

# **Analysis of Reactor Vessel Radiation Effects Surveillance Programs**

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and  
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**American Society for Testing and Materials**

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# ANALYSIS OF REACTOR VESSEL RADIATION EFFECTS SURVEILLANCE PROGRAMS

Prepared under the auspices of  
THE METAL PROPERTIES COUNCIL  
by L. E. Steele and C. Z. Serpan, Jr.

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# Foreword

Many factors have combined to accelerate the programs of the members of the electric power industry for the erection of power stations using nuclear fuel.

The Metal Properties Council was assigned the role of analyzing and up-dating the mass of data expected to be accumulated as a result of the surveillance testing program that has been adopted as a means of measuring the changes in properties of pressure vessel materials as a function of neutron fluence.

In preparation for this task, L. E. Steele and C. Z. Serpan, Jr., have written this volume which summarizes and analyzes all pertinent information concerning the influence of neutrons on the properties of pressure vessel materials. As a convenience to the electric power industry, the Metal Properties Council previously has circulated a brief report on "Suggested Guidelines for Selecting a Surveillance Specimen Evaluation Laboratory."

This volume has been reviewed and approved by Subcommittee 6 of the Metal Properties Council. It is published with the cooperation of the American Society for Testing and Materials.

An attempt will be made to continue to gather information resulting from pressure vessel surveillance test programs in power reactors. The results of the analysis of this program also will be prepared by the Metal Properties Council.

*Adolph O. Schaefer*

The Metal Properties Council

## **Related ASTM Publications**

**Effects of High-Energy Radiation on Inorganic Substances,  
STP 400 (1966), \$5.25**

**Irradiation Effects in Structural Alloys for Thermal and  
Fast Reactors, STP 457 (1969), \$36.00**

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