



**James A. FitzPatrick Nuclear Power Plant**

**OPERATIONS TRAINING PROGRAMS  
JOB PERFORMANCE MEASURE**

S/RO NEW TASK TITLE: VERIFY HPCI ISOLATION  
APPL. TO JPM NUMBER

REV: 0 DATE: 3/9/05 NRC K/A SYSTEM NUMBER: 206000 A2.10 4.0/4.1

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 10 Minutes

SUBMITTED: \_\_\_\_\_ OPERATION REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

~~~~~  
CANDIDATE NAME: \_\_\_\_\_ S.S. NUMBER: \_\_\_\_\_

JPM Completion: ( ) Simulated (X) Performed

Location: ( ) Plant (X) Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_  
SIGNATURE/PRINTED

**JOB PERFORMANCE MEASURE**

**RECORD AND CHECKLIST**

S/RO NEW TASK TITLE: VERIFY HPCI ISOLATION  
APPL. TO JPM NUMBER

Current Update: 3/9/05  
Date

By: RWD  
Int.

**Outstanding Items:**

<input type="checkbox"/> Technical Review	<input type="checkbox"/> Additional Information
<input type="checkbox"/> Questions and Answers	<input type="checkbox"/> Validation
<input type="checkbox"/> Procedural Change Required	<input checked="" type="checkbox"/> None

Comments:

**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO                      NEW      TASK TITLE: VERIFY HPCI ISOLATION  
APPL. TO                  JPM NUMBER

**I.      SAFETY CONSIDERATIONS**

- A.      None

**II.     REFERENCES**

- A.      OP-15, High Pressure Coolant Injection, Revision 50  
B.      AP-12.03, Conduct of Operations, Revision 30, Section 8.3

**III.    TOOLS AND EQUIPMENT**

- A.      None

**IV.    SET UP REQUIREMENTS**

- A.      Reset simulator to any >150 psig IC.  
B.      Verify HPCI in normal standby lineup.  
C.      Insert Simulator Malfunction HP11, HPCI 23MOV-15 AUTO ISOLATION FAILURE.  
D.      Insert Simulator Malfunction HP06, HPCI STEAM LINE BREAK

**V.     EVALUATOR NOTES**

- A.      If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.  
B.      The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

**VI.    TASK CONDITIONS**

- A.      HPCI has received an auto-isolation signal on a HPCI Steam Line Break  
B.      The Control Room Supervisor directs that the HPCI Isolation be verified per OP-15.

**\* - CRITICAL STEP**

S/RO

TASK TITLE: START UP MAIN STEAM LEAKAGE COLLECTION

**VII. INITIATING CUE**

**The HPCI System has just isolated. Verify that the HPCI Isolation is complete per OP-15.**

**VIII. TASK STANDARD**

**The candidate will manually isolate 23MOV-15 (Fails to Close) and verify the HPCI Isolation is complete.**

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain and review procedure	Candidate obtains and reviews OP-15. Candidate determines that the start point is step G.1.1.	SAT / UNSAT
*2.	(G.1.1) Ensure the following valves are closed: <ul style="list-style-type: none"><li>• TURB STOP VLV 23HOV-1</li><li>• OUTBD STM SUPP VLV 23MOV-16</li><li>• MIN FLOW VLV 23MOV-25</li><li>• INBD TORUS SUCT VLV 23MOV-58</li><li>• INBD STM SUPP VLV 23MOV-15</li><li>• OUTBD TORUS SUCT VLV 23MOV-57</li><li>• STM LINE WARMING ISOL VLV 23MOV-60</li><li>• INJ VLV 23MOV-19</li></ul>	Candidate sequentially locates listed valves and verifies each valve indicates "CLOSED." At the point where candidate encounters an "OPEN" INBD STM SUPP VLV 23MOV-15 (failure to isolate), candidate will close 23MOV-15. Candidate may or may not report the valve out-of-position to CRS.  <b><u>EVALUATOR:</u></b> Respond to candidate report(s) of isolation verification and/or 23MOV-15 failure to isolate in a manner consistent with the standard rules of three-point communications.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
<b><u>EVALUATOR:</u> Terminate the task at this point.</b>			

## **INITIATING CUE**

**The HPCI System has just isolated. Verify that the HPCI Isolation is complete per OP-15.**



**James A. FitzPatrick Nuclear Power Plant**

**OPERATIONS TRAINING PROGRAMS  
JOB PERFORMANCE MEASURE**

S/RO \_\_\_\_\_  
APPL. TO

FROM LOI-03-01  
JPM NUMBER

TASK TITLE: GROUP 1 ISOLATION RESET

REV: 1

DATE: 3/3/05

NRC K/A SYSTEM NUMBER: 223002 A4.03 3.6/3.5

JAF TASK NUMBER: \_\_\_\_\_

JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 10 Minutes

SUBMITTED: \_\_\_\_\_

OPERATION REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

~~~~~  
CANDIDATE NAME: \_\_\_\_\_

S.S. NUMBER: \_\_\_\_\_

JPM Completion:    ( ) Simulated        ( X ) Performed

Location:            ( ) Plant                ( X ) Simulator

DATE PERFORMED: \_\_\_\_\_

TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:    ( ) Satisfactory        ( ) Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_

SIGNATURE/PRINTED

**JOB PERFORMANCE MEASURE  
RECORD AND CHECKLIST**

S/RO  
APPL. TO

FROM LOI-03-01  
JPM NUMBER

TASK TITLE: GROUP 1 ISOLATION RESET

Current Update: 3/3/05  
Date

By: RWD Int.

**Outstanding Items:**

       Technical Review

       Additional Information

       Questions and Answers

       Validation

       Procedural Change Required

  X   None

**Comments:**

Simulator validated

**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO  
APPL. TO

FROM LOI-03-01  
JPM NUMBER

TASK TITLE: GROUP 1 ISOLATION RESET

**I. SAFETY CONSIDERATIONS**

- A. Ensure proper safety equipment and safety procedures are observed.

**II. REFERENCES**

- A. AOP-15, ISOLATION VERIFICATION AND RECOVERY Rev 23

**III. TOOLS AND EQUIPMENT**

- A. None

**IV. SET UP REQUIREMENTS**

- A. Current copy of AOP-15.
- B. Setup simulator with post trip conditions following MSIV closure on low steam pressure and ready for re-opening.

**V. EVALUATOR NOTES**

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

**VI. TASK CONDITIONS**

- A. Conditions have occurred which caused the MSIVs to isolate on low steam pressure.
- B. Action to restore the main condenser as a heat sink must be completed

**\* - CRITICAL STEP**



S/RO/NLO NEW

TASK TITLE: GROUP 1 ISOLATION RESET

**VII. INITIATING CUE**

Conditions have occurred which caused the MSIVs to isolate on low steam pressure. The cause of the isolation has been corrected. All radiological conditions and Reactor Chemistry samples are within normal bands. Reset the MSIV isolation using AOP-15."

**TASK STANDARD**

The candidate will reset the PCIS Group I isolation per AOP-15 Section C.2

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of AOP-15.	Obtains a controlled copy of AOP-15 and selects section C.2.	SAT / UNSAT
2.	<b>CAUTION:</b> The circumstances leading to an isolation could have caused high radioactivity levels in the drywell or in reactor coolant.	Informs SM/CRS of CAUTION.  <u>EVALUATOR:</u> Acknowledge candidate and respond that there is no concern for high radioactivity levels in drywell or reactor coolant.	SAT / UNSAT
3.	Verify Group 1 Isolation per posted Attachment 1 Item 4.	Selects the posted attachment 1 and at panel 09-3 and/or 09-4 confirms green closed light on and red open light off for:  ✓ 29 AOV-80 A-D ✓ 29 AOV-86 A-D ✓ 29 MOV-74 and 77	SAT / UNSAT
4.	Determine and correct cause of the isolation.	Candidate may confirm initiating cue information that cause has been determined and corrected.  <u>EVALUATOR:</u> If asked, confirm that cause is known and corrected and candidate may proceed as directed.	SAT / UNSAT

	STEP	STANDARD	EVALUATION / COMMENT
5.	IF cause of isolation was high main steam line radiation, THEN ....	Reviews step and determines that cause was NOT a result of high main steam line radiation and a release will not occur as a result of isolation reset.  <u>EVALUATOR</u> : If candidate requests, respond that an undesirable release will not occur.	SAT / UNSAT
6.	Determine whether an undesired release will occur when isolation is reset. Request RES assistance if in doubt.	Reviews step and determines that release will not occur as a result of isolation reset.  <u>EVALUATOR</u> : If candidate requests, respond that an undesirable release will not occur.	SAT / UNSAT
7.	WHEN it has been determined that an undesired release <u>will not</u> occur when isolation is reset, continue with procedure.	Reviews step and determines that release will not occur as a result of isolation reset.  <u>EVALUATOR</u> : If candidate requests, respond that an undesirable release will not occur.	SAT / UNSAT
* 8.	Ensure control switches for the following valves are in CLOSE: • RWR LOOP B SMPL ISOL VLV 02-2AOV-39 • RWR LOOP B SMPL ISOL VLV 02-2AOV-40	At 09-3 and 09-4 panels, place the valve switches in close and confirm green closed light on and red open light off.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
* 9.	IF MSIVs are closed, THEN place control switch for each of the following valves in CLOSE: • MSIV 29AOV-80A • MSIV 29AOV-80B • MSIV 29AOV-80C • MSIV 29AOV-80D • MSIV 29AOV-86A • MSIV 29AOV-86B • MSIV 29AOV-86C • MSIV 29AOV-86D	At 09-3 and 09-4 panels, place the valve switches in close and confirm green closed light on and red open light off.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>

S/RO/NLO NEW

TASK TITLE: GROUP 1 ISOLATION RESET

	STEP	STANDARD	EVALUATION / COMMENT
10.	<b>NOTE:</b> Step C.2.8 is not required to open MSIVs if Group 1 isolation was due to high main steam line radiation (3X normal full power background).	Reviews NOTE and determines that step C.2.8 <u>IS REQUIRED</u> . <u>EVALUATOR:</u> If candidate requests feedback regarding note, acknowledge the isolation was not due to high radiation.	SAT / UNSAT
• 11.	Simultaneously rotate the following PCIS VLV RESET switches to both RESET positions, spring return to NORM: • 16A-S32 • 16A-S33	At panel 09-5, operates the switches and confirm annunciators 09-5-1-55 and 56 clear.	SAT / UNSAT  <u><b>*CRITICAL STEP*</b></u>
12.	<b>NOTE:</b> Steps C.2.9 and C.2.10 may be performed in any order at the Shift Manager's discretion.	Reviews Note and requests feedback from SM regarding priority for action.  <u>EVALUATOR:</u> When candidate requests feedback regarding step priority, acknowledge the MSIVs have priority.	SAT / UNSAT
<u>EVALUATOR:</u> Terminate the task at this point.			

## **INITIATING CUE**

Conditions have occurred which caused the MSIVs to isolate on low steam pressure. The cause of the isolation has been corrected. All radiological conditions and Reactor Chemistry samples are within normal bands. Reset the MSIV isolation using AOP-15."



**Entergy**  
Nuclear Northeast

**James A. FitzPatrick Nuclear Power Plant**

**OPERATIONS TRAINING PROGRAMS  
JOB PERFORMANCE MEASURE**

S/RO                      FROM LOI-03-01 TASK TITLE: REOPEN MSIV's WITH RPV PRESSURIZED  
APPL. TO                      JPM NUMBER                     

REV:   1   DATE:   3/7/05   NRC K/A SYSTEM NUMBER:   239001 A4.04 3.8/3.7  

JAF TASK NUMBER:                      JAF QUAL STANDARD NUMBER:                     

ESTIMATED COMPLETION TIME:   15   Minutes

SUBMITTED:                      OPERATION REVIEW:                     

APPROVED:                     

~~~~~

CANDIDATE NAME:                      S.S. NUMBER:                     

JPM Completion: ( ) Simulated (X) Performed

Location: ( ) Plant (X) Simulator

DATE PERFORMED:                      TIME TO COMPLETE:        Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

~~~~~

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR:                     

SIGNATURE/PRINTED

**JOB PERFORMANCE MEASURE  
RECORD AND CHECKLIST**

S/RO  
APPL. TO

FROM LOI-03-01  
JPM NUMBER

TASK TITLE: Reopen MSIV's with RPV Pressurized

Current Update: 3/7/05  
Date

By: RWD  
Int.

Outstanding Items:

       Technical Review

       Additional Information

       Questions and Answers

       Validation

       Procedural Change Required

  X   None

Comments:

Simulator Validated

**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO  
APPL. TO

FROM LOI-03-01  
JPM NUMBER

TASK TITLE: Reopen MSIV's with RPV Pressurized

**I. SAFETY CONSIDERATIONS**

- A. None

**II. REFERENCES**

- A. EP-9; OPENING MSIV's, Rev 3

**III. TOOLS AND EQUIPMENT**

- A. None

**IV. SET UP REQUIREMENTS**

- A. Rx Scrammed with MSIV's closed.
- B. RPV Level > 126.5 and < 222.5.
- C. RPV Pressure Control on SRV's/HPCI/RCIC at 800-1000 psig.
- D. PCIS Group I isolation signals reset

**V. EVALUATOR NOTES**

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

**VI. TASK CONDITIONS**

- A. Plant is post scram with MSIV's closed

**\* - CRITICAL STEP**

VII. **INITIATING CUE:**

The reactor has scrammed and the MSIV's are closed. MSIV isolation signals have been reset. Another operator has RPV pressure control on the SRV's at 800-1000 psig. The plant is being controlled as directed by the EOP's. To reestablish the main condenser as the heat sink, equalize and reopen the MSIV's per EP-9.

**TASK STANDARD**

The candidate will equalize to less than a 200 psid D/P and open the MSIV's per EP-9

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of procedure EP-9, OPENING MSIV's	The candidate obtains a controlled copy of EP-9.	SAT / UNSAT
2.	IF differential pressure across the MSIVs is <b>LESS THAN OR EQUAL TO</b> 200 psid, <b>THEN</b> perform the following:	Candidate uses 06PI-90A, B, and or C at panel 09-5 and MAIN STEAM PRESS A and or B at EHC section of panel 09-5 to determine that differential pressure exceeds 200 psid.	SAT / UNSAT
3.	Ensure closed the following valves: ✓ MSIV 29AOV-80A-D ✓ MSIV 29AOV-86A-D ✓ MAIN STM DRN 29MOV-74, 77, 78 and 79 ✓ MAIN STM DRN VLV 29MOV-101A-D ✓ RFPT A and B HP STOP VLV HP SVA-1 and SVB-1 ✓ TSV-1-4 ✓ TO PCV 96MOV-S1 ✓ PCV BYP 96MOV-S2 ✓ 29MST-105 (SJAE MST supply 29PCV-107 outlet isol valve) (remote operated from East Electric Bay) ✓ 29MST-107 (SJAE MST supply 29PCV-107 bypass strainer outlet isol valve) (remote operated from East Electric Bay)	Candidate closes and/or observes green closed light on and red open light off at the following locations: ✓ MSIV 29AOV-80A-D at 09-3 and 09-4 ✓ MSIV 29AOV-86A-D at 09-3 and 09-4 ✓ MAIN STM DRN 29MOV-74, 77, 78 and 79 at 09-3 and 09-4 ✓ MAIN STM DRN VLV 29MOV-101A-D at 09-7 ✓ RFPT A and B HP STOP VLV HP SVA-1 at 09-6 ✓ TSV-1-4 at 09-5 ✓ TO PCV 96MOV-S1 at 09-7 ✓ PCV BYP 96MOV-S2 at 09-7 ✓ 29MST-105 (SJAE MST supply 29PCV-107 outlet isol valve) (remote operated from East Electric Bay) by telcon to NPO ✓ 29MST-107 (SJAE MST supply 29PCV-107 bypass strainer outlet isol valve) (remote operated from East Electric Bay) by telcon to NPO.	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
*4.	Open the following valves: MAIN STM DRN 29MOV-74 MAIN STM DRN 29MOV-77	At panel 09-3 and 4 candidate opens 29 MOV-74 and 77 and observes green closed light off and red open light on.	SAT / UNSAT <b><u>*CRITICAL STEP*</u></b>
5.	Jog open MAIN STM DRN 29MOV-79 until full open.	At panel 09-4 candidate jogs opens 29 MOV-79 until full open and observes green closed light off and red open light on.	SAT / UNSAT
*6.	Open the following valves: MSIV 29AOV-86A MSIV 29AOV-86B MSIV 29AOV-86C MSIV 29AOV-86D	At panel 09-3 candidate opens 29AOV-86 A-D and observes green closed light off and red open light on.	SAT / UNSAT <b><u>*CRITICAL STEP*</u></b>
*7.	Open MAIN STM DRN 29MOV-78.	At panel 09-4 candidate opens 29 MOV-78 and observes green closed light off and red open light on.	SAT / UNSAT <b><u>*CRITICAL STEP*</u></b>
8.	Close MAIN STM DRN 29MOV-79.	<b><u>EVALUATOR</u></b> Act as SM and waive step 5.9  At panel 09-4 candidate closes 29 MOV-79 and observes green closed light on and red open light off.	SAT / UNSAT
*9.	<b>WHEN</b> differential pressure across the MSIVs is <b>LESS THAN OR EQUAL TO</b> 200 psid, open the following valves: MSIV 29AOV-80A MSIV 29AOV-80B MSIV 29AOV-80C MSIV 29AOV-80D	Candidate uses 06PI-90A, B, and or C at panel 09-5 and MAIN STEAM PRESS A and or B at EHC section of panel 09-5 to determine differential pressure.  When differential pressure is $\leq$ 200 psid, candidate opens 29AOV-80 A-D at panel 09-4 and observes green closed light off and red open light on.	SAT / UNSAT <b><u>*CRITICAL STEP*</u></b>
<b><u>EVALUATOR:</u></b> Terminate the task at this point.			

## INITIATING CUE:

The reactor has scrammed and the MSIV's are closed. MSIV isolation signals have been reset. Another operator has RPV pressure control on the SRV's at 800-1000 psig. The plant is being controlled as directed by the EOP's. To reestablish the main condenser as the heat sink, equalize and reopen the MSIV's per EP-9.



**James A. FitzPatrick Nuclear Power Plant**

**OPERATIONS TRAINING PROGRAMS  
JOB PERFORMANCE MEASURE**

S/RO NEW TASK TITLE: CRD PUMP TRIP (ALT PATH)  
APPL. TO JPM NUMBER  
REV: 0 DATE: 1/14/05 NRC K/A SYSTEM NUMBER: 201001 A2.01 3.2/3.3  
JAF TASK NUMBER: JAF QUAL STANDARD NUMBER:  
ESTIMATED COMPLETION TIME: 10 Minutes  
SUBMITTED: OPERATION REVIEW:  
APPROVED:

~~~~~  
CANDIDATE NAME: S.S. NUMBER:

JPM Completion: ( ) Simulated (X) Performed

Location: ( ) Plant (X) Simulator

DATE PERFORMED: TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_  
SIGNATURE/PRINTED

**JOB PERFORMANCE MEASURE**

**RECORD AND CHECKLIST**

S/RO NEW TASK TITLE: CRD PUMP TRIP (ALT PATH)  
APPL. TO JPM NUMBER

Current Update: 1/14/05  
Date

By: RWD  
Int.

Outstanding Items:

<input type="checkbox"/> Technical Review	<input type="checkbox"/> Additional Information
<input type="checkbox"/> Questions and Answers	<input type="checkbox"/> Validation
<input type="checkbox"/> Procedural Change Required	<input checked="" type="checkbox"/> None

Comments:

**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO                      NEW      TASK TITLE: CRD PUMP TRIP (ALT PATH)  
APPL. TO                      JPM NUMBER

**I.      SAFETY CONSIDERATIONS**

A.      None

**II.     REFERENCES**

A.      AOP-69, CONTROL ROD DRIVE TROUBLE, Revision 6.

**III.    TOOLS AND EQUIPMENT**

A.      None

**IV.    SET UP REQUIREMENTS**

- A.      Simulator in any power operation IC with the "A" CRD pump in service
- B.      Insert MFI-RD06:A ("A" CRD Pump Trip) and allow one accumulator trouble alarm to appear.
- C.      Insert MFI-RD06:B ("B" CRD Pump Trip)

**V.     EVALUATOR NOTES**

- A.      If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- B.      The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

**VI.    TASK CONDITIONS**

A.      None

**\* - CRITICAL STEP**

S/RO

TASK TITLE: CRD PUMP TRIP (ALT PATH)

**VII. INITIATING CUE**

The plant was operating normally at power when the "A" CRD pump tripped unexpectedly. Local inspections indicate catastrophic failure of the gear case requiring extensive maintenance. An NPO is responding to the Accumulator Trouble Alarm. You are instructed to start the "B" CRD pump per AOP-69.

**VIII. TASK STANDARD**

The candidate will respond to a CRD Pump Trip per AOP-69

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain and review procedure	Candidate obtains and reviews AOP-69. Candidate determines that the start point is step C.1.5  <b><u>EVALUATOR</u></b>  If requested, "A" CRD pump did NOT trip on low suction pressure and the CRD pump breakers have been inspected at 71L15 and 71L16.	SAT / UNSAT
2.	a. Ensure CRD FLOW CNTRL 03FIC-301 is in MAN.	At 09-5, candidate selects CRD Flow Control GEMAC Controller mode select knob to MAN.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
3.	b. Rotate manual control knob on CRD FLOW CNTRL 03FIC-301 fully counterclockwise.	At 09-5, candidate rotates CRD Flow Control GEMAC manual flow control knurled knob counterclockwise.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
4.	c. Verify inservice CRD flow control valve (03FCV-19A or B) is closed.	At 09-5, candidate observes green lamp on and red lamp off for both CRD Flow Control Valves.	SAT / UNSAT
5.	d. Attempt to start one CRD pump(CRD PMP 03P-16A or CRD PMP 03P-16B). If the first pump fails to start, attempt to start the other.	At 09-5, Candidate selects "B" CRD Pump Control Switch to START (Spring Return to NORM)  Candidate recognizes trip of "B" CRD Pump  Candidate dispatches NPO to investigate.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>

S/RO

TASK TITLE: CRD PUMP TRIP (ALT PATH)

	STEP	STANDARD	EVALUATION / COMMENT
6.	e. IF neither CRD pump can be started, THEN proceed to Subsection C.2.	<b><u>EVALUATOR</u></b> Act as NPO and report the "B" CRD Pump Breaker has exploded.  Candidate determines that neither CRD pump can be started and proceeds to Subsection C.2	SAT / UNSAT
7.	C.2.1 IF at least one CRD pump will not be made available within a reasonable period of time, as determined by the SM or CRS, AND two or more ACCUM alarm lights are on at panel 09-5 full core display, THEN manually scram reactor and enter AOP-1.	<b><u>EVALUATOR</u></b> If necessary, provide feedback that several hours will be required to repair/replace the "B" CRD pump breaker.  Upon receipt of additional Accumulator Trouble Lights, the candidate inserts a manual scram and commences AOP-1 Immediate Actions.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
<b><u>EVALUATOR:</u></b> Terminate the task at this point.			

## **INITIATING CUE**

**The plant was operating normally at power when the "A" CRD pump tripped unexpectedly. Local inspections indicate catastrophic failure of the gear case requiring extensive maintenance. An NPO is responding to the Accumulator Trouble Alarm. You are instructed to start the "B" CRD pump per AOP-69.**





**James A. FitzPatrick Nuclear Power Plant**

**OPERATIONS TRAINING PROGRAMS  
JOB PERFORMANCE MEASURE**

S/RO                      NEW      TASK TITLE: SWAP FEEDWATER LEVEL CONTROL (SINGLE TO THREE-ELEMENT)

APPL. TO                      JPM NUMBER

REV: 0                      DATE: 3/9/05                      NRC K/A SYSTEM NUMBER: 259002 A4.06 3.1/3.2

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 15 Minutes

SUBMITTED: \_\_\_\_\_ OPERATION REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

~~~~~

CANDIDATE NAME: \_\_\_\_\_ S.S. NUMBER: \_\_\_\_\_

JPM Completion:      ( ) Simulated                      (X) Performed

Location:                      ( ) Plant                      (X) Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:      ( ) Satisfactory                      ( ) Unsatisfactory

~~~~~

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_

SIGNATURE/PRINTED

## JOB PERFORMANCE MEASURE

## RECORD AND CHECKLIST

S/RO                      NEW      TASK TITLE: SWAP FEEDWATER LEVEL CONTROL (SINGLE TO THREE-ELEMENT)

APPL. TO                      JPM NUMBER

Current Update: 3/9/05  
                            Date

By: RWD  
            Int.

### Outstanding Items:

       Technical Review

       Additional Information

       Questions and Answers

       Validation

       Procedural Change Required

  X   None

Comments:

**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO                      NEW      TASK TITLE: SWAP FEEDWATER LEVEL CONTROL (SINGLE TO THREE-ELEMENT)

APPL. TO                      JPM NUMBER

**I.      SAFETY CONSIDERATIONS**

A.      None

**II.     REFERENCES**

A.      OP-2A, Feedwater System, Rev.54

B.      OP-65, Startup and Shutdown Procedure, Rev. 102

**III.    TOOLS AND EQUIPMENT**

A.      None

**IV.    SET UP REQUIREMENTS**

A.      Obtain current copies of OP-65, Startup and Shutdown Procedure and OP-2A, Feedwater System.

B.      ~30% CTP IC during reactor startup with plant conditions stable.

C.      FWLC in Master Auto Single-Element Control on Either Reactor Feed Pump.

**V.     EVALUATOR NOTES**

A.      If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.

B.      The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

**VI.    TASK CONDITIONS**

A.      A Reactor Startup is in progress.

B.      Reactor Power is just above 25% CTP.

C.      Currently at Step D.24.4 of OP-65, Startup and Shutdown Procedure

**• - CRITICAL STEP**

S/RO

TASK TITLE: SWAP FEEDWATER LEVEL CONTROL (SINGLE TO THREE-ELEMENT)

**VII. INITIATING CUE**

**A reactor startup is in progress. Per OP-65, Step D.24.4, you have been directed to transfer the Feedwater Level Control System from Single-Element to Three-Element control.**

**VIII. TASK STANDARD**

The candidate will transfer Feedwater Level Control from Single-Element to Three-Element per OP-2A.

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain and review procedure.	Candidate obtains and reviews OP-65 and OP-2A. Candidate determines that the start point is step G.34.1 of OP-2A.	SAT / UNSAT
2.	(G.34.1) Stabilize RPV water level at 196.5 to 203 inches on 06LI-94A, B, and C.	Candidate verifies stable 09-5 Panel RPV Level parameters in the required range (196.5 to 203 inches).	SAT / UNSAT
3.	(G.34.2) Verify RX WTR LVL CNTRL 06LC-83 is in BAL.	Candidate verifies that 09-5 Panel Master Control Transfer (Mode Selector) Switch (collar around knurled knob) for RX WTR LVL CNTRL 06LC-83 is in the "BAL" (Balance) position.	SAT / UNSAT
*4.	(G.34.3) Slowly adjust RX WTR LVL CNTRL 06LC-83 manual control knob to balance controller.	Candidate adjusts 09-5 Panel Manual Output Control (knurled knob potentiometer) until red pointer on Deviation Meter is approximately mid-scale.	SAT / UNSAT <b><u>*CRITICAL STEP*</u></b>

S/RO

TASK TITLE: SWAP FEEDWATER LEVEL CONTROL (SINGLE TO THREE-ELEMENT)

	STEP	STANDARD	EVALUATION / COMMENT
5.	(G.34.4.a) Ensure RFP A FLOW CNTRL 06-84A in manual as follows: a. Ensure controller is in BAL	Candidate verifies that 09-5 Panel M/A Transfer Switch (collar around knurled knob) for RFP A FLOW CNTRL 06-84A is in the "BAL" (Balance) position.	SAT / UNSAT
*6.	(G.34.4.b) b. Balance controller by adjusting manual control knob	Candidate adjusts 09-5 Panel Manual Output Control (knurled knob potentiometer) on RFP A FLOW CNTRL 06-84A until pointer is mid-scale on Deviation Meter (top of controller).	SAT / UNSAT <b><u>*CRITICAL STEP*</u></b>
*7.	(G.34.4.c) c. Place controller in MAN	Candidate turns 09-5 Panel M/A Transfer Switch (collar around knurled knob) for RFP A FLOW CNTRL 06-84A clockwise one position to "MAN" (Manual).	SAT / UNSAT <b><u>*CRITICAL STEP*</u></b>
8.	(G.34.5.a) Ensure RFP B FLOW CNTRL 06-84B in manual as follows: a. Ensure controller is in BAL	Candidate verifies that 09-5 Panel M/A Transfer Switch (collar around knurled knob) for RFP B FLOW CNTRL 06-84B is in the "BAL" (Balance) position.	SAT / UNSAT
*9.	(G.34.5.b) b. Balance controller by adjusting manual control knob	Candidate adjusts 09-5 Panel Manual Output Control (knurled knob potentiometer) RFP B FLOW CNTRL 06-84B until pointer is mid-scale on Deviation Meter (top of controller).	SAT / UNSAT <b><u>*CRITICAL STEP*</u></b>

S/RO

TASK TITLE: SWAP FEEDWATER LEVEL CONTROL (SINGLE TO THREE-ELEMENT)

	STEP	STANDARD	EVALUATION / COMMENT
*10.	(G.34.5.c) c. Place controller in MAN	Candidate turns 09-5 Panel M/A Transfer Switch (collar around knurled knob) for RFP B FLOW CNTRL 06-84B clockwise one position to "MAN" (Manual).  <b><u>EVALUATOR NOTE:</u></b> Candidate now has RPV Water Level Control in Manual and will adjust the Manual Control Potentiometer on 06-84A/B, as necessary, to maintain level 196 to 206.5 inches.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
*11.	(G.34.6) Place 1 or 3 ELEMENT LVL CNTRL SEL 06S-2 in 3 ELEMENT.	Candidate turns Element Control Select Switch on 09-5 Panel clockwise one position to "3 ELEMENT".	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
12.	(G.34.7) Verify RX WTR LVL CNTRL 06LC-83 remains balanced.	Candidate verifies 09-5 Panel RX WTR LVL CNTRL 06LC-83 red pointer on Deviation Meter is approximately mid-scale.	SAT / UNSAT
13.	(G.34.8) Transfer RFP A and B control to automatic per Subsection G.7.	Candidate obtains and reviews OP-2A, Section G.7. Candidate determines that the start point is step G.7.1 of OP-2A.	SAT / UNSAT
14.	(G.7.1) Stabilize RPV water level at 197 to 203 inches on 06LI-94A, B, and C.	Candidate verifies stable 09-5 Panel RPV Level parameters in the required range.	SAT / UNSAT

S/RO

TASK TITLE: SWAP FEEDWATER LEVEL CONTROL (SINGLE TO THREE-ELEMENT)

	STEP	STANDARD	EVALUATION / COMMENT
15.	(G.7.2) Verify the following controllers are in MAN: <ul style="list-style-type: none"> <li>• RFP A FLOW CNTRL 06-84A</li> <li>• RFP B FLOW CNTRL 06-84B</li> </ul>	Candidate verifies 09-5 Panel M/A Transfer Switches (collars around knurled knob) for RFP A/B FLOW CNTRL 06-84A/B are in the position of "MAN" (Manual).	SAT / UNSAT
*16.	(G.7.3) Place RX WTR LVL CNTRL 06LC-83 in MAN.	Candidate turns the 09-5 Panel M/A Transfer Switch (collar around knurled knob) for RX WTR LVL CNTRL 06LC-83 clockwise one position to "MAN" (Manual).	SAT / UNSAT <u>*CRITICAL STEP*</u>
*17.	(G.7.4) Slowly adjust RX WTR LVL CNTRL 06LC-83 manual control knob to balance RFP A FLOW CNTRL 06-84A.	Candidate adjusts 09-5 Panel Manual Output Control (knurled knob potentiometer) on RX WTR LVL CNTRL 06LC-83 until pointer on RFP A FLOW CNTRL 06-84A is mid-scale on Deviation Meter (top of controller).	SAT / UNSAT <u>*CRITICAL STEP*</u>
*18.	(G.7.5) Place RFP A FLOW CNTRL 06-84A in BAL.	Candidate turns 09-5 Panel M/A Transfer Switch (collar around knurled knob) for RFP A FLOW CNTRL 06-84A counterclockwise one position to "BAL" (Balance).	SAT / UNSAT <u>*CRITICAL STEP*</u>
*19.	(G.7.6.a) Line up RX WTR LVL CNTRL 06LC-83 as follows: a. Balance controller by adjusting setpoint tape.	Candidate adjusts 09-5 Panel Setpoint Control on RX WTR LVL CNTRL 06LC-83 until red pointer on Deviation Meter is approximately mid-scale.	SAT / UNSAT <u>*CRITICAL STEP*</u>

S/RO

TASK TITLE: SWAP FEEDWATER LEVEL CONTROL (SINGLE TO THREE-ELEMENT)

	STEP	STANDARD	EVALUATION / COMMENT
*20.	(G.7.6.b) b. Place controller in BAL.	Candidate turns 09-5 Panel Master Control Transfer Switch (collar around knurled knob) for RX WTR LVL CNTRL 06LC-83 counterclockwise one position to "BAL" (Balance).  <b><u>EVALUATOR NOTE:</u></b>  This step restores Automatic RPV Water Level Control.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
*21.	(G.7.7.a) Line up RFP A FLOW CNTRL 06-84B as follows: a. Balance controller by adjusting manual control knob	Candidate <b>slowly</b> adjusts 09-5 Panel Manual Output Control (knurled knob potentiometer) RFP B FLOW CNTRL 06-84B until pointer is mid-scale on Deviation Meter (top of controller).	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
*22.	(G.7.7.b) b. Place controller in BAL.	Candidate turns 09-5 Panel M/A Transfer Switch (collar around knurled knob) for RFP B FLOW CNTRL 06-84B counterclockwise one position to "BAL" (Balance).	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
<b><u>EVALUATOR:</u> Terminate the task at this point.</b>			



## **INITIATING CUE**

**A reactor startup is in progress. Per OP-65, Step D.24.4, you have been directed to transfer the Feedwater Level Control System from Single-Element to Three-Element control.**



**James A. FitzPatrick Nuclear Power Plant**

**OPERATIONS TRAINING PROGRAMS  
JOB PERFORMANCE MEASURE**

S/RO      26201001A      TASK TITLE: SWAP ELECTRICAL BUSES FROM RESERVE STATION  
SERVICE TO NORMAL STATION SERVICE (T-4)

APPL. TO      JPM NUMBER

REV: 0      DATE: 3/10/05      NRC K/A SYSTEM NUMBER: 262001 A4.04 3.6/3.7

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 15 Minutes

SUBMITTED: \_\_\_\_\_ OPERATION REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

~~~~~  
CANDIDATE NAME: \_\_\_\_\_ S.S. NUMBER: \_\_\_\_\_

JPM Completion:      ( ) Simulated      (X) Performed

Location:      ( ) Plant      (X) Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:      ( ) Satisfactory      ( ) Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_

SIGNATURE/PRINTED

## JOB PERFORMANCE MEASURE

## RECORD AND CHECKLIST

S/RO                      NEW      TASK TITLE: SWAP ELECTRICAL BUSES FROM RESERVE STATION  
SERVICE TO NORMAL STATION SERVICE (T-4)

APPL. TO                      JPM NUMBER

Current Update: 3/10/05  
Date

By: RWD  
Int.

### Outstanding Items:

☐ Technical Review

☐ Additional Information

☐ Questions and Answers

☐ Validation

☐ Procedural Change Required

☒ None

Comments:

**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO                      NEW      TASK TITLE: SWAP ELECTRICAL BUSES FROM RESERVE STATION  
SERVICE TO NORMAL STATION SERVICE (T-4)

APPL. TO                      JPM NUMBER

**I.      SAFETY CONSIDERATIONS**

A.      None

**II.     REFERENCES**

A.      OP-46A, 4160V and 600V NORMAL AC POWER DISTRIBUTION, Rev. 48

B.      OP-65, Startup and Shutdown Procedure, Rev. 102

**III.    TOOLS AND EQUIPMENT**

A.      Synch Selector Switch Key

**IV.    SET UP REQUIREMENTS**

A.      Obtain current copy of OP-46A, 4160V and 600V NORMAL AC POWER DISTRIBUTION.

B.      ~20% CTP IC during reactor startup with plant conditions stable.

C.      Main Generator is synchronized to the Grid. The 10700 Bus is de-energized. All 4160 VAC Busses on RSS.

D.      ORI Running Voltmeter downscale and attach a PID Tag.

**V.     EVALUATOR NOTES**

A.      If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.

B.      The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

**VI.    TASK CONDITIONS**

A.      A Reactor Startup is in progress. Reactor Power is ~20% CTP. Currently at Step D.23.5 of OP-65, Startup and Shutdown Procedure

B.      All prerequisites for transferring from reserve to normal station service have been met. Main Generator is synched to the grid.

C.      The Shift Manager has given direction to transfer loads from Reserve to Normal Station Service.

**\* - CRITICAL STEP**

S/RO

TASK TITLE: SWAP ELECTRICAL BUSES FROM RESERVE STATION SERVICE TO NORMAL STATION SERVICE (T-4)

**VII. INITIATING CUE**

A reactor startup is in progress with the plant at approximately 20% CTP and the Main Generator synched to the grid. Per OP-65, Step D.23.5, you have been directed to transfer loads from Reserve 115kv Transformers T2 and T3 to Normal Station Service Transformer T-4.

**VIII. TASK STANDARD**

The candidate will transfer either the 10100 Bus or the 10200 Bus per OP-46A.

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain and review procedure.	Candidate obtains and reviews OP-65 and OP-46A. Candidate determines that the start point is either step D.20 (10100) or D.21 (10200) of OP-46A.	SAT / UNSAT
2.	(D.20/21.1) While performing the remainder of this subsection maintain 4 KV and 600V bus voltage per Section E.	Candidate obtains/reviews OP-46A, Section E.	SAT / UNSAT
3.	(D.20/21.2) IF a degraded or undervoltage condition occurs while transferring bus, THEN immediately establish GREATER THAN 3.9 KV using LTC CONTROL.	Not expected with established conditions. Therefore N/A.	N / A
4.	(D.20/21.3) IF Main Generator is synchronized to 345 KV System, THEN verify Main Generator has a stable load of at least 70 MWe.	At the 09-7 Panel, candidate observes MAIN GEN MW to be greater than or equal to 70MWe.	SAT / UNSAT

S/RO

TASK TITLE: SWAP ELECTRICAL BUSES FROM RESERVE STATION SERVICE TO NORMAL STATION SERVICE (T-4)

	STEP	STANDARD	EVALUATION / COMMENT
5.	(D.20/21.4) Ensure Clark Energy Control Center and Nine Mile Point 1 Control Room (due to effect on 115 KV line loading) have been notified that 10100/10200 Bus will be transferred from reserve to normal service.	<b><u>EVALUATOR:</u></b> Inform candidate that notifications have been made.	SAT / UNSAT
6.	(D.20/21.5) Station operators as follows: <ul style="list-style-type: none"> <li>One to adjust bus voltage at LTC CONTROL</li> <li>One to operate breaker control switches</li> </ul>	<b><u>EVALUATOR:</u></b> Inform candidate that a surrogate operator is at the LTC CONTROL to respond to his/her direction.	SAT / UNSAT
*7.	(D.20/21.6) Place BUS 10100/100200 FDR SYNCH SW switch in NORM.	At 09-8, candidate inserts Synch Selector Switch Key into BUS 10100 (10200) FDR SYNCH SW and turns clockwise on notch to NORM (Normal) position.	SAT / UNSAT <b><u>*CRITICAL STEP*</u></b>
8.	(D.20/21.7) IF voltages on NON-EMERG BKRS INCOMING and RUNNING volt meters can not be matched in following step, THEN perform subsection G.14, Single Meter Voltage Match Method.	Candidate will recognize the need, during performance of next step (D.20/21.8), that this step will be applicable and will obtain and review OP-46A, Section G.14; and determine start point to be G.14.1.	SAT / UNSAT

S/RO

TASK TITLE: SWAP ELECTRICAL BUSES FROM RESERVE STATION SERVICE TO NORMAL STATION SERVICE (T-4)

	STEP	STANDARD	EVALUATION / COMMENT
*9.	(D.20/21.8) Match voltages on NON-EMERG BKRS INCOMING and RUNNING volt meters using LTC CONTROL switch.	At 09-8, candidate will direct LTC Control adjustment(s) and determine that INCOMING and RUNNING Voltages are unable to be matched within required band, necessitating use of the OP-46A, Section G.14, Single Meter Voltage Match Method.  <b><u>EVALUATOR:</u></b> Surrogate is acting as the extra operator at LTC CONTROL, and will respond to candidate direction only.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
10.	(G.14.1) IF voltage mismatch is greater than 6 meter increments, THEN obtain guidance for performing bus transfer from Design Engineering.	<b><u>EVALUATOR:</u></b> Inform candidate that due to the failure of the Running meter, Design Engineering has recommended the use of OP-46A, Section G.14.	N / A
*11.	(G.14.2.a) IF transferring 4.16 KV bus from reserve to normal, THEN perform the following:  a. Place 4.16 KV bus FDR SYNCH SW switch in RES.	At 09-8, candidate turns Synch Selector Switch Key for BUS 10100 (10200) FDR SYNCH SW counterclockwise two notches to RES (Reserve) position.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
12.	(G.14.2.b) b. Note voltage on incoming meter.	Candidate observes 09-8 Panel INCOMING Voltmeter. Candidate may write the value down or just commit it to memory.  <b><u>EVALUATOR:</u></b> Ensure that you note voltage also.	SAT / UNSAT

S/RO

TASK TITLE: SWAP ELECTRICAL BUSES FROM RESERVE STATION SERVICE TO NORMAL STATION SERVICE (T-4)

	STEP	STANDARD	EVALUATION / COMMENT
*13.	(G.14.2.c) c. Place 4.16 KV bus FDR SYNCH SW switch in NORM.	At 09-8, candidate turns Synch Selector Switch Key for BUS 10100 (10200) FDR SYNCH SW clockwise two notches to NORM (Normal) position.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
*14.	(G.14.2.d) d. Match voltages on NON-EMERG BKRS INCOMING and RUNNING volt meters using LTC CONTROL switch.	At 09-8, candidate directs LTC CONTROL operator to operate tap changer to obtain voltage mismatch value within 5% (maximum) of value noted / written down in step G.14.2.b (JPM Step 12 above).  <b><u>EVALUATOR:</u></b>  The surrogate is acting as the extra operator at LTC CONTROL, and will respond to candidate direction only.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
15.	(D.20/21.9) IF phase angle is GREATER THAN 17 degrees NON-EMERG BKRS SYNCHROSCOPE, THEN perform the following:  <b><i>List not required.</i></b>	Not expected with established conditions.  At 09-8, candidate locates and correctly reads the phase angle as indicated on Synchroscope, compares the indicated value to value contained in OP-46A (17°), and determines phase angle is less than 17°.	SAT / UNSAT



S/RO

TASK TITLE: SWAP ELECTRICAL BUSES FROM RESERVE STATION SERVICE TO NORMAL STATION SERVICE (T-4)

	STEP	STANDARD	EVALUATION / COMMENT
*16.	<p>(D.20/21.10)</p> <p>WHEN incoming and running voltages are matched, AND synchroscope is at approximately 12 o'clock, perform the following bus transfer using the same hand, without unnecessary delay, to perform each breaker operation:</p> <p>a. Close NSS TO BUS 10100 /10200 BKR 10102 / 10202</p> <p>b. Open RSS TO BUS 10100 /10200 BKR 10112 / 10212</p>	<p>At 09-8, candidate:</p> <ol style="list-style-type: none"> <li>1. Observes incoming meter</li> <li>2. Directs voltage adjustment, if necessary, to re-establish matched conditions</li> <li>3. Observes position of synchroscope</li> <li>4. When synchroscope is at approximately 12 o'clock (&lt;17° phase angle)</li> <li>5. Without hesitation and with same hand, operates breakers as follows: <ul style="list-style-type: none"> <li>• Close NSS TO BUS 10100 /10200 BKR 10102 / 10202 by turning control switch clockwise to CLOSE; and releasing on Red light indication of breaker closure.</li> <li>• Open RSS TO BUS 10100 /10200 BKR 10112 / 10212 by turning control switch counterclockwise to TRIP; and releasing on Green light indication of breaker open.</li> </ul> </li> </ol> <p><b><u>EVALUATOR:</u></b></p> <p>Breaker operations should occur in an expeditious and deliberate process. Due to concern for possible high current developing and causing Breaker Trips. Also, the same hand should be used, operating the breakers one at a time, to prevent inadvertently opening both breakers at the same time.</p>	<p>SAT / UNSAT</p> <p><b><u>*CRITICAL STEP*</u></b></p>

S/RO

TASK TITLE: SWAP ELECTRICAL BUSES FROM RESERVE STATION SERVICE TO NORMAL STATION SERVICE (T-4)

	STEP	STANDARD	EVALUATION / COMMENT
17.	(D.20/21.11) Place Bus 10100 / <b>10200</b> FDR SYNCH SW switch in OFF and remove handle.	At 09-8, candidate turns Synch Selector Switch Key for BUS 10100 ( <b>10200</b> ) FDR SYNCH SW counterclockwise one notch to OFF position and removes key.	SAT / UNSAT
18.	(D.20/21.12) Verify all white lights for RPS A and RPS B power source selectors are on at Panel 09-16.	Candidate proceeds to Panel 09-16, locates white RPS A and RPS B power lights, and observes that they are illuminated.	SAT / UNSAT
<b><u>EVALUATOR:</u> Terminate the task at this point.</b>			

## **INITIATING CUE**

**A reactor startup is in progress with the plant at approximately 20% CTP and the Main Generator synched to the grid. Per OP-65, Step D.23.5, you have been directed to transfer loads from Reserve 115kv Transformers T2 and T3 to Normal Station Service Transformer T-4.**



**James A. FitzPatrick Nuclear Power Plant**

**OPERATIONS TRAINING PROGRAMS  
JOB PERFORMANCE MEASURE**

S/RO \_\_\_\_\_  
APPL. TO

FROM LOI-03-01  
JPM NUMBER

TASK TITLE: ST-5D, APRM CALIBRATION

REV: 1

DATE: 3/7/05

NRC K/A SYSTEM NUMBER: 215005 A1.07 3.0/3.4

JAF TASK NUMBER: \_\_\_\_\_

JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 20 Minutes

SUBMITTED: \_\_\_\_\_

OPERATION REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

~~~~~  
CANDIDATE NAME: \_\_\_\_\_

S.S. NUMBER: \_\_\_\_\_

JPM Completion:    ( ) Simulated        ( X ) Performed

Location:            ( ) Plant                ( X ) Simulator

DATE PERFORMED: \_\_\_\_\_

TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:    ( ) Satisfactory        ( ) Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_

SIGNATURE/PRINTED

**JOB PERFORMANCE MEASURE  
RECORD AND CHECKLIST**

S/RO  
APPL. TO

FROM LOI-03-01  
JPM NUMBER

TASK TITLE: ST-5D, APRM CALIBRATION

Current Update: 3/7/05  
Date

By: RWD  
Int.

**Outstanding Items:**

       Technical Review

       Additional Information

       Questions and Answers

       Validation

       Procedural Change Required

  X   None

**Comments:**

Simulator validated

**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO  
APPL. TO

FROM LOI-03-01  
JPM NUMBER

TASK TITLE: ST-5D, APRM CALIBRATION

**I. SAFETY CONSIDERATIONS**

- A. None

**II. REFERENCES**

- A. ST-5D, APRM CALIBRATION, Rev. 2
- B. OP-16, NEUTRON MONITORING, Rev. 25

**III. TOOLS AND EQUIPMENT**

- A. Small Screwdriver

**IV. SET UP REQUIREMENTS**

- A. ~98% CTP IC. EPIC/3D available and plant conditions stable.
- B. Adjust all APRM's to an acceptable value per ST-5D.
- C. Adjust "D" APRM to 3-4% below desired value of ST-5D (@98% CTP).

**V. EVALUATOR NOTES**

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.
- C. This JPM performance data based upon D APRM initially 3-4% low at ~98% CTP

**VI. TASK CONDITIONS**

- A. Plant returning to 100% CTP following rod pattern exchange. Currently at ~98 % CTP.
- B. ST-5D required prior to continuing to 100% CTP.

**\* - CRITICAL STEP**

S/RO FROM LOI-03-01  
TASK TITLE: ST-5D, APRM CALIBRATION  
VII. INITIATING CUE

**You are the SNO. The plant is currently operating at ~98% CTP following a rod pattern exchange with no equipment out of service. The plant has been stable for several minutes. ST-5D, APRM CALIBRATION is required prior to continuing to 100% CTP. Perform ST-5D.**

**EVALUATOR**

Hand partially completed ST-5D to candidate

**TASK STANDARD**

The candidate will conduct an APRM calibration as directed by ST-5D. This calibration will require the adjustment to 1 APRM.

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain and review procedure	Candidate obtains and reviews a current copy of ST-5D	SAT / UNSAT
2.	<b>8.1 Procedure Performance</b> Determine the applicable procedure subsection to perform as follows: ( ) IF reactor power is <b>LESS THAN</b> 25%, <b>THEN</b> perform Subsection 8.2. ( ) IF reactor power is <b>GREATER THAN OR EQUAL TO</b> 25%, <b>AND</b> the MONICORE programs are operable, <b>THEN</b> perform Subsection 8.3. ( ) IF reactor power is <b>GREATER THAN OR EQUAL TO</b> 25%, <b>AND</b> the MONICORE programs are not operable, <b>THEN</b> have Reactor Engineering perform Subsection 8.4.	Candidate selects subsection 8.3	SAT / UNSAT

S/RO FROM LOI-03-01  
 TASK TITLE: ST-5D, APRM CALIBRATION

	STEP	STANDARD	EVALUATION / COMMENT
*3.	8.3.1 IF core power has changed <b>GREATER THAN 2%</b> , OR the control rod pattern has changed since the last core performance program was executed, <b>THEN</b> demand an Official 3D Program.	Candidate demands Official 3D at 3D keyboard by selecting: <ul style="list-style-type: none"> <li>• Option 4, Run Official 3D</li> <li>• Tab to Execute</li> <li>• Select 2 on the number pad</li> </ul>	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
*4.	8.3.2 Determine APRM DR from the higher of the following values: <ul style="list-style-type: none"> <li>• Largest MFLPD x 100</li> <li>• Percent core thermal power</li> </ul>	Candidate selects Percent Core Thermal Power with a value of ~98%.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
5.	8.3.3 [ITS] Adjust APRMs per Subsection 8.5.	Candidate proceeds to subsection 8.5	SAT / UNSAT
6.	8.5.1 Record initial APRM readings in Table 1.	Candidate records values from Official 3D	SAT / UNSAT
7.	8.5.2 Record DR in Table 1.	Candidate records value selected in 8.3.2	SAT / UNSAT
*8.	8.5.3 [ITS] Identify any APRM(s) requiring adjustment in Table 1. APRM shall be adjusted to indicate within $\pm 2\%$ of the DR.	Candidate identifies D APRM as requiring adjustment.	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
9.	8.5.4 IF APRM adjustment is required, <b>THEN</b> perform the following for each APRM requiring adjustment: <b>NOTE:</b> Bypassing APRM may be omitted per SM.	<b><u>EVALUATOR</u></b>  The Shift Manager desires that the APRM's be bypassed for adjustments.	SAT / UNSAT
10.	A. Bypass the APRM channel requiring calibration per Section E of OP-16.	Candidate obtains and review OP-16 noting any cautions that may be applicable	SAT / UNSAT
11.	Select proper procedure section	Candidate selects section E.16	SAT / UNSAT
12.	E.16.1 Place APRM BYP switch in (*).	At 09-5 panel, candidate selects 'B' division joystick to D.	SAT / UNSAT



	STEP	STANDARD	EVALUATION / COMMENT
13.	E.16.2 Verify APRM (*) is bypassed using one or both of the following: APRM (*) BYPASS indicating light is on APRM (*) EPIC alarm indicates bypassed	At 09-5 panel, candidate observes white bypass lamp for APRM D.  AND / OR Candidate notes EPIC alarm typer indicates selected APRM bypass is ON	SAT / UNSAT
14.	E.16.3 Verify the other two APRM channels associated with the same APRM BYP switch are in service using one or both of the following: APRM BYPASS indicating lights are off for the other two APRMs No EPIC bypassed alarms for the other two APRMs	Candidate notes the absence of the same indications for the remaining APRM's in that RPS division (B and F).	SAT / UNSAT
15.	ST-5D, 8.5.4 continued: B. Ensure METER FUNCTION switch is set to AVERAGE.	At panel 09-14, candidate selects 'D' APRM and confirms Meter Function switch is in average.	SAT / UNSAT
16.	C. Ensure APRM MODE switch is in the OPERATE position.	At panel 09-14, candidate selects 'D' APRM and confirms Mode switch is in operate.	SAT / UNSAT
*17.	<b>NOTE:</b> Clockwise turn raises meter reading; counterclockwise turn lowers meter reading. D. [ITS] Turn gain adjustment control (R16) on LPRM card Z-31 to obtain a meter reading within $\pm 2\%$ of DR.	At panel 09-14, candidate inserts small screwdriver into upper left simulated rheostat for the 'D' APRM. Candidate turns clockwise to raise indication to ~98%. <b>EVALUATOR</b> In the simulator, Z-31 card can be identified but the photos do not support reading R-16	SAT / UNSAT <b>*CRITICAL STEP*</b>
18.	E. Unbypass APRM per Section E of OP-16.	Candidate obtains OP-16 and selects section E.17	SAT / UNSAT
20.	E.17.1 Verify the following lights for APRM (*) are off at panel 09-14: INOP UPSCL NEUT TRIP UPSCL THERM TRIP	At top of panel 09-14, candidate identifies lamps for the 'D' APRM.	SAT / UNSAT

S/RO FROM LOI-03-01  
 TASK TITLE: ST-5D, APRM CALIBRATION

	STEP	STANDARD	EVALUATION / COMMENT
21.	E.17.2 Place APRM BYP switch for APRM (*) in center position.	At panel 09-5, candidate selects 'B' division APRM joystick to center position.	SAT / UNSAT
22.	E.17.3 Verify APRM (*) is returned to service using one or both of the following: APRM (*) BYPASS indicating light is off No EPIC bypassed alarm for APRM (*)	At 09-5 panel, candidate observes bypass lamp extinguished  AND / OR Candidate notes alarm typer indicates APRM bypass is OFF	SAT / UNSAT
23.	E.17.4 Verify all three APRM channels associated with the same APRM BYP switch are in service using one or both of the following: APRM BYPASS indicating lights are off for the three APRMs No EPIC bypassed alarms for the three APRMs	Candidates notes above indications for the 'B and 'F' APRM's.	SAT / UNSAT
24.	8.5.5 Record final APRM readings for adjusted APRMs in Table 1.	Candidate record final reading.	SAT / UNSAT
EVALUATOR: Terminate the task at this point.			

## **INITIATING CUE**

**You are the SNO. The plant is currently operating at ~98% CTP following a rod pattern exchange with no equipment out of service. The plant has been stable for several minutes. ST-5D, APRM CALIBRATION is required prior to continuing to 100% CTP. Perform ST-5D.**

ENTERGY NUCLEAR OPERATIONS, INC.  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
OPERATIONS SURVEILLANCE TEST PROCEDURE

APRM CALIBRATION  
ST-5D  
REVISION 2

APPROVED BY:

[Signature]  
RESPONSIBLE PROCEDURE OWNER

DATE 11/29/01

EFFECTIVE DATE:

12.10.01

FIRST ISSUE ☐

FULL REVISION ☐

LIMITED REVISION ☒

***** * * CONTINUOUS USE * * *****	***** * * TSR * * *****
***** * * TECHNICAL * * *****	

## REVISION SUMMARY SHEET

REV. NO.	CHANGE AND REASON FOR CHANGE
2	<p>Revised Step 8.5.5 to require final APRM readings to be recorded only for APRMs that were adjusted. (PCR #1 dated 8/9/00, EC #1 dated 9/5/00)</p> <p>Updated subsection 1.1, Frequency and revised section 1.2 in accordance with improved Technical Specifications (ITS). Added subsection 1.3 Technical Requirements Manual (TRM) and applicable reference.</p> <p>Revised Steps 8.2.1.c, 8.2.3.C, 8.3.3, 8.4.4 to "Adjust APRM(s) per subsection 8.5". Revised steps 8.5.3 and 8.5.4.D, which adjust APRM(s), to obtain a meter reading within <math>\pm 2\%</math> of desired reading (DR).</p> <p>Marked Step 6.2.7 as CTS. The step implies that APRM can be adjusted to greater than 2% above desired reading, which is not allowed per ITS SR 3.3.1.1.2.</p> <p>Added note to step 8.5.5 to state tech spec acceptance criteria and updated section 10.0, Acceptance Criteria.</p>

## TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1.0 REQUIREMENTS . . . . .	4
2.0 PURPOSE . . . . .	5
3.0 REFERENCES . . . . .	5
4.0 PREREQUISITES . . . . .	6
5.0 TEST EQUIPMENT, SPECIAL TOOLS, AND MATERIALS . . . . .	6
6.0 PRECAUTIONS AND LIMITATIONS . . . . .	7
7.0 GENERAL TEST METHODS . . . . .	9
8.0 PROCEDURE . . . . .	10
8.1 Procedure Performance . . . . .	10
8.2 APRM Calibration Less Than 25% of Rated Power . . . . .	11
8.3 APRM Calibration Greater Than or Equal to 25% . . . . .	15
8.4 Manual Calculation by Reactor Analyst Group When Greater Than or Equal to 25% . . . . .	16
8.5 APRM Gain Adjustments . . . . .	17
10.0 ACCEPTANCE CRITERIA . . . . .	19
11.0 ACCEPTANCE VERIFICATION . . . . .	20
12.0 ATTACHMENTS . . . . .	23
1. <u>TEST SIGNOFF LOG</u> . . . . .	24

**1.0 REQUIREMENTS****1.1 Frequency****[CTS]**

- Once daily while in the Run Mode

**[ITS]**

**NOTE:** Not required to be performed until 12 hours after THERMAL POWER  $\geq 25\%$  RTP.

**[ITS]**

- Once every 7 days

**1.2 Technical Specifications****1.2.1 Surveillance Requirements**

- [CTS]**
- 4.1.A
  - 4.1.B

- [ITS]**
- SR 3.3.1.1.2 (Table 3.3.1.1-1, Functions 2.b and 2.c)
  - SR 3.2.4.2

**1.2.2 Limiting Conditions for Operation**

**[CTS]** None

- [ITS]**
- LCO 3.2.4
  - LCO 3.3.1.1

**[ITS]****1.3 Technical Requirements Manual (TRM)**

1.3.1 TRO 3.3.B

1.3.2 TRS 3.3.B.2 (Table T3.3.B-1, Function 1.b)

**1.4 Other**

None

**1.5 Commitments**

- 1.5.1 LER 90-003, requires implementation of alternate method of calculating core power below 20% of rated.

**1.6 Expectations**

- 1.6.1 OER 940119, Compare heat balance results to calculated power levels to ensure no reactor overpower due to feed flow input errors.
- 1.6.2 DER-98-02032, ACT-98-35526, Revised procedure for APRM gain adjustment to improve human factors.
- 1.6.3 JAF-SE-00-028, Added precaution to describe required compensatory actions for a failed or unreliable feedwater temperature input to the 3D Monicore.

**2.0 PURPOSE**

To calibrate Average Power Range Monitor (APRM) System.

**3.0 REFERENCES****3.1 Performance References**

- 3.1.1 OP-16, Neutron Monitoring
- 3.1.2 RAP-7.3.3, Core Thermal Power Evaluation

**3.2 Developmental References**

RAP-7.4.5, APRM Calibration



**NOTE:** Sections 4 and 5 may be performed in any order or concurrently.

Init

**4.0 PREREQUISITES**

4.1 SM has granted permission to perform this test.

4.2 Revision Number of this Working Copy is the same as the revision number listed in the Master Copy of the Index of Operations Surveillance Test Procedures.

4.3 Test personnel have read this procedure and are thoroughly familiar with its contents.

4.4 Start of test recorded. Today / 10 min ago  
Date/Time

4.5 Start of test recorded in NCO Log Book.

4.6 No control rod movement or recirculation flow changes are in progress.

**5.0 TEST EQUIPMENT, SPECIAL TOOLS, AND MATERIALS**

**5.1 Test Equipment**

None

**5.2 Special Tools**

A very small flathead screwdriver

**5.3 Materials**

None

## 6.0 PRECAUTIONS AND LIMITATIONS

### 6.1 Precautions

#### ↓EXP1.6.3

If one of the four feedwater temperature inputs to the 3D Monicore (02TE-140A, 02TE-140B, 02TE-140C, or 02TE-140D) fails or becomes unreliable, then one of the following compensatory actions is required:

- Procedure changes (such as ST-40D) to require that a substitute value is inserted for the associated EPIC point. The substitute value shall be equal to the lowest reading operable feedwater temperature indication from EPIC-A-407, 408, 410, or 411. This value shall be adjusted daily before performing ST-5D and ST-5E, and as soon as practicable after changes in reactor power.
- Temporary modification to provide an alternate feedwater temperature input to the plant process computer. This modification shall use the redundant temperature element on the same feedwater line as the sole value for that feedwater line. This method is preferred over operator inserted substitute values.

### 6.2 Limitations

- 6.2.1 Test personnel shall immediately notify the NCO or CRS of any failure to meet acceptance criteria.
- 6.2.2 Test personnel shall print name, sign initials, and enter date on Attachment 1 before performing Section 8 of this test.
- 6.2.3 When test personnel complete their assigned portion of this test, they shall enter hours worked on Attachment 1.
- 6.2.4 Once this test has been started, any additional test personnel shall read this procedure and become thoroughly familiar with its contents before performing any portion of this test.

- 6.2.5 Multiple working copies of this test may be used provided the following requirements are satisfied:

**NOTE:** The work site is defined as the location where work is controlled. The location of the work site is at the discretion of the NCO/SNO.

- A. A working copy of this test shall be retained at the work site.
  - B. The work site working copy shall be the legal record for documenting this test.
  - C. Data from all steps performed away from the work site, including signatures, initials, and recorded values, is transcribed into the work site working copy following completion of the test.
- 6.2.6 If the ratio of MFLPD/FRP is greater than 1.0, then compliance with Tech Specs is accomplished by making the APRM read greater than or equal to MFLPD instead of lowering APRM trip setpoints.

**[CTS]**

- 6.2.7 If an APRM gain adjustment results in nuisance rod block alarms, then the preferred action is to request a rod pattern adjustment from the reactor engineer. As an alternate, the APRM gain may be adjusted with SM permission to bring the alarm in solid. This option should be minimized to prevent masking the alarm.
- 6.2.8 Conditional (**IF, THEN**) steps in this test may be marked "NA" if not applicable.
- 6.2.9 Steps in this test marked "NR" are not required to be initialed.

**7.0 GENERAL TEST METHODS**

7.1 This test consists of five subsections which determines the method used for calibrating the Average Power Range Monitor (APRM) System.

7.2 This test contains the following subsections:

7.2.1 Determine procedure subsection to perform per the criteria provided in Subsection 8.1.

7.2.2 Determine APRM desired reading (DR).

7.2.3 Calibrate APRMs per Subsection 8.5.

---

8.0 **PROCEDURE**Init8.1 **Procedure Performance**

Determine the applicable procedure subsection to perform as follows:

- (\_) **IF** reactor power is **LESS THAN** 25%,  
**THEN** perform Subsection 8.2.
  - (\_) **IF** reactor power is **GREATER THAN OR EQUAL TO** 25%,  
**AND** the MONICORE programs are operable,  
**THEN** perform Subsection 8.3.
  - (\_) **IF** reactor power is **GREATER THAN OR EQUAL TO** 25%,  
**AND** the MONICORE programs are not operable,  
**THEN** have Reactor Engineering perform  
Subsection 8.4.
-

↓COM1.5.1

Init

## 8.2 APRM Calibration Less Than 25% of Rated Power

**NOTE 1:** APRM calibration per OP-65 is performed per Steps 8.2.1 and 8.2.2.

**NOTE 2:** Core Thermal Power and Flow Log will abort if feedwater flow rate is too low.

8.2.1 **IF** both of the following conditions exist:

- Reactor pressure  
**GREATER THAN** 970 psig ( )
- BPV-1 near full open **AND** all  
other bypass valves full closed ( )

**THEN** perform the following:

A. Demand Core Power and Flow Log. \_\_\_\_\_

B. Determine APRM DR as follows:

- ( ) **IF** result of Core Power and Flow Log program is **BETWEEN** 9 and 14% power,  
**THEN** DR equals the power level determined per Step 8.2.1.A.
- ( ) **IF** result of Core Power and Flow Log program is not **BETWEEN** 9 and 14% power,  
**THEN** DR equals 10% power.
- ( ) **IF** Core Power and Flow Log aborted,  
**THEN** DR equals 10% power.

DR = \_\_\_\_\_ % \_\_\_\_\_

C. **[CTS]**

Adjust APRMs to read **GREATER THAN OR EQUAL TO** DR per Subsection 8.5.

**[ITS]**

Adjust APRMs per Subsection 8.5.

NR

Init

↓EXP1.6.1

8.2.2 **IF** both of the following conditions exist:

- Reactor pressure  
**GREATER THAN** 970 psig ( )
- BPV-1 full open ( )
- BPV-2 near full open ( )
- All other bypass valves full closed ( )

**THEN** perform the following:

A. Demand Core Power And Flow Log. \_\_\_\_\_

B. **IF** Core Power and Flow Log program aborts  
due to low feedwater flow rate,  
**THEN** issue a PID for I&C Department to  
investigate and perform necessary repairs. \_\_\_\_\_

**NOTE:** While I&C is troubleshooting, APRMs  
may be calibrated per Steps 8.2.2.C  
through 8.2.2.E.

C. Determine APRM DR as follows:

- ( ) **IF** result of Core Power and Flow Log  
program is **BETWEEN** 17 and 22% power,  
**THEN** DR equals the power level  
determined per Step 8.2.2.A.
- ( ) **IF** result of Core Power and Flow Log  
program is not **BETWEEN** 17 and 22% power,  
**THEN** DR equals 17% power.
- ( ) **IF** Core Power and Flow Log aborted,  
**THEN** DR equals 17% power.

DR = \_\_\_\_\_%

D. **IF** Core Power And Flow Log result is not  
**BETWEEN** 17 and 22% power,  
**THEN** investigate cause of discrepancy  
before raising power above 20% of rated. \_\_\_\_\_

Init

E. [CTS]  
Adjust APRMs to read **GREATER THAN OR  
EQUAL TO** DR per Subsection 8.5.

[ITS]  
Adjust APRMs per Subsection 8.5.

NR

8.2.3 **IF** both of the following conditions exist:

- Reactor pressure  
**GREATER THAN** 970 psig ( )
- Conditions other than specified in  
Steps 8.2.1 and 8.2.2 exists (such as  
a different combination of bypass  
valves open, or main generator in  
service) ( )

**THEN** perform the following:

A. Demand Core Power and Flow Log. \_\_\_\_\_

B. Determine APRM DR as follows:

1. **IF** both of the following conditions  
exist:

- BPV-1 full open

**AND**

- BPV-2 is not near full open

**THEN** determine DR as follows:

- ( ) **IF** result of Core Power and Flow  
Log program is **BETWEEN** 10 and 17%  
power,  
**THEN** DR equals the power level  
determined per Step 8.2.3.A.
- ( ) **IF** result of Core Power and Flow Log  
program is not **BETWEEN** 10 and 17% power,  
**THEN** DR equals 15% power.
- ( ) **IF** Core Power and Flow Log aborted,  
**THEN** DR equals 15% power.

DR = \_\_\_\_\_%

(Step 8.2.3.B continued on next page)



## 8.2.3.B (Cont)

Init

2. **IF** all of the following conditions exist:

- BPV-1 full open ( )
- BPV-2 full open ( )
- BPV-3 is not near full open ( )

**THEN** determine DR as follows:

- ( ) **IF** result of Core Power and Flow Log program is **BETWEEN** 17 and 24% power,  
**THEN** DR equals the power level determined per Step 8.2.3.A.
- ( ) **IF** result of Core Power and Flow Log program is not **BETWEEN** 17 and 24% power,  
**THEN** DR equals 22% power.
- ( ) **IF** Core Power and Flow Log aborted,  
**THEN** DR equals 22% power.

DR = \_\_\_\_\_%

3. **IF** the main generator is in service,  
**THEN** DR is the power level determined per Step 8.2.3.A.

DR = \_\_\_\_\_%

C. **[CTS]**

Adjust APRMs to read **GREATER THAN OR EQUAL TO** DR per Subsection 8.5.

**[ITS]**

Adjust APRMs per Subsection 8.5.

NR

## 8.3 APRM Calibration Greater Than or Equal to 25%

Init

8.3.1 IF core power has changed **GREATER THAN** 2%,  
OR the control rod pattern has changed since  
the last core performance program was executed,  
**THEN** demand an Official 3D Program. \_\_\_\_\_

8.3.2 Determine APRM DR from the higher of the following  
values:

- Largest MFLPD x 100

$$\frac{\text{Largest MFLPD}}{\text{Largest MFLPD}} \times 100 = \text{_____} \quad ( \_ )$$

- Percent core thermal power

$$\text{Thermal power} = \text{_____} \% \quad ( \_ )$$

$$\text{DR} = \text{_____} \% \quad \text{_____}$$

8.3.3 [CTS]  
Adjust APRMs to read **GREATER THAN OR  
EQUAL TO** DR per Subsection 8.5.

[ITS]  
Adjust APRMs per Subsection 8.5.

NR

- Init
- 8.4 **Manual Calculation by Reactor Analyst Group**
- When Greater Than or Equal to 25%**
- 8.4.1 Calculate core thermal power per RAP-7.3.3. RE
- 8.4.2 Use the Manual Monitor Menu to run an Official 3D Program. RE
- 8.4.3 Determine the APRM DR from the higher of the following values:
- Largest MFLPD x 100
- $\frac{\text{Largest MFLPD}}{\text{Largest MFLPD}} \times 100 = \text{ } (\text{ })$
- FRP x 100
- $\frac{\text{FRP}}{\text{FRP}} \times 100 = \text{ } (\text{ })$
- DR =  $\text{ } \%$  RE
- 8.4.4 **[CTS]**
- Adjust APRMs to read **GREATER THAN OR EQUAL TO** DR per Subsection 8.5.
- [ITS]**
- Adjust APRMs per Subsection 8.5. NR

↓EXP1.6.2

Init

## 8.5 APRM Gain Adjustments

8.5.1 Record initial APRM readings in Table 1.       8.5.2 Record DR in Table 1.       

8.5.3 [CTS]

Identify any APRM(s) requiring adjustment in Table 1. APRM shall be adjusted to indicate **GREATER THAN OR EQUAL TO** the DR.

[ITS]

Identify any APRM(s) requiring adjustment in Table 1. APRM shall be adjusted to indicate within  $\pm 2\%$  of the DR.

8.5.4 **IF** APRM adjustment is required,  
**THEN** perform the following for each APRM  
requiring adjustment:

**NOTE:** Bypassing APRM may be omitted per SM.

A. Bypass the APRM channel requiring  
calibration per Section E of OP-16. NR

B. Ensure METER FUNCTION switch is set to  
AVERAGE. NR

C. Ensure APRM MODE switch is in the OPERATE  
position. NR

**NOTE:** Clockwise turn raises meter reading;  
counterclockwise turn lowers meter  
reading.

D. [CTS]

Turn gain adjustment control (R16) on LPRM  
card Z-31 to obtain a meter reading **GREATER  
THAN OR EQUAL TO** DR.

[ITS]

Turn gain adjustment control (R16) on LPRM  
card Z-31 to obtain a meter reading within  
 $\pm 2\%$  of DR. NR

E. Unbypass APRM per Section E of OP-16. NR

Init**[ITS]****NOTE:** Tech spec acceptance criteria for "Final Reading" shall be within  $\pm 2\%$  of DR.

8.5.5 Record final APRM readings for adjusted APRMs in Table 1.

TABLE 1  
APRM GAIN ADJUSTMENTS

APRM	A	B	C	D	E	F
INITIAL READING (%)						
DESIRED READING (%)						
REQUIRES ADJUSTMENT (✓)						
FINAL READING (%)						

**9.0 RETURN TO NORMAL**Init**9.1 System Restoration**

9.1.1 Operable APRMs are unbypassed. \_\_\_\_\_

9.1.2 Step 9.1.1 verified by  
Licensed Operator.\_\_\_\_\_  
Signature/Date**9.2 Review and Signoff**

9.2.1 Test completed. \_\_\_\_\_

Date/Time

9.2.2 Calculations performed in the following steps have  
been independently verified:

• 8.3.2 ( )

• 8.4.3 ( )

Independent verification \_\_\_\_\_/  
Signature/Date9.2.3 Test personnel have recorded hours worked on  
Attachment 1. \_\_\_\_\_9.2.4 Man-Hours totalled and recorded on  
Attachment 1. \_\_\_\_\_

9.2.5 Completion of test recorded in NCO Log Book. \_\_\_\_\_

**10.0 ACCEPTANCE CRITERIA****[CTS]**

Operable APRMs are reading greater than or equal to DR.

**[ITS]**Operable APRMs are reading within  $\pm 2\%$  of DR.

---

11.0 ACCEPTANCE VERIFICATION

## 11.1 NCO/SNO Review

- 11.1.1 Verify required data has been recorded and is within required tolerances.
- 11.1.2 Verify required initials and signatures have been entered.
- 11.1.3 Review test to determine if test acceptance criteria has been satisfied.
- 11.1.4 Check one of the following as appropriate for test results:
- (\_) Acceptance criteria satisfied, no corrective action required.
  - (\_) Acceptance criteria satisfied, corrective action required.
  - (\_) Acceptance criteria not satisfied.
- 11.1.5 **IF** acceptance criteria is satisfied **AND** corrective action is required,  
**THEN** perform the following:
- A. Describe in Subsection 11.3, Remarks.
  - B. Initiate a PID and record PID number.
- \_\_\_\_\_  
PID Number
- 11.1.6 **IF** acceptance criteria is not satisfied,  
**THEN** perform the following:
- A. Immediately notify SM.
  - B. Initiate a PID and record PID number.
- \_\_\_\_\_  
PID Number
- 11.1.7 Sign and record date and time.

---

SNO or NCO

---

Date/Time

**11.2 Management SRO Review**

- 11.2.1 Verify current revision of surveillance test procedure was used.
- 11.2.2 Verify surveillance test was completed within required test frequency.
- 11.2.3 Verify data tables and attachments have been properly completed.
- 11.2.4 Verify required data has been recorded and is within required tolerances.
- 11.2.5 Verify required initials and signatures have been entered.
- 11.2.6 Review test to determine if test results satisfy acceptance criteria.
- 11.2.7 Check one of the following as appropriate for test results:
- ☐ Acceptance criteria satisfied.
- ☐ Acceptance criteria not satisfied.
- 11.2.8 **IF** acceptance criteria is not satisfied, **THEN** perform the following:
- A. Immediately notify Operations Manager or alternate.
- B. Record name of person notified.
- \_\_\_\_\_  
Person Notified
- C. Initiate required corrective and compensatory actions.
- 11.2.9 Sign and record date and time.

\_\_\_\_\_  
Management SRO\_\_\_\_\_  
Date/Time



11.3 **Remarks**

12.0 **ATTACHMENTS**

1. TEST SIGNOFF LOG





**James A. FitzPatrick Nuclear Power Plant**

**OPERATIONS TRAINING PROGRAMS  
JOB PERFORMANCE MEASURE**

S/RO/NPO      20101012 TASK TITLE: ISOLATE AND ELECTRICALLY DISARM A HYDRAULIC CONTROL UNIT (HCU)

APPL. TO      JPM NUMBER

REV: 8      DATE: 3/7/05      NRC K/A SYSTEM NUMBER: 201003 K1.01 3.2/3.3

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 20 Minutes

SUBMITTED: \_\_\_\_\_ OPERATION REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

~~~~~  
CANDIDATE NAME: \_\_\_\_\_ S.S. NUMBER: \_\_\_\_\_

JPM Completion:    ☒ Simulated      ☐ Performed

Location:            ☒ Plant            ☐ Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:    ☐ Satisfactory      ☐ Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_  
SIGNATURE/PRINTED

**JOB PERFORMANCE MEASURE  
RECORD AND CHECKLIST**

S/RO/NPO

20101012

TASK TITLE: ISOLATE AND ELECTRICALLY DISARM A  
HYDRAULIC CONTROL UNIT (HCU)

APPL. TO

JPM NUMBER

Current Update: 3/7/05  
Date

By: RWD  
Int.

**Outstanding Items:**

       Technical Review

       Additional Information

       Questions and Answers

       Validation

       Procedural Change Required

  X   None

Comments:

**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO/NPO

20101012

TASK TITLE: ISOLATE AND ELECTRICALLY DISARM A  
HYDRAULIC CONTROL UNIT (HCU)

APPL. TO

JPM NUMBER

**I. SAFETY CONSIDERATIONS**

- A. Proper safety attire (hardhat, safety shoes, safety glasses, ear protection, etc.) is to be worn while out in the plant.

**II. REFERENCES**

- A. OP-25, Control Rod Drive Hydraulic System, Rev. 75
- B. N-1 Key

**III. TOOLS AND EQUIPMENT**

- A. Fuse Pullers

**IV. SET UP REQUIREMENTS**

- A. Obtain Shift Manager's permission prior to perform this task.
- B. Contact Radiation Protection prior to performance of this task to discuss radiological conditions in the area of the HCU.

**V. EVALUATOR NOTES**

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

**VI. TASK CONDITIONS**

- A. The Plant is Mode 1 at 100% Reactor Power.
- B. Control Rod 22-19 has been fully inserted and declared inoperable to support maintenance on 03SOV-117 and 03SOV-118.
- C. HCU-22-19 must now be isolated.

**EVALUATOR:** The HCU chosen for this task may be changed as necessary to accommodate plant conditions.

**\* - CRITICAL STEP**

## VII. INITIATING CUE

The Plant is Mode 1 at 100% Reactor Power. Control Rod 22-19 has been fully inserted and declared inoperable to support maintenance on the associated Scram Pilot Air Solenoid Valves (03SOV-117 and 03SOV-118). Isolate HCU-22-19 per OP-25, Section G.1. OP-25 actions G.1.1 through G.1.6 are complete. Nitrogen depressurization of HCU-22-19 will not be required.

## VIII. TASK STANDARD

The candidate will isolate and electrically disarm HCU 22-19 (or alternate HCU chosen to support plant conditions).

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain and review procedure	Candidate obtains and reviews OP-25. Candidate determines that the start point is step G.1.7.  <b><u>EVALUATOR:</u></b> If candidate requests information to support requirement for Control Rod operability, inform candidate that Control Rods are required to be operable.	SAT / UNSAT
2.	(G.1.7) IF Control Rods are required to be operable, THEN electrically disarm CRD-(*) per subsection G.24 of OP-25.	Candidate obtains and reviews OP-25, section G.24. Candidate determines that the start point is step G.24.1.	SAT / UNSAT
3.	(G.24.1) Notify Control Room that CRD-(*) will be electrically disarmed.	<b><u>EVALUATOR:</u></b> When the candidate states that he/she would contact the Control Room to notify them that CRD 22-19 will be electrically disarmed, inform the candidate that "CRD 22-19 will be electrically disarmed."	SAT / UNSAT

	STEP	STANDARD	EVALUATION / COMMENT
*4.	(G.24.2) Unplug amphenol connector from each of the following solenoid operated valves at HCU-(*) and control per AP-12.06. <ul style="list-style-type: none"> <li>• 03SOV-120(*) (WITHDRAW SETTLE SOV)</li> <li>• 03SOV-121(*) (INSERT EXHAUST WATER SOV)</li> <li>• 03SOV-122(*) (WITHDRAW DRIVE WATER SOV)</li> <li>• 03SOV-123(*) (INSERT DRIVE WATER SOV)</li> </ul>	Candidate correctly locates amphenols associated with CRD/HCU 22-19 and indicates that he/she would unplug / control them.  <u><b>EVALUATOR:</b></u>  When the candidate states that he/she would unplug the respective amphenols, inform the candidate that "The four respective amphenols are unplugged and the PTR is hung."  <u><b>EVALUATOR NOTE:</b></u>  HCU-22-19 is isolated RB 272' East.	SAT / UNSAT  <u><b>*CRITICAL STEP*</b></u>
5.	(G.24.3) Notify Control Room that CRD-(*) has been electrically disarmed.	<u><b>EVALUATOR:</b></u>  When the candidate states that he/she would contact the Control Room to notify them that CRD 22-19 has been electrically disarmed, inform the candidate that "CRD 22-19 has been electrically disarmed."	SAT / UNSAT
*6.	(G.1.8) Close 03HCU-101(*) (CRD INSERT LINE ISOL VALVE).	Candidate correctly locates 03HCU-101 associated with CRD/HCU 22-19 and indicates that he/she would close it.  <u><b>EVALUATOR:</b></u>  When the candidate goes to the Reactor Building 272' East side HCU area, locates and identifies HCU 22-19 and 03HCU-101; states that he/she would close 03HCU-101, then inform the candidate "03HCU-101 (22-19) is CLOSED."	SAT / UNSAT  <u><b>*CRITICAL STEP*</b></u>



S/RO/NPO

TASK TITLE: ISOLATE AND ELECTRICALLY DISARM A HYDRAULIC CONTROL UNIT (HCU)

	STEP	STANDARD	EVALUATION / COMMENT
*7.	(G.1.9) Close 03HCU-102(*) (CRD WITHDRAW LINE ISOL VALVE).	<p>Candidate correctly locates 03HCU-102 associated with CRD/HCU 22-19 and indicates that he/she would close it.</p> <p><b><u>EVALUATOR:</u></b></p> <p>When the candidate locates and identifies 03HCU-102 and states that he/she would close 03HCU-102, then inform the candidate "03HCU-102 (22-19) is CLOSED."</p>	<p>SAT / UNSAT</p> <p><b><u>*CRITICAL STEP*</u></b></p>
*8.	(G.1.10) Close 03HCU-113(*) (CHARGING WATER HEADER ISOL VALVE).	<p>Candidate correctly locates 03HCU-113 associated with CRD/HCU 22-19 and indicates that he/she would close it.</p> <p><b><u>EVALUATOR:</u></b></p> <p>When the candidate locates and identifies 03HCU-113 and states that he/she would close 03HCU-113, then inform the candidate "03HCU-113 (22-19) is CLOSED."</p>	<p>SAT / UNSAT</p> <p><b><u>*CRITICAL STEP*</u></b></p>
*9.	(G.1.11) Close 03HCU-104(*) (COOLING WATER SUPPLY ISOL VALVE).	<p>Candidate correctly locates 03HCU-104 associated with CRD/HCU 22-19 and indicates that he/she would close it.</p> <p><b><u>EVALUATOR:</u></b></p> <p>When the candidate locates and identifies 03HCU-104 and states that he/she would close 03HCU-104, then inform the candidate "03HCU-104 (22-19) is CLOSED."</p>	<p>SAT / UNSAT</p> <p><b><u>*CRITICAL STEP*</u></b></p>

S/RO/NPO

TASK TITLE: ISOLATE AND ELECTRICALLY DISARM A HYDRAULIC CONTROL UNIT (HCU)

	STEP	STANDARD	EVALUATION / COMMENT
*10.	(G.1.12) Close 03HCU-103(*) (CRD DRIVE WATER SUPPLY ISOL VALVE).	Candidate correctly locates 03HCU-103 associated with CRD/HCU 22-19 and indicates that he/she would close it.  <b><u>EVALUATOR:</u></b>  When the candidate locates and identifies 03HCU-103 and states that he/she would close 03HCU-103, then inform the candidate "03HCU-103 (22-19) is CLOSED."	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
*11.	(G.1.13) Close 03HCU-105(*) (EXHAUST WATER ISOL VALVE).	Candidate correctly locates 03HCU-105 associated with CRD/HCU 22-19 and indicates that he/she would close it.  <b><u>EVALUATOR:</u></b>  When the candidate locates and identifies 03HCU-105 and states that he/she would close 03HCU-105, then inform the candidate "03HCU-105 (22-19) is CLOSED."	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
*12.	(G.1.14) Close 03HCU-112(*) (SCRAM DISCHARGE HEADER ISOL VALVE).	Candidate correctly locates 03HCU-112 associated with CRD/HCU 22-19 and indicates that he/she would close it.  <b><u>EVALUATOR:</u></b>  When the candidate locates and identifies 03HCU-112 and states that he/she would close 03HCU-112, then inform the candidate "03HCU-112 (22-19) is CLOSED."	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>

	STEP	STANDARD	EVALUATION / COMMENT
*13.	<p>(G.1.15)</p> <p>Remove the following fuses to de-energized Scram Pilot Solenoid Operated Valves 03SOV-117(*)and 09SOV-118(*):</p> <ul style="list-style-type: none"> <li>• 5A-F19A(*)</li> <li>• 5A-F19B(*)</li> </ul>	<p>Candidate correctly locates Scram Pilot Solenoid Fuses associated with CRD/HCU 22-19 SOVs 117/118;and indicates that he/she would pull them with the fuse puller.</p> <p><b><u>EVALUATOR:</u></b></p> <p>When the candidate goes to the Scram Solenoid Fuse Panel and states that he/she would open the panel and remove fuses 5A-F19A(22-19) and 5A-F19B(22-19), then inform the candidate "Fuses 5A-F19A(22-19) and 5A-F19B(22-19) are removed."</p>	<p>SAT / UNSAT</p> <p><b><u>*CRITICAL STEP*</u></b></p>
14.	<p>(G.1.16)</p> <p>Verify open the following valves by observing valve position indicators at HCU-(*):</p> <ul style="list-style-type: none"> <li>• 03AOV-126(*) (HCU INLET SCRAM AIR OPER VALVE)</li> <li>• 03AOV-127(*) (HCU OUTLET SCRAM AIR OPER VALVE)</li> </ul>	<p>Candidate correctly locates 03AOV-126/127 associated with CRD/HCU 22-19 and indicates that he/she would observe mechanical position indication to verify current valve position.</p> <p><b><u>EVALUATOR:</u></b></p> <p>When the candidate locates and identifies 03AOV-126 and 03AOV-127 and states that he/she would use the mechanical position indicators on 03AOV-126 and 03AOV-127 to observe that the valves are open, then inform the candidate "03AOV-126 and 03AOV-127 indicate OPEN."</p>	<p>SAT / UNSAT</p>

S/RO/NPO

TASK TITLE: ISOLATE AND ELECTRICALLY DISARM A HYDRAULIC CONTROL UNIT (HCU)

	STEP	STANDARD	EVALUATION / COMMENT
15.	(G.1.17) Verify HCU-(*) blue SCRAM light is on at FULL CLOSE DISPLAY.	<p>Candidate recognizes need to obtain information from 09-5 Panel in the Control Room.</p> <p><b><u>EVALUATOR:</u></b></p> <p>When the candidate states that he/she would contact the Control Room and request the status of the blue scram light for control rod 22-19, then inform the candidate "Blue Scram light for Control Rod 22-19 is ON".</p>	SAT / UNSAT
*16.	(G.1.18) Loosen threaded cap on 03HCU-107(*) (ACCUMULATOR DRAIN VALVE) to thoroughly vent pressure before proceeding to the next step.	<p>Candidate correctly locates 03HCU-107 associated with CRD/HCU 22-19 and recognizes WARNING through indicating that he/she would loosen the cap "slowly", "carefully", or "in a controlled manner" (or similar wording).</p> <p><b><u>EVALUATOR:</u></b></p> <p>When the candidate states that he/she would loosen threaded cap on 03HCU-107-22-19, then inform the candidate "Threaded cap on 03HCU-107(22-19) is LOOSE and DEPRESSURIZED".</p>	<p>SAT / UNSAT</p> <p><b><u>*CRITICAL STEP*</u></b></p>

	STEP	STANDARD	EVALUATION / COMMENT
*17.	(G.1.19) Remove threaded cap from 03HCU-107(*) (ACCUMULATOR DRAIN VALVE).	Candidate correctly identifies 03HCU-107 associated with CRD/HCU 22-19 and indicates that he/she would remove it (may add "by turning counterclockwise")  <b><u>EVALUATOR:</u></b>  When the candidate states that he/she would remove threaded cap on 03HCU-107-22-19, then inform the candidate "Threaded cap on 03HCU-107(22-19) is REMOVED."	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
18.	(G.1.20) Connect hose to 03HCU-107(*) (ACCUMULATOR DRAIN VALVE) and route other end of hose to a floor drain or suitable container.	Candidate correctly identifies 03HCU-107 associated with CRD/HCU 22-19 and identifies hose routing location (floor drain / poly bottle in vicinity)  <b><u>EVALUATOR:</u></b>  When the candidate locates, identifies and states that he/she would connect a hose to 03HCU-107(22-19) and properly route the other end, then inform the candidate "Hose is INSTALLED".	SAT / UNSAT
19.	(G.1.21) Crack open 03HCU-107(*) (ACCUMULATOR DRAIN VALVE).	Candidate correctly identifies 03HCU-107 associated with CRD/HCU 22-19 and indicates that he/she would crack it open.  <b><u>EVALUATOR:</u></b>  When the candidate locates and identifies 03HCU-107 and states that he/she would crack open 03HCU-107, then inform the candidate "03HCU-107 (22-19) is CRACKED OPEN."	SAT / UNSAT

	STEP	STANDARD	EVALUATION / COMMENT
*20.	(G.1.22) WHEN HCU 22-19 water accumulator is thoroughly vented, open 03HCU-107(*) (ACCUMULATOR DRAIN VALVE).	Candidate correctly identifies 03HCU-107 associated with CRD/HCU 22-19 and indicates that he/she would fully open it upon indications that it was depressurized.  <u><b>EVALUATOR:</b></u>  When the candidate locates and identifies 03HCU-107 and states that he/she would fully open 03HCU-107, then inform the candidate "03HCU-107 (22-19) is FULL OPEN."	SAT / UNSAT  <u><b>*CRITICAL STEP*</b></u>
*21.	(G.1.23) IF maintenance is to be performed on any of the following: <ul style="list-style-type: none"> <li>• 03AOV-126 (*) (HCU INLET SCRAM AIR OPER VALVE)</li> <li>• 03AOV-127 (*) (HCU OUTLET SCRAM AIR OPER VALVE)</li> <li>• 03SOV-117/118 (*) (SCRAM PILOT AIR SOLENOID OPER VALVE)</li> <li>• Instrument air piping downstream of 03HCU-116 (*) (SCRAM PILOT AIR ISOL VALVE)</li> </ul> THEN close 03HCU-116 (*) (SCRAM PILOT AIR ISOL VALVE)	Candidate recognizes need to perform step based on planned maintenance on 03SOV-117/118; and correctly locates 03HCU-116 associated with CRD/HCU 22-19 and indicates that he/she would close it.  <u><b>EVALUATOR:</b></u>  When the candidate locates and identifies 03HCU-116 and states that he/she would close 03HCU-116, then inform the candidate "03HCU-116 (22-19) is CLOSED."	SAT / UNSAT  <u><b>*CRITICAL STEP*</b></u>

S/RO/NPO

TASK TITLE: ISOLATE AND ELECTRICALLY DISARM A HYDRAULIC CONTROL UNIT (HCU)

	STEP	STANDARD	EVALUATION / COMMENT
22.	<p>(G.1.24)</p> <p>IF maintenance is to be performed that requires depressurizing the HCU nitrogen accumulator, THEN perform the following:</p> <p><b>(N/A) LIST NOT REQUIRED</b></p>	<p><b><u>EVALUATOR:</u></b></p> <p>If requested, inform candidate that no maintenance is planned that required depressurizing the accumulator.</p>	SAT / UNSAT
23.	<p>(G.1.25)</p> <p>Verify red light is on at CRD ACCUMULATOR MONITOR &amp; SCRAM VALVE POSITION SELECTOR panel 25-04 (east side) or 25-22 (west side) Reactor Building 272'.</p>	<p>Candidate goes to the CRD ACCUMULATOR MONITOR &amp; SCRAM VALVE POSITION SELECTOR Panel 25-04 (east side) and verifies red light is on for HCU-22-19.</p> <p><b><u>EVALUATOR:</u></b></p> <p>As candidate approaches panel and indicates that he/she would be looking for a red light on Panel 25-04 that corresponds to HCU 22-19, inform candidate that "Red light is on for HCU 22-19 at Panel 25-04."</p>	SAT / UNSAT
24.	<p>(G.1.26)</p> <p>Notify Control Room that HCU-(*) has been removed from service.</p>	<p><b><u>EVALUATOR:</u></b></p> <p>When the candidate states that he/she would contact the Control Room and inform them that HCU 22-19 has been removed from service, then inform the candidate, "HCU 22-19 has been removed from service".</p>	SAT / UNSAT

S/RO/NPO

TASK TITLE: ISOLATE AND ELECTRICALLY DISARM A HYDRAULIC CONTROL UNIT (HCU)

	STEP	STANDARD	EVALUATION / COMMENT
25.	(G.1.27) Verify HCU-(*) yellow ACCUM light is on at FULL CORE DISPLAY.	<p>Candidate recognizes need to obtain information from 09-5 Panel in the Control Room.</p> <p><b><u>EVALUATOR:</u></b></p> <p>When the candidate states that he/she would contact the Control Room and request the status of the yellow ACCUM light for control rod 22-19, then inform the candidate "Yellow ACCUM light for Control Rod 22-19 is ON".</p>	SAT / UNSAT
<b><u>EVALUATOR:</u> Terminate the task at this point.</b>			



## **INITIATING CUE**

**The Plant is Mode 1 at 100% Reactor Power. Control Rod 22-19 has been fully inserted and declared inoperable to support maintenance on the associated Scram Pilot Air Solenoid Valves (03SOV-117 and 03SOV-118). Isolate HCU-22-19 per OP-25, Section G.1. OP-25 actions G.1.1 through G.1.6 are complete. Nitrogen depressurization of HCU-22-19 will not be required.**



**James A. FitzPatrick Nuclear Power Plant**

**OPERATIONS TRAINING PROGRAMS  
JOB PERFORMANCE MEASURE**

S/RO NEW TASK TITLE: START UP MAIN STEAM LEAKAGE COLLECTION  
APPL. TO JPM NUMBER

REV: 0 DATE: 3/7/05 NRC K/A SYSTEM NUMBER: 239003 A4.01 3.2/3.2

JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_

ESTIMATED COMPLETION TIME: 10 Minutes

SUBMITTED: \_\_\_\_\_ OPERATION REVIEW: \_\_\_\_\_

APPROVED: \_\_\_\_\_

~~~~~  
CANDIDATE NAME: \_\_\_\_\_ S.S. NUMBER: \_\_\_\_\_

JPM Completion: (X) Simulated ( ) Performed

Location: (X) Plant ( ) Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_  
SIGNATURE/PRINTED

**JOB PERFORMANCE MEASURE**

**RECORD AND CHECKLIST**

S/RO NEW TASK TITLE: START UP MAIN STEAM LEAKAGE COLLECTION  
APPL. TO JPM NUMBER

Current Update: 3/7/05  
Date

By: RWD  
Int.

**Outstanding Items:**

☐ Technical Review

☐ Additional Information

☐ Questions and Answers

☐ Validation

☐ Procedural Change Required

☒ None

Comments:

**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO                      NEW      TASK TITLE: START UP MAIN STEAM LEAKAGE COLLECTION  
APPL. TO                      JPM NUMBER

**I.      SAFETY CONSIDERATIONS**

A.      None

**II.     REFERENCES**

A.      AOP-40, Main Steam Line Break, Revision 8

**III.    TOOLS AND EQUIPMENT**

A.      None

**IV.    SET UP REQUIREMENTS**

A.      Obtain permission from the Shift Manager prior to performing this task.

B.      Obtain a current copy of AOP-40, Main Steam Line Break.

**V.     EVALUATOR NOTES**

A.      If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.

B.      The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

**VI.    TASK CONDITIONS**

A.      A Main Steam Line Break has occurred in the Turbine Building.

B.      All automatic isolations / initiations were successful.

C.      All MSIVs are "CLOSED".

D.      The "Alpha" Train of the Standby Gas Treatment System is in operation.

**\* - CRITICAL STEP**

S/RO

TASK TITLE: START UP MAIN STEAM LEAKAGE COLLECTION

**VII. INITIATING CUE**

**A high energy Main Steam Line Break has occurred in the Turbine Building. All automatic initiations and isolations were successful. The Shift Manager has directed that the Main Steam Leakage Collection System be placed into service per AOP-40. The SNO has verified that the "Alpha" train of the Standby Gas Treatment System is operating. The SNO directs you to place the "Alpha" train of the Main Steam Leakage Collection System into operation per AOP-40, Section C.3.**

**VIII. TASK STANDARD**

The candidate will start up the "Alpha" train of the Main Steam Leakage Collection System

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain and review procedure	Candidate obtains and reviews AOP-40. Candidate determines that the start point is step C.3.2	SAT / UNSAT
*2.	(C.3.2.a.1) Close 29MOV-204A MSLC LINE "Alpha" BYPASS DRAIN VALVE.	Locates 29MOV-204A on Panel 29MSLCS in the Relay Room and closes 29MOV-204A.  <b><u>EVALUATOR:</u></b> Inform the candidate 29MOV-204 "Alpha" indicates "CLOSED."	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
*3.	(C.3.2.a.2) Open 29MOV-200A MSLC LINE "Alpha" ISOL VALVE.	Locates 29MOV-200A on Panel 29MSLCS in the Relay Room and opens 29MOV-200A.  <b><u>EVALUATOR:</u></b> Inform the candidate 29MOV-200 "Alpha" indicates "OPEN."	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>

S/RO

TASK TITLE: START UP MAIN STEAM LEAKAGE COLLECTION

	STEP	STANDARD	EVALUATION / COMMENT
4.	(C.3.2.a.3) Monitors annunciator 09-5-2-49 "MSLCS A PRESS HI."	Contacts the Control Room operator and asks to be informed when annunciator 09-5-2-49 MSLCS "A" PRESS HI Clears.  <b><u>EVALUATOR:</u></b> Act as the Control Room and inform the candidate that the annunciator is clear.	SAT / UNSAT
*5.	(C.3.2.a.3.a) Open 29MOV-201A MSLC LINE "A" TO SGT UPSTR ISOL VLV.	Locates 29MOV-201A on Panel 29MSLCS in the Relay Room and opens 29MOV-201A.  <b><u>EVALUATOR:</u></b> Inform the candidate 29MOV-201A indicates "OPEN".	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
6.	(C.3.2.a.3.b) Ensure open 29MOV-202A MSLC LINE "A" TO SGT DNSTR ISOL VLV.	Locates 29MOV-202A on Panel 29MSLCS in the Relay Room and ensures open 29MOV-202A.  <b><u>EVALUATOR:</u></b> Inform the candidate that 29MOV-202A indicates "OPEN".	SAT / UNSAT
*7.	(C.3.3) Open 29MOV-203A MST OUTBD MSIV STEM LEAKOFF LINE "A" ISOL VLV.	Locates 29MOV-203A on Panel 29MSLCS in the Relay Room and opens 29MOV-203A.  <b><u>EVALUATOR:</u></b> Inform the candidate that 29MOV-203A indicates "OPEN".	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
<b><u>EVALUATOR:</u> Terminate the task at this point.</b>			

## **INITIATING CUE**

**A high energy Main Steam Line Break has occurred in the Turbine Building. All automatic initiations and isolations were successful. The Shift Manager has directed that the Main Steam Leakage Collection System be placed into service per AOP-40. The SNO has verified that the "Alpha" train of the Standby Gas Treatment System is operating. The SNO directs you to place the "Alpha" train of the Main Steam Leakage Collection System into operation per AOP-40, Section C.3.**



**James A. FitzPatrick Nuclear Power Plant**  
**OPERATIONS TRAINING PROGRAMS**  
**JOB PERFORMANCE MEASURE**

S/RO/NPO      20505005 TASK TITLE: CROSS-TIE FIRE PROTECTION SYSTEM TO INJECT  
TO RHR SERVICE WATER  
APPL. TO      JPM NUMBER  
REV: 7      DATE: 3/7/05      NRC K/A SYSTEM NUMBER: 295031 EA1.08 3.8/3.9  
JAF TASK NUMBER: \_\_\_\_\_ JAF QUAL STANDARD NUMBER: \_\_\_\_\_  
ESTIMATED COMPLETION TIME: 15 Minutes  
SUBMITTED: \_\_\_\_\_ OPERATION REVIEW: \_\_\_\_\_  
APPROVED: \_\_\_\_\_

~~~~~  
CANDIDATE NAME: \_\_\_\_\_ S.S. NUMBER: \_\_\_\_\_

JPM Completion:    ☒ (X) Simulated      ☐ ( ) Performed

Location:            ☒ (X) Plant            ☐ ( ) Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:    ☐ ( ) Satisfactory      ☐ ( ) Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: \_\_\_\_\_  
SIGNATURE/PRINTED



## JOB PERFORMANCE MEASURE

## RECORD AND CHECKLIST

S/RO/NPO

20505005

TASK TITLE: CROSS-TIE FIRE PROTECTION SYSTEM TO  
INJECT TO RHR SERVICE WATER

APPL. TO

JPM NUMBER

Current Update: 3/7/05  
Date

By: RWD  
Int.

### Outstanding Items:

       Technical Review

       Additional Information

       Questions and Answers

       Validation

       Procedural Change Required

  X   None

Comments:

**JOB PERFORMANCE MEASURE  
REQUIRED TASK INFORMATION**

S/RO/NPO                      20505005                      TASK TITLE: CROSS-TIE FIRE PROTECTION SYSTEM TO  
INJECT TO RHR SERVICE WATER

APPL. TO                      JPM NUMBER

**I.      SAFETY CONSIDERATIONS**

A.      None

**II.     REFERENCES**

A.      EP-8, Alternate Injection Systems, Rev. 2

**III.    TOOLS AND EQUIPMENT**

A.      Emergency cross connect hose located in the North Safety Pump Room.

B.      N1 Key

**IV.    SET UP REQUIREMENTS**

A.      None

**V.     EVALUATOR NOTES**

A.      If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.

B.      The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

**VI.    TASK CONDITIONS**

A.      To maintain RPV water level >0" (TAF), water level control must be augmented by using the lake as a source.

B.      The RHRSW pumps are unavailable.

C.      The Shift Manager has directed that the Fire Protection System be utilized to inject water into the RHRSW System.

**\* - CRITICAL STEP**

S/RO/NPO

TASK TITLE: CROSS-TIE FIRE PROTECTION SYSTEM TO INJECT TO RHR SERVICE WATER

**VII. INITIATING CUE**

A transient has occurred which has resulted in a break in the RPV causing a loss of inventory. Due to a series of failures, no high pressure and most low pressure injection systems are unavailable. The Shift Manager directs you to align the Fire Protection System header to the "Alpha" RHR Service Water header per EP-8, Section 5.3.

**VIII. TASK STANDARD**

The candidate will cross-tie the Fire Protection System header to supply RPV injection via RHR Service Water per EP-8.

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain and review procedure	Candidate obtains and reviews EP-8. Candidate determines that the start point is step 5.3	SAT / UNSAT
2.	(5.3.1) Verifies the following RHR pumps are stopped: <ul style="list-style-type: none"><li>• RHR PMP 10P-3A</li><li>• RHR PMP 10P-3C</li></ul>	Contacts the Control Room to verify RHR Pumps "A" and "C" are stopped.  <b><u>EVALUATOR:</u></b> Inform the candidate that "RHR Pumps 3"Alpha" and 3"Charlie" are not running."	SAT / UNSAT
*3.	(5.3.2) Removes caps from the following valves: <ul style="list-style-type: none"><li>• 10RHR-432 (RHRSW TO FIRE PROTECTION CROSS-TIE ISOL VALVE)</li><li>• 76FPS-720 (RHRSW / FIRE PROTECTION CROSSTIE ISOL VALVE)</li></ul>	<b><u>EVALUATOR:</u></b> When the candidate goes to the North Emergency Service Water Room and states that he/she would remove the hose connection caps at 10RHR-432 and 76FPS-720, then inform the candidate "Hose connection caps are removed."	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>

S/RO/NPO

TASK TITLE: CROSS-TIE FIRE PROTECTION SYSTEM TO INJECT TO RHR SERVICE WATER

	STEP	STANDARD	EVALUATION / COMMENT
4.	(5.3.3) Connect a hose (stored in cabinet 76CAB-1 on west wall of north emergency service water room) between the following valves: <ul style="list-style-type: none"> <li>• 10RHR-432 (RHRSW TO FIRE PROTECTION CROSS-TIE ISOL VALVE)</li> <li>• 76FPS-720 (RHRSW / FIRE PROTECTION CROSSTIE ISOL VALVE)</li> </ul>	<b><u>EVALUATOR:</u></b> When the candidate opens 76CAB-1 with N-1 key and points out the emergency cross connect hose and tools and states he/she would connect the hose between 10RHR-432 and 76FPS-720, then inform the candidate "Hose is connected."	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
*5.	(5.3.4) Ensure closed 10MOV-89A RHRSW DISCH VLV FROM HX A.	Contacts Control Room to verify that 10MOV-89A is closed.  <b><u>EVALUATOR:</u></b> Inform the candidate "10MOV-89A is CLOSED."	SAT / UNSAT
<b><u>EVALUATOR:</u></b> Ensure candidate observed "CAUTION" pertaining to Screenwell Forebay Water Level. (i.e. have candidate point out methods of determining forebay water level.)			
6.	(5.3.5) Start one or more of the following pumps: <ul style="list-style-type: none"> <li>• ELEC FIRE PMP 76-P2</li> <li>• DIESEL FIRE PMP 76-P1</li> <li>• DIESEL FIRE PMP 76-P4</li> </ul>	Informs the Control Room that he/she is ready to have one or more of the Fire protection System pumps started.  <b><u>EVALUATOR:</u></b> Inform the candidate "Electric Fire Pump 76P-2 is operating."	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>

S/RO/NPO

TASK TITLE: CROSS-TIE FIRE PROTECTION SYSTEM TO INJECT TO RHR SERVICE WATER

	STEP	STANDARD	EVALUATION / COMMENT
7.	(5.3.6) Unlock and open the following valves: <ul style="list-style-type: none"><li>• 10RHR-432 (RHRSW TO FIRE PROTECTION CROSS-TIE ISOL VALVE)</li><li>• 76FPS-720 (RHRSW / FIRE PROTECTION CROSSTIE ISOL VALVE)</li></ul>	<b><u>EVALUATOR:</u></b>  When the candidate states that he/she would unlock and open 10RHR-432 by turning the handwheel in the counterclockwise direction until full open, then inform the candidate that "10RHR-432 is OPEN."  When the candidate states that he/she would unlock and open 76FPS-720 by turning the handwheel in the counterclockwise direction until full open, the inform the candidate that "76FPS-720 is OPEN."	SAT / UNSAT  <b><u>*CRITICAL STEP*</u></b>
<b><u>EVALUATOR:</u> Terminate the task at this point.</b>			

## **INITIATING CUE**

**A transient has occurred which has resulted in a break in the RPV causing a loss of inventory. Due to a series of failures, no high pressure and most low pressure injection systems are unavailable. The Shift Manager directs you to align the Fire Protection System header to the "Alpha" RHR Service Water header per EP-8, Section 5.3.**