Sienel, Beth

From: Vibert, Roger
Sent: Wednesday, June 02, 2004 12:12 PM
To: Sienel, Beth
Subject: MM 2003-028 Attachment D

Beth,

Attached is the document that you requested. Please let me know if you need anything else.

MM 2003-028
Attach D.pdf (717 ...

Thanks,

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A-59

INSTALLATION & TESTING REQUIREMENTS

Purpose

Installation in APRM A - F

1. Replace the six analog Flow Control Trip Reference (FCTR) Cards with digital FCTR cards.

2. Install retaining clips (12) for the dc amplifier and FCTR cards.

Testing

1. Verify operation of the FCTR cards during power-up.

2. Calibrate the FCTR cards for single and two loop ARTS/MELLLA operation, includes functional test of the flow biased scram and rod block.

3. Calibrate the Rod Block Monitors (RBM) for two loop ARTS/MELLLA operation

I. Prerequisites (RWPs, Housekeeping, Fire Permits, Barrier Control Permits, etc.):

1. Bench test the FCTR cards using the information in Draft OP 4308 ~~and SCR 2003C-052 and 053. Verify Setpoint SET 2 (EPU) against the values in Reference 22. Verify that the TLO and SLO setpoints for the NORMAL and SETUP Operating Modes are the same for SET 1 and SET 2 setpoint arrays.~~

   Leave the FCTRs with Setpoint SET 1 (for current licensed power) selected, toggle switches in the TLO position, and the NORMAL boundaries selected (NORMAL/SETUP LED is GREEN).

   Verified by / date PAC / 4/20/04

~~2. Verify that proposed Change 257 has been accepted by the NRC and the affected Technical Specification Section 2.1.A.1 and Table has been amended to support this MM.~~

~~TS Amendment _____ Verified by / date _____/_____~~

~~3. Verify that the COLR Table 2.2-1 has been revised to change N to 62 and the maximum to 112% power.~~

~~COLR Revision _____ Verified by / date _____/_____~~

INSTALLATION & TESTING REQUIREMENTS

~~4. Verify that the Table TRM 3.2.5 has been revised to implement TRM Change 04-02.~~

~~TRM Revision~~ _____ ~~Verified by / date~~ _____/____

~~5.~~2. Perform a pre-job brief for personnel involved with this MM implementation, per AP0052.

Verified by ICE / date AAC / 4/20/04

II. Precautions:

1. Observe precautions when working in CRP 9-14 to prevent inadvertently causing actuation of any protective functions not taken out of service during this MM.
2. If an unexpected action results during installation, do not proceed with uncertainty. Place the system or component in a safe condition, if possible. Notify the Shift Manager if plant equipment is impacted. [ER991225_02]
4. Ensure all precautions in the Vermont Yankee Safety Manual are observed as required.
5. Exercise judgment, experience and training to:
   - Place the system or component in a safe condition so as to preclude a potential transient, equipment damage or personal injury.
   - Notify the Shift Manager if the situation impacts plant equipment.
   - Notify the ICE (BC Current X-5457)
6. Testing of Draft OP4308 may be performed without 1/2 scram verifications. (Removal of tested APRM from Bypass)

Minor Change WHF 4/20/04 AAC 4/20/04

III/IV. Installation//Verification/Testing Instructions:

APRM A and D

1. On CRP 9-5, bypass APRM A and D.

Verified by / date JA / 4/20/04

APRM A Changes

2. Remove the dc amplifier card (slot 32) and the analog FCTR card (slot 33) from APRM A.

Verified by / date AAC / 4/20/04

INSTALLATION & TESTING REQUIREMENTS

3. Install a retaining clip (Stock Number 512754) with a "POP" rivet (~~Stock Number 512799~~) CR03 using the appropriate "POP" rivet tool in Slots 32 and ~~32~~ 33. WNF 4/20/04 RAL 4/20/03

Verified by / date JM / 4/20/04

4. Reinstall the dc amplifier card in Slot 32 and install a digital FCTR card (Stock Number 148C7596G012) in Slot 33. Record the FCTR Serial # 43100946T1-1.

Verified by / date MAE / 4/20/04

APRM A Testing

5. Using ~~OP 4308~~Draft OP 4308, as revised to reflect this MM, perform a calibration check and calibration of APRM A (final test is with the extender board removed and the FCTR installed). Verify Setpoint SET 2 (EPU) against the values in Reference 22, (See Attachment E, Pages 22.2 and 3). Verify that the TLO and SLO setpoints for the NORMAL and SETUP Operating Modes are the same for SET 1 and SET 2 setpoint arrays.

Instead of Prerequisite 3 verification of the Reactor Mode switch being in the RUN position, remove APRM A K23 and K24 and install a Yellow APRM Test Relay in the socket for K23 and K24 to simulate the Reactor Mode switch being in the RUN position.

APRM A K 23 removed and test relay installed
Performed by /date BT / 4/21/04 Verified by / date JM / 4/21/04

APRM A K 24 removed and test relay installed
Performed by /date BT / 4/21/04 Verified by / date JM / 4/21/04

Monitor the INOP OUTPUT at Pin 19 and 37 of the extender board and verify normal power-up initialization:

Initially the INOP contact is open.

After approximately 3 seconds:
1. the INOP contact closes (card out-of-file interlock is satisfied)
2. the INOP LED is RED (slow blink)
3. the trip reference NORMAL/SETUP LED is GREEN (normal boundaries)

After this power-up initialization is complete, press the INOP RESET and verify that the INOP LED changes to steady GREEN.

~~Verify FLOW SIGNAL VALIDATION (INOP LED fast RED blink) at < 1.2V and > 10.4V.~~

PERFORMED DURING BENCH TEST WNF 4/20/04 MINOR CHANGE
TYPICAL OF 6 RAC 4/20/04

INSTALLATION & TESTING REQUIREMENTS

Verify that the toggle switch is left in the TLO position, there are no half-scrams, and the INOP LED is GREEN.

Do not return the APRM A and D Bypass Switches to NEUTRAL until directed in the following steps.

Verified by / date JH / 4/20/04

6. Remove the Yellow APRM Test Relays in the socket for K23 and K24 and replace K23 and K24.

APRM A K 23 test relay removed and normal relay installed

Performed by /date BJ / 4/21/04 Verified by / date JH / 4/21/04

APRM A K 24 test relay removed and normal relay installed

Performed by /date BJ / 4/21/04 Verified by / date JH / 4/21/04

APRM D Changes

7. Remove the dc amplifier card (slot 32) and the analog FCTR card (slot 33) from APRM D.

Verified by / date JH / 4/20/04

8. Install a retaining clip (Stock Number 512754) with a "POP" rivet (~~Stock Number 512799~~) using the appropriate "POP" rivet tool in Slots 32 and 32. WJF 4/20/04 AFC 4/20/04 CR03

Verified by / date JH / 4/20/04

9. Reinstall the dc amplifier card in Slot 32 and install a digital FCTR card (Stock Number 148C7596G012) in Slot 33. Record the FCTR Serial # 43100094671-2.

Verify normal power-up initialization, INOP LED is GREEN after INOP RESET is pushed, toggle switch is in the TLO position, and NORMAL/SETUP LED is GREEN.

Verified by / date BJ / 4/20/04

INSTALLATION & TESTING REQUIREMENTS

APRM D Testing

10. Using Draft OP 4308, as revised to reflect this MM, perform a calibration check and calibration of APRM D (final test is with the extender board removed and the FCTR installed).

    Instead of Prerequisite 3 verification of the Reactor Mode switch being in the RUN position, remove APRM D K23 and K24 and install a Yellow APRM Test Relay in the socket for K23 and K24 to simulate the Reactor Mode switch being in the RUN position.

    APRM D K 23 removed and test relay installed
    Performed by /date BY 4/21/04 Verified by / date GM 4/21/04

    APRM D K 24 removed and test relay installed
    Performed by /date BY 4/21/04 Verified by / date GM 4/21/04

    Monitor the INOP OUTPUT at Pin 19 and 37 of the extender board and verify normal power-up initialization:

    Initially the INOP contact is open.

    After approximately 3 seconds:
    1. the INOP contact closes (card out-of-file interlock is satisfied)
    2. the INOP LED is RED (slow blink)
    3. the trip reference NORMAL/SETUP LED is GREEN (normal boundaries)

    After this power-up initialization is complete, press the INOP RESET and verify that the INOP LED changes to steady GREEN.

    ~~Verify FLOW SIGNAL VALIDATION (INOP LED fast RED blink) at < -1.2V and > 10.4V.~~
    MINOR CHAVEZ WJF 4/20/04 MAC 4/20/04

    Verify that the toggle switch is left in the TLO position and the INOP LED is GREEN.

    Do not return the APRM A and D Bypass Switches to NEUTRAL until directed in the following steps.

    Verified by / date GM 4/21/04

11. Remove the Yellow APRM Test Relays in the socket for K23 and K24 and replace K23 and K24.

    APRM D K 23 test relay removed and normal relay installed

    Performed by /date BY 4/21/04 Verified by / date GM 4/21/04

INSTALLATION & TESTING REQUIREMENTS

APRM D K 24 test relay removed and normal relay installed

Performed by /date Bd / 4/21/04 Verified by / date Gu / 4/21/04

12. On CRP 9-5, place/ verify APRM A and D Bypass Switches to NEUTRAL

Verified by / date Gu / 4/21/04

APRM C and F

13. On CRP 9-5, bypass APRM C and F.

Verified by / date Gu / 4/21/04

APRM C Changes

14. Remove the dc amplifier card (slot 32) and the analog FCTR card (slot 33) from APRM C.

Verified by / date Gu / 4/21/04

15. Install a retaining clip (Stock Number 512754) with a "POP" rivet ~~(Stock Number 512799)~~ CR03 using the appropriate "POP" rivet tool in Slots 32 and 32. AWF 9/30/04 DAC 4/20/03

Verified by / date Gu / 4/21/04

16. Reinstall the dc amplifier card in Slot 32 and install a digital FCTR card (Stock Number 148C7596G012) in Slot 33. Record the FCTR Serial # 431000946TI-3.

Verified by / date Gu / 4/21/04

APRM C Testing

17. Using Draft OP 4308, as revised to reflect this MM, perform a calibration check and calibration of APRM C (final test is with the extender board removed and the FCTR installed).

Instead of Prerequisite 3 verification of the Reactor Mode switch being in the RUN position, remove APRM C K23 and K24 and install a Yellow APRM Test Relay in the socket for K23 and K24 to simulate the Reactor Mode switch being in the RUN position.

INSTALLATION & TESTING REQUIREMENTS

APRM C K 23 removed and test relay installed
Performed by /date BT 4/21/04 Verified by / date JH 4/21/04

APRM C K 24 removed and test relay installed
Performed by /date BT 4/21/04 Verified by / date JH 4/21/04

Monitor the INOP OUTPUT at Pin 19 and 37 of the extender board and verify normal power-up initialization:

Initially the INOP contact is open.

After approximately 3 seconds:
1. the INOP contact closes (card out-of-file interlock is satisfied)
2. the INOP LED is RED (slow blink)
3. the trip reference NORMAL/SETUP LED is GREEN (normal boundaries)

After this power-up initialization is complete, press the INOP RESET and verify that the INOP LED changes to steady GREEN.

~~Verify FLOW SIGNAL VALIDATION (INOP LED fast RED blink) at < 1.2V and > 10.4V.~~
MINOR CHANGE WNF 4/20/04 NAL 4/20/04

Verify that the toggle switch is* left in the TLO position and the INOP LED is GREEN.

Do not return the APRM C and F Bypass Switches to NEUTRAL until directed in the following steps.

Verified by / date JH 4/21/04

18. Remove the Yellow APRM Test Relays in the socket for K23 and K24 and replace K23 and K24.

APRM C K 23 test relay removed and normal relay installed

Performed by /date BT 4/21/04 Verified by / date JH 4/21/04

APRM C K 24 test relay removed and normal relay installed

Performed by /date BT 4/21/04 Verified by / date JH 4/21/04

INSTALLATION & TESTING REQUIREMENTS

APRM F Changes

19. Remove the dc amplifier card (slot 32) and the analog FCTR card (slot 33) from APRM F.

Verified by / date 4/21/04

20. Install a retaining clip (Stock Number 512754) with a "POP" rivet (~~Stock Number 512799~~) CR03 using the appropriate "POP" rivet tool in Slots 32 and 32. 4/20/04 4/20/04

Verified by / date 4/21/04

21. Reinstall the dc amplifier card in Slot 32 and install a digital FCTR card (Stock Number 148C7596G012) in Slot 33. Record the FCTR Serial # 4310069467T-4.

Verified by / date 4/21/04

APRM F Testing

22. Using ~~OP 4308~~Draft OP 4308, as revised to reflect this MM, perform a calibration check and calibration of APRM F (final test is with the extender board removed and the FCTR installed).

Instead of Prerequisite 3 verification of the Reactor Mode switch being in the RUN position, remove APRM F K23 and K24 and install a Yellow APRM Test Relay in the socket for K23 and K24 to simulate the Reactor Mode switch being in the RUN position.

APRM F K 23 removed and test relay installed
Performed by /date 4/21/04 Verified by / date 4/21/04

APRM F K 24 removed and test relay installed
Performed by /date 4/21/04 Verified by / date 4/21/04

Monitor the INOP OUTPUT at Pin 19 and 37 of the extender board and verify normal power-up initialization:

Initially the INOP contact is open.

INSTALLATION & TESTING REQUIREMENTS

After approximately 3 seconds:

1. the INOP contact closes (card out-of-file interlock is satisfied)
2. the INOP LED is RED (slow blink)
3. the trip reference NORMAL/SETUP LED is GREEN (normal boundaries)

After this power-up initialization is complete, press the INOP RESET and verify that the INOP LED changes to steady GREEN.

~~Verify FLOW SIGNAL VALIDATION (INOP LED fast RED blink) at < 1.2V and > 10.4V.~~ WNF 4/20/04
MINOR CHANGE

Verify that the toggle switch is left in the TLO position and the INOP LED is GREEN. RAC 4/20/04

Do not return the APRM C and F Bypass Switches to NEUTRAL until directed in the following steps.

Verified by / date JH / 4/21/04

23. Remove the Yellow APRM Test Relays in the socket for K23 and K24 and replace K23 and K24.

APRM F K 23 test relay removed and normal relay installed

Performed by /date BJ / 4/21/04 Verified by / date JH / 4/21/04

APRM F K 24 test relay removed and normal relay installed

Performed by /date BJ / 4/21/04 Verified by / date JH / 4/21/04

24. On CRP 9-5, place/ verify APRM C and F Bypass Switches to NEUTRAL

Verified by / date JH / 4/21/04

<u>APRM B and E</u>

25. On CRP 9-5, bypass APRM B and E.

Verified by / date JH / 4/21/04

INSTALLATION & TESTING REQUIREMENTS

APRM B Changes

26. Remove the dc amplifier card (slot 32) and the analog FCTR card (slot 33) from APRM B.

Verified by / date JA / 4/21/04

27. Install a retaining clip (Stock Number 512754) with a "POP" rivet ~~(Stock Number 512799)~~ CR03 using the appropriate "POP" rivet tool in Slots 32 and 32. WNF 4/20/04 RAL 4/20/04

Verified by / date JA / 4/21/04

28. Reinstall the dc amplifier card in Slot 32 and install a digital FCTR card (Stock Number 148C7596G012) in Slot 33. Record the FCTR Serial # 431 000946T1-5.

Verified by / date JA / 4/21/04

APRM B Testing

29. Using ~~OP 4308~~Draft OP 4308, as revised to reflect this MM, perform a calibration check and calibration of APRM B (final test is with the extender board removed and the FCTR installed).

Instead of Prerequisite 3 verification of the Reactor Mode switch being in the RUN position, remove APRM B K23 and K24 and install a Yellow APRM Test Relay in the socket for K23 and K24 to simulate the Reactor Mode switch being in the RUN position.

APRM B K 23 removed and test relay installed
Performed by /date BJ / 4/21/04 Verified by / date JA / 4/21/04

APRM B K 24 removed and test relay installed
Performed by /date BJ / 4/21/04 Verified by / date JA / 4/21/04

Monitor the INOP OUTPUT at Pin 19 and 37 of the extender board and verify normal power-up initialization:

Initially the INOP contact is open.

After approximately 3 seconds:

1. the INOP contact closes (card out-of-file interlock is satisfied)
2. the INOP LED is RED (slow blink)
3. the trip reference NORMAL/SETUP LED is GREEN (normal boundaries)

INSTALLATION & TESTING REQUIREMENTS

After this power-up initialization is complete, press the INOP RESET and verify that the INOP LED changes to steady GREEN.

~~Verify FLOW SIGNAL VALIDATION (INOP LED fast RED blink) at < 1.2V and > 10.4V.~~
MINOR CHANGE RAC 4/20/04 WNF 4/20/04

Verify that the toggle switch is left in the TLO position and the INOP LED is GREEN.

Do not return the APRM B and E Bypass Switches to NEUTRAL until directed in the following steps.

Verified by / date GH / 4/21/04

30. Remove the Yellow APRM Test Relays in the socket for K23 and K24 and replace K23 and K24.

APRM B K 23 test relay removed and normal relay installed

Performed by /date BJ / 4/21/04 Verified by / date GH / 4/21/04

APRM B K 24 test relay removed and normal relay installed

Performed by /date BJ / 4/21/04 Verified by / date GH / 4/21/04

APRM E Changes

31. Remove the dc amplifier card (slot 32) and the analog FCTR card (slot 33) from APRM E.

Verified by / date GH / 4/21/04

WNF 4/20/04 RAC 4/21/04 CR03

32. Install a retaining clip (Stock Number 512754) with a "POP" rivet ~~(Stock Number 512799)~~ using the appropriate "POP" rivet tool in Slots 32 and 32.

Verified by / date GH / 4/21/04

33. Reinstall the dc amplifier card in Slot 32 and install a digital FCTR card (Stock Number 148C7596G012) in Slot 33. Record the FCTR Serial # 431000946 T1-6

Verified by / date GH / 4/21/04

INSTALLATION & TESTING REQUIREMENTS

APRM E Testing

34. Using ~~OP 4308~~Draft OP 4308, as revised to reflect this MM, perform a calibration check and calibration of APRM E (final test is with the extender board removed and the FCTR installed).

Instead of Prerequisite 3 verification of the Reactor Mode switch being in the RUN position, remove APRM E K23 and K24 and install a Yellow APRM Test Relay in the socket for K23 and K24 to simulate the Reactor Mode switch being in the RUN position.

APRM E K 23 removed and test relay installed
Performed by /date BT / 4/21/04 Verified by / date GH / 4/21/04

APRM E K 24 removed and test relay installed
Performed by /date BT / 4/21/04 Verified by / date GH / 4/21/04

Monitor the INOP OUTPUT at Pin 19 and 37 of the extender board and verify normal power-up initialization:

Initially the INOP contact is open.

After approximately 3 seconds:

1. the INOP contact closes (card out-of-file interlock is satisfied)
2. the INOP LED is RED (slow blink)
3. the trip reference NORMAL/SETUP LED is GREEN (normal boundaries)

After this power-up initialization is complete, press the INOP RESET and verify that the INOP LED changes to steady GREEN.

~~Verify FLOW SIGNAL VALIDATION (INOP LED fast RED blink) at <-1.2V and > 10.4V.~~ MINOR CHANGE WJF 4/20/04 MAC 4/20/04

Verify that the toggle switch is left in the TLO position and the INOP LED is GREEN.

Do not return the APRM B and E Bypass Switches to NEUTRAL until directed in the following steps.

Verified by / date GH / 4/21/04

35. Remove the Yellow APRM Test Relays in the socket for K23 and K24 and replace K23 and K24.

INSTALLATION & TESTING REQUIREMENTS

APRM E K 23 test relay removed and normal relay installed

Performed by /date BT / 4/21/04 Verified by / date QU / 4/21/04

APRM E K 24 test relay removed and normal relay installed

Performed by /date BT / 4/21/04 Verified by / date QU / 4/21/04

~~37.~~36. On CRP 9-5, place/ verify APRM B and E Bypass Switches to NEUTRAL

Verified by / date QU / 4/21/04

RBM Calibration

37. Perform RBM Calibration IAW Enclosure 1.

Verified by / date [illegible] / 4/22/04

~~37. Simulate operation at ≥ 30% power by (LATER) to remove the RBM AUTO BYPASS.~~

~~Performed by /date _____ / _____~~

~~38.Calibrate RBM A and B using OP 4304, ROD BLOCK MONITOR FUNCTIONAL/CALIBRATION TEST with the changes in SCR 2003C 54.~~

~~RBM A calibrated Verified by / date _____ / _____~~

~~RBM B calibrated Verified by / date _____ / _____~~

~~39.Remove (LATER) that simulated operation at ≥30% power. Verify that the RBM AUTO BYPASS is restored.~~

~~Performed by /date _____ / _____ Verified by / date _____ / _____~~

Procedure Changes

~~40.~~38. Verify that the changes for procedures affected by this MM have been issued.

Verified by / date WWF / 4/30/04

INSTALLATION & TESTING REQUIREMENTS

SQA Documentation

~~41.~~39. Verify the FCTR software has been released for use per ENN-IT-104, Section 5.4.7.

Verified by / date WNF 4/30/04

Licensing Documents

40. Verify that Technical Specification Amendment 219 has been distributed to support this MM.

Verified by / date WNF 4/30/04

41. Verify that the COLR Table 2.2-1 has been revised to change N to 62 and the maximum to 112% power.

COLR Revision 0 Verified by / date WNF 4/30/04

42. Verify that the Table TRM 3.2.5 has been revised to implement TRM Change 04-02.

TRM Revision 21 Verified by / date WNF 4/30/04

INSTALLATION & TESTING REQUIREMENTS

Enclosure 1, RBM Calibration

Prerequisites:

1. Notify Control that rod blocks will occur during performance of this procedure. An inadvertent ½ scram can occur due to test equipment interfacing.

2. This test is to be performed with the I/C Maintenance Support Engineer present.

~~3. The Reactor mode switch must not be in S/D to perform this test.~~ Main Change RAC 4/22/04 WWF 4/22/04

Prerequisites Verified By _____ / _____

Procedure

1) Request OPS Bypass APRM "E" and "B"

Verified By JH / 4/22/04

2) Place 1 meg ohm resistors across LPRM inputs 8-17B, 8-25D (pins A and C) in APRM "E"; and LPRM inputs 8-17C and 8-25A (pins A and C) in APRM "B" (4 total resistors).

Performed By JH / 4/22/04 Verified By BT / 4/22/04

3) Place a jumper across J45-2 and J45-3 in APRM "E" and "B" (Inop inhibit).

Performed By BT / 4/22/04 Verified By JH / 4/22/04

4) Place APRM "E" and "B" mode switch to PWR (not pwr/flow). Simulate 50% power in APRM "E" and "B". 5% in Mode 4/22/04 WWF 4/22/04 RAC 4/22/04

JH / 4/22/04 Verified By BT / 4/22/04

5) Lift Terminals 4 and 5 on FSUM-2-110A in Flow converter A.

Performed By BT / 4/22/04 Verified By JH / 4/22/04

6) Connect a 5.0 VDC signal (15ma capability) between leads lifted in prior step. Lead 4 is (+), lead 5 is (-).

PELL J.H. 4/22/04 Verified By BT / 4/22/04

7) Lift Terminals 4 and 5 on FSUM-2-110B in Flow converter B.

Performed By BT / 4/22/04 Verified By JH / 4/22/04

8) Connect a 5.0 VDC signal (15ma capability) between leads lifted in prior step. Lead 4 is (+), lead 5 is (-).

JH 4/22/04 Verified By BT / 4/22/04

INSTALLATION & TESTING REQUIREMENTS

Enclosure 1, RBM Calibration

9) Replace Relays K23 and K24 in APRM "E" with the "Yellow' test relays ('Run' simulation)

Performed By JH / 4/22/04 Verified By BJ / 4/22/04

10) Reset all APRM "E" and "B" alarms.

Verified By JH / 4/22/04

Note

If the APRM "E" has alarms present, contact I/C engineer.

11) When all APRM "E" alarms are cleared, place the APRM "E" bypass switch to neutral.

Verified By JH / 4/22/04

12) Place RBM-B to Bypass.

Verified By JH / 4/22/04

13) Request OPS Select rod 6-19.

Verified By JH / 4/22/04

14) Perform the Draft markup of OP4304 rev 28 for RBM-A.

Perf JH 4/22/04 Verified By BJ / 4/22/04

15) Bypass APRM "E".

Verified By JH / 4/22/04

16) Replace test Relays K23 and K24 in APRM "E" with the normal K23 and K24 relays (removed in step 9).

Performed By JH / 4/22/04 Verified By BJ / 4/22/04

17) Replace Relays K23 and K24 in APRM "B" with the "Yellow' test relays.

Performed By JH / 4/22/04 Verified By NAC / 4/22/04

18) Reset all APRM "E" and "B" alarms.

Verified By JH / 4/22/04

Note

If the APRM "B" has alarms present, contact I/C engineer.

19) When all APRM "B" alarms are cleared, place the APRM "B" bypass switch to neutral.

Verified By JH / 4/22/04

MINOR CHANGE WNF 4/22/04

17a. Place APRM "E" and "B" mode switch to PWR (not pwr/flow). Simulate 5% Pwr in APRM "E". Simulate 50% in APRM "B".

Perf by JH 4/22/04 Verif by NAC 4/22/04

NAC 4/21

INSTALLATION & TESTING REQUIREMENTS

Enclosure 1, RBM Calibration

20) Place RBM-A to bypass.

Verified By [illegible] / 4/22/04

21) Perform the Draft markup of OP4304 rev 28 for RBM-B.

Verified By [illegible] / 4/22/04

22) Bypass APRM "B".

Verified By [illegible] / 4/22/04

23) Replace test Relays K23 and K24 in APRM "B" with the normal K23 and K24 relays (removed in step 16).

Performed By [illegible] / 4/22/04 Verified By [illegible] / 4/22/04

24) Remove 1 meg ohm resistors across LPRM inputs 8-17B,C and 8-25A,D (pins A and C) in APRM "E" and "B" (4 total resistors). Restore the normal LPRM input cables for 8-17 B,C and 8-25A,D in APRM "E" and "B".

Performed By [illegible] / 4/22/04 Verified By [illegible] / 4/22/04

25) Remove jumper across J45-2 and J45-3 in APRM "E" (Inop inhibit).

Performed By [illegible] / 4/22/04 Verified By [illegible] / 4/22/04

26) Remove jumper across J45-2 and J45-3 in APRM "B" (Inop inhibit).

Performed By [illegible] / 4/22/04 Verified By [illegible] / 4/22/04

27) Place APRM "E" and "B" mode switch to Operate.

Verified By [illegible] / 4/22/04

28) Re-terminate Terminals 4 and 5 on FSUM-2-110A in Flow converter A.

Performed By [illegible] / 4/22/04 Verified By [illegible] / 4/22/04

29) Re-terminate Terminals 4 and 5 on FSUM-2-110B in Flow converter B.

Performed By [illegible] / 4/22/04 Verified By [illegible] / 4/22/04

30) Request OPS place APRM "E" and "B" to neutral.

Verified By [illegible] / 4/22/04

31) Request OPS place RBM bypass switch to neutral.

Verified By [illegible] / 4/22/04