ON-147-001 guidance, then reduce power using Recirc.	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 6
Brief Description: Loss FW Heating

INSTRUCTOR ACTIVITY:

When the RRP MG temp is returned to normal, and on Lead Instructor cue, insert Loss of FW Heating by activating **Key 4**:

{Key[4]} IMF cmfMV05_HV10241B Loss FW Heat to 4B

ROLE PLAY:

1. When contacted as the TB NPO to investigate 1C102 panel alarm, wait three minutes, then select the 1C102 PNOV display. Report alarms currently in. **Do not** report the closed indication for HV-10241B unless the crew has already identified it has closed.

2. When contacted as the WWM concerning isolation of U1 4B Extraction Steam, reply "I will contact FIN to investigate.

3. As FIN, wait five minutes after WWM was contacted and call the U-1 Control Room via the PA. State, "This is Bill Brown, FIN. I am not sure why HV-10241B closed. I will inform you as soon as I find anything."

Event No: 7,8
Brief Description: Rods Drift, ATWS

POSITION	TIME	STUDENT ACTIVITIES
ATC		Reports Rod Drift alarm AR-104-001 (G05) Depresses Display Rods Drifting pushbutton Reports three control rods are drifting Perform immediate operator action per OP-AD-055 or ON-155-001 by placing Mode Switch to Shutdown. Reports failure to Scram, and takes immediate operator actions: ▪ Arms and Depresses the four Manual Scram Pushbuttons ▪ Report failure to Scram ▪ Inserts SRMs and IRMs by selecting each detector, depressing Power On and the Drive In pushbuttons.
BOP		Initiates ARI by arming and depressing Manual pushbuttons HS-147103A1 and B1 and observes vent and block valve positions. Reports failure of ARI to insert Rods
SRO ★		Enters EO-100-102 (RPV CONTROL), and exit to EO-100-113 (LEVEL/POWER CONTROL), and: ▪ Ensures Mode Switch in S\D and ARI initiated. ▪ Requests and record Initial ATWS power. ▪ **Direct SBLC injected and ADS inhibited** (BOP)
BOP ★ BOP ★ BOP ★		**Injects SLC:** ▪ **Turns SLC Man Initiation key lock switch to Start A (Start B)** **Recognize the first SBLC pump started tripped** **Start the other SBLC pump** ▪ **Turns SLC Man Initiation key lock switch to Start B (Start A)** ▪ Verifies SBLC Pump Dsch Press PI-C41-1R600 is greater than Rx pressure. ▪ Verifies SBLC flow is ~ 42 gpm and SLC Tank level is lowering on LI/FI-14806. ▪ **Recognizes RWCU HV-144-F004 failed to close and closes it, or has ATC close it.**

★ Denotes Critical Task

NOTES:	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 7,8
Brief Description: Rods Drift, ATWS

INSTRUCTOR ACTIVITY:

When FW Heating issue has been stabilized, and on Lead Instructor cue, drift four Control Rods and disable the Drive Water Pressure Control Valve by activating **Key 5**:

{Key[5]} IMF mfRD1550041839 f:100	Rod Drift
{Key[5]} IMF mfRD1550041835 f:100	Rod Drift
{Key[5]} IMF mfRD1550041807 f:100	Rod Drift
{Key[5]} IMF mfRD1550041031 f:100	Rod Drift
{Key[5]} IMF cmfMV07_PV146F003 d:60 f:4.72	Prevents Opening CRD PCV (can't drift rods)

When the SBLC pump is started, insert motor overload by activating appropriate key as noted below:

If **'A' SLC Pump** is injecting, **activate Key 6**

{Key[6]} IMF cmfPM02_1P208A ; SBLC 'A' Motor Overload

If **'B' SLC Pump** is injecting, **activate Key 7**

{Key[7]} IMF cmfPM02_1P208B ; SBLC 'B' Motor Overload

ROLE PLAY:

If contacted as the RB NPO to investigate the "A"(B) SLC Pump trip, wait two minutes and report "The SLC pump is extremely hot and the breaker is tripped."

As necessary

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 8,9,10,11
Brief Description: ATWS, EHC Malfunction, SBLC pump trip, RWCU fails to auto isolate continued

INSTRUCTOR ACTIVITY:
When both RRPs are tripped, insert Turbine Trip and TBVs to fail closed by activating **Key 8**:

{Key[8]} IMF mfTC193001	Turbine Trip
{Key[8]} IMF mfTC193025	TBVs Fail Closed

ROLE PLAY:

As RB NPO directed to investigate CRD Drive Water Pressure Control Valve, PV-146-F003, wait four minutes and report via the radio, "I am unable to turn the handwheel on the U-1 CRD Drive Water PCV and am going to get help."

As necessary

Event No: 8,9,10,11
Brief Description: ATWS, EHC Malfunction, SBLC pump trip, RWCU fails to auto isolate continued

POSITION	TIME	STUDENT ACTIVITIES
SRO ★		**Directs Throttle injection and Prevent injection until Level between -60" and -110":** ▪ Directs BOP to override RCIC and HPCI ▪ Directs ATC to lower RPV level to between -60" and -110" using Feedwater. Directs BOP to bypass MSIV and CIG interlocks.
BOP ★		**Overrides RCIC and HPCI to prevent injection:** ▪ **For RCIC, closes HV-15012** ▪ **For HPCI, places FC-E41-1R600 in Manual and reduces demand to 0%**
ATC ★		**Throttle and Prevent Injection until Level is between -60" and -110" (Note 1)** **Lowers RPV level to Target Band iaw OP-145-001 Att C Hard Card as follows:** ▪ **Places LV-10641 controller LIC-10641 to manual and reduces controller demand to 0%. (If OP-145-001 Att C was used to reduce Recirc Speeds, this is already done)** ▪ **Places LIC-C32-1R600 (Master) in Manual** ▪ **Using LIC-C32-1R600, lowers Feedwater flow to < 1Mlbm\hr less than Steam Flow.** ▪ **For the RFP that will control level (most likely A), touches the RFPT Man Vlv Ctl button, touches the Pump Icon, touches Man on SIC-C32-1R601A(B)(C).** ▪ **For remaining RFPs (most likely B & C), touches RFP button, and touches RFPT Idle Mode.** (Note 2) ▪ **Depresses the DEC button on SIC-C32-1R601A(B)(C) to reduce feed flow and monitors approach to directed level band.**
BOP		Bypass MSIV and CIG interlocks iaw OP-184-001 Att A Hard Card, as follows: ▪ At 1C645 places HS-B21-S38A and C, HS-12694 & 95 to Bypass. ▪ At 1C644 places HS-12696 to Bypass. Informs SRO MSIV and CIG interlocks are bypassed.
SRO		Enters EO-100-103 when Suppression Pool temperature is > 90F Directs ATC to maximize Suppression Pool Cooling.

★ Denotes Critical Task

NOTES:
#1 Due to the effectiveness of SBLC the time to reach -60 inches even with feedwater flow terminated may be extended.
#2: If, due to reduce power level, ICS initiates alignment to SULC and "B" and "C" RFPTs are in Idle Mode when ATC reaches applicable step, then ATC will need to verify they are in Idle.

Event No: 8,9,10,11
Brief Description: ATWS, EHC Malfunction, SBLC pump trip, RWCU fails to auto isolate continued

POSITION	TIME	STUDENT ACTIVITIES
BOP		Maximizes Suppression Pool cooling iaw OP-149-004, Att A., as follows: ▪ Open HV-151-F028A(B) ▪ Close HV-151-F017A(B) ▪ Start RHR Pump A or C (B or D) ▪ Throttle open HV-151-F024A(B) to establish total loop flow of 9,500 to 10,000 gpm on FI-E11-1R603A(B). ▪ Places RHRSW in service iaw OP-149-004 Att A, section 4.0.
SRO ★		**Direct Control Rod insertion per Sh 2:** ▪ Directs ATC to insert control rods in accordance with directions on EO-113 Sheet 2. ▪ Directs BOP to have Scram Air Header Vented ▪ Contacts FUS to perform ES-158-001.
ATC ★		**Insert Control Rods per EO-000-113 Sh2** ▪ **Bypasses RWM by placing Normal \ bypass keylock to Bypass** ▪ **Establish approx 63 gpm Cooling Water flow and approx 350 psid Drive Water pressure, as necessary** ▪ **Starting with Intermediate, then Full Out Rods, select Rods in rotating quadrants** ▪ **Depress Continuous Insert until Rod is Full In** ▪ **Directs NPO to vent Unit 1 Scram Air Header**
BOP		Reports NPO venting Scram Air Header Monitors for Low Scram Air Pressure Alarm Monitors for drifting Rods
ATC		Reports all control rods full in.
SRO		Directs BOP to have Scram Air Header restored and to stop SLC Pump. Contacts the FUS to stop performance of ES-158-001 Exits EO-100-113 Enters EO-100-102 Directs ATC to slowly restore RPV level to 13" to 54" using Feedwater.
ATC		Restores RPV level +13" to +54" by depressing INC button on SIC-C32-1R601A(B)(C), then adjusts using the INC/DEC button to maintain the band.

★ Denotes Critical Task

NOTES:	

INSTRUCTOR ACTIVITIES, ROLE PLAY, AND INSTRUCTOR'S PERSONAL NOTES

Event No: 8,9,10,11
Brief Description: ATWS, EHC Malfunction, SBLC pump trip, RWCU fails to auto isolate continued

INSTRUCTOR ACTIVITY:

Once actions are complete to lower RPV level into the ATWS target band of -60" to -110", several rods have been inserted to position 00, and on the Lead Evaluator's cue, contact Control room via the radio and report that you are ready to vent the U1 Scram Air Header iaw Posted Instructions. Once directed to vent the Scram Air Header, activate **Key 9**:

{Key[9]} IRF rfRD155025 r:1 f:0	Vents Scram Air Header
{Key[9]} IRF rfRD155016 r:5 f:100	" "

Once Key 9 is activated, contact the control room and report, "I vented the Unit 1 Scram Air Header and no longer hear any air."

When directed to restore U1 Scram Air Header, activate **Key 10:**

{Key[10]} IRF rfRD155025 f:100	Restores Scram Air Header
{Key[10]} IRF rfRD155016 f:0	" "

Once Key 10 is activated, contact the control room and report, "I restored the Unit 1 Scram Air Header."

ROLE PLAY:

See above for specific communications.

As necessary

TERMINATION CUE: All Rods are in, direction is given to restore RPV level to between 13" and 54" with Feedwater, and Suppression Pool cooling in service.