

PREFACE:

NUCLEAR EXPLOSION ENGINEERING

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This special issue of *Nuclear Technology* compiles in a single reference all but two of the papers (published elsewhere) on nuclear explosion engineering presented at the ANS Washington meeting as well as certain papers from the Atomic Industrial Forum, November 1970. Events since the National Topical Meeting on Engineering with Nuclear Explosives (January 1970) indicate that the USSR has been pursuing an active explosion engineering research and development program for some time. Dr. Werth's paper summarizes recent Soviet work reported at international panels and in publications. Evidently the Soviets have reduced explosion engineering to a commercial practice for development of natural resources in the area of water resources and control of large natural gas field fires.

One of the major current concerns of our country is in providing electric or thermal energy

for our future needs with a minimum impact on the environment. In this regard, the stimulation of marginal gas-bearing strata with explosion engineering appears to be a promising energy alternative. Several of the papers discuss the various aspects of nuclear gas stimulation, including an advanced engineering concept, economics, environmental assessments and inter-comparisons, and experimental results.

Also included in this volume are contributions to basic understanding of explosion effects. This type of knowledge needs extension in order that explosion engineering designs can make optimal use of explosion effects.

The last group of papers reports highlights of the biomedical research performed by the Lawrence Radiation Laboratory Bio-Medical Division staff in support of nuclear excavation applications.