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.

Objectives and Design of Environmental Monitoring Programmes for Radioactive Contaminants
(IAEA Safety Series No. 41)

Editor	C. N. Webster
Publisher	International Atomic Energy Agency (1975) (Distributed by Unipub, Inc.)
Pages	Text 33 pp; annexus 92 pp.
Price	$8.00
Reviewer	Varada P. T. (Hary) Charyulu

This "manual" is expected to be of use to member states of the International Atomic Energy Agency (IAEA) at all stages of development in the use of ionizing radiation. This book is intended primarily for those involved in the design and operation of environmental monitoring programs, under normal operating conditions as well as under any foreseeable emergency conditions. The subject matter is specifically concerned with the objectives of environmental monitoring programs associated with radiation facilities; the design and development of adequate programs and procedures for the various types of installations, populations, and environments concerned; and the interpretation of the results in terms of an assessment of the possible radiation dose to humans. The manual also includes four appendices in which examples of environmental monitoring programs, methods, and techniques used by some countries are presented. It is to be expected that the guidance provided in this manual be of very general nature since in a text comprising only 33 pages, it is hardly possible to discuss in any great depth any phase of the program. Furthermore, legal and environmental, etc., conditions vary from country to country and region to region, and as such it is rather difficult to come up with a specific program that is satisfactorily applicable to all nations.

One of the stated objectives of this manual is that "particular attention is given to the special needs of developing countries and those with little experience in these matters." However, it is felt that this manual fails to achieve this goal, as it often leaves the reader with doubts as to the interpretation of the guidelines provided. For example, consider Sec. VI, paragraph 602, p. 23, which deals with "determination of doses to individual members of the public from planned releases." Paragraph 602 reads: "The average radiation dose received by members of the critical population group can be determined from the results of the survey measurements in the critical pathways using the relationships determined in the preoperational investigations[2]." The reference is made to Sec. IV, paragraph 404, p. 9. However, in paragraph 404 nothing definite is established. For an inexperienced group these two paragraphs, viz., 602 and 404, do not offer any firm guidance. Similarly, paragraph 605, dealing with "the determination of dose to the whole population within a selected region from planned releases," does not offer any guidance to those with little experience.

Another item not discussed at all, either in the text or in the annexes, is one of the stated objectives of emergency surveys, which is "to provide information for the public regarding the emergency situation." However, the reviewer is assuming that some definite guidance is provided in the earlier publications, viz., IAEA Safety Series Nos. 1, 16, and 18, which are *The Safe Handling of Radionuclides*, *Manual of Environmental Monitoring in Normal Operations*, and *Environmental Monitoring in Emergency Situations*, respectively.

The appendices are quite informative, and additional appendices dealing with specific organizational and evaluational aspects of a few countries together with the dose limits followed in their programs would have made this manual valuable. The only typographical error that caught the reviewer's attention is in paragraph 707 on p. 27. The word "taken" is misprinted.

All in all, the book is very presentable, very affordable, and may be of general use to the intended readers.

Varada P. T. (Hary) Charyulu is an associate professor in the School of Engineering at Idaho State University. Hary received a BS in electrical engineering from Osmania and an MS in power engineering from Roorkee, in India. He later received an MS from Purdue University and a

PhD in nuclear engineering from Iowa State University. He taught for four years in the Physics Department at the University of Tulsa, and for the past eight years he has been on the faculty of Idaho State University. His experiences have varied, from being a consultant to City Service Oil Company to working as a visiting scientist with Argonne National Laboratory. He has also been associated with the space program through National Aeronautics and Space Administration programs conducted at Stanford University. His present interests are in the fields of fast reactor physics and fast breeder reactor safety.

Safeguards Against Nuclear Proliferation

Author	Benjamin Sanders
Publishers	The MIT Press
Pages	114
Price	$14.95
Reviewer	Manuel A. Kanter

Safeguards Against Nuclear Proliferation is a short, well-written background volume concerned with the activities of the International Atomic Energy Agency (IAEA) in the safeguarding of nuclear material. The author outlines the major considerations that shape the safeguards in force today. The book will be quite useful to interested members of the nuclear community because the issues and some of the documentation are very well presented in a very short 114 pages.

It is interesting that the authorship is disclosed only in the last paragraph of the preface. The cover page indicates that the book is simply a monograph by the Stockholm International Peace Research Institute. I would suppose that the intention is that the contents of the book speak for themselves. However, it is a pity that the excellent qualifications of the author, Benjamin Sanders, are not brought to the attention of the reader.

It is my observation that many of the discussions on this subject that one hears in corridors at meetings and sees in the editorial columns of the press show a remarkable ignorance of the fact that international safeguards are circumscribed by international agreements. They are limited by considerations of national sovereignty and, in general, cannot be approached from a unilateral point of view. The IAEA is often criticized as if its limitations were self-imposed. A reading of this book will quickly show that the IAEA is a creature of its member nations and will give the reader a quite clear idea of the limitations those members have placed upon it.

In 57 pages, the text gives a short history of safeguards, lays out the basic issues involved in coming to the present international safeguards, details the present application of safeguards by the IAEA, gives finances and statistics of the IAEA, and briefly discusses future developments. This is supplemented by an additional 57 pages of appendix material giving the full text of the major IAEA documents that are not generally known except by those within the safeguards and arms control community.

The major shortcoming of the volume lies in the chapter on applications. Not enough material is presented to allow for any significant assessment of the efficacy of IAEA safeguards. The reader would have been well served by the inclusion in the appendix of either actual or model safeguards subsidiary arrangements, so that the extent of the application of safeguards would be known to the reader. In addition, some discussion of the actual inspection effort would be helpful in this regard.

In conclusion, I believe the book can easily be read in an evening. It would be an evening well spent by those in the nuclear community who have an interest in this very current topic.

Manuel A. Kanter (a graduate of Northeastern University and the Illinois Institute of Technology) has been a member of the staff of the Argonne National Laboratory (ANL) since 1946. A physical chemist, he spent the first 22 of those years at ANL in basic research with materials in the nuclear fuel cycle. In 1968, he became director of the training program in safeguards at the ANL Center for Educational Affairs, a program that in its five years of operation has trained over 300 participants from industry and government, both foreign and domestic.

Since January of 1976, he has been the director of the nuclear power courses that the Center is presenting for managers and engineers of developing countries in a cooperative program of the International Atomic Energy Agency (IAEA) and the Government of the U.S. Kanter is education chairman of the Institute of Nuclear Materials Management and a member of the American Nuclear Society and the American Physical Society. He has served as a consultant and senior officer with the IAEA in the area of safeguards training.

Thermodynamics of Linear Transport Processes

Author	Marjan Ribarič
Publisher	Slovene Academy of Sciences and Arts (1975)
Pages	158
Reviewer	Paul Nelson

This monograph is philosophically similar to, and substantially based upon, the earlier two-volume work, *Functional-Analytic Concepts and Structures of Neutron Transport Theory*, from the same author and publisher. Consequently, the present review should be read in conjunction with the review by Larsen of the earlier monograph.[1]

The basic language of this monograph is modern functional analysis in a Banach-space context. The viewpoint is that of linear input-output analysis for bodies of finite size ("black boxes"), as contrasted to the much more prevalent field-theoretical approach in which the starting point concerns behavior within infinitesimal bodies. The aim is to formulate input-output hypotheses that appropriately reproduce the qualitative aspects of thermodynamic behavior. To paraphrase a comment from the cited earlier work, the author seems more interested in analyzing physical inferences of thermodynamicists than in