Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

April 2, 2014

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Watts Bar Nuclear Plant, Unit 2
NRC Docket No. 50-391

Subject: **Watts Bar Nuclear Plant (WBN) Unit 2 - Submittal of Pre-operational Test Instruction**

The following approved WBN Unit 2 Pre-op Test Instruction (PTI) is enclosed:

PTI NUMBER	Rev.	TITLE
2-PTI-003A-01	0	Feedwater Isolation Valves

If you have any questions, please contact Nick Welch at (423) 365-7820.

Respectfully,

R. A. Hruby, Jr.

Raymond A. Hruby, Jr.
General Manager, Technical Services
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Enclosure

D030
NRR

cc (Enclosure):

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NRC Resident Inspector Unit 2
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WATTS BAR NUCLEAR PLANT
UNIT 2 PREOPERATIONAL TEST

TITLE: Feedwater Isolation Valves

Instruction No: 2-PTI-003A-01
Revision No: 0

PREPARED BY: William Ryan Lisa Watts Ryan DATE: 3-17-2014
PRINT NAME / SIGNATURE

REVIEWED BY: Sam Linginfelter for Joe Wooten DATE: 3/17/14
PRINT NAME / SIGNATURE

INSTRUCTION APPROVAL

JTG MEETING No: 2-14-011
JTG CHAIRMAN: Nick A Welch DATE: 3/17/14
APPROVED BY: Nick A Welch DATE: 3/17/14
PREOPERATIONAL STARTUP MANAGER

TEST RESULTS APPROVAL

JTG MEETING No: _____
JTG CHAIRMAN: _____ DATE: _____
APPROVED BY: _____ DATE: _____
PREOPERATIONAL STARTUP MANAGER

Revision Log

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
0000	3/17/14		Original Issue

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1.0 INTRODUCTION

1.1 Test Objectives

The objective of this test is to demonstrate the operability of the Main Feedwater Isolation Valves (MFIV), Main Feedwater Regulator Valves (MFRV), Main Feedwater Bypass Regulator Valves (MFBRV), Main Feedwater Bypass Isolation Valves (MFBIV), Main Feedwater Backflush Warming Isolation Valves (MFBWIV), including the ability to close automatically as required. Deaeration line control valves and Main Feedwater Regulating Isolating Valves (MFRIV) will also be tested.

1.2 Scope

1.2.1 Isolation Valves

A. To demonstrate each MFIV, MFBIV, and MFBWIV closes upon receipt of an isolation signal.

B. To ensure safety related controls, interlocks and operation of the MFIVs and MFBIVs is in accordance with design criteria.

C. MFRIVs are operable from local control station and indicating lights report appropriate valve position.

D. MFBWIVs close on loss of control power.

1.2.2 Regulator Valves

A. To demonstrate each MFRV, MFBRV closes upon receipt of an isolation signal.

B. To ensure MFRVs and MFBRVs close on loss of control power.

C. MFRVs operate accordingly when 2-HS-3-45 is utilized.

1.2.3 Deaeration Valves

A. Deaeration line back pressure control valve and line isolation valves operate accordingly when 2-HS-3-45 is utilized.

B. Deaeration line isolation valves are operable from local control station and indicating lights report appropriate valve position.

2.0 REFERENCES

2.1 Performance References

A. SMP-9.0, Conduct of Test

B. OPDP-7, Fuse Control

C. OPDP-8, Limiting Conditions for Operation Tracking.

D. TSP 1021, TVA Safety Manual, Working on/or Near Energized Electrical Equipment.

E. GOI-7, Generic Equipment Operating Guidelines

2.2 Developmental References

A. Unit 2 Final Safety Analysis Report - Amendment 111

1. Section 10.4.7

2. Chapter 14 - Table 14.2-1, Sheet 65 and 67 of 89

B. Drawings

1. Flow Diagrams

2-47W803-1, Rev. 14, Main Feedwater System

2. Control Diagrams

a. 2-47W610-3-1, Rev. 4, Electrical Control Diagram Main & Aux Feedwater System

b. 2-47W610-3-1A, Rev. 1, Electrical Control Diagram Main & Aux Feedwater System

c. 2-47W610-3-1B, Rev. 3, Electrical Control Diagram Main & Aux Feedwater System

d. 2-47W610-3-1C, Rev. 2, Electrical Control Diagram Main & Aux Feedwater System

e. 2-47W610-3-1D, Rev. 4, Electrical Control Diagram Main & Aux Feedwater System

2.2 Developmental References (continued)

f. 2-47W610-3-2, Rev. 2, Electrical Control Diagram Main & Aux Feedwater System

g. 2-47W610-3-2A, Rev. 4, Electrical Control Diagram Main & Aux Feedwater System

h. 2-47W610-3-2B, Rev. 2, Electrical Control Diagram Main & Aux Feedwater System

i. 2-47W610-3-2C, Rev. 5, Electrical Control Diagram Main & Aux Feedwater System

j. 2-47W610-3-5, Rev. 3, Electrical Control Diagram Main & Aux Feedwater System

k. 2-47W610-3-5A, Rev. 3, Electrical Control Diagram Main & Aux Feedwater System

3. Electrical Diagrams

a. 2-45W751-4, Rev 2, Wiring Diagrams, 480V Reac MOV Bd 2A2-A, Single Line SH-1

b. 2-45W751-10, Rev 7, Wiring Diagrams, 480V Reac MOV Bd 2B2-2, Single Line SH-1

c. 2-45W753-2, Rev 3, Wiring Diagram, 480V Turbine MOV Bd 2A, Single Line

d. 2-45W753-3, Rev 3, Wiring Diagram, 480V Turbine MOV Bd 2A, Single Line

e. 45N2635-17, Rev 5, Wiring Diagrams Local Instrument Panels Connection Diagram

f. 45N2642-2, Rev 11, Wiring Diagrams Unit Control Board Panel 2-M-3 Connection Diagram

g. 45N2652-2, Rev 4, Wiring Diagrams Unit Control Board Panel 2-M-13 Connection Diagram

h. 2-45N2655-1A, Rev 0, Electrical Wiring Diagram Connection Diagram PNL 2-M-18

2.2 Developmental References (continued)

i. 2-45N2655-1B, Rev 0, Electrical Wiring Diagram Connection Diagram PNL 2-M-18

j. 45N2665-2, Rev 12, Wiring Diagram Process Instr Control Group 1 Connection Diagram

k. 45N2665-3, Rev 4, Wiring Diagram Process Instr Control Group 1 Connection Diagram

l. 45N2666-3, Rev 5, Wiring Diagram Process Instr Control Group 2 Connection Diagram

m. 45N2667-2, Rev 9, Wiring Diagram Process Instr Control Group 3 Connection Diagram

n. 45N2668-2, Rev 6, Wiring Diagram Process Instr Control Group 4 Connection Diagram

o. 45N2668-3, Rev 1, Wiring Diagram Process Instr Control Group 4 Connection Diagram

p. 45N2668-4, Rev 6, Wiring Diagram Process Instr Control Group 4 Connection Diagram

q. 45N2676-4, Rev 16, Wiring Diagrams Solid State Protection Sys Train A Connection Diagram

r. 45N2676-5, Rev 10, Wiring Diagrams Solid State Protection Sys Train A Connection Diagram

s. 45N2676-6, Rev 3, Wiring Diagrams Solid State Protection Sys Train A Connection Diagram

t. 45N2676-7, Rev 7, Wiring Diagrams Solid State Protection Sys Train A Connection Diagram

u. 45N2677-4, Rev 18, Wiring Diagrams Solid State Protection Sys Train B Connection Diagram

v. 45N2677-5, Rev 9, Wiring Diagrams Solid State Protection Sys Train B Connection Diagram

w. 45N2677-6, Rev 5, Wiring Diagrams Solid State Protection Sys Train B Connection Diagram

2.2 Developmental References (continued)

x. 45N2677-7, Rev 7, Wiring Diagrams Solid State Protection Sys Train B Connection Diagram

y. 2-45N2688-1, Rev 2, Wiring Diagrams Separation Aux Relay Pnl 2-R-73 Connection Diagram

z. 2-45N2688-4, Rev 0, Wiring Diagrams Separation Aux Relay Pnl 2-R-73 Connection Diagram

aa. 45N2689-1, Rev 11, Wiring Diagrams Separation Aux Relay Pnl 2-R-74 Connection Diagram

bb. 45N2689-2, Rev 7, Wiring Diagrams Separation Aux Relay Pnl 2-R-74 Connection Diagram; DRA 55879-001 Rev 0

cc. 45N2689-2, Rev 7, Wiring Diagrams Separation Aux Relay Pnl 2-R-74 Connection Diagram; DRA 52378-332 Rev 5

dd. 45N2689-4, Rev 18, Wiring Diagrams Separation Aux Relay Pnl 2-R-74 Connection Diagram

ee. 45N2692-4, Rev 17, Wiring Diagrams Separation Aux Relay Pnl 2-R-77 Connection Diagram

ff. 45W2643-6, Rev 12

gg. 2–47A615–0, Rev. 1, Integrated Computer System Terminations and I/O List

4. Logic Diagrams

   a. 2-47W611-3-2, Rev. 6, Electrical Logic Diagrams Feedwater System

   b. 2-47W611-3-5, Rev. 4, Electrical Logic Diagram Feedwater System

   c. 2-47W611-3-6, Rev. 3, Electrical Logic Diagram Feedwater System

5. Schematic Diagrams

   a. 2-45W600-3-1, Rev. 1, Wiring Diagrams Main & Aux Feedwater Sys Schematic Diagram

   b. 2-45W600-3-5, Rev 1, Wiring Diagram Man & Aux Feedwater System Schematic Diagram

2.2 Developmental References (continued)

c. 2-45W600-3-6, Rev. 3, Wiring Diagrams Main & Aux Feedwater Sys Schematic Diagram

d. 2-45W600-3-7, Rev. 3, Wiring Diagrams Main & Aux Feedwater Sys Schematic Diagram

e. 2-45W600-3-8, Rev 2, Wiring Diagram Main & Aux Feedwater System Schematic Diagram

f. 2-45W600-3-9, Rev 2, Wiring Diagram Main & Aux Feedwater System Schematic Diagram

g. 2-45W600-3-10, Rev 1, Wiring Diagram Main & Aux Feedwater System Schematic Diagram

h. 2-45W600-3-11, Rev. 5, Wiring Diagrams Main & Aux Feedwater Sys Schematic Diagram

i. 2-45W600-3-14, Rev. 0, Wiring Diagrams Main & Aux Feedwater Sys Schematic Diagram

j. 2-45W600-57-19, Rev 2, Wiring Diagram Separation & Misc Aux Relays Schematic Diagram

k. 2-45W600-57-24, Rev 2, Wiring Diagram Separation & Misc Aux Relays Schematic Diagram

l. 2-45W600-57-33, Rev 2, Wiring Diagram Separation & Misc Aux Relays Schematic Diagram

m. 45W760-55-3, Rev 2, Wiring Diagrams Annunciator System Schematic Diagram

n. 2-45W760-3-3, Rev. 5, Wiring Diagrams Main & Aux Feedwater Sys Schematic Diagram

o. 2-45W760-3-4, Rev. 4, Wiring Diagrams Main & Aux Feedwater Sys Schematic Diagram

p. 2-45W760-3-6, Rev. 4, Wiring Diagrams Main & Aux Feedwater Sys Schematic Diagram

q. 2-45W760-3-7, Rev. 3, Wiring Diagrams Main & Aux Feedwater Sys Schematic Diagram

2.2 Developmental References (continued)

r. 2-45W760-3-8, Rev. 2, Wiring Diagrams Main & Aux Feedwater Sys Schematic Diagram

s. 2-45W760-270-2, Rev 6, Wiring Diagram Miscellaneous System Schematic Diagram

6. Connection Diagrams

a. 2-45B640-90, Rev 0, Contact Development of Control and Instrument Switches

b. 2-45B640-156, Rev 0, Contact Development of Control and Instrument Switches

c. 16-4336I/OXA55-06F-1, Rev. 8, Input/Output Listing Control

d. 16-4336I/OXA55-01C-1, Rev. 8, Input/Output Listing Control

e. 7246D11-21, Rev. F, Solid State Protection System Interconnection Diagram

f. 7246D11-22, Rev. L, Solid State Protection System Interconnection Diagram

g. 7246D11-23, Rev. G, Solid State Protection System Interconnection Diagram

h. 8756D77-7, Rev. 4, Safeguards Test Cabinet

i. 08F802403-FD-2101, Rev 2, Steam Generator 1 to 4 Steam Generator Narrow Range Level Input/Validation

j. 08F802403-FD-2103, Rev 2, Steam Generator 1 to 4 Feedwater Flow Input Validation

k. 08F802403-FD-2105, Rev 3, Steam Generator 1 to 4 Steam Generator Level & Bypass Feedwater Control

l. 08F802403-FD-2107, Rev 3, Steam Generator 1 Steam Generator Level & Feedwater Control Main FW Valve

m. 08F802403-FD-2111, Rev 3, Steam Generator 1 to 4 Reactor Power Level Setpoint

2.2 Developmental References (continued)

n. 08F802403-FD-2203, Rev 4, Rod Control System NIS Channel Input Validation Higher Median Selection

C. Documents

1. Test Scoping Documents

   a. 2-TSD-3A-1, Feedwater Isolation and Bypass Valves, Rev 1

   b. 2-TSD-3A-3, Main Feedwater System Functional Test, Rev 3

2. System Descriptions

   a. WBN2-3A-4002, System Description for Main Feedwater, Feedwater Control, and Injection Water, Rev 1

3. Vendor Manuals

   a. VTM-W120-2062, Vendor Technical Manual For Westinghouse Feedwater Control Valves Supplied By Fisher Controls, Rev. 13

   b. VTM-W120-2780, Vendor Technical Manual For IDS NO.G-023 THRU G-040 Foxboro Electronic Controllers Supplied By Westinghouse, Rev. 3

3.0 PRECAUTIONS AND LIMITATIONS

A. Standard precautions shall be followed for working around energized electrical equipment in accordance with TVA Safety Manual Procedure 1021.

B. Generic Equipment Operating Guidelines (GOI-7) shall be followed for equipment such as valves and breakers.

C. Steps may be repeated if all components cannot be tested in a step. However, if the test has been exited, prerequisite steps must be re-verified and a Chronological Test Log (CTL) entry made.

D. Discrepancies between component ID tags and the description in a procedure/instruction do not require a Test Deficiency Notice (TDN) in accordance with SMP-14.0, if the UNIDs match, exclusive of place-keeping zeros and train designators (e.g. 2-HS-31-0468 vs. 2-HS-031-0468) and the noun description is sufficient to identify the component. If the component label needs to be changed, a Tag Request Form (TR Card) should be processed in accordance with TI-12.14. Make an entry in the CTL and continue testing.

E. All wires removed/lifted from a terminal shall be identified and taped or covered with an insulator to prevent personnel or equipment hazard and possible spurious initiations. The wires should be grouped together and labeled with the work implementing document number that required them to be lifted if left unattended.

F. All open problems are to be tracked by a corrective action document and entered on the appropriate system punch list.

G. Problems identified during the test shall be annotated on the CTL from SMP-9.0 including a description of the problem, the procedure step when/where the problem was identified, corrective action steps taken to resolve the problem, and the number of the corrective action document, if one was required.

H. Observe all Radiation Protection (RP) requirements when working in or near radiological areas.

I. Ensure there are no adverse effects to the operation of Unit 1 structures, systems, or components.

J. Test personnel will coordinate with Unit 1 Operations when manipulating Unit 1 equipment, if required.

K. System water chemistry is within system specifiable parameters especially for fluids supplied from external sources.

3.0 PRECAUTIONS AND LIMITATIONS (continued)

L. During the performance of this procedure, visual observation of piping and components is required. This includes steady state and transient operations with visual confirmation that vibration is not excessive.

M. If the vibration is determined to be excessive the Test Engineer shall initiate a Test Deficiency Notice (TDN).

N. Exercise caution when manually actuating relays to avoid contact with control circuit power.

O. Manual actuation of relays should be made with a nonconductive device.

P. Safety Related Valves will be stroke timed locally at the valve and remotely at the control switch in both the open and close directions. Local timing begins with the initiating signal and is concluded with the completion of valve stem movement. Remote timing begins with the initiating signal and is concluded with the position indication lights status change. Stroke time acceptance criteria will be based on the movement to the safety function final position of the valve.

Q. Operability testing of the MFW Isolation valve control switches, indicating lights, status monitoring, and alarms shall be conducted prior to auto response testing.

R. The maintenance block valves 2_FCV-3-250, 251, 252, and 253, upstream of the MFW control valves, should be closed during operability testing of MFW Isolation valves 2-FCV-3-33, 47, 87, and 100.

S. When using test signals, ensure current range does not exceed 20mAdc or 10V.

Date _____

4.0 PREREQUISITE ACTIONS

NOTE
Preliminary action steps may be performed in any order with Test Directors approval.

4.1 Preliminary Actions

[1] **EVALUATE** open items in Watts Bar Integrated Task Equipment List (WITEL) AND

ENSURE they will **NOT** adversely affect the test performance and results.

A. Subsection 6.1 _____

B. Subsection 6.2 _____

C. Subsection 6.3 _____

D. Subsection 6.4 _____

E. Subsection 6.5 _____

F. Subsection 6.6 _____

[2] **ENSURE** changes to the references listed on Appendix A have been reviewed and determined **NOT** to adversely affect the test performance. _____

[3] **VERIFY** current revisions and change paper for referenced drawings has been reviewed and determined **NOT** to adversely affect the test performance, and

ATTACH documentation of current drawing revision numbers and change paper that were reviewed to the data package. _____

[4] **VERIFY** the test/performance copy of this Preoperational Test Instruction (PTI) is the current revision including any change notices and, as needed, each test person assisting in this test has the current revision including any change notices. _____

Date _____

4.1 Preliminary Actions (continued)

[5] **ENSURE** special environmental conditions are available for testing if required. _____

[6] **ENSURE** outstanding Design Change Notices (DCNs), Engineering Design Change Requests (EDCRs), or Temporary Modifications (TMODs) do **NOT** adversely impact testing, AND

ATTACH documentation of DCNs, EDCRs, and TMODs that were reviewed to the data package. _____

[7] **ENSURE** required Component Testing has been completed PRIOR to start of test.

A. Subsection 6.1 _____

B. Subsection 6.2 _____

C. Subsection 6.3 _____

D. Subsection 6.4 _____

E. Subsection 6.5 _____

F. Subsection 6.6 _____

[8] **OBTAIN** copies of the applicable forms from the latest revision of SMP-9.0 and

ATTACH to this PTI for use during the performance of this PTI. _____

[9] **ENSURE** a review of outstanding Clearances has been coordinated with U2 Operations for impact to the test performance, and

RECORD on Appendix B, Temporary Condition Log if required. _____

[10] **VERIFY** System cleanliness as required for the performance of this test has been completed in accordance with SMP-7.0 for piping systems.

A. Subsection 6.1 _____

B. Subsection 6.2 _____

Date _____

4.1 Preliminary Actions (continued)

C. Subsection 6.3 _____

D. Subsection 6.4 _____

E. Subsection 6.5 _____

F. Subsection 6.6 _____

[11] **VERIFY** plant instruments, listed on Appendix C, Permanent Plant Instrumentation Log, are placed in service and are within their calibration interval.

A. Subsection 6.1 _____

B. Subsection 6.2 _____

C. Subsection 6.3 _____

D. Subsection 6.4 _____

E. Subsection 6.5 _____

F. Subsection 6.6 _____

[12] **VERIFY** Measuring and Test Equipment (M&TE) required for test performance has been (as required) filled, vented, place in service and

RECORD on M&TE log in SMP-9.0 for the following subsections.

A. Subsection 6.1 _____

B. Subsection 6.2 _____

C. Subsection 6.3 _____

D. Subsection 6.4 _____

E. Subsection 6.5 _____

F. Subsection 6.6 _____

[13] **VERIFY** M&TE calibration due dates will support the completion of this test performance for the following subsections.

Date _____

4.1 Preliminary Actions (continued)

A. Subsection 6.1 _____

B. Subsection 6.2 _____

C. Subsection 6.3 _____

D. Subsection 6.4 _____

E. Subsection 6.5 _____

F. Subsection 6.6 _____

[14] **ENSURE** System 55, Annunciator and Sequential Events Recording System applicable TBK switches are ON, the applicable Master Switches ON, and window software input(s) are ENABLED for the following Annunciator windows.

A. 2-XA-55-06F/149-C _____

B. 2-XA-55-06F/150-C _____

[15] **PERFORM** a pretest walkdown on equipment to be tested to ensure **NO** conditions exist that will impact test performance for the following subsections.

A. Subsection 6.1 _____

B. Subsection 6.2 _____

C. Subsection 6.3 _____

D. Subsection 6.4 _____

E. Subsection 6.5 _____

F. Subsection 6.6 _____

[16] **ESTABLISH** communications in areas where testing is to be conducted. _____

[17] **CONDUCT** a pretest briefing with Test and Operations personnel in accordance with SMP-9.0. _____

[18] **ENSURE** all piping supports required for testing are installed and adjusted as required. _____

Date _____

4.1 Preliminary Actions (continued)

[19] **ENSURE** components contained within the boundaries of this test are under the jurisdictional control of Preoperational Startup Engineering (PSE) and/or Plant Operations. _____

[20] **ENSURE** the following systems are operational and have been placed in service to the extent necessary to perform this test:

A. System 003, Main Feedwater System - valves operational _____

B. System 032, Control Air - provide control air to all AOVs. _____

C. System 213, Reactor Motor Operated Valve Power - supply power to required valves. _____

D. System 235, 120V AC Vital Power - supply power to required control circuits. _____

E. System 236, 125V DC Vital Power - supply power to required valves and control circuits. _____

[21] **PERFORM** Switch Lineup per Appendix E. (Subsection 6.1) _____

[22] **PERFORM** Switch Lineup per Appendix F. (Subsection 6.2) _____

[23] **PERFORM** Switch Lineup per Appendix G. (Subsection 6.3) _____

[24] **PERFORM** Switch Lineup per Appendix H. (Subsection 6.4) _____

[25] **PERFORM** Breaker Lineup per Appendix I. (Subsection 6.1) _____

[26] **PERFORM** Breaker Lineup per Appendix J. (Subsection 6.2) _____

[27] **PERFORM** Breaker Lineup per Appendix K. (Subsection 6.3) _____

[28] **PERFORM** Breaker Lineup per Appendix L. (Subsection 6.4) _____

[29] **PERFORM** Valve Lineup per Appendix M. _____

[30] **REVIEW** preventive maintenance for system/components covered by this test, and

VERIFY no conditions exist that will impact test performance. _____

Date _____

4.2 Special Tools, Measuring and Test Equipment, Parts, and Supplies

[1] **ENSURE** the following equipment is available: _____

- (16) Switched Jumpers (grabber type with insulated boots)
- Jumpers (Momentary hand-held contact)

[2] **ENSURE** the following M&TE or equivalent is available and within their calibration due dates, AND

RECORD the M&TE data on SMP-9.0, Measuring and Test Equipment (M&TE) Log. _____

- Six (6) process calibrators with step function capability for test signals of 0-20mAdc and 0-10V such as I.E. (Fluke 744)
- Digital Stopwatches - Micronta, 63 to 5010, ± 0.1 second accuracy (or equivalent).

[3] **ENSURE** The following parts and supplies are available:

- Step change apparatus for use with current source _____

Date _____

4.3 Field Preparations

[1] **ENSURE** scaffolding and platforms have been erected, as needed. _____

[2] **PERFORM** the following wire lifts and jumper installations for Steam Generator (SG) 1 feedwater isolation simulation (Subsection 6.1) (DWGs 2-45N2676-4, -5, & 45N2677-5):

A. **LIFT** the black wire (1AP) in Cable 2SG103A from TB630-9 AND

INSTALL a switched jumper (Jumper 1) (switch CLOSED/ON) from the black wire to TB630-10 (1A1), Panel 2-R-48. (SSPS Train A)

_____ 1st

_____ CV

B. **LIFT** the white wire (3DCT) in Cable 2V2983 A from TB622-5, AND

INSTALL a switched jumper (Jumper 2) (switch OPEN/OFF) from the white wire to TB622-6 (3D3), Panel 2-R-48 (SSPS Train A).

_____ 1st

_____ CV

C. **LIFT** the black wire (1BP) in Cable 2SG123B from TB630-9 AND

INSTALL a switched jumper (Jumper 3) (switch CLOSED/ON) from the black wire to TB630-10 (1B1), Panel 2-R-51 (SSPS Train B).

_____ 1st

_____ CV

Date _____

4.3 Field Preparations (continued)

D. **LIFT** the green wire (2B5) in Cable 2SG127B from TB633-1 AND

INSTALL a switched jumper (Jumper 4) (switch CLOSED/ON) from the green wire to TB633-2 (2B6), Panel 2-R-51 (SSPS Train B).

_____ 1st

_____ CV

[3] **PERFORM** the following wire lifts and jumper installations for Steam Generator 2 (SG2) feedwater isolation simulation (Subsection 6.2) (DWGs 45N2677-4, -5 & 2-45N2676-5):

A. **LIFT** the black wire (2BP) in Cable 2SG127B from TB631-5 AND

INSTALL a switched jumper (Jumper 5) (switch CLOSED/ON) from the black wire to TB631-6 (2B1), Panel 2-R-51 (SSPS Train B).

_____ 1st

_____ CV

B. **LIFT** the black wire (3DCT) in Cable 2V3003B from TB622-5 AND

INSTALL a switched jumper (Jumper 6) (switch OPEN/OFF) from the black wire to TB622-6 (3D3), Panel 2-R-51 (SSPS Train B).

_____ 1st

_____ CV

C. **LIFT** the black wire (2AP) in Cable 2SG107A from TB631-5 AND

INSTALL a switched jumper (Jumper 7) (switch CLOSED/ON) from the black wire to TB631-6 (2A1), Panel 2-R-48 (SSPS Train A).

_____ 1st

_____ CV

Date _____

4.3 Field Preparations (continued)

D. **LIFT** the green wire (1A5) in Cable 2SG103A from TB633-1 AND

INSTALL a switched jumper (Jumper 8) (switch CLOSED/ON) from the green wire to TB633-2 (1A6), Panel 2-R-48 (SSPS Train A).

_____ 1st

_____ CV

[4] **PERFORM** the following wire lifts and jumper installations for Steam Generator 3 (SG3) feedwater isolation simulation (Subsection 6.3) (DWGs 2-45N2676-4, -5, & 45N2677-5):

A. **LIFT** the black wire (3AP) in Cable 2SG111A from TB648-1 AND

INSTALL a switched jumper (Jumper 9) (switch CLOSED/ON) from the black wire to TB648-2 (3A1), Panel 2-R-48 (SSPS Train A).

_____ 1st

_____ CV

B. **LIFT** the black wire (4DCT) in Cable 2V2993A from TB622-7 AND

INSTALL a switched jumper (Jumper 10) (switch OPEN/OFF) from the black wire to TB622-8 (4D3), Panel 2-R-48 (SSPS Train A).

_____ 1st

_____ CV

C. **LIFT** the black wire (3BP) in Cable 2SG131B from TB648-1 AND

INSTALL a switched jumper (Jumper 11) (switch CLOSED/ON) from the black wire to TB648-2 (3B1), Panel 2-R-51 (SSPS Train B).

_____ 1st

_____ CV

Date _____

4.3 Field Preparations (continued)

D. **LIFT** the green wire (4B5) in Cable 2SG135B from TB633-3 AND

INSTALL a switched jumper (Jumper 12) (switch CLOSED/ON) from the green wire to TB633-4 (4B6), Panel 2-R-51 (SSPS Train B).

_____ 1st

_____ CV

[5] **PERFORM** the following wire lifts and jumper installations for Steam Generator 4 (SG4) feedwater isolation simulation (Subsection 6.4) (DWGs 45N2677-4, -5, & 2-45N2676-5):

A. **LIFT** the black wire (4BP) in Cable 2SG135B from TB649-1 AND

INSTALL a switched jumper (Jumper 13) (switch CLOSED/ON) from the black wire to TB649-2 (4B1), Panel 2-R-51 (SSPS Train B).

_____ 1st

_____ CV

B. **LIFT** the black wire (4DCT) in Cable 2V3013B from TB622-7, AND

INSTALL a switched jumper (Jumper 14) (switch OPEN/OFF) from the black wire to TB622-8 (4D3), Panel 2-R-51 (SSPS Train B).

_____ 1st

_____ CV

C. **LIFT** the black wire (4AP) in Cable 2SG115A from TB649-1 AND

INSTALL a switched jumper (Jumper 15) (switch CLOSED/ON) from the black wire to TB649-2 (4A1), Panel 2-R-48 (SSPS Train A).

_____ 1st

_____ CV

Date _____

4.3 Field Preparations (continued)

D. **LIFT** the green wire (3A5) in Cable 2SG111A from TB633-3 AND

INSTALL a switched jumper (Jumper 16) (switch CLOSED/ON) from the green wire to TB633-4 (3A6), Panel 2-R-48 (SSPS Train A).

_____ 1st

_____ CV

[6] **PERFORM** the following prerequisites for Subsection 6.5.1, 2-FCV-3-250: Steam Generator 1 Feedwater Regulating Isolation Valve:

[6.1] **ENSURE** 2-FCV-3-250, STEAM GENERATOR 1 FW REG VALVE ISOLATION, is CLOSED. _____

[6.2] **ENSURE** the following breaker is CLOSED:

Breaker	Description	Initials
2-BKR-3-250 [T14D/708]	SG 1 FW REG VLV ISOL (2-FCV-3-250)	_____

[7] **PERFORM** the following prerequisites for Subsection 6.5.2, 2-FCV-3-251: Steam Generator 2 Feedwater Regulating Isolation Valve:

[7.1] **ENSURE** 2-FCV-3-251, STEAM GENERATOR 2 FW REG VALVE ISOLATION, is CLOSED. _____

[7.2] **ENSURE** the following breaker is CLOSED:

Breaker	Description	Initials
2-BKR-3-251 [T14D/708]	SG 2 FW REG VLV ISOL (2-FCV-3-251)	_____

Date _____

4.3 Field Preparations (continued)

[8] **PERFORM** the following prerequisites for Subsection 6.5.3, 2-FCV-3-252: Steam Generator 3 Feedwater Regulating Isolation Valve:

[8.1] **ENSURE** 2-FCV-3-252, STEAM GENERATOR 3 FW REG VALVE ISOLATION, is CLOSED. _____

[8.2] **ENSURE** the following breaker is CLOSED:

Breaker	Description	Initials
2-BKR-3-252 [T11K/729]	SG 3 FW REG VLV ISOL (2-FCV-3-252)	_____

[9] **PERFORM** the following prerequisites for Subsection 6.5.4, 2-FCV-3-253: Steam Generator 4 Feedwater Regulating Isolation Valve:

[9.1] **ENSURE** 2-FCV-3-253, STEAM GENERATOR 4 FW REG VALVE ISOLATION, is CLOSED. _____

[9.2] **ENSURE** the following breaker is CLOSED:

Breaker	Description	Initials
2-BKR-3-254 [T14D/708]	SG 4 FW REG VLV ISOL (2-FCV-3-253)	_____

[10] **PERFORM** the following prerequisites for Subsection 6.6.1, 2-FCV-3-191: MFW Deaeration Line Control:

[10.1] **ENSURE** 2-FCV-3-191, MFW DEAERATION LINE CONTROL, is CLOSED. _____

[10.2] **ENSURE** the following breaker is CLOSED:

Date _____

4.3 Field Preparations (continued)

Breaker	Description	Initials
2-BKR-3-191 [A12S/772]	WBN-2-MTR-003-0191, MAIN FW DEAERATION LINE LP1 VLV MTR.	_____

[11] **PERFORM** the following prerequisites for Subsection 6.6.2, 2-FCV-3-192: MFW Deaeration Line Control:

[11.1] **ENSURE** 2-FCV-3-192, MFW DEAERATION LINE CONTROL, is CLOSED. _____

[11.2] **ENSURE** the following breaker is CLOSED:

Breaker	Description	Initials
2-BKR-3-192 [A12S/772]	WBN-2-MTR-003-0192, MAIN FW DEAERATION LINE LP2 VLV MTR.	_____

[12] **PERFORM** the following prerequisites for Subsection 6.6.3, 2-FCV-3-193: MFW Deaeration Line Control:

[12.1] **ENSURE** 2-FCV-3-193, MFW DEAERATION LINE CONTROL, is CLOSED. _____

[12.2] **ENSURE** the following breaker is CLOSED:

Breaker	Description	Initials
2-BKR-3-193 [A12R/772]	WBN-2-MTR-003-0193, MAIN FW DEAERATION LINE LP3 VLV MTR.	_____

[13] **PERFORM** the following prerequisites for Subsection 6.6.4, 2-FCV-3-194: MFW Deaeration Line Control:

[13.1] **ENSURE** 2-FCV-3-194, MFW DEAERATION LINE CONTROL, is CLOSED. _____

Date _____

4.3 Field Preparations (continued)

[13.2] **ENSURE** the following breaker is CLOSED:

Breaker	Description	Initials
2-BKR-3-194 [A12R/772]	WBN-2-MTR-003-0194, MAIN FW DEAERATION LINE LP4 VLV MTR	_____

[14] **PERFORM** the following prerequisites for Subsection 6.6.5, 2-FCV-3-195: MFW Deaeration Line Control:

[14.1] **ENSURE** 2-FCV-3-195, MFW DEAERATION LINE CONTROL, is CLOSED. _____

[14.2] **ENSURE** the following breaker is CLOSED:

Breaker	Description	Initials
2-BKR-3-195 [T14D/708]	WBN-2-MTR-003-0195, MAIN FW DEAERATION LINE VALVE MTR	_____

Date _____

4.4 Approvals and Notifications

[1] **OBTAIN** permission of the Preoperational Startup Manager to start the test.

_____ _____
Preoperational Startup Manager Signature — Date

[2] **OBTAIN** the Unit 2 Supervisor's (US/SRO) or Shift Manager's (SM) authorization.

_____ _____
U 2 US/SRO/SM Signature — Date

5.0 ACCEPTANCE CRITERIA

Steps which determine acceptance criteria shall be designated by (**Acc Crit**).

[1] 2-FCV-3-33 Steam Generator #1 MFW Isolation Valve

[1.1] MFIV CLOSES in ≤ 6.5 seconds upon receipt of Train "A" Feedwater Isolation Signal. 6.1[11.1], 6.1[11.2]

[1.2] MFIV remains CLOSED when the Train "A" ESFAS relay is reset. 6.1[13]

[1.3] MCR Annunciator actuates when transfer switch is placed in AUX position. 6.1[32.7]

[1.4] MCR Status Monitoring System reflects correct valve position. 6.1[7.2], 6.1[7.3], 6.1[7.7], 6.1[8.2], 6.1[8.3], 6.1[8.6], 6.1[20]

[1.5] MFIV CLOSES when 2-HS-3-45 placed in FORWARD FLUSH. 6.1[77.1]

[1.6] MFIV OPENS when 2-HS-3-45 placed in BACKFLUSH. 6.1[78.2]

[2] 2-FCV-3-47 Steam Generator #2 MFW Isolation Valve

[2.1] MFIV CLOSES in ≤ 6.5 seconds upon receipt of Train "B" Feedwater Isolation Signal. 6.2[11.1], 6.2[11.2]

[2.2] MFIV remains CLOSED when the Train "B" ESFAS relay is reset. 6.2[13]

[2.3] MCR Annunciator actuates when transfer switch is placed in AUX position. 6.2[32.7]

[2.4] MCR Status Monitoring System reflects correct valve position 6.2[7.2], 6.2[7.3], 6.2[7.7], 6.2[8.2], 6.2[8.3], 6.2[8.6], 6.2[20]

[2.5] MFIV CLOSES when 2-HS-3-45 placed in FORWARD FLUSH. 6.2[77.1]

[2.6] MFIV OPENS when 2-HS-3-45 placed in BACKFLUSH. 6.2[78.2]

[3] 2-FCV-3-87 Steam Generator #3 MFW Isolation Valve

Date _____

5.0 ACCEPTANCE CRITERIA (continued)

[3.1] MFIV CLOSES in ≤ 6.5 seconds upon receipt of Train "A" Feedwater Isolation Signal 6.3[11.1], 6.3[11.2]

[3.2] MFIV remains CLOSED when the Train "A" ESFAS relay is reset. 6.3[13]

[3.3] MCR Annunciator actuates when transfer switch is placed in AUX position. 6.3[32.7]

[3.4] MCR Status Monitoring System reflects correct valve position. 6.3[7.2], 6.3[7.3], 6.3[7.7], 6.3[8.2], 6.3[8.3], 6.3[8.6], 6.3[20]

[3.5] MFIV CLOSES when 2-HS-3-45 placed in FORWARD FLUSH. 6.3[77.1]

[3.6] MFIV OPENS when 2-HS-3-45 placed in BACKFLUSH. 6.3[78.2]

[4] 2-FCV-3-100 Steam Generator #4 MFW Isolation Valve

[4.1] MFIV CLOSES in ≤ 6.5 seconds upon receipt of Train "B" Feedwater Isolation Signal. 6.4[11.1], 6.4[11.2]

[4.2] MFIV remains CLOSED when the Train "B" ESFAS relay is reset. 6.4[13]

[4.3] MCR Annunciator actuates when transfer switch is placed in AUX position. 6.4[32.7]

[4.4] MCR Status Monitoring System reflects correct valve position. 6.4[7.2], 6.4[7.3], 6.4[7.7], 6.4[8.2], 6.4[8.3], 6.4[8.6], 6.4[20]

[4.5] MFIV CLOSES when 2-HS-3-45 placed in FORWARD FLUSH. 6.4[77.1]

[4.6] MFIV OPENS when 2-HS-3-45 placed in BACKFLUSH. 6.4[78.2]

[5] 2-FCV-3-35 Steam Generator #1 MFW Regulating Valve

[5.1] MFRV CLOSES in ≤ 6.5 seconds upon receipt of Train "A" Feedwater Isolation Signal. 6.4[66.3], 6.4[66.4]

[5.2] MFRV remains CLOSED when the Train "A" ESFAS relay is reset. 6.4[70]

5.0 ACCEPTANCE CRITERIA (continued)

[5.3] MFRV CLOSES in ≤ 6.5 seconds upon receipt of Train "B" Feedwater Isolation Signal. 6.1[66.1], 6.1[66.2],

[5.4] MFRV remains CLOSED when the Train "B" ESFAS relay is reset. 6.1[69]

[5.5] MFRV fails CLOSED on loss of control power. 6.1[73.1], 6.4[73.2]

[5.6] MFRV CLOSES when 2-HS-3-45 placed in BACKFLUSH. 6.1[78.1]

[5.7] MCR Status Monitoring System reflects correct valve position. 6.1[51.1], 6.1[51.2], 6.1[53.1], 6.1[53.2]

[6] 2-FCV-3-48 Steam Generator #2 MFW Regulating Valve

[6.1] MFRV CLOSES in ≤ 6.5 seconds upon receipt of Train "A" Feedwater Isolation Signal. 6.2[66.1], 6.2[66.2]

[6.2] MFRV remains CLOSED when the Train "A" ESFAS relay is reset. 6.2[69]

[6.3] MFRV CLOSES in ≤ 6.5 seconds upon receipt of Train "B" Feedwater Isolation Signal. 6.3[66.3], 6.3[66.4]

[6.4] MFRV remains CLOSED when the Train "B" ESFAS relay is reset. 6.3[70]

[6.5] MFRV fails CLOSED on loss of control power. 6.2[73.1], 6.3[73.2]

[6.6] MFRV CLOSES when 2-HS-3-45 placed in BACKFLUSH. 6.2[78.1]

[6.7] MCR Status Monitoring System reflects correct valve position. 6.2[51.1], 6.2[51.2], 6.2[53.1], 6.2[53.2]

[7] 2-FCV-3-90 Steam Generator #3 MFW Regulating Valve

[7.1] MFRV CLOSES in ≤ 6.5 seconds upon receipt of Train "A" Feedwater Isolation Signal. 6.2[66.3], 6.2[66.4]

[7.2] MFRV remains CLOSED when the Train "A" ESFAS relay is reset. 6.2[70]

[7.3] MFRV CLOSES in ≤ 6.5 seconds upon receipt of Train "B" Feedwater Isolation Signal. 6.3[66.1], 6.3[66.2]

5.0 ACCEPTANCE CRITERIA (continued)

[7.4] MFRV remains CLOSED when the Train "B" ESFAS relay is reset. 6.3[69]

[7.5] MFRV fails CLOSED on loss of control power. 6.2[73.2], 6.3[73.1]

[7.6] MFRV CLOSES when 2-HS-3-45 placed in BACKFLUSH. 6.3[78.1]

[7.7] MCR Status Monitoring System reflects correct valve position. 6.3[51.1], 6.3[51.2], 6.3[53.1], 6.3[53.2]

[8] 2-FCV-3-103 Steam Generator #4 MFW Regulating Valve

[8.1] MFRV CLOSES in ≤ 6.5 seconds upon receipt of Train "A" Feedwater Isolation Signal. 6.4[66.1], 6.4[66.2]

[8.2] MFRV remains CLOSED when the Train "A" ESFAS relay is reset. 6.4[69]

[8.3] MFRV CLOSES in ≤ 6.5 seconds upon receipt of Train "B" Feedwater Isolation Signal. 6.1[66.3], 6.1[66.4]

[8.4] MFRV remains CLOSED when the Train "B" ESFAS relay is reset. 6.1[70]

[8.5] MFRV fails CLOSED on loss of control power. 6.1[73.2], 6.4[73.1]

[8.6] MFRV CLOSES when 2-HS-3-45 placed in BACKFLUSH. 6.4[78.1]

[8.7] MCR Status Monitoring System reflects correct valve position. 6.4[51.1], 6.4[51.2], 6.4[53.1], 6.4[53.2]

[9] 2-FCV-3-35A Steam Generator #1 MFW Bypass Regulating Valve

[9.1] MFBRV CLOSES in ≤ 6.5 seconds upon receipt of Train "B" Feedwater Isolation Signal. 6.1[60.1], 6.1[60.2]

[9.2] MFBRV remains CLOSED when the Train "B" ESFAS relay is reset. 6.1[62]

[9.3] MFBRV fails CLOSED on loss of control power. 6.1[73.3]

[10] 2-FCV-3-48A Steam Generator #2 MFW Bypass Regulating Valve

[10.1] MFBRV CLOSES in ≤ 6.5 seconds upon receipt of Train "A" Feedwater Isolation Signal. 6.2[60.1], 6.2[60.2]

Date _____

5.0 ACCEPTANCE CRITERIA (continued)

[10.2] MFBRV remains CLOSED when the Train "A" ESFAS relay is reset. 6.2[62]

[10.3] MFBRV fails CLOSED on loss of control power. 6.2[73.3]

[11] 2-FCV-3-90A Steam Generator #3 MFW Bypass Regulating Valve

[11.1] MFBRV CLOSES in ≤ 6.5 seconds upon receipt of Train "B" Feedwater Isolation Signal. 6.3[60.1], 6.3[60.2],

[11.2] MFBRV remains CLOSED when the Train "B" ESFAS relay is reset. 6.3[62]

[11.3] MFBRV fails CLOSED on loss of control power. 6.3[73.3]

[12] 2-FCV-3-103A Steam Generator #4 MFW Bypass Regulating Valve

[12.1] MFBRV CLOSES in ≤ 6.5 seconds upon receipt of Train "A" Feedwater Isolation Signal. 6.4[60.1], 6.4[60.2]

[12.2] MFBRV remains CLOSED when the Train "A" ESFAS relay is reset. 6.4[62]

[12.3] MFBRV fails CLOSED on loss of control power. 6.4[73.3]

[13] 2-PCV-3-40 Deaeration Line Back Pressure Control Valve

[13.1] Valve OPENS when 2-HS-3-45 placed in FORWARD FLUSH. 6.1[77.3]

[13.2] Valve OPENS when 2-HS-3-45 placed in BACKFLUSH. 6.1[78.3]

[13.3] Valve CLOSES when 2-HS-3-45 placed in NORMAL. 6.1[79.3]

[14] 2-FCV-3-185 Steam Generator #1 MFW Backflush Warming Isolation Valve

[14.1] MFBWIV CLOSES in ≤ 6.5 seconds upon receipt of Feedwater Train B Isolation Signal. 6.1[97.1], 6.1[97.2],

[14.2] MFBWIV remains CLOSED when the ESFAS relay is reset. 6.1[99]

[14.3] MFBWIV fails CLOSED on loss of control power. 6.1[109]

[14.4] MVBWIV OPENS when 2-HS-3-45 in BACKFLUSH. 6.1[92.4]

Date _____

5.0 ACCEPTANCE CRITERIA (continued)

[14.5] MCR Status Monitoring System reflects correct valve position. 6.1[91.2], 6.1[91.3], 6.1[92.2], 6.1[92.3]

[15] 2-FCV-3-186 Steam Generator #2 MFW Backflush Warming Isolation Valve

[15.1] MFBWIV CLOSES in ≤ 6.5 seconds upon receipt of Feedwater Train A Isolation Signal. 6.2[97.1], 6.2[97.2]

[15.2] MFBWIV remains CLOSED when the ESFAS relay is reset. 6.2[99]

[15.3] MFBWIV fails CLOSED on loss of control power. 6.2[109]

[15.4] MVBWIV OPENS when 2-HS-3-45 in BACKFLUSH. 6.2[92.4]

[15.5] MCR Status Monitoring System reflects correct valve position. 6.2[91.2], 6.2[91.3], 6.2[92.2], 6.2[92.3]

[16] 2-FCV-3-187 Steam Generator #3 MFW Backflush Warming Isolation Valve

[16.1] MFBWIV CLOSES in ≤ 6.5 seconds upon receipt of Feedwater Train B Isolation Signal. 6.3[97.1], 6.3[97.2]

[16.2] MFBWIV remains CLOSED when the ESFAS relay is reset. 6.3[99]

[16.3] MFBWIV fails CLOSED on loss of control power. 6.3[109]

[16.4] MVBWIV OPENS when 2-HS-3-45 in BACKFLUSH. 6.3[92.4]

[16.5] MCR Status Monitoring System reflects correct valve position. 6.3[91.2], 6.3[91.3], 6.3[92.2], 6.3[92.3]

[17] 2-FCV-3-188 Steam Generator #4 MFW Backflush Warming Isolation Valve

[17.1] MFBWIV CLOSES in ≤ 6.5 seconds upon receipt of Feedwater Train A Isolation Signal. 6.4[97.1], 6.4[97.2]

[17.2] MFBWIV remains CLOSED when the ESFAS relay is reset. 6.4[99]

[17.3] MFBWIV fails CLOSED on loss of control power. 6.4[109]

[17.4] MVBWIV OPENS when 2-HS-3-45 in BACKFLUSH. 6.4[92.4]

[17.5] MCR Status Monitoring System reflects correct valve position. 6.4[91.2], 6.4[91.3], 6.4[92.2], 6.4[92.3]

Date _____

5.0 ACCEPTANCE CRITERIA (continued)

[18] 2-FCV-3-236 Steam Generator #1 MFW Bypass Isolation Valve

[18.1] MFBIV CLOSES in ≤ 6.5 seconds upon receipt of a Train "A" Feedwater Isolation Signal. 6.4[65.1], 6.4[65.2]

[18.2] MFBRV remains CLOSED when the Train "A" ESFAS relay is reset. 6.4[71]

[18.3] MFBIV CLOSES in ≤ 6.5 seconds upon receipt of a Train "B" Feedwater Isolation Signal. 6.1[60.3], 6.1[60.4]

[18.4] MFBIV remains CLOSED when the Train "B" ESFAS relay is reset. 6.1[63]

[18.5] MFBIV fails CLOSED on loss of control power. 6.1[73.4]

[18.6] MCR Panel 2-M-3 indicating lights reflect correct valve position. 6.1[60.3]

[19] 2-FCV-3-239 Steam Generator #2 MFW Bypass Isolation Valve

[19.1] MFBIV CLOSES in ≤ 6.5 seconds upon receipt of a Train "A" Feedwater Isolation Signal. 6.2[60.3], 6.2[60.4]

[19.2] MFBRV remains CLOSED when the Train "A" ESFAS relay is reset. 6.2[63]

[19.3] MFBIV CLOSES in ≤ 6.5 seconds upon receipt of a Train "B" Feedwater Isolation Signal. 6.3[65.1], 6.3[65.2]

[19.4] MFBIV remains CLOSED when the Train "B" ESFAS relay is reset. 6.3[71]

[19.5] MFBIV fails CLOSED on loss of control power. 6.2[73.4]

[19.6] MCR Panel 2-M-3 indicating lights reflect correct valve position. 6.2[60.3]

[20] 2-FCV-3-242 Steam Generator #3 MFW Bypass Isolation Valve

[20.1] MFBIV CLOSES in ≤ 6.5 seconds upon receipt of a Train "A" Feedwater Isolation Signal. 6.2[65.1], 6.2[65.2]

5.0 ACCEPTANCE CRITERIA (continued)

[20.2] MFBRV remains CLOSED when the Train "A" ESFAS relay is reset. 6.2[71]

[20.3] MFBIV CLOSES in ≤ 6.5 seconds upon receipt of a Train "B" Feedwater Isolation Signal. 6.3[60.3], 6.3[60.4]

[20.4] MFBIV remains CLOSED when the Train "B" ESFAS relay is reset. 6.3[63]

[20.5] MFBIV fails CLOSED on loss of control power. 6.3[73.4]

[20.6] MCR Panel 2-M-3 indicating lights reflect correct valve position. 6.3[60.3]

[21] 2-FCV-3-245 Steam Generator #4 MFW Bypass Isolation Valve

[21.1] MFBIV CLOSES in ≤ 6.5 seconds upon receipt of a Train "A" Feedwater Isolation Signal. 6.4[60.3], 6.4[60.4]

[21.2] MFBRV remains CLOSED when the Train "A" ESFAS relay is reset. 6.4[63]

[21.3] MFBIV CLOSES in ≤ 6.5 seconds upon receipt of a Train "B" Feedwater Isolation Signal. 6.1[65.1], 6.1[65.2]

[21.4] MFBIV remains CLOSED when the Train "B" ESFAS relay is reset. 6.1[71]

[21.5] MFBIV fails CLOSED on loss of control power. 6.4[73.4]

[21.6] MCR Panel 2-M-3 indicating lights reflect correct valve position. 6.4[60.3]

[22] 2-FCV-3-191 MFW Loop 1 Deaeration Line Isolation Valve

[22.1] Valve can be operated from the Local Control Station. 6.6.1[2]A, 6.6.1[3]A

[22.2] Local indicating lights indicate correct valve position. 6.6.1[2]B, 6.6.1[2]C, 6.6.1[3]B, 6.6.1[3]C, 6.6.1[5]B, 6.6.1[5]C, 6.6.1[8]B, 6.6.1[8]C

[22.3] Valve can be stopped in mid-position from Local Control Station when traveling to OPEN & CLOSED position. 6.6.1[5]A, 6.6.1[8]A

[22.4] Valve OPENS when 2-HS-3-45 placed in BACKFLUSH. 6.1[91.1]

5.0 ACCEPTANCE CRITERIA (continued)

[22.5] Valve OPENS when 2-HS-3-45 placed in FORWARD FLUSH. 6.1[92.1]

[22.6] Valve CLOSES when 2-HS-3-45 placed in NORMAL. 6.1[79.4]

[23] 2-FCV-3-192 MFW Loop 2 Deaeration Line Isolation Valve

[23.1] Valve can be operated from the Local Control Station. 6.6.2[2]A, 6.6.2[3]A

[23.2] Local indicating lights indicate correct valve position. 6.6.2[2]B, 6.6.2[2]C, 6.6.2[3]B, 6.6.2[3]C, 6.6.2[5]B, 6.6.2[5]C, 6.6.2[8]B, 6.6.2[8]C

[23.3] Valve can be stopped in mid-position from Local Control Station when traveling to OPEN & CLOSED position. 6.6.2[5]A, 6.6.2[8]A

[23.4] Valve OPENS when 2-HS-3-45 placed in BACKFLUSH. 6.2[91.1]

[23.5] Valve OPENS when 2-HS-3-45 placed in FORWARD FLUSH. 6.2[92.1]

[23.6] Valve CLOSES when 2-HS-3-45 placed in NORMAL. 6.2[79.3]

[24] 2-FCV-3-193 MFW Loop 3 Deaeration Line Isolation Valve

[24.1] Valve can be operated from the Local Control Station. 6.6.3[2]A, 6.6.3[3]A

[24.2] Local indicating lights indicate correct valve position. 6.6.3[2]B, 6.6.3[2]C, 6.6.3[3]B, 6.6.3[3]C, 6.6.3[5]B, 6.6.3[5]C, 6.6.3[8]B, 6.6.3[8]C

[24.3] Valve can be stopped in mid-position from Local Control Station when traveling to OPEN & CLOSED position. 6.6.3[5]A, 6.6.3[8]A

[24.4] Valve OPENS when 2-HS-3-45 placed in BACKFLUSH. 6.3[91.1]

[24.5] Valve OPENS when 2-HS-3-45 placed in FORWARD FLUSH. 6.3[92.1]

[24.6] Valve CLOSES when 2-HS-3-45 placed in NORMAL. 6.3[79.3]

[25] 2-FCV-3-194 MFW Loop 4 Deaeration Line Isolation Valve

[25.1] Valve can be operated from the Local Control Station. 6.6.4[2]A, 6.6.4[3]A

[25.2] Local indicating lights indicate correct valve position 6.6.4[2]B, 6.6.4[2]C, 6.6.4[3]B, 6.6.4[3]C, 6.6.4[5]B, 6.6.4[5]C, 6.6.4[8]B, 6.6.4[8]C

5.0 ACCEPTANCE CRITERIA (continued)

[25.3] Valve can be stopped in mid-position from Local Control Station when traveling to OPEN & CLOSED position. 6.6.4[5]A, 6.6.4[8]A

[25.4] Valve OPENS when 2-HS-3-45 placed in BACKFLUSH. 6.4[91.1]

[25.5] Valve OPENS when 2-HS-3-45 placed in FORWARD FLUSH. 6.4[92.1]

[25.6] Valve CLOSES when 2-HS-3-45 placed in NORMAL. 6.4[79.3]

[26] 2-FCV-3-195 MFW Deaeration Line Control Valve

[26.1] Valve can be operated from the Local Control Station. 6.6.5[2]A, 6.6.5[3]A

[26.2] Local indicating lights indicate correct valve position. 6.6.5[2]B, 6.6.5[2]C, 6.6.5[3]B, 6.6.5[3]C, 6.6.5[5]B, 6.6.5[5]C, 6.6.5[8]B, 6.6.5[8]C

[26.3] Valve can be stopped in mid-position from Local Control Station when traveling to OPEN & CLOSED position. 6.6.5[5]A, 6.6.5[8]A

[27] 2-FCV-3-250 Steam Generator #1 MFW Regulating Isolation Valve

[27.1] Valve can be operated from the Local Control Station. 6.5.1[2]A, 6.5.1[3]A

[27.2] Local indicating lights indicate correct valve position. 6.5.1[2]B, 6.5.1[2]C, 6.5.1[3]B, 6.5.1[3]C, 6.5.1[5]B, 6.5.1[5]C, 6.5.1[8]B, 6.5.1[8]C

[27.3] Valve can be stopped in mid-position from Local Control Station when traveling to OPEN & CLOSED position. 6.5.1[5]A, 6.5.1[8]A

[28] 2-FCV-3-251 Steam Generator #2 MFW Regulating Isolation Valve

[28.1] Valve can be operated from the Local Control Station. 6.5.2[2]A, 6.5.2[3]A

[28.2] Local indicating lights indicate correct valve position. 6.5.2[2]B, 6.5.2[2]C, 6.5.2[3]B, 6.5.2[3]C, 6.5.2[5]B, 6.5.2[5]C, 6.5.2[8]B, 6.5.2[8]C

[28.3] Valve can be stopped in mid-position from Local Control Station when traveling to OPEN & CLOSED position. 6.5.2[5]A, 6.5.2[8]A

[29] 2-FCV-3-252 Steam Generator #3 MFW Regulating Isolation Valve

[29.1] Valve can be operated from the Local Control Station. 6.5.3[2]A, 6.5.3[3]A

5.0 ACCEPTANCE CRITERIA (continued)

[29.2] Local indicating lights indicate correct valve position. 6.5.3[2]B, 6.5.3[2]C, 6.5.3[3]B, 6.5.3[3]C, 6.5.3[5]B, 6.5.3[5]C, 6.5.3[8]B, 6.5.3[8]C

[29.3] Valve can be stopped in mid-position from Local Control Station when traveling to OPEN & CLOSED position. 6.5.3[5]A, 6.5.3[8]A

[30] 2-FCV-3-253 Steam Generator #4 MFW Regulating Isolation Valve

[30.1] Valve can be operated from the Local Control Station. 6.5.4[2]A, 6.5.4[3]A

[30.2] Local indicating lights indicate correct valve position. 6.5.4[2]B, 6.5.4[2]C, 6.5.4[3]B, 6.5.4[3]C, 6.5.4[5]B, 6.5.4[5]C, 6.5.4[8]B, 6.5.4[8]C

[30.3] Valve can be stopped in mid-position from Local Control Station when traveling to OPEN & CLOSED position. 6.5.4[5]A, 6.5.4[8]A

Date _____

6.0 PERFORMANCE

NOTE

The Subsections of this procedure may be performed in any order.

6.1 Steam Generator Loop 1 Valves

[1] **VERIFY** prerequisites for this Subsection have been satisfied. _____

[2] **SETUP** the 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, control loop as follows:

[2.1] **ENSURE** 2-FIC-3-35, SG 1-MFW REG VLV controller at 2-M-3 in MANUAL AND

ADJUST for 0 demand (**NO** demand for MFW flow). _____

NOTE

For Steps 6.1[2.2] through [3.7], the black wire is positive (+) and white wire is negative (-)

[2.2] **LIFT** the following wires:

- Black wire in Cable 2PM1293 from TB C2-5 (3K8) at Panel 2-M-4 (See drawings 45W2643-6, 2-45N2655-1A).

_____ 1st

_____ CV

- White wire in Cable 2PM1293 from TB C2-5 (3K9) at Panel 2-M-4.

_____ 1st

_____ CV

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[2.3] **INSTALL** a process calibrator to simulate Test Signal 1 (SG Loop 1 MFW Flow) at Cable 2PM1293.

M&TE No. _____

_____ 1st

_____ CV

[2.4] **ADJUST** Test Signal 1 current source to 4mAdc. _____

[2.5] **Lift** the following wires:

- Black wire in Cable 2PM1294 (7K8) from TB C2-5 at Panel 2-M-4 (45W2643-6, 2-45N2655-1A).

_____ 1st

_____ CV

- White wire in Cable 2PM1294 (7K9) from TB C2-5 at Panel 2-M-4.

_____ 1st

_____ CV

[2.6] **INSTALL** a process calibrator to simulate Test Signal 2 (SG Loop 1 MFW Flow) at Cable 2PM1294.

M&TE No. _____

_____ 1st

_____ CV

[2.7] **ADJUST** Test Signal 2 current source to the same setting of Step 6.1[2.4]. _____

[2.8] **LIFT** the following wires:

- Black wire in Cable 2PM1318 from TB C2-18 (3F7) at Panel 2-M-4. (45W2643-6, 2-45N2655-1A)

_____ 1st

_____ CV

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

- White wire in Cable 2PM1318 from TB C2-18 (3F8) at Panel 2-M-4.

_____ 1st

_____ CV

[2.9] **INSTALL** a process calibrator to simulate Test Signal 3 (SG Loop 1 Steam Flow) at Cable 2PM1318.

M&TE No. _____

_____ 1st

_____ CV

[2.10] **ADJUST** Test Signal 3 current source to the same setting of Step 6.1[2.4]. _____

[2.11] **LIFT** the following wires:

- Black wire in Cable 2PM1319 from TB C2-18 (7F7) at Panel 2-M-4 (45W2643-6, 2-45N2655-1A).

_____ 1st

_____ CV

- White wire in Cable 2PM1319 from TB C2-18 (7F8) at Panel 2-M-4.

_____ 1st

_____ CV

[2.12] **INSTALL** a process calibrator to simulate Test Signal 4 (SG Loop 1 Steam Flow) at Cable 2PM1319.

M&TE No. _____

_____ 1st

_____ CV

[2.13] **ADJUST** Test Signal 4 current source to the same setting of Step 6.1[2.4]. _____

[2.14] **VERIFY** the following:

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

A. Red Light (FCV-3-35) OFF at 2-XX-3-35, MFW REG Status Light Box at 2-M-3. _____

B. Green Light (FCV-3-35) ON at 2-XX-3-35. _____

C. 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE is CLOSED (locally 739/C12P). _____

[3] **SETUP** the 2-FCV-3-35A, STEAM GENERATOR 1 MFW BYPASS REG VALVE, control loop as follows:

[3.1] **VERIFY/PLACE** 2-LIC-3-35A, SG 1 MFW BYPASS REG CONTROL at 2-M-3 in MANUAL. _____

[3.2] **LIFT** the following wires:

- N40201 (T1 - black) in Cable 2PM550 from TB 25C at Panel 2-R-25. (See Drawing 45N2668-4, 45N2652-2)

  _____ 1st

  _____ CV

- N40202 (T2 - white) in Cable 2PM550 from TB 25C at Panel 2-R-25.

  _____ 1st

  _____ CV

[3.3] **INSTALL** a process calibrator to simulate Test Signal 5 (Simulates NIS Channel 1 Power) at Cable 2PM550.

M&TE No. _____

_____ 1st

_____ CV

[3.4] **ADJUST** Test Signal 5 voltage source to 2V. _____

[3.5] **LIFT** the following wires:

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

- 24W1 (T1 - black) in Cable 2PM8879 from TB24W at Panel 2-R-24. (See Drawing 45N2668-3, 2-45W2668-3A)

  _____ 1st

  _____ CV

- 24W2 (T2 - white) in Cable 2PM8879 from TB24W at Panel 2-R-24.

  _____ 1st

  _____ CV

[3.6] **INSTALL** a process calibrator to simulate Test Signal 6 (Simulates Validated NIS Power) at Cable 2PM8879.

M&TE No. _____

_____ 1st

_____ CV

[3.7] **ADJUST** Test Signal 6 current source to 4mAdc. _____

[3.8] **VERIFY** the following:

A. Red Light (FCV-3-35A) OFF at 2-XX-3-35A, BYPASS REG Status Light Box at 2-M-3. _____

B. Green Light (FCV-3-35A) ON at 2-XX-3-35A. _____

C. 2-FCV-3-35A is CLOSED (locally, 729/T15P). _____

[4] **PLACE** 2-HS-3-945A, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to ON, located at 2-JB-292-8205 (757/A10Q). _____

[5] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3 AND

VERIFY the indicator light at 2-HS-3-99A2 is OFF. _____

[6] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3 AND

VERIFY the indicator light at 2-HS-3-99B2 is OFF. _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[7] **PLACE** 2-HS-3-33A, SG #1 MFW ISOL VLV, at 2-M-3 to the OPEN position AND

VERIFY:

[7.1] 2-FCV-3-33, SG #1 MFW ISOL VLV FULLY OPENS, locally (729/A15U). _____

[7.2] Red Light ON at 2-HS-3-33A. (**Acc Crit**) 5.0[1.4] _____

[7.3] Green Light OFF at 2-HS-3-33A. (**Acc Crit**) 5.0[1.4] _____

[7.4] Red Light ON at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD-2A2-A, Compt. 3D, 2-BKR-3-33, SG 1 MFW ISOL (2-FCV-3-33, SG #1 MFW ISOL VLV-A). _____

[7.5] Green Light OFF at 2-MCC-213-A2-A. _____

[7.6] POWER ON, Red Light ON at 2-BKR-3-33, SG 1 MFW ISOL. _____

[7.7] IPCS Computer Point FD2028, SG1 FEEDWATER ISOLATION VALVE, indicates OPEN. (**Acc Crit**) 5.0[1.4] _____

[7.8] IPCS Computer Point FD2051, SG1 FEEDWATER ISOLATION VALVE, indicates PWR ON. _____

[8] **PLACE** 2-HS-3-33A in the CLOSE position AND

VERIFY:

[8.1] 2-FCV-3-33 is CLOSED, locally (729/A15U). _____

[8.2] Red Light OFF at 2-HS-3-33A. (**Acc Crit**) 5.0[1.4] _____

[8.3] Green Light ON at 2-HS-3-33A. (**Acc Crit**) 5.0[1.4] _____

[8.4] Red Light OFF at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 3D, 2-BKR-3-33, SG 1 MFW ISOL (2-FCV-3-33, SG #1 MFW ISOL VLV). _____

[8.5] Green Light ON at 2-BKR-3-33, SG 1 MFW ISOL. _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[8.6] IPCS Computer Point FD2028, SG1 FEEDWATER ISOLATION VALVE, indicates NOT OPEN. (**Acc Crit**) 5.0[1.4] _____

[9] **PLACE** 2-HS-3-33A in the OPEN position AND

VERIFY:

[9.1] 2-FCV-3-33 is OPEN, locally (729/A15U). _____

[9.2] Red Light ON at 2-HS-3-33A. _____

[9.3] Green Light OFF at 2-HS-3-33A. _____

[10] **ENSURE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3, to NORMAL AND

VERIFY using light indication at 2-HS-3-33A that 2-FCV-3-33 is OPEN. _____

NOTE

Step 6.1[11] requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[11] **PLACE** Jumper 2 from Step 4.3[2]B to the CLOSED/ON position to simulate a Train A Feedwater Isolation Signal. _____

[11.1] **RECORD** remote closing time at 2-HS-3-33A. (**Acc Crit**) 5.0[1.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[11.2] **RECORD** local closing time at 2-FCV-3-33, SG #1 MFW ISOL VLV. (**Acc Crit**) 5.0[1.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[11.3] **VERIFY** the indicator light is ON at 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3. _____

[12] **PLACE** Jumper 2 to the OPEN/OFF position (For ESFAS Train A relay reset) _____

[13] **VERIFY** using light indication at 2-HS-3-33A that 2-FCV-3-33, SG #1 MFW ISOL VLV, remains CLOSED. (**Acc Crit**) 5.0[1.2] _____

[14] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL AND

VERIFY the indicator light is OFF at 2-HS-3-99A2. _____

NOTE

Step 6.1[15] requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[15] **PRESS** 2-HS-3-33A AND

[15.1] **RECORD** remote opening time at 2-HS-3-33A.

Seconds _____

M&TE No. _____ _____

[15.2] **RECORD** local opening time at 2-FCV-3-33, SG #1 MFW ISOL VLV.

Seconds _____

M&TE No. _____ _____

[16] **ENSURE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY using light indication at 2-HS-3-33A that 2-FCV-3-33, SG #1 MFW ISOL VLV, is OPEN. _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[17] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to FORWARD FLUSH AND

VERIFY using light indication at 2-HS-3-33A that 2-FCV-3-33, SG #1 MFW ISOL VLV, CLOSES. _____

[18] **REMOVE** Fuse 2-FU-275-R74/K5, at Panel 2-R-74 (to simulate opening of 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE by de-energizing Relay ZS1 (See DWG 2-45W600-57-33)).

_____ 1st

_____ CV

[19] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to BACK FLUSH AND

VERIFY using light indication at 2-HS-3-33A that 2-FCV-3-33 remains CLOSED. _____

[20] **REPLACE** Fuse 2-FU-275-R74/K5, at Panel 2-R-74 AND

VERIFY using light indication at 2-HS-3-33A that 2-FCV-3-33, SG #1 MFW ISOL VLV, OPENS. (**Acc Crit**) 5.0[1.4]

_____ 1st

_____ CV

[21] **PLACE** 2-HS-3-33C, SG #1 MFW ISOL VLV SW, in the CLOSE position at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 3D AND

VERIFY by light indication that 2-FCV-3-33, SG #1 MFW ISOL VLV, remains OPEN. _____

[22] **REMOVE** Fuse 2-FU-213-A23/31N at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A at Compt 3D, 2-BKR-3-33, SG 1 MFW ISOL (2-FCV-3-33, SG #1 MFW ISOL VLV) (45W760-3-6)

_____ 1st

_____ CV

[23] **VERIFY** the following:

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[23.1] Red Light (VALVE OPEN) OFF at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 3D, 2-BKR-3-33, SG 1 MFW ISOL (2-FCV-3-33, SG #1 MFW ISOL VLV). _____

[23.2] Green Light (VALVE CLOSED) OFF at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 3D, 2-BKR-3-33, SG 1 MFW ISOL (2-FCV-3-33, SG #1 MFW ISOL VLV). _____

[23.3] Red Light for POWER ON is OFF at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 3D, 2-BKR-3-33, SG 1 MFW ISOL (2-FCV-3-33, SG #1 MFW ISOL VLV). _____

[23.4] Red Light OFF at 2-HS-3-33A. _____

[23.5] Green Light OFF at 2-HS-3-33A. _____

[23.6] IPCS Computer Point FD2051, SG1 FEEDWATER ISOLATION VALVE, indicates PWR OFF. _____

[24] **PLACE** 2-HS-3-33A, SG #1 FW ISOL VLV SW, in the CLOSE position AND

VERIFY 2-FCV-3-33, SG #1 MFW ISOL VLV, remains OPEN, locally (729/A15U). _____

[25] **PLACE** 2-HS-3-33C, SG #1 MFW ISOL VLV SW in the CLOSE position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D AND

VERIFY 2-FCV-3-33, SG #1 MFW ISOL VLV, remains OPEN (locally). _____

[26] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-2 to NORMAL AND

VERIFY that 2-FCV-3-33, SG #1 MFW ISOL VLV, remains OPEN (locally). _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[27] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to FORWARD FLUSH AND

VERIFY that 2-FCV-3-33, SG #1 MFW ISOL VLV, remains OPEN (locally). _____

[28] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-2 to BACK FLUSH AND

VERIFY that 2-FCV-3-33, SG #1 MFW ISOL VLV, remains OPEN (locally). _____

[29] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-2 to NORMAL AND

VERIFY that 2-FCV-3-33, SG #1 MFW ISOL VLV, remains OPEN (locally). _____

[30] **ENSURE** 2-HS-3-33C, SG #1 MFW ISOL VLV SW, in the NORMAL position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-2, Compt 3D. _____

[31] **PLACE** 2-XS-3-33, SG #1 MFW ISOL VLV TRF SW, to the AUX position at 2-MCC-213-A2-A, 480V Reactor MOV BD 2A2-A, Compt 3D. _____

[32] **VERIFY** the following:

[32.1] Red Light (VALVE OPEN) ON at 2-MCC-213-A2-A, 480V Reactor MOV BD 2A2-A, Compt 3D, 2-BKR-3-33, SG 1 MFW ISOL (2-FCV-3-33, SG #1 MFW ISOL VLV). _____

[32.2] Green Light (VALVE CLOSED) OFF at 2-MCC-213-A2-A, 480V Reactor MOV BD 2A2-A, Compt 3D, 2-BKR-3-33, SG 1 MFW ISOL (2-FCV-3-33, SG #1 MFW ISOL VLV). _____

[32.3] Red Light OFF at 2-HS-3-33A. _____

[32.4] Green Light OFF at 2-HS-3-33A. _____

[32.5] IPCS Computer Point FD2051, SG1 FEEDWATER ISOLATION VALVE, indicates PWR ON. _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[32.6] Unit 2 Events Display Recorder indicates 149-C 480 RX MOV BD 2A1-A/2A2-A IN AUX is in ALARM (Red). _____

[32.7] Annunciator Panel 2-XA-55-6F, Window 149-C 480 RX MOV BD 2A1-A/2A2-A, ALARMS. (**Acc Crit**) 5.0[1.3] _____

[33] **REPLACE** Fuse 2-FU-213-A23/31N at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A at Compt 3D, 2-BKR-3-33, SG 1 MFW ISOL (2-FCV-3-33, SG #1 MFW ISOL VLV). _____ 1st _____ CV

[34] **PLACE** 2-HS-3-33C, SG #1 MFW ISOL VLV SW, in the CLOSE position at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 3D AND

VERIFY by light indication at the breaker that 2-FCV-3-33 is CLOSED. _____

[35] **PLACE** 2-HS-3-33A, SG #1 FW ISOL VLV SW, in the OPEN position at 2-M-3 AND

VERIFY by light indication at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 3D that 2-FCV-3-33 remains CLOSED. _____

[36] **PLACE** 2-HS-3-33C in the OPEN position at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A AND

VERIFY by light indication at the breaker that 2-FCV-3-33 is OPEN. _____

[37] **ENSURE** 2-HS-3-33C in the NORMAL position at 2-MCC-213-A2-A, 480V REACTOR MOV BD 2A2-A, Compt 3D. _____

[38] **PLACE** 2-HS-3-33A, SG #1 FW ISOL VLV SW, in the CLOSE position at 2-M-3 AND

VERIFY by light indication at 2-MCC-213-A2-A, 480 V REACTOR MOV BOARD 2A2-A, Compt 3D that 2-FCV-3-33 remains OPEN. _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[39] **PLACE** 2-XS-3-33, SG #1 MFW ISOL VLV TRF SW, to the NORMAL position at 2-MCC-213-2A-A, 480V Reactor MOV BD 2A2-2, Compt 3D. _____

[40] **VERIFY** Unit 2 Events Display Recorder indicates 149-C 480 RX MOV BD 2A1-A/2A2-A IN AUX is NORMAL (Blue). _____

[41] **VERIFY** 2-XA-55-6F, 149-C 480 RX MOV BD 2A1-A/2A2-A, is CLEAR. _____

[42] **LIFT** wire 2 from the T1 Thermal Overload contact to disconnect thermal overload circuitry from 2-BKR-3-33, SG 1 MFW ISOL (2-FCV-3-33, SG #1 MFW ISOL VLV), Compt 3D at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A. (See DWG 2-45W760-3-6) _____ 1st _____ CV

[43] **VERIFY** Red Light is OFF at 2-MCC-213-A2-A, 480V Reactor MOV BD 2A2-A, Compt 6D. _____

[44] **PLACE** 2-HS-3-33A, SG #1 FW ISOL VLV SW, in the CLOSE position at 2-M-3 AND

VERIFY by light indication that 2-FCV-3-33 remains OPEN. _____

[45] **PRESS AND HOLD** the armature of overload bypass Relay K2 in back of 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 6D, to simulate an Overload Bypass. _____

[46] **PLACE** 2-HS-3-33A, SG #1 FW ISOL VLV SW, in the CLOSE position at 2-M-3 AND

VERIFY by light indication that 2-FCV-3-33 CLOSES. _____

[47] **RELEASE** the armature of overload bypass Relay K2. _____

[48] **LAND** wire 2 from the T1 Thermal Overload contact from Step 6.1[42] at Breaker 2-BKR-3-33, SG 1 MFW ISOL, Compt 3D. _____ 1st _____ CV

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[49] **PLACE** 2-FIC-3-35, SG 1 MFW REG VLV at 2-M-3 in AUTO. _____

[50] **ADJUST** Test Signal 3 from Step 6.1[2.9] (SG Loop 1 Steam Flow) to between 12 and 16 mAdc. _____

[51] **VERIFY** the following:

[51.1] Red Light (2-FCV-3-35) ON at 2-XX-3-35, MFW REG Status Light Box at 2-M-3. (**Acc Crit**) 5.0[5.7] _____

[51.2] Green Light (2-FCV-3-35) OFF at 2-XX-3-35. (**Acc Crit**) 5.0[5.7] _____

[51.3] 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, OPEN (locally, 729/T15P). _____

[51.4] IPCS Computer Point FD2010, SG1 & SG4 FLOW CONTROL, indicates ENERG. _____

[51.5] IPCS Computer Point FD2208, OPEN SG1 FW ISV 2-FCV-3-236, indicates ENERG. _____

[51.6] IPCS Computer Point FD2352, SG1 & SG4 FW FLOW CONTROL, indicates ENERG. _____

[52] **ADJUST** Test Signal 3 to between 12 and 8 mAdc. _____

[53] **VERIFY** the following:

[53.1] Red Light (2-FCV-3-35) OFF at 2-XX-3-35. (**Acc Crit**) 5.0[5.7] _____

[53.2] Green Light (2-FCV-3-35) ON at 2-XX-3-35. (**Acc Crit**) 5.0[5.7] _____

[53.3] 2-FCV-3-35 CLOSES (locally). _____

[54] **PLACE** 2-FIC-3-35, SG 1 MFW REG VLV at 2-M-3 in MANUAL. _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

NOTE

Steps 6.1[55-56] require valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[55] **ADJUST** output of 2-FIC-3-35, SG 1 MFW REG VLV at 2-M-3 to 100% (full open) using RAMP function for fast change. _____

[55.1] **RECORD** 2-FCV-3-35 remote opening time using light indication at 2-XX-3-35, MFW REG Status Light Box at 2-M-3.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[55.2] **RECORD** local opening time at 2-FCV-3-35.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[56] **ADJUST** output of 2-FIC-3-35 to 0% (full closed) using RAMP function for fast change. _____

[56.1] **RECORD** 2-FCV-3-35 remote closing time using light indication at 2-XX-3-35.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[56.2] **RECORD** local closing time at 2-FCV-3-35.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[57] **ADJUST** output of 2-FIC-3-35 to 100% (full open) using RAMP function for fast change. _____

[58] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-35 OPENS. _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[59] **ENSURE** 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE, is in the OPEN position. _____

NOTE

Step 6.1[60] will cause 2-FCV-3-35A, 2-FCV-3-185, and 2-FCV-3-236 to fail CLOSE and requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations. 2-FCV-3-185 will also modulate throughout these next steps but is not tested for Acceptance Criteria until Step [89]

[60] **PLACE** Jumper 3 from 4.3[2]C to the OPEN/OFF position. _____

[60.1] **RECORD** remote closing time at 2-FCV-3-35A, SG #1 INLET FLOW CONT VLV BYPASS VLV, using light indication at 2-XX-3-35A. (**Acc Crit**) 5.0[9.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[60.2] **RECORD** local closing time at 2-FCV-3-35A. (**Acc Crit**) 5.0[9.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[60.3] **RECORD** remote closing time at 2-FCV-3-236, STEAM GENERATOR 1 MFW BYPASS LINE ISOL using light indication at 2-M-3. (**Acc Crit**) 5.0[18.3], 5.0[18.6]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[60.4] **RECORD** local closing time at 2-FCV-3-236 (729/A15U). (**Acc Crit**) 5.0[18.3]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[60.5] **VERIFY** 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE remains OPEN, using light indication at 2-XX-3-35. _____

[60.6] **VERIFY** 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE remains OPEN, using light indication at 2-XX-3-35. _____

[60.7] **VERIFY** IPCS Computer Point FD2208, OPEN SG1 FW ISV 2-FCV-3-236, indicates NOT ENER. _____

[60.8] **VERIFY** Indicator light is ON at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

[61] **PLACE** Jumper 3 to the CLOSED/ON position. _____

[62] **VERIFY** using light indication at 2-XX-3-35A, that 2-FCV-3-35A remains CLOSED.(**Acc Crit**) 5.0[9.2] _____

[63] **VERIFY** using light indication at 2-M-3 that 2-FCV-3-236, STEAM GENERATAOR 1 MFW BYPASS LINE ISOL, remains CLOSED. (**Acc Crit**) 5.0[18.4] _____

[64] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL AND

VERIFY:

[64.1] Using light indication at 2-XX-3-35A that 2-FCV-3-35A OPENS. _____

[64.2] Using light indication at 2-M-3 that 2-FCV-3-236, STEAM GENERATAOR 1 MFW BYPASS LINE ISOL, OPENS. _____

[64.3] Indicator light is OFF at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

NOTE

Step 6.1[65] will cause 2-FCV-3-245 to fail CLOSE and requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[65] **PLACE** Jumper 13 from 4.3[5]A to the OPEN/OFF position. _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[65.1] **RECORD** remote closing time at 2-FCV-3-245, STEAM GENERATOR 4 MFW BYPASS LINE ISOL using light indication at 2-M-3. (**Acc Crit**) 5.0[21.3]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[65.2] **RECORD** local closing time at 2-FCV-3-245 (729/A15U). (**Acc Crit**) 5.0[21.3]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[65.3] **VERIFY** IPCS Computer Point FD2062, OPEN SG4 FW ISV 2-FCV-3-245, indicates NOT ENER. _____

[65.4] **VERIFY** 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, remains OPEN using light indication at 2-XX-3-35. _____

[65.5] **VERIFY** 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE, remains OPEN using light indication at 2-XX-3-35. _____

[65.6] **VERIFY** Indicator light is ON at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

NOTE

Step 6.1[66] requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations. Jumper 3 and Jumper 13 are both required to be OPEN/OFF to simulate the Train B Feedwater Isolation Signal. Valves from Step 6.1[60] will close when Jumper 3 changes state.

[66] **PLACE** Jumper 3 from 4.3[2]C to the OPEN/OFF position to simulate a Train B Feedwater Isolation Signal. _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[66.1] **RECORD** remote closing time at 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, using light indication at 2-XX-3-35. (**Acc Crit**) 5.0[5.3]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[66.2] **RECORD** local closing time at 2-FCV-3-35. (**Acc Crit**) 5.0[5.3]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[66.3] **RECORD** remote closing time at 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE using light indication at 2-XX-3-35. (**Acc Crit**) 5.0[8.3]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[66.4] **RECORD** local closing time at 2-FCV-3-103 (740/T15P). (**Acc Crit**) 5.0[8.3]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[66.5] **VERIFY** IPCS Computer Point FD2352, SG1 & SG4 FW FLOW CONTROL, indicates DE-ENER. _____

[66.6] **VERIFY** IPCS Computer Point FD2005, SG4 & SG1 FW FLOW CONTROL, indicates DE-ENER. _____

[66.7] **VERIFY** Indicator light is ON at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

[67] **PLACE** Jumper 3 to the CLOSED/ON position (for ESFAS Train B relay reset). _____

[68] **PLACE** Jumper 13 to the CLOSED/ON position (for ESFAS Train B relay reset).

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[69] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, remains CLOSED. (**Acc Crit**) 5.0[5.4] _____

[70] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE, remains CLOSED. (**Acc Crit**) 5.0[8.4] _____

[71] **VERIFY** using light indication at 2-M-3 that 2-FCV-3-245, STEAM GENERATAOR 4 MFW BYPASS LINE ISOL, remains CLOSED. (**Acc Crit**) 5.0[21.4] _____

[72] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL AND

VERIFY:

[72.1] Using light indication at 2-XX-3-35 that 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, OPENS. _____

[72.2] Using light indication at 2-XX-3-35 that 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE, OPENS. _____

[72.3] Using light indication at 2-M-3 that 2-FCV-3-245, STEAM GENERATAOR 4 MFW BYPASS LINE ISOL, OPENS. _____

[72.4] Indicator light is OFF at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

NOTE

Steps 6.1[73.1-73.4] will test the loss of Control Power. Using 2-HS-3-945B will also affect valves in other loops.

[73] **PLACE** 2-HS-3-945B, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to OFF, located at 2-JB-292-8223 (757/A11Q) AND

VERIFY: _____

[73.1] Using light indication at 2-XX-3-35 that 2-FCV-3-35 CLOSES. (**Acc Crit**) 5.0[5.5] _____

[73.2] Using light indication at 2-XX-3-35 that 2-FCV-3-103 CLOSES. (**Acc Crit**) 5.0[8.5] _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[73.3] Using light indication at 2-XX-3-35A, that 2-FCV-3-35A CLOSES. (**Acc Crit**) 5.0[9.3] _____

[73.4] Using light indication at 2-M-3, that 2-FCV-3-236 CLOSES. (**Acc Crit**) 5.0[18.5] _____

[74] **PLACE** 2-HS-3-945B to ON AND

VERIFY:

[74.1] Using light indication at 2-XX-3-35 that 2-FCV-3-35 remains CLOSED. _____

[74.2] Using light indication at 2-XX-3-35 that 2-FCV-3-103 remains CLOSED. _____

[74.3] Using light indication at 2-XX-3-35A that 2-FCV-3-35A remains CLOSED. _____

[74.4] Using light indication at 2-M-3 that 2-FCV-3-236 remains CLOSED. _____

[75] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL AND

VERIFY:

[75.1] Using light indication at 2-XX-3-35 that 2-FCV-3-35, OPENS. _____

[75.2] Using light indication at 2-XX-3-35 that 2-FCV-3-103 OPENS. _____

[75.3] Using light indication at 2-XX-3-35A that 2-FCV-3-35A OPENS. _____

[75.4] Using light indication at 2-M-3 that 2-FCV-3-236 OPENS. _____

[75.5] Indicator light is OFF at 2-HS-3-99B2. _____

[76] **PLACE** 2-HS-3-33A, SG #1 FW ISOL VLV SW, in the OPEN position at 2-M-3 AND

VERIFY by light indication that 2-FCV-3-33 OPENS. _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

NOTE

The following steps will test FORWARD FLUSH and BACK FLUSH capability via 2-HS-3-45.

[77] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to FORWARD FLUSH AND

VERIFY:

[77.1] Using light indication at 2-HS-3-33A, SG #1 FW ISOL VLV SW, that 2-FCV-3-33 CLOSES. (**Acc Crit**) 5.0[1.5] _____

[77.2] Using light indication at 2-XX-3-35 that 2-FCV-3-35, STEAM GENERATOR 2 MFW REG VALVE, remains OPEN. _____

[77.3] That 2-PCV-3-40, MFW DEAERATION LINE BACK PRESSURE CONTROL, OPENS (locally (708/T13J) by observing valve stem position). (**Acc Crit**) 5.0[13.1] _____

[77.4] That 2-FCV-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV, OPENS. _____

[78] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to BACK FLUSH AND

VERIFY:

[78.1] Using light indication at 2-XX-3-35 that 2-FCV-3-35 CLOSES. (**Acc Crit**) 5.0[5.6] _____

[78.2] Using light indication at 2-HS-3-33A, SG #1 FW ISOL VLV SW, that 2-FCV-3-33 OPENS when 2-FCV-3-35, STEAM GENERATOR 2 MFW REG VALVE, is FULLY CLOSED.
(**Acc Crit**) 5.0[1.6] _____

[78.3] That 2-PCV-3-40 remains OPEN locally (by observing valve stem position). (**Acc Crit**) 5.0[13.2] _____

[78.4] That 2-FCV-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV, remains OPEN. _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[79] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY:

[79.1] Using light indication at 2-HS-3-33A, SG #1 FW ISOL VLV SW, that 2-FCV-3-33 remains OPEN. _____

[79.2] Using light indication at 2-XX-3-35 that 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, OPENS. _____

[79.3] That 2-PCV-3-40 CLOSES (by observing valve stem position). (**Acc Crit**) 5.0[13.3] _____

[79.4] That 2-FCV-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV, CLOSES. (**Acc Crit**) 5.0[22.6] _____

[80] **PLACE** 2-LIC-3-35A, SG 1 MFW BYPASS REG CONTROL at 2-M-3 in AUTO. _____

[81] **ADJUST** Test Signal 5 (from Step 6.1[3.3]) for a voltage output between 0 and 5V at Panel 2-R-25. (NIS) _____

[82] **VERIFY** the following:

[82.1] Red Light (FCV-3-35A) ON at 2-XX-3-35A. _____

[82.2] Green Light (FCV-3-35A) OFF at 2-XX-3-35A. _____

[82.3] 2-FCV-3-35A is OPEN (locally). _____

[83] **ADJUST** Test Signal 4 current source (from Step 6.1[2.12]) to 12 mAdc. (Steam Flow) _____

[84] **ADJUST** Test Signal 5 voltage output to 5V. (NIS) _____

[85] **ADJUST** Test Signal 6 current source (from Step 6.1[3.6]) to 12 mAdc. (Validated NIS) _____

[86] **VERIFY** the following:

[86.1] Red Light (FCV-3-35A) OFF at 2-XX-3-35A _____

[86.2] Green Light (FCV-3-35A) ON at 2-XX-3-35A. _____

[86.3] 2-FCV-3-35A is CLOSED (locally). _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[87] **PLACE** 2-LIC-3-35A, SG 1 MFW BYPASS REG CONTROL at 2-M-3 in MANUAL. _____

NOTE

Steps 6.1[88-89] require valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[88] **ADJUST** output of 2-LIC-3-35A, SG 1 MFW BYPASS REG CONTROL at 2-M-3 to 100% (full open) by using the RAMP function. _____

[88.1] **RECORD** 2-FCV-3-35A remote opening time using light indication at 2-XX-3-35A.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[88.2] **RECORD** local opening time at 2-FCV-3-35A.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[89] **ADJUST** output of 2-LIC-3-35A, SG 1 MFW BYPASS REG CONTROL at 2-M-3 to 0% (closed) by using the RAMP function. _____

[89.1] **RECORD** 2-FCV-3-35A, remote closing time using light indication at 2-XX-3-35A at 2-M-3.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[89.2] **RECORD** local closing time at 2-FCV-3-35A.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[90] **VERIFY** by light indication at 2-XX-3-35A that 2-FCV-3-35A is CLOSED. _____

[91] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to FORWARD FLUSH AND

VERIFY:

[91.1] Using light indication at 2-XX-3-235, SG WATER HAMMER PREVENT, that 2-FCV-3-191, MFW DEAERATION LINE LOOP 1 ISOL, OPENS. (**Acc Crit**) 5.0[22.4] _____

[91.2] Red light OFF (FCV-3-185 Open) at 2-XX-3-235. (**Acc Crit**) 5.0[14.5] _____

[91.3] Green light ON (FCV-3-185 Closed) at 2-XX-3-235. (**Acc Crit**) 5.0[14.5] _____

[91.4] 2-FCV-3-185, STEAM GENERATOR #1 MFW BACKFLUSH WARMING, CLOSED (locally 729/A14V). _____

[91.5] Using light indication at 2-XX-3-35 that 2-FCV-3-35 is OPEN. _____

[92] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to BACK FLUSH AND

VERIFY:

[92.1] Using light indication at 2-XX-3-235 that 2-FCV-3-191, MFW DEAERATION LINE LOOP 1 ISOL, remains OPEN. (**Acc Crit**) 5.0[22.5] _____

[92.2] Red light ON (FCV-3-185 Open) at 2-XX-3-235. (**Acc Crit**) 5.0[14.5] _____

[92.3] Green light OFF (FCV-3-185 Open) at 2-XX-3-235. (**Acc Crit**) 5.0[14.5] _____

[92.4] 2-FCV-3-185, STEAM GENERATOR #1 MFW BACKFLUSH WARMING, OPENS (locally 729/A15U). (**Acc Crit**) 5.0[14.4] _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[92.5] Using light indication at 2-XX-3-35 that 2-FCV-3-35 CLOSES. _____

[93] **REMOVE** Fuse 2-FU-275-R77/K3, at Panel 2-R-77, to simulate opening of 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE by de-energizing Relay ZS6 (DWG 45N2692-1). _____ 1st _____ CV

[94] **VERIFY** using light indication at 2-XX-3-235 that 2-FCV-3-185 CLOSES. _____

[95] **REPLACE** Fuse 2-FU-275-R77/K3, at Panel 2-R-77. _____ 1st _____ CV

[96] **VERIFY** using light indication at 2-XX-3-235, that 2-FCV-3-185 OPENS. _____

NOTE

Steps 6.1[97.1-97.2] require valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[97] **PLACE** Jumper 3 to the OPEN/OFF position to simulate a Train B Feedwater Isolation. _____

[97.1] **RECORD** 2-FCV-3-185 remote closing time using light indication at 2-XX-3-235 at 2-M-3. (**Acc Crit**) 5.0[14.1]

Seconds _____ (≤ 6.5s)

M&TE NO. _____ _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[97.2] **RECORD** local closing time at 2-FCV-3-185. (**Acc Crit**) 5.0[14.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[97.3] **VERIFY** the indicator light is ON at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

[98] **PLACE** Jumper 3 to the CLOSED/ON position (ESFAS). _____

[99] **VERIFY** using light indication at 2-XX-3-235 that 2-FCV-3-185 remains CLOSED. (**Acc Crit**) 5.0[14.2] _____

[100] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL AND

VERIFY:

[100.1] Using light indication at 2-XX-3-235 that 2-FCV-3-185 OPENS. _____

[100.2] Indicator light is OFF at 2-HS-3-99B2. _____

NOTE

The following step utilizes the 2-HS-3-191 pushbutton. When it is pressed, 2-FCV-3-191 will CLOSE and OPEN. At the same time, when 2-FCV-3-191 leaves the FULL OPEN position, 2-FCV-3-185 will CLOSE. 2-FCV-3-185 will OPEN again when 2-FCV-3-191 returns to FULL OPEN.

[101] **PRESS** CLOSE Pushbutton at 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV at 2-JB-292-851, EL 729 Southeast Valve Room. _____

[102] **VERIFY**, using light indication at 2-XX-3-235 that 2-FCV-3-191 CLOSES and then OPENS. _____

[103] **WHEN** 2-FCV-3-191 leaves the FULL OPEN position, **THEN**

VERIFY, using light indication at 2-XX-3-235, that 2-FCV-3-185 CLOSES _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[104] **WHEN** 2-FCV-3-191 returns to the FULL OPEN position, **THEN**

VERIFY, using light indication at 2-XX-3-235, that 2-FCV-3-185 OPENS. _____

[105] **PLACE** Jumper 4 to the OPEN/OFF position to simulate a LO-LO Steam Generator level signal. _____

[105.1] **RECORD** 2-FCV-3-185 remote closing time using light indication at 2-XX-3-235 at 2-M-3.

Seconds _____ (≤ 6.5s)

M&TE NO. _____ _____

[105.2] **RECORD** local closing time at 2-FCV-3-185.

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[106] **PLACE** Jumper 4 to the CLOSED/ON position. _____

[107] **VERIFY**, using light indication at 2-XX-3-235, that 2-FCV-3-185 OPENS. _____

NOTE

Steps 6.1[108-109] will test the loss of Control Power. Using 2-HS-3-945B will also affect valves in other loops.

[108] **PLACE** 2-HS-3-945B, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to OFF, located at 2-JB-292-8223. _____

[109] **VERIFY**, using light indication at 2-XX-3-235 that 2-FCV-3-185 CLOSES. (**Acc Crit**) 5.0[14.3] _____

[110] **PLACE** 2-HS-3-945B, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to ON, located at 2-JB-292-8223. _____

[111] **VERIFY**, using light indication at 2-XX-3-235 that 2-FCV-3-185 remains CLOSED. _____

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[112] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL AND

VERIFY, using light indication at 2-XX-3-235 that 2-FCV-3-185 OPENS. _____

[113] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY:

[113.1] Using light indication at 2-XX-3-235 that 2-FCV-3-185 CLOSES. _____

[113.2] Using light indication at 2-XX-3-35 that 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, OPENS. _____

[114] **RESTORE** the 2-FCV-3-35 control loop as follows:

[114.1] **ENSURE** 2-FIC-3-35, SG 1-MFW REG VLV at 2-M-3 in MANUAL. _____

[114.2] **REMOVE** Test Signal 1 (SG Loop 1 MFW Flow) at Cable 2PM1293 from TB C2-5 at Panel 2-M-4. _____ 1st _____ CV

[114.3] **LAND** the following wires:

- Black wire in Cable 2PM1293 to TB C2-5 (3K8), Terminal 1, at Panel 2-M-4. (45W2643-6) _____ 1st _____ CV

- White wire in Cable 2PM1293 to TB C2-5 (3K9), Terminal 2, at Panel 2-M-4. (45W2643-6) _____ 1st _____ CV

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[114.4] **REMOVE** Test Signal 2 (SG Loop 1 MFW Flow) at Cable 2PM1294 from TB C2-5 at Panel 2-M-4.

_____ 1st

_____ CV

[114.5] **LAND** the following wires:

- Black wire in Cable 2PM1294 to TB C2-5 (7K8), Terminal 4, at 2-M-4.

_____ 1st

_____ CV

- White wire in Cable 2PM1294 to TB C2-5 (7K9), Terminal 5, at 2-M-4.

_____ 1st

_____ CV

[114.6] **REMOVE** Test Signal 3 (SG Loop 1 Steam Flow) at Cable 2PM1318 from TB C2-18 at Panel 2-M-4.

_____ 1st

_____ CV

[114.7] **LAND** the following wires:

- Black wire in Cable 2PM1318 to TB C2-18 (3F7), Terminal 1, at Panel 2-M-4.

_____ 1st

_____ CV

- White wire in Cable 2PM1318 to TB C2-18 (3F8), Terminal 2, at Panel 2-M-4.

_____ 1st

_____ CV

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[114.8] **REMOVE** process calibrator that simulated SG Loop 1 Steam Flow at Cable 2PM1319 from TB C2-18 at Panel 2-M-4.

_____ 1st

_____ CV

[114.9] **LAND** the following wires:

- Black wire in Cable 2PM1319 to TB C2-18 (7F7), Terminal 4, at Panel 2-M-4.

_____ 1st

_____ CV

- White wire in Cable 2PM1319 to TB C2-18 (7F8), Terminal 5, at Panel 2-M-4.

_____ 1st

_____ CV

[115] **RESTORE** the 2-FCV-3-35A control loop as follows:

[115.1] **VERIFY/PLACE** 2-LIC-3-35A, SG 1 MFW BYPASS REG CONTROL at 2-M-3 in MANUAL.

_____

[115.2] **REMOVE** Test Signal 5 (NIS Channel 1 Power) at Cable 2PM550 from TB25C at Panel 2-R-25. (45N2668-4)

_____ 1st

_____ CV

[115.3] **LAND** the following wires:

- N40201 in Cable 2PM550 to TB25C, Terminal 1, at Panel 2-R-25.

_____ 1st

_____ CV

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

- N40202 in Cable 2PM550 to TB25C, Terminal 2, at Panel 2-R-25.

_____ 1st

_____ CV

[115.4] **REMOVE** Test Signal 6 (Validated NIS Power) at Cable 2PM8879 from TB24W at Panel 2-R-24. (45N2668-3)

_____ 1st

_____ CV

[115.5] **LAND** the following wires:

- 24W1 in Cable 2PM8879 to TB24W, Terminal 1, at Panel 2-R-24.

_____ 1st

_____ CV

- 24W2 in Cable 2PM8879 to TB24W, Terminal 2, at Panel 2-R-24

_____ 1st

_____ CV

[116] **RESTORE** the Steam Generator 1 Feedwater Isolation Signals as follows:

[116.1] **REMOVE** Jumper 1 (Step 4.3[2]A) AND

LAND the black wire (1AP) in Cable 2SG103A on TB630-9 at 2-R-48.

_____ 1st

_____ CV

[116.2] **REMOVE** Jumper 2 (Step 4.3[2]B) AND

LAND the white wire (3DCT) in Cable 2V2983A on TB622-5 at 2-R-48.

_____ 1st

_____ CV

Date _____

6.1 Steam Generator Loop 1 Valves (continued)

[116.3] **REMOVE** Jumper 3 (4.3[2]C) AND

LAND the black wire (1BP) in Cable 2SG123B on TB630-9 at 2-R-51.

_____ 1st

_____ CV

[116.4] **REMOVE** Jumper 4 (4.3[2]D) AND

LAND the green wire (2B5) in Cable 2SG127B on TB633-1 at 2-R-51.

_____ 1st

_____ CV

Date _____

6.2 Steam Generator Loop 2 Valves

[1] **VERIFY** prerequisites for this Subsection have been satisfied. _____

[2] **SETUP** the 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, control loop as follows:

[2.1] **ENSURE** 2-FIC-3-48, SG 2-MFW REG VLV controller at 2-M-3 in MANUAL AND

ADJUST for 0 demand (no demand for MFW flow). _____

NOTE

For Steps 6.2[2.2] through [3.7], the black wire is positive (+) and white wire is negative (-)

[2.2] **LIFT** the following wires:

- Black wire in Cable 2PM1433 from TB C2-6 (3R8) at Panel 2-M-4 (See DWG 45W2643-6, 2-45N2655-1A).

_____ 1st

_____ CV

- White wire in Cable 2PM1433 from TB C2-6 (3R9) at Panel 2-M-4.

_____ 1st

_____ CV

[2.3] **INSTALL** a process calibrator to simulate Test Signal 2 (SG Loop 2 MFW Flow) at Cable 2PM1433.

M&TE No. _____

_____ 1st

_____ CV

[2.4] **ADJUST** Test Signal 1 current source to 4mAdc. _____

[2.5] **LIFT** the following wires:

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

- Black wire in Cable 2PM1434 from TB C2-6 (8K8) at Panel 2-M-4 (45W2643-6, 2-45N2655-1A).

  _____ 1st

  _____ CV

- White wire in Cable 2PM1434 from TB C2-6 (8K9) at Panel 2-M-4.

  _____ 1st

  _____ CV

[2.6] **INSTALL** a process calibrator to simulate Test Signal 2 (SG Loop 2 MFW Flow) at Cable 2PM1434.

M&TE No. _____

_____ 1st

_____ CV

[2.7] **ADJUST** Test Signal 2 current source to the same setting of Step 6.2[2.4]

_____

[2.8] **LIFT** the following wires:

- Black wire in Cable 2PM1459 from TB C2-19 (3G7) at Panel 2-M-4 (45W2643-6, 2-45N2655-1A).

  _____ 1st

  _____ CV

- White wire in Cable 2PM1459 from TB C2-19 (3G8) at Panel 2-M-4.

  _____ 1st

  _____ CV

[2.9] **INSTALL** a process calibrator to simulate Test Signal 3 (SG Loop 2 Steam Flow) at Cable 2PM1459.

M&TE No. _____

_____ 1st

_____ CV

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[2.10] **ADJUST** Test Signal 3 current source to the same setting of Step 6.2[2.4]. _____

[2.11] **LIFT** the following wires:

- Black wire in Cable 2PM1457 from TB C2-19 (8F7) at Panel 2-M-4. (45W2643-6, 2-45N2655-1A) _____ 1st _____ CV
- White wire in Cable 2PM1457 from TB C2-19 (8F8) at Panel 2-M-4. _____ 1st _____ CV

[2.12] **INSTALL** a process calibrator to simulate Test Signal 4 (SG Loop 2 Steam Flow) at Cable 2PM1457.

M&TE No. _____ _____ 1st _____ CV

[2.13] **ADJUST** Test Signal 4 current source to the same setting of Step 6.2[2.4]. _____

[2.14] **VERIFY** the following:

A. Red Light (FCV-3-48) OFF at 2-XX-3-35, MFW REG Status Light Box at 2-M-3. _____

B. Green Light (FCV-3-48) ON at 2-XX-3-35. _____

C. 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE is CLOSED (locally 739/C12P). _____

[3] **SETUP** the 2-FCV-3-48A, STEAM GENERATOR 2 MFW BYPASS REG VALVE, control loop as follows:

[3.1] **VERIFY/PLACE** 2-LIC-3-48A, SG 2 MFW BYPASS REG CONTROL, at 2-M-3 in MANUAL. _____

[3.2] **LIFT** the following wires:

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

- N40204 (T4 - black) in Cable 2PM551 from TB 25C at Panel 2-R-25 (See Drawing 45N2668-4).

_____ 1st

_____ CV

- N40205 (T5 - white) in Cable 2PM551 from TB 25C at Panel 2-R-25.

_____ 1st

_____ CV

[3.3] **INSTALL** a process calibrator to simulate Test Signal 5 (Simulates NIS Channel 2 Power) at Cable 2PM551.

M&TE No. _____

_____ 1st

_____ CV

[3.4] **ADJUST** Test Signal 5 voltage source to 2V. _____

[3.5] **LIFT** the following wires:

- 24W4 (T4 - black) in Cable 2PM8877 from TB24W at Panel 2-R-24 (See Drawing 45N2666-3, 2-45W2668-3A).

_____ 1st

_____ CV

- 24W5 (T5 - white) in Cable 2PM8877 from TB24W at Panel 2-R-24.

_____ 1st

_____ CV

[3.6] **INSTALL** a process calibrator to simulate Test Signal 6 (simulates Validated NIS Power) at Cable 2PM8877.

M&TE No._____

_____ 1st

_____ CV

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[3.7] **ADJUST** Test Signal 6 current source to 4mAdc. _____

[3.8] **VERIFY** the following:

A. Red Light (FCV-3-48A) OFF at 2-XX-35A, BYPASS REG Status Light Box at 2-M-3. _____

B. Green Light (FCV-3-48A) ON at 2-XX-3-35A. _____

C. 2-FCV-3-48A, STEAM GENERATOR 2 MFW BYPASS REG VALVE is CLOSED (locally, 729/T15P). _____

[4] **PLACE** 2-HS-3-945A, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to ON, located at 2-JB-292-8205 (757/A12Q). _____

[5] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3 AND

VERIFY the indicator light at 2-HS-3-99A2 is OFF. _____

[6] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3 AND

VERIFY the indicator light at 2-HS-3-99B2 is OFF. _____

[7] **PLACE** 2-HS-3-47A, SG #2 MFW ISOL VLV at 2-M-3 to the OPEN position AND

VERIFY:

[7.1] 2-FCV-3-47, SG #2 MFW ISOL VLV FULLY OPENS, locally (729/A15X). _____

[7.2] Red Light ON at 2-HS-3-47A. (**Acc Crit**) 5.0[2.4] _____

[7.3] Green Light OFF at 2-HS-3-47A. (**Acc Crit**) 5.0[2.4] _____

[7.4] Red Light ON at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD-2B2-B, Compt. 3D, 2-BKR-3-47, SG 2 MFW ISOL (2-FCV-3-47, SG #2 MFW ISOL VLV). _____

[7.5] Green Light OFF at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt. 3D, 2-BKR-3-47, SG 2 MFW ISOL (2-FCV-3-47, SG #2 MFW ISOL VLV). _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[7.6] POWER ON Red Light ON at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt. 3D, 2-BKR-3-47 SG 2 MFW ISOL (2-FCV-3-47, SG #2 MFW ISOL VLV). _____

[7.7] IPCS Computer Point FD2029, SG2 FEEDWATER ISOLATION VALVE, indicates OPEN. (**Acc Crit**) 5.0[2.4] _____

[7.8] IPCS Computer Point FD2199, SG2 FEEDWATER ISOLATION VALVE, indicates PWR ON. _____

[8] **PLACE** 2-HS-3-47A, SG #2 MFW ISOL VLV, in the CLOSE position AND

VERIFY:

[8.1] 2-FCV-3-47, SG #2 MFW ISOL VLV is CLOSED (locally 729/A15X). _____

[8.2] Red Light OFF at 2-HS-3-47A. (**Acc Crit**) 5.0[2.4] _____

[8.3] Green Light ON at 2-HS-3-47A. (**Acc Crit**) 5.0[2.4] _____

[8.4] Red Light OFF at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D, 2-BKR-3-47, SG 2 MFW ISOL (2-FCV-3-47, SG #2 MFW ISOL VLV). _____

[8.5] Green Light ON at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D, 2-BKR-3-47, SG 2 MFW ISOL (2-FCV-3-47, SG #2 MFW ISOL VLV). _____

[8.6] IPCS Computer Point FD2029, SG2 FEEDWATER ISOLATION VALVE, indicates NOT OPEN. (**Acc Crit**) 5.0[2.4] _____

[9] **PLACE** 2-HS-3-47A in the OPEN position AND

VERIFY:

[9.1] 2-FCV-3-47 is OPEN, locally (729/A15U). _____

[9.2] Red Light ON at 2-HS-3-47A. _____

[9.3] Green Light OFF at 2-HS-3-47A. _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[10] **ENSURE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY using light indication at 2-HS-3-47A that 2-FCV-3-47, SG #2 MFW ISOL VLV, is OPEN. _____

NOTE

Step 6.2[11] requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[11] **PLACE** Jumper 6 from Step 4.3[3]B to the CLOSED/ON position to simulate a Train B Feedwater Isolation Signal. _____

[11.1] **RECORD** remote closing time at 2-HS-3-47A. (**Acc Crit**) 5.0[2.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[11.2] **RECORD** local closing time at 2-FCV-3-47, SG #2 MFW ISOL VLV. (**Acc Crit**) 5.0[2.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[11.3] **VERIFY** the indicator light is ON at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

[12] **PLACE** Jumper 6 to the OPEN/OFF position (For ESFAS Train B relay reset). _____

[13] **VERIFY** using light indication at 2-HS-3-47A, that 2-FCV-3-47, SG #2 MFW ISOL VLV, remains CLOSED. (**Acc Crit**) 5.0[2.2] _____

[14] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL AND

VERIFY the indicator light is OFF at 2-HS-3-99B2. _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

NOTE

Step 6.2[15] requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[15] **PRESS** 2-HS-3-47A AND

[15.1] **RECORD** remote opening time at 2-HS-3-47A.

Seconds _____

M&TE No. _____ _____

[15.2] **RECORD** local opening time at 2-FCV-3-47, SG #2 MFW ISOL VLV.

Seconds _____

M&TE No. _____ _____

[16] **ENSURE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY using light indication at 2-HS-3-47A that 2-FCV-3-47, SG #2 MFW ISOL VLV, is OPEN. _____

[17] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to FORWARD FLUSH AND

VERIFY using light indication at 2-HS-3-47A that 2-FCV-3-47 CLOSES. _____

[18] **REMOVE** Fuse 2-FU-275-R77/N1, at Panel 2-R-77 (to simulate opening of 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE by de-energizing Relay ZS2 (See DWG 2-45W600-57-33)). _____

1st

_____

CV

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[19] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to BACK FLUSH AND

VERIFY using light indication at 2-HS-3-47A that 2-FCV-3-47, SG #2 MFW ISOL VLV, remains CLOSED. _____

[20] **REPLACE** Fuse 2-FU-275-R77/N1, at Panel 2-R-77 AND

VERIFY using light indication at 2-HS-3-47A that 2-FCV-3-47, SG #2 MFW ISOL VLV, OPENS. (**Acc Crit**) 5.0[2.4] _____ 1st _____ CV

[21] **PLACE** 2-HS-3-47C, SG #2 FW ISOL VLV SW, in the CLOSE position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D AND

VERIFY by light indication that 2-FCV-3-47 remains OPEN. _____

[22] **REMOVE** Fuse 2-FU-213-B23/31N at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B at Compt 3D, 2-BKR-3-47, SG 2 MFW ISOL (2-FCV-3-47, SG #2 MFW ISOL VLV) (45W760-3-6)

_____ 1st _____ CV

[23] **VERIFY** the following:

[23.1] Red Light (VALVE OPEN) OFF at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D, 2-BKR-3-47, SG #2 MFW ISOL (2-FCV-3-47, SG #2 MFW ISOL VLV). _____

[23.2] Green Light (VALVE CLOSED) OFF at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D, 2-BKR-3-47, SG 2 MFW ISOL (2-FCV-3-47, SG #2 MFW ISOL VLV). _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[23.3] Red Light for POWER ON is OFF at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D, 2-BKR-3-47, SG 1 MFW ISOL (2-FCV-3-47, SG #2 MFW ISOL VLV). _____

[23.4] Red Light OFF at 2-HS-3-47A. _____

[23.5] Green Light OFF at 2-HS-3-47A. _____

[23.6] IPCS Computer Point FD2199, SG2 FEEDWATER ISOLATION VALVE, indicates PWR OFF. _____

[24] **PLACE** 2-HS-3-47A, SG #2 FW ISOL VLV SW, in the CLOSE position AND

VERIFY 2-FCV-3-47, SG #2 MFW ISOL VLV, remains OPEN, locally (729/A15X). _____

[25] **PLACE** 2-HS-3-47C, SG #2 FW ISOL VLV SW, in the CLOSE position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D AND

VERIFY 2-FCV-3-47, SG #2 MFW ISOL VLV, remains OPEN (locally). _____

[26] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY that 2-FCV-3-47, SG #2 MFW ISOL VLV, remains OPEN (locally). _____

[27] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to FORWARD FLUSH AND

VERIFY that 2-FCV-3-47, SG #2 MFW ISOL VLV, remains OPEN (locally). _____

[28] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to BACK FLUSH AND

VERIFY that 2-FCV-3-47, SG #2 MFW ISOL VLV, remains OPEN (locally). _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[29] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY that 2-FCV-3-47, SG #2 MFW ISOL VLV, remains OPEN (locally). _____

[30] **ENSURE** 2-HS-3-47C, STM GEN #2 ISOL VLV SW, in the NORMAL position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D. _____

[31] **PLACE** 2-XS-3-47, SG #2 FW ISOL VLV TRF SW, to the AUX position at 2-MCC-213-B2-B, 480V Reactor MOV BD 2B2-B, Compt 3D. _____

[32] **VERIFY** the following:

[32.1] Red Light (VALVE OPEN) ON at 2-MCC-213-B2-B, 480V Reactor MOV BD 2B2-B, Compt 3D, 2-BKR-3-47, SG #2 MFW ISOL (2-FCV-3-47). _____

[32.2] Green Light (VALVE CLOSED) OFF at 2-MCC-213-B2-B, 480V Reactor MOV BD 2B2-B, Compt 3D, 2-BKR-3-47, SG #2 MFW ISOL (2-FCV-3-47). _____

[32.3] Red Light OFF at 2-HS-3-47A. _____

[32.4] Green Light OFF at 2-HS-3-47A. _____

[32.5] IPCS Computer Point FD2199, SG2 FEEDWATER ISOLATION VALVE, indicates PWR ON. _____

[32.6] Unit 2 Events Display Recorder indicates 150-C 480 RX MOV BD 2B1-B/2B2-B IN AUX is in ALARM (Red). _____

[32.7] Annunciator Panel 2-XA-55-6F, Window 150-C 480 RX MOV BD 2B1-B/2B2-B, ALARMS. (**Acc Crit**) 5.0[2.3] _____

[33] **REPLACE** Fuse 2-FU-213-B23/31N at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B at Compt 3D, 2-BKR-3-47, SG 2 MFW ISOL (2-FCV-3-47). _____

1st

_____

CV

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[34] **PLACE** 2-HS-3-47C, SG #2 FW ISOL VLV SW, in the CLOSE position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D AND

VERIFY by light indication at the breaker that 2-FCV-3-47 is CLOSED. _____

[35] **PLACE** 2-HS-3-47A, SG 2 MFW ISOL VLV, in the OPEN position at 2-M-3 AND

VERIFY by light indication at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D that 2-FCV-3-47 remains CLOSED. _____

[36] **PLACE** 2-HS-3-47C, SG #2 FW ISOL VLV SW, in the OPEN position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D AND

VERIFY by light indication at the breaker that 2-FCV-3-47 is OPEN. _____

[37] **ENSURE** 2-HS-3-47C, SG #2 FW ISOL VLV SW, in the NORMAL position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D. _____

[38] **PLACE** 2-HS-3-47A, SG 2 MFW ISOL VLV, in the CLOSE position at 2-M-3 AND

VERIFY by light indication at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 3D that 2-FCV-3-47 remains OPEN. _____

[39] **PLACE** 2-XS-3-47, SG #2 FW ISOL VLV TRF SW, to the NORMAL position at 2-MCC-213-B2-B, 480V Reactor MOV BD 2B2-B, Compt 3D. _____

[40] **VERIFY** Unit 2 Events Display Recorder indicates 150-C 480 RX MOV BD 2B1-B/2B2-B IN AUX is NORMAL (Blue). _____

[41] **VERIFY** 2-XA-55-6F, 150-C 480 RX MOV BD 2B1-B/2B2-B, is CLEAR. _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[42] **LIFT** wire 2 from the T1 Thermal Overload contact to disconnect thermal overload circuitry from 2-BKR-3-47, SG #2 MFW ISOL (2-FCV-3-47, SG #2 MFW ISOL VLV), Compt 3D at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B. (See DWG 2-45W760-3-6)

_____ 1st

_____ CV

[43] **VERIFY** Red Light is OFF at 2-MCC-213-B2-B, 480V Reactor MOV BD 2B2-B, Compt 6F. _____

[44] **PLACE** 2-HS-3-47A, SG 2 MFW ISOL VLV, in the CLOSE position at 2-M-3 AND

VERIFY by light indication that 2-FCV-3-47 remains OPEN. _____

[45] **PRESS AND HOLD** the armature of overload bypass Relay K1 in back of 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 6F, to simulate an Overload Bypass. _____

[46] **PLACE** 2-HS-3-47A, SG 2 MFW ISOL VLV, in the CLOSE position at 2-M-3 AND

VERIFY by light indication that 2-FCV-3-47 CLOSES. _____

[47] **RELEASE** the armature of overload bypass Relay K1. _____

[48] **LAND** wire 2 from the T1 Thermal Overload contact from Step 6.2[42] at 2-BKR-3-47, SG 2 MFW ISOL (2-FCV-3-47, SG #2 MFW ISOL VLV), Compt 3D at 480V REACTOR MOV BOARD 2B2-B.

_____ 1st

_____ CV

[49] **PLACE** 2-FIC-3-48, SG 2 MFW REG VLV at 2-M-3 in AUTO. _____

[50] **ADJUST** Test Signal 3 from Step 6.2[2.9] (SG Loop 2 Steam Flow) to between 12 and 16 mAdc. _____

[51] **VERIFY** the following:

[51.1] Red Light (FCV-3-48) ON at 2-XX-3-35. (**Acc Crit**) 5.0[6.7] _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[51.2] Green Light (FCV-3-48) OFF at 2-XX-3-35. (**Acc Crit**) 5.0[6.7] _____

[51.3] 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, OPEN (locally 729/C12P). _____

[51.4] IPCS Computer Point FD2358, SG2 & SG3 FW FLOW CONTROL, indicates ENERG _____

[51.5] IPCS Computer Point FD2033, OPEN SG2 FW ISV 2-FCV-3-239, indicates ENERG _____

[51.6] IPCS Computer Point FD2353, SG2 & SG3 FW FLOW CONTROL, indicates ENERG _____

[52] **ADJUST** Test Signal 3 to between 12 and 8 mAdc. _____

[53] **VERIFY** the following:

[53.1] Red Light (FCV-3-48) OFF at 2-XX-3-35. (**Acc Crit**) 5.0[6.7] _____

[53.2] Green Light (FCV-3-48) ON at 2-XX-3-35. (**Acc Crit**) 5.0[6.7] _____

[53.3] 2-FCV-3-48 CLOSES (locally). _____

[54] **PLACE** 2-FIC-3-48, SG #2 MFW REG VLV at 2-M-3 in MANUAL. _____

NOTE

Steps 6.2[55-56] require valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[55] **ADJUST** output of 2-FIC-3-48, SG #2 MFW REG VLV at 2-M-3 to 100% (full open) using RAMP function for fast change. _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[55.1] **RECORD** 2-FCV-3-48 remote opening time using light indication at 2-XX-3-35, MFW REG Status Light Box at 2-M-3.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[55.2] **RECORD** local opening time at 2-FCV-3-48.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[56] **ADJUST** output of 2-FIC-3-48, SG 2 MFW REG VLV, at 2-M-3 to 0% (full closed) using RAMP function for fast change. _____

[56.1] **RECORD** 2-FCV-3-48 remote closing time using light indication at 2-XX-3-35.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[56.2] **RECORD** local closing time at 2-FCV-3-48.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[57] **ADJUST** output of 2-FIC-3-48 to 100% (full open) using RAMP function for fast change. _____

[58] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-48 OPENS.

[59] **ENSURE** 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, is in the OPEN position. _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

NOTE

Step 6.2[60] will cause 2-FCV-3-48A and 2-FCV-3-239 to fail CLOSE and requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.2-FCV-3-186 will also modulate throughout these next steps but is not tested for Acceptance Criteria until Step [89]

[60] **PLACE** Jumper 7 from 4.3[3]C to the OPEN/OFF position. _____

[60.1] **RECORD** remote closing time at 2-FCV-3-48A, SG #2 INLET FLOW CONT VLV BYPASS VLV using light indication at 2-XX-3-35A. (**Acc Crit**) 5.0[10.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[60.2] **RECORD** local closing time at 2-FCV-3-48A. (**Acc Crit**) 5.0[10.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[60.3] **RECORD** remote closing time at 2-FCV-3-239, STEAM GENERATOR 2 MFW BYPASS LINE ISOL using light indication at 2-M-3. (**Acc Crit**) 5.0[19.1], 5.0[19.6]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[60.4] **RECORD** local closing time at 2-FCV-3-239 (729/A15X). (**Acc Crit**) 5.0[19.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[60.5] **VERIFY** 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, remains OPEN, using light indication at 2-XX-3-35. _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[60.6] **VERIFY** 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, remains OPEN, using light indication at 2-XX-3-35. _____

[60.7] **VERIFY** IPCS Computer Point FD2033, OPEN SG2 FW ISV 2-FCV-3-239, indicates NOT ENE. _____

[60.8] **VERIFY** Indicator light is ON at 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3. _____

[61] **PLACE** Jumper 7 to the CLOSED/ON position. _____

[62] **VERIFY** using light indication at 2-XX-3-35A that 2-FCV-3-48A remains CLOSED. (**Acc Crit**) 5.0[10.2] _____

[63] **VERIFY** using light indication at 2-M-3 that 2-FCV-3-239, STEAM GENERATAOR 2 MFW BYPASS LINE ISOL, remains CLOSED. (**Acc Crit**) 5.0[19.2] _____

[64] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL AND

VERIFY:

[64.1] Using light indication at 2-XX-3-235A that 2-FCV-3-48A OPENS. _____

[64.2] Using light indication at 2-M-3 that 2-FCV-3-239, STEAM GENERATAOR 2 MFW BYPASS LINE ISOL, OPENS. _____

[64.3] Indicator light is OFF at 2-HS-3-99A2, RESET TR-A MFW ISOL, at 2-M-3. _____

NOTE

Step 6.2[65] will cause 2-FCV-3-242 to fail CLOSE and requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[65] **PLACE** Jumper 9 from 4.3[4]A to the OPEN/OFF position. _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[65.1] **RECORD** remote closing time at 2-FCV-3-242, STEAM GENERATOR 3 MFW BYPASS LINE ISOL using light indication at 2-M-3. (**Acc Crit**) 5.0[20.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[65.2] **RECORD** local closing time at 2-FCV-3-242 (729/A15X). (**Acc Crit**) 5.0[20.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[65.3] **VERIFY** IPCS Computer Point FD2210, OPEN SG3 FW ISV 2-FCV-3-242, indicates NOT ENER. _____

[65.4] **VERIFY** 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, remains OPEN using light indication at 2-XX-3-35. _____

[65.5] **VERIFY** 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, remains OPEN using light indication at 2-XX-3-35. _____

[65.6] **VERIFY** Indicator light is ON at 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3. _____

NOTE

Step 6.1[66] requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations. Jumper 7 and Jumper 9 are both required to be OPEN/OFF to simulate the Train A Feedwater Isolation Signal.

[66] **PLACE** Jumper 7 to the CLOSED/ON position (for ESFAS Train A relay reset). _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[66.1] **RECORD** remote closing time at 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, using light indication at 2-XX-3-35. (**Acc Crit**) 5.0[6.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[66.2] **RECORD** local closing time at 2-FCV-3-48. (**Acc Crit**) 5.0[6.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[66.3] **RECORD** remote closing time at 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE using light indication at 2-XX-3-35. (**Acc Crit**) 5.0[7.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[66.4] **RECORD** local closing time at 2-FCV-3-90 (740/T15N). (**Acc Crit**) 5.0[7.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[66.5] **VERIFY** IPCS Computer Point FD2353, SG2 &SG3 FW FLOW CONTROL, indicates DE-ENER _____

[66.6] **VERIFY** IPCS Computer Point FD2001, SG3 &SG2 FW FLOW CONTROL, indicates DE-ENER _____

[66.7] **VERIFY** Indicator light is ON at 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3. _____

[67] **PLACE** Jumper 7 to the CLOSED/ON position (for ESFAS Train A relay reset). _____

[68] **PLACE** Jumper 9 to the CLOSED/ON position (for ESFAS Train A relay reset). _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[69] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, remains CLOSED. (**Acc Crit**) 5.0[6.2] _____

[70] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, remains CLOSED. (**Acc Crit**) 5.0[7.2] _____

[71] **VERIFY** using light indication at 2-M-3 that 2-FCV-3-242, STEAM GENERATAOR 3 MFW BYPASS LINE ISOL, remains CLOSED. (**Acc Crit**) 5.0[20.2] _____

[72] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL AND

VERIFY:

[72.1] Using light indication at 2-XX-3-35 that 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, OPENS. _____

[72.2] Using light indication at 2-XX-3-35 that 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, OPENS. _____

[72.3] Using light indication at 2-M-3 that 2-FCV-3-242, STEAM GENERATAOR 3 MFW BYPASS LINE ISOL, OPENS. _____

[72.4] Indicator light is OFF at 2-HS-3-99A2, RESET TR-A MFW ISOL, at 2-M-3. _____

NOTE

Step [73] will test the loss of Control Power. Using 2-HS-3-945A will also affect valves in other loops.

[73] **PLACE** 2-HS-3-945A, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to OFF, located at 2-JB-292-8205, **AND** _____

VERIFY:

[73.1] Using light indication at 2-XX-3-35 that 2-FCV-3-48 CLOSES. (**Acc Crit**) 5.0[6.5] _____

[73.2] Using light indication at 2-XX-3-35 that 2-FCV-3-90 CLOSES. (**Acc Crit**) 5.0[7.5] _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[73.3] Using light indication at 2-XX-3-35A that 2-FCV-3-48A CLOSES. (**Acc Crit**) 5.0[10.3] _____

[73.4] Using light indication at 2-M-3 that 2-FCV-3-239 CLOSES. (**Acc Crit**) 5.0[19.5] _____

[74] **PLACE** 2-HS-3-945A, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to ON AND

VERIFY:

[74.1] Using light indication at 2-XX-3-35 that 2-FCV-3-48 remains CLOSED. _____

[74.2] Using light indication at 2-XX-3-35 that 2-FCV-3-90 remains CLOSED. _____

[74.3] Using light indication at 2-XX-3-35A that 2-FCV-3-48A remains CLOSED. _____

[74.4] Using light indication at 2-M-3 that 2-FCV-3-239 remains CLOSED. _____

[75] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL AND

VERIFY:

[75.1] Using light indication at 2-XX-3-35 that 2-FCV-3-48 OPENS. _____

[75.2] Using light indication at 2-XX-3-35 that 2-FCV-3-90 OPENS. _____

[75.3] Using light indication at 2-XX-3-35A that 2-FCV-3-48A OPENS. _____

[75.4] Using light indication at 2-M-3 that 2-FCV-3-239 OPENS. _____

[75.5] Indicator light is OFF at 2-HS-3-99A2. _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[76] **PLACE** 2-HS-3-47A, SG #2 FW ISOL VLV SW, in the OPEN position at 2-M-3 AND

VERIFY by light indication that 2-FCV-3-47 OPENS. _____

NOTE

The following steps will test FORWARD FLUSH and BACK FLUSH capability via 2-HS-3-45

[77] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to FORWARD FLUSH AND

VERIFY:

[77.1] Using light indication at 2-HS-3-47, SG #2 FW ISOL VLV SW, that 2-FCV-3-47 CLOSES. (**Acc Crit**) 5.0[2.5] _____

[77.2] Using light indication at 2-XX-3-35, that 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, OPENS. _____

[77.3] That 2-FCV-3-192, MFW DEAERATION LINE LOOP 4 ISOL VLV, OPENS. _____

[78] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to BACK FLUSH AND

VERIFY:

[78.1] Using light indication at 2-XX-3-35 that 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, CLOSES. (**Acc Crit**) 5.0[6.6] _____

[78.2] Using light indication at 2-HS-3-47A, SG #2 FW ISOL VLV SW, that 2-FCV-3-47 OPENS when 2-FCV-3-48 is FULLY CLOSED. (**Acc Crit**) 5.0[2.6] _____

[78.3] That 2-FCV-3-192, MFW DEAERATION LINE LOOP 4 ISOL VLV, remains OPEN. _____

[79] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY:

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[79.1] Using light indication at 2-HS-3-47A, SG #2 FW ISOL VLV SW, that 2-FCV-3-47 remains OPEN. _____

[79.2] Using light indication at 2-XX-3-35 that 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, OPENS. _____

[79.3] That 2-FCV-3-192, MFW DEAERATION LINE LOOP 4 ISOL VLV, CLOSES. (**Acc Crit**) 5.0[23.6] _____

[80] **PLACE** 2-LIC-3-48A, SG #2 MFW BYPASS REG CONTROL at 2-M-3 in AUTO. _____

[81] **ADJUST** Test Signal 5 (from Step 6.2[3.3]) for a voltage output between 0 and 5V at Panel 2-R-25. (NIS) _____

[82] **VERIFY** the following:

[82.1] Red Light (FCV-3-48A) ON at 2-XX-3-35A. _____

[82.2] Green Light (FCV-3-48A) OFF at 2-XX-3-35A,. _____

[82.3] 2-FCV-3-48A is OPEN (locally). _____

[83] **ADJUST** Test Signal 4 current source (from Step 6.2[2.12]) to 12 mAdc. (Steam Flow) _____

[84] **ADJUST** Test Signal 5 voltage output to 5V. (NIS) _____

[85] **ADJUST** Test Signal 6 current source (from Step 6.2[3.6]) to 12 mAdc. (Validated NIS) _____

[86] **VERIFY** the following:

[86.1] Red Light (FCV-3-48A) OFF at 2-XX-3-35A. _____

[86.2] Green Light (FCV-3-48A) ON at 2-XX-3-35A. _____

[86.3] 2-FCV-3-48A is CLOSED (locally). _____

[87] **PLACE** 2-LIC-3-48A, SG #2 MFW BYPASS REG CONTROL at 2-M-3 in MANUAL. _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

NOTE

Steps 6.2[88-89] require valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[88] **ADJUST** output of 2-LIC-3-48A, SG #2 MFW BYPASS REG CONTROL at 2-M-3 to 100% (full open) by using the RAMP function. _____

[88.1] **RECORD** 2-FCV-3-48A remote opening time using light indication at 2-XX-3-35A.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[88.2] **RECORD** local opening time at 2-FCV-3-48A.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[89] **ADJUST** output of 2-LIC-3-48A to 0% (closed) by using the RAMP function. _____

[89.1] **RECORD** 2-FCV-3-48A remote closing time using light indication at 2-XX-3-35A.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[89.2] **RECORD** local closing time at 2-FCV-3-48A.

Seconds _____ (≤ 20s)

M&TE No. _____ _____

[90] **VERIFY** by light indication at 2-XX-3-35A that 2-FCV-3-48A is CLOSED. _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[91] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to FORWARD FLUSH AND

VERIFY:

[91.1] Using light indication at 2-XX-3-235, SG WATER HAMMER PREVENT, that 2-FCV-3-192, MFW DEAERATION LINE LOOP 2 ISOL, OPENS. (**Acc Crit**) 5.0[23.4] _____

[91.2] Red light OFF (FCV-3-186 Closed) at 2-XX-3-235. (**Acc Crit**) 5.0[15.5] _____

[91.3] Green light OFF (FCV-3-186 Closed) at 2-XX-3-235. (**Acc Crit**) 5.0[15.5] _____

[91.4] 2-FCV-3-186, STEAM GENERATOR #2 MFW BACKFLUSH WARMING, OPEN (locally 729/A14X). (**Acc Crit**) 5.0[15.4] _____

[91.5] Using light indication at 2-XX-3-35, that 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, is OPEN. _____

[92] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to BACK FLUSH AND

VERIFY:

[92.1] Using light indication at 2-XX-3-235 that 2-FCV-3-192, MFW DEAERATION LINE LOOP 2 ISOL, remains OPEN. (**Acc Crit**) 5.0[23.5] _____

[92.2] Red light ON (FCV-3-186 Open) at 2-XX-3-235. (**Acc Crit**) 5.0[15.5] _____

[92.3] Green light OFF (FCV-3-186 Open) at 2-XX-3-235. (**Acc Crit**) 5.0[15.5] _____

[92.4] 2-FCV-3-186, STEAM GENERATOR #2 MFW BACKFLUSH WARMING, OPENS (locally 729/A14X) (**Acc Crit**). 5.0[15.4] _____

[92.5] Using light indication at 2-XX-3-35, that 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, CLOSES. _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[93] **REMOVE** Fuse 2-FU-275-R74/K13, at Panel 2-R-74 (to simulate opening of 2-FCV-3-48 by de-energizing Relay ZS5) (DWG 45N2689).

_____ 1st

_____ CV

[94] **VERIFY** using light indication at 2-XX-3-235 that 2-FCV-3-186 CLOSES. _____

[95] **REPLACE** Fuse 2-FU-275-R74/K13, at Panel 2-R-74.

_____ 1st

_____ CV

[96] **VERIFY** using light indication at 2-XX-3-235 that 2-FCV-3-186 OPENS. _____

NOTE

Step 6.2[97] requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[97] **PLACE** Jumper 7 to the OPEN/OFF position to simulate a Train A Feedwater Isolation. _____

[97.1] **RECORD** 2-FCV-3-186 remote closing time using light indication at 2-XX-3-235.
(**Acc Crit**) 5.0[15.1]

Seconds _____ (≤ 6.5s)

M&TE NO. _____ _____

[97.2] **RECORD** local closing time at 2-FCV-3-186.
(**Acc Crit**) 5.0[15.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[97.3] **VERIFY** the indicator light is ON at 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3. _____

[98] **PLACE** Jumper 7 to the CLOSED/ON position. _____

[99] **VERIFY** using light indication at 2-XX-3-235 that 2-FCV-3-186 remains CLOSED. (**Acc Crit**) 5.0[15.2] _____

[100] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL AND

VERIFY:

[100.1] Using light indication at 2-XX-3-235 that 2-FCV-3-186, OPENS. _____

[100.2] Indicator light is OFF at 2-HS-3-99A2. _____

NOTE

The following step utilizes the 2-HS-3-192 pushbutton. When it is pressed, 2-FCV-3-192 will CLOSE and the OPEN. At the same time, when 2-FCV-3-192 leaves the FULL OPEN position, 2-FCV-3-186 will CLOSE. 2-FCV-3-186 will OPEN again when 2-FCV-3-192 returns to FULL OPEN.

[101] **PRESS** CLOSE Pushbutton 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV at 2-JB-292-853, EL 729 Northeast Valve Room, outside. _____

[102] **VERIFY**, using light indication at 2-XX-3-235 that 2-FCV-3-192, MFW DEAERATION LINE LOOP 2 ISOL, CLOSES then OPENS. _____

[103] **WHEN** 2-FCV-3-192 leaves the FULL OPEN position, **THEN**

VERIFY, using light indication at 2-XX-3-235, that 2-FCV-3-186 CLOSES _____

[104] **WHEN** 2-FCV-3-192 returns to the FULL OPEN position, **THEN**

VERIFY, using light indication at 2-XX-3-235, that 2-FCV-3-186 OPENS. _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[105] **PLACE** Jumper 8 to the OPEN/OFF position to simulate a LO-LO Steam Generator level signal. _____

[105.1] **RECORD** 2-FCV-3-186 remote closing time using light indication at 2-XX-3-235 at 2-M-3.

Seconds _____ (≤ 6.5s)

M&TE NO. _____ _____

[105.2] **RECORD** local closing time at 2-FCV-3-186.

Seconds _____ (≤ 6.5s)

M&TE NO. _____ _____

[106] **PLACE** Jumper 8 to the CLOSED/ON position. _____

[107] **VERIFY** Using light indication at 2-XX-3-235 that 2-FCV-3-186, OPENS. _____

NOTE

Steps [108-109] will test the loss of Control Power. Using 2-HS-3-945A will also affect valves in other loops.

[108] **PLACE** 2-HS-3-945A, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to OFF, located at 2-JB-292-8205 (757/A12Q). _____

[109] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-186 CLOSES. (**Acc Crit**) 5.0[15.3] _____

[110] **PLACE** 2-HS-3-945A, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to ON, located at 2-JB-292-8205 (757/A12Q). _____

[111] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-186 remains CLOSED. _____

[112] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL AND

VERIFY using light indication at 2-XX-3-235 that 2-FCV-3-186 OPENS. _____

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[113] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY:

[113.1] Using light indication at 2-XX-3-235 that 2-FCV-3-186 CLOSES. _____

[113.2] Using light indication at 2-XX-3-35 that 2-FCV-3-48 OPENS. _____

[114] **RESTORE** the 2-FCV-3-48 control loop as follows:

[114.1] **ENSURE** 2-FIC-3-48, SG 2 MFW REG VLV at 2-M-3 in MANUAL. _____

[114.2] **REMOVE** Test Signal 1 (SG Loop 2 MFW Flow) at Cable 2PM1433 from TB C2-6 at Panel 2-M-4. _____ 1st _____ CV

[114.3] **LAND** the following wires:

- Black wire in Cable 2PM1433 to TB C2-6 (3R8), Terminal 1, at Panel 2-M-4. (45W2643-6) _____ 1st _____ CV
- White wire in Cable 2PM1433 to TB C2-6 (3R9), Terminal 2, at Panel 2-M-4. _____ 1st _____ CV

[114.4] **REMOVE** Test Signal 2 (SG Loop 2 MFW Flow) at Cable 2PM1434 from TB C2-6 at Panel 2-M-4. _____ 1st _____ CV

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[114.5] **LAND** the following wires:

- Black wire in Cable 2PM1434 to TB C2-6 (8K8), Terminal 4, at Panel 2-M-4. (45W2643-6)

  _____ 1st

  _____ CV

- White wire in Cable 2PM1434 to TB C2-6 (8K9), Terminal 5, at Panel 2-M-4.

  _____ 1st

  _____ CV

[114.6] **REMOVE** Test Signal 3 (SG Loop 2 Steam Flow) at Cable 2PM1459 from TB C2-19 at Panel 2-M-4.

_____ 1st

_____ CV

[114.7] **LAND** the following wires:

- Black wire in Cable 2PM1459 to TB C2-19 (3G7), Terminal 1, at Panel 2-M-4. (45W2643-6)

  _____ 1st

  _____ CV

- White wire in Cable 2PM1459 to TB C2-19 (3G8), Terminal 2, at Panel 2-M-4. (45W2643-6)

  _____ 1st

  _____ CV

[114.8] **REMOVE** Test Signal 4 (SG Loop 2 Steam Flow) at Cable 2PM1457 from TB C2-19 at Panel 2-M-4.

_____ 1st

_____ CV

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[114.9] **LAND** the following wires:

- Black wire in Cable 2PM1457 to TB C2-19 (8F7), Terminal 4, at Panel 2-M-4. (45W2643-6)

  _____ 1st

  _____ CV

- White wire in Cable 2PM1457 to TB C2-19 (8F8), Terminal 5, at Panel 2-M-4.

  _____ 1st

  _____ CV

[115] **RESTORE** the 2-FCV-3-48A control loop as follows:

[115.1] **VERIFY/PLACE** 2-LIC-3-48A, SG 2 MFW BYPASS REG CONTROL at 2-M-3 in MANUAL. _____

[115.2] **REMOVE** Test Signal 5 (NIS Channel 2 Power) at Cable 2PM551from TB 25C at Panel 2-R-25. (45N2668-4)

_____ 1st

_____ CV

[115.3] **LAND** the following wires:

- N40204 in Cable 2PM551 to TB 25C, Terminal 4, at Panel 2-R-25.

  _____ 1st

  _____ CV

- N40205 in Cable 2PM551 to TB 25C, Terminal 5, at Panel 2-R-25.

  _____ 1st

  _____ CV

[115.4] **REMOVE** Test Signal 6 (Validated NIS Power) at Cable 2PM8877 from TB 24W at Panel 2-R-24. (45N2668-3)

_____ 1st

_____ CV

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[115.5] **LAND** the following wires:

- 24W4 in Cable 2PM8877 to TB 24W, Terminal 4, at Panel 2-R-24.

_____ 1st

_____ CV

- 24W5 in Cable 2PM8877 to TB 24W, Terminal 5, at Panel 2-R-24.

_____ 1st

_____ CV

[116] **RESTORE** the Steam Generator 2 Feedwater Isolation Signals as follows:

[116.1] **REMOVE** Jumper 5 (Step 4.3[3]A) AND

LAND the black wire (2BP) in Cable 2SG127B to TB631-5 at 2-R-51.

_____ 1st

_____ CV

[116.2] **REMOVE** Jumper 6 (Step 4.3[3]B) AND

LAND the black wire (3DCT) in Cable 2V3003B to TB622-5 at 2-R-51.

_____ 1st

_____ CV

[116.3] **REMOVE** Jumper 7 (Step 4.3[3]C) AND

LAND the black wire (2AP) in Cable 2SG107A to TB631-5 at 2-R-48.

_____ 1st

_____ CV

Date _____

6.2 Steam Generator Loop 2 Valves (continued)

[116.4] **REMOVE** Jumper 8 (Step 4.3[3]D) AND

LAND the green wire (1A5) in Cable 2SG103A to TB633-1 at 2-R-48.

_____
1st

_____
CV

Date _____

6.3 Steam Generator Loop 3 Valves

[1] **VERIFY** prerequisites for this Subsection have been satisfied. _____

[2] **SETUP** the 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, control loop as follows:

[2.1] **ENSURE** 2-FIC-3-90, SG 3-MFW REG VLV controller at 2-M-3 in MANUAL AND

ADJUST for 0 demand (no demand for MFW flow). _____

NOTE

For Steps 6.3[2.2] through [3.7], the black wire is positive (+) and white wire is negative (-)

[2.2] **LIFT** the following wires:

- Black wire in Cable 2PM1551 from TB C2-7 (4K8) at Panel 2-M-4. (See drawing 45W2643-6, 2-45N2655-1B)

_____ 1st

_____ CV

- White wire in Cable 2PM1551 from TB C2-7 (4K9) at Panel 2-M-4.

_____ 1st

_____ CV

[2.3] **INSTALL** a process calibrator to simulate Test Signal 1 (SG Loop 3 MFW Flow) at Cable 2PM1551.

M&TE No. _____

_____ 1st

_____ CV

[2.4] **ADJUST** Test Signal 1 current source to 4mAdc. _____

[2.5] **LIFT** the following wires:

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

- Black wire in Cable 2PM1552 from TB C2-7 (7R8) at Panel 2-M-4 (Dwg 45W2643-6, 2-45N2655-1B)

  _____ 1st

  _____ CV

- White wire in Cable 2PM1552 from TB C2-7 (7R9) at Panel 2-M-4

  _____ 1st

  _____ CV

[2.6] **INSTALL** a process calibrator to simulate Test Signal 2 (SG Loop 3 MFW Flow) at Cable 2PM1552.

M&TE No. _____

_____ 1st

_____ CV

[2.7] **ADJUST** Test Signal 2 current source to the same setting of Step 6.3[2.4]

_____

[2.8] **Lift** the following wires:

- Black wire in Cable 2PM1578 from TB C2-20 (4F7) at Panel 2-M-4 (See Dwg 45W2643-6, 2-45N2655-1B)

  _____ 1st

  _____ CV

- White wire in Cable 2PM1578 from TB C2-20 (4F8) at Panel 2-M-4

  _____ 1st

  _____ CV

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[2.9] **INSTALL** a process calibrator to simulate Test Signal 3 (SG Loop 3 Steam Flow) at Cable 2PM1578.

M&TE No. _____ _____ 1st _____ CV

[2.10] **ADJUST** Test Signal 3 current source to the same setting of Step 6.3[2.4] _____

[2.11] **LIFT** the following wires:

- Black wire in Cable 2PM1576 from TB C2-20 (7G7) at Panel 2-M-4. (45W2643-6, 2-45N2655-1B) _____ 1st _____ CV
- White wire in Cable 2PM1576 from TB C2-20 (7G8) at Panel 2-M-4. _____ 1st _____ CV

[2.12] **INSTALL** a process calibrator to simulate Test Signal 4 (SG Loop 3 Steam Flow) at Cable 2PM1576.

M&TE No. _____ _____ 1st _____ CV

[2.13] **ADJUST** Test Signal 4 current source to the same setting of Step 6.3[2.4] _____

[2.14] **VERIFY** the following:

A. Red Light (2-FCV-3-90) OFF at 2-XX-3-35, MFW REG Status Light Box at 2-M-3. _____

B. Green Light (FCV-3-90) ON at 2-XX-3-35. _____

C. 2-FCV-3-90 is CLOSED (locally 739/C12P). _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[3] **SETUP** the 2-FCV-3-90A, STEAM GENERATOR 3 MFW REG VALVE, control loop as follows:

[3.1] **VERIFY/PLACE** 2-LIC-3-90A, SG 3 MFW BYPASS REG CONTROL at 2-M-3-in MANUAL. _____

[3.2] **LIFT** the following wires:

- N40207 (T7 - black) in Cable 2PM552 from TB 25C at Panel 2-R-25. (See Drawing 45N2668-4, 45N2652-2)

_____ 1st

_____ CV

- N40208 (T8 - white) in Cable 2PM552 from TB 25C at Panel 2-R-25.

_____ 1st

_____ CV

[3.3] **INSTALL** a process calibrator to simulate Test Signal 5 (Simulates NIS Channel 3 Power) at Cable 2PM552.

M&TE No. _____

_____ 1st

_____ CV

[3.4] **ADJUST** Test Signal 5 voltage source to 2V. _____

[3.5] **LIFT** the following wires:

- 24W7 (T7 - black) in Cable 2PM 8880 from TB24W at Panel 2-R-24. (See Drawing 45N2668-3, 2-45W2668-3A)

_____ 1st

_____ CV

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

- 24W8 (T8 - white) in Cable 2PM 8880 from TB24W at Panel 2-R-24.

_____ 1st

_____ CV

[3.6] **INSTALL** a process calibrator to simulate Test Signal 6 (Simulates Validated NIS Power) at Cable 2PM8880.

M&TE No. _____

_____ 1st

_____ CV

[3.7] **ADJUST** Test Signal 6 current source to 4mAdc. _____

[3.8] **VERIFY** the following:

A. Red Light (FCV-3-90A) OFF at 2-XX-3-35A, BYPASS REG Status Light Box at 2-M-3. _____

B. Green Light (FCV-3-90A) ON at 2-XX-3-35A. _____

C. 2-FCV-3-90A is CLOSED (locally, 729/T14P). _____

[4] **PLACE** 2-HS-3-945A, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to ON, located at 2-JB-292-8205 (757/A12Q). _____

[5] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3 AND

VERIFY the indicator light at 2-HS-3-99A2 is OFF. _____

[6] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3 AND

VERIFY the indicator light at 2-HS-3-99B2 is OFF. _____

[7] **PLACE** 2-HS-3-87A, SG #3 MFW ISOL VLV, at 2-M-3 to the OPEN position AND

VERIFY:

[7.1] 2-FCV-3-87, SG #3 MFW ISOL VLV FULLY OPENS (locally 729/A15U). _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[7.2] Red Light ON at 2-HS-3-87A. (**Acc Crit**) 5.0[3.4] _____

[7.3] Green Light OFF at 2-HS-3-87A. (**Acc Crit**) 5.0[3.4] _____

[7.4] Red Light ON at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD-2A2-A, Compt. 4D, 2-BKR-3-87, SG 3 MFW ISOL (2-FCV-3-87, SG #3 MFW ISOL VLV-A). _____

[7.5] Green Light OFF at 2-MCC-213-A2-A. _____

[7.6] POWER ON, Red Light ON at 2-BKR-3-87, SG 3 MFW ISOL. _____

[7.7] IPCS Computer Point FD2030, SG3 FEEDWATER ISOLATION VALVE, indicates OPEN. (**Acc Crit**) 5.0[3.4] _____

[7.8] IPCS Computer Point FD2056, SG3 FEEDWATER ISOLATION VALVE, indicates PWR ON. _____

[8] **PLACE** 2-HS-3-87A, SG #3 MFW ISOL VLV, in the CLOSE position AND

VERIFY:

[8.1] 2-FCV-3-87 is CLOSED, locally (729/A14X). _____

[8.2] Red Light OFF at 2-HS-3-87A. (**Acc Crit**) 5.0[3.4] _____

[8.3] Green Light ON at 2-HS-3-87A. (**Acc Crit**) 5.0[3.4] _____

[8.4] Red Light OFF at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 4D, 2-BKR-3-87, SG 3 MFW ISOL (2-FCV-3-87, SG #3 MFW ISOL VLV). _____

[8.5] Green Light ON at 2-BKR-3-87, SG 3 MFW ISOL. _____

[8.6] IPCS Computer Point FD2030, SG3 FEEDWATER ISOLATION VALVE, indicates NOT OPEN. (**Acc Crit**) 5.0[3.4] _____

[9] **PLACE** 2-HS-3-87A in the OPEN position AND

VERIFY:

[9.1] 2-FCV-3-87 is OPEN, locally (729/A15U). _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[9.2] Red Light ON at 2-HS-3-87A. _____

[9.3] Green Light OFF at 2-HS-3-87A. _____

[10] **ENSURE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3, to NORMAL AND

VERIFY using light indication at 2-HS-3-87A that 2-FCV-3-87 is OPEN. _____

NOTE

Step 6.3[11] requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[11] **PLACE** Jumper 10 from Step 4.3[4]B to the CLOSED/ON position to simulate a Train A Feedwater Isolation Signal. _____

[11.1] **RECORD** remote closing time at 2-HS-3-87A. (**Acc Crit**) 5.0[3.1]

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

[11.2] **RECORD** local closing time at 2-FCV-3-87, SG #3 MFW ISOL VLV. (**Acc Crit**) 5.0[3.1]

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

[11.3] **VERIFY** the indicator light is ON at 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3. _____

[12] **PLACE** Jumper 10 to the OPEN/OFF position (For ESFAS Train A relay reset). _____

[13] **VERIFY** using light indication at 2-HS-3-87A that 2-FCV-3-87, SG #3 MFW ISOL VLV, remains CLOSED. (**Acc Crit**) 5.0[3.2] _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[14] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL AND

VERIFY the indicator light is OFF at 2-HS-3-99A2. _____

NOTE

Step 6.3[15] requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[15] **PRESS** 2-HS-3-87A AND

[15.1] **RECORD** remote opening time at 2-HS-3-87A.

Seconds _____

M&TE No. _____ _____

[15.2] **RECORD** local opening time at 2-FCV-3-87, SG #3 MFW ISOL VLV.

Seconds _____

M&TE No. _____ _____

[16] **ENSURE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY using light indication at 2-HS-3-87A that 2-FCV-3-87, SG #3 MFW ISOL VLV, is OPEN. _____

[17] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to FORWARD FLUSH AND

VERIFY using light indication at 2-HS-3-87A that 2-FCV-3-87, SG #3 MFW ISOL VLV, CLOSES. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[18] **REMOVE** Fuse 2-FU-275-R74/K5, at Panel 2-R-74 (to simulate opening of 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE by de-energizing Relay ZS3 (See DWG 2-45W600-57-33)).

_____ 1st

_____ CV

[19] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to BACK FLUSH AND

VERIFY using light indication at 2-HS-3-87A that 2-FCV-3-87, SG #3 MFW ISOL VLV, remains CLOSED. _____

[20] **REPLACE** Fuse 2-FU-275-R74/K5, at Panel 2-R-74 AND

VERIFY using light indication at 2-HS-3-87A that 2-FCV-3-87, SG #3 MFW ISOL VLV, OPENS. (**Acc Crit**) 5.0[3.4]

_____ 1st

_____ CV

[21] **PLACE** 2-HS-3-87C, SG #3 FW ISOL VLV SW, in the CLOSE position at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 4D AND

VERIFY by light indication that 2-FCV-3-87, SG #3 MFW ISOL VLV, remains OPEN. _____

[22] **REMOVE** Fuse 2-FU-213-A24/31N at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A (Dwg 45W760-3-7)

_____ 1st

_____ CV

[23] **VERIFY** the following:

[23.1] Red Light (VALVE OPEN) OFF at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 4D, 2-BKR-3-87, SG 3 MFW ISOL (2-FCV-3-87, SG #3 MFW ISOL VLV). _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[23.2] Green Light (VALVE CLOSED) OFF at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 4D, 2-BKR-3-87, SG 3 MFW ISOL (2-FCV-3-87, SG #3 MFW ISOL VLV). _____

[23.3] Red Light for POWER ON is OFF at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 4D, 2-BKR-3-87, SG 3 MFW ISOL (2-FCV-3-87, SG #3 MFW ISOL VLV). _____

[23.4] Red Light OFF at 2-HS-3-87A. _____

[23.5] Green Light OFF at 2-HS-3-87A. _____

[23.6] IPCS Computer Point FD2056, SG3 FEEDWATER ISOLATION VALVE, indicates PWR OFF _____

[24] **PLACE** 2-HS-3-87A, SG #1 FW ISOL VLV SW, in the CLOSE position AND

VERIFY that 2-FCV-3-87, SG #3 MFW ISOL VLV, remains OPEN, locally (729/A14X). _____

[25] **PLACE** 2-HS-3-87C, SG #3 FW ISOL VLV SW, in the CLOSE position at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 4D AND

VERIFY that 2-FCV-3-87, SG #3 MFW ISOL VLV, remains OPEN (locally). _____

[26] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to NORMAL AND

VERIFY that 2-FCV-3-87, SG #3 MFW ISOL VLV, remains OPEN (locally). _____

[27] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to FORWARD FLUSH AND

VERIFY that 2-FCV-3-87, SG #3 MFW ISOL VLV, remains OPEN (locally). _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[28] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to BACK FLUSH AND

VERIFY that 2-FCV-3-87, SG #3 MFW ISOL VLV, remains OPEN (locally). _____

[29] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to NORMAL AND

VERIFY that 2-FCV-3-87, SG #3 MFW ISOL VLV, remains OPEN (locally). _____

[30] **ENSURE** 2-HS-3-87C, STM GEN #3 ISOL VLV SW, in the NORMAL position at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 4D. _____

[31] **PLACE** 2-XS-3-87, SG #3 FW ISOL VLV TRF SW, to the AUX position at 2-MCC-213-A2-A, 480V Reactor MOV BD 2A2-A, Compt 4D. _____

[32] **VERIFY** the following:

[32.1] Red Light (VALVE OPEN) ON at 2-MCC-213-A2-A, 480V Reactor MOV BD 2A2-A, Compt 4D, 2-BKR-3-87, SG #3 MFW ISOL (2-FCV-3-87). _____

[32.2] Green Light (VALVE CLOSED) OFF at 2-MCC-213-A2-A, 480V Reactor MOV BD 2A2-A, Compt 4D, 2-BKR-3-87, SG #3 MFW ISOL (2-FCV-3-87). _____

[32.3] Red Light OFF at 2-HS-3-87A. _____

[32.4] Green Light OFF at 2-HS-3-87A. _____

[32.5] IPCS Computer Point FD2056, SG3 FEEDWATER ISOLATION VALVE, indicates PWR ON. _____

[32.6] Unit 2 Events Display Recorder indicates 149-C 480 RX MOV BD 2A1-A/2A2-A IN AUX is in ALARM (Red). _____

[32.7] Annuciator Panel 2-XA-55-6F, Window 149-C 480 RX MOV BD 2A1-A/2A2-A, ALARMS. (**Acc Crit**) 5.0[3.3] _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[33] **REPLACE** Fuse 2-FU-213-A24/31N at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A at Compt 4D, 2-BKR-3-87, SG 3 MFW ISOL (2-FCV-3-87, SG #3 MFW ISOL VLV).

_____ 1st

_____ CV

[34] **PLACE** 2-HS-3-87C, SG #3 FW ISOL VLV SW, in the CLOSE position at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 4D AND

VERIFY by light indication at the breaker that 2-FCV-3-87 is CLOSED. _____

[35] **PLACE** 2-HS-3-87A, STM GEN #3 FW ISOL VLV SW, in the OPEN position at 2-M-3 AND

VERIFY by light indication at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 4D that 2-FCV-3-87 remains CLOSED. _____

[36] **PLACE** 2-HS-3-87C, SG #3 FW ISOL VLV SW, in the OPEN position at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 4D AND

VERIFY by light indication at the breaker that 2-FCV-3-87 is OPEN. _____

[37] **ENSURE** 2-HS-3-87C, SG #3 FW ISOL VLV SW, in the NORMAL position at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 4D. _____

[38] **PLACE** 2-HS-3-87A, STM GEN #3 FW ISOL VLV SW, in the CLOSE position at 2-M-3 AND

VERIFY by light indication at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 4D that 2-FCV-3-87 remains OPEN. _____

[39] **PLACE** 2-XS-3-87, SG #3 FW ISOL VLV TRF SW, to the NORMAL position at 2-MCC-213-A2-A, 480V Reactor MOV BD 2A2-A, Compt 4D. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[40] **VERIFY** Unit 2 Events Display Recorder indicates 149-C 480 RX MOV BD 2A1-A/2A2-A IN AUX is NORMAL (Blue). _____

[41] **VERIFY** 2-XA-55-6F, 149-C 480 RX MOV BD 2A1-A/2A2-A, is CLEAR. _____

[42] **LIFT** wire 2 from the T1 Thermal Overload contact to disconnect thermal overload circuitry from 2-BKR-3-87, SG 3 MFW ISOL (2-FCV-3-87), Compt 4D at 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A.
(See DWG 2-45W760-3-7)

_____ 1st

_____ CV

[43] **VERIFY** Red Light is OFF at 2-MCC-213-A2-A, 480V Reactor MOV BD 2A2-A, Compt 6D. _____

[44] **PLACE** 2-HS-3-87A, STM GEN #3 FW ISOL VLV SW, in the CLOSE position at 2-M-3 AND

VERIFY by light indication that 2-FCV-3-87 remains OPEN. _____

[45] **PRESS AND HOLD** the armature of overload bypass Relay K2 in back of 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A, Compt 6D, to simulate an Overload Bypass. _____

[46] **PLACE** 2-HS-3-87A, STM GEN #3 FW ISOL VLV SW, in the CLOSE position at 2-M-3 AND

VERIFY by light indication that 2-FCV-3-87 CLOSES. _____

[47] **RELEASE** the armature of overload bypass Relay K2. _____

[48] **LAND** wire 2 from the T1 Thermal Overload contact from Step 6.3[42] at 2-BKR-3-87, SG 3 MFW ISOL (2-FCV-3-87), Compt 4D at 480V REACTOR MOV BOARD 2A2-A.

_____ 1st

_____ CV

[49] **PLACE** 2-FIC-3-90, SG 3 MFW REG VLV at 2-M-3 in AUTO. _____

[50] **ADJUST** Test Signal 3 from Step 6.3[2.9] (SG Loop 3 Steam Flow) to between 12 and 16 mAdc. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[51] **VERIFY** the following:

[51.1] Red Light (FCV-3-90) ON at 2-XX-3-35. (**Acc Crit**) 5.0[7.7] _____

[51.2] Green Light (FCV-3-90) OFF at 2-XX-3-35. (**Acc Crit**) 5.0[7.7] _____

[51.3] 2-FCV-3-90 OPEN (locally, 740/T15N). _____

[51.4] IPCS Computer Point FD2001, SG3 & SG2 FW FLOW CONTROL, indicates ENERG. _____

[51.5] IPCS Computer Point FD2210, OPEN SG3 FW ISV 2-FCV-3-242, indicates ENERG. _____

[51.6] IPCS Computer Point FD2003, SG3 & SG2 FW FLOW CONTROL, indicates ENERG. _____

[52] **ADJUST** Test Signal 3 to between 12 and 8 mAdc. _____

[53] **VERIFY** the following:

[53.1] Red Light (FCV-3-90) OFF at 2-XX-3-35. (**Acc Crit**) 5.0[7.7] _____

[53.2] Green Light (FCV-3-90) ON at 2-XX-3-35. (**Acc Crit**) 5.0[7.7] _____

[53.3] 2-FCV-3-90 CLOSES (locally). _____

[54] **PLACE** 2-FIC-3-90, SG 3 MFW REG VLV at 2-M-3 in MANUAL. _____

NOTE

Steps 6.3[55-56] require valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[55] **ADJUST** output of 2-FIC-3-90, SG 3 MFW REG VLV at 2-M-3 to 100% (full open) using RAMP function for fast change. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[55.1] **RECORD** 2-FCV-3-90 remote opening time using light indication at 2-XX-3-35.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[55.2] **RECORD** local opening time at 2-FCV-3-90.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[56] **ADJUST** output of 2-FIC-3-90, SG 3 MFW REG VLV, at 2-M-3 to 0% (full closed) using RAMP function for fast change. _____

[56.1] **RECORD** 2-FCV-3-90 remote closing time using light indication at 2-XX-3-35.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[56.2] **RECORD** local closing time at 2-FCV-3-90.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[57] **ADJUST** output of 2-FIC-3-90, SG 3 MFW REG VLV at 2-M-3 to 100% (full open) using RAMP function for fast change. _____

[58] **VERIFY** using light indication at 2-XX-3-35, that 2-FCV-3-90 OPENS. _____

[59] **ENSURE** 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, is in the OPEN position. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

NOTE

Step 6.3[60] will cause 2-FCV-3-90A and 2-FCV-3-242 to fail CLOSE and requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations. 2-FCV-3-187 will also modulate throughout these next steps but is not tested for Acceptance Criteria until Step [89]

[60] **PLACE** Jumper 11 from 4.3[4]C to the OPEN/OFF position. _____

[60.1] **RECORD** remote closing time at 2-FCV-3-90A, SG #3 INLET FLOW CONT VLV BYPASS VLV, using light indication at 2-XX-3-35A. (**Acc Crit**) 5.0[11.1] _____

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

[60.2] **RECORD** local closing time at 2-FCV-3-90A. (**Acc Crit**) 5.0[11.1]

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

[60.3] **RECORD** remote closing time at 2-FCV-3-242, STEAM GENERATOR 3 MFW BYPASS LINE ISOL using light indication at 2-M-3. (**Acc Crit**) 5.0[20.3], 5.0[20.6]

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

[60.4] **RECORD** local closing time at 2-FCV-3-242 (729/A15X) (**Acc Crit**) 5.0[20.3]

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[60.5] **VERIFY** 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, remains OPEN using light indication at 2-XX-3-35. _____

[60.6] **VERIFY** 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, remains OPEN using light indication at 2-XX-3-35. _____

[60.7] **VERIFY** IPCS Computer Point FD2210, OPEN SG3 FW ISV 2-FCV-3-242, indicates NOT ENER. _____

[60.8] **VERIFY** Indicator light is ON at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

[61] **PLACE** Jumper 11 to the CLOSED/ON position. _____

[62] **VERIFY** using light indication at 2-XX-3-35A that 2-FCV-3-90A remains CLOSED. (**Acc Crit**) 5.0[11.2] _____

[63] **VERIFY** using light indication at 2-M-3 that 2-FCV-3-242, STEAM GENERATAOR 3 MFW BYPASS LINE ISOL, remains CLOSED. (**Acc Crit**) 5.0[20.4] _____

[64] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL AND

VERIFY:

[64.1] Using light indication at 2-XX-3-35A, that 2-FCV-3-90A OPENS. _____

[64.2] Using light indication at 2-M-3 that 2-FCV-3-242, STEAM GENERATAOR 3 MFW BYPASS LINE ISOL, OPENS. _____

[64.3] Indicator light is OFF at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

NOTE

Step 6.3[65] will cause 2-FCV-3-239 to fail CLOSE and requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[65] PLACE Jumper 5 from 4.3[3]A to the OPEN/OFF position. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[65.1] **RECORD** remote closing time at 2-FCV-3-239, STEAM GENERATOR 2 MFW BYPASS LINE ISOL using light indication at 2-M-3. (**Acc Crit**) 5.0[19.3]

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

[65.2] **RECORD** local closing time at 2-FCV-3-239 (**Acc Crit**) 5.0[19.3]

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

[65.3] **VERIFY** IPCS Computer Point FD2033, OPEN SG2 FW ISV 2-FCV-3-239, indicates NOT ENE. _____

[65.4] **VERIFY** 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, remains OPEN using light indication at 2-XX-3-35. _____

[65.5] **VERIFY** 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, remains OPEN using light indication at 2-XX-3-35. _____

[65.6] **VERIFY** Indicator light is ON at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

NOTE

Step 6.1[66] requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations. Jumper 11 and Jumper 5 are both required to be OPEN/OFF to simulate the Train B Feedwater Isolation Signal.

[66] **PLACE** Jumper 11 from 4.3[4]C to the OPEN/OFF position to simulate a Train B Feedwater Isolation Signal. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[66.1] **RECORD** remote closing time for 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE using light indication at 2-XX-3-35. (**Acc Crit**) 5.0[7.3]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[66.2] **RECORD** local closing time at 2-FCV-3-90. (**Acc Crit**) 5.0[7.3]

Seconds _____ (≤ 6.5s)

M&TE NO. _____ _____

[66.3] **RECORD** remote closing time at 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE using light indication at 2-XX-3-35. (**Acc Crit**) 5.0[6.3]

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

[66.4] **RECORD** local closing time at 2-FCV-3-48. (**Acc Crit**) 5.0[6.3]

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

[66.5] **VERIFY** IPCS Computer Point FD2358, SG2 & SG3 FW FLOW CONTROL, indicates DE-ENER. _____

[66.6] **VERIFY** IPCS Computer Point FD2003, SG3 & SG2 FW FLOW CONTROL, indicates DE-ENER. _____

[66.7] **VERIFY** Indicator light is ON at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

[67] **PLACE** Jumper 11 to the CLOSED/ON position (for ESFAS Train B relay reset). _____

[68] **PLACE** Jumper 5 to the CLOSED/ON position (for ESFAS Train B relay reset). _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[69] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, remains CLOSED. (**Acc Crit**) 5.0[7.4] _____

[70] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, remains CLOSED. (**Acc Crit**) 5.0[6.4] _____

[71] **VERIFY** using light indication at 2-M-3 that 2-FCV-3-239, STEAM GENERATAOR 2 MFW BYPASS LINE ISOL, remains CLOSED. (**Acc Crit**) 5.0[19.4] _____

[72] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL AND

VERIFY:

[72.1] Using light indication at 2-XX-3-35 that 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, OPENS. _____

[72.2] Using light indication at 2-XX-3-35 that 2-FCV-3-48, STEAM GENERATOR 2 MFW REG VALVE, OPENS. _____

[72.3] Using light indication at 2-M-3 that 2-FCV-3-239, STEAM GENERATAOR 2 MFW BYPASS LINE ISOL, OPENS. _____

[72.4] Indicator light is OFF at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

NOTE

Steps 6.3[xxxxx] will test the loss of Control Power. Using 2-HS-3-945A will also affect valves in other loops.

[73] **PLACE** 2-HS-3-945B, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to OFF, located at 2-JB-292-8223 (757/A11Q) **AND**

VERIFY: _____

[73.1] Using light indication at 2-XX-3-35 that 2-FCV-3-90 CLOSES. (**Acc Crit**) 5.0[7.5] _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[73.2] Using light indication at 2-XX-3-35 that 2-FCV-3-48 CLOSES. (**Acc Crit**) 5.0[6.5] _____

[73.3] Using light indication at 2-XX-3-35A that 2-FCV-3-90A, CLOSES. (**Acc Crit**) 5.0[11.3] _____

[73.4] Using light indication at 2-M-3 that 2-FCV-3-242 CLOSES. (**Acc Crit**) 5.0[20.5] _____

[74] **PLACE** 2-HS-3-945B, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to ON AND

VERIFY:

[74.1] Using light indication at 2-XX-3-35 that 2-FCV-3-90 remains CLOSED. _____

[74.2] Using light indication at 2-XX-3-35 that 2-FCV-3-48, remains CLOSED. _____

[74.3] Using light indication at 2-XX-3-35A that 2-FCV-3-90A remains CLOSED. _____

[74.4] Using light indication at 2-M-3 that 2-FCV-3-242 remains CLOSED. _____

[75] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL AND

VERIFY:

[75.1] Using light indication at 2-XX-3-35 that 2-FCV-3-90 OPENS. _____

[75.2] Using light indication at 2-XX-3-35 that 2-FCV-3-48 OPENS. _____

[75.3] Using light indication at 2-XX-3-35A that 2-FCV-3-90A OPENS. _____

[75.4] Using light indication at 2-M-3 that 2-FCV-3-242 OPENS. _____

[75.5] Indicator light is OFF at 2-HS-3-99B2. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[76] **PLACE** 2-HS-3-87A, SG #3 FW ISOL VLV SW, in the OPEN position at 2-M-3 AND

VERIFY by light indication that 2-FCV-3-87 OPENS. _____

NOTE

The following steps will test FORWARD FLUSH and BACK FLUSH capability via 2-HS-3-45

[77] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to FORWARD FLUSH AND

VERIFY:

[77.1] Using light indication at 2-HS-3-87A, SG #3 FW ISOL VLV SW, that 2-FCV-3-87 CLOSES. (**Acc Crit**) 5.0[3.5] _____

[77.2] Using light indication at 2-XX-3-35, that 2-FCV-3-90 remains OPEN. _____

[77.3] That 2-FCV-3-193, MFW DEAERATION LINE LOOP 4 ISOL VLV, OPENS. _____

[78] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to BACK FLUSH AND

VERIFY:

[78.1] Using light indication at 2-XX-3-35 that 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, CLOSES. (**Acc Crit**) 5.0[7.6] _____

[78.2] Using light indication at 2-HS-3-87A, SG #3 FW ISOL VLV SW, that 2-FCV-3-87 OPENS when 2-FCV-3-90 is FULLY CLOSED. (**Acc Crit**) 5.0[3.6] _____

[78.3] That 2-FCV-3-193, MFW DEAERATION LINE LOOP 4 ISOL VLV, remains OPEN. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[79] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to NORMAL AND

VERIFY:

[79.1] Using light indication at 2-HS-3-87A, SG #3 FW ISOL VLV SW, that 2-FCV-3-87 remains OPEN. _____

[79.2] Using light indication at 2-XX-3-35 that 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, OPENS. _____

[79.3] That 2-FCV-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV, CLOSES. (**Acc Crit**) 5.0[24.6] _____

[80] **PLACE** 2-LIC-3-90A, SG 3 MFW BYPASS REG CONTROL at 2-M-3 in AUTO. _____

[81] **ADJUST** Test Signal 5 (from Step 6.3[3.3]) for a voltage output between 0 and 5V at Panel 2-R-25. (NIS) _____

[82] **VERIFY** the following:

[82.1] Red Light (FCV-3-90A) ON at 2-XX-3-35A. _____

[82.2] Green Light (FCV-3-90A) OFF at 2-XX-3-35A. _____

[82.3] 2-FCV-3-90A is OPEN (locally). _____

[83] **ADJUST** Test Signal 4 current source (from Step 6.3[2.12]) to 12 mAdc. (Steam Flow) _____

[84] **ADJUST** Test Signal 5 voltage output to 5V. (NIS) _____

[85] **ADJUST** Test Signal 6 current source (from Step 6.3[3.6]) to 12 mAdc. (Validated NIS) _____

[86] **VERIFY** the following:

[86.1] Red Light (FCV-3-90A) OFF at 2-XX-3-35A. _____

[86.2] Green Light (FCV-3-90A) ON at 2-XX-3-35A. _____

[86.3] 2-FCV-3-90A is CLOSED (locally). _____

[87] **PLACE** 2-LIC-3-90A SG 3 MFW BYPASS REG CONTROL at 2-M-3 in MANUAL. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

NOTE

Steps 6.3[88-89] require valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[88] **ADJUST** output of 2-LIC-3-90A, SG 3 MFW BYPASS REG CONTROL at 2-M-3 to 100% (full open) by using the RAMP function. _____

[88.1] **RECORD** 2-FCV-3-90A remote opening time using light indication at 2-XX-3-35A.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[88.2] **RECORD** local opening time at 2-FCV-3-90A.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[89] **ADJUST** output of 2-LIC-3-90A, SG 3 MFW BYPASS REG CONTROL at 2-M-3 to 0% (closed) by using the RAMP function. _____

[89.1] **RECORD** 2-FCV-3-90A remote closing time using light indication at 2-XX-3-35A.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[89.2] **RECORD** local closing time at 2-FCV-3-90A.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[90] **VERIFY** by light indication at 2-XX-3-35A that 2-FCV-3-90A is CLOSED. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[91] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to FORWARD FLUSH AND

VERIFY:

[91.1] Using light indication at 2-XX-3-235, SG WATER HAMMER PREVENT, that 2-FCV-3-193, MFW DEAERATION LINE LOOP 3 ISOL, OPENS. (**Acc Crit**) 5.0[24.4] _____

[91.2] Red light OFF (FCV-3-187 Closed) at 2-XX-3-235. (**Acc Crit**) 5.0[16.5] _____

[91.3] Green light ON (FCV-3-187 Closed) at 2-XX-3-235. (**Acc Crit**) 5.0[16.5] _____

[91.4] 2-FCV-3-187, STEAM GENERATOR 3 MFW BACKFLUSH WARMING, OPEN (locally 729/A14X) _____

[91.5] Using light indication at 2-XX-3-35, that 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, is OPEN. _____

[92] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to BACK FLUSH AND

VERIFY:

[92.1] Using light indication at 2-XX-3-235, that 2-FCV-3-193, MFW DEAERATION LINE LOOP 3 ISOL, remains OPEN. (**Acc Crit**) 5.0[24.5] _____

[92.2] Red light ON (FCV-3-187 Open) at 2-XX-3-235. (**Acc Crit**) 5.0[16.5] _____

[92.3] Green light OFF (FCV-3-187 Open) at 2-XX-3-235. (**Acc Crit**) 5.0[16.5] _____

[92.4] 2-FCV-3-187, STEAM GENERATOR #3 MFW BACKFLUSH WARMING, Opens (locally 729/A14X). (**Acc Crit**) 5.0[16.4] _____

[92.5] Using light indication at 2-XX-3-35, that 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE, CLOSES. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[93] **REMOVE** Fuse 2-FU-275-R77/K4, at Panel 2-R-77 (to simulate opening of 2-FCV-3-90, STEAM GENERATOR 3 MFW REG VALVE by de-energizing Relay ZS8). (DWG 45N2692-1)

_____ 1st

_____ CV

[94] **VERIFY** using light indication at 2-XX-3-235 that 2-FCV-3-187 CLOSES. _____

[95] **REPLACE** Fuse 2-FU-275-R77/K4, at Panel 2-R-77. _____ 1st

_____ CV

[96] **VERIFY** using light indication at 2-XX-3-235 that 2-FCV-3-187 OPENS. _____

NOTE

Steps 6.3[97.1-97.2] require valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[97] **PLACE** Jumper 11 to the OPEN/OFF position to simulate a Train B Feedwater Isolation. _____

[97.1] **RECORD** 2-FCV-3-187 remote closing time using light indication at 2-XX-3-235 at 2-M-3.
(**Acc Crit**) 5.0[16.1]

Seconds _____ (≤ 6.5 seconds)

M&TE NO. _____ _____

[97.2] **RECORD** local closing time at 2-FCV-3-187.
(**Acc Crit**) 5.0[16.1]

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[97.3] **VERIFY** the indicator light is ON at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

[98] **PLACE** Jumper 11 to the CLOSED/ON position. _____

[99] **VERIFY** using light indication at 2-XX-3-235 that 2-FCV-3-187 remains CLOSED. (**Acc Crit**) 5.0[16.2] _____

[100] **PRESS** 2-HS-3-99B2 AND

VERIFY:

[100.1] Using light indication at 2-XX-3-235 that 2-FCV-3-187 OPENS. _____

[100.2] Indicator light is OFF at 2-HS-3-99B2. _____

NOTE

The following step utilizes the 2-HS-3-193 pushbutton. When it is pressed, 2-FCV-3-193 will CLOSE and the OPEN. At the same time, when 2-FCV-3-193 leaves the FULL OPEN position, 2-FCV-3-187 will CLOSE. 2-FCV-3-1857 will OPEN again when 2-FCV-3-193 returns to FULL OPEN.

[101] **PRESS** CLOSE Pushbutton 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV at 2-JB-292-853, EL 729 Northeast Valve Room, outside. _____

[102] **VERIFY**, using light indication at 2-XX-3-235, that 2-FCV-3-193 CLOSES and then OPENS. _____

[103] **WHEN** 2-FCV-3-193 leaves the FULL OPEN position, **THEN**

VERIFY, using light indication at 2-XX-3-235, that 2-FCV-3-187 CLOSES. _____

[104] **WHEN** 2-FCV-3-193 returns to the FULL OPEN position, **THEN**

VERIFY, using light indication at 2-XX-3-235 that 2-FCV-3-187 OPENS. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[105] **PLACE** Jumper 12 to the OPEN/OFF position to simulate a LO-LO Steam Generator level signal. _____

[105.1] **RECORD** 2-FCV-3-187 remote closing time using light indication at 2-XX-3-235 at 2-M-3.

Seconds _____ (≤ 6.5s)

M&TE NO. _____ _____

[105.2] **RECORD** local closing time at 2-FCV-3-187.

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[106] **PLACE** Jumper 12 to the CLOSED/ON position. _____

[107] **VERIFY** Using light indication at 2-XX-3-235 that 2-FCV-3-187 OPENS. _____

NOTE

Step 6.3[108-109] will test the loss of Control Power. Using 2-HS-3-945B will also affect valves in other loops.

[108] **PLACE** 2-HS-3-945B, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to OFF, located at 2-JB-292-8223. _____

[109] **VERIFY**, using light indication at 2-XX-3-235 that 2-FCV-3-187 CLOSES. (**Acc Crit**) 5.0[16.3] _____

[110] **PLACE** 2-HS-3-945B, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to ON, located at 2-JB-292-8223. _____

[111] **VERIFY**, using light indication at 2-XX-3-235 that 2-FCV-3-187 remains CLOSED. _____

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[112] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL AND

VERIFY, using light indication at 2-XX-3-235 that 2-FCV-3-187 OPENS. _____

[113] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY:

[113.1] Using light indication at 2-XX-3-235 that 2-FCV-3-187 CLOSES. _____

[113.2] Using light indication at 2-XX-3-35 that 2-FCV-3-90 OPENS. _____

[114] **RESTORE** the 2-FCV-3-90 control loop as follows:

[114.1] **ENSURE** 2-FIC-3-90, SG 3 MFW REG VLV at 2-M-3 in MANUAL.

[114.2] **REMOVE** Test Signal 1 (SG Loop 3 MFW Flow) at Cable 2PM1551 from TB C2-7 at Panel 2-M-4. _____ 1st _____ CV

[114.3] **LAND** the following wires:

- Black wire in Cable 2PM1551 to TB C2-7 (4K8), at Panel 2-M-4. (45W2643-6) _____ 1st _____ CV
- White wire in Cable 2PM1551 to TB C2-7 (4K9), at Panel 2-M-4. _____ 1st _____ CV

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[114.4] **REMOVE** Test Signal 2 (SG Loop 3 MFW Flow) at Cable 2PM1552 from TB C2-7 at Panel 2-M-4.

_____ 1st

_____ CV

[114.5] **LAND** the following wires:

- Black wire in Cable 2PM1552 to TB C2-7 (7R8), at Panel 2-M-4. (45W2643-6)

_____ 1st

_____ CV

- White wire in Cable 2PM1552 to TB C2-7 (7R9), at Panel 2-M-4.

_____ 1st

_____ CV

[114.6] **REMOVE** Test Signal 3 (SG Loop 3 Steam Flow) at Cable 2PM1578 from TB C2-20 at Panel 2-M-4.

_____ 1st

_____ CV

[114.7] **LAND** the following wires:

- Black wire in Cable 2PM1578 to TB C2-20 (4F7) at Panel 2-M-4. (45W2643-6)

_____ 1st

_____ CV

- White wire in Cable 2PM1578 to TB C2-20 (4F8) at Panel 2-M-4.

_____ 1st

_____ CV

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[114.8] **REMOVE** Test Signal 4 (SG Loop 3 Steam Flow) at Cable 2PM1576 from TB C2-20 at Panel 2-M-4.

_____ 1st

_____ CV

[114.9] **LAND** the following wires:

- Black wire in Cable 2PM1576 to TB C2-20 (7G7) at Panel 2-M-4. (45W2643-6)

_____ 1st

_____ CV

- White wire in Cable 2PM1576 to TB C2-20 (7G8) at Panel 2-M-4.

_____ 1st

_____ CV

[115] **RESTORE** the 2-FCV-3-90A control loop as follows:

[115.1] **VERIFY/PLACE** 2-LIC-3-90A, SG 3 MFW BYPASS REG CONTROL at 2-M-3 in MANUAL.

_____

[115.2] **REMOVE** Test Signal 5 (NIS Channel 3 Power) at Cable 2PM552 from TB 25C at Panel 2-R-25. (45N2668-4)

_____ 1st

_____ CV

[115.3] **LAND** the following wires:

- N40207 in Cable 2PM552 to TB 25C, Terminal 7, at Panel 2-R-25.

_____ 1st

_____ CV

- N40208 in Cable 2PM552 to TB 25C, Terminal 8, at Panel 2-R-25.

_____ 1st

_____ CV

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[115.4] **REMOVE** Test Signal 6 (Validated NIS Power) at Cable 2PM8880 from TB 24W at Panel 2-R-24. (45N2668-3)

_____ 1st

_____ CV

[115.5] **LAND** the following wires:

- 24W7 in Cable 2PM8880 to TB 24W, Terminal 7, at Panel 2-R-24.

_____ 1st

_____ CV

- 24W8 in Cable 2PM8880 to TB 24W, Terminal 8, at Panel 2-R-24.

_____ 1st

_____ CV

[116] **RESTORE** the Steam Generator 3 Feedwater Isolation Signals as follows:

[116.1] **REMOVE** Jumper 9 (Step 4.3[4]A) AND

LAND the black wire (3AP) in Cable 2SG111A to TB648-1 at 2-R-48.

_____ 1st

_____ CV

[116.2] **REMOVE** Jumper 10 (Step 4.3[4]B) AND

LAND the black wire (4DCT) in Cable 2V2993A to TB622-7 at 2-R-48.

_____ 1st

_____ CV

Date _____

6.3 Steam Generator Loop 3 Valves (continued)

[116.3] **REMOVE** Jumper 11 (Step 4.3[4]C) AND

LAND the black wire (3BP) in Cable 2SG131B to TB648-1 at 2-R-51.

_____ 1st

_____ CV

[116.4] **REMOVE** Jumper 12 (Step 4.3[4]D) AND

LAND the green wire (4B5) in Cable 2SG135B to TB633-3 at 2-R-51.

_____ 1st

_____ CV

Date _____

6.4 Steam Generator Loop 4 Valves

[1] **VERIFY** prerequisites for this Subsection have been satisfied. _____

[2] **SETUP** the 2-FCV-3-103 STEAM GENERATOR 4 MFW REG VALVE, control loop as follows:

[2.1] **ENSURE** 2-FIC-3-103, SG 4-MFW REG VLV controller at 2-M-3 in MANUAL AND

ADJUST for 0 demand (no demand for MFW flow). _____

NOTE

For Steps 6.4[2.2] through [3.7], the black wire is positive (+) and white wire is negative (-)

[2.2] **LIFT** the following wires:

- Black wire in Cable 2PM1670 from TB C2-8 (4R8) at Panel 2-M-4. (See drawing 45W2643-6, 2-45N2655-1B)

_____ 1st

_____ CV

- White wire in Cable 2PM1670 from TB C2-8 (4R9) at Panel 2-M-4.

_____ 1st

_____ CV

[2.3] **INSTALL** a process calibrator to simulate Test Signal 1 (SG Loop 4 MFW Flow) at Cable 2PM1670.

M&TE No. _____

_____ 1st

_____ CV

[2.4] **ADJUST** Test Signal 1 current source to 4mAdc. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[2.5] **LIFT** the following wires:

- Black wire in Cable 2PM1671 from TB C2-8 (8R8) at Panel 2-M-4. (Dwg 45W2643-6, 2-45N2655-1B)

  _____ 1st

  _____ CV

- White wire in Cable 2PM1671 from TB C2-8 (8R9) at Panel 2-M-4.

  _____ 1st

  _____ CV

[2.6] **INSTALL** a process calibrator to simulate Test Signal 2 (SG Loop 4 MFW Flow) at Cable 2PM1670.

M&TE No. _____

_____ 1st

_____ CV

[2.7] **ADJUST** Test Signal 2 current source to the same setting of Step 6.4[2.4].

_____

[2.8] **Lift** the following wires:

- Black wire in Cable 2PM1698 from TB C2-21 (4G7) at Panel 2-M-4. (See Dwg 45W2643-6, 2-45N2655-1B)

  _____ 1st

  _____ CV

- White wire in Cable 2PM1698 from TB C2-21 (4G8) at Panel 2-M-4.

  _____ 1st

  _____ CV

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[2.9] **INSTALL** a process calibrator to simulate Test Signal 3 (SG Loop 4 Steam Flow) at Cable 2PM1698.

M&TE No. _____ _____ 1st _____ CV

[2.10] **ADJUST** Test Signal 3 current source to the same setting of Step 6.4[2.4]. _____

[2.11] **LIFT** the following wires:

- Black wire in Cable 2PM1697 from TB C2-21 (8G7) at Panel 2-M-4. (45W2643-6, 2-45N2655-1B) _____ 1st _____ CV

- White wire in Cable 2PM1697 from TB C2-21 (8G8) at Panel 2-M-4. _____ 1st _____ CV

[2.12] **INSTALL** a process calibrator to simulate Test Signal 4 (SG Loop 4 Steam Flow) at Cable 2PM1697.

M&TE No. _____ _____ 1st _____ CV

[2.13] **ADJUST** Test Signal 4 current source to the same setting of Step 6.4[2.4]. _____

[2.14] **VERIFY** the following:

A. Red Light (2-FCV-3-103) OFF at 2-XX-3-35, MFW REG Status Light Box at 2-M-3. _____

B. Green Light (FCV-3-103) ON at 2-XX-3-35. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

C. 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE is CLOSED (locally 739/C12P). _____

[3] **SETUP** the 2-FCV-3-103A, STEAM GENERATOR 4 MFW REG VALVE, control loop as follows:

[3.1] **VERIFY/PLACE** 2-LIC-3-103A, SG 4 MFW BYPASS REG CONTROL at 2-M-3-in MANUAL. _____

[3.2] **LIFT** the following wires:

- N40210 (T10 - black) in Cable 2PM553 from TB 25C at Panel 2-R-25. (See Drawing 45N2668-4, 45N2652-2)

_____ 1st

_____ CV

- N40211 (T11 - white) in Cable 2PM553 from TB 25C at Panel 2-R-25.

_____ 1st

_____ CV

[3.3] **INSTALL** a process calibrator to simulate Test Signal 5 (Simulates NIS Channel 4 Power) at Cable 2PM553.

_____ 1st

_____ CV

[3.4] **ADJUST** Test Signal 5 voltage source to 2V. _____

[3.5] **LIFT** the following wires:

- 24W10 (T10 - black) in Cable 2PM 8990 from TB24W at Panel 2-R-24. (See Drawing 45N2668-3, 2-45W2668-3A)

_____ 1st

_____ CV

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

- 24W11 (T11 - white) in Cable 2PM 8990 from TB24W at Panel 2-R-24.

_____ 1st

_____ CV

[3.6] **INSTALL** a process calibrator to simulate Test Signal 6 (Simulates Validated NIS Power) at Cable 2PM8990.

M&TE No. _____

_____ 1st

_____ CV

[3.7] **ADJUST** Test Signal 6 current source to 4mAdc. _____

[3.8] **VERIFY** the following:

A. Red Light (FCV-3-103A) OFF at 2-XX-3-35A, BYPASS REG Status Light Box at 2-M-3. _____

B. Green Light (FCV-3-103A) ON at 2-XX-3-35A. _____

C. 2-FCV-3-103A, STEAM GENERATOR 4 MFW REG VALVE is CLOSED (locally, 729/T15P). _____

[4] **PLACE** 2-HS-3-945A, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to ON, located at 2-JB-292-8205 (757/A12Q). _____

[5] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3 AND

VERIFY the indicator light at 2-HS-3-99A2 is OFF. _____

[6] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3 AND

VERIFY the indicator light at 2-HS-3-99B2 is OFF. _____

[7] **PLACE** 2-HS-3-100A, SG #4 MFW ISOL VLV at 2-M-3 to the OPEN position AND

VERIFY:

[7.1] 2-FCV-3-100, SG #4 MFW ISOL VLV FULLY OPENS (locally 729/A15X). _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[7.2] Red Light ON at 2-HS-3-100A. (**Acc Crit**) 5.0[4.4] _____

[7.3] Green Light OFF at 2-HS-3-100A. (**Acc Crit**) 5.0[4.4] _____

[7.4] Red Light ON at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD-2B2-B, Compt. 4D, 2-BKR-3-100, SG 4 MFW ISOL (2-FCV-3-100, SG #4 MFW ISOL VLV). _____

[7.5] Green Light OFF at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt. 4D, 2-BKR-3-100, SG 4 MFW ISOL (2-FCV-3-100, SG #4 MFW ISOL VLV). _____

[7.6] POWER ON Red Light ON at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt. 4D, 2-BKR-3-100 SG 4 MFW ISOL (2-FCV-3-100, SG #4 MFW ISOL VLV). _____

[7.7] IPCS Computer Point FD2031, SG4 FEEDWATER ISOLATION VALVE, indicates OPEN. (**Acc Crit**) 5.0[4.4] _____

[7.8] IPCS Computer Point FD2200, SG4 FEEDWATER ISOLATION VALVE, indicates PWR ON. _____

[8] **PLACE** 2-HS-3-100A in the CLOSE position AND

VERIFY:

[8.1] 2-FCV-3-100 is CLOSED, locally (729/A14U). _____

[8.2] Red Light OFF at 2-HS-3-100A. (**Acc Crit**) 5.0[4.4] _____

[8.3] Green Light ON at 2-HS-3-100A. (**Acc Crit**) 5.0[4.4] _____

[8.4] Red Light OFF at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 4D, 2-BKR-3-100, SG 4 MFW ISOL (2-FCV-3-100, SG #4 MFW ISOL VLV). _____

[8.5] Green Light ON at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 4D, 2-BKR-3-100, SG 4 MFW ISOL (2-FCV-3-100, SG #4 MFW ISOL VLV). _____

[8.6] IPCS Computer Point FD2031, SG4 FEEDWATER ISOLATION VALVE, indicates NOT OPEN. (**Acc Crit**) 5.0[4.4] _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[9] **PLACE** 2-HS-3-100A in the OPEN position AND

VERIFY:

[9.1] 2-FCV-3-100 is OPEN, locally (729/A15U). _____

[9.2] Red Light ON at 2-HS-3-100A. _____

[9.3] Green Light OFF at 2-HS-3-100A. _____

[10] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3, to NORMAL AND

VERIFY using light indication at 2-HS-3-100A that 2-FCV-3-100, SG #4 MFW ISOL VLV, is OPEN. _____

NOTE

Steps 6.4[10] require valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[11] **PLACE** Jumper 14 from 4.3[5]B to the CLOSED/ON position to simulate a Train B Feedwater Isolation Signal. _____

[11.1] **RECORD** remote closing time at 2-HS-3-100A.
(**Acc Crit**) 5.0[4.1]

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

[11.2] **RECORD** local closing time at 2-FCV-3-100, SG #4 MFW ISOL VLV,.
(**Acc Crit**) 5.0[4.1]

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

[11.3] **VERIFY** the indicator light is ON at 2-HS-3-99B2, RESET TR-B MFW ISOL at 2-M-3. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[12] **PLACE** Jumper 14 to the OPEN/OFF position for ESFAS Train B relay reset). _____

[13] **VERIFY** using light indication at 2-HS-3-100A that 2-FCV-3-100, SG #4 MFW ISOL VLV, remains CLOSED. (**Acc Crit**) 5.0[4.2] _____

[14] **PRESS** 2-HS-3-99B2, RESET TR-B MFW ISOL AND

VERIFY the indicator light is OFF at 2-HS-3-99B2 _____

NOTE

Step 6.4[15] requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[15] **PRESS** 2-HS-3-100A AND

[15.1] **RECORD** remote opening time at 2-HS-3-100A.

Seconds _____

M&TE No. _____ _____

[15.2] **RECORD** local opening time at 2-FCV-3-100, SG #4 MFW ISOL VLV.

Seconds _____

M&TE No. _____ _____

[16] **ENSURE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY using light indication at 2-HS-3-100A, that 2-FCV-3-100, SG #4 MFW ISOL VLV, is OPEN. _____

[17] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to FORWARD FLUSH AND

VERIFY using light indication at 2-HS-3-100A that 2-FCV-3-100, SG #4 MFW ISOL VLV, CLOSES. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[18] **REMOVE** Fuse 2-FU-275-R77/N1, at Panel 2-R-77 (to simulate opening of 2-FCV-3-103, STEAM GENERATOR 1 MFW REG VALVE by de-energizing Relay ZS4 (See DWG 2-45W600-57-33).

_____ 1st

_____ CV

[19] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to BACK FLUSH AND

VERIFY using light indication at 2-HS-3-100A that 2-FCV-3-100, SG #4 MFW ISOL VLV, remains CLOSED. _____

[20] **REPLACE** Fuse 2-FU-275-R77/N1, at Panel 2-R-77 AND

VERIFY using light indication at 2-HS-3-100A, SG #4 MFW ISOL VLV, that 2-FCV-3-100 OPENS. (**Acc Crit**) 5.0[4.4]

_____ 1st

_____ CV

[21] **PLACE** 2-HS-3-100C, SG #4 FW ISOL VLV SW, in the CLOSE position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 4D AND

VERIFY by light indication that 2-FCV-3-100, SG #4 MFW ISOL VLV remains OPEN. _____

[22] **REMOVE** Fuse 2-FU-213-B24/31N at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B at Compt. 4D, 2-BKR-3-100, SG 4 MFW ISOL (2-FCV-3-100, SG #4 MFW ISOL VLV) (45W760-3-7)

_____ 1st

_____ CV

[23] **VERIFY** the following:

[23.1] Red Light (VALVE OPEN) OFF at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 4D, 2-BKR-3-100, SG 4 MFW ISOL (2-FCV-3-100, SG #4 MFW ISOL VLV). _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[23.2] Green Light (VALVE CLOSED) OFF at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 4D, 2-BKR-3-100, SG 4 MFW ISOL (2-FCV-3-100, SG #4 MFW ISOL VLV). _____

[23.3] Red Light for POWER ON is OFF at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 4D, 2-BKR-3-100, SG 4 MFW ISOL (2-FCV-3-100, SG #4 MFW ISOL VLV). _____

[23.4] Red Light OFF at 2-HS-3-100A. _____

[23.5] Green Light OFF at 2-HS-3-100A. _____

[23.6] IPCS Computer Point FD2200, SG4 FEEDWATER ISOLATION VALVE, indicates PWR OFF. _____

[24] **PLACE** 2-HS-3-100A, SG #4 FW ISOL VLV SW, in the CLOSE position AND

VERIFY that 2-FCV-3-100, SG #4 MFW ISOL VLV, remains OPEN, locally (729/A14U). _____

[25] **PLACE** 2-HS-3-100C, SG #4 FW ISOL VLV SW, in the CLOSE position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 4D AND

VERIFY that 2-FCV-3-100, SG #4 MFW ISOL VLV, remains OPEN (locally). _____

[26] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY that 2-FCV-3-100, SG #4 MFW ISOL VLV, remains OPEN (locally). _____

[27] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to FORWARD FLUSH AND

VERIFY that 2-FCV-3-100, SG #4 MFW ISOL VLV, remains OPEN (locally). _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[28] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to BACK FLUSH AND

VERIFY that 2-FCV-3-100, SG #4 MFW ISOL VLV, remains OPEN (locally). _____

[29] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY that 2-FCV-3-100, SG #4 MFW ISOL VLV, remains OPEN (locally). _____

[30] **ENSURE** 2-HS-3-100C, STM GEN #4 ISOL VLV SW, in the NORMAL position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 4D. _____

[31] **PLACE** 2-XS-3-100, SG #4 FW ISOL VLV TRF SW, to the AUX position at 2-MCC-213-B2-B, 480V Reactor MOV BD 2B2-B, Compt 4D. _____

[32] **VERIFY** the following:

[32.1] Red Light (VALVE OPEN) ON at 2-MCC-213-B2-B, 480V Reactor MOV BD 2B2-B, Compt 4D, 2-BKR-3-100, SG 4 MFW ISOL (2-FCV-3-100, SG #4 MFW ISOL VLV). _____

[32.2] Green Light (VALVE CLOSED) OFF at 2-MCC-213-B2-B, 480V Reactor MOV BD 2B2-B, Compt 4D, 2-BKR-3-100, SG 4 MFW ISOL (2-FCV-3-100, SG #4 MFW ISOL VLV).). _____

[32.3] Red Light OFF at 2-HS-3-100A. _____

[32.4] Green Light OFF at 2-HS-3-100A. _____

[32.5] IPCS Computer Point FD2200, SG4 FEEDWATER ISOLATION VALVE, indicates PWR ON. _____

[32.6] Unit 2 Events Display Recorder indicates 150-C 480 RX MOV BD 2B1-B/2B2-B IN AUX is in ALARM (Red). _____

[32.7] 2-XA-55-6F, 150-C 480 RX MOV BD 2B1-B/2B2-B, ALARMS. (**Acc Crit**) 5.0[4.3] _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[33] **REPLACE** Fuse 2-FU-213-B24/31N at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B at Compt 4D, 2-BKR-3-100, SG 4 MFW ISOL (2-FCV-3-100, SG #4 MFW ISOL VLV).

_____ 1st

_____ CV

[34] **PLACE** 2-HS-3-100C, SG #4 FW ISOL VLV SW, in the CLOSE position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 4D AND

VERIFY by light indication at the breaker that 2-FCV-3-100 is CLOSED. _____

[35] **PLACE** 2-HS-3-100A, STM GEN #4 FW ISOL VLV SW, in the OPEN position at 2-M-3 AND

VERIFY by light indication at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 4D that 2-FCV-3-100 remains CLOSED. _____

[36] **PLACE** 2-HS-3-100C, SG #4 FW ISOL VLV SW, in the OPEN position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 4D AND

VERIFY by light indication at the breaker that 2-FCV-3-100 is OPEN. _____

[37] **ENSURE** 2-HS-3-100C, SG #4 FW ISOL VLV SW, in the NORMAL position at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 4D. _____

[38] **PLACE** 2-HS-3-100A, STM GEN #4 FW ISOL VLV SW, in the CLOSE position at 2-M-3 AND

VERIFY by light indication at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 4D that 2-FCV-3-100 remains OPEN. _____

[39] **PLACE** 2-XS-3-100, SG #4 FW ISOL VLV TRF SW, to the NORMAL position at 2-MCC-213-B2-B, 480V Reactor MOV BD 2B2-B, Compt 4D. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[40] **VERIFY** Unit 2 Events Display Recorder indicates 150-C 480 RX MOV BD 2B1-B/2B2-B IN AUX is NORMAL (Blue). _____

[41] **VERIFY** 2-XA-55-6F, 150-C 480 RX MOV BD 2B1-B/2B2-B, is CLEAR. _____

[42] **LIFT** wire 2 from the T1 Thermal Overload contact to disconnect thermal overload circuitry from 2-BKR-3-100, SG #4 MFW ISOL (2-FCV-3-100), Compt 4D at 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B.
(See DWG 2-45W760-3-7) _____ 1st _____ CV

[43] **VERIFY** Red Light is OFF at 2-MCC-213-B2-B, 480V Reactor MOV BD 2B2-B, Compt 6F. _____

[44] **PLACE** 2-HS-3-100A, STM GEN #4 FW ISOL VLV SW, in the CLOSE position at 2-M-3 AND

VERIFY by light indication that 2-FCV-3-100 remains OPEN. _____

[45] **PRESS AND HOLD** the armature of overload bypass Relay K1 in back of 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B, Compt 6F, to simulate an Overload Bypass. _____

[46] **PLACE** 2-HS-3-100A, STM GEN #4 FW ISOL VLV SW, in the CLOSE position at 2-M-3 AND

VERIFY by light indication that 2-FCV-3-100 CLOSES. _____

[47] **RELEASE** the armature of overload bypass Relay K1. _____

[48] **LAND** wire 2 from the T1 Thermal Overload contact from Step 6.4[42] at 2-BKR-3-100, SG 4 MFW ISOL (2-FCV-3-100), Compt 4D at 480V REACTOR MOV BOARD 2B2-B. _____ 1st _____ CV

[49] **PLACE** 2-FIC-3-103 SG 4 MFW REG VLV at 2-M-3 in AUTO. _____

[50] **ADJUST** Test Signal 3 from Step 6.4[2.9] (SG Loop 4 Steam Flow) to between 12 and 16 mAdc. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[51] **VERIFY** the following:

[51.1] Red Light (FCV-3-103) ON at 2-XX-3-35. (**Acc Crit**) 5.0[8.7] _____

[51.2] Green Light (FCV-3-103) OFF at 2-XX-3-35. (**Acc Crit**) 5.0[8.7] _____

[51.3] 2-FCV-3-103 OPEN (locally, 740/T15P). _____

[51.4] IPCS Computer Point FD2005, SG4 & SG1FW FLOW CONTROL VLV, indicates ENERG. _____

[51.5] IPCS Computer Point FD2062, OPEN SG4 FW ISOV 2-FCV-3-245, indicates ENERG. _____

[51.6] IPCS Computer Point FD1999, SG4 & SG1 FW FLOW CONTROL, indicates ENERG. _____

[52] **ADJUST** Test Signal 3 to between 12 and 8 mAdc. _____

[53] **VERIFY** the following:

[53.1] Red Light (FCV-3-103) OFF at 2-XX-3-35. **(Acc Crit)** 5.0[8.7] _____

[53.2] Green Light (FCV-3-103) ON at 2-XX-3-35. **(Acc Crit)** 5.0[8.7] _____

[53.3] 2-FCV-3-103 CLOSES (locally). _____

[54] **PLACE** 2-FIC-3-103, SG 4 MFW REG VLV at 2-M-3 in MANUAL. _____

NOTE

Steps 6.4[55-56] require valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[55] **ADJUST** output of 2-FIC-3-103, SG 4 MFW REG VLV at 2-M-3 to 100% (full open) using RAMP function for fast change. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[55.1] **RECORD** 2-FCV-3-103 remote opening time using light indication at 2-XX-3-35.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[55.2] **RECORD** local opening time at 2-FCV-3-103.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[56] **ADJUST** output of 2-FIC-3-103 to 0% (closed) using RAMP function for fast change. _____

[56.1] **RECORD** 2-FCV-3-103 remote closing time using light indication at 2-XX-3-35.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[56.2] **RECORD** local closing time at 2-FCV-3-103.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[57] **ADJUST** output of 2-FIC-3-103 to 100% (full open) using RAMP function for fast change. _____

[58] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-103 OPENS. _____

[59] **ENSURE** 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, is in the OPEN position. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

NOTE

Step 6.4[60] will cause 2-FCV-3-103A and 2-FCV-3-245 to fail CLOSE and requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations. 2-FCV-3-188 will also modulate throughout these next steps but is not tested for Acceptance Criteria until Step [89]

[60] **PLACE** Jumper 15 from 4.3[5]C to the OPEN/OFF position. _____

[60.1] **RECORD** remote closing time at 2-FCV-3-103A, SG #4 INLET FLOW CONT VLV BYPASS VLV, using light indication at 2-XX-3-35A. (**Acc Crit**) 5.0[12.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[60.2] **RECORD** local closing time at 2-FCV-3-103A. (**Acc Crit**) 5.0[12.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[60.3] **RECORD** remote closing time at 2-FCV-3-245, STEAM GENERATOR 4 MFW BYPASS LINE ISOL using light indication at 2-M-3. (**Acc Crit**) 5.0[21.1], 5.0[21.6]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[60.4] **RECORD** local closing time at 2-FCV-3-245 (729/A15U). (**Acc Crit**) 5.0[21.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[60.5] **VERIFY** 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE, remains OPEN, using light indication at 2-XX-3-35. _____

[60.6] **VERIFY** 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, remains OPEN, using light indication at 2-XX-3-35. _____

[60.7] **VERIFY** IPCS Computer Point FD2062, OPEN SG4 FW ISV 2-FCV-3-245, indicates NOT ENER. _____

[60.8] **VERIFY** indicator light is ON at 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3. _____

[61] **PLACE** Jumper 15 to the CLOSED/ON position. _____

[62] **VERIFY** using light indication at 2-XX-3-35A that 2-FCV-3-103A, SG #4 INLET FLOW CONT VLV BYPASS VLV, remains CLOSED. (**Acc Crit**) 5.0[12.2] _____

[63] **VERIFY** using light indication at 2-M-3 that 2-FCV-3-245, STEAM GENERATOR 4 MFW BYPASS LINE ISOL, remains CLOSED. (**Acc Crit**) 5.0[21.2] _____

[64] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL AND

VERIFY:

[64.1] Using light indication at 2-XX-3-35A that 2-FCV-3-103A, STEAM GENERATOR 4 MFW BYPASS REG VALVE, OPENS. _____

[64.2] Using light indication at 2-M-3 that 2-FCV-3-245, STEAM GENERATOR 4 MFW BYPASS LINE ISOL OPENS. _____

[64.3] Indicator light is OFF at 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

NOTE

Step 6.4[65] will cause 2-FCV-3-236 to fail CLOSE and requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[65] **PLACE** Jumper 1 from 4.3[2]A to the OPEN/OFF position. _____

[65.1] **RECORD** remote closing time at 2-FCV-3-236, STEAM GENERATOR 1 MFW BYPASS LINE ISOL using light indication at 2-M-3. (**Acc Crit**) 5.0[18.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[65.2] **RECORD** local closing time at 2-FCV-3-236 (279/A15U). (**Acc Crit**) 5.0[18.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[65.3] **VERIFY** IPCS Computer Point FD2208, OPEN SG1 FW ISV 2-FCV-3-236, indicates NOT ENER. _____

[65.4] **VERIFY** 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE, remains OPEN, using light indication at 2-XX-3-35. _____

[65.5] **VERIFY** 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, remains OPEN, using light indication at 2-XX-3-35. _____

[65.6] **VERIFY** Indicator light is ON at 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

NOTE

Step 6.4[66] requires valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations. Jumper 15 and Jumper 1 are both required to be OPEN/OFF to simulate the Train A Feedwater Isolation Signal.

[66] **PLACE** Jumper 15 to the OPEN/OFF position to simulate a Train A Feedwater Isolation Signal. _____

[66.1] **RECORD** remote closing time at 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE, using light indication at 2-XX-3-35. (**Acc Crit**) 5.0[8.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[66.2] **RECORD** local closing time at 2-FCV-3-103. (**Acc Crit**) 5.0[8.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[66.3] **RECORD** remote closing time at 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, using light indication at 2-XX-3-35. (**Acc Crit**) 5.0[5.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[66.4] **RECORD** local closing time at 2-FCV-3-35 (729/T15P). (**Acc Crit**) 5.0[5.1]

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[66.5] **VERIFY** IPCS Computer Point FD1999, SG4 &SG1FW FLOW CONTROL, indicates DE-ENER. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[66.6] **VERIFY** IPCS Computer Point FD2010, SG1 & SG4 FW FLOW CONTROL, indicates DE-ENER. _____

[66.7] **VERIFY** Indicator light is ON at 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3. _____

[67] **PLACE** Jumper 15 to the CLOSED/ON position (for ESFAS Train A relay reset). _____

[68] **PLACE** Jumper 1 to the CLOSED/ON position (for ESFAS Train A relay reset). _____

[69] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE, remains CLOSED. (**Acc Crit**) 5.0[8.2] _____

[70] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, remains CLOSED. (**Acc Crit**) 5.0[5.2] _____

[71] **VERIFY** using light indication at 2-M-3 that 2-FCV-3-236, STEAM GENERATOR 1 MFW BYPASS LINE ISOL, remains CLOSED. (**Acc Crit**) 5.0[18.2] _____

[72] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL AND

VERIFY:

[72.1] Using light indication at 2-XX-3-35 that 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE, OPENS. _____

[72.2] Using light indication at 2-XX-3-35 that 2-FCV-3-35, STEAM GENERATOR 1 MFW REG VALVE, OPENS. _____

[72.3] Using light indication at 2-M-3 that 2-FCV-3-236, STEAM GENERATOR 1 MFW BYPASS LINE ISOL, OPENS. _____

[72.4] Indicator light is OFF at 2-HS-3-99A2 RESET TR-A MFW ISOL at 2-M-3. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

NOTE

Step 6.4[73.1-73.4] will test the loss of Control Power. Using 2-HS-3-945B will also affect valves in other loops.

[73] **PLACE** 2-HS-3-945A, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to OFF, located at 2-JB-292-8205, **AND** _____

VERIFY:

[73.1] Using light indication at 2-XX-3-35 that 2-FCV-3-103 CLOSES. (**Acc Crit**) 5.0[8.5] _____

[73.2] Using light indication at 2-XX-3-35 that 2-FCV-3-35 CLOSES. (**Acc Crit**) 5.0[5.5] _____

[73.3] Using light indication at 2-XX-3-35A that 2-FCV-3-103A, CLOSES. (**Acc Crit**) 5.0[12.3] _____

[73.4] Using light indication at 2-M-3 that 2-FCV-3-245 CLOSES. (**Acc Crit**) 5.0[21.5] _____

[74] **PLACE** 2-HS-3-945A, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to ON AND

VERIFY:

[74.1] Using light indication at 2-XX-3-35 that 2-FCV-3-103 remains CLOSED. _____

[74.2] Using light indication at 2-XX-3-35 that 2-FCV-3-35 remains CLOSED. _____

[74.3] Using light indication at 2-XX-3-35A that 2-FCV-3-103A remains CLOSED. _____

[74.4] Using light indication at 2-M-3 that 2-FCV-3-245 remains CLOSED. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[75] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL AND

VERIFY:

[75.1] Using light indication at 2-XX-3-35 that 2-FCV-3-103 OPENS. _____

[75.2] Using light indication at 2-XX-3-35 that 2-FCV-3-35 OPENS. _____

[75.3] Using light indication at 2-XX-3-35A that 2-FCV-3-103A OPENS. _____

[75.4] Using light indication at 2-M-3 that 2-FCV-3-245 OPENS. _____

[75.5] Indicator light is OFF at 2-HS-3-99A2. _____

[76] **PLACE** 2-HS-3-100A, SG #4 FW ISOL VLV SW, in the OPEN position at 2-M-3 AND

VERIFY by light indication that 2-FCV-3-100 OPENS. _____

NOTE

The following steps will test FORWARD FLUSH and BACK FLUSH capability via 2-HS-3-45

[77] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to FORWARD FLUSH AND

VERIFY:

[77.1] Using light indication at 2-HS-3-100A, SG #4 FW ISOL VLV SW, that 2-FCV-3-100 CLOSES. (**Acc Crit**) 5.0[4.5] _____

[77.2] Using light indication at 2-XX-3-35, that 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE, remains OPEN. _____

[77.3] That 2-FCV-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV, OPENS. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[78] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to BACK FLUSH AND

VERIFY:

[78.1] Using light indication at 2-XX-3-35, that 2-FCV-3-103,STEAM GENERATOR 2 MFW REG VALVE, CLOSES. (**Acc Crit**) 5.0[8.6] _____

[78.2] Using light indication at 2-HS-3-100A, SG #4 FW ISOL VLV SW, that 2-FCV-3-100 OPENS when 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE, CLOSES. (**Acc Crit**) 5.0[4.6] _____

[78.3] That 2-FCV-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV, remains OPEN. _____

[79] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to NORMAL AND

VERIFY:

[79.1] Using light indication at 2-HS-3-100A, SG #4 FW ISOL VLV SW, that 2-FCV-3-100 remains OPEN. _____

[79.2] Using light indication at 2-XX-3-35 that 2-FCV-3-103,STEAM GENERATOR 4 MFW REG VALVE, remains OPEN. _____

[79.3] That 2-FCV-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV, CLOSES. (**Acc Crit**) 5.0[25.6] _____

[80] **PLACE** 2-LIC-3-103A, SG 4 MFW BYPASS REG CONTROL at 2-M-3 in AUTO. _____

[81] **ADJUST** Test Signal 5 (from Step 6.4[3.3]) for a voltage output between 0 and 5V at Panel 2-R-25. (NIS) _____

[82] **VERIFY** the following:

[82.1] Red Light (FCV-3-103A) ON at 2-XX-3-35A _____

[82.2] Green Light (FCV-3-103A) OFF at 2-XX-3-35A. _____

[82.3] 2-FCV-3-103A is OPEN (locally). _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[83] **ADJUST** Test Signal 4 current source (from Step 6.4[2.12]) to 12 mAdc. (Steam Flow) _____

[84] **ADJUST** Test Signal 5 voltage output to 5V. (NIS) _____

[85] **ADJUST** Test Signal 6 current source (from Step 6.4[3.6]) to 12 mAdc. (Validated NIS) _____

[86] **VERIFY** the following:

[86.1] Red Light (FCV-3-103A) OFF at 2-XX-3-35A,. _____

[86.2] Green Light (FCV-3-103A) ON at 2-XX-3-35A. _____

[86.3] 2-FCV-3-103A is CLOSED (locally). _____

[87] **PLACE** 2-LIC-3-103A, SG 4 MFW BYPASS REG CONTROL at 2-M-3 in MANUAL. _____

NOTE

Steps 6.4[88-89] require valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[88] **ADJUST** output of 2-LIC-3-103A to 100% (full open) by using the RAMP function. _____

[88.1] **RECORD** 2-FCV-3-103A remote opening time using light indication at 2-XX-3-35A.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[88.2] **RECORD** local opening time at 2-FCV-3-103A.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[89] **ADJUST** output of 2-LIC-3-103A to 0% (closed) by using the RAMP function. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[89.1] **RECORD** 2-FCV-3-103A remote closing time using light indication at 2-XX-3-35A.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[89.2] **RECORD** local closing time at 2-FCV-3-103A.

Seconds _____ (≤ 20 seconds)

M&TE No. _____ _____

[90] **VERIFY** by light indication at 2-XX-3-35A that 2-FCV-3-103A is CLOSED. _____

[91] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH to FORWARD FLUSH AND

VERIFY:

[91.1] Using light indication at 2-XX-3-235, SG WATER HAMMER PREVENT STATUS LIGHT BOX that 2-FCV-3-194, MFW DEAERATION LINE LOOP 4 ISOL, OPENS. (**Acc Crit**) 5.0[25.4] _____

[91.2] Red light OFF (FCV-3-188 Closed) at 2-XX-3-235. (**Acc Crit**) 5.0[17.5] _____

[91.3] Green light ON (FCV-3-188 Closed) at 2-XX-3-235. (**Acc Crit**) 5.0[17.5] _____

[91.4] 2-FCV-3-188, STEAM GENERATOR 4 MFW BACKFLUSH WARMING, CLOSED (locally 729/A14U). (**Acc Crit**) 5.0[17.4] _____

[91.5] Using light indication at 2-XX-3-35, that 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE, is OPEN. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[92] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, to BACK FLUSH AND

VERIFY:

[92.1] Using light indication at 2-XX-3-235 that 2-FCV-3-194, MFW DEAERATION LINE LOOP 4 ISOL, remains OPEN. (**Acc Crit**) 5.0[25.5] _____

[92.2] Red light ON (FCV-3-188 Open) at 2-XX-3-235. (**Acc Crit**) 5.0[17.5] _____

[92.3] Green light OFF (FCV-3-188 Open) at 2-XX-3-235. (**Acc Crit**) 5.0[17.5] _____

[92.4] 2-FCV-3-188, STEAM GENERATOR #4 MFW BACKFLUSH WARMING, OPENS (locally 729/A14U). (**Acc Crit**) 5.0[17.4] _____

[92.5] Using light indication at 2-XX-3-35, that 2-FCV-3-103, STEAM GENERATOR 4 MFW REG VALVE, CLOSES. _____

[93] **REMOVE** Fuse 2-FU-275-R74/K14, at Panel 2-R-74 (to simulate opening of 2-FCV-3-103 by de-energizing Relay ZS7). (DWG 45N2689-1) _____ 1st _____ CV

[94] **VERIFY** using light indication at 2-XX-3-235 that 2-FCV-3-188 CLOSES. _____

[95] **REPLACE** Fuse 2-FU-275-R74/K14, at Panel 2-R-74. _____ 1st _____ CV

[96] **VERIFY** using light indication at 2-XX-3-235 that 2-FCV-3-188 OPENS. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

NOTE

Steps 6.4[97.1-97.2] require valve stroke timing locally and remotely. The initiation of a 10 second countdown before starting the next step will ensure equal recording times at all locations.

[97] **PLACE** Jumper 15 to the OPEN/OFF position to simulate a Train A Feedwater Isolation. _____

[97.1] **RECORD** 2-FCV-3-188 remote closing time using light indication at 2-XX-3-235. (**Acc Crit**) 5.0[17.1]

Seconds _____ (≤ 6.5 seconds)

M&TE NO. _____ _____

[97.2] **RECORD** local closing time at 2-FCV-3-188. (**Acc Crit**) 5.0[17.1]

Seconds _____ (≤ 6.5 seconds)

M&TE No. _____ _____

[97.3] **VERIFY** the indicator light is ON at 2-HS-3-99A2, RESET TR-A MFW ISOL at 2-M-3. _____

[98] **PLACE** Jumper 15 to the CLOSED/ON position. _____

[99] **VERIFY** using light indication at 2-XX-3-235, that 2-FCV-3-188 remains CLOSED. (**Acc Crit**) 5.0[17.2] _____

[100] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL AND

VERIFY:

[100.1] Using light indication at 2-XX-3-235 that 2-FCV-3-188 OPENS. _____

[100.2] Indicator light is OFF at 2-HS-3-99A2. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

NOTE

The following step utilizes the 2-HS-3-194 pushbutton. When it is pressed, 2-FCV-3-194 will CLOSE and the OPEN. At the same time, when 2-FCV-3-194 leaves the FULL OPEN position, 2-FCV-3-188 will CLOSE. 2-FCV-3-188 will OPEN again when 2-FCV-3-194 returns to FULL OPEN.

[101] **PRESS** CLOSE Pushbutton 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV at 2-JB-292-851, EL 729 Southeast Valve Room, outside. _____

[102] **VERIFY**, using light indication at 2-XX-3-235, that 2-FCV-3-194 CLOSES then OPENS. _____

[103] **WHEN** 2-FCV-3-194 leaves the FULL OPEN position, **THEN**

VERIFY, using light indication at 2-XX-3-235, that 2-FCV-3-188 CLOSES. _____

[104] **WHEN** 2-FCV-3-194 returns to the FULL OPEN position, **THEN**

VERIFY, using light indication at 2-XX-3-235 that 2-FCV-3-188 OPENS. _____

[105] **PLACE** Jumper 16 to the OPEN/OFF position to simulate a LO-LO Steam Generator level signal. _____

[105.1] **RECORD** 2-FCV-3-188 remote closing time using light indication at 2-XX-3-235 at 2-M-3.

Seconds _____ (≤ 6.5s)

M&TE NO. _____ _____

[105.2] **RECORD** local closing time at 2-FCV-3-188.

Seconds _____ (≤ 6.5s)

M&TE No. _____ _____

[106] **PLACE** Jumper 16 to the CLOSED/ON position. _____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[107] **VERIFY** Using light indication at 2-XX-3-235 that 2-FCV-3-188, OPENS. _____

NOTE

Steps 6.4[108-109] will test the loss of Control Power. Using 2-HS-3-945A will also affect valves in other loops.

[108] **PLACE** 2-HS-3-945A, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to OFF, located at 2-JB-292-8205 (757/A10Q). _____

[109] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-188 CLOSES. (**Acc Crit**) 5.0[17.3] _____

[110] **PLACE** 2-HS-3-945A, HAND SWITCH FOR CONTROL BUILDING ISOLATION, to ON, located at 2-JB-292-8205 (757/A10Q). _____

[111] **VERIFY** using light indication at 2-XX-3-35 that 2-FCV-3-188 remains CLOSED. _____

[112] **PRESS** 2-HS-3-99A2, RESET TR-A MFW ISOL AND

VERIFY using light indication at 2-XX-3-235 that 2-FCV-3-188 OPENS. _____

[113] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL AND

VERIFY:

[113.1] Using light indication at 2-XX-3-235 that 2-FCV-3-188 CLOSES. _____

[113.2] Using light indication at 2-XX-3-35 that 2-FCV-3-103 OPENS. _____

[114] **RESTORE** the 2-FCV-3-103 control loop as follows:

[114.1] **ENSURE** 2-FIC-3-103, SG 4 MFW REG VLV at 2-M-3 in MANUAL.

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[114.2] **REMOVE** Test Signal 1 (SG Loop 4 MFW Flow) at Cable 2PM1670 from TB C2-8 at Panel 2-M-4.

_____ 1st

_____ CV

[114.3] **LAND** the following wires:

- Black wire in Cable 2PM1670 to TB C2-8 (4R8) at Panel 2-M-4. (45W2643-6)

_____ 1st

_____ CV

- White wire in Cable 2PM1670 to TB C2-8 (4R9) at Panel 2-M-4.

_____ 1st

_____ CV

[114.4] **REMOVE** Test Signal 2 (SG Loop 4 MFW Flow) at Cable 2PM1671 from TB C2-8 at Panel 2-M-4.

_____ 1st

_____ CV

[114.5] **LAND** the following wires:

- Black wire in Cable 2PM1671 to TB C2-8 (8R8) at Panel 2-M-4. (45W2643-6)

_____ 1st

_____ CV

- White wire in Cable 2PM1671 to TB C2-8 (8R9) at Panel 2-M-4.

_____ 1st

_____ CV

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[114.6] **REMOVE** Test Signal 3 (SG Loop 4 Steam Flow) at Cable 2PM1698 from TB C2-21 at Panel 2-M-4.

_____ 1st

_____ CV

[114.7] **LAND** the following wires:

- Black wire in Cable 2PM1698 to TB C2-21 (4G7) at Panel 2-M-4. (45W2643-6)

_____ 1st

_____ CV

- White wire in Cable 2PM1698 to TB C2-21 (4G8) at Panel 2-M-4.

_____ 1st

_____ CV

[114.8] **REMOVE** Test Signal 4 (SG Loop 4 Steam Flow) at Cable 2PM1697 from TB C2-21 at Panel 2-M-4.

_____ 1st

_____ CV

[114.9] **LAND** the following wires:

- Black wire in Cable 2PM1697 to TB C2-21 (8G7) at Panel 2-M-4. (45W2643-6)

_____ 1st

_____ CV

- White wire in Cable 2PM1697 to TB C2-21 (8G8) at Panel 2-M-4.

_____ 1st

_____ CV

[115] **RESTORE** the 2-FCV-3-90A control loop as follows:

[115.1] **VERIFY/PLACE** 2-LIC-3-48A, SG 4 MFW BYPASS REG CONTROL at 2-M-3 in MANUAL.

_____

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[115.2] **REMOVE** Test Signal 5 (NIS Channel 4 Power) at Cable 2PM553 from TB 25C at Panel 2-R-25. (45N2668-4)

_____ 1st

_____ CV

[115.3] **LAND** the following wires:

- N40210 in Cable 2PM553 to TB 25C, Terminal 10, at Panel 2-R-25.

_____ 1st

_____ CV

- N40211 in Cable 2PM553 to TB 25C, Terminal 11, at Panel 2-R-25.

_____ 1st

_____ CV

[115.4] **REMOVE** Test Signal 6 (Validated NIS Power) at Cable 2PM8990 from TB 24W at Panel 2-R-24. (45N2668-3)

_____ 1st

_____ CV

[115.5] **LAND** the following wires:

- 24W10 in Cable 2PM8990 to TB 24W, Terminal 10, at Panel 2-R-24.

_____ 1st

_____ CV

- 24W11 in Cable 2PM8990 to TB 24W, Terminal 11, at Panel 2-R-24.

_____ 1st

_____ CV

[116] **RESTORE** the Steam Generator 4 Feedwater Isolation Signals as follows:

Date _____

6.4 Steam Generator Loop 4 Valves (continued)

[116.1] **REMOVE** Jumper 13 (Step 4.3[5]A) AND

LAND the black wire (4BP) in Cable 2SG135B to TB649-1 at 2-R-51.

_____ 1st

_____ CV

[116.2] **REMOVE** Jumper 14 (Step 4.3[5]B) AND

LAND the black wire (4DCT) in Cable 2V3013B to TB622-7 at 2-R-51.

_____ 1st

_____ CV

[116.3] **REMOVE** Jumper 15 (Step 4.3[5]C) AND

LAND the black wire (4AP) in Cable 2SG115A to TB649-1 at 2-R-48.

_____ 1st

_____ CV

[116.4] **REMOVE** Jumper 16 (Step 4.3[5]D) AND

LAND the green wire (3A5) in Cable 2SG111A from TB633-3 at 2-R-48.

_____ 1st

_____ CV

Date _____

6.5 Steam Generator Feedwater Regulating Isolation Valves

NOTE

Sections 6.5.1 through 6.5.4 may be performed in any order.

6.5.1 2-FCV-3-250: Steam Generator 1 Feedwater Regulating Isolation Valve

[1] **VERIFY** that the prerequisites and field preparations applicable to this subsection have been completed. _____

[2] **DEPRESS** 2-HS-3-250B [T15M/729], STEAM GENERATOR 1 MFW REG VALVE ISOLATION, OPEN pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-250, STEAM GENERATOR 1 FW REG VALVE ISOLATION, is OPEN. **(Acc Crit)** 5.0[27.1] _____

B. Red light ON at 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[27.2] _____

C. Green light OFF at 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[27.2] _____

[3] **DEPRESS** 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION, CLOSE pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-250, STEAM GENERATOR 1 FW REG VALVE ISOLATION, is CLOSED. **(Acc Crit)** 5.0[27.1] _____

B. Red light OFF at 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[27.2] _____

C. Green light ON at 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[27.2] _____

Date _____

6.5.1 2-FCV-3-250: Steam Generator 1 Feedwater Regulating Isolation Valve (continued)

NOTE

Steps 6.5.1[4-5] must be performed in close succession so that the valve can be stopped in mid-position.

[4] **DEPRESS** 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION, OPEN pushbutton. _____

[5] **DEPRESS** 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION, STOP pushbutton before 2-FCV-3-250, STEAM GENERATOR 1 FW REG VALVE ISOLATION, reaches the OPEN position and

VERIFY the following:

A. 2-FCV-3-250, STEAM GENERATOR 1 FW REG VALVE ISOLATION, stops in mid-position. **(Acc Crit)** 5.0[27.3] _____

B. Red light ON at 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[27.2] _____

C. Green light ON at 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[27.2] _____

[6] **DEPRESS** 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION, OPEN pushbutton and

VERIFY the following:

A. 2-FCV-3-250, STEAM GENERATOR 1 FW REG VALVE ISOLATION, is OPEN. _____

B. Red light ON at 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION. _____

C. Green light OFF at 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION. _____

Date _____

6.5.1 2-FCV-3-250: Steam Generator 1 Feedwater Regulating Isolation Valve (continued)

NOTE

Steps 6.5.1[7-8] must be performed in close succession so that the valve can be stopped in mid-position.

[7] **DEPRESS** 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION, CLOSE pushbutton. _____

[8] **DEPRESS** 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION, STOP pushbutton before 2-FCV-3-250, STEAM GENERATOR 1 FW REG VALVE ISOLATION, reaches the CLOSED position and

VERIFY the following:

A. 2-FCV-3-250, STEAM GENERATOR 1 FW REG VALVE ISOLATION, stops in mid-position. **(Acc Crit)** 5.0[27.3] _____

B. Red light ON at 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[27.2] _____

C. Green light ON at 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[27.2] _____

[9] **DEPRESS** 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION, CLOSE pushbutton and

VERIFY the following:

A. 2-FCV-3-250, STEAM GENERATOR 1 FW REG VALVE ISOLATION, is CLOSED. _____

B. Red light OFF at 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION. _____

C. Green light ON at 2-HS-3-250B, STEAM GENERATOR 1 MFW REG VALVE ISOLATION. _____

Date _____

6.5.2 2-FCV-3-251: Steam Generator 2 Feedwater Regulating Isolation Valve

[1] **VERIFY** that the prerequisites and field preparations applicable to this subsection have been completed. _____

[2] **DEPRESS** 2-HS-3-251B [T15M/729], STEAM GENERATOR 2 MFW REG VALVE ISOLATION, OPEN pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-251, STEAM GENERATOR 2 FW REG VALVE ISOLATION, is OPEN. **(Acc Crit)** 5.0[28.1] _____

B. Red light ON at 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[28.2] _____

C. Green light OFF at 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[28.2] _____

[3] **DEPRESS** 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION, CLOSE pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-251, STEAM GENERATOR 2 FW REG VALVE ISOLATION, is CLOSED. **(Acc Crit)** 5.0[28.1] _____

B. Red light OFF at 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[28.2] _____

C. Green light ON at 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[28.2] _____

NOTE

Steps 6.5.2[4-5] must be performed in close succession so that the valve can be stopped in mid-position.

[4] **DEPRESS** 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION, OPEN pushbutton. _____

Date _____

6.5.2 2-FCV-3-251: Steam Generator 2 Feedwater Regulating Isolation Valve (continued)

[5] **DEPRESS** 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION, STOP pushbutton before 2-FCV-3-251, STEAM GENERATOR 2 FW REG VALVE ISOLATION, reaches the OPEN position and

VERIFY the following:

A. 2-FCV-3-251, STEAM GENERATOR 2 FW REG VALVE ISOLATION, stops in mid-position. **(Acc Crit)** 5.0[28.3] _____

B. Red light ON at 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[28.2] _____

C. Green light ON at 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[28.2] _____

[6] **DEPRESS** 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION, OPEN pushbutton and

VERIFY the following:

A. 2-FCV-3-251, STEAM GENERATOR 2 FW REG VALVE ISOLATION, is OPEN. _____

B. Red light ON at 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION. _____

C. Green light OFF at 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION. _____

NOTE

Steps 6.5.2[7-8] must be performed in close succession so that the valve can be stopped in mid-position.

[7] **DEPRESS** 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION, CLOSE pushbutton. _____

Date _____

6.5.2 2-FCV-3-251: Steam Generator 2 Feedwater Regulating Isolation Valve (continued)

[8] **DEPRESS** 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION, STOP pushbutton before 2-FCV-3-251, STEAM GENERATOR 2 FW REG VALVE ISOLATION, reaches the CLOSED position and

VERIFY the following:

A. 2-FCV-3-251, STEAM GENERATOR 2 FW REG VALVE ISOLATION, stops in mid-position. **(Acc Crit)** 5.0[28.3] _____

B. Red light ON at 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[28.2] _____

C. Green light ON at 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION.**(Acc Crit)** 5.0[28.2] _____

[9] **DEPRESS** 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION, CLOSE pushbutton and

VERIFY the following:

A. 2-FCV-3-251, STEAM GENERATOR 2 FW REG VALVE ISOLATION, is CLOSED. _____

B. Red light OFF at 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION. _____

C. Green light ON at 2-HS-3-251B, STEAM GENERATOR 2 MFW REG VALVE ISOLATION. _____

Date _____

6.5.3 2-FCV-3-252: Steam Generator 3 Feedwater Regulating Isolation Valve

[1] **VERIFY** that the prerequisites and field preparations applicable to this subsection have been completed. _____

[2] **DEPRESS** 2-HS-3-252B [T15M/729], STEAM GENERATOR 3 MFW REG VALVE ISOLATION, OPEN pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-252, STEAM GENERATOR 3 FW REG VALVE ISOLATION, is OPEN. **(Acc Crit)** 5.0[29.1] _____

B. Red light ON at 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[29.2] _____

C. Green light OFF at 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[29.2] _____

[3] **DEPRESS** 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION, CLOSE pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-252, STEAM GENERATOR 3 FW REG VALVE ISOLATION, is CLOSED. **(Acc Crit)** 5.0[29.1] _____

B. Red light OFF at 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[29.2] _____

C. Green light ON at 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[29.2] _____

NOTE

Steps 6.5.3[4-5] must be performed in close succession so that the valve can be stopped in mid-position.

[4] **DEPRESS** 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION, OPEN pushbutton. _____

Date _____

6.5.3 2-FCV-3-252: Steam Generator 3 Feedwater Regulating Isolation Valve (continued)

[5] **DEPRESS** 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION, STOP pushbutton before 2-FCV-3-252, STEAM GENERATOR 1 FW REG VALVE ISOLATION, reaches the OPEN position and

VERIFY the following:

A. 2-FCV-3-252, STEAM GENERATOR 3 FW REG VALVE ISOLATION, stops in mid-position. **(Acc Crit)** 5.0[29.3] _____

B. Red light ON at 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[29.2] _____

C. Green light ON at 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[29.2] _____

[6] **DEPRESS** 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION, OPEN pushbutton and

VERIFY the following:

A. 2-FCV-3-252, STEAM GENERATOR 3 FW REG VALVE ISOLATION, is OPEN. _____

B. Red light ON at 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION. _____

C. Green light OFF at 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION. _____

NOTE

Steps 6.5.3[7-8] must be performed in close succession so that the valve can be stopped in mid-position.

[7] **DEPRESS** 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION, CLOSE pushbutton. _____

Date _____

6.5.3 2-FCV-3-252: Steam Generator 3 Feedwater Regulating Isolation Valve (continued)

[8] **DEPRESS** 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION, STOP pushbutton before 2-FCV-3-252, STEAM GENERATOR 3 FW REG VALVE ISOLATION, reaches the CLOSED position and

VERIFY the following:

A. 2-FCV-3-252, STEAM GENERATOR 3 FW REG VALVE ISOLATION, stops in mid-position. **(Acc Crit)** 5.0[29.3] _____

B. Red light ON at 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[29.2] _____

C. Green light ON at 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[29.2] _____

[9] **DEPRESS** 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION, CLOSE pushbutton and

VERIFY the following:

A. 2-FCV-3-252 STEAM GENERATOR 3 FW REG VALVE ISOLATION, is CLOSED. _____

B. Red light OFF at 2-HS-3-252B, STEAM GENERATOR 3MFW REG VALVE ISOLATION. _____

C. Green light ON at 2-HS-3-252B, STEAM GENERATOR 3 MFW REG VALVE ISOLATION. _____

Date _____

6.5.4 2-FCV-3-253: Steam Generator 3 Feedwater Regulating Isolation Valve

[1] **VERIFY** that the prerequisites and field preparations applicable to this subsection have been completed. _____

[2] **DEPRESS** 2-HS-3-253B [T15M/729], STEAM GENERATOR 4 MFW REG VALVE ISOLATION, OPEN pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-253, STEAM GENERATOR 4 FW REG VALVE ISOLATION, is OPEN. **(Acc Crit)** 5.0[30.1] _____

B. Red light ON at 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[30.2] _____

C. Green light OFF at 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[30.2] _____

[3] **DEPRESS** 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION, CLOSE pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-253, STEAM GENERATOR 4 FW REG VALVE ISOLATION, is CLOSED. **(Acc Crit)** 5.0[30.1] _____

B. Red light OFF at 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[30.2] _____

C. Green light ON at 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[30.2] _____

NOTE

Steps 6.5.3[4-5] must be performed in close succession so that the valve can be stopped in mid-position.

[4] **DEPRESS** 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION, OPEN pushbutton. _____

Date _____

6.5.4 2-FCV-3-253: Steam Generator 3 Feedwater Regulating Isolation Valve (continued)

[5] **DEPRESS** 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION, STOP pushbutton before 2-FCV-3-253, STEAM GENERATOR 4 FW REG VALVE ISOLATION, reaches the OPEN position and

VERIFY the following:

A. 2-FCV-3-253, STEAM GENERATOR 4 FW REG VALVE ISOLATION, stops in mid-position. **(Acc Crit)** 5.0[30.3] _____

B. Red light ON at 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[30.2] _____

C. Green light ON at 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[30.2] _____

[6] **DEPRESS** 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION, OPEN pushbutton and

VERIFY the following:

A. 2-FCV-3-253, STEAM GENERATOR 4 FW REG VALVE ISOLATION, is OPEN. _____

B. Red light ON at 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION. _____

C. Green light OFF at 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION. _____

NOTE

Steps 6.5.4[7-8] must be performed in close succession so that the valve can be stopped in mid-position.

[7] **DEPRESS** 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION, CLOSE pushbutton. _____

Date _____

6.5.4 2-FCV-3-253: Steam Generator 3 Feedwater Regulating Isolation Valve (continued)

[8] **DEPRESS** 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION, STOP pushbutton before 2-FCV-3-253, STEAM GENERATOR 4 FW REG VALVE ISOLATION, reaches the CLOSED position and

VERIFY the following:

A. 2-FCV-3-253, STEAM GENERATOR 4 FW REG VALVE ISOLATION, stops in mid-position. **(Acc Crit)** 5.0[30.3] _____

B. Red light ON at 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[30.2] _____

C. Green light ON at 2-HS-3-250B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION. **(Acc Crit)** 5.0[30.2] _____

[9] **DEPRESS** 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION, CLOSE pushbutton and

VERIFY the following:

A. 2-FCV-3-253, STEAM GENERATOR 4 FW REG VALVE ISOLATION, is CLOSED. _____

B. Red light OFF at 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION. _____

C. Green light ON at 2-HS-3-253B, STEAM GENERATOR 4 MFW REG VALVE ISOLATION. _____

Date _____

6.6 MFW Deaeration Line Control Valves

6.6.1 2-FCV-3-191: MFW Deaeration Line Control

[1] **VERIFY** that the prerequisites and field preparations applicable to this subsection have been completed. _____

[2] **DEPRESS** 2-HS-3-191 [YARD/729], MFW DEAERATION LINE LOOP 1 ISOL VLV, OPEN pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-191, MFW DEAERATION LINE LOOP 1 ISOL, is OPEN. **(Acc Crit)** 5.0[22.1] _____

B. Red light ON at 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV. **(Acc Crit)** 5.0[22.2] _____

C. Green light OFF at 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV. **(Acc Crit)** 5.0[22.2] _____

[3] **DEPRESS** 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV, CLOSE pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-191, MFW DEAERATION LINE LOOP 1 ISOL, is CLOSED. **(Acc Crit)** 5.0[22.1] _____

B. Red light OFF at 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV. **(Acc Crit)** 5.0[22.2] _____

C. Green light ON at 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV. **(Acc Crit)** 5.0[22.2] _____

Date _____

6.6.1 2-FCV-3-191: MFW Deaeration Line Control (continued)

NOTE

Steps 6.6.1[4-5] must be performed in close succession so that the valve can be stopped in mid-position.

[4] **DEPRESS** 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV, OPEN pushbutton. _____

[5] **DEPRESS** 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV, STOP pushbutton before 2-FCV-3-191, MFW DEAERATION LINE LOOP 2 ISOL, reaches the OPEN position and

VERIFY the following:

A. 2-FCV-3-191, MFW DEAERATION LINE LOOP 1 ISOL, stops in mid-position. **(Acc Crit)** 5.0[22.3] _____

B. Red light ON at 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV. **(Acc Crit)** 5.0[22.2] _____

C. Green light ON at 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV. **(Acc Crit)** 5.0[22.2] _____

[6] **DEPRESS** 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV, OPEN pushbutton and

VERIFY the following:

A. 2-FCV-3-191, MFW DEAERATION LINE LOOP 1 ISOL, is OPEN. _____

B. Red light ON at 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV. _____

C. Green light OFF at 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV. _____

Date _____

6.6.1 2-FCV-3-191: MFW Deaeration Line Control (continued)

NOTE

Steps 6.6.1[7-8] must be performed in close succession so that the valve can be stopped in mid-position.

[7] **DEPRESS** 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV, CLOSE pushbutton. _____

[8] **DEPRESS** 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV, STOP pushbutton before 2-FCV-3-191, MFW DEAERATION LINE CONTROL, reaches the CLOSED position and

VERIFY the following:

A. 2-FCV-3-191, MFW DEAERATION LINE LOOP 1 ISOL, stops in mid-position. **(Acc Crit)** 5.0[22.3] _____

B. Red light ON at 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV. **(Acc Crit)** 5.0[22.2] _____

C. Green light ON at 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV. **(Acc Crit)** 5.0[22.2] _____

[9] **DEPRESS** 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV, CLOSE pushbutton and

VERIFY the following:

A. 2-FCV-3-191, MFW DEAERATION LINE LOOP 1 ISOL, is CLOSED. _____

B. Red light OFF at 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV. _____

C. Green light ON at 2-HS-3-191, MFW DEAERATION LINE LOOP 1 ISOL VLV. _____

Date _____

6.6.2 2-FCV-3-192: MFW Deaeration Line Control

[1] **VERIFY** that the prerequisites and field preparations applicable to this subsection have been completed. _____

[2] **DEPRESS** 2-HS-3-192 [YARD/729], MFW DEAERATION LINE LOOP 2 ISOL VLV, OPEN pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-192, MFW DEAERATION LINE LOOP 2 ISOL, is OPEN. **(Acc Crit)** 5.0[23.1] _____

B. Red light ON at 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV. **(Acc Crit)** 5.0[23.2] _____

C. Green light OFF at 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV. **(Acc Crit)** 5.0[23.2] _____

[3] **DEPRESS** 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV, CLOSE pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-192, MFW DEAERATION LINE LOOP 2 ISOL, is CLOSED. **(Acc Crit)** 5.0[23.1] _____

B. Red light OFF at 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV. **(Acc Crit)** 5.0[23.2] _____

C. Green light ON at 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV. **(Acc Crit)** 5.0[23.2] _____

NOTE

Steps 6.6.2[4-5] must be performed in close succession so that the valve can be stopped in mid-position.

[4] **DEPRESS** 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV, OPEN pushbutton. _____

Date _____

6.6.2 2-FCV-3-192: MFW Deaeration Line Control (continued)

[5] **DEPRESS** 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV, STOP pushbutton before 2-FCV-3-192, MFW DEAERATION LINE LOOP 2 ISOL, reaches the OPEN position and

VERIFY the following:

A. 2-FCV-3-192, MFW DEAERATION LINE LOOP 2 ISOL, stops in mid-position. **(Acc Crit)** 5.0[23.3] _____

B. Red light ON at 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV. **(Acc Crit)** 5.0[23.2] _____

C. Green light ON at 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV. **(Acc Crit)** 5.0[23.2] _____

[6] **DEPRESS** 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV, OPEN pushbutton and

VERIFY the following:

A. 2-FCV-3-192, MFW DEAERATION LINE LOOP 2 ISOL, is OPEN. _____

B. Red light ON at 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV. _____

C. Green light OFF at 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV. _____

NOTE

Steps 6.6.2[7-8] must be performed in close succession so that the valve can be stopped in mid-position.

[7] **DEPRESS** 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV, CLOSE pushbutton. _____

Date _____

6.6.2 2-FCV-3-192: MFW Deaeration Line Control (continued)

[8] **DEPRESS** 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV, STOP pushbutton before 2-FCV-3-192, MFW DEAERATION LINE CONTROL, reaches the CLOSED position and

VERIFY the following:

A. 2-FCV-3-192, MFW DEAERATION LINE LOOP 2 ISOL, stops in mid-position. **(Acc Crit)** 5.0[23.3] _____

B. Red light ON at 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV. **(Acc Crit)** 5.0[23.2] _____

C. Green light ON at 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV. **(Acc Crit)** 5.0[23.2] _____

[9] **DEPRESS** 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV, CLOSE pushbutton and

VERIFY the following:

A. 2-FCV-3-192, MFW DEAERATION LINE LOOP 2 ISOL, is CLOSED. _____

B. Red light OFF at 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV. _____

C. Green light ON at 2-HS-3-192, MFW DEAERATION LINE LOOP 2 ISOL VLV. _____

Date _____

6.6.3 2-FCV-3-193: MFW Deaeration Line Control

[1] **VERIFY** that the prerequisites and field preparations applicable to this subsection have been completed. _____

[2] **DEPRESS** 2-HS-3-193 [YARD/729], MFW DEAERATION LINE LOOP 3 ISOL VLV, OPEN pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-193, MFW DEAERATION LINE LOOP 3 ISOL, is OPEN. **(Acc Crit)** 5.0[24.1] _____

B. Red light ON at 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV. **(Acc Crit)** 5.0[24.2] _____

C. Green light OFF at 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV. **(Acc Crit)** 5.0[24.2] _____

[3] **DEPRESS** 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV, CLOSE pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-193, MFW DEAERATION LINE LOOP 3 ISOL, is CLOSED. **(Acc Crit)** 5.0[24.1] _____

B. Red light OFF at 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV. **(Acc Crit)** 5.0[24.2] _____

C. Green light ON at 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV. **(Acc Crit)** 5.0[24.2] _____

NOTE

Steps 6.6.3[4-5] must be performed in close succession so that the valve can be stopped in mid-position.

[4] **DEPRESS** 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV, OPEN pushbutton. _____

Date _____

6.6.3 2-FCV-3-193: MFW Deaeration Line Control (continued)

[5] **DEPRESS** 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV, STOP pushbutton before 2-FCV-3-193, MFW DEAERATION LINE LOOP 3 ISOL, reaches the OPEN position and

VERIFY the following:

A. 2-FCV-3-193, MFW DEAERATION LINE LOOP 3 ISOL, stops in mid-position. **(Acc Crit)** 5.0[24.3] _____

B. Red light ON at 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV. **(Acc Crit)** 5.0[24.2] _____

C. Green light ON at 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV. **(Acc Crit)** 5.0[24.2] _____

[6] **DEPRESS** 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV, OPEN pushbutton and

VERIFY the following:

A. 2-FCV-3-193, MFW DEAERATION LINE LOOP 3 ISOL, is OPEN. _____

B. Red light ON at 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV. _____

C. Green light OFF at 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV. _____

NOTE

Steps 6.6.3[7-8] must be performed in close succession so that the valve can be stopped in mid-position.

[7] **DEPRESS** 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV, CLOSE pushbutton. _____

Date _____

6.6.3 2-FCV-3-193: MFW Deaeration Line Control (continued)

[8] **DEPRESS** 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV, STOP pushbutton before 2-FCV-3-193, MFW DEAERATION LINE LOOP 3 ISOL, reaches the CLOSED position and

VERIFY the following:

A. 2-FCV-3-193, MFW DEAERATION LINE LOOP 3 ISOL, stops in mid-position. **(Acc Crit)** 5.0[24.3] _____

B. Red light ON at 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV. **(Acc Crit)** 5.0[24.2] _____

C. Green light ON at 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV. **(Acc Crit)** 5.0[24.2] _____

[9] **DEPRESS** 2-HS-3-193, MFW DEAERATION LINE LOOP 3 ISOL VLV, CLOSE pushbutton and

VERIFY the following:

A. 2-FCV-3-193, MFW DEAERATION LINE LOOP 3 ISOL, is CLOSED. _____

B. Red light OFF at 2-HS-3-193, MFW DEAERATION LINE LOOP 2 ISOL VLV. _____

C. Green light ON at 2-HS-3-193, MFW DEAERATION LINE LOOP 2 ISOL VLV. _____

Date _____

6.6.4 2-FCV-3-194: MFW Deaeration Line Control

[1] **VERIFY** that the prerequisites and field preparations applicable to this subsection have been completed. _____

[2] **DEPRESS** 2-HS-3-194 [YARD/729], MFW DEAERATION LINE LOOP 4 ISOL VLV, OPEN pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-194, MFW DEAERATION LINE LOOP 4 ISOL, is OPEN. **(Acc Crit)** 5.0[25.1] _____

B. Red light ON at 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV. **(Acc Crit)** 5.0[25.2] _____

C. Green light OFF at 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV. **(Acc Crit)** 5.0[25.2] _____

[3] **DEPRESS** 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV, CLOSE pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-194, MFW DEAERATION LINE LOOP 4 ISOL, is CLOSED. **(Acc Crit)** 5.0[25.1] _____

B. Red light OFF at 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV. **(Acc Crit)** 5.0[25.2] _____

C. Green light ON at 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV. **(Acc Crit)** 5.0[25.2] _____

NOTE

Steps 6.6.4[4-5] must be performed in close succession so that the valve can be stopped in mid-position.

[4] **DEPRESS** 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV, OPEN pushbutton. _____

Date _____

6.6.4 2-FCV-3-194: MFW Deaeration Line Control (continued)

[5] **DEPRESS** 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV, STOP pushbutton before 2-FCV-3-194, MFW DEAERATION LINE LOOP 4 ISOL, reaches the OPEN position and

VERIFY the following:

A. 2-FCV-3-194, MFW DEAERATION LINE LOOP 4 ISOL, stops in mid-position. **(Acc Crit)** 5.0[25.3] _____

B. Red light ON at 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV. **(Acc Crit)** 5.0[25.2] _____

C. Green light ON at 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV. **(Acc Crit)** 5.0[25.2] _____

[6] **DEPRESS** 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV, OPEN pushbutton and

VERIFY the following:

A. 2-FCV-3-194, MFW DEAERATION LINE LOOP 4 ISOL, is OPEN. _____

B. Red light ON at 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV. _____

C. Green light OFF at 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV. _____

NOTE

Steps 6.6.4[7-8] must be performed in close succession so that the valve can be stopped in mid-position.

[7] **DEPRESS** 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV, CLOSE pushbutton. _____

Date _____

6.6.4 2-FCV-3-194: MFW Deaeration Line Control (continued)

[8] **DEPRESS** 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV, STOP pushbutton before 2-FCV-3-194, MFW DEAERATION LINE LOOP 4 ISOL, reaches the CLOSED position and

VERIFY the following:

A. 2-FCV-3-194, MFW DEAERATION LINE LOOP 4 ISOL, stops in mid-position. **(Acc Crit)** 5.0[25.3] _____

B. Red light ON at 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV. **(Acc Crit)** 5.0[25.2] _____

C. Green light ON at 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV. **(Acc Crit)** 5.0[25.2] _____

[9] **DEPRESS** 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV, CLOSE pushbutton and

VERIFY the following:

A. 2-FCV-3-194, MFW DEAERATION LINE LOOP 4 ISOL, is CLOSED. _____

B. Red light OFF at 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV. _____

C. Green light ON at 2-HS-3-194, MFW DEAERATION LINE LOOP 4 ISOL VLV. _____

Date _____

6.6.5 2-FCV-3-195: MFW Deaeration Line Control

[1] **VERIFY** that the prerequisites and field preparations applicable to this subsection have been completed. _____

[2] **DEPRESS** 2-HS-3-195B [T13J/708], MAIN FW DEAERATION LINE CONT VLV, OPEN pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-195, MFW DEAERATION LINE CONTROL, is OPEN. **(Acc Crit)** 5.0[26.1] _____

B. Red light ON at 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV. **(Acc Crit)** 5.0[26.2] _____

C. Green light OFF at 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV. **(Acc Crit)** 5.0[26.2] _____

[3] **DEPRESS** 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV, CLOSE pushbutton to verify operation locally and

VERIFY the following:

A. 2-FCV-3-195, MFW DEAERATION LINE CONTROL, is CLOSED. **(Acc Crit)** 5.0[26.1] _____

B. Red light OFF at 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV. **(Acc Crit)** 5.0[26.2] _____

C. Green light ON at 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV. **(Acc Crit)** 5.0[26.2] _____

NOTE

Steps 6.6.5[4-5] must be performed in close succession so that the valve can be stopped in mid-position.

[4] **DEPRESS** 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV, OPEN pushbutton. _____

Date _____

6.6.5 2-FCV-3-195: MFW Deaeration Line Control (continued)

[5] **DEPRESS** 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV, STOP pushbutton before 2-FCV-3-195, MFW DEAERATION LINE CONTROL, reaches the OPEN position and

VERIFY the following:

A. 2-FCV-3-195, MFW DEAERATION LINE CONTROL, stops in mid-position. **(Acc Crit)** 5.0[26.3] _____

B. Red light ON at 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV. **(Acc Crit)** 5.0[26.2] _____

C. Green light ON at 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV. **(Acc Crit)** 5.0[26.2] _____

[6] **DEPRESS** 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV, OPEN pushbutton and

VERIFY the following:

A. 2-FCV-3-195, MFW DEAERATION LINE CONTROL, is OPEN. _____

B. Red light ON at 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV. _____

C. Green light OFF at 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV. _____

NOTE

Steps 6.6.5[7-8] must be performed in close succession so that the valve can be stopped in mid-position.

[7] **DEPRESS** 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV, CLOSE pushbutton. _____

Date _____

6.6.5 2-FCV-3-195: MFW Deaeration Line Control (continued)

[8] **DEPRESS** 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV, STOP pushbutton before 2-FCV-3-195, MFW DEAERATION LINE CONTROL, reaches the CLOSED position and

VERIFY the following:

A. 2-FCV-3-195, MFW DEAERATION LINE CONTROL, stops in mid-position. **(Acc Crit)** 5.0[26.3] _____

B. Red light ON at 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV. **(Acc Crit)** 5.0[26.2] _____

C. Green light ON at 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV. **(Acc Crit)** 5.0[26.2] _____

[9] **DEPRESS** 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV, CLOSE pushbutton and

VERIFY the following:

A. 2-FCV-3-195, MFW DEAERATION LINE CONTROL, is CLOSED. _____

B. Red light OFF at 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV. _____

C. Green light ON at 2-HS-3-195B, MAIN FW DEAERATION LINE CONT VLV. _____

Date _____

7.0 POST PERFORMANCE ACTIVITY

[1] **VERIFY** that Post-test calibration of the M&TE used to record quantitative acceptance criteria has been satisfactorily performed and the results RECORDED on Measuring and Test Equipment (M&TE) Log, Appendix F in SMP-9.0. _____

[2] **VERIFY** that Post-test calibration of permanent plant instruments used to record quantitative acceptance criteria has been satisfactorily performed **AND**

RECORD on Appendix C, Permanent Plant Instrumentation Log. _____

[3] **PLACE** 2-HS-3-45, MFW RECIRCULATION CONTROL SWITCH, at 2-M-3 to NORMAL. _____

[4] **VERIFY** overload bypass relay has been RESET at 2-MCC-213-B2-B, 480V REACTOR MOV BD 2B2-B, Compt. 6F. _____

[5] **VERIFY** overload bypass relay has been RESET at 2-MCC-213-A2-A, 480V REACTOR MOV BD 2A2-A, Compt. 6D. _____

[6] **NOTIFY** the Unit 2 US/SRO of the test completion and system alignment. _____

8.0 RECORDS

A. QA Records

Completed Test Package

B. Non-QA Records

None

Appendix A
(Page 1 of 1)

TEST PROCEDURES/INSTRUCTIONS REFERENCE REVIEW

Date _____

Additional copies of this table may be made as necessary.

PROCEDURE/ INSTRUCTION	REVISION/CHANGES	INITIAL AND DATE. (N/A for no change)
SMP-4.0	0000	
SMP-6.0	0000	
SMP-7.0	0000	
SMP-9.0	0000	
FSAR Section 10.4.7 Table 14.2-1 Shts 65, 67 of 89 Technical Specification 3.7.3	Amendment 111	
2-TSD-3A-1	Rev 1	
2-TSD-3A-3	Rev 3	
WBN2-3A-4002	Rev 1	
VTM-W120-2062	Rev 13	
VTM-W120-2780	Rev 3	

Appendix B
(Page 1 of 1)

TEMPORARY CONDITION LOG

Date ________

Additional copies of this table may be made as necessary.

ITEM No.	TEMPORARY CONDITION DESCRIPTION	PERFORMED		RETURNED TO NORMAL	
		Step No.	Performed By/Date CV By/Date	Step No.	Returned By/Date CV By/Date

Appendix C
(Page 1 of 1)

PERMANENT PLANT INSTRUMENTATION LOG

Date _____

INSTRUMENT OR INSTRUMENT LOOP #	CAL DUE DATE	FILLED AND VENTED[1]	PLACED IN SERVICE[1]	USED FOR QUANTITATIVE ACC CRIT		POST-TEST CAL DATE[2]	POST-TEST CALIBRATION ACCEPTABLE[2] INITIAL/DATE
		INIT/DATE	INIT/DATE	YES	NO		

1 These items may be initialed and dated by personnel performing the task. Instrumentation not required to be filled and vented may be identified as Not Applicable. (N/A)

2 May be identified as Not Applicable (N/A) if instrument was not used to verify/record quantitative acceptance criteria data.

Appendix D
(Page 1 of 1)

Background Calculations

Appendix E
(Page 1 of 1)

STEAM GENERATOR LOOP 1 FEEDWATER SWITCH LINEUP

Date _____

SWITCH NUMBER	SWITCH LOCATION	NOMENCLATURE	POSITION	VERIFIED BY INITIAL/DATE
2-HS-3-33A	2-M-3	SG #1 MFW ISOL VLV	A-P AUTO	
2-HS-3-45	2-M-3	FW SYSTEM RECIRCULATION CONTROL SWITCH	NORMAL	
2-HS-3-945B	2-JB-292-8223 (757/A11Q)	HAND SWITCH FOR CONTROL BUILDING ISOLATION	OFF	
2-HS-2-33C	480V REACTOR MOV BOARD 2A2-A, 2-MCC-213-A2-A, CMPT 3D (772/A11S)	SG #1 MFW ISOL VLV SW	NORMAL	
2-XS-3-33	480V REACTOR MOV BOARD 2A2-A, 2-MCC-213-A2-A, CMPT 3D (772/A11S)	SG #1 MFW ISOL VLV TRF SW	NORMAL	

Appendix F
(Page 1 of 1)

STEAM GENERATOR LOOP 2 FEEDWATER SWITCH LINEUP

Date _____

SWITCH NUMBER	SWITCH LOCATION	NOMENCLATURE	POSITION	VERIFIED BY INITIAL/DATE
2-HS-3-47A	2-M-3	SG #2 MFW ISOL VLV	A-P AUTO	
2-HS-3-45	2-M-3	FW SYSTEM RECIRCULATION CONTROL SWITCH	NORMAL	
2-HS-3-945A	2-JB-292-8205 (757/A10Q)	HAND SWITCH FOR CONTROL BUILDING ISOLATION	OFF	
2-HS-2-47C	480V REACTOR MOV BOARD 2B2-B, 2-MCC-213-B2-B, CMPT 3D (772/A12R)	SG #2 FW ISOL VLV SW	NORMAL	
2-XS-3-87	480V REACTOR MOV BOARD 2B2-B, 2-MCC-213-B2-B, CMPT 3D (772/A12R)	SG #2 FW ISOL VLV TRF SW	NORMAL	

Appendix G
(Page 1 of 1)

STEAM GENERATOR LOOP 3 FEEDWATER SWITCH LINEUP

Date _____

SWITCH NUMBER	SWITCH LOCATION	NOMENCLATURE	POSITION	VERIFIED BY INITIAL/DATE
2-HS-3-87A	2-M-3	SG #3 MFW ISOL VLV	A-P AUTO	
2-HS-3-45	2-M-3	FW SYSTEM RECIRCULATION CONTROL SWITCH	NORMAL	
2-HS-3-945B	2-JB-292-8223 (757/A11Q)	HAND SWITCH FOR CONTROL BUILDING ISOLATION	OFF	
2-HS-2-87C	480V REACTOR MOV BOARD 2A2-A, 2-MCC-213-A2-A, CMPT 4D (772/A11S)	SG #3 FW ISOL VLV SW	NORMAL	
2-XS-3-87	480V REACTOR MOV BOARD 2A2-A, 2-MCC-213-A2-A, CMPT 4D (772/A11S)	SG #3 FW ISOL VLV TRF SW	NORMAL	

Appendix H
(Page 1 of 1)

STEAM GENERATOR LOOP 4 FEEDWATER SWITCH LINEUP

Date _____

SWITCH NUMBER	SWITCH LOCATION	NOMENCLATURE	POSITION	VERIFIED BY INITIAL/DATE
2-HS-3-100A	2-M-3	SG #4 MFW ISOL VLV	A-P AUTO	
2-HS-3-45	2-M-3	FW SYSTEM RECIRCULATION CONTROL SWITCH	NORMAL	
2-HS-3-945A	2-JB-292-8205 (757/A10Q)	HAND SWITCH FOR CONTROL BUILDING ISOLATION	OFF	
2-HS-2-100C	480V REACTOR MOV BOARD 2B2-B, 2-MCC-213-B2-B, CMPT 4D (772/A12R)	SG #4 FW ISOL VLV SW	NORMAL	
2-XS-3-100	480V REACTOR MOV BOARD 2B2-B, 2-MCC-213-B2-B, CMPT 4D (772/A12R)	SG #4 FW ISOL VLV TRF SW	NORMAL	

Appendix I
(Page 1 of 1)

STEAM GENERATOR LOOP 1 FEEDWATER BREAKER LINEUP

Date _____

BREAKER IDENTIFICATION	BREAKER NOMENCLATURE	BREAKER LOCATION	TEST POSITION	INITIAL/DATE
2-BKR-213-A2/6D 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A	THERMAL OVERLOAD BYPASS 2A-2	772/A11S, 6D	ON	
2-BKR-3-33, SG 1 MFW ISOL 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A	SG 1 MFW ISOL (2-FCV-3-33)	772/A11S, 3D	ON	
2-BKR-3-191 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A	MFW DEARATION LINE LP1 ISOL (2-FCV-3-191)	772/A11S, 4A	ON	

Appendix J
(Page 1 of 1)

STEAM GENERATOR LOOP 2 FEEDWATER BREAKER LINEUP

Date _____

BREAKER IDENTIFICATION	BREAKER NOMENCLATURE	BREAKER LOCATION	TEST POSITION	INITIAL/DATE
2-BKR-213-B2/6F 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B	THERMAL OVERLOAD BYPASS 2B-2	772/A12R, 6F	ON	
2-BKR-3-47 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B	SG 2 MFW ISOL (2-FCV-3-47)	772/A12R, 3D	ON	
2-BKR-3-192 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A	MFW DEARATION LINE LP2 ISOL (2-FCV-3-192)	772/A11S, 4B	ON	

Appendix K
(Page 1 of 1)

STEAM GENERATOR LOOP 3 FEEDWATER BREAKER LINEUP

Date _____

BREAKER IDENTIFICATION	BREAKER NOMENCLATURE	BREAKER LOCATION	TEST POSITION	INITIAL/DATE
2-BKR-213-A2/6D 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A	THERMAL OVERLOAD BYPASS 2A-2	772/A11S, 6D	ON	
2-BKR-3-87 2-MCC-213-A2-A, 480V REACTOR MOV BOARD 2A2-A	SG 3 MFW ISOL (2-FCV-3-87)	772/A11S, 4D	ON	
2-BKR-3-193 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B	MFW DEARATION LINE LP3 ISOL (2-FCV-3-193)	772/A12R, 4A	ON	

Appendix L
(Page 1 of 1)

STEAM GENERATOR LOOP 4 FEEDWATER BREAKER LINEUP

Date _____

BREAKER IDENTIFICATION	BREAKER NOMENCLATURE	BREAKER LOCATION	TEST POSITION	INITIAL/DATE
2-BKR-213-B2/6F 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B	THERMAL OVERLOAD BYPASS 2B-2	772/A12R, 6F	ON	
2-BKR-3-100 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B	SG 4 MFW ISOL (2-FCV-3-100)	772/A12R, 4D	ON	
2-BKR-3-194 2-MCC-213-B2-B, 480V REACTOR MOV BOARD 2B2-B	MFW DEARATION LINE LP4 ISOL (2-FCV-3-194)	772/A12R, 4B	ON	

Appendix M
(Page 1 of 2)

Valve Lineup

VALVE NUMBER	NOMENCLATURE	LOCATION EL/COL	POSITION	INITIAL/DATE
2-FCV-3-33	STEAM GENERATOR 1 MFW ISOL	729/A15U	CLOSED	
2-FCV-3-35	STEAM GENERATOR 1 MFW REG VALVE	729/T15P	CLOSED	
2-FCV-3-35A	STEAM GENERATOR 1 MFW BYPASS REG VALVE	729/T15P	CLOSED	
2-FCV-3-236	STEAM GENERATOR 1 MFW BYPASS LINE ISOL	729/A15U	CLOSED	
2-FCV-3-185	STEAM GENERATOR 1 MFW BACKFLUSH WARMING	729/A15U	CLOSED	
2-FCV-3-191	MFW DEARATION LINE LOOP 1 ISOL	YARD/729	CLOSED	
2-FCV-3-47	STEAM GENERATOR 2 MFW ISOL	729/T15P	CLOSED	
2-FCV-3-48	STEAM GENERATOR 2 MFW REG VALVE	729/T15P	CLOSED	
2-FCV-3-48A	STEAM GENERATOR 2 MFW BYPASS REG VALVE	729/C12P	CLOSED	
2-FCV-3-239	STEAM GENERATOR 2 MFW BYPASS LINE ISOL	729/A15X	CLOSED	
2-FCV-3-186	STEAM GENERATOR 2 MFW BACKFLUSH WARMING	729/A15X	CLOSED	
2-FCV-3-192	MFW DEARATION LINE LOOP 2 ISOL	YARD/729	CLOSED	
2-FCV-3-87	STEAM GENERATOR 3 MFW ISOL	729/A15X	CLOSED	
2-FCV-3-90	STEAM GENERATOR 3 MFW REG VALVE	729/T15N	CLOSED	
2-FCV-3-90A	STEAM GENERATOR 3 MFW BYPASS REG VALVE	729/T14P	CLOSED	

Appendix M
(Page 2 of 2)

Valve Lineup

2-FCV-3-242	STEAM GENERATOR 3 MFW BYPASS LINE ISOL	729/A15X	CLOSED	
2-FCV-3-187	STEAM GENERATOR 3 MFW BACKFLUSH WARMING	729/A15X	CLOSED	
2-FCV-3-193	MFW DEARATION LINE LOOP 3 ISOL	YARD/729	CLOSED	
2-FCV-3-100	STEAM GENERATOR 4 MFW ISOL	729/A15X	CLOSED	
2-FCV-3-103	STEAM GENERATOR 4 MFW REG VALVE	729/T15P	CLOSED	
2-FCV-3-103A	STEAM GENERATOR 4 MFW BYPASS REG VALVE	729/T15P	CLOSED	
2-FCV-3-245	STEAM GENERATOR 4 MFW BYPASS LINE ISOL	729/A15U	CLOSED	
2-FCV-3-188	STEAM GENERATOR 4 MFW BACKFLUSH WARMING	729/A15U	CLOSED	
2-FCV-3-194	MFW DEARATION LINE LOOP 4 ISOL	YARD/729	CLOSED	