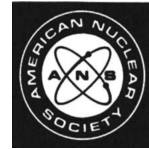


BOOK REVIEWS

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



Management, Stabilisation and Environmental Impact of Uranium Mill Tailings

(Proceedings of the Nuclear Energy Agency Seminar, Albuquerque, New Mexico, July 1978)

Publisher Organization for Economic Cooperation and Development Nuclear Energy Agency (1978)

Pages 498

Price \$20.00

Reviewer John W. McKlveen

From licensing through decommissioning, the management, stabilization, and environmental impact of uranium mill tailings are perhaps the most important and difficult societal aspects of the front end of the fuel cycle. Considerable planning, environmental assessment and radiological impact studies are now required as part of the U.S. NEPA licensing process. A draft U.S. GEIS on mill tailings was recently released.

Once operational, the tailings must be carefully scrutinized to ensure normal and expected behavior with minimal releases. Decommissioning efforts require the residual waste form be placed in a configuration that is stable and as safe as reasonably achievable with minimal or no caretaker responsibility. In the U.S., typical mills are expected to produce on the order of 13 million tons of tailings during a lifetime; ~140 million tons are in existence already and ~10 to 15 million tons are being generated annually. In the midst of all the changing requirements and regulations, one finds scientists and engineers who must address the problems and provide answers to the numerous regulatory agencies. Therefore, it is imperative that the professionals be cognizant of the latest technological developments and have an opportunity to assess the current status of knowledge, contribute to solving problems, and establish a basis for international cooperation on uranium mill tailings technical matters. Toward that end the Nuclear Energy Agency seminar was convened.

The proceedings follow the topical sessions, which included source terms, environmental aspects, management and stabilization policies, and regulatory aspects. Considerable effort was devoted to leaching problems, stabilization of tailings, and uranium progeny (i.e., radon exhalation and ^{226}Ra leaching), and several papers discussed methods used to address problems at specific plants. Numerous foreign contributors discussed their problems and regulatory practices.

The proceedings are certainly useful to individuals responsible for uranium tailings. In addition, those inter-

ested in the environmental aspects of tailings and ^{226}Ra scavaging by various barium-precipitation schemes would find the information useful. Those interested in licensing and the latest information on environmental impacts would be better off obtaining the GEIS on Mill Tailings [NUREG 0511, U.S. Nuclear Regulatory Commission (1979)] and a recently released document that describes the Uranium Dispersion and Dosimetry Code [NUREG/CR-0533, U.S. Nuclear Regulatory Commission (1979)].

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Thermionic Converters and Low-Temperature Plasma

Author F. G. Baksht et al.

Publisher National Technical Information Service (1978)

Pages 484

Price \$15.00

Reviewer David T. Shaw

The authors of this book are experimentalists and theoreticians from the Institute of Semiconductors of the USSR Academy of Sciences, Leningrad, and have been recognized for their important contributions to the field of thermionic plasma research. The book brings together an impressive collection of information on the subject and represents the first comprehensive discussion devoted exclusively to the low-temperature plasma aspect of the converter research.

There is an introductory chapter, then thermionic emission, cesium evaporation, ionization, and adsorption on electrodes are discussed in Chap. 2. This is followed by four excellent chapters on the kinetic processes of the non-LTE (local thermodynamic equilibrium) plasma in the inter-electrode spacing. Special emphasis is placed on the pre-electrode phenomena near the emitter, where most of the