

PPL SUSQUEHANNA, LLC
JOB PERFORMANCE MEASURE
APPROVAL AND ADMINISTRATIVE DATA SHEET

<u>S/RO</u>	<u>34.EO.003.151</u>	<u>3</u>	<u>10/25/07</u>	<u>288000</u>	<u>K4.02</u>	<u>3.7/3.8</u>
Appl.	JPM Number	Rev. No.	Date	NUREG 1123	K/A No.	K/A
To				Sys. No.		Imp.

Task Title: Re-establish RB HVAC in Accordance With ES-134-003 (Alternate Path)

Completed By: _____ Validated: 9/23/07

<u>Chuck Hess</u>	<u>10/25/07</u>
Writer	Date
Date	Instructor/Writer

Approval:

Nuclear Trng. Supv.
Date

	<u>20</u>	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By: _____

Student Name: _____

Last	First	M.I.	Employee # / S.S. #
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Performance Evaluation: () Satisfactory () Unsatisfactory

Evaluator Name: _____

Signature	Typed or Printed
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Comments:

**REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 34.EO.003.151**

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-134-003, Re-establishing Reactor Building HVAC (rev. 10)

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

- A. The Plant has experienced a loss of normal feed and makeup. The Reactor is shut down, with water level at -65", pressure is 900 psig.
- B. A primary and secondary containment isolation has occurred due to level being < -38". The isolations are verified to be completed IAW ON-159-002.
- C. RPV control is IAW EO-100-102. Primary containment parameters are all normal (i.e., pressure, temperature and suppression pool level).
- D. EO-100-104, Secondary Containment Control, has been entered due to Zone I HVAC not being in service for four hours.
- E. HPCI is unavailable, RCIC is being restored and expected to be lined up feeding the vessel in approximately 30 minutes. RCIC had been down for repairs, which are now complete.
- F. Both loops of ESW are in service.
- G. A control structure chiller is in service.
- H. All Individual room cooler fans are running.
- I. Service water is available

V. INITIATING CUE

- A. Re-establish Reactor Building HVAC in accordance with ES-134-003, Re-establishing Reactor Building HVAC.

VI. TASK STANDARD

Zone 1 ISO SIGNALS LOCKOUT RELAYS re-tripped.

VII. TASK SAFETY SIGNIFICANCE

Maintain Secondary containment integrity.

PERFORMANCE CHECKLIST
 Appl. To: S/RO JPM No.: _____ Student Name: _____

Step	Action	Standard	Eval	Comments
	<u>EVALUATOR NOTE</u> <ul style="list-style-type: none"> Establish task conditions as directed on attached setup instructions. 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. 			
1	Obtains controlled copy of procedure	Obtains controlled copy of ES-134-003, Re-establishing Reactor Building HVAC		
	<u>EVALUATOR NOTE</u> <p>It will not be necessary to obtain any of the required equipment in the next step. This JPM deals with the control room actions ONLY.</p>			
2	Reviews, required equipment, precautions and limitations	Identifies Shift managers office as the location for obtaining the special equipment.		
	<u>EVALUATOR CUE</u> <p>Inform the student that any required equipment will be SIMULATED.</p>			
3	Ensure Service Water is available for restoration of Reactor Building chillers prior to bypassing isolations.	From initiating cue, determines: Service Water is available		

PERFORMANCE CHECKLIST

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

Step	Action	Standard	Eval	Comments
4	<p>Ensure following conditions exist:</p> <p>Both loops of ESW in operation in accordance with OP-054-001.</p> <p>Control Structure Chiller in operation in accordance with OP-030-001.</p> <p>All individual room cooler fans that have cooling source in operation in accordance with OP-134-002.</p>	<p>From initiating cue, determines:</p> <p>Both loops of ESW in operation</p> <p>A control structure chiller is in service</p> <p>All Individual room cooler fans are running</p>		

PERFORMANCE CHECKLISTAppl. To: S/RO

JPM No.: _____

Student Name: _____

Step	Action	Standard	Eval	Comments
5	<p>With Reactor Building HVAC isolation signal present, Perform following to bypass High Drywell Pressure/Low RPV Water Level HVAC Interlocks:</p> <p>Confirm automatic actuations per Attachment A.</p>	<p>Verifies RED light LIT and AMBER light NOT LIT for the following:</p> <p>RECIRC SYS TO ZONE I SUP SYS DMP HD-17657A</p> <p>ZONE I EXH SYS TO RECIRC SYS DMP HD-17602A</p> <p>ZONE I FILT EXH TO RECIRC SYS DMP HD-17601A</p> <p>RECIRC SYS TO ZONE I SUP SYS DMP HD-17657B</p> <p>ZONE I EXH SYS TO RECIRC SYS DMP HD-17602B</p> <p>ZONE I FILT EXH TO RECIRC SYS DMP HD-17601B</p> <p>Verifies RED light NOT LIT and AMBER light LIT for the following:</p> <p>ZONE I EXH SYS ISOLATION DMP HD-17576A</p> <p>ZONE I EQUIP COMPT EXH SYS DMP HD-17524A</p> <p>ZONE I SUPP SYS ISOLATION DMP HD-17586A</p> <p>ZONE I EXH SYS ISOLATION DMP HD-17576B</p> <p>ZONE I EQUIP COMPT EXH SYS DMP HD-17524B</p> <p>ZONE I SUPP SYS ISOLATION DMP HD-17586B</p>		

PERFORMANCE CHECKLISTAppl. To: S/RO

JPM No.: _____

Student Name: _____

Step	Action	Standard	Eval	Comments
6*	Restore reactor building zone 1 ventilation: On 1C681 Heat & Ventilation Control Panel, Place ZONE 1 HVAC LOCA ISO BYPASS HS 17551A keylock switch to BYPASS	Inserts key and Places ZONE 1 HVAC LOCA ISO BYPASS HS 17551A keylock switch to BYPASS		
7	Observe Zone 1 HVAC LOCA ISO BYPASSED annunciator AR-127 D09 alarms.	Verifies: Zone 1 HVAC LOCA ISO BYPASSED annunciator AR-127 D09 alarms.		
8*	On 1C681 Heat & Ventilation Control Panel, Place Zone 1 HVAC LOCA ISO BYPASS HS-17551B keylock switch to BYPASS.	Inserts key and Places ZONE 1 HVAC LOCA ISO BYPASS HS 17551B keylock switch to BYPASS		
9	Observe Zone 1 HVAC LOCA ISO BYPASSED annunciator AR-128 D09 alarms.	Verifies: Zone 1 HVAC LOCA ISO BYPASSED annunciator AR-128 D09 alarms.		
10*	On 0C681 Heat & Ventilation Panel, Reset following lockout relays: Zone 1 ISO SIGNALS LOCKOUT RELAY XY07551A. Zone 1 ISO SIGNALS LOCKOUT RELAY XY07551B. <u>FAULT STATEMENT</u> THE ZONE 1 FANS DO NOT RETURN TO NORMAL OPERATION.	Turns the following lockout relays clockwise UNTIL they remain in the vertical position: Zone 1 ISO SIGNALS LOCKOUT RELAY XY07551A. Zone 1 ISO SIGNALS LOCKOUT RELAY XY07551B.		

PERFORMANCE CHECKLIST

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

Step	Action	Standard	Eval	Comments
11	<p>Ensure Reactor Building Ventilation System Division I and Division II fans for Zone 1 return to normal operation in accordance with OP-134-002.</p> <p><u>EVALUATOR CUE</u></p> <p>Role-play the RB NPO and inform the student that both RB ventilation fans are tripped, and neither can be restarted.</p>	<p>Verifies:</p> <p>RB Zone 1 NO Vent AR-127-C09 is STILL LIT</p> <p>Contacts the RB NPO to determine the status of the RB Ventilation system</p>		
12★	<p>If Reactor Building HVAC still not operating, Restore line up as follows:</p> <p>On 1C681 Heat & Ventilation Control Panel, Place ZONE 1 HVAC LOCA ISO BYPASS HS-17551A keylock switch to NORMAL.</p>	<p>Places ZONE 1 HVAC LOCA ISO BYPASS HS-17551A keylock switch to NORMAL.</p>		
13	<p>Observe Zone 1 ISO SIGNALS LOCKOUT RELAY XY07551A trips.</p>	<p>Verifies:</p> <p>Zone 1 ISO SIGNALS LOCKOUT RELAY XY07551A - pointing to ~ 10 o'clock position with the RED semaphore visible</p>		
14	<p>Zone 1 HVAC LOCA ISO BYPASSED alarm AR-127 D09 clears.</p>	<p>Verifies:</p> <p>Zone 1 HVAC LOCA ISO BYPASSED alarm AR-127 D09 - SLOW FLASHING</p>		
15★	<p>On 1C681 Heat & Ventilation Control Panel, Place Zone 1 HVAC LOCA ISO BYPASS HS-17551B keylock switch to NORMAL.</p>	<p>Places ZONE 1 HVAC LOCA ISO BYPASS HS-17551B keylock switch to NORMAL.</p>		

PERFORMANCE CHECKLIST

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

Step	Action	Standard	Eval	Comments
16	Observe Zone 1 ISO SIGNALS LOCKOUT RELAY XY07551B trips.	Verifies: Zone 1 ISO SIGNALS LOCKOUT RELAY XY07551B - pointing to ~ 10 o'clock position with the RED semaphore visible		
17	Observe Zone 1 HVAC LOCA ISO BYPASSED alarm AR 128 D09 clears.	Verifies: Zone 1 HVAC LOCA ISO BYPASSED alarm AR-128 D09 - SLOW FLASHING		
18	Notify Technical Support Coordinator that EP-PS-102 must be performed to determine additional actions required to restart HVAC or shed electrical loads to reduce heat load. <u>EVALUATOR CUE</u> Role-play the TSC coordinator, and acknowledge the request.	Contacts TSC Coordinator and request EP-PS-102 to be performed.		
19	Do Not Proceed with this procedure. <u>EVALUATOR CUE</u> That completes this JPM	Determines the procedure must be stopped at this point.		

TASK CONDITIONS

- A. The Plant has experienced a loss of normal feed and makeup. The Reactor is shut down, with water level at -65", pressure is 900 psig.
- B. A primary and secondary containment isolation has occurred due to level being < -38". The isolations are verified to be completed IAW ON-159-002.
- C. RPV control is IAW EO-100-102. Primary containment parameters are all normal (i.e., pressure, temperature and suppression pool level).
- D. EO-100-104, Secondary Containment Control, has been entered due to Zone I HVAC not being in service for four hours.
- E. HPCI is unavailable, RCIC is being restored and expected to be lined up feeding the vessel in approximately 30 minutes. RCIC had been down for repairs, which are now complete.
- F. Both loops of ESW are in service.
- G. A control structure chiller is in service.
- H. All Individual room cooler fans are running.
- I. Service water is available

INITIATING CUE

Re-establish Reactor Building HVAC in accordance with ES-134-003, Re-establishing Reactor Building HVAC.

PPL SUSQUEHANNA, LLC
JOB PERFORMANCE MEASURE
APPROVAL AND ADMINISTRATIVE DATA SHEET

<u>S/RO</u>	<u>64.OP.004.154</u>	<u>0</u>	<u>11/27/07</u>	<u>202002</u>	<u>A2.05</u>	<u>3.8/4.0</u>
Appl.	JPM Number	Rev. No.	Date	NUREG 1123	K/A No.	K/A
To				Sys. No.		Imp.

Task Title: Reset Recirculation Pump limiter #2 Runback IAW ON-164-002 (A RRP)

Completed By: _____ Validated: 9/23/07

_____ Writer	_____ Date	_____ Instructor/Writer	_____ Date
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Approval:

_____ Nuclear Trng. Supv.	_____ Date
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_____ Date of Performance:	<u>20</u> Validation Time (Min.)	_____ Time Taken (Min.)
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JPM Performed By: _____

Student Name: _____

Last	First	M.I.	Employee # / S.S. #
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Performance Evaluation: () Satisfactory () Unsatisfactory

Evaluator Name: _____

Signature	Typed or Printed
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Comments: _____

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 64.OP.004.154

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-164-002, Loss Of Reactor Recirculation Flow (Rev. 25)
AR-102-001, Reactor Recirculation System 1C651 (Rev 24)

III. OPERATIONAL ACTIVITIES

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

36 Reset recirc pump runback

IV. TASK CONDITIONS

- A. The plant is in Mode 1.
- B. A trip of CWP 1D has caused a Reactor Recirculation runback to occur.
- C. NO Operator actions have been taken.

V. INITIATING CUE

Respond to a loss of reactor recirculation flow and reset "A" recirculation pump runback in accordance with appropriate Off Normal procedure.

VI. TASK STANDARD

Recirc pump limiter #2 reset and scoop tube locked for A recirc pump

VII. TASK SAFETY SIGNIFICANCE

Inability to reset limiter would prevent control and increase of Recirculation Pumps speed.

Failure to recognize a failure of the speed control for Recirculation Pump would allow a power excursion and potential scram.

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 64.OP.004.154

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTES:</u></p> <ul style="list-style-type: none"> This JPM must be performed in the simulator. Establish following conditions: From a Mode 1 IC, trip the D circ water pump and allow plant to stabilize. Insert file IMF cmfPM03_1P501B (or use a preset IC) Activate and verify event trigger: ET_iloJPM64 or create an event trigger off 1C651 Panel graphic switch 1S12BRST and assign to IMF cmfCN03_SYB311R621A d:2 f:100. <p>Event trigger : When limiter #2 on A RRP is reset, controller fails upscale after 2 seconds</p> <ul style="list-style-type: none"> 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. 			
1	Obtain a controlled copy of ON-164-002, Loss Of Reactor Recirculation Flow.	Controlled copy obtained.		
2	Record date and time of event.	Records date and time of event.		
	<p><u>EVALUATOR NOTE:</u></p> <p>Candidate may mark procedure steps 3.1 and 4.2 as N/A</p>			

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 64.OP.004.154

Student Name: _____

Step	Action	Standard	Eval	Comments
3	Selects the correct section to perform.	Selects section 4.3.		
4	In the event of Reactor Recirculation Pump runback: Plot position on Power/Flow Map.	Plot position on Power/Flow Map. Determines NOT to be in Region 1 or 2.		
5	Ensure a Non-Peripheral Control Rod selected. AND Monitor LPRM's for Limit Cycle Oscillations	Verifies on the full-core display that a Non-Peripheral Control Rod is selected AND Monitors LPRM's for Limit Cycle Oscillations		
6	Perform appropriate action specified in ON-178-002	Determines NO action required for current region.		
7	Determine which limiter initiated runback. Limiter #1 (30%) limiting by Green light ILLUMINATED above RX RECIRC LIMITER #1 RUNBK RESET HS-B31-1S15A(B) pushbutton Limiter #2 (48%) limiting by Green light ILLUMINATED above LOSS OF FW PP RUNBK RESET HS-B31-1S12A(B) pushbutton.	Verifies: RX RECIRC LIMITER #1 RUNBK RESET HS-B31-1S15A(B) Green lights NOT LIT. Verifies: LOSS OF FW PP RUNBK RESET HS-B31-1S12A(B) Green lights LIT.		

* = Critical Step

= Critical Sequence

FORM NTP 01-01-00 Rev. 0-0-00

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 64.OP.004.154

Student Name: _____

Step	Action	Standard	Eval	Comments
8	<p>Ensure both pumps have run back to value associated with controlling limiter.</p> <p><u>CAUTION (1)</u></p> <p>As core flow decreases, core flux instabilities are more likely to occur.</p> <p><u>CAUTION (2)</u></p> <p>Power Reduction Will Further Reduce Amount Of Feedwater Heating Which Will Cause Reactor Power To Increase.</p>	<p>For RRP A verifies:</p> <p>Input meter SY-B31-1R621A is ~48%</p> <p><u>OR</u></p> <p>Gen 1A Speed is ~48 % on SI-14032A and Gen 1A Demand is ~48% on XI-14032A.</p> <p>AND</p> <p>For RRP B verifies:</p> <p>Input meter SY-B31-1R621B is ~48%</p> <p><u>OR</u></p> <p>Gen 1B Speed is ~48% on SI-14032B and Gen 1B Demand is ~48% on XI-14032B.</p>		
9	Continue Monitoring position on Power/Flow map.	Plot position on Power/Flow map for changes in reactor power or core flow.		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 64.OP.004.154

Student Name: _____

Step	Action	Standard	Eval	Comments
10	<p>On 1C600, Monitor the following:</p> <p>Main Steam Line Radiation Monitor, RR-D12-1R603.</p> <p>Offgas Pretreatment Log Radiation Monitor, RR-D12-1R601.</p> <p><u>EVALUATOR CUE:</u></p> <p>Inform candidate that the radiation level were at their 100% reactor power values and have now lowered and stabilized at the values indicated.</p>	<p>Monitors the following:</p> <p>Main Steam Line Radiation Monitor, RR-D12-1R603.</p> <p>Offgas Pretreatment Log Radiation Monitor, RR-D12-1R601.</p> <p>Determines values are NORMAL for this power level.</p>		
11	<p>IF Main Steam Line Radiation Monitor or Offgas Pretreatment Log Radiation Monitor increases, Direct Chemistry to sample per CH-ON-003.</p>	<p>Determines Chemistry notification is NOT required.</p>		

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 64.OP.004.154

Student Name: _____

Step	Action	Standard	Eval	Comments
12	Observe following plant parameters WITHIN LIMITS corresponding to new power level: a. Power to flow limits b. Condenser vacuum c. Feedwater flow/steam flow d. RPV water level	Observes the following plant parameters WITHIN LIMITS corresponding to new power level: a. Power to flow limits b. Condenser vacuum c. Feedwater flow/steam flow d. RPV water level Determines WITHIN LIMITS for the new power level.		
13	Determine signal that initiated runback. Limiter #1 (30%) runback initiated by any following condition: Total feedwater flow $\leq 20\%$ for > 15 seconds. RECIRC PUMP A(B) DSCH HV-143-F031A(B) <u>not</u> fully open. RPV water level $<$ level 3 Limiter #2 (48%) runback initiated by: Any Circulating Water Pump protective trip RPV low water level (+ 30") and any of following Feedwater flow A, B, or C decrease to $\leq 20\%$. Any Condensate Pump discharge pressure ≤ 100 psig. Auto isolation of Feedwater Heaters String A, B or C due to high level in Feedwater Heaters 1 or 2.	Determines: Limiter #2 (48%) runback initiated by Circulating Water Pump 1D protective trip.		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 64.OP.004.154

Student Name: _____

Step	Action	Standard	Eval	Comments
14	<p><u>EVALUATOR NOTE:</u></p> <p>CWP 1D trip was given in initial conditions.</p> <p>Ensure REACTOR RECIRC PUMP A(B) SPEEDS SY-B31-1R621A(B) IN MANUAL.</p> <p>NOTE:</p> <p>PICSY group display MGA(MGB) can be used to display computer points listed in procedure. The VM600 program and Bentley Nevada provide the most accurate indications of Recirc pump speed.</p> <p><u>EVALUATOR CUE:</u></p> <p>Inform candidate that the STA will monitor VM600, "Hummingbird" speed indication</p> <p><u>EVALUATOR NOTE:</u></p> <p>Student may mark procedure step 4.3.13 as N/A</p>	<p>Verifies amber M (manual) light LIT on the following:</p> <p>Reactor Recirc Pump A SY-B31-1R621A</p> <p>Reactor Recirc Pump B SY-B31-1R621B</p>		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 64.OP.004.154

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>CAUTION(1)</u></p> <p>When establishing control with the recirc pump speed controllers, minimize lowering core flow to avoid inadvertent entry into Regions I or II of the power/flow map.</p> <p><u>CAUTION(2)</u></p> <p>TRA040(TRA041), M/G set A(B) controller out, should closely match TRA042(TRA043), M/G set A(B) M/A station out, prior to resetting Recirc pump runback. If these points do not closely match, TRA040(TRA041) will converge to TRA042(TRA043), resulting in a change in pump speed following the reset.</p> <p><u>EVALUATOR NOTE:</u></p> <p>If minor speed oscillations occur for RRP A, acknowledge candidate concerns and direct candidate to continue with FW PP Runback Resets. Speed oscillations will be addressed subsequent to the reset.</p> <p><u>EVALUATOR CUE:</u></p> <p>If necessary provide candidate with INITIAL recirc pump RPM select MPS (Monitored Parameter Summary) to view speed values. Booth operator to provide to examiner when student requests speeds. (IMP RRN1P401A and IMP RRN1P401B)</p>			

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 64.OP.004.154 Student Name: _____

Step	Action	Standard	Eval	Comments
*15	<p>For Limiter #2 runback Perform following for one or both pumps as required:</p> <p>BEFORE resetting runback, Ensure positive control of Recirc pump by:</p> <p>Depressing REACTOR RECIRC PUMP A speed SY B31 1R621A Controller demand to lower speed.</p> <p>AND</p> <p>Observing a change in TRA044 M/G Set A scoop tube position, concurrent with a decrease in GEN 1A Speed AND Loop 1A Drive Flow.</p> <p><u>EVALUATOR CUE:</u></p> <p>If necessary provide candidate with recirc pump RPM select MPS (Monitored Parameter Summary) to view speed values. Booth operator to provide to examiner when student requests speeds. (IMP RRN1P401A and IMP RRN1P401B)</p> <p>Candidate may observe loop flow to confirm control.</p>	<p>For RRP A:</p> <p>Depresses the DEC pushbutton on Reactor Recirc Pump A</p> <p>SY-B31-1R621A controller until Gen 1A Demand XI-14032A and Gen 1A Speed SI-14032A start to decrease.</p> <p>AND</p> <p>Verifies:</p> <p>TRA044 M/G Set A scoop tube position changing, concurrent with a decrease in GEN 1A Speed AND Loop 1A Drive Flow.</p>		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 64.OP.004.154

Student Name: _____

Step	Action	Standard	Eval	Comments
	<u>FAULT STATEMENT:</u> RRP A WILL EXPERIENCE AN UNCONTROLLED SPEED INCREASE AFTER THE CANDIDATE HAS RESET THE RUNBACK.			
*16	Depress LOSS OF FW PP RUNBK RESET HS-B31-1S12A pushbutton.	Depresses LOSS OF FW PP RUNBK RESET HS-B31-1S12A pushbutton.		
17	Monitor GEN 1A speed.	Monitor GEN 1A SPEED SI-14032A. Determines RRP A speed is increasing.		
*18	IF speed increases rapidly, Trip scoop tube on affected generator by depressing SCOOP TUBE A LOCK OR RESET HS-B31-1S03A TRIP pushbutton.	Depresses the SCOOP TUBE A LOCK OR RESET HS-B31-1S03A TRIP pushbutton. AND Verifies annunciator AR-102-D02, RECIRC MG A SCOOP TUBE DRIVE LOCK is LIT.		
19	Observe Green light above LOSS OF FW PP RUNBK RESET HS-B31-1S12A pushbutton EXTINGUISHED.	Verifies: LOSS OF FW PP RUNBK RESET HS-B31-1S12A pushbutton Green light NOT LIT.		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLIST

Appl. To: S/RO

JPM No.: 64.OP.004.154

Student Name:

Step	Action	Standard	Eval	Comments
20	<p>Check annunciator status.</p> <p><u>EVALUATOR CUE:</u></p> <p>This completes the JPM.</p>	<p>Verifies annunciator SLOW FLASH for :</p> <p>AR-102-C01 RECIRC A FLOW LIMIT RUNBACK.</p>		

* = Critical Step

= Critical Sequence

ASK CONDITIONS

- A. The plant is in Mode 1.
- B. A trip of CWP 1D has caused a Reactor Recirculation runback to occur.
- C. NO Operator actions have been taken.

INITIATING CUE

Respond to a loss of reactor recirculation flow and reset “A” recirculation pump runback in accordance with appropriate Off Normal procedure.

PPL SUSQUEHANNA, LLC
JOB PERFORMANCE MEASURE
APPROVAL AND ADMINISTRATIVE DATA SHEET

<u>S/RO</u>	<u>51.OP.002.153</u>	<u>0</u>	<u>11/27/07</u>	<u>209001</u>	<u>A4.01</u>	<u>3.8/3.6</u>
Appl.	JPM Number	Rev. No.	Date	NUREG 1123	K/A No.	K/A
To				Sys. No.		Imp.

Task Title: Perform Manual Startup Component By Component Of Core Spray System IAW OP-151-001 (with C Core Spray Pump Trip)

Completed By: _____ Validated: 11/15/07

<u>Paul Moran</u>	<u>11/27/07</u>		
Writer	Date	Instructor/Writer	Date

Approval:

Nuclear Trng. Supv. Date

	<u>20</u>	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By: _____

Student Name: _____

Last	First	M.I.	Employee # / S.S. #
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Performance Evaluation: () Satisfactory () Unsatisfactory

Evaluator Name: _____

Signature	Typed or Printed
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Comments:

**REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 51.OP.002.153**

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-151-001, Core Spray System (Rev. 28)

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

- A. The Core Spray System is aligned for automatic initiation in accordance with OP-151-001.
- B. A LOCA has occurred.
- C. Adequate Core Cooling is assured.
- D. Generator lockouts have been reset.
- E. CS System failed to auto initiate.

V. INITIATING CUE

Manually start "A" Core Spray Loop and inject to maximum flow.

VI. TASK STANDARD

The "A" loop of core spray injecting into the RPV.

VII. TASK SAFETY SIGNIFICANCE

Initiate adequate core heat removal.

Failure to perform this task could result in inadequate core decay heat removal and possible fuel clad damage.

PERFORMANCE CHE 3T

Appl. To: S/RO

JPM No.: 51.OP.002.153

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u></p> <ul style="list-style-type: none"> • This JPM must be performed in the simulator. • Establish task conditions as directed on attached setup instructions. This JPM must be performed with low RPV pressure conditions (<50 psig) for proper injection. IC-386, Ensure ETILOJPM51 available (Trips C CS pump ~45 sec after HV-152F005A valve throttled for full flow) • The FAULTED step in this JPM is preceded by a fault statement in BOLD TYPE WITH ALL CAPITAL LETTERS. • When candidate is ready to begin JPM, place the simulator in RUN. 			
1	Locates procedure and refers to appropriate section.	Obtains procedure OP-151-001 Core Spray System and refers to section 2.3.		
2	Reviews prerequisites and precautions.	Reviews prerequisites and precautions.		

* = Critical Step

= Critical Sequence

PERFORMANCE CHE STAppl. To: S/ROJPM No.: 51.OP.002.153

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p>NOTE:</p> <p>Normally Core Spray System is a fully automatic system. However, if automatic initiation fails, or if water needs to be injected into vessel, system can be manually initiated or started component by component. This section describes instructions for manual initiation or component by component startup of Core Spray System.</p> <p><u>FAULT STATEMENT</u></p> <p>LOOP A CORE SPRAY FAILS TO INITIATE WHEN THE MANUAL PUSHBUTTON IS ARMED AND DEPRESSED.</p> <p><u>EVALUATOR NOTE:</u></p> <p>The following annunciator alarms, AR-109-A01 (Core Spray Loop "A" Initiation Switch Armed).</p>			

* = Critical Step

= Critical Sequence

PERFORMANCE CHE 3T

Appl. To: S/RO

JPM No.: 51.OP.002.153

Student Name: _____

Step	Action	Standard	Eval	Comments
3	<p>For Core Spray manual initiation:</p> <p>Place Division 1 switch collar on CORE SPRAY LOOP A MAN INIT HS-E211S16A to ARMED.</p> <p>Observe CORE SPRAY LOOP A MAN INITIATION SWITCH ARMED annunciator ALARMS.</p> <p>Depress CORE SPRAY LOOP A MAN INIT HS-E211S16A push button.</p> <p>Observe CORE SPRAY LOOP A ACTUATED annunciator ALARMS. Initiate "A" Loop of Core Spray.</p> <p><u>EVALUATOR CUE</u></p> <p>Role-play Unit Supervisor acknowledge notification of division 1 Core Spray initiation failure.</p>	<p>Rotates the collar on Core Spray Loop "A" MAN INIT HS-E21-1S16A pushbutton to the ARMED position.</p> <p>Notes that AR-109-A01, Core Spray Loop "A" Man Init Switch Armed, annunciator alarms.</p> <p>Depress Core Spray Loop "A" MAN INIT HS -E21-1S16A pushbutton.</p> <p>Notes that Core Spray Loop "A" failed to initiate.</p> <p>Informs Unit Supervisor division 1 manual initiation has failed.</p> <p>Determines Manual Startup required for "A" Loop Core Spray.</p>		
4	Transitions to appropriate section of the procedure.	Moves to section 2.3.4 of procedure OP-151-001 Core Spray System.		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECK STAppl. To: S/ROJPM No.: 51.OP.002.153

Student Name: _____

Step	Action	Standard	Eval	Comments
	<u>EVALUATOR NOTE:</u> Manual startup component by component of "A" Loop of CS System will be accomplished in the following steps.			
K5	For manual startup component by component Start Core Spray Pump 1P206A and/or C	Place the HS for 1P206A and C to the START position. Verifies: Amber lights NOT LIT; Red lights LIT		
6	Open OR Check Open CORE SPRAY LOOP A OB INJ SHUTOFF HV-152F004A. Open or check open OB INJ SHUTOFF	Verifies HV-152-F004A open. Amber light NOT LIT Red light LIT		
7	WHEN Reactor pressure < 420 psig, Place LO RX PRESS PERM switch HS-15249A to BYPASS.	When Reactor pressure < 420 psig, Removes cover and places HS-15249A to BYPASS.		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECK STAppl. To: S/ROJPM No.: 51.OP.002.153

Student Name: _____

Step	Action	Standard	Eval	Comments
K8	Throttle Open CORE SPRAY LOOP A(B) IB INJ SHUTOFF HV-152F005A(B) to establish loop flow as follows: <90 amps and <7900 gpm for two pump operation (short term) <90 amps and <3950 gpm for one pump operations (short term) <u>OR</u> <6350 gpm for two pump operation. <3175 gpm for single pump operation.	Throttles open CORE SPRAY LOOP A IB INJ SHUTOFF HV-152-F005A to obtain: <90 amps and <7900 gpm for two pump operation (short term < 5 minutes) <u>AND</u> ≤ 6350 gpm on FI-E21-1R601A Verifies HV-152-F005A position: Red light - LIT		
9	WHEN flow to reactor vessel ≥ 635 gpm, Ensure CORE SPRAY LOOP A MIN FLOW HV-152F031A CLOSES.	Verifies CORE SPRAY LOOP A MIN FLOW HV-152-F031A closes by Verifying: Amber light LIT Red light NOT LIT		

* = Critical Step

= Critical Sequence

PERFORMANCE CHE STAppl. To: S/ROJPM No.: 51.OP.002.153

Student Name: _____

Step	Action	Standard	Eval	Comments
	<u>FAULT STATEMENT</u>			
	"C" CORE SPRAY PUMP TRIPS ~45 SEC AFTER ESTABLISHING FULL FLOW THROUGH THE HV-152-F005A VALVE			
10	Core Spray Pump "C" Trips Observe CORE SPRAY PUMP C TRIP annunciator ALARMS	Responds to AR-109-B04, Core Spray Pump C Trip annunciator.		
11	Ensure Core Spray Pump 1P206C tripped	Ensures Core Spray Pump 1P206C has tripped		
k12	Throttle Open CORE SPRAY LOOP A(B) IB INJ SHUTOFF HV-152F005A(B) to establish loop flow as follows: <90 amps and <7900 gpm for two pump operation (short term) <90 amps and <3950 gpm for one pump operations (short term) <u>OR</u> <6350 gpm for two pump operation. <3175 gpm for single pump operation.	Throttles CORE SPRAY LOOP A IB INJ SHUTOFF HV-152-F005A to obtain: <90 amps and <3950 gpm for one pump operation (short term < 5 minutes) <u>AND</u> <3175 gpm on FI-E21-1R601A Verifies HV-152-F005A position: Red light - LIT		Core Spray not needed for ACC.

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKAppl. To: S/ROJPM No.: 51.OP.002.153

Student Name: _____

Step	Action	Standard	Eval	Comments
13	<p>Check Core Spray Room Unit Coolers 1V211A and/or C AUTO STARTS indicated on Heating and Ventilation Panel 1C681.</p> <p><u>EVALUATOR CUE:</u></p> <p>This completes the JPM.</p>	<p>Ensure CS Unit Coolers 1V211A and C AUTO START as indicated on 1C681.</p> <p>Verifies:</p> <p>Red light LIT</p> <p>Amber and white lights NOT LIT</p>		

* = Critical Step

= Critical Sequence

TASK CONDITIONS

- A. The Core Spray System is aligned for automatic initiation in accordance with OP-151-001.
- B. A LOCA has occurred.
- C. Adequate core cooling is assured
- D. Generator lockouts have been reset.
- E. CS System failed to auto initiate.

INITIATING CUE

Manually start the "A" Core Spray Loop and inject at maximum flow.

PPL SUSQUEHANNA, LLC
JOB PERFORMANCE MEASURE
APPROVAL AND ADMINISTRATIVE DATA SHEET

<u>S/RO</u>	<u>84.ON.003.101</u>	<u>3</u>	<u>11/27/07</u>	<u>239001</u>	<u>A4.01</u>	<u>4.2/4.0</u>
Appl.	JPM Number	Rev.	Date	NUREG 1123	K/A No.	K/A Imp.
To		No.		Sys. No.		

Task Title: Main Steam Line Isolation and Quick Recovery in accordance with ON-184-001

Completed By:

Validated:

<u>Paul Moran</u>	<u>11/27/07</u>		
Writer	Date	Instructor/Writer	Date

Approval:

<u>Nuclear Trng. Supv.</u>	<u> </u>
	Date

	<u>20</u>	
<u>Date of Performance:</u>	<u>Validation Time (Min.)</u>	<u>Time Taken (Min.)</u>

JPM Performed By:

<u>Student Name:</u>				
	<u>Last</u>	<u>First</u>	<u>M.I.</u>	<u>Employee # / S.S. #</u>

Performance () Satisfactory () Unsatisfactory
Evaluation:

<u>Evaluator Name:</u>		
	<u>Signature</u>	<u>Typed or Printed</u>

Comments:

**REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 84.ON.003.101**

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 judgement of the evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

II. REFERENCES

- A. ON-184-001, MAIN STEAM LINE ISOLATION AND QUICK RECOVERY (Rev. 10)

III. OPERATIONAL ACTIVITIES

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

IV. TASK CONDITIONS

- A. An MSIV isolation and reactor scram occurred from 100% reactor power.
- B. The cause of the MSIV isolation was a faulty isolation logic surveillance test procedure.
- C. HPCI and/or RCIC injection is controlling reactor water level.
- D. Reactor pressure is controlled by manual SRV actuation.
- E. Restoration of normal steam loads and turbine bypass system is required for a reactor cooldown.

V. INITIATING CUE

Perform a quick recovery from a Main Steam Line Isolation and reopen the MSIVs.

VI. TASK STANDARD

MSIVs OPEN

VII. TASK SAFETY SIGNIFICANCE

Inability to reopen the MSIVs would eliminate a heat sink requiring additional unnecessary energy to be added to the Primary Containment.

PERFORMANCE CHECKLIST

Page 3 of 12

Appl. To/JPM No.: S/RO 84.ON.003.101

Student Name: _____

Step	Action	Standard	Eval	Comments
	EVALUATOR NOTE: <ul style="list-style-type: none"> This JPM should be performed in the Simulator. Establish task conditions as directed on attached setup instructions. When student is ready to begin JPM, place the Simulator in RUN. 			
1	Obtain a controlled copy of ON-184-001.	Obtains Control copy of ON-184-001.		
2	RECORD date and time of this event.			
*3	PLACE control switches for following to CLOSE: <ul style="list-style-type: none"> Mn Stm Line A IB Iso HV-141-F022A Mn Stm Line B IB Iso HV-141-F022B Mn Stm Line C IB Iso HV-141-F022C Mn Stm Line D IB Iso HV-141-F022D Mn Stm Line A OB Iso HV-141-F028A Mn Stm Line B OB Iso HV-141-F028B Mn Stm Line C OB Iso HV-141-F028C Mn Stm Line D OB Iso HV-141-F028D 	Places the control switch to CLOSE for the following: <ul style="list-style-type: none"> MN STM LINE A IB ISO HV-141-F022A MN STM LINE B IB ISO HV-141-F022B MN STM LINE C IB ISO HV-141-F022C MN STM LINE D IB ISO HV-141-F022D MN STM LINE A OB ISO HV-141-F028A MN STM LINE B OB ISO HV-141-F028B MN STM LINE C OB ISO HV-141-F028C MN STM LINE D OB ISO HV-141-F028D 		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Page 4 of 12

Appl. To/JPM No.: S/RO 84.ON.003.101

Student Name: _____

Step	Action	Standard	Eval	Comments
4	ENSURE Mn Stm Line IB Drain HV-141-F016 CLOSED.	Checks amber light LIT and red light NOT LIT for: • MN STM LINE IB DRAIN HV-141-F016		
5	ENSURE Mn Stm Line OB Drain HV-141-F019 CLOSED.	Checks amber light LIT and red light NOT LIT for: • MN STM LINE OB DRAIN HV-141-F019		
6	ENSURE Mn Stm Line Drain to Cdsr HV-141-F021 CLOSED.	Checks amber light LIT and red light NOT LIT for: • MN STM LINE IB DRAIN TO CDSR HV-141-F021		
7	ENSURE following TRIPPED: • Main Turbine • Reactor Feed Pump Turbine A • Reactor Feed Pump Turbine B • Reactor Feed Pump Turbine C	For the Main Turbine: • Checks Main Turbine trip annunciation ON • Red Main Turbine Trip status light is LIT and the green Reset status light is NOT LIT. For each RFP: • Checks RFP Trip annunciation LIT • Amber light is LIT and red light above the Trip & Reset switch NOT LIT		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Page 5 of 12

Appl. To/JPM No.: S/RO 84.ON.003.101

Student Name: _____

Step	Action	Standard	Eval	Comments
8	<p>If isolation due to EHC System malfunction:</p> <ul style="list-style-type: none"> • DEPRESS standby EHC Hyd Fluid Pump 1P113B(A) STOP push button. • DEPRESS operating EHC Hyd Fluid Pump 1P113A(B) STOP push button. • ENSURE Turbine main stop valves CLOSED. • ENSURE Turbine bypass valves CLOSED. 	<p>Determines the isolation was <u>not</u> due to an EHC system malfunction.</p> <p>(Based on initial conditions)</p>		
9	<p>CLOSE following by depressing Drip Leg Drn HS-10112 AUTO push button:</p> <ul style="list-style-type: none"> • Drip Leg Drn HV-10112A1. • Drip Leg Drn HV-10112B1. • Drip Leg Drn HV-10112C1. • Drip Leg Drn HV-10112D1. 	<p>Depresses the AUTO pushbutton on DRIP LEG DRN HS-10112.</p> <p>Checks white light LIT and red light NOT LIT.</p> <p>Checks amber light LIT and red light NOT LIT for :</p> <ul style="list-style-type: none"> • DRIP LEG DRAIN HV-10112A1 • DRIP LEG DRAIN HV-10112B1 • DRIP LEG DRAIN HV-10112C1 • DRIP LEG DRAIN HV-10112D1 		
10	<p>CLOSE BPV Hdr Drip Leg Drn Byps HV-10108A by depressing HS-10108A AUTO push button.</p>	<p>Depresses the AUTO pushbutton on HS-10108A to CLOSE HV-10108A.</p> <p>AND</p> <p>Verifies the white light is LIT and the red light is NOT LIT.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Page 6 of 12

Appl. To/JPM No.: S/RO 84.ON.003.101

Student Name: _____

Step	Action	Standard	Eval	Comments
11	CLOSE MSV Bst Drn HV-10101 A,B,C,D by depressing common CLOSE push button.	Depresses the CLOSE pushbutton for MSV BST DRN HV-10101A,B,C,D. AND Verifies amber light LIT and red light NOT LIT.		
*12	CLOSE SSE Mn Stm Sup CV HV-10703.	Depress and hold the CLOSE pushbutton for SSE MN STM SUP CV HV-10703. AND Verifies amber light LIT and red light NOT LIT.		
13	ENSURE SSE Mn Stm Sup Ln Drn HV-10767 CLOSED.	Verifies amber light LIT and red light NOT LIT for SSE MN STM SUP LN DRN HV-10767.		
14	ENSURE SSE Mn Stm Sup Ln Drn HV-10768 CLOSED.	Verifies amber light LIT and red light NOT LIT for SSE MN STM SUP LN DRN HV-10768.		
*15	CLOSE SSE Press Ctlr Iso HV-10704, <u>AND</u>	Depresses the CLOSE pushbutton for SSE PRESS CTRLR ISO HV-10704. AND Verifies amber light LIT and red light NOT LIT.		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Page 7 of 12

Appl. To/JPM No.: S/RO 84.ON.003.101

Student Name: _____

Step	Action	Standard	Eval	Comments
16	THROTTLE OPEN SSE Press Ctlr Byps HV-10705 to establish 0.25 to 0.50 psig on SSE Pressure PI-10723.	THROTTLE OPEN SSE PRESS CTLR BYPS HV-10705 to establish 0.25 to 0.5 psig on SSE Pressure indication PI-10723.		
	<u>EVALUATOR CUE:</u> After HV-10705 is throttled open several times inform the candidate PI-10723 is reading 0.4 psig	AND Verifies red and amber lights LIT for HV-10705.		
17	CLOSE Mn Stm SJAE Iso HV-10107.	Depress the CLOSE pushbutton for MN STM SJAE ISO HV-10107.		
	When directed by Shift Supervision AND initiating event is determined and cleared, RESET NSSSS Main Steam Line Isolation by depressing:	AND Verifies the amber light LIT and red light NOT LIT.		
	<u>EVALUATOR CUE:</u> As the Unit Supervisor direct resetting the NSSSS Main Steam Line Isolation.			
*18	Mn Stm Line Div 1 Iso Reset HS-B21-1S32 Reset push button.	Depresses the RESET pushbutton for: • MN STM LINE DIV 1 ISO RESET HS-B21-1S32.		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Page 8 of 12

Appl. To/JPM No.: S/RO 84.ON.003.101

Student Name: _____

Step	Action	Standard	Eval	Comments
*19	<p>Mn Stm Line Div 2 Iso Reset HS-B21-1S33 Reset push button.</p> <p>NOTE: If primary containment integrity in jeopardy, it is acceptable to open MSIV's (IB first) with $\Delta P > 200$ PSID. This action will not damage MSIV's. If conditions permit, equalizing around MSIV's is preferred.</p> <p><u>EVALUATOR CUE:</u> If asked by the candidate if primary containment is in jeopardy reply, " PRIMARY CONTAINMENT INTEGRITY IS IN JEOPARDY"</p>	<p>Depresses the RESET pushbutton for:</p> <ul style="list-style-type: none"> • MN STM LINE DIV 2 ISO RESET HS-B21-1S33. <p>AND</p> <p>Verifies that all 4 white status lights are LIT for the MSIV trip logic.</p> <p>Candidate asks if Primary Containment is in Jeopardy.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Page 9 of 12

Appl. To/JPM No.: S/RO 84.ON.003.101

Student Name: _____

Step	Action	Standard	Eval	Comments
*20	To OPEN IB MSIV's PLACE following control switches to AUTO: Mn Stm Line A IB Iso HV-141-F022A. Mn Stm Line B IB Iso HV-141-F022B. Mn Stm Line C IB Iso HV-141-F022C. Mn Stm Line D IB Iso HV-141-F022D.	Places the control switch to AUTO for: <ul style="list-style-type: none"> • MN STM LINE A IB ISO HV-141-F022A • MN STM LINE B IB ISO HV-141-F022B • MN STM LINE C IB ISO HV-141-F022C • MN STM LINE D IB ISO HV-141-F022D <p>AND</p> <p>Verifies amber light NOT LIT and red light LIT for each valve.</p>		
#21	ALIGN for steam line pressurization as follows: PLACE AC MOV OL Byps HS-B21-1S37A to TEST. PLACE DC MOV OL Byps HS-B21-1S37B to TEST.	Inserts key and rotates clockwise to place AC MOV OL BYPS HS-B21-1S37A to TEST. AND Verifies annunciator AR-111-H03, AC CONTN ISO VLVS IN TEST is LIT. Inserts key and rotates clockwise to place DC MOV OL BYPS HS-B21-1S37B to TEST. AND Verifies annunciator AR-112-H03, OUTBOARD ISOLATION VLVS IN TEST is LIT.		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Page 10 of 12

Appl. To/JPM No.: S/RO 84.ON.003.101

Student Name: _____

Step	Action	Standard	Eval	Comments
	OPEN Mn Stm Line IB Drain HV-141-F016.	Place switch to OPEN for MN STM LINE IB DRAIN HV-141-F016.		
		AND		
		Verifies amber light NOT LIT and red light LIT		
	OPEN Mn Stm Line OB Drain HV-141-F019.	Place switch to OPEN for MN STM LINE OB DRAIN HV-141-F019.		
		AND		
		Verifies amber light NOT LIT and red light LIT		
	ENSURE Mn Steam Line Warm Up HV-141-F020 OPEN.	Verifies red light LIT and amber light NOT LIT.		
	After 2 minutes, PLACE AC MOV OL Byps HS-B21-1S37A to NORM.	After 2 minutes, place the AC MOV OL BYPS HS-B21-1S37A to NORM.		
		AND		
		Verifies annunciator AR-111-H03, AC CONTN ISO VLVS IN TEST is NOT LIT		
	After 2 minutes, PLACE DC MOV OL Byps HS-B21-1S37B to NORM.	After 2 minutes, place the DC MOV OL BYPS HS-B21-1S37B to NORM.		
		AND		
		Verifies annunciator AR-112-H03, OUTBOARD ISOLATION VLVS IN TEST is NOT LIT		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Page 11 of 12

Appl. To/JPM No.: S/RO 84.ON.003.101

Student Name: _____

Step	Action	Standard	Eval	Comments
#22	<p>OBSERVE main steam line pressure INCREASING on Main Turbine Generator Recorder XR-19201.</p> <p><u>CAUTION</u> OPENING MSIV'S WITH LARGE DIFFERENTIAL PRESSURE WILL CAUSE RPV PRESSURE TO DROP RAPIDLY AND RPV LEVEL TO SWELL.</p>	<p>Verifies main steam line pressure INCREASING on Main Turbine Generator Recorder XR-19201.</p>		
#23	<p>When differential pressure across MSIVs is between 50 psid and 200 psid, OPEN OB MSIV's by PLACING following control switches to AUTO:</p> <p>Mn Stm Line A OB Iso HV-141-F028A</p> <p>Mn Stm Line B OB Iso HV-141-F028B</p> <p>Mn Stm Line C OB Iso HV-141-F028C</p> <p>Mn Stm Line D OB Iso HV-141-F028D</p>	<p>Compares RPV pressure with steam line pressure on XR-19201 until the d/p is between 50 and 200 psid</p> <p>AND</p> <p>When outboard MSIV d/p is between 50 and 200 psid, OPENS the outboard MSIVs by placing the control switch to AUTO for:</p> <ul style="list-style-type: none"> • MN STM LINE A OB ISO HV-141-F028A • MN STM LINE B OB ISO HV-141-F028B • MN STM LINE C OB ISO HV-141-F028C • MN STM LINE D OB ISO HV-141-F028D <p>AND</p> <p>Verifies amber light NOT LIT and red light LIT for each valve.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Page 12 of 12

Appl. To/JPM No.: S/RO 84.ON.003.101

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR CUE:</u></p> <p>When Main Steam Line pressure rises to 450 psig and the candidate verifies dP, Inform the candidate that the dP requirements have been met and the MSIVs may be opened</p> <p><u>EVALUATOR CUE:</u></p> <p>Inform the student the JPM is complete.</p>			

*Critical Step

#Critical Sequence

TASK CONDITIONS

- A. An MSIV isolation and reactor scram occurred from 100% reactor power.
- B. The cause of the MSIV isolation was a faulty isolation logic surveillance test procedure.
- C. HPCI and/or RCIC injection is controlling reactor water level.
- D. Reactor pressure is controlled by manual SRV actuation.
- E. Restoration of normal steam loads and turbine bypass system is required for a reactor cooldown.

INITIATING CUE

Perform a quick recovery from a Main Steam Line Isolation and reopen the MSIVs.

Comments:

**REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 16.OP.1357.152**

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. OP-149-004, RHR CONTAINMENT COOLING (Rev. 19) (Form OP-149-004-1 Rev. 5)
- B. OP-116-001, RHR SERVICE WATER (Rev. 26, PCAF 2004-3312)

OPERATIONAL ACTIVITIES

None

III. TASK CONDITIONS

- A. A steam leak in the drywell has occurred, and a reactor scram was performed.
- B. The Unit Supervisor has implemented the appropriate EOPs.
- C. ESW was placed in service
- D. Suppression chamber pressure is greater than 13 psig
- E. "A" Loop of RHR was OOS for maintenance prior to the transient and is unavailable.
- F. Both Reactor Recirc pumps are shutdown, and all drywell cooling fans have been stopped.
- G. Drywell sprays are required for High Drywell Temperature, in accordance with the EOPs

IV. INITIATING CUE

The Unit Supervisor has directed you to lineup to directly Spray the Drywell IAW the appropriate Hardcard.

VI. TASK STANDARD

Due to RHR Strainers clogged, drywell sprays will be performed using RHRSW as alternate containment spray in service at ~3000 gpm IAW OP-116-001.

VII. TASK SAFETY SIGNIFICANCE

Maintain Containment Integrity

• = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 16.OP.1357.152

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE</u></p> <p>This JPM setup may be created from any power IC. Simulate "A" Loop RHR OOS as follows:</p> <ul style="list-style-type: none"> • Close HV-149-F004A • Close HV-149-F004C • Close HV-149-F007A • Close HV-149-F017A • Run file batch1\RHB_RHRAOOS <p>Insert following malfunctions to simulate "B" Loop RHR Suction Strainers clogged:</p> <ul style="list-style-type: none"> • IMF mFRH149009B f:99.75 • IMF mFRH149009D f:99.75 <p>Insert IMF MS183007 5.0 MAIN STEAM LINE BREAK IN THE DRYWELL</p> <p>Place mode Switch to Shutdown. Control injection sources to maintain RPV level as necessary for performance of the JPM. Override HPCI.</p>			

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 16.OP.1357.152

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p>When suppression chamber pressure reaches 14 psig place the simulator to freeze.</p> <p>Delete steam leak DMF MS183007</p> <p>Ensure both reactor recirc pumps are shutdown and ALL drywell cooling fans placed to STOP</p> <p>Consider snapping an IC for multiple performances of this JPM.</p> <p>When candidate is ready to commence the JPM, place the simulator to RUN</p> <p>The FAULTED step in this JPM is preceded by a fault statement in BOLD TYPE WITH ALL CAPITAL LETTERS.</p>			Setup was snapped to IC385 for LOC-22 NRC Exam.
1	Candidate locates procedure.	<p>Obtains Hard Card.</p> <p>OP-149-004 RHR Operation in Containment Spray Mode Attachment A to initiate Suppression Chamber spray. (Form OP-149-004-1)</p>		
2	<p>(HC) IF available, Place Emergency Service Water System in operation supplying RHR Room Cooler and RHR Pump to be placed in service.</p> <p><u>EVALUATOR NOTE</u></p> <p>The white light above the reset switch will illuminate, and Annunciator AR-109-C05, LOCA Iso Switch Loop A Manual Override, will alarm in the next step.</p>	<p>Determines from initial conditions that ESW is already in service.</p>		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 16.OP.1357.152

Student Name: _____

Step	Action	Standard	Eval	Comments
*3	<p>(HC) IF LOCA signal present, Place HS-E11-1S17A LOCA ISOLATION MANUAL OVERRIDE Switch to OVERRIDE.</p> <p>Observe White Indicating Light ILLUMINATED above HS-E11-1S17A LOCA ISOLATION MANUAL OVERRIDE.</p> <p>Observe LOCA ISO SWITCH LOOP A MANUAL OVERRIDE (AR 109 C5) Annunciator alarms.</p>	<p>Obtains key, and inserts into LOCA Isolation Manual Override Switch HS-E11-1S17A.</p> <p>Places LOCA Isolation Manual Override Switch HS-E11-1S17A to the OVRD position.</p> <p>Verifies:</p> <p>The white light above the switch - LIT.</p> <p>Acknowledges:</p> <p>Annunciator AR-109-C05, LOCA ISO SWITCH LOOP A MANUAL OVERRIDE.</p>		
4	<p>EVALUATOR NOTE:</p> <p>If asked, direct candidate to lineup to spray the drywell directly without spraying the Suppression Chamber.</p> <p>(HC) Open HV-151-F028B SUPP CHMBR SPR TEST SHUTOFF.</p>	<p>Obtains key, and inserts into SUPP CHMBR SPR TEST SHUTOFF HV-151-F028B Switch, and places to OPEN position.</p> <p>Verifies:</p> <p>Amber light - NOT LIT.</p> <p>Red light - LIT.</p>		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLIST

Appl. To: S/RO

JPM No.: 16.OP.1357.152

Student Name:

Step	Action	Standard	Eval	Comments
5	(HC) Close HV-151-F017B RHR INJ FLOW CTL.	Places RHR INJ FLOW CTL HV-151-F017B Control Switch to CLOSE. Verifies: Amber light - LIT. Red light - NOT LIT.		
6	IF a RHR Pump not in service, Perform EITHER a OR b:	Verifies: 1P202A and 1P202C, as applicable Amber lights - LIT. Red lights - NOT LIT. Determines neither RHR pump is in service		
	EVALUATOR NOTE Candidate may start either 1P202A or 1P202C Pump.			
7	IF RHR loop pressure ≥ 50 PSIG, OR determined to be filled, Start 1P202A(C) RHR PUMP.	Verifies: INLET PRESS TO HX A PI-E11-1R606A1 Pressure Indicator is greater than 50 psig and determines RHR can be started.		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 16.OP.1357.152

Student Name: _____

Step	Action	Standard	Eval	Comments
	<u>FAULT STATEMENT</u>			
	RHR Suction Strainers are clogged and indications of severe cavitation due to insufficient NPSH will be evident once flow is commenced.			
*8	Start 'A' or 'C' RHR Pump.	Places RHR PUMP 1P202A or 1P202C Switch to START. Verifies: Amber light - NOT LIT. White light - LIT. Red light - LIT.		
*9	(HC) Open HV-151-F021B DRYWELL SPRAY INBD ISO.	Obtains key, and inserts into HV-151-F021B DRYWELL SPRAY INBD ISO Switch, and places to OPEN position. Verifies: Amber light - NOT LIT. Red light - LIT.		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 16.OP.1357.152

Student Name: _____

Step	Action	Standard	Eval	Comments
10	(HC) Ensure both RX Recirc Pumps, all DW Coolers and Fans are Shutdown.	Verifies Recirc pumps, all DW Coolers and Fans are Shutdown as stated in the Initial Task Conditions.		
11	EVALUATOR NOTE: As Unit Supervisor, direct the operator to Spray the Drywell, establish a flowrate BETWEEN 1000 AND 2800 GPM for the first 30 seconds.	Operator may report to Unit Supervisor, "Ready to Spray the Drywell" and wait for direction. Operator acknowledges the order to spray the drywell and the procedure limit.		
*12	(HC) Throttle HV-151-F016B DRYWELL SPRAY OB ISO, as necessary, to establish a flowrate BETWEEN 1000 AND 2800 GPM for the first 30 seconds as indicated on FI-15120B CONTN SPRAY DIV 2 <u>AND</u> maintain total loop flowrate \leq 10,000 gpm.	Obtains key, and inserts into HV-151-F016B DRYWELL SPRAY INBD ISO Switch, and places to OPEN position. Verifies: Amber light - NOT LIT. Red light - LIT. Throttle HV-151-F016B DRYWELL SPRAY OB ISO, as necessary, to establish a flowrate BETWEEN 1000 AND 2800 GPM for the first 30 seconds as indicated on FI-15120B CONTN SPRAY DIV 2 <u>AND</u> maintain total loop flowrate \leq 10,000 gpm.		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 16.OP.1357.152

Student Name: _____

Step	Action	Standard	Eval	Comments
*13	<p><u>EVALUATOR NOTE</u></p> <p>Role play as Unit Supervisor and acknowledge operator report. If asked direct the operator to place the system in a safe condition and stop spraying the drywell.</p> <p><u>EVALUATOR CUE</u></p> <p>For SRO candidates, ask them for their recommendation regarding Drywell Spray options.</p> <p>Role-play as Unit Supervisor and direct the candidate to spray the drywell using RHR Service water</p>	<p>Places HV-151-F016B DRYWELL SPRAY INBD ISO Switch, and places to CLOSE position.</p> <p>Verifies:</p> <p>Amber light - LIT.</p> <p>Red light – NOT LIT.</p>		
14	<p>Refers to appropriate procedure section.</p> <p>Reviews prerequisites</p>	<p>Refers OP-116-001 section 2.11</p> <p>Reviews prerequisites.</p>		

* = Critical Step

= Critical Sequence

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Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR CUE</u></p> <p>One of the prerequisites is for RHR to be overridden IAW OP-149-001. If necessary, Role-play the Unit Supervisor and inform the candidate that an NPO has been dispatched to Open the DC knife switches to further accomplish overriding RHR.</p>			
15	<p>Stop 'B' or 'D' RHR Pump.</p> <p>Ensure following CLOSED:</p> <p>HV 11210B Unit 1 RHRSW Hx B Inlet.</p> <p>HV 21210B Unit 2 RHRSW Hx B Inlet.</p>	<p>Places RHR PUMP 1P202B or 1P202D Switch to STOP.</p> <p>Verifies:</p> <p>Amber light - LIT.</p> <p>White light - LIT.</p> <p>Red light - NOT LIT.</p> <p>Verifies:</p> <p>HV 11210B Unit 1 RHRSW Hx B Inlet</p> <p>Amber light - LIT.</p> <p>Red light - NOT LIT.</p> <p>Contacts the Unit 2 PCOM and requests PCOM to report the position of HV 21210B Unit 2 RHRSW Hx A Inlet valve.</p>		

• = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 16.OP.1357.152

Student Name: _____

Step	Action	Standard	Eval	Comments
	<u>EVALUATOR CUE</u>			
	Role-play the Unit 2 PCOM and report that HV 21210B Unit 2 RHRSW Hx B Inlet. Is CLOSED			
16★	Close HV-151-F017B RHR Injection Ctl	Previously performed		
17	To prevent automatic reopening when LOCA override switch is placed to override, Ensure following Handswitches in CLOSE position:	Places SUPP CHMBR SPR TEST SHUTOFF HV-151-F028B Switch to CLOSE position.		
		Verifies:		
		Amber light -LIT.		
		Red light – NOT LIT.		
	HV 151 F028B Supp Chmbr Spr Test Shutoff.			
		Previously performed		
	HV 151 F016B Drywell Spray Iso OB.			
18	Momentarily Place HS-E11-1S17B LOCA Isolation Manual Override Keylock Switch to OVERRIDE.	Previously performed		
18	Observe following:	Previously performed		
	LOCA ISOLATION MANUAL OVERRIDE White Indicating Light ILLUMINATED.			
	LOCA ISO SWITCH LOOP A MANUAL OVERRIDE Annunciator ALARMED.			

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 16.OP.1357.152

Student Name: _____

Step	Action	Standard	Eval	Comments
20★	<p>WHEN directed to initiate alternate containment spray:</p> <p>Momentarily Place HS 11202B3 RHRSW Pump B LOCA Trip to RESET.</p> <p><u>CAUTION</u></p> <p>RHRSW Pump operation below 60 psig discharge pressure can cause pump runout.</p>	Places HS 11202B3 RHRSW Pump B LOCA Trip to RESET		
21★	Start 1P506B RHRSW Pump.	<p>Places 1P506B RHRSW Pump control switch to START</p> <p>Verifies:</p> <p>Amber light - NOT LIT.</p> <p>Red light - LIT.</p>		
22★	<p>Open following:</p> <p>HV 112F075B RHRSW Crosstie.</p> <p>HV 112F073B RHRSW Crosstie.</p>	<p>Places control switch for HV 112F075B and HV 112F073B RHRSW Crossties to OPEN</p> <p>Verifies:</p> <p>Amber light - NOT LIT.</p> <p>Red light - LIT.</p>		

* = Critical Step

= Critical Sequence

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Student Name: _____

Step	Action	Standard	Eval	Comments
	<u>EVALUATOR NOTE</u> The next step may have been previously performed prior to recognition and isolation of RHR leak.			
23★	To spray Drywell: Open HV 151 F021B Drywell Spray IB Iso.	Places control switch for HV 151 F021B Drywell Spray IB Iso. to OPEN Verifies: Amber light - NOT LIT. Red light - LIT.		
24★	For the first 30 seconds: Throttle HV 151 F016B Drywell Spray OB Iso, as necessary, to maintain between 1000 and 2800 gpm as indicated on FI 15120B Contn Spray Div 1.	Momentarily places control switch for HV 151 F016B Drywell Spray OB Iso, to OPEN UNTIL FI 15120B Contn Spray Div 1. indicates 1000 – 2800 gpm Verifies: Amber light - LIT. Red light - LIT. WAITS 30 seconds before continuing to adjust flow		

* = Critical Step

= Critical Sequence

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Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE</u></p> <p>In the next step, it will ONLY be possible to obtain ~ 3,000 gpm due to the size of the line being utilized. HV-151- F016B Drywell Spray OB Iso will need to be full OPEN .</p>			
25★	Throttle HV-151-F016B Drywell Spray OB Iso, as necessary, to maintain \leq 10,000 gpm as indicated on FI-15120B Contn Spray Div 1.	<p>Momentarily places control switch for HV-151-F016B Drywell Spray OB Iso, to OPEN</p> <p>UNTIL</p> <p>FI 15120B Contn Spray Div 1. indicates ~3,000 gpm</p> <p>Verifies:</p> <p>Amber light - NOT LIT.</p> <p>Red light - LIT.</p>		
26	Monitor Drywell pressure.	<p>Verifies:</p> <p>Drywell pressure DROPPING</p>		
	<p><u>EVALUATOR CUE</u></p> <p>That completes the JPM</p>			

* = Critical Step

= Critical Sequence

TASK CONDITIONS

- A. A steam leak in the drywell has occurred, and a reactor scram was performed.
- B. The Unit Supervisor has implemented the appropriate EOPs.
- C. ESW was placed in service
- D. Suppression chamber pressure is greater than 13 psig
- E. "A" Loop of RHR was OOS for maintenance prior to the transient and is unavailable.
- F. Both Reactor Recirc pumps are shutdown, and all drywell cooling fans have been stopped.
- G. Drywell sprays are required for High Drywell Temperature, in accordance with the EOPs.

INITIATING CUE

The Unit Supervisor has directed you to lineup to directly Spray the Drywell IAW the appropriate Hardcard.

PPL SUSQUEHANNA, LLC
JOB PERFORMANCE MEASURE
APPROVAL AND ADMINISTRATIVE DATA SHEET

<u>S/RO</u>	<u>64.OP.2139.101</u>	<u>0</u>	<u>11/21/07</u>	<u>202001</u>	<u>A2.01</u>	<u>3.7/3.7</u>
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A No.	K/A Imp.

Task Title: Startup Reactor Recirculation Pump IAW OP-164-001

Completed By:

Validated:

C. Michaels
Writer

11/21/07
Date

Instructor/Writer

Date

Approval:

Nuclear Trng. Supv.

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 64.OP.2139.101

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 judgement 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-164-001, Reactor Recirculation System (Rev. 47)

III. REACTIVITY MANIPULATIONS

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

NONE

IV. TASK CONDITIONS

- A. The plant is in Mode 4.
- B. "B" Loop Shutdown Cooling in service.
- C. RPV Level is being maintained at +90 inches.
- D. Preparations are in progress to perform a plant startup IAW GO-100-002
- E. Startup of the "A" Reactor Recirculation Pump (RRP) is in progress IAW OP-164-001.
- F. Turnover is in progress to continue the start of the "A" RRP.
- G. "B" RRP will not be started until the next shift.
- H. Prerequisites and Precautions of OP-164-001 Section 2.3.1 and 2.3.2 are satisfied.
- I. Conditions are met in OP-164-001 up to and including step 2.3.11.

V. INITIATING CUE

Perform a normal start of the 1A Reactor Recirculation Pump in accordance with OP-164-001 Section 2.3.

VI. TASK STANDARD

Startup the 1A Reactor Recirculation Pump in accordance with OP-164-001 Section 2.3.

VI. TASK SAFETY SIGNIFICANCE

A startup of a Reactor Recirculation pump is a significant change in equipment status and core circulation. In addition to the large motor start concerns, this pump start affects the reactor coolant and vessel metal temperatures. Not adhering to the procedure requirements could result in violating RPV vessel temperature limits and heatup rates.

This JPM can be performed with all rods inserted or at power. If performed at power, a reactor Recirculation pump start can also result in reactivity addition and power transient.

PERFORMANCE CHECKLIST

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Appl. To/JPM No.: S/RO 64.OP.2139.101

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTES:</u></p> <ul style="list-style-type: none"> • This JPM must be performed in the simulator. • Establish following conditions: <ol style="list-style-type: none"> 1) From a shutdown, e.g., SDC IC, ensure the "A" RRP shutdown. Ensure plant conditions and RPV Delta Temperatures are within limits for the pump start. 2) "A" RRP isolation valves closed except Discharge Bypass valve F032A which is normally open. 3) "A" RRP EOC-RPT breakers closed. 4) Support systems available to include RBCW and RBCCW valves open, 5) Ensure MG Set HVAC running IAW OP-133-002. 6) Ensure CRD system running 7) "A" RRP MG Set Lockouts reset. • There are no malfunctions or triggers required for this JPM. • When student is ready to begin JPM, place the simulator in RUN. 			

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

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Student Name: _____

Step	Action	Standard	Eval	Comments
1	<u>EVALUATOR NOTE:</u> In accordance with the task conditions, provide a marked up copy of OP-164-001 Section 2.3, with conditions met up to and including step 2.3.11	OP-164-001 actions reviewed as stated in the task conditions.		
*2	NOTE: Setting the REACTOR RECIRC PUMP A SPEED CONTROLLER SY-B31-1R621A demand to 5% will preclude the possibility of receiving a scoop tube lock, but is less than the demand value required for minimum speed. Ensure REACTOR RECIRC PUMP A SPEED SY-B31-1R621A controller in MANUAL with a speed setting of approximately 5%.	Ensures REACTOR RECIRC PUMP A SPEED SY-B31-1R621A controller in MANUAL with a speed setting of approximately 5%.		

*Critical Step

#Critical Sequence

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Student Name: _____

Step	Action	Standard	Eval	Comments
3	<p>Comply with TRO 3.8.2.1.</p> <p><u>EVALUATOR CUE:</u></p> <p>As Unit Supervisor and state that we have complied with TRO 3.8.2.1.</p> <p>Place RECIRC A MOV OL BYPS HV-143-F031A/ F032A switch to TEST position.</p> <p>Confirm RECIRC LOOP A DISCHARGE VALVES IN TEST annunciation ALARMS.</p> <p>Ensure RECIRC PUMP A SUCT HV-143-F023A OPEN.</p>	<p>Comply with TRO 3.8.2.1.</p> <p>Places RECIRC A MOV OL BYPS HV-143-F031A/ F032A switch to TEST position.</p> <p>Confirms RECIRC LOOP A DISCHARGE VALVES IN TEST annunciation ALARMS.</p> <p>Ensures RECIRC PUMP A SUCT HV-143-F023A OPEN.</p>		
*4	<p>Ensure RECIRC PUMP A SUCT HV-143-F023A OPEN.</p>	<p>Opens RECIRC PUMP A SUCT HV-143-F023A.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

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Appl. To/JPM No.: S/RO 64.OP.2139.101

Student Name: _____

Step	Action	Standard	Eval	Comments
5	<p><u>IF</u> RWCU SUCT LOOP A HV-144F100 closed for the purpose of isolating the RRP A, or as directed by ON-100-001, Open as follows:</p> <ul style="list-style-type: none"> • Reduce RWCU System flow to approximately 225 gpm. • Open RWCU SUCT LOOP A HV144F100 (HV144F106). • Restore RWCU System flow to its original flow. <p><u>EVALUATOR NOTE:</u> RWCU is in service, Student will N/A this step.</p>	Ensures RWCU is in service, Student will N/A this step.		

*Critical Step

#Critical Sequence

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Student Name: _____

Step	Action	Standard	Eval	Comments
6	<p>NOTE: As the temperature of the coolant increases above 50°F greater than the ambient, increased thermal shock and stress will be experienced by the discharge bypass line.</p> <p><u>EVALUATOR NOTE:</u></p> <p>Discharge Bypass Valve is OPEN in its normal position. Student will N/A this note and step.</p> <p>NOTE: In the following step, if the valve will be opened and the coolant temperature is >50°F above ambient, Notify the SE Reactor Recirculation Engineer.</p> <p>Ensure RECIRC PUMP A DSCH BYPS HV-143-F032A OPEN.</p>	Ensures RECIRC PUMP A DSCH BYPS HV-143-F032A OPEN.		
*7	Ensure RECIRC PUMP A DSCH HV-143-F031A CLOSED.	Ensures RECIRC PUMP A DSCH HV-143-F031A is CLOSED.		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

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Appl. To/JPM No.: S/RO 64.OP.2139.101

Student Name: _____

Step	Action	Standard	Eval	Comments
8	<p>Ensure Open CRD Water Supply to RRP A Seal Water Iso Valve 143F008A (28-719').</p> <p><u>EVALUATOR CUE:</u></p> <p>RRP A Seal Water Iso Valve 143F008A is OPEN.</p>	<p>Directs NPO to ensure Open CRD Water Supply to RRP A Seal Water Iso Valve 143F008A (28-719').</p>		
*9	<p>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).</p>	<p>Depresses 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).</p>		
10	<p>Observe RECIRC PUMP MOTOR A(B) HI VIBRATION annunciator not ALARMING.</p>	<p>Observes RECIRC PUMP MOTOR A(B) HI VIBRATION annunciator not ALARMING.</p>		
11	<p>Observe RECIRC MG A(B) SCOOP TUBE DRIVE LOCK annunciator not ALARMING.</p>	<p>Observes RECIRC MG A(B) SCOOP TUBE DRIVE LOCK annunciator not ALARMING.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

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Appl. To/JPM No.: S/RO 64.OP.2139.101

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u></p> <p>In preparation for pump start, the Student may ask to monitor "Hummingbird" a computer program that more accurately monitors Recirc pump speed.</p> <p>If asked, state that an additional operator is monitoring 1A RRP speed.</p> <p>If necessary provide candidate with recirc pump RPM select MPS (Monitored Parameter Summary) to view speed values. Booth operator to provide to examiner when student requests speeds. (IMP RRN1P401A and IMP RRN1P401B)</p> <p><u>EVALUATOR CUE:</u></p> <p>If asked to provide data following the pump start. Report as the additional operator that the 1A RRP is not operating in a critical speed region.</p>			

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

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Appl. To/JPM No.: S/RO 64.OP.2139.101

Student Name: _____

Step	Action	Standard	Eval	Comments
*12	<p>In Mode 1,2,3 or 4, within 15 minutes prior to recirculation pump start (SR 3.4.10.3 & SR 3.4.10.4):</p> <p>NOTE: If reactor vessel is pressurized, utilize steam dome temperature, Comp. Pt. NFA05. Otherwise, refer to SO-100-006, Attachment G for determining valid reactor coolant temperature indication.</p> <p>a. Record between bottom head coolant temperature and reactor pressure vessel coolant temperatures in Unit 1 log.</p> <p>b. Ensure ΔT between bottom head coolant temperature and reactor pressure vessel coolant temperature $\leq 145^{\circ}\text{F}$ (SR 3.4.10.3).</p> <p>c. <u>IF</u> both recirculation loops idle:</p> <p>Ensure ΔT between reactor coolant temperature in recirculation loop to be started and reactor pressure vessel coolant temperature $\leq 50^{\circ}\text{F}$ (SR 3.4.10.4).</p>	<p>Record between bottom head coolant temperature and reactor pressure vessel coolant temperatures in Unit 1 log (rough log is acceptable).</p> <p>Ensure ΔT between bottom head coolant temperature and reactor pressure vessel coolant temperature $\leq 145^{\circ}\text{F}$.</p> <p><u>IF</u> both recirculation loops idle:</p> <p>Ensure ΔT between reactor coolant temperature in recirculation loop to be started and reactor pressure vessel coolant temperature $\leq 50^{\circ}\text{F}$.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

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Student Name: _____

Step	Action	Standard	Eval	Comments
13	<p><u>EVALUATOR NOTE:</u></p> <p>The next step for one recirc loop in operation is N/A in this plant condition.</p> <p>2.4.24</p> <p>d. <u>IF</u> one recirculation loop in operation:</p>	<p>Student determines this step is N/A for plant conditions and marks up procedure accordingly.</p>		
14	<p><u>CAUTION (1)</u></p> <p>Starting recirculation pump while at power will result in insertion of positive reactivity.</p> <p><u>CAUTION (2)</u></p> <p>Starting a recirculation pump may cause a potential loss of lighting.</p> <p>Plot all power changes on Power/Flow Map.</p> <p>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".</p>	<p>Student acknowledges the CAUTION.</p> <p>This step is N/A for the shutdown plant conditions.</p> <p>Student makes a plant announcement to plant personnel regarding RRP start and lighting.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

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Student Name: _____

Step	Action	Standard	Eval	Comments
15	<p>NOTE (1): Time interval between pump start and opening of discharge valve should be minimized to preclude possible pump hydraulic bearing damage. On pump start vessel level will decrease. Vessel level control should be monitored until pump has completed starting sequence.</p> <p>NOTE (2): With motor windings at <u>ambient</u> temperature ($\leq 104^{\circ}\text{F}$), motor may be started and brought to speed <u>two</u> times in succession. With motor windings at <u>rated</u> temperature ($> 104^{\circ}\text{F}$), motor may be started and brought to speed once. Prior to any subsequent starts, contact system engineering.</p> <p>NOTE (3): If field breaker does not close within 27 seconds after drive motor breaker closes, drive motor breaker will open on incomplete sequence timer. Also if high current condition exists after 27 seconds, drive motor breaker will open on incomplete sequence timer.</p>	<p>Student reviews NOTE (1) and discusses expected plant response.</p> <p>Student acknowledges NOTE (2) for pump start limitations.</p> <p>Student reviews NOTE (3) to anticipate RRP pump start sequence.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

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Student Name: _____

Step	Action	Standard	Eval	Comments
*16	<p>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).</p> <p>Observe:</p> <ul style="list-style-type: none"> • 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. 	<p>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).</p> <p>Observes:</p> <ul style="list-style-type: none"> • 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. 		
*17	<p>WHEN GEN 1A SPEED indication and RECIRC A DRIVE FLOW indication reached settled state, approximately 40-60 seconds,</p> <p>Open RECIRC PUMP A DSCH HV-143-F031A.</p>	<p>WHEN GEN 1A SPEED indication and RECIRC A DRIVE FLOW indication reached settled state, approximately 40-60 seconds,</p> <p>Opens RECIRC PUMP A DSCH HV-143-F031A.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

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Student Name: _____

Step	Action	Standard	Eval	Comments
	<p align="center"><u>CAUTION</u></p> <p>When establishing 30% speed with the recirc pump speed controllers, pump speed should be maintained at approx. 500 RPM. Speed oscillations are possible when the pump is operated between 460 to 485 RPM.</p> <p><u>EVALUATOR NOTE:</u></p> <p>Following pump start, the Student may ask to monitor "Hummingbird" a computer program that more accurately monitors Recirc pump speed.</p> <p>If asked, state that an additional operator is monitoring 1A RRP speed.</p> <p>If necessary provide candidate with recirc pump RPM select MPS (Monitored Parameter Summary) to view speed values. Booth operator to provide to examiner when student requests speeds. (IMP RRN1P401A and IMP RRN1P401B).</p> <p><u>EVALUATOR CUE:</u></p> <p>If asked to provide pump speed following the pump start. Report as the additional operator that the 1A RRP is not operating in a critical speed region.</p>	<p>Student reviews the Caution and contacts the additional operator monitoring 1A Recirc Pump Speed.</p> <p>Student may refer to the OP-164-001 Attachment "A" for Recirc Pump Critical speed ranges.</p>		

***Critical Step**

#Critical Sequence

PERFORMANCE CHECKLIST

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Student Name: _____

Step	Action	Standard	Eval	Comments
18	<p>AFTER 2 minutes, Place RECIRC A(B) MOV OL BYPS HV-143-F031A(B)/F032A(B) switch to NORM position.</p> <p><u>EVALUATOR CUE:</u> 2 minutes have elapsed.</p> <p>Confirm RECIRC LOOP A(B) DISCHARGE VALVES IN TEST annunciation CLEAR.</p> <p><u>EVALUATOR CUE:</u> As Unit supervisor, role play that TRO 3.8.2.1 is cleared.</p> <p><u>EVALUATOR CUE:</u> This completes this JPM.</p>	<p>AFTER 2 minutes, Place RECIRC A(B) MOV OL BYPS HV-143-F031A(B)/F032A(B) switch to NORM position.</p> <p>Confirm RECIRC LOOP A(B) DISCHARGE VALVES IN TEST annunciation CLEAR.</p> <p>Contact the Unit Supervisor to clear TRO 3.8.2.1.</p>		

*Critical Step

#Critical Sequence

TASK CONDITIONS

- A. The plant is in Mode 4.
- B. "B" Loop Shutdown Cooling in service.
- C. RPV Level is being maintained at +90 inches.
- D. Preparations are in progress to perform a plant startup IAW GO-100-002
- E. Startup of the "A" Reactor Recirculation Pump (RRP) is in progress IAW OP-164-001.
- F. Turnover is in progress to continue the start of the "A" RRP.
- G. "B" RRP will not be started until the next shift.
- H. Prerequisites and Precautions of OP-164-001 Section 2.3.1 and 2.3.2 are satisfied.
- I. Conditions are met in OP-164-001 up to and including step 2.3.11.

INITIATING CUE

Perform a normal start of the 1A Reactor Recirculation Pump in accordance with OP-164-001 Section 2.3.

PPL SUSQUEHANNA, LLC
JOB PERFORMANCE MEASURE
APPROVAL AND ADMINISTRATIVE DATA SHEET

<u>S/RO</u>	<u>24.SO.002.151</u>	<u>3</u>	<u>11/25/07</u>	<u>264000</u>	<u>A2.01</u>	<u>3.5/3.6</u>
Appl.	JPM Number	Rev. No.	Date	NUREG 1123	K/A No.	K/A
To				Sys. No.		Imp.

Task Title: Perform The Monthly Diesel Generator Operability Test For "D" D/G IAW SO-024-001D

Completed By:

Validated: 10/5/07

Paul Moran

11/26/07

Writer

Date

Instructor/Writer

Date

Approval:

Nuclear Trng. Supv.

Date

<u>Date of Performance:</u>	<u>30/40</u>	<u>Time Taken (Min.)</u>
	Validation Time (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.SO.002.151**

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

- A. SO-024-001D, Monthly Diesel Generator D Operability Test (Rev. 1)
- B. AR-016-001, D/G D, ESW, RWMU, AND MISC LOAD CENTER 0C653 (Rev. 37)
- C. LA-0521-004, DIESEL GENERATOR D 0C521 (Rev. 15)

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

The Plant is in Condition 1.

- A. Perform the Monthly Diesel Generator Operability Test for 'D' D/G in Accordance With SO-024-001D.
- B. The ESW System is in service.
- C. The prerequisites for the surveillance have been completed, an operator is stationed at the diesel generator and prelube operation is complete per step 5.1.6.
- D. Recording data on the strip chart recorder per step 5.1.7 is NOT required.
- E. Recording START times per steps 5.1.9, 5.1.10 and 5.1.11 are NOT required.
- F. Communications with the local operator have been established (the evaluator will provide all local information)
- G. Surveillance is NOT being preformed for SO-024-013.
- H. Diesel is to be loaded on the 1D Bus.

V. INITIATING CUE

Perform the Monthly Diesel Generator Operability Test for 'D' D/G in Accordance With SO-024-001D beginning at step 5.1.8 (page 8).

VI. TASK STANDARD

Synchronize the Diesel Generator to the grid and shutdown D/G based on Generator terminal voltage decay.

VII. TASK SAFETY SIGNIFICANCE

Demonstration of Diesel Generator operability.

Failure to synchronize the Diesel Generator to the grid would prevent the Technical Specification required Demonstration of Diesel Generator operability.

Inability to identify the need to trip the Diesel Generator and then have it shutdown would result in equipment damage to a Safety related piece of equipment.

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 24.SO.002.151

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u></p> <ul style="list-style-type: none"> This JPM must be performed in the simulator. Establish task conditions as directed on attached setup instructions. Provide turnover to candidate as follows: <ul style="list-style-type: none"> Layout procedure on monitoring console marked with prerequisites complete and tabs showing start of JPM at step 5.1.8. Show candidate that prerequisites have been signed. Instruct candidate that the evaluator will act as the field operator Tell candidate to review procedure and let the evaluator know when you are to begin the JPM. The FAULTED step in this JPM is preceded by a fault statement in BOLD TYPE WITH ALL CAPITAL LETTERS. When candidate is ready to begin JPM, place the simulator in RUN. 			
1	Candidate is given the procedure as part of turnover and is referred to appropriate section.	Given procedure SO-024-001, Diesel Generator 5.1.8.		
2	Reviews prerequisites.	Reviews prerequisites		

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 24.SO.002.151

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u></p> <ul style="list-style-type: none"> • All alarms on AR015, Columns 10, 13, 16, Rows A through G will be extinguished. • All alarms on AR016, Column 3, Rows A through G will be extinguished. • Diesels A, B, C and D will be in Standby with each diesel's associated instruments and indications reading as follows: DG D Watts XI-00032D - Downscale Amps - Downscale Freq - 60 to 61 Hz Volts - Downscale Ready to Run Light illuminated Voltage Regulator Auto light illuminated • Synchroscope XS-00037 will be OFF. • Diesel Gen Bus Diff Voltmeter XI-00036 will be reading zero. • The Diesel Generator output breakers for each generator will be open. 			
3	Review the precautions and procedure up to step 5.1.8	Follows precautions as applicable.		
*4	At Panel 0C653, Start Diesel Generator by depressing appropriate START pushbutton HS 00051D.	Depresses DG "D" start HS-00051D pushbutton. Verifies: DG frequency and voltage		
	<p><u>EVALUATOR NOTE:</u></p> <p>From initial conditions, steps 5.1.9 through 5.1.11 are NOT REQUIRED.</p>			

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Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u></p> <p>D/G will run for a few minutes and a Low Priority alarm will be received. The alarm is from the Standpipe High Level alarm at the local panel. The alarm is due to jacket water heating up and is an expected alarm during startup.</p>			
5	<p>Acknowledge the alarm</p> <p>AR-016-C03 DG D PANEL 0C521D LO PRIORITY TROUBLE</p>	<p>Contacts local operator to perform LA-0521-004 Diesel Generator D 0C521D</p>		
	<p><u>EVALUATOR CUE:</u></p> <p>Role-play the local operator and report that the local alarm is E01 Standpipe High Level Alarm, normal Expected alarm received during startup.</p>			
6	<p>Review AR-016-C03 which contains the following steps:</p> <p>COMPLY with TS 3.8.1 and 3.8.3.</p> <p>OBSERVE Generator Voltage; If 2600V(± 200V):</p> <p>DO NOT adjust Voltage Regulator, AND PROMPTLY SHUTDOWN Diesel Generator.</p>	<p>Verifies:</p> <p>D/G voltmeter OXI00035D is NORMAL</p> <p>Determines:</p> <p>D/G shutdown is NOT required.</p>		

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Student Name: _____

Step	Action	Standard	Eval	Comments
7.	<p>Record Diesel D start time.</p> <p>NOTE</p> <p>For improved Diesel reliability, diesel warm up and full load periods should be as follows:</p> <p>5 mins 0 KW</p> <p>5 mins 1000 KW</p> <p>10 mins 2000 KW</p> <p>10 mins 3000 KW</p> <p>210 minutes 3600 - 4000 KW</p> <p>1 hour to meet TS LCO Action</p> <p>4 hours for routine surveillance testing from start to end of full load or as directed</p> <p>15 minutes 380 - 1000 KW (prior to shutdown)</p> <p>5 minutes 0 KW (Admin cooldown)</p> <p><u>EVALUATOR NOTE:</u></p> <p>The next several procedural steps are performed locally at the diesel. They have been combined into one JPM step for ease of performance.</p> <p>NOTE:</p> <p>Following step confirms Diesel Generator Air Start Receivers are properly aligned to Air Start Solenoids through Turning Gear Not Fully Disengaged Interlock Valves.</p>	Records the DG start time in the space provided within the procedure.		

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Student Name: _____

Step	Action	Standard	Eval	Comments
8	<p>Record pressure in Diesel Generator Air Start Receivers 0T535D1 and 0T535D2, as indicated on PI 03438D on Panel 0C521D after Diesel starts.</p> <p>Starting Air Pressure Red Left Bank</p> <p>Starting Air Pressure Black Right Bank</p> <p>Confirm operability of Air Start System by observing pressures in DG Air Start Receivers within 10 psig of each other on PI 03438D on Panel 0C521D.</p> <p>Confirm Number 1 and Number 2 starting Air Compressors both start for Diesel D.</p> <p><u>EVALUATOR CUE:</u></p> <p>Role-play the local operator at the D/G and report:</p> <p>Left Bank Pressure: 190 psig</p> <p>Right Bank Pressure: 195 psig</p> <p>Air Start Receivers are properly aligned</p> <p>The Air Start Receivers are within 10 psig of each other</p> <p>Both Number 1 and Number 2 starting Air Compressors started for Diesel D.</p>	<p>Contacts local operator and requests the following:</p> <p>Starting Air Pressure Red Left Bank</p> <p>Starting Air Pressure Black Right Bank</p> <p>Air Start Receivers are properly aligned</p> <p>The Air Start Receivers are within 10 psig of each other</p> <p>Number 1 and Number 2 starting Air Compressors both start for Diesel D.</p> <p>AND</p> <p>Records the air pressures in the space provided within the procedure.</p>		

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Student Name: _____

Step	Action	Standard	Eval	Comments
9	Record on Attachment A in OP 024 005, Diesel Generator Start Log each Diesel Start. <u>EVALUATOR CUE:</u> Inform the student that for the purposes of this JPM, it will not be necessary to complete the Diesel Generator Start Log			
9	At Panel 0C653 Monitor and Record parameters: When steady state condition is reached, confirm frequency is maintained ≥ 58.8 Hz and ≤ 61.2 Hz on DG D FREQ XI 00034D AND Record on Attachment A.	Verifies: DG D FREQ XI 0003 is ≥ 58.8 Hz and ≤ 61.2 Hz AND Records in the appropriate space of Attachment A		
10	When steady state condition is reached, Confirm voltage is maintained ≥ 3793 V and ≤ 4400 V on DG D VOLTS XI 00035D AND Record on Attachment A. <u>EVALUATOR CUE:</u> Role-play the field operator and report that post start checks of the Diesel Generator are satisfactory, temperatures are normal and starting air pressure is 250 psig on local gages.	Verifies: DG D VOLTS XI 00035D ≥ 3793 V and ≤ 4400 V AND Records in the appropriate space of Attachment A		

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Student Name: _____

Step	Action	Standard	Eval	Comments
	<p>NOTE:</p> <p>Following section (5.1.17) is not required if surveillance is being performed to comply with TS 3.8.1 Required Action B.3.2 (SO-024-013) and may be omitted at discretion of Shift Supervision although loading is preferred and should be performed if practicable.</p> <p>NOTE:</p> <p>During synchronizing or load changes, increasing voltage adjust will reduce negative (in) KVARs and decreasing voltage adjust will reduce positive (out) KVARs.</p>			
*12	<p>After running Diesel unloaded for 5 minutes, Perform following to manually synchronize and load Diesel Generator D from panel 0C653:</p> <p>Ensure all synchroscope switches OFF.</p>	<p>Verifies:</p> <p>All twelve synchroscope keyswitches in OFF.</p>		
13	Place DG D TO BUS 1D(2D) SYNC SEL keyswitch to ON.	PLACE DG D to Bus 1D Sync Sel HS-00042A keyswitch switch to ON.		
14	Check for excessive sparking of the generator brushes.	Contacts local operator and requests check for excessive sparking of the generator brushes		
	<p><u>EVALUATOR CUE:</u></p> <p>Role-play local operator and report that no sparking of the generator brushes has been observed.</p>			

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Student Name: _____

Step	Action	Standard	Eval	Comments
*15	Adjust DG D VOLTAGE ADJUST HS 00053D so DIESEL GEN BUS DIFF VOLTS XI 00036 indicates slightly right of 0 and not exceed 35 volts. (The green band on XI 00036 is the acceptable region.)	ADJUST DG D Voltage Adjust HS-00053 D so Diff AC Volts XI-00036 indicates slightly right of 0 and not exceeding 35 volts AC.		
*16	Adjust DG D SPEED GOVERNOR HS 00054D, so SYNCHRONIZE XI 00037 rotating in FAST (clockwise) direction at ~1 (one) revolution per 60 seconds.	ADJUST DG D Speed Governor HS-00054 D so Synchroscope XI-00037 rotating in FAST (clockwise) direction at ~ 1 (one) revolution per 60 seconds.		
*17	Perform next three steps expeditiously to reduce possibility of a reverse power trip. Close DG A(B)(C)(D) TO BUS 1A(1B)(1C)(1D)/ (2A)(2B)(2C)(2D) BKR to Unit desired when synchroscope at or slightly before "12 o'clock" position.	CLOSE DG D to Bus 1D Bkr 1A20404 when synchroscope at or slightly before "12 o'clock" position.		
*18	Promptly go to Raise and Slowly increase load to 1000 KW over a 30 45 second period using DG D SPEED GOVERNOR HS 00054D Switch.	Intermittently places DG D Speed Governor HS-00054 D switch to RAISE AND SLOWLY increase load to 1000 KW over a 30-45 second period.		

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Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>FAULTED STEP</u></p> <p><u>'D' D/G @1000 KW, GENERATOR OUTPUT BREAKER TRIPS AND GENERATOR TERMINAL VOLTAGE DECAYS.</u></p> <p><u>BOOTH OPERATOR:</u> Monitor DG output breaker. If DG D PANEL 0C521D LO PRIORITY TROUBLE (C03) does not alarm when DG output breaker OPENS, then Depress PB#8 which will trigger a local alarm that will cause DG D PANEL 0C521D LO PRIORITY TROUBLE (C03) to alarm</p> <p><u>EVALUATOR NOTE:</u> The D D/G output breaker will trip open with no alarm. Then the DG D PANEL 0C521D LO PRIORITY TROUBLE (C03) will annunciate, and DG voltage should be slowly dropping to ~2600 volts.</p>			
19	<p>Acknowledge the alarm</p> <p>AR-016-C03 DG D PANEL 0C521D LO PRIORITY TROUBLE</p> <p><u>EVALUATOR CUE:</u> As local Operator report the following alarm received at panel 0C521D:</p> <p>GENERATOR FIELD GROUND (alarm) (F06)</p>	<p>Contacts local operator to perform LA-0521-004 Diesel Generator D 0C521D</p>		

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Student Name: _____

Step	Action	Standard	Eval	Comments
20	<u>EVALUATOR CUE:</u> If asked, the Diesel Generator is not needed. Continue operator actions in the AR procedure.			
	Review AR-016-C03 which contains the following steps: COMPLY with TS 3.8.1 and 3.8.3. OBSERVE Generator Voltage; If 2600V(± 200V): DO NOT adjust Voltage Regulator, AND PROMPTLY SHUTDOWN Diesel Generator. <u>EVALUATOR CUE:</u> If candidate request local operator to check DG D voltage locally, report DG D voltage as ~ 2600 volts	Verifies: D/G voltmeter OXI00035D is NORMAL Determines: D/G shutdown IS required. Notifies Unit Supervisor to COMPLY with TS 3.8.1 and 3.8.3.		

PERFORMANCE CHECKLIST
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Step	Action	Standard	Eval	Comments
*21	Shutdown D/G <u>EVALUATOR NOTE:</u> When candidate depresses DG stop pushbutton at OC653, this will initiate diesel cooldown – 5 minute timer. The candidate may direct the DG be shutdown locally, this will bypass the cooldown timer. ON-024-001 may also be entered. <u>EVALUATOR CUE:</u> This completes the JPM.	Depresses: DG D Stop pushbutton HS-00052D AND Verifies DG is shutting down		

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 24.SO.002.151

Student Name: _____

Step	Action	Standard	Eval	Comments
	<u>EVALUATOR CUE:</u> <u>FOR SRO CANDIDATES ONLY</u> Give the SRO candidate the second cue sheet that addresses the Tech Spec LCO for the inoperable DG			
22	Obtains a copy of the Tech Specs	References the Tech Specs		
*23	Determines required actions	Determines the following actions will be required: Within 1 hour and 1/8 hours thereafter Perform SR 3.8.1.1 for Operable offsite circuits Within 24 hours Determine the Operable DGs are not inoperable due to a common cause failure OR Within 72 hours and 6 days of discovery of failure to meet the LCO: Restore the DG to operable status		
	<u>EVALUATOR CUE:</u> This completes the JPM.			

SRO ONLY

TASK CONDITIONS

The Plant is in Condition 1.

- A. The "D" Diesel Generator has just failed its' Monthly Diesel Generator Operability Test SO-024-001.
- B. The "E" Diesel Generator is unavailable as a replacement for the "D" Diesel Generator.

INITIATING CUE

What Technical Specifications action(s), including time limits, is/are required as a result of this failure.

**REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 78.OP.3678.101**

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, POWER RANGE NEUTRON MONITORING SYSTEM (PRNMS) (Rev. 0 and PCAF 2006-5637)

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

The plant is in Mode 1 and stable.

You are the PCOM at the controls.

You have five (< 5) minutes to review the panels and familiarize yourself with plant conditions. For this JPM, you will not be required to respond to BOP conditions or alarms.

V. INITIATING CUE

- A. A transient condition will occur and you are to respond to alarms and indications as the PCOM.
- B. Inform the Control Room Supervisor (evaluator) when you are ready and have the shift.

VI. TASK STANDARD

Failed LPRM is Bypassed in accordance with OP-178-002, PRNMS

VII. TASK SAFETY SIGNIFICANCE

Bypassing the Failed LPRM will remove its input to the Reactor Power indication, thereby providing a more accurate indication of reactor power.

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 78.OP.3678.101

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE</u></p> <p>This JPM must be performed in the Simulator. APRM 3 and LPRM 3 NUMAC drawers are simulated at Panel 1C608 PRNMS. The following actions to bypass a LPRM locally will be performed in the Simulator Relay Room.</p> <p>This JPM can be done in any Mode 1 power condition. Simulator Setup:</p> <ul style="list-style-type: none"> • Establish a Mode 1 operating IC. • The JPM begins at 1C651 with the RO assuming the PCOM position. The RO will be "relieved" as PCOM to continue the JPM in the Relay Room. • In accordance with the task cue sheet, inform the student that they are the PCOM position. A transient condition will occur and they are to respond to alarms and indications appropriately. • Allow the student a few minutes (< 5 minutes) to familiarize themselves with the plant conditions. Tell the student to inform you when they are ready. • For this JPM, you will not be required to respond to BOP conditions or alarms. 			

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 78.OP.3678.101

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>BOOTH CUE</u></p> <p>When the student is ready, fail LPRM 08-17C upscale. This LPRM inputs to GE NUMAC APRM 3. Activate:</p> <ul style="list-style-type: none"> • IMF mfNM17816C0817 f:125 <p><u>EVALUATOR CUE</u></p> <p>Role-play the Control Room Supervisor and acknowledge the report.</p>			
1	Responds to AR-103-E05 LPRM UPSCALE.	Acknowledges the alarm and reports AR-103-E05 LPRM UPSCALE unexpected to the Control room supervisor.		
2	Recognizes and reports that APRM 3 (13) is reading above 100%.	Recognizes and reports that APRM 3 (13) is reading high.		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 78.OP.3678.101

Student Name: _____

Step	Action	Standard	Eval	Comments
3	Student performs AR-103-E05: <ul style="list-style-type: none"> Observe indication for LPRM on PICSY and by observing ODAs. Compare with other detectors at the same level and area in the core to determine operability. Determine LPRM (and alarms) is NOT cycling upscale/downscale (no indication of core flux oscillations). If desired, Bypass the affected LPRM per OP-178-002. 	Student performs AR-103-E05: <ul style="list-style-type: none"> Observe indication for LPRM on PICSY and by observing ODAs. Compare with other detectors at the same level and area in the core to determine operability. Determine LPRM (and alarms) is NOT cycling upscale/downscale (no indication of core flux oscillations). If desired, Bypass the affected LPRM per OP-178-002. 		
*4	IF desired, Bypass affected LPRM per OP-178-002. <u>EVALUATOR CUE</u> Role-play the Control Room Supervisor and direct student to BYPASS the LPRM.	Student asks control room supervisor if it is desirable to BYPASS LPRM 08-17C input to APRM 3.		
5	Student locates procedure.	Student locates procedure OP-178-002 section 2.3		
6	Reviews prerequisites and precautions	Reviews prerequisites and precautions		
7	Obtain concurrence from Reactor Engineering that LPRM should be bypassed.	Student contacts Reactor Engineering and requests concurrence to BYPASS the LPRM.		

• = Critical Step

= Critical Sequence

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR CUE</u></p> <p>Role-play Reactor Engineering and concur with the decision to BYPASS the LPRM.</p>			
8	<p>Confirm the LPRM can be bypassed and minimum number of LPRM inputs maintained to the affected APRM (20 total, 3 per level and ≤ 9 bypassed since last APRM calibration) and OPRM (2 per cell and 22 cell total) (OI-078-001) OR Tech. Spec. requirements addressed.</p> <p>For this JPM, the candidate will not be required to update the LPRM Status Log OI-078-001.</p> <p><u>EVALUATOR CUE</u></p> <p>Inform the student that NO other LPRMs are BYPASSED.</p>	<p>Student refers to latest control room copy of OI-078-001 to verify adding this LPRM to the BYPASSED list will NOT exceed APRM (20 total, 3 per level and ≤ 9 bypassed since last APRM calibration) and OPRM (2 per cell and 22 cell total)</p>		
*9	<p>Place applicable APRM in BYPASS.</p>	<p>Determines that NO other LPRMs are bypassed on APRM 3.</p>		

Form NTP-QA-31.8-2, Rev. 0, Page 1 of 1

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 78.OP.3678.101

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE</u></p> <p>The following actions will be taken at the Simulator Relay Room, Panel 1C608 APRM 3.</p> <p><u>EVALUATOR CUE</u></p> <p>Inform the student that for this JPM, they have been relieved as the PCOM and they will be required to perform the actions in the Lower Relay Room.</p>			
10	<p>Confirm at ALL four 2/4 Voters, BYPASSED LEDs for bypassed APRM ILLUMINATED.</p> <p><u>EVALUATOR CUE</u></p> <p>When asked by the student , Inform him/her that ALL of the Voters have APRM 3 bypassed.</p>			
*11	<p>At APRM/LPRM channel module (use Attachment B to determine module), Press ETC soft key as required until BYPASS SELECTIONS is displayed above a soft key pushbutton across bottom of display.</p> <p>The password for entry into BYPASS SELECTIONS of the APRM NUMAC must be entered within approximately 10 seconds or the screen will revert to the main APRM bargraph display.</p>			

• = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 78.OP.3678.101

Student Name: _____

Step	Action	Standard	Eval	Comments
*12	Press BYPASS SELECTIONS soft key.			
*13	Enter password "1234" AND Press ENT.			
	EVALUATOR NOTE LPRMs may be bypassed with HV ON or HV OFF. Both conditions have been performed in the plant and are based on RE and I&C recommendations.			
*14	Using the (←→) CURSOR keys, Select the LPRM to be bypassed. <u>EVALUATOR CUE</u> As Shift Supervision, Direct the LPRM bypassed with HV OFF.	Using the (←→) CURSOR keys, Select the LPRM to be bypassed.		
*15	Confirm status of LPRM changed from OPERATE to BYP/HV ON or BYP/HV OFF (below LPRM number).	Confirm status of LPRM changed from OPERATE to BYP/HV ON or BYP/HV OFF (below LPRM number).		
16	Confirm appropriate LPRM deleted in PICSY. <u>EVALUATOR CUE</u> As RO in the Control Room, confirm the LPRM deleted in PICSY.	Confirm appropriate LPRM deleted in PICSY.		
17	As required, Repeat step 2.3.10 through 2.3.14 to BYPASS additional LPRMs in same channel.	Determines that it will NOT be necessary to repeat steps 2.3.10 through 2.3.14.		

• = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 78.OP.3678.101

Student Name: _____

Step	Action	Standard	Eval	Comments
18	Press EXIT soft key.	Recognize that the APRM gain adjustment may be required.		
19	Reset alarms on APRM module.			
20	Confirm APRM channel indicates within $\pm 2\%$ of calculated CTP			
	OR			
	IF adjustment is required, Perform Section 2.2 to adjust APRM gain.			
	<u>EVALUATOR CUE</u>			
	Role play as Shift Supervision and direct for this JPM, the student will not be required to calibrate the APRM. This will be performed by another operator and direct the APRM be returned to normal.			
*21	Remove applicable APRM from BYPASS at 1C651.	Remove applicable APRM from BYPASS at 1C651.		
22	Notify Reactor Engineer that LPRM is bypassed.	Contacts Reactor Engineering and reports that the LPRM is BYPASSED		

• = Critical Step

= Critical Sequence

PERFORMANCE CHECKLIST
 Appl. To: S/RO JPM No.: 78.OP.3678.101 Student Name: _____

Step	Action	Standard	Eval	Comments
23	<u>EVALUATOR CUE</u>	Recognize and report APRM to Shift Supervision that APRM 3 is returned to normal operation.		
	Role-play Reactor Engineering and acknowledge the report.			
	Verify adjusted APRM removed from BYPASS.			
	<u>EVALUATOR CUE</u>			
	Inform the student that it will not be necessary to update the OI-078-001, LPRM STATUS CONTROL log.			
	<u>EVALUATOR CUE</u>			
	This completes the JPM.			

• = Critical Step

= Critical Sequence

TASK CONDITIONS

The plant is in Mode 1 and stable.

You are the PCOM at the controls.

You have five (5) minutes to review the panels and familiarize yourself with plant conditions. For this JPM, you will not be required to respond to BOP conditions or alarms.

INITIATING CUE

A transient condition will occur and you are to respond to alarms and indications as the PCOM.

Inform the Control Room Supervisor (evaluator) when you are ready and have the shift.

PPL SUSQUEHANNA, LLC
JOB PERFORMANCE MEASURE
APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	50EO.2567.102	0	11/26/07	217000	A2.05	3.3/3.3
Appl.	JPM Number	Rev.	Date	NUREG 1123	K/A No.	K/A Imp.
To		No.		Sys. No.		

Task Title: Manual Initiation of RCIC with Loss of AC and DC Power – Unit 2 (ES-250-003)

Completed By:

Reviews:

Paul Moran
Writer

11/26/07
Date

Instructor/Writer

Date

Approval:

Nuclear Trng. Supv.

Date

	30 Minutes	
<u>Date of Performance:</u>	<u>Allowed Time (Min.)</u>	<u>Time Taken (Min.)</u>

JPM Performed By:

Student Name:

Last

First

M.I.

Employee # / S.S. #

Performance () Satisfactory () Unsatisfactory
Evaluation:

Evaluator Name:

Signature

Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 50.EO.2567.102

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. ES-250-003, RCIC MANUAL INJECTION WITH LOSS OF AC AND DC POWER (Rev. 2)

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

- A. A sustained loss of Offsite Power has occurred.
- B. A common mode failure has disabled all Emergency Diesel Generators, resulting in a Station Blackout.
- C. DC power is unavailable to HPCI and RCIC due to supply breaker failures.
- D. RCIC was aligned for automatic response before the power loss occurred.
- E. RPV water level is currently -30 inches and lowering.
- F. The US has directed implementation of ES-250-003 to inject water to the RPV with the RCIC System to support EO-200-102.

V. INITIATING CUE

Implement ES-250-003 and manually inject water to the RPV with the RCIC System at approximately 600 gpm.

VI. TASK STANDARD

RCIC System operating with approximately 600 gpm flow established to the RPV in accordance with ES-250-003.

VII. TASK SAFETY SIGNIFICANCE

This procedure provides actions necessary to operate the RCIC System for makeup to the RPV in the event AC and DC power are unavailable to RCIC.

If no other injection subsystems are available due to AC and DC power loss, then operating RCIC in accordance with this procedure may be necessary to ensure adequate core cooling.

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 50.EO.2567.102 Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>Evaluator</u> This JPM must be performed in the plant.</p> <p>Prior to performance of this JPM, obtain a copy of the most recent revision of ES-250-003, RCIC Manual Injection With Loss of AC and DC Power to provide to the student, along with the Task Conditions/Initiating Cue Sheet.</p> <p>The JPM calls for three operators with radio communications and HP support for High Radiation areas. The cues for additional operators are provided.</p>			
1.	Obtain a controlled copy of ES-250-003.	Controlled copy of ES-250-003 provided by Instructor.		
2.	<p>Reviews Prerequisites.</p> <p><u>Evaluator</u> Inform student that additional operators are standing by with radios as required to support activity, and HP will support access to High Radiation areas.</p>	Ensures Prerequisites are met by review of Cue Sheet.		

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 50.EO.2567.102 Student Name: _____

Step	Action	Standard	Eval	Comments
3.	Reviews Precautions. <u>Evaluator</u> Inform student that they have obtained a hand-held tachometer. Subsequently, whenever asked by the student regarding turbine speed, the evaluator responds that turbine speed is acceptable.	Reviews Precautions and identifies loss of trip functions, need for hand-held tachometer to monitor speed, and need to monitor turbine speed for oscillations while operation at low turbine RPMS.		
4.	Evacuates non-essential personnel from RCIC Pump Room and pipe areas prior to pump start. <u>Evaluator</u> Inform student that plant page is not available.	If plant page is available, requests Control Room make announcement. If plant page is unavailable, walks areas down and posts available operators secure from non-essential personnel.		
5.	Opens supply breakers for RCIC Valves. <u>Evaluator</u> All breakers are on 2D254, which is located in, Room II-109, Area 32, Elevation 670'.	Opens Breakers: 2D254032 for HV-250F045 2D254051 for HV-2149F013 2D254052 for HV-249F012 2D254071 for FV-249F019 2D254072 for HV-25012 2D254081 for HV-250F046		

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 50.EO.2567.102 Student Name: _____

Step	Action	Standard	Eval	Comments
6.	<p>If discharge piping voiding is suspected, close RCIC Pump Discharge Valve HV-249-F012.</p> <p><u>Evaluator</u> PI-25516 is located in Area 30, Elevation 719'. Pressure at or above 40 psig indicates Keepfill System has adequate pressure to prevent system voiding. If asked whether discharge piping voiding is suspected, ask student how this could be determined. As additional operator, inform student pressure at PI-25516 is 60 psig.</p>	<p>Checks PI-25516 indication for Keepfill System pressure to evaluate for discharge piping voiding, by contacting an additional operator.</p> <p>Closes HV-249-F012 if voiding is suspected, should not be closed based on the pressure provided (60 psig).</p>		
7.	<p>Close RCIC Turbine Trip and Throttle Valve HV-25012.</p> <p><u>Evaluator</u> HV-25012 is located on the RCIC Turbine skid between the steam supply isolation valve and turbine inlet.</p>	<p>Engages the manual hand-wheel on HV-25012 Motor Operator and rotates the hand-wheel in the clockwise direction to close the valve.</p>		

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 50.EO.2567.102 Student Name: _____

Step	Action	Standard	Eval	Comments
8.	Open Steam to RCIC Turbine HV-250-F045. <u>Evaluator</u> HV-250-F045 is located in the RCIC Pump Room in the steam supply line just above the turbine.	Engages the manual hand-wheel on HV-250-F045 Motor Operator and rotates the hand-wheel in the counter-clockwise direction to open the valve.		
9.	Starts RCIC Turbine Manually. <u>Evaluator</u> Inform the student that the Turbine is rolling up to speed.	Slowly throttles open RCIC Turbine Trip and Throttle Valve HV-25012 by engaging the manual hand-wheel and slowly rotating the hand-wheel in the counter-clockwise direction while monitoring turbine speed.		
11.	Raise pump discharge pressure within 50 psig of reactor pressure. <u>Evaluator</u> When asked, inform student reactor pressure is 1,050 psig. Provide feedback of rising RCIC discharge pressure on 2C017 until pressure is approximately 1,000 psig as student simulates opening HV-25012.	Communicates with Control Room to obtain reactor pressure, or monitors RCIC steam supply pressure on PI-E51-2R003. Throttles open RCIC Turbine Trip and Throttle Valve HV-25012 by slowly rotating the hand-wheel in the counter-clockwise direction. Monitors pump discharge pressure on PI-E51-2R001.		

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 50.EO.2567.102 Student Name: _____

Step	Action	Standard	Eval	Comments
12.	<p>Open RCIC Injection Valve HV-249-F013.</p> <p><u>Evaluator</u> HV-249-F013 is located in the wing slab area on Elevation 749'. Allow student to describe his/her intended action and the location of the valve. Role-play as the operator on 749' to inform him/her that the valve is open.</p>	<p>Contacts operator at HV-249-F013 on Elevation 749' and directs operator to open the valve.</p> <p>(Engage the manual hand-wheel on HV-249-F013 Motor Operator and rotate the hand-wheel in the counter-clockwise direction.)</p>		
13.	<p>Closes RCIC Pump Min Flow Valve FV-249-F019.</p> <p><u>Evaluator</u> FV-249-F019 is located in the RCIC piping area on Elevation 670'. Allow student to describe his/her intended action and the location of the valve. Role-play as the operator on 670' to inform him/her that the valve is closed.</p>	<p>Directs operator on Elevation 670' to close Min Flow Valve FV-249-F019.</p> <p>(Engage the manual hand-wheel on FV-249-F019 Motor Operator and rotate the hand-wheel in the clockwise direction.)</p>		

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 50.EO.2567.102 Student Name: _____

Step	Action	Standard	Eval	Comments
14.	<p>Opens RCIC Lube Oil Cooling Water Valve HV-250-F046.</p> <p><u>Evaluator</u> HV-250-F046 is located in overhead above RCIC turbine skid. Inform the student an additional operator will provide a ladder for access.</p>	Engages the manual hand-wheel on HV-250-F046 Motor Operator and rotates the hand-wheel in the counter-clockwise direction.		
*15.	<p>Establishes 600 gpm flow to the reactor.</p> <p><u>Evaluator</u> When asked, inform student reactor pressure is 1,050 psig as indicated on PI-E51-2R003 and provide feedback of rising RCIC discharge pressure on PI-E51-2R001. At a pressure of 1,115 psig a differential of 65 psid is present between reactor and RCIC discharge, which correlates to approx 600 gpm RCIC flow per Attachment A.</p>	<p>Monitors RCIC steam supply pressure and throttles open RCIC Turbine Trip and Throttle Valve HV-25012 by slowly rotating the hand-wheel in the counter-clockwise direction.</p> <p>Monitors pump discharge pressure to establish differential pressure of approximately 65 psig between reactor pressure (RCIC steam pressure) and pump discharge pressure per Attachment A of ES-250-003.</p>		
16.	<p>Place ESW in service to supply RCIC Room cooler.</p> <p><u>Evaluator</u> If asked, inform student that ESW is not available.</p>	Reviews Cue Sheet to determine that ESW is not available due to SBO conditions.		

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 50.EO.2567.102 Student Name: _____

Step	Action	Standard	Eval	Comments
17.	Perform SO-259-010, Suppression Chamber Average Water Temperature Verification. <u>Evaluator</u> Inform student that SO-259-010 will be performed by another operator.	Identifies need to perform SO-259-010, Suppression Chamber Average Water Temperature Verification.		
18.	Makeup to the CST as required. <u>Evaluator</u> When asked, inform student that another operator will make up to the CST as required. JPM is complete once 600 gpm flow is established.	Identifies need to monitor CST level and makeup as required IAW OP-037-001 and OP-037-003.		

*Critical Step

#Critical Sequence

TASK CONDITIONS

- A. A sustained loss of Offsite Power has occurred.
- B. A common mode failure has disabled all Emergency Diesel Generators, resulting in a Station Blackout.
- C. DC power is unavailable to HPCI and RCIC due to supply breaker failures.
- D. RCIC was aligned for automatic response before the power loss occurred.
- E. RPV water level is currently –30 inches and lowering.
- F. The US has directed implementation of ES-250-003 to inject water to the RPV with the RCIC System to support EO-200-102.

INITIATING CUE

Implement ES-250-003 and manually inject water to the RPV with the RCIC System at approximately 600 gpm.

PPL SUSQUEHANNA, LLC
JOB PERFORMANCE MEASURE
APPROVAL AND ADMINISTRATIVE DATA SHEET

<u>S/RO</u>	<u>49.OP.017.101</u>	<u>3</u>	<u>11/28/07</u>	<u>295016</u>	<u>AA1.06</u>	<u>4.0/4.1</u>
Appl.	JPM Number	Rev. No.	Date	NUREG 1123	K/A No.	K/A
To				Sys. No.		Imp.

Task Title: Place Shutdown Cooling in Service Using RHR Loop "B" at RSDP

Completed By: _____ Validated: 10/5/07

<u>Paul Moran</u>	<u>11/28/07</u>		
Writer	Date	Instructor/Writer	Date

Approval:

Nuclear Trng. Supv.
Date

	<u>20</u>	
Date of Performance:	Validation Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name: _____

Last	First	M.I.	Employee # / S.S. #
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Performance Evaluation: () Satisfactory () Unsatisfactory

Evaluator Name: _____

Signature	Typed or Printed
-----------	------------------

Comments:

**REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 49.OP.017.101**

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-149-002 RHR Operation in Shutdown Cooling Mode (Rev. 39)

III. OPERATIONAL ACTIVITIES

None

IV. TASK CONDITIONS

- A. A condition has occurred requiring abandonment of the Control Room.
- B. All required immediate operator actions of ON-100-009 have been completed prior to abandoning the Control Room.
- C. Transfer switch positions have been changed on the RSDP IAW ON-100-009, Section 4.3.2
- D. Reactor water level is 92 inches and stable.
- E. Reactor pressure is being maintained less than 90 psig by RCIC in CST to CST Mode.
- F. ESW System is in service IAW OP-054-001.
- G. RHRSW "B" Loop is in service IAW OP-116-001.
- H. RPV water level is being provided by I&C from a temporary level indication at 1C005
- I. RHR pump 1B is available.
- J. RHR pump 2B is NOT running.
- K. RHR System is FILLED AND VENTED in accordance with OP-149-001.

V. INITIATING CUE

- A. Place "B" Loop RHR in Shutdown Cooling.

VI. TASK STANDARD

"B" loop of RHR is in service

VII. TASK SAFETY SIGNIFICANCE

Provides core cooling, and maintains required shutdown margin.

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 49.OP.017.101

Student Name: _____

Step	Action	Standard	Eval	Comments
	<u>EVALUATOR NOTE</u> If performed on the Simulator: <ul style="list-style-type: none"> • Establish RPV water level between 90 and 95 inches. • RCIC in full flow test at 300 gpm, maintaining less than 90 psig RPV pressure. • Complete operator actions for Control Room Evacuation IAW ON-100-009. • Trip Reactor Recirc Pumps. • If NOT performing JPM 00.ON.015.101 prior to this JPM, transfer Control and Instrumentation to the RSDP IAW ON-100-009. • Start B and D ESW Pumps. • Place "B" Loop RHRSW in service at 9,000 gpm. • Place Simulator in FREEZE. • Provide Attachments A and B from ON-100-009. • When ready, place the Simulator in RUN. 			
1	Obtain controlled copy of OP-149-002.	Controlled copy of OP-149-002 obtained.		
	<u>EVALUATOR NOTE</u> Student may review previous sections of ON-100-009.			
2	Select correct section(s) to perform.	Selects Section 2.12.		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 49.OP.017.101

Student Name: _____

Step	Action	Standard	Eval	Comments
3	Review prerequisites.	Ensures prerequisites met.		
4	Review precautions	Follows precautions while performing RHR operations.		
	<p>NOTE:</p> <p>When controlled from Remote Shutdown Panel, all NSSSS isolation signals are bypassed for RHR valves controlled from Remote Shutdown Panel. However, Reactor High Pressure isolation for HV-151-F008 and HV-151-F009 is transferred to 125V DC supply and remains operable.</p>			
5	IF RHR in Suppression Pool Cooling Mode, Shut Down Suppression Pool Cooling in accordance with OP-149-005, RHR Suppression Pool Cooling: RHR Supp Pool Cooling Operations From Remote Shut Down Panel Section.	<p>Determines:</p> <p>RHR is NOT in suppression pool cooling, and will not require being shutdown.</p>		
*6	<p>Align AND Fill RHR System for Shutdown Cooling suction piping as follows:</p> <p>Establish following alignment:</p> <p>Close HV-151-F007B RHR PUMP B/D MIN FLOW.</p>	<p>Places control switch RHR PUMP B/D MIN FLOW HV-151-F007B to CLOSE</p> <p>AND</p> <p>Verifies:</p> <p>Amber light-LIT</p> <p>Red light – NOT LIT</p>		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 49.OP.017.101

Student Name: _____

Step	Action	Standard	Eval	Comments
*7	Close HV-151-F004B RHR PUMP B SUCT.	Places control switch RHR PUMP B SUCT HV-151-F004B to CLOSE AND Verifies: Amber light-LIT Red light – NOT LIT		
8	Ensure HV-151-F028B SUPP CHMBR SPR TEST SHUTOFF CLOSED.	Verifies: SUPP CHMBR SPR TEST SHUTOFF HV-151-F028B CLOSED Amber light-LIT Red light – NOT LIT		
9	Ensure HV-151-F024B TEST LINE CTL CLOSED.	Verifies: TEST LINE CTL CLOSED HV-151-F024B Amber light-LIT Red light – NOT LIT		
*10	Open HV-151-F006B SHUTDOWN CLG SUCT.	Places control switch SHUTDOWN CLG SUCT HV-151-F006B to OPEN AND Verifies: Amber light - NOT LIT Red light – LIT		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 49.OP.017.101

Student Name: _____

Step	Action	Standard	Eval	Comments
11	IF the 1B RHR Pump not available but the 1D is available, Establish the following alignment. Else N/A:	Determines from initial conditions that 1B RHR pump is available.		
12	<p>Perform following in order specified:</p> <p>Open 151090 S/D Cooling Ln OB Vent. (Area 28/683')</p> <p>Open 151F066 S/D Cooling Ln IB Vent. (Area 28/683')</p> <p>Open 151084 Shutdown Cooling Flush. (Area 28/749')</p> <p>Slowly Crack Open 151-F083 RHR Shutdown Clg Suct Line Cond Transfer Flush. (Area 28/683')</p> <p>WHEN steady stream of air free water discharges, Perform following in rapid succession in order specified:</p> <p>Slowly Close 151-F083.</p> <p>Slowly Close 151090 S/D Cooling Ln OB Vent. (Area 28/683')</p> <p><u>EVALUATOR CUE</u></p> <p>Role-play the NPO and report that OP-149-002 step 2.12.4.c is complete.</p>	Contacts the NPO to perform OP-149-002 step 2.12.4.c		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 49.OP.017.101

Student Name: _____

Step	Action	Standard	Eval	Comments
13	IF system pressure cannot be reduced below reset value of RHR Cut in permissive to allow HV-151-F008 SHUTDOWN CLG SUCT OB ISO to open, with Shift Supervision permission, ISOLATE AND VENT PIS B31 1N018B High Pressure Isolation Pressure Switch per Attachment E.	Determines from current RPV pressure of 90 psig that the pressure is below the reset value (98 psig).		
*14	<p>OPEN HV-151-F008 SHUTDOWN CLG SUCT OB ISO.</p> <p>CAUTION</p> <p>Reventing Shutdown Cooling Suction Line ensures piping between HV-151-F008 and HV-151-F009 is filled to vent level. If this section of piping is already filled to above vent line, water will be observed as soon as Vent 151090 is opened.</p>	<p>Places control switch SHUTDOWN CLG SUCT OB ISO. HV-151-F008 to OPEN</p> <p>AND</p> <p>Verifies:</p> <p>Amber light - NOT LIT</p> <p>Red light – LIT</p>		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 49.OP.017.101

Student Name: _____

Step	Action	Standard	Eval	Comments
15	<p>Perform in order specified:</p> <p>Throttle Open 151090 S/D Cooling Ln OB Vent.</p> <p>Slowly Crack Open 151-F083 RHR Shutdown Clg Suct Line Cond Transfer Flush. (Area 28/683')</p> <p>WHEN steady stream of air free water discharges, Perform in rapid succession in order specified:</p> <p>Slowly Close 151-F083.</p> <p>Slowly Close 151090 S/D Cooling Ln OB Vent Vlv.</p> <p>Close 151-F084 Shutdown Cooling Flush. (Area 28/749')</p> <p>Close 151-F066 S/D Cooling Ln IB Vent. (Area 28/683')</p> <p><u>EVALUATOR CUE</u></p> <p>Role-play the NPO and report that OP-149-002 steps 2.12.4.f through 2.12.4.h are complete.</p>	<p>Contacts the NPO to perform OP-149-002 steps 2.12.4.f through 2.12.4.h</p>		
16	<p>IF system pressure cannot be reduced enough to reset the RHR Cut in permissive to allow HV-151-F009 SHUTDOWN CLG SUCT IB ISO to open, with Shift Supervision permission, Isolate AND Vent PIS B31 1N018A High Pressure Isolation Pressure Switch by performing Attachment E.</p> <p>NOTE:</p> <p>A slight decrease in Reactor Vessel water level may occur upon opening HV-151-F009 Shutdown Clg Suct IB Iso.</p>	<p>Determines from current RPV pressure of 90 psig that the pressure is below the reset value (98 psig).</p>		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 49.OP.017.101

Student Name: _____

Step	Action	Standard	Eval	Comments
*17	Open HV-151-F009 SHUTDOWN CLG SUCT IB ISO.	Places control switch SHUTDOWN CLG SUCT IB ISO. HV-151-F009 to OPEN AND Verifies: Amber light - NOT LIT Red light – LIT		
18	<p>Ensure RHR LPCI Discharge Header FILLED AND VENTED as follows:</p> <p>Close 151-F092B RHR Loop B Keep Fill Iso. (Area 28/683')</p> <p>Open 151-F058B RHR Loop B Keep Fill Line IB Test. (Area 28/683')</p> <p>Open 151092 RHR Loop B Keep Fill Line Vent. (Area 28/683')</p> <p>WHEN steady stream of air free water discharges, Close 151092 RHR Loop B Keep Fill Line Vent.</p> <p>Close 151-F058B RHR Loop B Keep Fill Line IB Test.</p> <p><u>EVALUATOR CUE</u></p> <p>Role-play the NPO and report that OP-149-002 step 2.12.5 is complete.</p>	Contacts the NPO to perform OP-149-002 step 2.12.5		

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 49.OP.017.101

Student Name: _____

Step	Action	Standard	Eval	Comments
*19	Complete following alignment: Close HV-151-F017B RHR INJ FLOW CTL.	Places control switch RHR INJ FLOW CTL HV-151-F017B to CLOSE AND Verifies: Amber light-LIT Red light – NOT LIT		
*20	Open HV-151-F015B RHR INJ OB ISO VLV.	Places control switch RHR INJ OB ISO VLV HV-151-F015B to OPEN AND Verifies: Amber light - NOT LIT Red light – LIT		
21	Ensure HV-151-F048B HX B SHELL SIDE BYPS FULL OPEN.	Verifies: HX B SHELL SIDE BYPS HV-151-F048B Amber light - NOT LIT Red light – LIT		
22	Ensure HV-151-F003B HX B SHELL SIDE OUTLET CLOSED.	Verifies: HX B SHELL SIDE OUTLET HV-151-F003B Amber light - LIT Red light – NOT LIT		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 49.OP.017.101

Student Name: _____

Step	Action	Standard	Eval	Comments
23	Ensure HV-151-F047B HX B SHELL SIDE INLET OPEN.	Verifies: HX B SHELL SIDE INLET HV-151-F047B Amber light - NOT LIT Red light – LIT		
24	At direction of Shift Supervision, Flush RHR piping to Radwaste as follows: <u>EVALUATOR CUE</u> Role-play the Unit Supervisor and inform the student that flushing of RHR piping to Radwaste will not be necessary.	Requests direction from Unit Supervisor to Flush RHR piping to Radwaste.		
25	Place ESW in operation to supply RHR Pump and RHR Room Cooler in accordance with OP-054-001, Emergency Service Water.	Determines from initial conditions that ESW is in service to the RHR IAW OP-054-001.		
26	Place RHRSW Loop 1B in operation in accordance with OP-116-001, RHR Service Water.	Determines from initial conditions that RHRSW loop 1B is in service IAW OP-116-001.		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 49.OP.017.101

Student Name: _____

Step	Action	Standard	Eval	Comments
27	<p>Trip Reactor Recirc Pump B by EITHER:</p> <p>At 1C062B Reactor Recirc MG Set B Exciter and Local Bkr Cubicle:</p> <p>Trip 1C062B CB1B MG Set B Gen Local Ckt Bkr.</p> <p>Observe Field Breaker Amber Light ILLUMINATED.</p> <p>Observe Field Breaker Red Light OFF.</p> <p>At 1A102, Observe 1A10210 MG Set B1 Drive Motor 1S134B OPEN.</p> <p>OR</p> <p>At 1A10210, Push Up on plunger marked "LIFT PLUNGER TO OPEN."</p> <p><u>EVALUATOR CUE</u></p> <p>Role-play the NPO and report that OP-149-002 step 2.12.11 is complete.</p>	<p>Contacts the NPO to perform OP-149-002 step 2.12.11</p>		
*28	<p>Close HV-143-F023B RECIRC PUMP B SUCT VLV.</p>	<p>Places control switch RECIRC PUMP B SUCTION HV-143-F023B to CLOSE</p> <p>AND</p> <p>Verifies:</p> <p>Amber light-LIT</p> <p>Red light – NOT LIT</p>		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 49.OP.017.101

Student Name: _____

Step	Action	Standard	Eval	Comments
29	Place RHR System LOOP B in operation as follows: Ensure RHR System FILLED AND VENTED in accordance with OP-149-001. <u>EVALUATOR CUE</u> If necessary, Role-play the Unit Supervisor and inform the student that the RHR system is filled and vented	Determines from initial conditions that the RHR System is FILLED AND VENTED in accordance with OP-149-001.		
30	IF starting 1B RHR Pump: IF RHR Pump 2B is running, Stop RHR Pump 2B at RHR Pump breaker 2A20202: <u>EVALUATOR CUE</u> If necessary Role-play the Unit Supervisor and inform the student that the 2B RHR pump is NOT running. CAUTION Flowrate > 10,000 gpm through heat exchanger will cause excessive tube vibration.	Determines from initial conditions that RHR pump 2B is not running.		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 49.OP.017.101

Student Name: _____

Step	Action	Standard	Eval	Comments
*31	Start RHR Pump 1P202B by placing Handswitch to START.	Places control switch RHR PUMP B 1P-202B to START AND Verifies: Amber light - NOT LIT Red light – LIT		
32	IF RHR Pump 1P202B not available Start RHR Pump 1P202D as follows. Else N/A	Determines that 1P202B is available and did start.		
*33	Promptly Throttle Open HV-151-F017B RHR INJ FLOW CTL to achieve flowrate $\geq 4,000$ gpm on RHR SYSTEM FLOW FI 15105.	Intermittently Places control switch RHR INJ FLOW CTL HV-151-F017B to OPEN AND Verifies: RHR SYSTEM FLOW FI 15105 is $\geq 4,000$ gpm		
34	Ensure RHR Pump Suction Relief valve SEATED. <u>EVALUATOR CUE</u> Pump start looks good and the Suction Relief valve is seated.			
35	Ensure HV-151-F047B RHR HX B SHELL SIDE INLET is OPEN.	Verifies: HX B SHELL SIDE INLET HV-151-F047B Amber light - NOT LIT Red light – LIT		

* = Critical Step

= Critical Sequence

PERFORMANCE CHECKLISTAppl. To: S/ROJPM No.: 49.OP.017.101

Student Name: _____

Step	Action	Standard	Eval	Comments
36	<p>Trip Reactor Recirc Pump A by EITHER:</p> <p>At 1C062A Reactor Recirc MG Set A Exciter and Local Ckt Bkr:</p> <p>Trip 1C062A CB1A MG Set A Gen Local Ckt Bkr.</p> <p>Observe Field Breaker Amber Light ILLUMINATED.</p> <p>Observe Field Breaker Red Light OFF.</p> <p>At 1A101, Observe 1A10110 MG Set A1 Drive Motor 1S134A OPEN.</p> <p>OR</p> <p>At 1A10110, Push Up on plunger marked "LIFT PLUNGER TO OPEN."</p> <p><u>EVALUATOR CUE</u></p> <p>Role-play the NPO and report that OP-149-002 step 2.12.14 is complete.</p> <p><u>EVALUATOR CUE</u></p> <p>Another operator will complete the remaining steps for commencing the cooldown.</p> <p>This completes the JPM</p>	Contacts the NPO to perform OP-149-002 step 2.12.14		

ASK CONDITIONS

- A. A condition has occurred requiring abandonment of the Control Room.
- B. All required immediate operator actions of ON-100-009 have been completed prior to abandoning the Control Room.
- C. Transfer switch positions have been changed on the RSDP IAW ON-100-009, Section 4.3.2
- D. Reactor water level is 92 inches and stable.
- E. Reactor pressure is being maintained less than 90 psig by RCIC in CST to CST Mode.
- F. ESW System is in service IAW OP-054-001.
- G. RHRSW "B" Loop is in service IAW OP-116-001.
- H. RPV water level is being provided by I&C from a temporary level indication at 1C005
- I. RHR pump 1B is available.
- J. RHR pump 2B is NOT running.
- K. RHR System is FILLED AND VENTED in accordance with OP-149-001.

INITIATING CUE

- A. Place "B" Loop RHR in Shutdown Cooling.

TASK CONDITIONS

- A. A condition has occurred requiring abandonment of the Control Room.
- B. All required immediate operator actions of ON-100-009 have been completed prior to abandoning the Control Room.
- C. Transfer switch positions have been changed on the RSDP IAW ON-100-009, Section 4.3.2
- D. Reactor water level is 92 inches and stable.
- E. Reactor pressure is being maintained less than 90 psig by RCIC in CST to CST Mode.
- F. ESW System is in service IAW OP-054-001.
- G. RHRSW "B" Loop is in service IAW OP-116-001.
- H. RPV water level is being provided by I&C from a temporary level indication at 1C005
- I. RHR pump 1B is available.
- J. RHR pump 2B is NOT running.
- K. RHR System is FILLED AND VENTED in accordance with OP-149-001.

INITIATING CUE

- A. Place "B" Loop RHR in Shutdown Cooling.

PPL SUSQUEHANNA, LLC
JOB PERFORMANCE MEASURE
APPROVAL AND ADMINISTRATIVE DATA SHEET

<u>S/RO</u> Appl. To	<u>58.EO.001.101</u> JPM Number	<u>2</u> Rev. No.	<u>10/25/07</u> Date	<u>295037</u> NUREG 1123 Sys. No.	<u>EK3.07</u> K/A No.	<u>4.2/4.3</u> K/A Imp.
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Task Title: Performing De-Energizing Scram Pilot Solenoids ES-158-001

Completed By:	Reviews:
<u>A. Seibert</u> Writer	<u>03/15/05</u> Date
	<u>Instructor/Writer</u> Date

Approval:

<u>Nuclear Trng. Supv.</u>	<u>Date</u>
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<u>Date of Performance:</u>	<u>20 Minutes</u> Allowed Time (Min.)	<u>Time Taken (Min.)</u>
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JPM Performed By:

Student Name:	<u>Last</u>	<u>First</u>	<u>M.I.</u>	<u>Employee # / S.S. #</u>
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Performance Evaluation: () Satisfactory () Unsatisfactory

Evaluator Name:	<u>Signature</u>	<u>Typed or Printed</u>
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Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 58.EO.001.101

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-158-001, DE-ENERGIZING SCRAM PILOT SOLENOIDS (Rev. 8)

III. OPERATIONAL ACTIVITIES

ATWS

IV. TASK CONDITIONS

- A. Reactor power is at 45 percent, Total Core flow is 42×10^6 Mlbm/hr. The reactor is at normal operating pressure and temperature.
- B. The Mode Switch is in S/D, ARI has been manually initiated, the scram air header is still pressurized; no control rods have inserted from 100 percent rod line.
- C. It has been determined an electrical ATWS has occurred.
- D. EO-100-113, Sheet 2, CONTROL ROD INSERTION has been entered.

V. INITIATING CUE

Remove RPS Fuses IAW ES-158-001, DE-ENERGIZING SCRAM PILOT SOLENOIDS.

VI. TASK STANDARD

Removing the RPS fuses, opens scram valves by de-energizing the scram pilot solenoids. The open scram valves, vent the scram air header, inserting control rods and terminating the ATWS.

VII. TASK SAFETY SIGNIFICANCE

Alternate methods to insert control rods are designed to limit threat to core and containment by minimizing the duration of the ATWS event.

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 58.EO.001.101 Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>Evaluator Note</u></p> <p>Prior to performing this JPM, obtain a copy of the latest revision of ES-158-001, and mark it up as if it were actually to be performed, and provide it to the student along with the Task Conditions/Initiating Cue Sheet.</p>			
1.	Review Sections 1.0 through 3.0.	<p>Review all sections.</p> <p>Follows all precautions as applicable.</p>		
2.	Notes Shift Manager permission to perform this ES procedure.	Verifies Shift Manager signature, date, and time in the appropriate location in Section 4.1 of the procedure.		
	<p><u>Evaluator Note</u></p> <p>With Shift Supervision permission, have the student show you the required equipment, but do not remove it from the Shift Manager's office.</p>			

* = Critical Step
= Critical Sequence

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 58.EO.001.101 Student Name: _____

Step	Action	Standard	Eval	Comments
3.	Obtain the required equipment. <u>Evaluator Note</u> RPS logic Channel A indications are located on the front of Panel 1C609 in the Upper Relay Room.	Obtains the required equipment from the ES Box in the Shift Manager's office.		
4.	Ensure RPS logic Channel A de-energized by performing one of following at 1C609 RPS Trip Sys A1/A2 NSS Shutoff Sys Panel (Upper Relay Room): Observe NO Rod Group Scram Indicators Division 1, ILLUMINATED: a. C72A DS2C, Rod Group 1 b. C72A DS2G, Rod Group 2 c. C72A DS2E, Rod Group 3 d. C72A DS2A, Rod Group 4	Verifies the following Division 1 Rod Group Scram Indicators NOT LIT: <ul style="list-style-type: none"> • C72A DS2C, Rod Group 1 • C72A DS2G, Rod Group 2 • C72A DS2E, Rod Group 3 • C72A DS2A, Rod Group 4 		

• = Critical Step
= Critical Sequence

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 58.EO.001.101 Student Name: _____

Step	Action	Standard	Eval	Comments
5.	<p><u>Evaluator Cue</u></p> <p>All Division 1 Rod Group Scram Indicator lights are LIT.</p> <p>Perform following:</p> <p>Notify the Control Room to expect BACKUP/GROUP SYSTEM A POWER FAILURE alarms on 1C651.</p> <p><u>Evaluator Cue</u></p> <p>Role-play the Control Room and acknowledge the report.</p> <p>NOTE</p> <p>The following two fuses are located in the RPS A2 (left side) right door, lower right side.</p>	<p>Contacts the Control Room and informs the Control Room to expect BACKUP/GROUP SYSTEM A POWER FAILURE alarms on 1C651.</p>		

• = Critical Step
= Critical Sequence

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 58.EO.001.101 Student Name: _____

Step	Action	Standard	Eval	Comments
6.*	Remove following fuses: (1) F46 C72A F18C (2) F47 C72A F18G NOTE The following two fuses are located in the RPS A1 (right side) right door, lower left side.	Using the fuse puller and low voltage gloves, removes the following fuses from the fuse holder: <ul style="list-style-type: none"> F46 C72A F18C F47 C72A F18G 		
7.*	Remove following fuses: (1) F52 C72A F18A (2) F53 C72A F18E	Using the fuse puller and low voltage gloves, removes the following fuses from the fuse holder: <ul style="list-style-type: none"> F52 C72A F18A F53 C72A F18E 		
8.	Observe BACKUP/GROUP PILOT SCRAM SYSTEM A POWER FAILURE annunciator clears at 1C651.	Contacts the Control Room and requests the PCO to verify the BACKUP/GROUP SYSTEM A POWER FAILURE alarm has cleared on 1C651.		

* = Critical Step
 # = Critical Sequence

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 58.EO.001.101 Student Name: _____

Step	Action	Standard	Eval	Comments
9.	<p><u>Evaluator Cue</u></p> <p>Role play the Control Room PCO and inform the student that BACKUP/GROUP SYSTEM A POWER FAILURE alarm has cleared.</p>	<p>Verifies the following Division 2 Rod Group Scram Indicators NOT LIT:</p> <ul style="list-style-type: none"> • C72A DS2D, Rod Group 1 • C72A DS2H, Rod Group 2 • C72A DS2F, Rod Group 3 • C72A DS2B, Rod Group 4 		
	<p>Ensure RPS logic Channel B de-energized by performing one of following at 1C611 RPS Trip Sys B1/B2 NSS Shutoff Sys Panel (Lower Relay Room):</p> <p>Observe NO Rod Group Scram Indicators Division 2, ILLUMINATED:</p> <ul style="list-style-type: none"> a. C72A DS2D, Rod Group 1 b. C72A DS2H, Rod Group 2 c. C72A DS2F, Rod Group 3 d. C72A DS2B, Rod Group 4 <p><u>Evaluator Cue</u></p> <p>All Division 2 Rod Group Scram Indicator lights are LIT.</p>			

• = Critical Step
 # = Critical Sequence

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 58.EO.001.101 Student Name: _____

Step	Action	Standard	Eval	Comments
10.	<p><u>CAUTION</u></p> <p>The Following Step Results In The Inability To Close The SDV Vent And Drain Valves If Fuses Were Also Pulled For Channel A. Prompt Restoration Of Fuses Is Necessary To Minimize The Time The Valves Remain Open.</p> <p>Perform following:</p> <p>Notify the Control Room to expect BACKUP/GROUP SYSTEM B POWER FAILURE alarms on 1C651.</p> <p><u>Evaluator Cue</u></p> <p>Role play the Control Room and acknowledge the report.</p> <p>NOTE</p> <p>The following two fuses are located in the RPS B2 (left side) right door, lower right side.</p>	<p>Contacts the Control Room and informs the Control Room to expect BACKUP/GROUP SYSTEM B POWER FAILURE alarms on 1C651.</p>		

• = Critical Step
= Critical Sequence

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 58.EO.001.101 Student Name: _____

Step	Action	Standard	Eval	Comments
11.*	Remove following fuses: (1) F51 C72A F18D (2) F52 C72A F18H NOTE The following two fuses are located in the RPS B1 (right side) right door, lower left side.	Using the fuse puller and low voltage gloves, removes the following fuses from the fuse holder: <ul style="list-style-type: none"> F51 C72A F18D F52 C72A F18H 		
12.*	Remove following fuses: (1) F49 C72A F18B (2) F50 C72A F18F	Using the fuse puller and low voltage gloves, removes the following fuses from the fuse holder: <ul style="list-style-type: none"> F49 C72A F18B F50 C72A F18F 		
13.	Observe BACKUP/GROUP PILOT SCRAM SYSTEM B POWER FAILURE annunciator clears at 1C651.	Contacts the Control Room and requests the PCO to verify the BACKUP/GROUP SYSTEM B POWER FAILURE alarm has cleared on 1C651.		

* = Critical Step
 # = Critical Sequence

PERFORMANCE CHECKLIST

Appl. To: S/RO JPM No.: 58.EO.001.101 Student Name: _____

Step	Action	Standard	Eval	Comments
	<u>Evaluator Cue</u> Role play the Control Room PCO and inform the student that BACKUP/GROUP SYSTEM B POWER FAILURE alarm has cleared. <u>Evaluator Cue</u> This completes the JPM.			

TASK CONDITIONS

- A. Reactor power is at 45 percent, Total Core flow is 42×10^6 Mlbm/hr. The reactor is at normal operating pressure and temperature.
- B. The Mode Switch is in S/D, ARI has been manually initiated, the scram air header is still pressurized; no control rods have inserted from 100 percent rod line.
- C. It has been determined an electrical ATWS has occurred.
- D. EO-100-113, Sheet 2, CONTROL ROD INSERTION has been entered.

INITIATING CUE

Remove RPS Fuses IAW ES-158-001, DE-ENERGIZING SCRAM PILOT SOLENOIDS.