

**WBN2Public Resource**

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**From:** Boyd, Desiree L [dlboyd@tva.gov]  
**Sent:** Tuesday, May 15, 2012 12:00 PM  
**To:** Epperson, Dan; Poole, Justin; Raghavan, Rags; Milano, Patrick; Campbell, Stephen  
**Cc:** Arent, Gordon; Hamill, Carol L; Boyd, Desiree L  
**Subject:** TVA letter to NRC\_05-15-12\_2-PTI-052-01 transmittal to NRC  
**Attachments:** 05-15-12\_2-PTI-052-01 transmittal to NRC\_Final.pdf

*Please see attached TVA letter that was sent to the NRC today.*

*Thank You,*

~\*~\*~\*~\*~\*~\*~\*~\*~\*~

*Desiree L. Boyd*

*WBN Unit 2 Licensing*

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May 15, 2012

U.S. Nuclear Regulatory Commission  
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Watts Bar Nuclear Plant, Unit 2  
NRC Docket No. 50-391

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

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

| PTI NUMBER   | Rev. | TITLE                              |
|--------------|------|------------------------------------|
| 2-PTI-052-01 | 0    | Loose Parts Monitoring System Test |

If you have any questions, please contact Pete Olson at (423) 365-3294.

Respectfully,

Raymond A. Hruby, Jr.  
General Manager, Technical Services  
Watts Bar Unit 2

Enclosure

U.S. Nuclear Regulatory Commission  
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cc (Enclosure):

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U.S. Nuclear Regulatory Commission  
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**WATTS BAR NUCLEAR PLANT  
UNIT 2 PREOPERATIONAL TEST**

**TITLE:** Loose Parts Monitoring System Test

**Instruction No:** 2-PTI-052-01

**Revision No:** 0000

**PREPARED BY:** Nicholas C. Piplica / Nicholas C. Piplica **DATE:** 05/07/12  
PRINT NAME / SIGNATURE

**REVIEWED BY:** David R. Wiggins / David R. Wiggins **DATE:** 05/07/12  
PRINT NAME / SIGNATURE

**INSTRUCTION APPROVAL**

**JTG MEETING No:** 2-12-009

**JTG CHAIRMAN:** [Signature] **DATE:** 5/10/12

**APPROVED BY:** [Signature] **DATE:** 5/10/12  
PREOPERATIONAL STARTUP MANAGER

**TEST RESULTS APPROVAL**

**JTG MEETING No:** \_\_\_\_\_

**JTG CHAIRMAN:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**APPROVED BY:** \_\_\_\_\_ **DATE:** \_\_\_\_\_  
PREOPERATIONAL STARTUP MANAGER

|                       |   |  |
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**Revision Log**

| <b>Revision<br/>or Change<br/>Number</b> | <b>Effective<br/>Date</b> | <b>Affected<br/>Page<br/>Numbers</b> | <b>Description of Revision/Change</b> |
|--|---------------------------|--------------------------------------|---------------------------------------|
| 0000                                     | 5/14/12                   |                                      | Initial Issue.                        |

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## **1.0 INTRODUCTION**

### **1.1 Test Objective**

Demonstrate the capability of the Loose Parts Monitoring System (LPMS) to detect and record acoustic disturbances which may be indicative of loose parts in the Reactor Coolant System (RCS) and to inhibit alarm functionality during Control Rod motion.

### **1.2 Scope**

Demonstrate the capability of the LPMS to detect and record a loose part in the presence of background noise.

Demonstrate the capability of the LPMS to audibly reproduce a loose part in the presence of background noise.

Demonstrate the capability of the LPMS to properly alarm to a loose part in the presence of background noise.

Demonstrate the capability of the LPMS to properly inhibit alarm functionality during Control Rod Drive Mechanism sequencing.

## **2.0 REFERENCES**

### **2.1 Performance References**

- A. SMP-9.0, Conduct of Test
- B. 2-TRI-52-1, Loose Parts Monitoring System Channel Calibration (Later)

### **2.2 Developmental References**

- A. Final Safety Analysis Report (FSAR), Amendment 108
  - 1. Chapter 14, Table 14.2-1, Sheet 61 of 89, Loose Parts Monitoring System Test Summary
  - 2. Section 7.6.7, Loose Part Monitoring System (LPMS) System Description
- B. Drawings
  - 1. Electrical
    - a. 1-45W706-3, Rev. 48, Wiring Diagram 120V Vital Instr Pwr Bds 1-III & 2-III, Connection Diagram

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## 2.2 Developmental References (continued)

- b. 2-45W706-3, Rev. 0 ANT, DRA 52418-20-0, Wiring Diagram 120V AC Vital Inst Pwr Bds 1-III & 2-III Connection Diagrams
  - c. 1-55B411-2, Rev. 1, Lighting Circuit Schedule LC-131
  - d. 2-45W2673-14, Rev. 0, Wiring Diagram Bal of Plt Instr Racks, Non-Div Connection Diagrams, 1-R-176 U2 RCP Vib. Mon. Panel
  - e. 2-45W2673-20, Rev. 0 ANT, DRA 52418-12-0, 2-R-188 Loose Parts Monitoring Panel
  - f. 45N2632-15, Rev. 6, Wiring Diagrams Miscellaneous Controls Connection Diagram, JB4300
  - g. 2-45W2656-4, Rev. 0, Wiring Diagrams Unit Control Board Panel 2-M-21 Connection Diagram
  - h. 2-45B655-5B, Rev. 0, Main Control Room Annunciator Inputs Window Box XA-55-5B
  - i. 2-45B655-E5B, Rev. 0, Electrical Annunciator Window Box XA-55-5B Engraving
  - j. 45N1632-17, Rev. L, Wiring Diagrams Miscellaneous Controls Connection Diagrams - Sh 17, JB4398
  - k. 45N2643-8, Rev. 4, Wiring Diagrams Unit Control Board Panel 2-M-4 Connection Diagram - Sheet 8
  - l. 2-45W600-55-14, Rev. 0, Wiring Diagram Annunciator System Key Diagram Panel 5B
2. Logic/Control Drawings
- a. 2-47W610-52-1, Rev. 0 ANT, DRA 52418-1-0, Electrical Control Diagram Loose Parts Monitoring System
3. Vendor Drawings, Contract 65717
- a. 10041E04-3, Rev. 3, Watts Bar Unit 2 DMIMS-DX Cabinet & Containment Hardware Assembly
  - b. 2333D01-1, Rev. 4, DMIMS-DX Vessel Bottom Transducer Mounting Details
- C. TVA Procedures
- 1. SMP-8.0, Rev. 8, Administration of Preoperational Test Instructions

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## **2.2 Developmental References (continued)**

### **D. Other Documents**

1. 2-TSD-52-1, Rev. 0, Loose Parts Monitoring System Test Scoping Document
2. 2-PTI-085-01, Rev. 0, Rod Control System Functional Test (Later)

### **E. Vendor Manuals**

1. 1TS3176, Rev. 0, DMIMS-DX™ Operations and Maintenance Manual
2. VTD-W120-2568, Rev. 4, Westinghouse Full Length Control Rod System Technical Manual

### **F. Vendor Procedures**

1. NS-FSI-10-20, Rev. 0, DMIMS-DX Cabinet Electronics Installation
2. NS-FSI-10-15, Rev. 1, DMIMS-DX In-Containment Hardware Installation
3. NS-FSI-10-16, Rev. 1, DMIMS-DX In-Containment Hardware Testing
4. NS-FSI-10-12, Rev. 1, Site Acceptance Test
5. NS-FSI-10-17, Rev. 1, DMIMS-DX System Baseline Acquisition

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### 3.0 PRECAUTIONS AND LIMITATIONS

- A. All actions performed in this test are in panel 2-R-188, Loose Parts Monitoring System cabinet, located in the Unit 1 Auxiliary Instrument Room, Elevation 708', unless specified otherwise.
- B. Standard precautions shall be followed for working on/or around energized electrical equipment in accordance with TVA Safety Procedure 1021.
- C. Observe all Radiation Protection (RP) requirements when working in or near radiological areas.
- D. Obtain the assistance of RP and Safety for work in High Temperature areas, as required.
- E. Follow plant instructions for confined space entry requirements, as required.
- F. A minimum of (2) two people will be required inside the reactor building.
- G. The optimal plant conditions for testing in Subsections 6.1 to 6.8 are as follows:
  - 1. Subsection 6.1 can be performed before, during, or after the reactor vessel head is fully tensioned.
  - 2. Subsections 6.2 to 6.7 will be performed when the RCS is filled and the Reactor Coolant Pumps (RCPs) are running. The Steam Generator (SG) secondary side water level will be covering the tubes. The RCS coolant will be at the 250 °F plateau.
  - 3. Subsection 6.8 will be performed during Hot Functional Testing (HFT) at the 557 °F plateau, all RCPs operating, and a normal SG secondary water level that covers the tubes.
- H. Subsections must be performed in order with the exception of Subsections 6.2 to 6.7. The test may be paused and exited to support the required plant conditions necessary.
- I. 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-31-468 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 Chronological Test Log (CTL) from SMP-9.0 and continue testing.
- J. Test performers have the latitude to freely navigate the display screen menus as needed to perform the required procedure steps.

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### **3.0 PRECAUTIONS AND LIMITATIONS (continued)**

- K. All open problems are to be tracked by a corrective action document and entered on the appropriate system punch list.
- L. 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.
- M. Ensure there are no adverse effects to the operation of Unit 1 structures, systems, or components.
- N. Adhere to communication requirements while in Unit 1 Auxiliary Instrument Room.
- O. Label and attach all printouts with "2-PTI-052-01", section and step number, date, and test performer initials.
- P. Test performers have the latitude to adjust the audio Volume and Balance control knobs as needed for the performance of this test.
- Q. Panel 2-R-188 is located in the Unit 1 Auxiliary Instrumentation Room. Avoid reactor trip hazards such as electronic restrictions and reactor trip zones.
- R. The words CLEAR and ALARM will be used to describe the status of the alarm signal from the LPMS logic panel 2-R-188.
- S. Steps may be repeated if all components cannot be tested in a step. However, if the test has been excited, prerequisite steps shall be re-verified and a CTL entry made.

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Date \_\_\_\_\_

#### 4.0 PREREQUISITE ACTIONS

#### 4.1 Preliminary Actions

**NOTE**

Preliminary Actions can be performed in any order at the Test Director's discretion.

- [1] **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. \_\_\_\_\_
- [2] **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. \_\_\_\_\_
- [3] **EVALUATE** Open Items in Watts Bar Integrated Task Equipment List (WITEL), **AND**

**ENSURE** that they will NOT adversely affect the test performance and results. \_\_\_\_\_
- [4] **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. \_\_\_\_\_
- [5] **ENSURE** required Component Testing has been completed prior to start of test. \_\_\_\_\_
- [6] **ENSURE** outstanding Design Change Notices (DCN's), Engineering Document Construction Releases (EDCR's), or Temporary Alterations (TA's) do NOT adversely impact testing, **AND**

**ATTACH** documentation of DCN's, EDCR's, and TA's that were reviewed to the data package. \_\_\_\_\_
- [7] **CONDUCT** a pretest briefing with Test and Operations personnel in accordance with SMP-9.0. \_\_\_\_\_

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**4.1 Preliminary Actions (continued)**

- [8] **ENSURE** changes to the references listed on Appendix A, have been reviewed, and determined NOT to adversely affect the test performance. \_\_\_\_\_
- [9] **ENSURE** a review of outstanding Clearances has been coordinated with Operations for impact to the test performance **AND**,  
  
**RECORD** a Temporary Condition Log if required in Appendix B. \_\_\_\_\_
- [10] **VERIFY** Measuring and Test Equipment (M&TE) required for test performance has been recorded on Measuring and Test Equipment Log, Appendix C. \_\_\_\_\_
- [11] **ENSURE** the electrical breaker lineup listed in Appendix D is performed. \_\_\_\_\_
- [12] **ENSURE** communications are available between Main Control Room (MCR), Unit 1 Auxiliary Instrument Room panel 2-R-188 and areas inside containment by each reactor coolant loop, reactor vessel thimble area (keyway), and the reactor vessel head. \_\_\_\_\_
- [13] **ENSURE** System 55, Annunciator and Sequential Events Recording System applicable TBK switches are ON, the applicable Master Switches are ON, and window software input(s) are ENABLED for the 2-XA-55-5B/95F [2-M-5] annunciator window. \_\_\_\_\_
- [14] **ENSURE** the following systems are operational and have been placed in service to the extent necessary to perform this test:

  - A. System 68, Reactor Coolant System (RCS). Required for Subsections 6.2 through 6.8. \_\_\_\_\_
  - B. System 85, Control Rod Drive System - Verifies that the Rod Inhibit logic actuates during cycling of the Control Rod Drive Mechanisms during the performance of 2-PTI-085-01. Required for Subsection 6.8. \_\_\_\_\_
- [15] **ENSURE** components contained within the boundaries of this test are under the jurisdictional control of Preoperational Startup Engineering (PSE) and/or Operations. \_\_\_\_\_

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**4.1 Preliminary Actions (continued)**

[16] **PERFORM** a pretest walkdown on equipment to be tested to ensure no conditions exist that will impact test performance. \_\_\_\_\_

[17] **REVIEW** preventive maintenance for system/components covered by this test, **AND**

**VERIFY** no conditions exist that will impact test performance. \_\_\_\_\_

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

[1] **ENSURE** the following M&TE or equivalent, is available: \_\_\_\_\_

- Calibrated, spring-loaded center punch, blunted point impact device, that generates a 0.5 ft-lbs impact signal with an accuracy of +0.15, -0.15 ft-lbs. Required for Subsections 6.2 through 6.7.

**4.3 Field Preparations**

[1] **ENSURE** insulation required to be removed during the test is easily accessible. \_\_\_\_\_

[2] **ENSURE** scaffolding and/or other provisions are in place, as required, to access at a distance of (3) three feet from each sensor in the reactor building. \_\_\_\_\_



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**4.4 Approvals and Notifications**

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

|   |      |
|---|------|
| Preoperational Startup Manager<br>Signature | Date |
|---|------|

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

|                     |      |
|---------------------|------|
| US/SRO/SM Signature | Date |
|---------------------|------|

|                       |   |   |
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## 5.0 ACCEPTANCE CRITERIA

- [1] Each sensor/channel listed below can be audibly listened to during a simulated loose part event in the presence of background noise [single impact with a kinetic energy of 0.5 ft-lbs on the surface of the reactor coolant pressure boundary at a distance of (3) three feet from each sensor]:
- A. 2-XE-52-100, Channel 100 - Reactor Vessel Head - Lifting Lug (Step 6.2[14]A)
  - B. 2-XE-52-110, Channel 110 - Reactor Vessel Head - Lifting Lug (Step 6.2[23]A)
  - C. 2-XE-52-101, Channel 101 - Reactor Vessel Bottom - Thimble Tube (Step 6.3[14]A)
  - D. 2-XE-52-111, Channel 111 - Reactor Vessel Bottom - Thimble Tube (Step 6.3[23]A)
  - E. 2-XE-52-102, Channel 102 - Steam Generator 1 - Below the Tubesheet (Step 6.4[14]A)
  - F. 2-XE-52-106, Channel 106 - Steam Generator 1 - Above the Tubesheet (Step 6.4[23]A)
  - G. 2-XE-52-103, Channel 103 - Steam Generator 2 - Below the Tubesheet (Step 6.5[14]A)
  - H. 2-XE-52-107, Channel 107 - Steam Generator 2 - Above the Tubesheet (Step 6.5[23]A)
  - I. 2-XE-52-104, Channel 104 - Steam Generator 3 - Below the Tubesheet (Step 6.6[14]A)
  - J. 2-XE-52-108, Channel 108 - Steam Generator 3 - Above the Tubesheet (Step 6.6[23]A)
  - K. 2-XE-52-105, Channel 105 - Steam Generator 4 - Below the Tubesheet (Step 6.7[14]A)
  - L. 2-XE-52-109, Channel 109 - Steam Generator 4 - Above the Tubesheet (Step 6.7[23]A)

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## 5.0 ACCEPTANCE CRITERIA (continued)

- [2] Each sensor/channel listed below detects a simulated loose part event in the presence of background noise [single impact with a kinetic energy of 0.5 ft-lbs on the surface of the reactor coolant pressure boundary at a distance of (3) three feet from each sensor]:
- A. 2-XE-52-100, Channel 100 - Reactor Vessel Head - Lifting Lug  
(Step 6.2[14]B)
  - B. 2-XE-52-110, Channel 110 - Reactor Vessel Head - Lifting Lug  
(Step 6.2[23]B)
  - C. 2-XE-52-101, Channel 101 - Reactor Vessel Bottom - Thimble Tube  
(Step 6.3[14]B)
  - D. 2-XE-52-111, Channel 111 - Reactor Vessel Bottom - Thimble Tube  
(Step 6.3[23]B)
  - E. 2-XE-52-102, Channel 102 - Steam Generator 1 - Below the Tubesheet  
(Step 6.4[14]B)
  - F. 2-XE-52-106, Channel 106 - Steam Generator 1 - Above the Tubesheet  
(Step 6.4[23]B)
  - G. 2-XE-52-103, Channel 103 - Steam Generator 2 - Below the Tubesheet  
(Step 6.5[14]B)
  - H. 2-XE-52-107, Channel 107 - Steam Generator 2 - Above the Tubesheet  
(Step 6.5[23]B)
  - I. 2-XE-52-104, Channel 104 - Steam Generator 3 - Below the Tubesheet  
(Step 6.6[14]B)
  - J. 2-XE-52-108, Channel 108 - Steam Generator 3 - Above the Tubesheet  
(Step 6.6[23]B)
  - K. 2-XE-52-105, Channel 105 - Steam Generator 4 - Below the Tubesheet  
(Step 6.7[14]B)
  - L. 2-XE-52-109, Channel 109 - Steam Generator 4 - Above the Tubesheet  
(Step 6.7[23]B)

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## **5.0 ACCEPTANCE CRITERIA (continued)**

- [3] Each sensor/channel listed below is placed into an alarm condition by two simulated loose part events in the presence of background noise [(2) two impact events within 30 seconds with a kinetic energy of 0.5 ft-lbs on the surface of the reactor coolant pressure boundary at a distance of (3) three feet from each sensor]:
- A. 2-XE-52-100, Channel 100 - Reactor Vessel Head - Lifting Lug  
(Steps 6.2[14]C and 6.2[15])
  - B. 2-XE-52-110, Channel 110 - Reactor Vessel Head - Lifting Lug  
(Steps 6.2[23]C and 6.2[24])
  - C. 2-XE-52-101, Channel 101 - Reactor Vessel Bottom - Thimble Tube  
(Steps 6.3[14]C and 6.3[15])
  - D. 2-XE-52-111, Channel 111 - Reactor Vessel Bottom - Thimble Tube  
(Steps 6.3[23]C and 6.3[24])
  - E. 2-XE-52-102, Channel 102 - Steam Generator 1 - Below the Tubesheet  
(Steps 6.4[14]C and 6.4[15])
  - F. 2-XE-52-106, Channel 106 - Steam Generator 1 - Above the Tubesheet  
(Steps 6.4[23]C and 6.4[24])
  - G. 2-XE-52-103, Channel 103 - Steam Generator 2 - Below the Tubesheet  
(Steps 6.5[14]C and 6.5[15])
  - H. 2-XE-52-107, Channel 107 - Steam Generator 2 - Above the Tubesheet  
(Steps 6.5[23]C and 6.5[24])
  - I. 2-XE-52-104, Channel 104 - Steam Generator 3 - Below the Tubesheet  
(Steps 6.6[14]C and 6.6[15])
  - J. 2-XE-52-108, Channel 108 - Steam Generator 3 - Above the Tubesheet  
(Steps 6.6[23]C and 6.6[24])
  - K. 2-XE-52-105, Channel 105 - Steam Generator 4 - Below the Tubesheet  
(Steps 6.7[14]C and 6.7[15])
  - L. 2-XE-52-109, Channel 109 - Steam Generator 4 - Above the Tubesheet  
(Steps 6.7[23]C and 6.7[24])

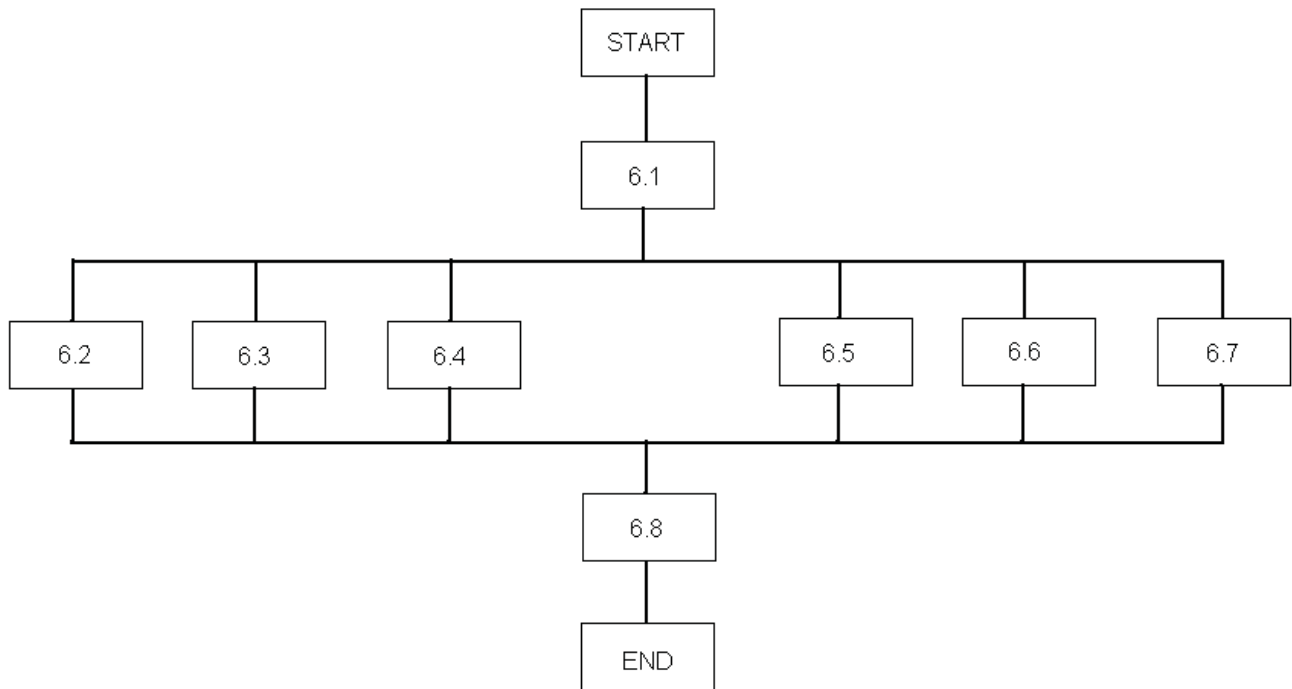
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## 5.0 ACCEPTANCE CRITERIA (continued)

- [4] Each sensor/channel listed below records a simulated loose part event in the presence of background noise [single impact with a kinetic energy of 0.5 ft-lbs on the surface of the reactor coolant pressure boundary at a distance of (3) three feet from each sensor]:
- A. 2-XE-52-100, Channel 100 - Reactor Vessel Head - Lifting Lug (Step 6.2[16.5])
  - B. 2-XE-52-110, Channel 110 - Reactor Vessel Head - Lifting Lug (Step 6.2[25.5])
  - C. 2-XE-52-101, Channel 101 - Reactor Vessel Bottom - Thimble Tube (Step 6.3[16.5])
  - D. 2-XE-52-111, Channel 111 - Reactor Vessel Bottom - Thimble Tube (Step 6.3[25.5])
  - E. 2-XE-52-102, Channel 102 - Steam Generator 1 - Below the Tubesheet (Step 6.4[16.5])
  - F. 2-XE-52-106, Channel 106 - Steam Generator 1 - Above the Tubesheet (Step 6.4[25.5])
  - G. 2-XE-52-103, Channel 103 - Steam Generator 2 - Below the Tubesheet (Step 6.5[16.5])
  - H. 2-XE-52-107, Channel 107 - Steam Generator 2 - Above the Tubesheet (Step 6.5[25.5])
  - I. 2-XE-52-104, Channel 104 - Steam Generator 3 - Below the Tubesheet (Step 6.6[16.5])
  - J. 2-XE-52-108, Channel 108 - Steam Generator 3 - Above the Tubesheet (Step 6.6[25.5])
  - K. 2-XE-52-105, Channel 105 - Steam Generator 4 - Below the Tubesheet (Step 6.7[16.5])
  - L. 2-XE-52-109, Channel 109 - Steam Generator 4 - Above the Tubesheet (Step 6.7[25.5])
- [5] An alarm condition is inhibited by the automatic Rod Inhibit function during Control Rod Drive Mechanism (CRDM) sequencing (Steps 6.8[11]C, 6.8[11]E, 6.8[14]C, and 6.8[14]E).

**6.0 PERFORMANCE**

The order of Subsection performance for the below flow diagram is as follows: Subsection 6.1 shall be completed first then Subsections 6.2 through 6.7 may be performed in any order. Lastly, Subsection 6.8 will be performed.



Date \_\_\_\_\_

**6.1 Loose Part Monitoring System Configuration Verification**

- [1] **VERIFY** prerequisites listed in Section 4.0 have been completed. \_\_\_\_\_
- [2] **LOCATE** panel 2-R-188 in Unit 1 Auxiliary Instrument Room. \_\_\_\_\_
- [3] **ENSURE** audio CHAN 1 On/Off switch is OFF. \_\_\_\_\_
- [4] **ENSURE** audio CHAN 2 On/Off switch is OFF. \_\_\_\_\_
- [5] **ENSURE** the LPMS panel 2-R-188 is energized. \_\_\_\_\_

**NOTE**

LPMS should be energized for at least 30 minutes prior to continuing the test.

- [6] **ENSURE** the LPMS is operating normally by the following indications:
  - A. All twelve signal conditioners turn on as indicated by the red power LEDs LIT. \_\_\_\_\_
  - B. "Analog Monitor Panel" audio amplifier turns on as indicated by the green LED LIT. \_\_\_\_\_
  - C. Printer turns on as indicated by the green Ready LED LIT. \_\_\_\_\_
  - D. "TAPE MOTION" LED LIT on the Backup Tape Drive. \_\_\_\_\_
  - E. CD-ROM drive LED LIT when the CD-ROM tray is manually opened. \_\_\_\_\_
  - F. The main CPU turns on as indicated by the PWR OK green LED LIT, PXI power green LED LIT, and the SCXI power green LED LIT. \_\_\_\_\_
  - G. The display turns on as indicated by images on the display screen. \_\_\_\_\_
  - H. **MOVE** the cursor to the bottom of the screen to ensure that both the executable process and DMIMS-DX process are running. \_\_\_\_\_

Date \_\_\_\_\_

**6.1 Loose Part Monitoring System Configuration Verification  
(continued)**

- [7] **ENSURE** status on the main display screen by the following indications:
  - A. "ON LINE" is displayed \_\_\_\_\_
  - B. "Remote Alarm Enabled" \_\_\_\_\_
  - C. "Rod Inhibit OFF" \_\_\_\_\_
  - D. Impact Alarm "Off" \_\_\_\_\_
  - E. System Trouble "Off" \_\_\_\_\_
  - F. Bias Volt. Problem "Off" \_\_\_\_\_
  - G. Rod Demand "Off" \_\_\_\_\_
  
- [8] **ENSURE** all panel alarms are clear by the following indications:
  - A. DSP1 - DSP OK green LED brightly LIT \_\_\_\_\_
  - B. DSP2 - DSP OK green LED brightly LIT \_\_\_\_\_
  - C. DSP3 - DSP OK green LED brightly LIT \_\_\_\_\_
  - D. ALARM RELAY red LED is NOT LIT \_\_\_\_\_
  - E. TROUBLE RELAY orange LED is NOT LIT \_\_\_\_\_
  
- [9] **NAVIGATE** to the "View Channel Configuration" screen. \_\_\_\_\_
  
- [10] **ENSURE** all check boxes are checked in the "Enable?" Column. \_\_\_\_\_
  
- [11] **PRINT** the "View Channel Configuration" screen, **AND**  
**LABEL** printout with test parameters. \_\_\_\_\_
  
- [12] **ENSURE** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_
  
- [13] **ENSURE** Unit 2 Events Display Legend shows 95-F RCS LOOSE PARTS ALARM PNL 2-R-188 as Return to Normal. \_\_\_\_\_



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**6.1 Loose Part Monitoring System Configuration Verification  
(continued)**

[14] **PLACE** and **HOLD** a handheld jumper across TBA-3 Point 2 and TBA-3 Point 8 (cable 2A8937, Black and White conductors) located in the back of 2-R-188.

\_\_\_\_\_

\_\_\_\_\_ CV

[15] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS.

\_\_\_\_\_

[16] **VERIFY** Unit 2 Events Display Legend shows 95-F RCS LOOSE PARTS ALARM PNL 2-R-188 in ALARM.

\_\_\_\_\_

[17] **REMOVE** the handheld jumper across TBA-3 Point 2 and TBA-3 Point 8.

\_\_\_\_\_

\_\_\_\_\_ CV

[18] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR.

\_\_\_\_\_

[19] **VERIFY** Unit 2 Events Display Legend shows 95-F RCS LOOSE PARTS ALARM PNL 2-R-188 as Return to Normal.

\_\_\_\_\_

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Date \_\_\_\_\_

**6.2 Reactor Vessel Head Sensors Test**

| <b>NOTES</b>   |
|--|
| <p>1) For this subsection, the RCS shall be filled and vented with all RCPs running. The SG secondary side water level should be covering the tubes at the normal water level. The RCS temperature should be at the 250 °F plateau.</p> <p>2) RCS insulation may be removed and replaced as necessary to facilitate the test performance.</p> <p>3) Notify the MCR that 2-XA-55-5B/95F, RCS LOOSE PARTS DETECTED, [2-M-5] will cycle several times during the performance of this section.</p> |

- [1] **VERIFY** prerequisites listed in Section 4.0 have been completed. \_\_\_\_\_
  
- [2] **VERIFY** the following plant conditions:
  - A. The RCS is approximately 250 °F \_\_\_\_\_
  - B. All RCPs are operating \_\_\_\_\_
  - C. SG water level is greater than 0% Narrow Range Span \_\_\_\_\_
  
- [3] **ENSURE** status on the main display screen by the following indications:
  - A. "ON LINE" is displayed \_\_\_\_\_
  - B. "Remote Alarm Enabled" \_\_\_\_\_
  - C. "Rod Inhibit OFF" \_\_\_\_\_
  - D. Impact Alarm "Off" \_\_\_\_\_
  - E. System Trouble "Off" \_\_\_\_\_
  - F. Bias Volt. Problem "Off" \_\_\_\_\_
  - G. Rod Demand "Off" \_\_\_\_\_

Date \_\_\_\_\_

**6.2 Reactor Vessel Head Sensors Test (continued)**

- [4] **ENSURE** all panel alarms are clear by the following indications:
  - A. DSP1 - DSP OK green LED brightly LIT \_\_\_\_\_
  - B. DSP2 - DSP OK green LED brightly LIT \_\_\_\_\_
  - C. DSP3 - DSP OK green LED brightly LIT \_\_\_\_\_
  - D. ALARM RELAY red LED is NOT LIT \_\_\_\_\_
  - E. TROUBLE RELAY orange LED is NOT LIT \_\_\_\_\_
- [5] **ENSURE** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_

**NOTE**

Adjust the volume on the "Analog Audio Monitor Panel" all the way down to protect the speakers.

- [6] **ENSURE** audio CHAN 1 switch is in Position 1. \_\_\_\_\_
- [7] **ENSURE** audio CHAN 2 switch is in Position 1. \_\_\_\_\_
- [8] **ENSURE** audio CHAN 1 On/Off switch is ON. \_\_\_\_\_
- [9] **ENSURE** audio CHAN 2 On/Off switch is ON. \_\_\_\_\_
- [10] **ADJUST** the audio volume such that the background noise (operating RCPs) is audible on each channel. \_\_\_\_\_
- [11] **RECORD** the value of the green number by the channel 100 square on the main display screen.
 

Channel 100 \_\_\_\_\_
- [12] **LOCATE**, in containment, sensor 2-XE-52-100 at the Reactor Vessel Head. \_\_\_\_\_

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**6.2 Reactor Vessel Head Sensors Test (continued)**

|   |
|---|
| <p><b>NOTES</b></p> <p>1) ENSURE test performers at panel 2-R-188 are ready to monitor speakers and display for events/alarms initiated by performance of the following steps for 2-XE-52-100.</p> <p>2) The insulation removed in the following step is a distance of 3 feet or less from 2-XE-52-100.</p> |
|---|

[13] **ENSURE**, in containment, insulation for 2-XE-52-100 is removed. \_\_\_\_\_

[14] **IMPACT**, in containment, at a distance of (3) three feet from the sensor 2-XE-52-100 [(2) two impacts, 10 seconds apart] using the calibrated spring-loaded center punch, **AND** \_\_\_\_\_

**VERIFY** the following indicators at panel 2-R-188:

A. On the audio panel, an audible impact sound was produced (**Acc Crit 5.0[1]A**). \_\_\_\_\_

B. On the main display screen, the green value by the channel 100 square increased by two from the value recorded in Step 6.2[11] (**Acc Crit 5.0[2]A**). \_\_\_\_\_

C. On the main display screen, the Impact Alarm is "ON" (**Acc Crit 5.0[3]A**). \_\_\_\_\_

D. On the main display screen, the channel 100 square turns red. \_\_\_\_\_

[15] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS (**Acc Crit 5.0[3]A**). \_\_\_\_\_

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**6.2 Reactor Vessel Head Sensors Test (continued)**

- [16] **ENSURE** the data was recorded for channel 100 by performing the following:
  - [16.1] **PRESS** “Events by Channel” on the main display screen. \_\_\_\_\_
  - [16.2] **IF** necessary, **NAVIGATE** to the “Event Data Display” for today’s date. \_\_\_\_\_
  - [16.3] **ENSURE** channel 100 is selected by the depressed yellow square. \_\_\_\_\_
  - [16.4] **PRESS** “Show Details”. \_\_\_\_\_
  - [16.5] **CONFIRM** that event data was recorded for both events (**Acc Crit 5.0[4]A**). \_\_\_\_\_
- [17] **PRESS** “Alarm/Trouble Reset”, on the main display screen, to clear the alarms. \_\_\_\_\_
- [18] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_
- [19] **ENSURE**, in containment, any insulation removed in Step 6.2[13] is reinstalled. \_\_\_\_\_

**NOTES**

- 1) ENSURE test performers at panel 2-R-188 are ready to monitor speakers and display for events/alarms initiated by performance of the following steps for 2-XE-52-110.
- 2) The insulation removed in Step 6.2[21] is a distance of 3 feet or less from 2-XE-52-110.

- [20] **LOCATE**, in containment, sensor 2-XE-52-110 at the Reactor Vessel Head. \_\_\_\_\_
- [21] **ENSURE**, in containment, insulation for 2-XE-52-110 is removed. \_\_\_\_\_

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**6.2 Reactor Vessel Head Sensors Test (continued)**

[22] **RECORD** the value of the green number by the channel 110 square on the main display screen.

Channel 110 \_\_\_\_\_

[23] **IMPACT**, in containment, at a distance of (3) three feet from the sensor 2-XE-52-110 [(2) two impacts 10 seconds apart] using the calibrated spring-loaded center punch, **AND**

**VERIFY** the following indicators, at panel 2-R-188:

A. On the audio panel, an audible impact sound was produced (**Acc Crit 5.0[1]B**). \_\_\_\_\_

B. On the main display screen, the green value by the channel 110 square increased by two from the value recorded in Step 6.2[22] (**Acc Crit 5.0[2]B**). \_\_\_\_\_

C. On the main display screen, the Impact Alarm is “ON” (**Acc Crit 5.0[3]B**). \_\_\_\_\_

D. On the main display screen, the channel 110 square turns red. \_\_\_\_\_

[24] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS (**Acc Crit 5.0[3]B**). \_\_\_\_\_

[25] **ENSURE** the data was recorded for channel 110 by performing the following:

[25.1] **PRESS** “Events by Channel” on the main display screen. \_\_\_\_\_

[25.2] **IF** necessary, **NAVIGATE** to the “Event Data Display” for today’s date. \_\_\_\_\_

[25.3] **ENSURE** channel 110 is selected by the depressed yellow square. \_\_\_\_\_

[25.4] **PRESS** “Show Details”. \_\_\_\_\_

[25.5] **CONFIRM** that event data was recorded for both events (**Acc Crit 5.0[4]B**). \_\_\_\_\_

[26] **PRESS** “Alarm/Trouble Reset”, on the main display screen, to clear the alarms. \_\_\_\_\_

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**6.2 Reactor Vessel Head Sensors Test (continued)**

[27] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS  
DETECTED, is CLEAR. \_\_\_\_\_

[28] **ENSURE**, in containment, that any insulation material removed  
in Step 6.2[21] is reinstalled. \_\_\_\_\_

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**6.3 Lower Reactor Vessel Sensors Test**

| <b>NOTES</b>   |
|--|
| 1) For this subsection, the RCS shall be filled and vented with all RCPs running. The SG secondary side water level should be covering the tubes at the normal water level. The RCS temperature should be at the 250 °F plateau. |
| 2) RCS insulation may be removed and replaced as necessary to facilitate the test performance.   |
| 3) Notify the MCR that 2-XA-55-5B/95F, RCS LOOSE PARTS DETECTED, [2-M-5] will cycle several times during the performance of this section.  |

[1] **VERIFY** prerequisites listed in Section 4.0 have been completed. \_\_\_\_\_

[2] **VERIFY** the following plant conditions: \_\_\_\_\_

A. The RCS is approximately 250 °F \_\_\_\_\_

B. All RCPs are operating \_\_\_\_\_

C. SG water level is greater than 0% Narrow Range Span \_\_\_\_\_

[3] **ENSURE** status on the main display screen by the following indications: \_\_\_\_\_

A. "ON LINE" is displayed \_\_\_\_\_

B. "Remote Alarm Enabled" \_\_\_\_\_

C. "Rod Inhibit OFF" \_\_\_\_\_

D. Impact Alarm "Off" \_\_\_\_\_

E. System Trouble "Off" \_\_\_\_\_

F. Bias Volt. Problem "Off" \_\_\_\_\_

G. Rod Demand "Off" \_\_\_\_\_



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**6.3 Lower Reactor Vessel Sensors Test (continued)**

[4] **ENSURE** all panel alarms are clear by the following indications:

- A. DSP1 - DSP OK green LED brightly LIT \_\_\_\_\_
- B. DSP2 - DSP OK green LED brightly LIT \_\_\_\_\_
- C. DSP3 - DSP OK green LED brightly LIT \_\_\_\_\_
- D. ALARM RELAY red LED is NOT LIT \_\_\_\_\_
- E. TROUBLE RELAY orange LED is NOT LIT \_\_\_\_\_

[5] **ENSURE** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_

**NOTE**

Adjust the volume on the "Analog Audio Monitor Panel" all the way down to protect the speakers.

[6] **ENSURE** audio CHAN 1 switch is in Position 2. \_\_\_\_\_

[7] **ENSURE** audio CHAN 2 switch is in Position 2. \_\_\_\_\_

[8] **ENSURE** audio CHAN 1 On/Off switch is ON. \_\_\_\_\_

[9] **ENSURE** audio CHAN 2 On/Off switch is ON. \_\_\_\_\_

[10] **ADJUST** the audio volume such that the background noise (operating RCPs) is audible on each channel. \_\_\_\_\_

[11] **RECORD** the value of the green number by channel 101 square on the main display screen.

Channel 101 \_\_\_\_\_

[12] **LOCATE**, in containment, sensor 2-XE-52-101 at the Reactor Vessel Bottom Thimble Tube. \_\_\_\_\_

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**6.3 Lower Reactor Vessel Sensors Test (continued)**

|              |  |
|--------------|--|
| <b>NOTES</b> |  |
| 1)           | ENSURE test performers at panel 2-R-188 are ready to monitor speakers and display for events/alarms initiated by performance of the following steps for 2-XE-52-101. |
| 2)           | The insulation removed in the following step is a distance of 3 feet or less from 2-XE-52-101.   |

[13] **ENSURE**, in containment, insulation for 2-XE-52-101 is removed. \_\_\_\_\_

[14] **IMPACT**, in containment, at a distance of (3) three feet from the sensor 2-XE-52-101 [(2) two impacts, 10 seconds apart] using the calibrated spring-loaded center punch, **AND** \_\_\_\_\_

**VERIFY** the following indicators at panel 2-R-188:

A. On the audio panel, an audible impact sound was produced (**Acc Crit 5.0[1]C**). \_\_\_\_\_

B. On the main display screen, the green value by the channel 101 square increased by two from the value recorded in Step 6.3[11] (**Acc Crit 5.0[2]C**). \_\_\_\_\_

C. On the main display screen, the Impact Alarm is "ON" (**Acc Crit 5.0[3]C**). \_\_\_\_\_

D. On the main display screen, the channel 101 square turns red. \_\_\_\_\_

[15] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS (**Acc Crit 5.0[3]C**). \_\_\_\_\_

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**6.3 Lower Reactor Vessel Sensors Test (continued)**

- [16] **ENSURE** the data was recorded for channel 101 by performing the following:
  - [16.1] **PRESS** "Events by Channel" on the main display screen. \_\_\_\_\_
  - [16.2] **IF** necessary, **NAVIGATE** to the "Event Data Display" for today's date. \_\_\_\_\_
  - [16.3] **ENSURE** channel 101 is selected by the depressed yellow square. \_\_\_\_\_
  - [16.4] **PRESS** "Show Details". \_\_\_\_\_
  - [16.5] **CONFIRM** that event data was recorded for both events (**Acc Crit 5.0[4]C**). \_\_\_\_\_
- [17] **PRESS** "Alarm/Trouble Reset", on the main display screen, to clear the alarms. \_\_\_\_\_
- [18] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_
- [19] **ENSURE**, in containment, any insulation removed in Step 6.3[13] is reinstalled. \_\_\_\_\_

**NOTES**

- 1) ENSURE test performers at panel 2-R-188 are ready to monitor speakers and display for events/alarms initiated by performance of the following steps for 2-XE-52-111.
- 2) The insulation removed in the Step 6.3[21] is a distance of 3 feet or less from 2-XE-52-111.

- [20] **LOCATE**, in containment, sensor 2-XE-52-111 at the Reactor Vessel Bottom Thimble Tube. \_\_\_\_\_
- [21] **ENSURE**, in containment, insulation for 2-XE-52-111 is removed. \_\_\_\_\_

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**6.3 Lower Reactor Vessel Sensors Test (continued)**

[22] **RECORD** the value of the green number by channel 111 square on the main display screen.

Channel 111 \_\_\_\_\_

[23] **IMPACT**, in containment, at a distance of (3) three feet from the sensor 2-XE-52-111 [(2) two impacts 10 seconds apart] using the calibrated spring-loaded center punch, **AND**

**VERIFY** the following indicators, at panel 2-R-188:

A. On the audio panel, an audible impact sound was produced (**Acc Crit 5.0[1]D**). \_\_\_\_\_

B. On the main display screen, the green value by the channel 111 square increased by two from the value recorded in Step 6.3[22] (**Acc Crit 5.0[2]D**). \_\_\_\_\_

C. On the main display screen, the Impact Alarm is "ON" (**Acc Crit 5.0[3]D**). \_\_\_\_\_

D. On the main display screen, the channel 111 square turns red. \_\_\_\_\_

[24] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS (**Acc Crit 5.0[3]D**). \_\_\_\_\_

[25] **ENSURE** the data was recorded for channel 111 by performing the following:

[25.1] **PRESS** "Events by Channel" on the main display screen. \_\_\_\_\_

[25.2] **IF** necessary, **NAVIGATE** to the "Event Data Display" for today's date. \_\_\_\_\_

[25.3] **ENSURE** channel 111 is selected by the depressed yellow square. \_\_\_\_\_

[25.4] **PRESS** "Show Details". \_\_\_\_\_

[25.5] **CONFIRM** that event data was recorded for both events (**Acc Crit 5.0[4]D**). \_\_\_\_\_

[26] **PRESS** "Alarm/Trouble Reset", on the main display screen, to clear alarms. \_\_\_\_\_

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**6.3 Lower Reactor Vessel Sensors Test (continued)**

[27] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS  
DETECTED, is CLEAR. \_\_\_\_\_

[28] **ENSURE**, in containment, that any insulation material removed  
in Step 6.3[21] is reinstalled. \_\_\_\_\_

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**6.4 Steam Generator 1 Sensors Test**

| <b>NOTES</b>   |
|--|
| <p>1) For this subsection, the RCS shall be filled and vented with all RCPs running. The SG secondary side water level should be covering the tubes at the normal water level. The RCS temperature should be at the 250 °F plateau.</p> <p>2) RCS insulation may be removed and replaced as necessary to facilitate the test performance.</p> <p>3) Notify the MCR that 2-XA-55-5B/95F, RCS LOOSE PARTS DETECTED, [2-M-5] will cycle several times during the performance of this section.</p> |

- [1] **VERIFY** prerequisites listed in Section 4.0 have been completed. \_\_\_\_\_
  
- [2] **VERIFY** the following plant conditions:
  - A. The RCS is approximately 250 °F \_\_\_\_\_
  - B. All RCPs are operating \_\_\_\_\_
  - C. SG water level is greater than 0% Narrow Range Span \_\_\_\_\_
  
- [3] **ENSURE** status on the main display screen by the following indications:
  - A. "ON LINE" is displayed \_\_\_\_\_
  - B. "Remote Alarm Enabled" \_\_\_\_\_
  - C. "Rod Inhibit OFF" \_\_\_\_\_
  - D. Impact Alarm "Off" \_\_\_\_\_
  - E. System Trouble "Off" \_\_\_\_\_
  - F. Bias Volt. Problem "Off" \_\_\_\_\_
  - G. Rod Demand "Off" \_\_\_\_\_

Date \_\_\_\_\_

**6.4 Steam Generator 1 Sensors Test (continued)**

- [4] **ENSURE** all panel alarms are clear by the following indications:
  - A. DSP1 - DSP OK green LED brightly LIT \_\_\_\_\_
  - B. DSP2 - DSP OK green LED brightly LIT \_\_\_\_\_
  - C. DSP3 - DSP OK green LED brightly LIT \_\_\_\_\_
  - D. ALARM RELAY red LED is NOT LIT \_\_\_\_\_
  - E. TROUBLE RELAY orange LED is NOT LIT \_\_\_\_\_
- [5] **ENSURE** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_

**NOTE**

Adjust the volume on the "Analog Audio Monitor Panel" all the way down to protect the speakers.

- [6] **ENSURE** audio CHAN 1 switch is in Position 3. \_\_\_\_\_
- [7] **ENSURE** audio CHAN 2 switch is in Position 3. \_\_\_\_\_
- [8] **ENSURE** audio CHAN 1 On/Off switch is ON. \_\_\_\_\_
- [9] **ENSURE** audio CHAN 2 On/Off switch is ON. \_\_\_\_\_
- [10] **ADJUST** the audio volume such that the background noise (operating RCPs) is audible on each channel. \_\_\_\_\_
- [11] **RECORD** the value of the green number by channel 102 square on the main display screen.  
 Channel 102 \_\_\_\_\_
- [12] **LOCATE**, in containment, sensor 2-XE-52-102 at Steam Generator 1 below the tubesheet. \_\_\_\_\_

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**6.4 Steam Generator 1 Sensors Test (continued)**

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|--------------|--|
| <b>NOTES</b> |  |
| 1)           | ENSURE test performers at panel 2-R-188 are ready to monitor speakers and display for events/alarms initiated by performance of the following steps for 2-XE-52-102. |
| 2)           | The insulation removed in the following step is a distance of 3 feet or less from 2-XE-52-102.   |

[13] **ENSURE**, in containment, insulation for 2-XE-52-102 is removed. \_\_\_\_\_

[14] **IMPACT**, in containment, at a distance of (3) three feet from the sensor 2-XE-52-102 [(2) two impacts, 10 seconds apart] using the calibrated spring-loaded center punch, **AND** \_\_\_\_\_

**VERIFY** the following indicators at panel 2-R-188 :

A. On the audio panel, an audible impact sound was produced **(Acc Crit 5.0[1]E)**. \_\_\_\_\_

B. On the main display screen, the green value by the channel 102 square increased by two from the value recorded in Step 6.4[11] **(Acc Crit 5.0[2]E)**. \_\_\_\_\_

C. On the main display screen, the Impact Alarm is "ON" **(Acc Crit 5.0[3]E)**. \_\_\_\_\_

D. On the main display screen, the channel 102 square turns red. \_\_\_\_\_

[15] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS **(Acc Crit 5.0[3]E)**. \_\_\_\_\_



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**6.4 Steam Generator 1 Sensors Test (continued)**

- [16] **ENSURE** the data was recorded for channel 102 by performing the following:
  - [16.1] **PRESS** “Events by Channel” on the main display screen. \_\_\_\_\_
  - [16.2] **IF** necessary, **NAVIGATE** to the “Event Data Display” for today’s date. \_\_\_\_\_
  - [16.3] **ENSURE** channel 102 is selected by the depressed yellow square. \_\_\_\_\_
  - [16.4] **PRESS** “Show Details”. \_\_\_\_\_
  - [16.5] **CONFIRM** that event data was recorded for both events (**Acc Crit 5.0[4]E**). \_\_\_\_\_
- [17] **PRESS** “Alarm/Trouble Reset”, on the main display screen, to clear the alarms. \_\_\_\_\_
- [18] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_
- [19] **ENSURE**, in containment, any insulation removed in Step 6.4[13] is reinstalled. \_\_\_\_\_

**NOTES**

1) ENSURE test performers at panel 2-R-188 are ready to monitor speakers and display for events/alarms initiated by performance of the following steps for 2-XE-52-106.

2) The insulation removed in Step 6.4[21] is a distance of 3 feet or less from 2-XE-52-106.

- [20] **LOCATE**, in containment, sensor 2-XE-52-106 at Steam Generator 1 above the tubesheet. \_\_\_\_\_
- [21] **ENSURE**, in containment, insulation for 2-XE-52-106 is removed. \_\_\_\_\_

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**6.4 Steam Generator 1 Sensors Test (continued)**

[22] **RECORD** the value of the green number by channel 106 square on the main display screen.

Channel 106 \_\_\_\_\_

[23] **IMPACT**, in containment, at a distance of (3) three feet from the sensor 2-XE-52-106 [(2) two impacts 10 seconds apart] using the calibrated spring-loaded center punch, **AND**

**VERIFY** the following indicators, at panel 2-R-188:

A. On the audio panel, an audible impact sound was produced (**Acc Crit 5.0[1]F**).

B. On the main display screen, the green value by the channel 106 square increased by two from the value recorded in Step 6.4[22] (**Acc Crit 5.0[2]F**).

C. On the main display screen, the Impact Alarm is "ON" (**Acc Crit 5.0[3]F**).

D. On the main display screen, the channel 106 square turns red.

[24] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS (**Acc Crit 5.0[3]F**).

[25] **ENSURE** the data was recorded for channel 106 by performing the following:

[25.1] **PRESS** "Events by Channel" on the main display screen.

[25.2] **IF** necessary, **NAVIGATE** to the "Event Data Display" for today's date.

[25.3] **ENSURE** channel 106 is selected by the depressed yellow square.

[25.4] **PRESS** "Show Details".

[25.5] **CONFIRM** that event data was recorded for both events (**Acc Crit 5.0[4]F**).

[26] **PRESS** "Alarm/Trouble Reset", on the main display screen, to clear the alarms.

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**6.4 Steam Generator 1 Sensors Test (continued)**

[27] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS  
DETECTED, is CLEAR. \_\_\_\_\_

[28] **ENSURE**, in containment, that any insulation material removed  
in Step 6.4[21] is reinstalled. \_\_\_\_\_

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**6.5 Steam Generator 2 Sensors Test**

| <b>NOTES</b>   |
|--|
| 1) For this subsection, the RCS shall be filled and vented with all RCPs running. The SG secondary side water level should be covering the tubes at the normal water level. The RCS temperature should be at the 250 °F plateau. |
| 2) RCS insulation may be removed and replaced as necessary to facilitate the test performance.   |
| 3) Notify the MCR that 2-XA-55-5B/95F, RCS LOOSE PARTS DETECTED, [2-M-5] will cycle several times during the performance of this section.  |

[1] **VERIFY** prerequisites listed in Section 4.0 have been completed. \_\_\_\_\_

[2] **VERIFY** the following plant conditions: \_\_\_\_\_

A. The RCS is approximately 250 °F \_\_\_\_\_

B. All RCPs are operating \_\_\_\_\_

C. SG water level is greater than 0% Narrow Range Span \_\_\_\_\_

[3] **ENSURE** status on the main display screen by the following indications: \_\_\_\_\_

A. "ON LINE" is displayed \_\_\_\_\_

B. "Remote Alarm Enabled" \_\_\_\_\_

C. "Rod Inhibit OFF" \_\_\_\_\_

D. Impact Alarm "Off" \_\_\_\_\_

E. System Trouble "Off" \_\_\_\_\_

F. Bias Volt. Problem "Off" \_\_\_\_\_

G. Rod Demand "Off" \_\_\_\_\_

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**6.5 Steam Generator 2 Sensors Test (continued)**

- [4] **ENSURE** all panel alarms are clear by the following indications:
  - A. DSP1 - DSP OK green LED brightly LIT \_\_\_\_\_
  - B. DSP2 - DSP OK green LED brightly LIT \_\_\_\_\_
  - C. DSP3 - DSP OK green LED brightly LIT \_\_\_\_\_
  - D. ALARM RELAY red LED is NOT LIT \_\_\_\_\_
  - E. TROUBLE RELAY orange LED is NOT LIT \_\_\_\_\_
- [5] **ENSURE** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_

**NOTE**

Adjust the volume on the "Analog Audio Monitor Panel" all the way down to protect the speakers.

- [6] **ENSURE** audio CHAN 1 switch is in Position 4. \_\_\_\_\_
- [7] **ENSURE** audio CHAN 2 switch is in Position 4. \_\_\_\_\_
- [8] **ENSURE** audio CHAN 1 On/Off switch is ON. \_\_\_\_\_
- [9] **ENSURE** audio CHAN 2 On/Off switch is ON. \_\_\_\_\_
- [10] **ADJUST** the audio volume such that the background noise (operating RCPs) is audible on each channel. \_\_\_\_\_
- [11] **RECORD** the value of the green number by channel 103 square on the main display screen.  
 Channel 103 \_\_\_\_\_
- [12] **LOCATE**, in containment, sensor 2-XE-52-103 at Steam Generator 2 below the tubesheet. \_\_\_\_\_

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**6.5 Steam Generator 2 Sensors Test (continued)**

| <b>NOTES</b>  |
|---|
| 1) ENSURE test performers at panel 2-R-188 are ready to monitor speakers and display for events/alarms initiated by performance of the following steps for 2-XE-52-103. |
| 2) The insulation removed in the following step is a distance of 3 feet or less from 2-XE-52-103.   |

[13] **ENSURE**, in containment, insulation for 2-XE-52-103 is removed. \_\_\_\_\_

[14] **IMPACT**, in containment, at a distance of (3) three feet from the sensor 2-XE-52-103 [(2) two impacts, 10 seconds apart] using the calibrated spring-loaded center punch, **AND** \_\_\_\_\_

**VERIFY** the following indicators at panel 2-R-188:

A. On the audio panel, an audible impact sound was produced **(Acc Crit 5.0[1]G)**. \_\_\_\_\_

B. On the main display screen, the green value by the channel 103 square increased by two from the value recorded in Step 6.5[11] **(Acc Crit 5.0[2]G)**. \_\_\_\_\_

C. On the main display screen, the Impact Alarm is "ON" **(Acc Crit 5.0[3]G)**. \_\_\_\_\_

D. On the main display screen, the channel 103 square turns red. \_\_\_\_\_

[15] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS **(Acc Crit 5.0[3]G)**. \_\_\_\_\_

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**6.5 Steam Generator 2 Sensors Test (continued)**

- [16] **ENSURE** the data was recorded for channel 103 by performing the following:
  - [16.1] **PRESS** “Events by Channel” on the main display screen. \_\_\_\_\_
  - [16.2] **IF** necessary, **NAVIGATE** to the “Event Data Display” for today’s date. \_\_\_\_\_
  - [16.3] **ENSURE** channel 103 is selected by the depressed yellow square. \_\_\_\_\_
  - [16.4] **PRESS** “Show Details”. \_\_\_\_\_
  - [16.5] **CONFIRM** that event data was recorded for both events (**Acc Crit 5.0[4]G**). \_\_\_\_\_
- [17] **PRESS** “Alarm/Trouble Reset”, on the main display screen, to clear the alarms. \_\_\_\_\_
- [18] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_
- [19] **ENSURE**, in containment, any insulation removed in Step 6.5[13] is reinstalled. \_\_\_\_\_

**NOTES**

1) ENSURE test performers at panel 2-R-188 are ready to monitor speakers and display for events/alarms initiated by performance of the following steps for 2-XE-52-107.

2) The insulation removed in Step 6.5[21] is a distance of 3 feet or less from 2-XE-52-107.

- [20] **LOCATE**, in containment, sensor 2-XE-52-107 at Steam Generator 2 above the tubesheet. \_\_\_\_\_
- [21] **ENSURE**, in containment, insulation for 2-XE-52-107 is removed. \_\_\_\_\_

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**6.5 Steam Generator 2 Sensors Test (continued)**

[22] **RECORD** the value of the green number by the channel 107 square on the main display screen.

Channel 107 \_\_\_\_\_

[23] **IMPACT**, in containment, at a distance of (3) three feet from the sensor 2-XE-52-107 [(2) two impacts 10 seconds apart] using the calibrated spring-loaded center punch, **AND**

**VERIFY** the following indicators, at panel 2-R-188:

A. On the audio panel, an audible impact sound was produced (**Acc Crit 5.0[1]H**). \_\_\_\_\_

B. On the main display screen, the green value by the channel 107 square increased by two from the value recorded in Step 6.5[22] (**Acc Crit 5.0[2]H**). \_\_\_\_\_

C. On the main display screen, the Impact Alarm is “ON” (**Acc Crit 5.0[3]H**). \_\_\_\_\_

D. On the main display screen, the channel 107 square turns red. \_\_\_\_\_

[24] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS (**Acc Crit 5.0[3]H**). \_\_\_\_\_

[25] **ENSURE** the data was recorded for channel 107 by performing the following:

[25.1] **PRESS** “Events by Channel” on the main display screen. \_\_\_\_\_

[25.2] **IF** necessary, **NAVIGATE** to the “Event Data Display” for today’s date. \_\_\_\_\_

[25.3] **ENSURE** channel 107 is selected by the depressed yellow square. \_\_\_\_\_

[25.4] **PRESS** “Show Details”. \_\_\_\_\_

[25.5] **CONFIRM** that event data was recorded for both events (**Acc Crit 5.0[4]H**). \_\_\_\_\_

[26] **PRESS** “Alarm/Trouble Reset”, on the main display screen, to clear the alarms. \_\_\_\_\_



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**6.5 Steam Generator 2 Sensors Test (continued)**

[27] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS  
DETECTED, is CLEAR. \_\_\_\_\_

[28] **ENSURE**, in containment, that any insulation material removed  
in Step 6.5[21] is reinstalled. \_\_\_\_\_

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**6.6 Steam Generator 3 Sensors Test**

| <b>NOTES</b>   |
|--|
| <p>1) For this subsection, the RCS shall be filled and vented with all RCPs running. The SG secondary side water level should be covering the tubes at the normal water level. The RCS temperature should be at the 250 °F plateau.</p> <p>2) RCS insulation may be removed and replaced as necessary to facilitate the test performance.</p> <p>3) Notify the MCR that 2-XA-55-5B/95F, RCS LOOSE PARTS DETECTED, [2-M-5] will cycle several times during the performance of this section.</p> |

- [1] **VERIFY** prerequisites listed in Section 4.0 have been completed. \_\_\_\_\_
  
- [2] **VERIFY** the following plant conditions:
  - A. The RCS is approximately 250 °F \_\_\_\_\_
  - B. All RCPs are operating \_\_\_\_\_
  - C. SG water level is greater than 0% Narrow Range Span \_\_\_\_\_
  
- [3] **ENSURE** status on the main display screen by the following indications:
  - A. "ON LINE" is displayed \_\_\_\_\_
  - B. "Remote Alarm Enabled" \_\_\_\_\_
  - C. "Rod Inhibit OFF" \_\_\_\_\_
  - D. Impact Alarm "Off" \_\_\_\_\_
  - E. System Trouble "Off" \_\_\_\_\_
  - F. Bias Volt. Problem "Off" \_\_\_\_\_
  - G. Rod Demand "Off" \_\_\_\_\_

Date \_\_\_\_\_

**6.6 Steam Generator 3 Sensors Test (continued)**

- [4] **ENSURE** all panel alarms are clear by the following indications:
  - A. DSP1 - DSP OK green LED brightly LIT \_\_\_\_\_
  - B. DSP2 - DSP OK green LED brightly LIT \_\_\_\_\_
  - C. DSP3 - DSP OK green LED brightly LIT \_\_\_\_\_
  - D. ALARM RELAY red LED is NOT LIT \_\_\_\_\_
  - E. TROUBLE RELAY orange LED is NOT LIT \_\_\_\_\_
- [5] **ENSURE** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_

**NOTE**

Adjust the volume on the "Analog Audio Monitor Panel" all the way down to protect the speakers.

- [6] **ENSURE** audio CHAN 1 switch is in Position 5. \_\_\_\_\_
- [7] **ENSURE** audio CHAN 2 switch is in Position 5. \_\_\_\_\_
- [8] **ENSURE** audio CHAN 1 On/Off switch is ON. \_\_\_\_\_
- [9] **ENSURE** audio CHAN 2 On/Off switch is ON. \_\_\_\_\_
- [10] **ADJUST** the audio volume such that the background noise (operating RCPs) is audible on each channel. \_\_\_\_\_
- [11] **RECORD** the value of the green number by the channel 104 square on the main display screen.
 

Channel 104 \_\_\_\_\_
- [12] **LOCATE**, in containment, sensor 2-XE-52-104 at Steam Generator 3 below the tubesheet. \_\_\_\_\_

|                       |   |   |
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**6.6 Steam Generator 3 Sensors Test (continued)**

|              |  |
|--------------|--|
| <b>NOTES</b> |  |
| 1)           | ENSURE test performers at panel 2-R-188 are ready to monitor speakers and display for events/alarms initiated by performance of the following steps for 2-XE-52-104. |
| 2)           | The insulation removed in the following step is a distance of 3 feet or less from 2-XE-52-104.   |

[13] **ENSURE**, in containment, insulation for 2-XE-52-104 is removed. \_\_\_\_\_

[14] **IMPACT**, in containment, at a distance of (3) three feet from the sensor 2-XE-52-104 [(2) two impacts, 10 seconds apart] using the calibrated spring-loaded center punch, **AND** \_\_\_\_\_

**VERIFY** the following indicators at panel 2-R-188:

A. On the audio panel, an audible impact sound was produced **(Acc Crit 5.0[1]I)**. \_\_\_\_\_

B. On the main display screen, the green value by the channel 104 square increased by two from the value recorded in Step 6.6[11] **(Acc Crit 5.0[2]I)**. \_\_\_\_\_

C. On the main display screen, the Impact Alarm is "ON" **(Acc Crit 5.0[3]I)**. \_\_\_\_\_

D. On the main display screen, the channel 104 square turns red. \_\_\_\_\_

[15] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS **(Acc Crit 5.0[3]I)**. \_\_\_\_\_

|                       |   |   |
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**6.6 Steam Generator 3 Sensors Test (continued)**

- [16] **ENSURE** the data was recorded for channel 104 by performing the following:
  - [16.1] **PRESS** “Events by Channel” on the main display screen. \_\_\_\_\_
  - [16.2] **IF** necessary, **NAVIGATE** to the “Event Data Display” for today’s date. \_\_\_\_\_
  - [16.3] **ENSURE** channel 104 by the depressed yellow square. \_\_\_\_\_
  - [16.4] **PRESS** “Show Details”. \_\_\_\_\_
  - [16.5] **CONFIRM** that event data was recorded for both events (**Acc Crit 5.0[4]I**). \_\_\_\_\_
- [17] **PRESS** “Alarm/Trouble Reset”, on the main display screen, to clear the alarms. \_\_\_\_\_
- [18] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_
- [19] **ENSURE**, in containment, any insulation removed in Step 6.6[13] is reinstalled. \_\_\_\_\_

|              |  |
|--------------|--|
| <b>NOTES</b> |  |
| 1)           | ENSURE test performers at panel 2-R-188 are ready to monitor speakers and display for events/alarms initiated by performance of the following steps for 2-XE-52-108. |
| 2)           | The insulation removed in Step 6.6[21] is a distance of 3 feet or less from 2-XE-52-108.   |

- [20] **LOCATE**, in containment, sensor 2-XE-52-108 at Steam Generator 3 above the tubesheet. \_\_\_\_\_
- [21] **ENSURE**, in containment, insulation for 2-XE-52-108 is removed. \_\_\_\_\_

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Date \_\_\_\_\_

**6.6 Steam Generator 3 Sensors Test (continued)**

[22] **RECORD** the value of the green number by channel 108 square on the main display screen.

Channel 108 \_\_\_\_\_

[23] **IMPACT**, in containment, at a distance of (3) three feet from the sensor 2-XE-52-108 [(2) two impacts 10 seconds apart] using the calibrated spring-loaded center punch, **AND**

**VERIFY** the following indicators at panel 2-R-188:

A. On the audio panel, an audible impact sound was produced (**Acc Crit 5.0[1]J**).

B. On the main display screen, the green value by the channel 108 square increased by two from the value recorded in Step 6.6[22] (**Acc Crit 5.0[2]J**).

C. On the main display screen, the Impact Alarm is "ON" (**Acc Crit 5.0[3]J**).

D. On the main display screen, the channel 108 square turns red.

[24] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS (**Acc Crit 5.0[3]J**).

[25] **ENSURE** the data was recorded for channel 108 by performing the following:

[25.1] **PRESS** "Events by Channel" on the main display screen.

[25.2] **IF** necessary, **NAVIGATE** to the "Event Data Display" for today's date.

[25.3] **ENSURE** channel 108 is selected by the depressed yellow square.

[25.4] **PRESS** "Show Details".

[25.5] **CONFIRM** that event data was recorded for both events (**Acc Crit 5.0[4]J**).

[26] **PRESS** "Alarm/Trouble Reset", on the main display screen, to clear the alarms.

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Date \_\_\_\_\_

**6.6 Steam Generator 3 Sensors Test (continued)**

[27] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS  
DETECTED, is CLEAR. \_\_\_\_\_

[28] **ENSURE**, in containment, that any insulation material removed  
in Step 6.6[21] is reinstalled. \_\_\_\_\_

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**6.7 Steam Generator 4 Sensors Test**

| <b>NOTES</b>   |
|--|
| 1) For this subsection, the RCS shall be filled and vented with all RCPs running. The SG secondary side water level should be covering the tubes at the normal water level. The RCS temperature should be at the 250 °F plateau. |
| 2) RCS insulation may be removed and replaced as necessary to facilitate the test performance.   |
| 3) Notify the MCR that 2-XA-55-5B/95F, RCS LOOSE PARTS DETECTED, [2-M-5] will cycle several times during the performance of this section.  |

[1] **VERIFY** prerequisites listed in Section 4.0 have been completed. \_\_\_\_\_

[2] **VERIFY** the following plant conditions: \_\_\_\_\_

A. The RCS is approximately 250 °F \_\_\_\_\_

B. All RCPs are operating \_\_\_\_\_

C. SG water level is greater than 0% Narrow Range Span \_\_\_\_\_

[3] **ENSURE** status on the main display screen by the following indications: \_\_\_\_\_

A. "ON LINE" is displayed \_\_\_\_\_

B. "Remote Alarm Enabled" \_\_\_\_\_

C. "Rod Inhibit OFF" \_\_\_\_\_

D. Impact Alarm "Off" \_\_\_\_\_

E. System Trouble "Off" \_\_\_\_\_

F. Bias Volt. Problem "Off" \_\_\_\_\_

G. Rod Demand "Off" \_\_\_\_\_



Date \_\_\_\_\_

**6.7 Steam Generator 4 Sensors Test (continued)**

- [4] **ENSURE** all panel alarms are clear by the following indications:
  - A. DSP1 - DSP OK green LED brightly LIT \_\_\_\_\_
  - B. DSP2 - DSP OK green LED brightly LIT \_\_\_\_\_
  - C. DSP3 - DSP OK green LED brightly LIT \_\_\_\_\_
  - D. ALARM RELAY red LED is NOT LIT \_\_\_\_\_
  - E. TROUBLE RELAY orange LED is NOT LIT \_\_\_\_\_
- [5] **ENSURE** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_

**NOTE**

Adjust the volume on the "Analog Audio Monitor Panel" all the way down to protect the speakers.

- [6] **ENSURE** audio CHAN 1 switch is in Position 6. \_\_\_\_\_
- [7] **ENSURE** audio CHAN 2 switch is in Position 6. \_\_\_\_\_
- [8] **ENSURE** audio CHAN 1 On/Off switch is ON. \_\_\_\_\_
- [9] **ENSURE** audio CHAN 2 On/Off switch is ON. \_\_\_\_\_
- [10] **ADJUST** the audio volume such that the background noise (operating RCPs) is audible on each channel. \_\_\_\_\_
- [11] **RECORD** the value of the green number by the channel 105 square on the main display screen.
 

Channel 105 \_\_\_\_\_
- [12] **LOCATE**, in containment, sensor 2-XE-52-105 at Steam Generator 4 below the tubesheet. \_\_\_\_\_

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Date \_\_\_\_\_

**6.7 Steam Generator 4 Sensors Test (continued)**

|              |  |
|--------------|--|
| <b>NOTES</b> |  |
| 1)           | ENSURE test performers at panel 2-R-188 are ready to monitor speakers and display for events/alarms initiated by performance of the following steps for 2-XE-52-105. |
| 2)           | The insulation removed in the following step is a distance of 3 feet or less from 2-XE-52-105.   |

[13] **ENSURE**, in containment, insulation for 2-XE-52-105 is removed. \_\_\_\_\_

[14] **IMPACT**, in containment, at a distance of (3) three feet from the sensor 2-XE-52-105 [(2) two impacts, 10 seconds apart] using the calibrated spring-loaded center punch, **AND** \_\_\_\_\_

**VERIFY** the following indicators at panel 2-R-188:

A. On the audio panel, an audible impact sound was produced **(Acc Crit 5.0[1]K)**. \_\_\_\_\_

B. On the main display screen, the green value by the channel 105 square increased by two from the value recorded in Step 6.7[11] **(Acc Crit 5.0[2]K)**. \_\_\_\_\_

C. On the main display screen, the Impact Alarm is "ON" **(Acc Crit 5.0[3]K)**. \_\_\_\_\_

D. On the main display screen, the channel 105 square turns red. \_\_\_\_\_

[15] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS **(Acc Crit 5.0[3]K)**. \_\_\_\_\_

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Date \_\_\_\_\_

**6.7 Steam Generator 4 Sensors Test (continued)**

- [16] **ENSURE** the data was recorded for channel 105 by performing the following:
  - [16.1] **PRESS** “Events by Channel” on the main display screen. \_\_\_\_\_
  - [16.2] **IF** necessary, **NAVIGATE** to the “Event Data Display” for today’s date. \_\_\_\_\_
  - [16.3] **ENSURE** channel 105 is selected by the depressed yellow square. \_\_\_\_\_
  - [16.4] **PRESS** “Show Details”. \_\_\_\_\_
  - [16.5] **CONFIRM** that event data was recorded for both events (**Acc Crit 5.0[4]K**). \_\_\_\_\_
- [17] **PRESS** “Alarm/Trouble Reset”, on the main display screen, to clear the alarms. \_\_\_\_\_
- [18] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_
- [19] **ENSURE**, in containment, any insulation removed in Step 6.7[13] is reinstalled. \_\_\_\_\_

**NOTES**

1) ENSURE test performers at panel 2-R-188 are ready to monitor speakers and display for events/alarms initiated by performance of the following steps for 2-XE-52-109.

2) The insulation removed in Step 6.7[21] is a distance of 3 feet or less from 2-XE-52-109.

- [20] **LOCATE**, in containment, sensor 2-XE-52-109 at Steam Generator 4 above the tubesheet. \_\_\_\_\_
- [21] **ENSURE**, in containment, insulation for 2-XE-52-109 is removed. \_\_\_\_\_

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Date \_\_\_\_\_

**6.7 Steam Generator 4 Sensors Test (continued)**

[22] **RECORD** the value of the green number by the channel 109 square on the main display screen.

Channel 109 \_\_\_\_\_

[23] **IMPACT**, in containment, at a distance of (3) three feet from the sensor 2-XE-52-109 [(2) two impacts 10 seconds apart] using the calibrated spring-loaded center punch, **AND**

**VERIFY** the following indicators, at panel 2-R-188:

A. On the audio panel, an audible impact sound was produced (**Acc Crit 5.0[1]L**). \_\_\_\_\_

B. On the main display screen, the green value by the channel 109 square increased by two from the value recorded in Step 6.7[22] (**Acc Crit 5.0[2]L**). \_\_\_\_\_

C. On the main display screen, the Impact Alarm is “ON” (**Acc Crit 5.0[3]L**). \_\_\_\_\_

D. On the main display screen, the channel 109 square turns red. \_\_\_\_\_

[24] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS (**Acc Crit 5.0[3]L**). \_\_\_\_\_

[25] **ENSURE** the data was recorded for channel 109 by performing the following:

[25.1] **PRESS** “Events by Channel” on the main display screen. \_\_\_\_\_

[25.2] **IF** necessary, **NAVIGATE** to the “Event Data Display” for today’s date. \_\_\_\_\_

[25.3] **ENSURE** channel 109 is selected by the depressed yellow square. \_\_\_\_\_

[25.4] **PRESS** “Show Details”. \_\_\_\_\_

[25.5] **CONFIRM** that event data was recorded for both events (**Acc Crit 5.0[4]L**). \_\_\_\_\_

[26] **PRESS** “Alarm/Trouble Reset”, on the main display screen, to clear the alarms. \_\_\_\_\_

|                       |   |   |
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Date \_\_\_\_\_

**6.7 Steam Generator 4 Sensors Test (continued)**

[27] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS  
DETECTED, is CLEAR. \_\_\_\_\_

[28] **ENSURE**, in containment, that any insulation material removed  
in Step 6.7[21] is reinstalled. \_\_\_\_\_

|                       |   |   |
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Date \_\_\_\_\_

**6.8 Control Rod Motion Alarm Inhibit Test**

|  |  |
|--|--|
| <b>NOTES</b>   |  |
| 1) The Control Rod Drive Mechanisms are required to cycle for the performance of this test subsection.<br>2) The RCS shall be pressurized at the HFT plateau of 557 °F with all RCPs running.<br>3) The following steps are coordinated with 2-PTI-085-01, Rod Control System Functional Test, as CRDM cycling is required to verify the Rod Inhibit function. |  |

- [1] **VERIFY** prerequisites listed in Section 4.0 have been completed. \_\_\_\_\_
- [2] **VERIFY** the following plant conditions:
  - A. The RCS is at the 557 °F plateau \_\_\_\_\_
  - B. All RCPs are operating \_\_\_\_\_
  - C. SG water level is greater than 0% Narrow Range Span \_\_\_\_\_
- [3] **ENSURE** status on the main display screen by the following indications:
  - A. "ON LINE" is displayed \_\_\_\_\_
  - B. "Remote Alarm Enabled" \_\_\_\_\_
  - C. "Rod Inhibit OFF" \_\_\_\_\_
  - D. Impact Alarm "Off" \_\_\_\_\_
  - E. System Trouble "Off" \_\_\_\_\_
  - F. Bias Volt. Problem "Off" \_\_\_\_\_
  - G. Rod Demand "Off" \_\_\_\_\_

Date \_\_\_\_\_

**6.8 Control Rod Motion Alarm Inhibit Test (continued)**

- [4] **ENSURE** all panel alarms are clear by the following indications:
- A. DSP1 - DSP OK green LED brightly LIT \_\_\_\_\_
  - B. DSP2 - DSP OK green LED brightly LIT \_\_\_\_\_
  - C. DSP3 - DSP OK green LED brightly LIT \_\_\_\_\_
  - D. ALARM RELAY red LED is NOT LIT \_\_\_\_\_
  - E. TROUBLE RELAY orange LED is NOT LIT \_\_\_\_\_
- [5] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_

**NOTE**

Adjust the volume on the "Analog Audio Monitor Panel" all the way down to protect the speakers.

- [6] **ENSURE** audio CHAN 1 switch is in Position 1. \_\_\_\_\_
- [7] **ENSURE** audio CHAN 2 switch is in Position 1. \_\_\_\_\_
- [8] **ENSURE** audio CHAN 1 On/Off switch is ON. \_\_\_\_\_
- [9] **ENSURE** audio CHAN 2 On/Off switch is ON. \_\_\_\_\_
- [10] **ADJUST** the audio volume such that the background noise (operating RCPs) is audible on each channel. \_\_\_\_\_

**NOTE**

Steps 6.8[11] through 6.8[26] may be repeated if coordination problems occur.

- [11] **INFORM** the Test Director of 2-PTI-085-01, Rod Control System Functional Test, CRDM withdrawal sequencing may commence.
- VERIFY** the following:
- A. On the main display screen, "Rod Inhibit ON". \_\_\_\_\_
  - B. On the main display screen, the Rod Demand is "ON". \_\_\_\_\_

Date \_\_\_\_\_

**6.8 Control Rod Motion Alarm Inhibit Test (continued)**

- C. On the main display screen, the Impact Alarm remains "Off" (**Acc Crit 5.0[5]**). \_\_\_\_\_
- D. On the audio panel, cycling of the CRDMs is audible. \_\_\_\_\_
- E. 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR (**Acc Crit 5.0[5]**). \_\_\_\_\_
- [12] **REQUEST** Test Director of 2-PTI-085-01, Rod Control System Functional Test, to stop withdrawal sequencing. \_\_\_\_\_
- [13] **INFORM** the Test Director of 2-PTI-085-01, Rod Control System Functional Test, CRDM insertion sequencing may commence. \_\_\_\_\_
- [14] **VERIFY** the following:
  - A. On the main display screen, "Rod Inhibit ON". \_\_\_\_\_
  - B. On the main display screen, the Rod Demand is "ON". \_\_\_\_\_
  - C. On the main display screen, the Impact Alarm remains "Off" (**Acc Crit 5.0[5]**). \_\_\_\_\_
  - D. On the audio panel, cycling of the CRDMs is audible. \_\_\_\_\_
  - E. 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR (**Acc Crit 5.0[5]**). \_\_\_\_\_
- [15] **REQUEST** Test Director of 2-PTI-085-01, Rod Control System Functional Test, to stop insertion sequencing. \_\_\_\_\_

**NOTE**

The following steps cycle the CRDMs with the Rod Inhibit disabled.

- [16] **SELECT** "Disable Rod Inhibit", on the main display screen. \_\_\_\_\_
- [17] **ENTER** password to disable Rod Inhibit. \_\_\_\_\_
- [18] **VERIFY** "Rod Inhibit Disabled" with a yellow background is indicated. \_\_\_\_\_
- [19] **INFORM** the Test Director of 2-PTI-085-01, Rod Control System Functional Test, CRDM withdrawal sequencing may commence. \_\_\_\_\_



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Date \_\_\_\_\_

**6.8 Control Rod Motion Alarm Inhibit Test (continued)**

- [20] **VERIFY** the following:
  - A. On the main display screen, "Rod Inhibit Disabled". \_\_\_\_\_
  - B. On the main display screen, the Rod Demand is "ON". \_\_\_\_\_
  - C. On the main display screen, the Impact Alarm is "ON". \_\_\_\_\_
  - D. On the audio panel, cycling of the CRDMs is audible. \_\_\_\_\_
  - E. 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS. \_\_\_\_\_
  
- [21] **REQUEST** Test Director of 2-PTI-085-01, Rod Control System Functional Test, to stop withdrawal sequencing. \_\_\_\_\_
  
- [22] **PRESS** "Alarm/Trouble Reset", on the main display screen, to clear the alarms. \_\_\_\_\_
  
- [23] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, is CLEAR. \_\_\_\_\_
  
- [24] **INFORM** the Test Director of 2-PTI-085-01, Rod Control System Functional Test, CRDM insertion sequencing may commence. \_\_\_\_\_
  
- [25] **VERIFY** the following:
  - A. On the main display screen, "Rod Inhibit Disabled". \_\_\_\_\_
  - B. On the main display screen, the Rod Demand is "ON". \_\_\_\_\_
  - C. On the main display screen, the Impact Alarm is "ON". \_\_\_\_\_
  - D. On the audio panel, cycling of the CRDMs is audible. \_\_\_\_\_
  - E. 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS DETECTED, ALARMS. \_\_\_\_\_
  
- [26] **REQUEST** Test Director of 2-PTI-085-01, Rod Control System Functional Test, to stop insertion sequencing. \_\_\_\_\_
  
- [27] **PRESS** "Alarm/Trouble Reset", on the main display screen, to clear the alarms. \_\_\_\_\_

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Date \_\_\_\_\_

**6.8 Control Rod Motion Alarm Inhibit Test (continued)**

[28] **VERIFY** 2-XA-55-5B/95F [2-M-5], RCS LOOSE PARTS  
DETECTED, is CLEAR. \_\_\_\_\_

[29] **SELECT** "Enable Rod Inhibit", on the main display screen. \_\_\_\_\_

Date \_\_\_\_\_

**7.0 POST PERFORMANCE ACTIVITIES**

- [1] **ADJUST** the audio volume to the lowest possible volume setting. \_\_\_\_\_
- [2] **ENSURE** audio CHAN 1 On/Off switch is OFF. \_\_\_\_\_
- [3] **ENSURE** audio CHAN 2 On/Off switch is OFF. \_\_\_\_\_
- [4] **ENSURE** status on the main display screen by the following indications:
  - A. "ON LINE" is displayed \_\_\_\_\_
  - B. "Remote Alarm Enabled" \_\_\_\_\_
  - C. "Rod Inhibit OFF" \_\_\_\_\_
  - D. Impact Alarm "Off" \_\_\_\_\_
  - E. System Trouble "Off" \_\_\_\_\_
  - F. Bias Volt. Problem "Off" \_\_\_\_\_
  - G. Rod Demand "Off" \_\_\_\_\_
- [5] **ENSURE** all panel alarms are clear by the following indications:
  - A. DSP1 - DSP OK green LED brightly LIT \_\_\_\_\_
  - B. DSP2 - DSP OK green LED brightly LIT \_\_\_\_\_
  - C. DSP3 - DSP OK green LED brightly LIT \_\_\_\_\_
  - D. ALARM RELAY red LED is NOT LIT \_\_\_\_\_
  - E. TROUBLE RELAY orange LED is NOT LIT \_\_\_\_\_
- [6] **NAVIGATE** to the "View Channel Configuration" screen. \_\_\_\_\_
- [7] **ENSURE** all check boxes are checked in the "Enable?" Column. \_\_\_\_\_
- [8] **PRINT** the "View Channel Configuration" screen, **AND LABEL** printout with test parameters. \_\_\_\_\_
- [9] **NAVIGATE** to the main display screen. \_\_\_\_\_

|                       |   |   |
|-----------------------|---|---|
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**7.0 POST PERFORMANCE ACTIVITIES (continued)**

[10] **TOGGLE** the main display screen Power Switch OFF. \_\_\_\_\_

[11] **NOTIFY** the Unit 2 US/SRO of the test completion and system alignment. \_\_\_\_\_

[12] **VERIFY** that Post-test calibration of the M&TE used to simulate a quantitative input response has been satisfactorily performed, **AND**

**RECORD** the results on the M&TE LOG in Appendix C. \_\_\_\_\_

|                       |   |   |
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**8.0 RECORDS**

A. QA Records

Completed Test Package (PTI)

B. Non-QA Records

None

|                       |   |   |
|-----------------------|---|---|
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**Appendix A  
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**TEST PROCEDURES/INSTRUCTIONS REFERENCE REVIEW**

|  |
|--|
| <b>NOTES</b>   |
| <p>1) Additional copies of this table may be made as necessary.</p> <p>2) Initial and date indicates review has been completed for impact.</p> |

| <b>PROCEDURE/<br/>INSTRUCTION</b>     | <b>REVISION/CHANGES</b> | <b>IMPACT<br/>Yes/No</b> | <b>INITIAL AND DATE.<br/>(N/A for no change)</b> |
|---------------------------------------|-------------------------|--------------------------|--|
| FSAR Section 14.2-1<br>Sheet 61 of 89 |                         |                          |  |
| FSAR Section 7.6.7                    |                         |                          |  |
| 2-TSD-52-1                            |                         |                          |  |
| 2-PTI-085-01                          |                         |                          |  |
| 1TS3176                               |                         |                          |  |
| VTD-W120-2568                         |                         |                          |  |
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**Appendix C  
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**MEASURING AND TEST EQUIPMENT LOG**

| M&TE ID # | DESCRIPTION<br><br>RANGE/ACCURACY   | CAL DUE<br>DATE | USED FOR<br>QUANTITATIVE<br>ACC. CRIT. |    | POST-<br>TEST CAL<br>DATE | POST-<br>TEST CAL<br>ACCEPT<br><br>INIT/DATE |
|-----------|---|-----------------|--|----|---------------------------|--|
|           |   |                 | YES                                    | NO |                           |  |
|           | Calibrated Spring-Loaded<br>Center Punch Impact<br>Device that generates a<br>0.5 ft-lbs +/- 0.15 ft-lbs<br>impact signal |                 |  |    |                           |  |



|               |                                    |  |
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Appendix D  
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**BREAKER LINEUP**

| BREAKER IDENTIFICATION                | BREAKER DESCRIPTION                       | BREAKER LOCATION  | TEST POSITION | VERIFIED BY INITIAL/ DATE | CV INITIAL/ DATE |
|---------------------------------------|---|---|---------------|---------------------------|------------------|
| 2-BKR-235-3/03-F                      | BREAKER FOR LPMS EQUIPMENT IN PNL 2-R-188 | 2-BD-235-3-F, 120V AC VITAL INSTR PWR BD 2-III (COL A11R/ EL 757) | ON            |                           |                  |
| 0-LAC-228-131, BREAKER FOR CIRCUIT #2 | BREAKER FOR LPMS PRINTER IN PNL 2-R-188   | 0-LAC-228-131,LIGHTING CABINET 131 (COL C3 / EL 708)              | ON            |                           |                  |