

monitoring structural integrity by acoustic emission

Spanner/McElroy

STP 571



AMERICAN SOCIETY FOR TESTING AND MATERIALS

MONITORING STRUCTURAL INTEGRITY BY ACOUSTIC EMISSION

A symposium
presented at
Ft. Lauderdale, Fla., 17-18 Jan. 1974
AMERICAN SOCIETY FOR
TESTING AND MATERIALS

ASTM SPECIAL TECHNICAL PUBLICATION 571
J. C. Spanner, editor
J. W. McElroy, co-editor

List price \$23.75
04-571000-22



AMERICAN SOCIETY FOR TESTING AND MATERIALS
1916 Race Street, Philadelphia, Pa. 19103

© by AMERICAN SOCIETY FOR TESTING AND MATERIALS 1975
Library of Congress Catalog Card Number: 74-28978

NOTE

The Society is not responsible, as a body,
for the statements and opinions
advanced in this publication.

Printed in Baltimore, Md.
March 1975

Foreword

The symposium on Monitoring Structural Integrity by Acoustic Emission was presented in Ft. Lauderdale, Fla., 17-18 Jan. 1974. The symposium was sponsored by Committee E-7 on Nondestructive Testing, American Society for Testing and Materials. J. C. Spanner, Westinghouse Hanford Co., presided as symposium chairman. J. W. McElroy, Philadelphia Electric Co., presided as symposium co-chairman.

Related ASTM Publications

Acoustic Emission, STP 505 (1972), \$22.50, (04-505000-22)

Contents

Introduction	1
Why Acoustic Emission—Why Not?— <i>B. H. Schofield</i>	3
Acoustic Emission in the Frequency Domain— <i>L. J. Graham and G. A. Alers</i>	11
Acoustic Emission During Phase Transformation in Steel— <i>G. R. Speich and A. J. Schwoeble</i>	40
Development of Acoustic Emission Testing for the Inspection of Gas Distribution Pipelines— <i>J. W. McElroy</i>	59
Evaluating the Stability of Geologic Structures Using Acoustic Emission— <i>H. R. Hardy, Jr.</i>	80
Acceptance Testing Welded Ammunition Belt Links Using Acoustic Emission— <i>P. H. Hutton</i>	107
Industrial Use of Acoustic Emission for Nondestructive Testing— <i>T. F. Drouillard, R. G. Liptai, and C. A. Tatro</i>	122
Industrial Application of Acoustic Emission Analysis Technology— <i>D. L. Parry</i>	150
Establishing Structural Integrity Using Acoustic Emission— <i>C. F. Morais and A. T. Green</i>	184
Acoustic Monitoring Systems to Assure Integrity of Nuclear Plants— <i>Raj Gopal</i>	200
Detection and Location of Flaw Growth in Metallic and Composite Structures— <i>M. P. Kelly, D. O. Harris, and A. A. Pollock</i>	221
Acoustic Emission—A Bibliography for 1970-1972— <i>T. F. Drouillard</i>	241
General Index	285