

member of the American Chemical Society and the American Institute of Chemical Engineers; he is also a Fellow of the American Nuclear Society and the American Institute of Chemists.

Assessment of Radioactive Contamination in Man

Editor International Atomic Energy Agency
Publisher Unipub, Inc.
Pages 698
Price \$21.00
Reviewer Norman A. Baily

Assessment of Radioactive Contamination in Man contains the thoughts and recent work of the leading experts in this field. The status of research and technology (as of November 1971) with relation to this important problem which arises from the various current uses of radioactive nuclides is well summarized. The volume consists of 45 individual papers and the discussions which followed their delivery. As is stated in the Introduction, the meeting produced very little in the way of new technology. However, much new methodology has been introduced, such being aimed at increasing accuracy, sensitivity, and speed in assessing the degree of radioactive contamination in human subjects.

Dr. Morgan's introductory presentation is excellent and clarifies the reasons for the change from Maximum Permissible Concentration levels in man to the concept of Dose Commitment (rem to critical organ of reference man per μCi intake).

The book is divided into five major sections:

1. Direct Methods of Assessment
2. Indirect Methods of Assessment
3. Body Burden Assessment Programs
4. Distribution Studies and Dosimetry
5. Investigation of Accidents.

In addition to instrumentation and methodology, a considerable amount of actual uptake data and concentration of radionuclides found in man is given in the various papers. This

makes the volume a handy reference for engineers and physicists normally expert in other aspects of the field.

Norman A. Baily is professor of radiology and chief of the Division of Radiological Physics and Engineering at the University of California, San Diego. His research spans the areas of dosimetry, radiobiology, and roentgen imaging techniques. He is a diplomate of the American Board of Radiology and the American Board of Health Physics.

Peaceful Uses of Atomic Energy, Volume 9: Isotope Enrichment; Fuel Cycles; Safeguards

Editor International Atomic Energy Agency
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Price \$14.00
Reviewer John A. Wethington, Jr.

This volume contains 34 compendia; although a comprehensive review is virtually impossible, a few comments are in order. Each paper endeavors to present "the state of the art" for a particular project in a particular country. In general, the authors have succeeded. The collection of references makes the book worth the price, and considering the present-day cost of books, this volume is a real bargain.

Isotope separation is of major interest to the reviewer. Seven papers deal with this subject and the the costs of enrichment services. The history of secrecy in centrifuge technology, as revealed in some of these papers, is fascinating. In 1960, workers in the United Kingdom, the Federal Republic of Germany, and the Netherlands—at the request of the United States Government—classified all centrifuge research and worked independently of each other. In 1968, workers in the three countries concluded that all were at the same level of achievement, and in 1970 these countries joined together and signed the Amelo Treaty of Col-

laboration. Commercial plants, owned and operated by the Tripartite Enrichment Organization, are now under construction. So goes secrecy!

Thirteen papers deal with fuel cycles. Lack of interest in thorium is apparent, since only four papers, all from foreign countries, treat this subject. The paper from the KEMA laboratories is the only one dealing with liquid reactors. This interesting area is obviously in a moribund state.

The area of greatest interest in this volume is safeguards analysis, objectives, and techniques. Fourteen papers, roughly 40% of the book, deal with this subject. These papers show that this is rapidly becoming a very active field with problems involving statistical quality control and inventory. New techniques in non-destructive testing are badly needed. The paper describing the U.S. Atomic Energy Commission Nuclear Materials Information System was fascinating, and it reflects the complexity of the problem.

John A. Wethington, Jr. (PhD, chemistry, Northwestern University, 1950), professor of nuclear engineering, has been at the University of Florida for twenty years. During this time, he spent two years at the Puerto Rico Nuclear Center and one year at the Lawrence Livermore Laboratory. His current interests include radiation effects, tritium transport in the environment, and natural radioactivity in the phosphate industry.

Peaceful Uses of Atomic Energy, Volume 12: Nuclear Methods in Food Production; Education, Training, Public Information

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Reviewer C. L. Comar

As indicated by the title, this volume is comprised of papers presented in the given subject areas,

together with limited discussions of groups of papers. Most of the volume deals with the use of nuclear methods in agriculture; however, the section on education and training deals with the training of technicians, technologists, and engineers in all aspects of nuclear energy applications. The volume, therefore, would be of special interest to students, research workers, or research administrators who have an interest in the application of nuclear techniques to problems of agriculture, and to those interested in approaches to general training.

The value of the volume is somewhat decreased by the language problem. All papers have reasonably good abstracts in each of the four languages used; however, about two-thirds of the papers are written in English, with the others in Spanish, French, or Russian. To give an idea of coverage, the number of pages devoted to each major subject area is as follows: 265 pages to "Nuclear

Methods of Increasing Food Production," 152 pages to "Nuclear Methods of Reducing Food Losses," and 114 pages to "Education and Training of Scientists and Technicians."

In the first two sections on agriculture, most of the papers are of a review type, covering the major programs of the Joint FAO/IAEA Division of Atomic Energy in Food and Agriculture and the larger programs of various countries. Although specific experimental details are not generally given, this up-to-date review is very valuable because of the bibliographies and because it emphasizes those research programs that have shown enough promise of success to have been carried on intensively. Note that the entire focus is on studies of practical agricultural importance. In accordance with tradition, most of the studies deal with soil and crop relationships and neglect applications to animal production.

The section on training consists

essentially of case histories of efforts in Latin America, the Republic of China, Poland, France, the United Kingdom, the United States, and India. The value of this section is, in my opinion, quite limited.

In summary, it would appear that this volume is most valuable for anyone who wants to be up-to-date and stimulated by practical applications of nuclear energy in the service of agriculture.

C. L. Comar (PhD, biochemistry, Purdue University, 1941), presently head of the Department of Physical Biology, New York State Veterinary College, Cornell University, is the author of Radioisotopes in Biology and Agriculture, the first text in this area. He has served as a consultant to the United Nations Development Program and the International Atomic Energy Agency in the establishment of agricultural research programs in Yugoslavia, India, and Brazil.