

BOOK REVIEW

Selection of books for review is based on the editors' opinions regarding possible reader interest and on the availability of the book to the editors. Occasional selections may include books on topics somewhat peripheral to the subject matter ordinarily considered acceptable.



Peaceful Nuclear Explosions II

<i>Editors</i>	International Atomic Energy Agency
<i>Publisher</i>	Unipub, Inc. (1971)
<i>Pages</i>	355
<i>Price</i>	\$10.00
<i>Reviewer</i>	Keaton Keller

Peaceful Nuclear Explosions II is the proceedings of a panel on the applications of the peaceful uses of nuclear explosions. Because the environmental disturbances of contained nuclear explosions are much less than cratering explosions, this book is concerned with contained explosions. Most of the articles are on natural gas and oil reservoir stimulation since these applications have the greatest promise, both technically and economically. Also discussed is the novel use of nuclear explosions to extinguish uncontrolled natural gas well fires. The Soviet Union has used a nuclear explosion to seal off a burning gas well, something they were unable to do in any other way. The last two sections of the book contain articles on mechanical and seismic effects and the problem of radioactivity associated with nuclear explosions.

The book contains a great wealth of detailed material, especially with respect to natural gas and petroleum stimulation. This detailed material, which is difficult to find except by consulting many references, is found in the various graphs and tables, as well as in the text. Hence, this book is a valuable one to anyone with a serious interest in peaceful nuclear explosions (PNE).

Ample pictures and excellent diagrams are found throughout the text so that a person not interested in details can benefit by reading the abstracts of the articles and the captions under the pictures and diagrams. All the abstracts are in four languages: English, French, Russian, and Spanish. Some of the articles are in Russian and French; translations of these articles are available for those not knowledgeable in Russian and French, although a reading of the English abstract and a study of the diagrams give considerable useful information.

The last three articles of the book discuss what the reviewer considers the most important aspect of this field, namely, the radioactivity released by nuclear explosions. The various authors conclude that this is a solvable problem, at least in some applications. It is interesting to note that the Russians, like us, have measured a tolerable amount of

radioactivity in their gas and oil experiments.

While interest in PNE has decreased recently, the energy crises in the Western World seem likely to renew activity in this field, especially if the programs to produce nuclear explosions with an almost negligible amount of radioactivity are successful. It should be emphasized that this book is somewhat narrow in scope but is very pertinent to the most important industrial applications of PNE as we now consider them.

Keaton Keller (PhD, physics, Washington University, 1951) was professor of nuclear engineering at the University of Arizona from 1959 through 1969. In the early 1950's he was assistant professor of physics and geophysics at the University of Alaska. His interest in nuclear explosions began while he was at Los Alamos between 1943 and 1946. He witnessed the first nuclear explosion in 1945 and has visited the Nevada Test Site on occasions to observe the effects of both contained and cratering explosions. He was one of the first to give a university course in the peaceful uses of nuclear explosions and is particularly interested in ways to minimize the production of radioactivity by nuclear explosives.