

The second monograph is similar in format, evaluating the data on the formation of the aqueous ions in the various oxidation states. Thorium through berkelium are covered in detail, and californium through lawrencium more briefly.

The authors have been successful in their goal of providing a critical summary of thermodynamic data on the actinide elements that would be of use to "nuclear engineers and/or physical scientists concerned with problems in nuclear systems."

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### Uranium Ore Processing

(Proceedings of an International Atomic Energy Agency Symposium, November 1975)

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*Pages* 238

*Price* \$19.00

*Reviewer* Arturo Bronson

The International Atomic Energy Agency (IAEA) organized this Proceedings to bring together new information on uranium ore processing. Eighteen papers were presented and 49 participants attended the symposium held in November 1975.

Three major subjects have been covered by the Proceedings: uranium ore processing, the problems associated with ore processing, and uranium recovery from seawater. The sessions containing papers on uranium ore processing are the following: uranium ore milling practice (five papers); known and partially engineered techniques that have not reached full application in milling of uranium ores (one paper); processing of low-grade resources (four papers); *in situ* leaching (one paper); uranium as a by-product and by-products from uranium ores (one paper). A valuable session containing three papers was held on the problems associated with uranium ore processing. A session containing two papers discusses the design considerations for the recovery of uranium from seawater.

In the appendix, the IAEA has classified several uranium plants according to extraction processes in tabular form. In addition, the tables present the following general information on each uranium plant: ore characteristics, type of milling, type of leaching, solid/liquid separation, and the type of concentration/purification systems. The appendix also contains a summary of the new uranium plants, their type of deposit, and the proposed extraction methods that are being investigated.

The symposium could have been better organized. For example, papers on ore processing are presented in five different sessions, although three sessions contain only one paper. Also, it appears that the text was not edited, because the micrographs lack magnification scales and some papers lack conclusions and summaries.

The text is intended for engineers in the uranium ore processing field and serves to bring the engineers up-to-date in the field. Although the technology presented is somewhat superficial, the papers bring together valuable information acquired since the IAEA's 1970 symposium.

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### Radiological Safety Aspects of the Operation of Neutron Generators

*Author* R. F. Boggs

*Publisher* International Atomic Energy Agency  
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*Pages* 42

*Price* \$3.50

*Reviewer* A. Keith Furr

This short book is intended for neutron generator operators who have had very little prior experience or training in health physics or radiation safety. As such, it does not attempt to cover any specific topic in detail.

The book is divided into four sections. The first is a brief but clear description of the major features of small neutron generators. The second section discusses the radiation hazards and preventive measures that should be employed to reduce or eliminate their effect. The third section deals with monitoring devices and instruments, and the fourth section covers the broadened aspects of an adequate radiation safety program. There are two appendixes, one dealing with nonradiation hazards and safety considerations and the other describing the desirable features of a neutron generator laboratory.

Although brief, as noted above, the second section on hazards is quite adequate for the purpose intended. It describes the hazards most likely to be encountered and gives typical values for the level of these hazards. A relatively untrained operator should be able to gain an appreciation of the dangers involved in normal operation of the generators.

In a few instances, one might wish more information. For example, when speaking of storing targets and used oil contaminated with tritium, the author suggests using containers made of material through which tritium will not