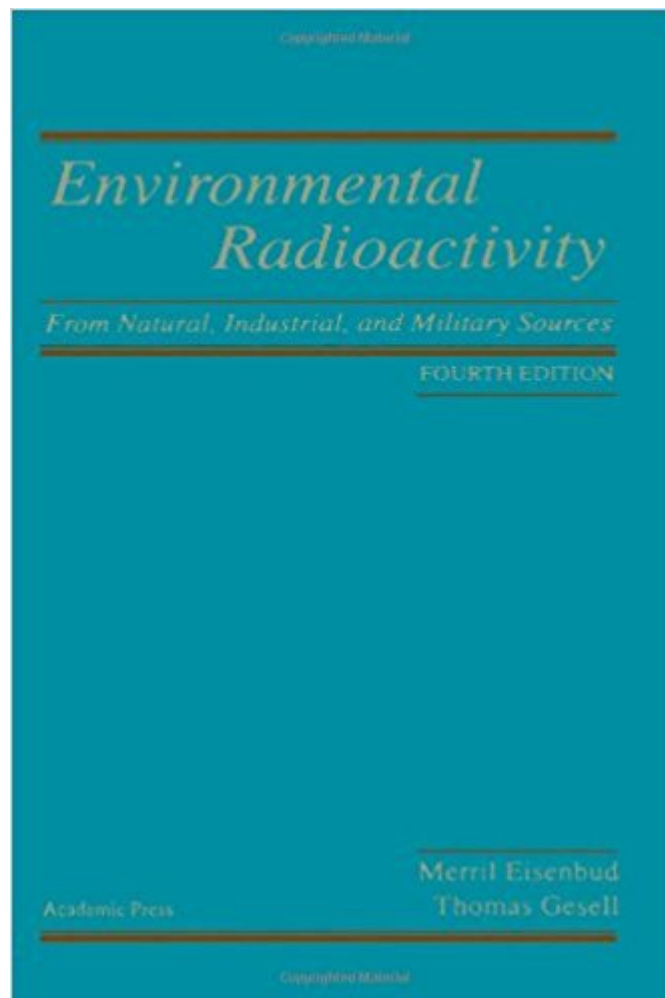




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# Environmental Radioactivity From Natural, Industrial And Military Sources, Fourth Edition



## Synopsis

Environmental Radioactivity from Natural, Industrial, and Military Sources is the comprehensive source of information on radiation in the environment and human exposure to radioactivity. This Fourth Edition is a complete revision and extension of the classic work, reflecting major new developments and concerns as the Cold War ended, nuclear weapons began to be dismantled, and cleanup of the nuclear weapons facilities assumed center stage. Contamination from accidents involving weapons, reactors, and radionuclide sources are discussed in an updated chapter, including the latest information about the effects of the Chernobyl accident. Important revisions are also made to the chapters on natural radioactivity, nuclear fuels and power reactors, radioactive waste management, and various other sources of exposure. Several chapters provide primers for readers who may not be familiar with the fundamentals of radiation biology, protection standards, and pathways for the environmental transport of radionuclides. An Appendix lists the properties of the more important radionuclides found in the environment. The book concludes with a commentary on contemporary social aspects of radiation exposure and risks that offers an alternative view to current, often excessive concerns over radiation, nuclear technology, and waste.

Describes every important source of environmental radioactivity  
Reviews the vexing problems of radioactive waste management and clean-up of contaminated sites  
Contains measured or projected radiation dose estimates for the major sources  
Features 126 figures, 80 tables, and more than 1200 references  
Discusses current problems in historical context  
The two authors bring more than 75 years of combined experience with environmental radioactivity  
Provides an understanding of the sources of environmental radioactivity and human exposure from the mining of ores to final disposal of wastes  
Thoroughly reviews important contamination accidents

## Book Information

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## Customer Reviews

The discovery in 1939 of methods by which the energy contained within the atomic nucleus can be released has led to major advances in our knowledge of the physical world and to far-reaching advances in technology.

Merrill Eisenbud is the author of more than 200 contributions to scientific journals and books. He is currently Professor Emeritus at the Nelson Institute of Environmental Medicine, New York University Medical Center, where he spent 25 years as professor and director of the Laboratory of Environmental Studies. Dr. Eisenbud has served with the U.S. Atomic Energy commission (where he was the founding director of the Health and Safety Laboratory), the National Academy of Engineering, New York Academy of Sciences, the Brazilian Academy of Sciences, the New York Academy of Medicine, and as Environmental Protection Administrator for the City of New York. He has been a member of many national and international committees concerned with radiation research and is currently an Honorary Member of the National Council on Radiation Protection and Measurements, and a member of the National Research Council Board on Radiation Effects. Dr. Eisenbud is currently Scholar in Residence at the Duke University Medical center, and is adjunct professor of Environmental Sciences and Engineering at the University of North Carolina School of Public Health. Tom Gesell is a member of the Health Physics Society and the National Council on Radiation Protection and Measurements, and serves on federal advisory committees and is a consultant to the International Atomic Energy Agency. He has made close to 100 contributions to the scientific literature and has edited compendia on natural radiation and on contamination from nuclear weapons testing. Dr. Gesell has directed the Department of Energy's Radiological and Environmental Sciences Laboratory located on the Idaho National Engineering Laboratory site where he managed numerous programs related to protection health and environment. Since 1991 Gesell has been a professor of health physics at Idaho State University where he also directs the ISU Environmental Monitoring Program and serves as University Radiation Safety Officer.

I read Merril Eisenbud's "Environmental Radioactivity, From Natural, Industrial, and Military Sources" after attending a seminar by Dr. Eisenbud. He has decades of experience explaining this

subject matter to a wide variety of people. The book is very interesting and enjoyable to read. You should have a basic understanding of radioactivity before reading this book (types of radiation, biological effects of ionizing radiation, radiation measurement and dose, activation of materials, transport mechanisms, etc.). Either of the following are good introductions: *Introduction to Health Physics: Fourth Edition* or *Radiation Protection: A Guide for Scientists, Regulators and Physicians*. Of course, there are also many websites that can explain the concepts required to understand this book.

Table of Contents:- The Biological Basis of Radiation Protection- Radiation Protection Standards- Atmospheric Pathways- Terrestrial and Aquatic Pathways- Natural Radioactivity- Production and Processing of Nuclear Fuels- Power Reactors- Nuclear Weapons- Various Other Sources of Exposure- Radioactive Waste Management- Experience with Radioactive Contamination Due to Accidents- Methods of Environment Surveillance- Radiological Assessment and Its Application to Dose Reconstruction- Remediation of Contaminated Sites- Radiation Exposure and Risks: Some Contemporary Social Aspects

This is the 4th edition of this book, which suggests that it is worthwhile. And that is the case. It is lengthy, thorough, but surprisingly readable. Chapters talk about various subtopics in modest detail. Often, I could wish for more specifics, but for a book of this scope of subject, that would not be practical. Illustrations and graphics are informative and useful. The book is timeless, though new research of course makes the new editions necessary--We still have a copy of the first edition (from 1963) where I work, but a copy of the latest edition is essential if you work or study in the radiation field.

I purchased this book because I was required to for my class. The second author, Dr Gessell, was my professor. This is a good book to own if you are required to purchase it. The treatment of radioactivity in the environment is quite comprehensive and ranges from what is naturally found to man-made releases, and even covers disasters. Answers about any question one would have regarding radioactivity in the environment, and how to monitor for it.

This volume is the most authoritative and extensive source book for both descriptive information and quantitative facts concerning both natural and technologically-produced radioactive materials found in the environment and associated human exposures to ionizing radiation.

Lots of valuable data for the professional

This is a very good book because it provides information (and data) for a wide spectrum of environmental radioactivity , but it must updated in information (and data) concerning the Chernobyl and Fukushima nuclear accidents,etc.In addition it must consider the very serious problematism mentioned inthe scientific article with the title "Theoretically and under very special applied conditions a nuclear fission reactor may explode as nuclear bomb" by Joseph-Christos Kondylakis,which waspublished in the scientific proceedings of the Helenic Nucler Physics Society(HNPS) in its 19th scientific symposiumm held at the Aristotle University of Thessaloniki,Greece, on 28-29 May 2010 , together with the evidence that one microgram! of Plutonium if it is inhaled can be Deadly(cancer) and if a nuclear power reactor of 1000 MWe explode as a nuclear bomb then about two Tones! of Plutonium will go to tropospheric and global stratospheric atmospheric circulation .The above mentioned proceedings exists also in the Internet site: <http://nuclpart.phys.uoa.gr/HNPS/Files/ANP2010.pdf>

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