Materials Reliability Program: Screening, Categorization, and Ranking of Reactor Internals Components for Westinghouse and Combustion Engineering PWR Design (MRP-191, Revision 2)

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EPRI Project Manager
K. Amberge

EPRI | ELECTRIC POWER RESEARCH INSTITUTE

3420 Hillview Avenue
Palo Alto, CA 94304-1338
USA

PO Box 10412
Palo Alto, CA 94303-0813
USA

800.313.3774
650.855.2121

askepri@epri.com

www.epri.com

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The following organization, under contract to the Electric Power Research Institute (EPRI), prepared this report:

Westinghouse Electric Company, LLC
1000 Westinghouse Drive
Cranberry Township, PA 16066

Principal Investigators
A. Freed
J. McKinley

EPRI thanks the following members of the expert panel:

A. Alpan	Westinghouse
W. Bamford	Westinghouse
E. Benacquista	Westinghouse
B. Carpenter	Westinghouse
E. Deemer	Westinghouse
R. Haessler	Westinghouse
J. Kielb	Westinghouse
V. Mickus	Westinghouse
P. Minogue	Westinghouse
R. Taylor	Westinghouse
B. Wilson	Westinghouse
K. Amberge	EPRI

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Abstract

This report describes the process and results of categorizing Westinghouse- and Combustion Engineering–designed pressurized water reactor (PWR) internals components according to their age-related degradation and significance. This Revision 2 updates the previous revision to address operation beyond 60 years into subsequent periods of extended operation. Key changes implemented in this revision include the separation of degradation consequence into safety and economic categories and the use of updated screening criteria for the aging-related materials degradation mechanisms. The results documented in this revision are a key part of the technical basis used in developing technically sound inspection and evaluation guidelines for aging management of PWR internals. Many of the evaluation results documented herein likely apply to PWR units operated in countries outside the United States. However, international PWR owners must validate the applicability of the assessments and evaluations made herein to their units.

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