

# nuclear technology®

CONTENTS / MAY 1975—VOL. 26, NO. 1

## TECHNICAL PAPERS

### REACTORS

- 5 Total Energy Investment in Nuclear Power Plants / *Charles T. Rombough, Billy V. Koen*
- 12 On the Matching of Fusion Breeders to Heavy-Water Reactors / *G. LaVergne, J. E. Robinson, J. G. Martel*

### CHEMICAL PROCESSING

- 23 Fissile-Solution Storage in Pipes Isolated by Concrete or Water / *S. J. Aitschuler, C. L. Schuske*

### MATERIALS

- 35 Diffusion Analyses for Systems of Spherical Particles / *Walter A. Stark, Jr.*
- 46 Fatigue-Crack Propagation in a Cast Stainless Steel / *Lee A. James*

### RADIOISOTOPES

- 54 Benefit/Risk Analysis of Cardiac Pacemakers Powered by Betacel® Promethium-147 Batteries / *T. H. Smith, J. Greenborg, W. E. Matheson*

### NUCLEAR EXPLOSIVES

- 65 Computer Design of High-Explosive Experiments to Simulate Subsurface Nuclear Detonations / *Donald E. Burton, Charles M. Snell, Jon B. Bryan*
- 88 Radioactivity Trapped in Melt Produced by a Nuclear Explosion / *I. Y. Borg*

### ANALYSIS

- 101 Dynamic Nondestructive Inspection Using Thermal Neutrons / *Paul J. Rose, Alan M. Jacobs, Edward S. Kenney*

(Continued)

## ON THIS COVER

This month's cover is a microphotograph of a thin section of glass from the pile-driver nuclear explosion debris. Courtesy of I. Y. Borg, Lawrence Livermore Laboratory, Livermore, California.

# CONTENTS / MAY 1975—VOL. 26, NO. 1

(Continued)

## TECHNIQUES

- 107 Time-Resolved Neutron Radiography Using a Fast Pulse Reactor / *C. L. Asestine, R. A. Strich*

## TECHNICAL NOTE

## REACTORS

- 115 A Comprehensive Expression for the Doubling Time of Fast Breeder Reactors / *R. W. Hardie, W. W. Little, R. P. Omberg*

## DEPARTMENTS

- 1 Authors
- 117 Book Review