

# PROCEEDINGS

## THIRTIETH ANNUAL INSTITUTE ON MINING HEALTH, SAFETY AND RESEARCH

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# INTRODUCTION

This *Proceedings* contains the presentations made at the Thirtieth Annual Institute on Mining Health, Safety and Research, held at the University of Utah in Salt Lake City, August 8-11, 1999.

The first twenty-seven Annual Institutes were held at Virginia Tech in Blacksburg, Virginia. The Twenty-Eighth Annual Institute was held in Salt Lake City and co-hosted by the Department of Mining Engineering at the University of Utah and Virginia Tech. Subsequently, the venue has alternated between the east and west with the two Universities as co-hosts. The Institute enjoys wide support from the mining community and was co-sponsored by the following organizations:

- Department of Mining Engineering, University of Utah
- Department of Mining and Minerals Engineering, Virginia Tech
- Bituminous Coal Operator's Association
- Mine Safety and Health Administration, U.S. Department of Labor
- Mining and Metallurgical Society of America
- National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention
- National Mining Association
- National Stone Association
- Utah Mining Association

The Institute provides an information forum for mine operators, managers, superintendents, safety directors, engineers, inspectors, researchers, teachers, state agency officials, and others with a responsible interest in the important field of mining safety and health. In particular, the Institute is designed to help mine operating personnel gain a broader knowledge and understanding of the various aspects of mining safety and health, and to present them with methods of control and solutions developed through research.