

**MRP** Materials Reliability Program \_\_\_\_\_ MRP 2012-034

(via email)

August 27, 2012

Document Control Desk  
U. S. Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852

Subject: Transmittal: Corrections to PWR Reactor Internals Inspection and Evaluation Guidelines (MRP-227-A)

Reference: EPRI PROJECT NUMBER 0669

1. *Materials Reliability Program: Pressurized Water Reactor Internals Inspection and Evaluation Guidelines (MRP-227-A)*. EPRI, Palo Alto, CA: December 2011, 1022863
2. EPRI Letter MRP 2011-036, January 9, 2012: TRANSMITTAL: PWR REACTOR INTERNALS INSPECTION AND EVALUATION GUIDELINES (MRP-227-A)
3. U. S. Nuclear Regulatory Commission letter "Revision 1 to the Final Safety Evaluation of EPRI Report, Material Reliability Program Report 1016596 (MRP-227), Revision 0, *Pressurized Water Reactor (PWR) Internals Inspection and Evaluation Guidelines*, (TAC NO. ME0680)," dated December 16, 2011

Enclosed is a document identifying two corrections to the EPRI Technical Report 1022863, *Materials Reliability Program: PWR Reactor Internals Inspection and Evaluation Guidelines (MRP 227-A)*, December 2011 (Reference 1) provided by Reference 2. The first is a correction to page 4-36 where the top row in the continuation of Table 4-5 was omitted in transitioning from Revision 0 of the document to the 227-A version which reflects the document accepted by the NRC in its Safety Evaluation (Reference 3). The missing row was in the document reviewed by the NRC staff (Revision 0), and no comments or discussion occurred during the review process relative to this item. The second correction is to text material on page 4-76 where a typographical error existing in the earlier version of the document incorrectly identified a section of the ASME Code that does not exist – the correction now identifies the correct existing section of the Code.

A copy of the enclosure to this letter is being provided to all existing recipients of MPR 227-A, and will be provided to any future recipients as part of the report distribution package.

Together . . . Shaping the Future of Electricity

**PALO ALTO OFFICE**

3420 Hillview Avenue, Palo Alto, CA 94304-1338 USA • 650.855.2000 • Customer Service 800.313.3774 • www.epri.com

D035  
HRL

If you have any questions on this transmittal or on MRP-227-A, please contact Kyle Amberge by phone at (650) 855-2039 or by e-mail at [kamberge@epri.com](mailto:kamberge@epri.com).

Sincerely,



Tim Wells,  
Southern Nuclear Operating Company  
Chairman, Materials Reliability Program Integration Committee

cc: Sheldon Stuchell, NRC  
Matt Sunseri, Wolf Creek Nuclear Operating Company  
Scot Greenlee, Exelon Corporation  
Victoria Anderson, NEI  
Randall Crane, INPO  
Randy Stark, EPRI  
Kurt Edsinger, EPRI  
Anne Demma, EPRI  
Robin Dyle, EPRI  
Kyle Amberge, EPRI

Together . . . Shaping the Future of Electricity

**PALO ALTO OFFICE**

3420 Hillview Avenue, Palo Alto, CA 94304-1338 USA • 650.855.2000 • Customer Service 800.313.3774 • [www.epri.com](http://www.epri.com)

August 23, 2012

**Subject: Corrections to EPRI Report 1022863, Materials Reliability Program: Pressurized Water Reactor Internals Inspection and Evaluation Guidelines (MRP-227-A)**

Dear Recipient of EPRI report 1022863,  
Errors were found on two pages in EPRI report 1022863, released December 23, 2011.

The errors occurred on pages 4-36 and 4-76.

**On page 4-36** in the continuation of Table 4-5, the top row below was missing:

Table 4-5  
CE plants Expansion components (continued)

Item	Applicability	Effect (Mechanism)	Primary Link (Note 1)	Examination Method (Note 1)	Examination Coverage
Core Shroud Assembly (Welded) Remaining axial welds	Plant designs with core shrouds assembled in two vertical sections	Cracking (IASCC)	Core shroud plate-former plate weld	Enhanced visual (EVT-1) examination. Re-inspection every 10 years following initial inspection.	Axial weld seams other than the core shroud re-entrant corner welds at the core mid-plane.  See Figure 4-12.
Core Shroud Assembly (Welded) Remaining axial welds, Ribs and rings	Plant designs with core shrouds assembled with full-height shroud plates	Cracking (IASCC) Aging Management (IE)	Shroud plates of welded core shroud assemblies	Enhanced visual (EVT-1) examination. Re-inspection every 10 years following initial inspection.	Axial weld seams other than the core shroud re-entrant corner welds at the core mid-plane, plus ribs and rings.  See Figure 4-13.
Control Element Assembly	All plants with	Cracking (SCC)	Peripheral	Visual (VT 3) examination	100% of tubes in CEA

**On Page 4-76** in Section 4.4.3 Westinghouse Components, in the first ‘bullet’ – the text refers to ‘..... ASME Code Section XI Table IWB-2510, .....’. The reference should be ‘.....ASME Code Section XI Table IWB-2500-1, .....’.

Corrected pages are attached. Please insert these pages into your copy of EPRI 1022863 or download a file from EPRI.com that now includes this erratum:

[http://my.epri.com/portal/server.pt?Product\\_id=000000000001022863](http://my.epri.com/portal/server.pt?Product_id=000000000001022863)

We apologize for the error and any inconvenience this may have caused.

Sincerely,

EPRI Publishing

Together . . . Shaping the Future of Electricity

**Table 4-5**  
**CE plants Expansion components (continued)**

Item	Applicability	Effect (Mechanism)	Primary Link (Note 1)	Examination Method/Frequency (Note 1)	Examination Coverage
<b>Core Shroud Assembly (Welded)</b> Remaining axial welds	Plant designs with core shrouds assembled in two vertical sections	Cracking (IASCC)	Core shroud plate-former plate weld	Enhanced visual (EVT-1) examination. Re-inspection every 10 years following initial inspection.	Axial weld seams other than the core shroud re-entrant corner welds at the core mid-plane.  See Figure 4-12.
<b>Core Shroud Assembly (Welded)</b> Remaining axial welds, Ribs and rings	Plant designs with core shrouds assembled with full-height shroud plates	Cracking (IASCC) Aging Management (IE)	Shroud plates of welded core shroud assemblies	Enhanced visual (EVT-1) examination. Re-inspection every 10 years following initial inspection.	Axial weld seams other than the core shroud re-entrant corner welds at the core mid-plane, plus ribs and rings.  See Figure 4-13.
<b>Control Element Assembly</b> Remaining instrument guide tubes	All plants with instrument guide tubes in the CEA shroud assembly	Cracking (SCC, Fatigue) that results in missing supports or separation at the welded joint between the tubes and supports.	Peripheral instrument guide tubes within the CEA shroud assemblies	Visual (VT-3) examination. Re-inspection every 10 years following initial inspection.	100% of tubes in CEA shroud assemblies (Note 2).  See Figure 4-18.

Notes to Table 4-5:

1. Examination acceptance criteria and expansion criteria for the CE components are in Table 5-2.
2. A minimum of 75% coverage of the entire examination area or volume, or a minimum sample size of 75% of the total population of like components of the examination is required (including both the accessible and inaccessible portions).

### **4.4.3 Westinghouse Components**

Table 4-9 describes the PWR internals in the Existing Programs for Westinghouse plants.

The following is a list of the Westinghouse Existing Programs Components.

- ***ASME Section XI***

Existing:

- Core barrel flange (applicable to all plants)
- Upper support ring or skirt (applicable to all plants)
- Lower core plate and XL lower core plate (applicable to all plants)
- Clevis insert bolts (applicable to all plants)
- Upper core plate alignment pins (applicable to all plants)

These component items are considered core support structures that are typically examined during the 10-year inservice inspection per ASME Code Section XI Table IWB-2500-1, B-N-3 [2]. For these component items, the requirements of B-N-3 (visual VT-3) are considered sufficient to monitor for the aging effects addressed by these guidelines.

- ***Plant-specific***

The guidance for flux thimble tubes is included in Table 4-9 and is based on owner commitments.

The guidance for guide tube support pins (split pins) is limited to plant specific recommendations and thus have no generic reference. Subsequent performance monitoring should follow the supplier recommendations. They thus are not included in Table 4-9. The owner should review their specific design, upgrade status, and asset management plans for Westinghouse guide tube support pins (split pins).

### **4.5 No Additional Measures Components**

It has been determined that no additional aging management is necessary for components in this group. In no case does this determination relieve utilities of the ASME Code Section XI [2] IWB Examination Category B-N-3 inservice inspection requirements for components from this group classified as core support structures unless specific relief is granted as allowed by 10CFR50.55a [4].