Annual Report

2009

Year in Review

NCRP
National Council on Radiation Protection & Measurements

NCRP

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Charter

The National Council on Radiation Protection and Measurements is a nonprofit corporation chartered by Congress in 1964 to:

1. Collect, analyze, develop and disseminate in the public interest information and recommendations about (a) protection against radiation and (b) radiation measurements, quantities and units, particularly those concerned with radiation protection.
2. Provide a means by which organizations concerned with the scientific and related aspects of radiation protection and of radiation quantities, units and measurements may cooperate for effective utilization of their combined resources, and to stimulate the work of such organizations.
3. Develop basic concepts about radiation quantities, units and measurements, about the application of these concepts, and about radiation protection.
4. Cooperate with the International Commission on Radiological Protection, the International Commission on Radiation Units and Measurements, and other national and international organizations, governmental and private, concerned with radiation quantities, units and measurements and with radiation protection.

The Council is the successor to the unincorporated association of scientists known as the National Committee on Radiation Protection and Measurements and was formed to carry on the work begun by the Committee in 1929.

Participants in the Council's work are the Council members and members of scientific, advisory and administrative committees. Council members are selected on the basis of their scientific expertise and serve as individuals, not as representatives of any particular organization. The scientific committees, composed of experts having detailed knowledge and competence in the particular area of the committees' interests, draft reports, commentaries and statements. These are then submitted to the full membership of the Council for careful review and approval before being published.

NCRP

President's Message

NCRP was scientifically productive and completed several important reports and held two conferences in 2009. Highlights of the year included the completion of four Reports and the proceedings of the 2008 NCRP Annual Meeting. Significant progress was made on other reports that will be brought to completion in 2010. NCRP publications completed in 2009 are the following.

Report No. 160, *Ionizing Radiation Exposure of the Population of the United States*, prepared by Scientific Committee 6-2 chaired by Kenneth R. Kase, provides a comprehensive update through 2006 on all sources of radiation exposure to members of the U.S. public, including ubiquitous background radiation; occupational exposures; medical diagnostic and therapeutic procedures involving ionizing radiation; exposures from industrial, security, medical, educational and research procedures; and exposures from consumer products. This NCRP Report represents an update of a study on U.S. population exposures published in 1987 as Report No. 93. Report No. 160 documented that there are currently two major sources of radiation exposure to members of the U.S. population, namely, ubiquitous background radiation and radiation from medical procedures with average annual effective doses per person of 3.11 and 3.00 mSv, respectively. The radiation per annum from medical sources represents an increase of nearly a factor of six per capita relative to the level estimated from data available in the early 1980s. In contrast, other sources of radiation exposure showed relatively little change per capita over the past 25 y. Because of the increase in medical radiation exposures, primarily from the rapidly growing uses of computed tomography (CT), nuclear medicine procedures, and interventional fluoroscopy, the total average annual exposure of a member of the U.S. population increased by a factor of 1.7 from the early 1980s to 2006.

Report No. 162, *Self Assessment of Radiation-Safety Programs*, prepared by Scientific Committee 2-4 chaired by David S. Myers, describes the self-assessment process by which an organization utilizing radioactive materials or sources of radiation evaluates its compliance with external regulatory requirements and commitments and with its own internal radiation-safety program requirements. Self assessment is a proactive component of an effective management plan for a radiation-safety program. Report No. 162 describes in depth various types of self assessments, their purposes, and the procedures for conducting them. It discusses the frequency, the program areas to be assessed, the documentation, and the follow-up of assessments. The Report also presents guidance for the scheduling and resolution of corrective actions.

The Report of Scientific Committee 6-3, *Uncertainties in Internal Radiation Dosimetry*, chaired by Andre Bouville, provides a definitive analysis of the current state of knowledge of uncertainties in internal dose assessments, including uncertainties in measurements of input parameters for breath, urine, feces, blood and tissue samples; uncertainties in multi-pathway modeling of radionuclide retention and distribution in the body; and overall uncertainty analysis for the final estimate of internal

absorbed dose for a given exposure scenario. The Report contains a number of realistic and informative examples of dose assessments and the calculation of associated uncertainties for several environmental, occupational and medical exposure situations. The Report also contains estimates of uncertainties in doses per unit intake for a number of selected radionuclides of special interest, including strontium, iodine, uranium and transuranic elements, and several postulated exposure situations for unspecified individuals.

The Report of Scientific Committee 6-4, *Principles and Practices of Radiation Dose Reconstruction*, chaired by Bruce A. Napier, establishes a firm scientific foundation for performing dose reconstruction and uncertainty analysis for a wide variety of exposure scenarios. This Report builds on the analysis of uncertainties in estimating external and internal absorbed doses presented in NCRP Report No. 158 (2007) on *Uncertainties in the Measurement and Dosimetry of External Radiation* and the forthcoming report of Scientific Committee 6-3 on *Uncertainties in Internal Radiation Dosimetry* described above. The discussion of principles and practices of radiation dose reconstruction are based in part on past experiences including atomic veterans who occupied Japan following detonation of atomic bombs in 1945 or who participated in atmospheric nuclear weapons testing from 1945 to 1962; energy workers at government laboratories and members of contractor organizations involved in the production of nuclear weapons during the Cold War era; workers or members of the public exposed to radioactive fallout or the release of uncontrolled radiation and radioactive materials (*e.g.*, from the Chernobyl reactor accident); and subjects involved in epidemiology studies (*e.g.*, medically exposed populations).

Another 2009 publication was the proceedings of the 44th Annual Meeting held on April 14-15, 2008 on the topic *Low Dose and Low Dose-Rate Radiation Effects and Models*. The proceedings, along with the 32nd Lauriston S. Taylor Lecture by Dade W. Moeller on *Radiation Standards, Dose/Risk Assessments, Public Interactions, and Yucca Mountain: Thinking Outside the Box*, were published in the November 2009 issue of *Health Physics* (Vol. 97, No. 5). NCRP is appreciative of the Program Committee, led by Antone L. Brooks, for organizing the meeting on a timely and important topic of great contemporary interest. Presentations were made by international experts on biological responses measured in experimental systems and human epidemiology studies, and the implications of these results for the modeling of low-dose radiation effects.

NCRP also organized a successful workshop held on September 23-24, 2009 on the topic *Applications of Computed Tomography in Emergency Medicine: Ensuring Appropriate Use.* This activity was co-sponsored by the American Association of Physicists in Medicine, the American College of Emergency Physicians, the American College of Radiology, the American Society of Emergency Radiology, the Centers for Disease Control and Prevention, Landauer, Inc., the Society for Academic Emergency Medicine, and the U.S. Environmental Protection Agency. One of the most rapidly growing medical applications of CT has been in emergency department settings, both for analyzing traumatic injuries and for documenting the appropriateness of releasing patients. In view of the large number of these CT procedures, it is of growing importance to analyze their value in the context of ionizing radiation doses received by patients. The goal of NCRP activities related to this subject are to evaluate the appropriate uses of CT in emergency medicine settings, and to establish guidelines based on a paper to be prepared

by experts in emergency medicine, general diagnostic radiology, and medical physics as a follow-up to the 2009 workshop organized by NCRP.

It is expected that 2010 will be another highly productive year for NCRP with the publication of several important reports. Reports that are in the final stage of publication for release on the website http://NCRPpublications.org include Report No. 161, a two-volume set on *Management of Persons Contaminated with Radionuclides*. This includes the *Handbook* of emergency response actions to be taken in the field to counteract accidental or deliberate exposures of persons to radionuclides, and a comprehensive compendium of the *Scientific and Technical Bases* for the recommended actions. Other reports that are in an advanced stage of preparation for publication in 2010 include the report of Scientific Committee 2-2 on *Radiological and Nuclear Terrorism: A Guide for Decision Makers*; the Report of Scientific Committee 2-3 on *Radiation Dose Management for Fluoroscopically-Guided Interventional Procedures*; and the Report of Scientific Committee 4-2 on *Population Monitoring and Decontamination Following a Nuclear or Radiological Incident*. The proceedings of the 45th NCRP Annual Meeting held on March 2-3, 2009 on *Future of Nuclear Power Worldwide: Safety, Health and Environment* will also be published in 2010.

The 2011 NCRP Annual Meeting will be held March 8-9 in Bethesda, Maryland on the topic *Scientific and Policy Challenges of Particle Radiations in Medical Therapy and Space Missions*. The Program Committee, chaired by Kathryn D. Held, is planning a meeting that will include discussions of the radiobiological properties of particle radiation, human exposures in space exploration and medical radiotherapy procedures, cancer and noncancer disease risks associated with exposure to particle radiation, including late effects such as second cancer risks for radiotherapy patients, and active programs for the use of carbon-ion radiotherapy in Germany and Japan.

In 2009 NCRP completed a successful five-year program in which it provided technical and administrative support for the Veterans' Advisory Board on Dose Reconstruction (VBDR), which was established in 2005 as a requirement of Public Law 108-183 enacted on December 16, 2003. The Board has provided oversight and made many recommendations for improvements in radiation dose reconstruction and claims adjudication programs for veterans who have contracted diseases that may be associated with exposure to radiation during their occupation of Japan after the atomic-bomb detonations in 1945 or during subsequent atmospheric nuclear testing programs in the Pacific or Nevada Test Sites. Since 2005 NCRP has organized nine public meetings of VBDR at locations throughout the United States that were open to members of the public under the Federal Advisory Committee Act. During its public meetings the Board made a total of more than 50 recommendations to the Defense Threat Reduction Agency (DTRA) and the U.S. Department of Veterans Affairs (VA) that have led to substantial improvements in both dose reconstruction and claims adjudication procedures. NCRP provided operational support for activities of the Board and the federal agencies, and prepared several technical reports related to atomic veteran programs. The last of these reports was prepared in 2009 on the topic *History, Accomplishments and Future Directions of the Veterans' Advisory Board on Dose Reconstruction* that was approved by VBDR, DTRA, and VA, and submitted to the Senate and House Committees on Veterans' Affairs in the U.S. Congress during August 2009. This report can be viewed at http://www.vbdr.org.

NCRP has performed an initial evaluation in 2009 of undertaking an education and training program that will build on new radiation protection and measurement reports issued by NCRP. An *ad hoc* committee comprised of members of the Board of Directors developed a business plan in 2009 that evaluates the potential for both Internet-based and in-person training courses in several areas of interest, including medical applications of radiation and countermeasures to nuclear and radiological terrorism. The plan was evaluated by the Board of Directors at its December 2009 meeting and a decision was made to move forward in developing this new component of NCRP operations.

During 2009 NCRP continued its electronic publications program and contract agreements with data aggregators and eBook providers. Overall these methods of selling and disseminating the content of NCRP publications has been successful.

NCRP's financial position remained strong in 2009 with the income from grants, contracts, contributions, investments, and sales of publications exceeding expenses for operations. A detailed description of NCRP finances in 2009 is presented in Appendix 1.

As I approach the end of my eighth year as President of NCRP, I look forward with enthusiasm to continuing to work with members of the Council, NCRP's scientific committees, staff, and collaborators in meeting many radiation protection and measurement challenges to be addressed by NCRP in 2010 and beyond.

Thomas S. Tenforde

Thomas S. Tenforde
President

Membership

There are 100 Council Members serving six-year terms. There are normally 15 to 19 vacancies each year. Election of Council Members is based on nominations made by committee chairmen, current and Distinguished Emeritus Council members, and the Nominating Committee. New members are nominated and elected based primarily on the scientific contributions they have made to the work of the Council and/or recognized interest and scientific or professional competence in some aspect of radiation protection and measurements. In addition, the Board of Directors recommends that candidates with specific areas of expertise be sought based on the needs of the Council. The Council is comprised of specialists in biophysics, dentistry, dosimetry, environmental transport, epidemiology, genetics, health physics, medical physics, molecular and cellular biology, nuclear energy, nuclear medicine, pathology, physics, public health, public policy, radiation measurements, radiation therapy, radiobiology, radiology, risk analysis and communication, statistics, and waste management. In 2008 there were 16 vacancies; six new members were elected and ten members were re-elected. The six new members were:

Stephen V. Musolino
Terry C. Pellmar
J. Anthony Seibert
Robert C. Whitcomb, Jr.
X. George Xu
R. Craig Yoder

2008 Council Membership

John F. Ahearne	Sigma Xi	2005–2011
E. Stephen Amis, Jr.	Montefiore Medical Center	2007–2013
Sally A. Amundson	Columbia University Medical Center	2005–2011
Kimberly E. Applegate	Emory University School of Medicine	2007–2013
Benjamin R. Archer	Baylor College of Medicine	2006–2012
Stephen T. Balter	Columbia-Presbyterian Medical Center	2007–2013
Steven M. Becker	University of Alabama at Birmingham	2005–2011
Joel S. Bedford	Colorado State University	2004–2010
Eleanor A. Blakely	Lawrence Berkeley National Laboratory	2006–2012
William F. Blakely	Armed Forces Radiobiology Research Institute	2003–2009
John D. Boice, Jr.	International Epidemiology Institute	2003–2009
Wesley E. Bolch	University of Florida	2005–2011

William F. Blakely	Armed Forces Radiobiology Research Institute	2009–2015
Wesley E. Bolch	University of Florida	2005–2011
Thomas B. Borak	Colorado State University	2007–2013
Andre Bouville	National Cancer Institute	2005–2011
Leslie A. Braby	Texas A&M University	2007–2013
David J. Brenner	Columbia University	2004–2010
James A. Brink	Yale University School of Medicine	2005–2011
Brooke R. Buddemeier	Lawrence Livermore National Laboratory	2009–2015
Jerrold T. Bushberg	University of California, Davis	2008–2014
John F. Cardella	BayState Health System	2008–2014
Charles E. Chambers	Penn State Hershey Medical Center	2007–2013
Polly Y. Chang	SRI International	2005–2011
S.Y. Chen	Argonne National Laboratory	2005–2011
Mary E. Clark	U.S. Environmental Protection Agency	2008–2014
Michael L. Corradini	University of Wisconsin, Madison	2004–2010
Allen G. Croff	Retired	2004–2010
Paul M. DeLuca	University of Wisconsin Medical School	2008–2014
Christine A. Donahue	Energy Solutions	2009–2015
David A. Eastmond	University of California, Riverside	2004–2010
Stephen A. Feig	University of California Medical Center, Irvine	2006–2012
Alan J. Fischman	Massachusetts General Hospital	2009–2015
Patricia A. Fleming	Saint Mary's College, Notre Dame	2009–2015
John R. Frazier	Independent Consultant	2008–2014
Donald P. Frush	Duke University Medical Center	2004–2010
Ronald E. Goans	MJW Corporation	2007–2013
Robert L. Goldberg	University of California, San Francisco	2006–2012
Raymond A. Guilmette	Lovelace Respiratory Research Institute	2009–2015
Roger W. Harms	Mayo Clinic	2009–2015
Kathryn D. Held	Massachusetts General Hospital	2006–2012
F. Owen Hoffman	SENES Oak Ridge, Inc.	2004–2010
Roger W. Howell	University of Medicine and Dentistry of New Jersey	2009–2015
Timothy J. Jorgensen	Georgetown University Medical Center	2007–2013
Kenneth R. Kase	Lyncean Technologies, Inc.	2005–2011
Ann R. Kennedy	University of Pennsylvania School of Medicine	2007–2013
William E. Kennedy, Jr.	Dade Moeller & Associates, Inc.	2004–2010
David C. Kocher	SENES Oak Ridge, Inc.	2005–2011
Ritsuko Komaki	MD Anderson Cancer Center	2006–2012
Amy Kronenberg	Lawrence Berkeley National Laboratory	2005–2011
Susan M. Langhorst	Washington University School of Medicine	2005–2011
Edwin M. Leidholdt, Jr.	U.S. Department of Veterans Affairs	2006–2012

Howard L. Liber	Colorado State University	2004–2010
James C. Lin	University of Illinois, Chicago	2005–2011
Jill A. Lipoti	New Jersey Department of Environmental Protection	2007–2013
Paul A. Locke	Johns Hopkins University	2004–2010
Jay H. Lubin	National Cancer Institute	2006–2012
C. Douglas Maynard	Wake Forest University School of Medicine	2006–2012
Debra McBaugh	Washington State Department of Health	2006–2012
Ruth E. McBurney	Conference of Radiation Control Program Directors, Inc.	2007–2013
Fred A. Mettler, Jr.	University of New Mexico	2004–2010
Charles W. Miller	Centers for Disease Control and Prevention	2006–2012
Donald L. Miller	National Naval Medical Center	2006–2012
William H. Miller	University of Missouri, Columbia	2005–2011
William F. Morgan	Pacific Northwest National Laboratory	2008–2014
Stephen V. Musolino	Brookhaven National Laboratory	2008–2014
David S. Myers	Retired	2007–2013
Bruce A. Napier	Pacific Northwest National Laboratory	2008–2014
Gregory A. Nelson	Loma Linda University Medical Center	2006–2012
Andrea K. Ng	Harvard Medical School, Brigham & Women's Hospital	2009–2015
Carl J. Paperiello	Independent Consultant	2008–2014
Terry C. Pellmar	Armed Forces Radiobiology Research Institute	2008–2014
R. Julian Preston	U.S. Environmental Protection Agency	2009–2015
Jerome C. Puskin	U.S. Environmental Protection Agency	2006–2012
Abram Recht	Beth Israel Deaconess Medical Center	2007–2013
Michael T. Ryan	Michael T. Ryan and Associates	2004–2010
Adela Salame-Alfie	New York State Department of Health	2009–2015
Beth A. Schueler	Mayo Clinic	2009–2015
Thomas M. Seed	Tech Micro Services Company	2005–2011
J. Anthony Seibert	University of California Davis Medical Center	2008–2014
Stephen M. Seltzer	National Institute of Standards and Technology	2004–2010
Edward A. Sickles	University of California Medical Center	2007–2013
Steven L. Simon	National Cancer Institute	2004–2010
Paul Slovic	Decision Research	2005–2011
Christopher G. Soares	National Institute of Standards and Technology	2005–2011
Daniel J. Strom	Pacific Northwest National Laboratory	2008–2014
Thomas S. Tenforde	National Council on Radiation Protection and Measurements	2008–2014
Julie K. Timins	Diagnostic Radiology	2004–2010
Richard E. Toohey	Oak Ridge Associated Universities	2006–2012
Lawrence W. Townsend	University of Tennessee, Knoxville	2004–2010
Elizabeth L. Travis	MD Anderson Cancer Center	2009–2015

Fong Y. Tsai	University of California Medical Center, Irvine	2006–2012
Richard J. Vetter	Mayo Clinic	2004–2010
Chris G. Whipple	Environ	2007–2013
Robert C. Whitcomb, Jr.	Centers for Disease Control and Prevention	2008–2014
Stuart C. White	University of California, Los Angeles	2004–2010
Gayle E. Woloschak	Northwestern University	2009–2015
Shiao Y. Woo	MD Anderson Cancer Center	2005–2011
Andrew J. Wyrobek	Lawrence Livermore National Laboratory	2006–2012
X. George Xu	Renesselaer Polytechnic Institute	2008–2014
R. Craig Yoder	Landauer, Inc.	2008–2014
Marco A. Zaider	Memorial Sloan-Kettering Cancer Center	2005–2011

Board of Directors

Leslie A. Braby
Jerrold T. Bushberg
S.Y. Chen
Paul M. DeLuca
Raymond A. Guilmette
Kathryn D. Held
Kenneth R. Kase
Paul A. Locke
Debra McBaugh
William F. Morgan*
David S. Myers
Thomas S. Tenforde
Julie E.K. Timins

*Newly elected to the Board of Directors on March 3, 2009.

Officers

President	Thomas S. Tenforde
Senior Vice President	Kenneth R. Kase
Secretary and Treasurer	David A. Schauer

Distinguished Emeritus Members

Warren K. Sinclair, *President Emeritus*; Charles B. Meinhold, *President Emeritus*
S. James Adelstein, *Honorary Vice President*
W. Roger Ney, *Executive Director Emeritus*; William M. Beckner, *Executive Director Emeritus*

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Lynn R. Anspaugh
John A. Auxier
William J. Bair
Harold L. Beck
Bruce B. Boecker
John D. Boice, Jr.*
Robert L. Brent
Antone L. Brooks*
Randall S. Caswell
J. Donald Cossairt
James F. Crow
Gerald D. Dodd
Sarah S. Donaldson
William P. Dornsife
Patricia W. Durbin†
Keith F. Eckerman
Thomas S. Ely
R.J. Michael Fry
Thomas F. Gesell
Ethel S. Gilbert
Joel E. Gray
Robert O. Gorson
Arthur W. Guy
Eric J. Hall
Naomi H. Harley
William R. Hendee
Donald G. Jacobs
Bernd Kahn
Charles E. Land
John B. Little*
Roger O. McClellan
Barbara J. McNeil
Kenneth L. Miller
Dade W. Moeller
A. Alan Moghissi
Wesley L. Nyborg
John W. Poston, Sr.
Andrew K. Poznanski
Genevieve S. Roessler
Marvin Rosenstein
Lawrence N. Rothenberg
Henry D. Royal
William J. Schull
Roy E. Shore
John E. Till
Robert L. Ullrich
Arthur C. Upton
F. Ward Whicker
Susan D. Wiltshire*
Marvin C. Ziskin

†Deceased during 2009.
*Elected to Distinguished Emeritus Membership March 3, 2009.

Consociate Members

Full members of the Council become Consociate Members at the end of their terms provided they are not re-elected to another term on the Council or are not appointed to Distinguished Emeritus membership.

Peter R. Almond
Larry E. Anderson
Mary M. Austin-Seymour
Charles M. Barnes
John W. Baum
Michael A. Bender
Merrill A. Bender
B. Gordon Blaylock
Frederick J. Bonte
Harold S. Boyne
John W. Brand
A. Bertrand Brill
Francis R. Bruce
Thomas F. Budinger
Patricia A. Buffler
William W. Burr, Jr.
Stephanie K. Carlson*
Paul L. Carson
Donald K. Chadwick
Chung-Kwang Chou
Kelly L. Classic*
Stephen F. Cleary
James E. Cleaver
Fred T. Cross
Francis A. Cucinotta
Stanley B. Curtis
Carter Denniston
E. Gail de Planque
John F. Dicello
Richard L. Doan
Carl H. Durney
Marc Edwards
Charles M. Eisenhauer
Joe A. Elder
Edward R. Epp
Donald C. Fleckenstein
H. Keith Florig
Kenneth R. Foster
Everett G. Fuller
Arthur H. Gladstein
Barry B. Goldberg
Marvin Goldman
Douglas Grahn
Andrew J. Grosovsky
Ellis M. Hall
Robert J. Hasterlik
John M. Heslep
John W. Hirshfeld, Jr.
David G. Hoel
George B. Hutchison
Marylou Ingram
Seymour Jablon
A. Everette James, Jr.
John R. Johnson
James G. Kereiakes
H. William Koch
Harold L. Kundel
Richard W. Leggett
George R. Leopold
Thomas A. Lincoln
David I. Livermore
Ray D. Lloyd
Richard A. Luben
Arthur C. Lucas
Claire M. Mays
Harry R. Maxon
Cynthia H. McCollough*
Mortimer L. Mendelsohn
Jack Miller
William A. Mills
John E. Moulder
Peter C. Nowell
Eugene F. Oakberg
Gilbert S. Omenn
Frank L. Parker
Lester J. Peters
Ronald C. Petersen
William C Reinig
Allan C.B. Richardson*
Robert Robbins
Lester Rogers
Robert E. Rowland
Jonathan M. Samet
Keith J. Schiager
Robert A. Schlenker
Raymond Seltser
Ferdinand J. Shore
Kenneth W. Skrable
David H. Sliney
James H. Sterner
Louise C. Strong
Herman D. Suit
Richard A. Tell
Joop W. Thiessen
Ralph H. Thomas
Lois B. Travis
John C. Villforth
Niel Wald
Daniel E. Wartenberg
David A. Weber
J. Frank Wilson*
H. Rodney Withers
Pat B. Zanzonico

*Elected to Consociate Membership March 3, 2009.

Administrative Committees

Budget & Finance Committee (appointed by the Board of Directors, March 4, 2009)

Richard E. Toohey, *Chairman*

John R. Frazier
Ruth E. McBurney
Terry C. Pellmar
R. Craig Yoder

Nominating Committee (appointed by the Board of Directors, March 4, 2009)

Amy Kronenberg, *Chairman*

Jerrold T. Bushberg
Donald P. Frush
Susan M. Langhorst
Chris G. Whipple

Program Committee for 2010 Annual Meeting

(appointed by the Board of Directors, March 4, 2009)

Paul A. Locke, *Chairman*

Kimberly E. Applegate
Steven M. Becker
Jerrold T. Bushberg
Paul M. DeLuca
C. Rick Jones
Jill A. Lipoti
Debra McBaugh
Charles W. Miller
Dennis O'Connor
Julie E.K. Timins
Chris G. Whipple
Susan D. Wiltshire

Scientific and Administrative Staff

David A. Schauer	Executive Director
Laura J. Atwell	Office Manager, ICRU Assistant Executive Secretary
Patricia H. Barnhill	VBDR Administrative Assistant
R. Thomas Bell	Technical Staff Consultant
James F. Berg	Accounting Consultant
Bruce B. Boecker	Technical Staff Consultant
Charles C. Church	Technical Staff Consultant
Brian D. Dodd	Technical Staff Consultant
John R. Frazier	Technical Staff Consultant
Joel E. Gray	Technical Staff Consultant
Michael P. Grissom	Technical Staff Consultant
Kenneth L. Groves	Technical Staff Consultant
Luvenia J. Hawkins	Text Processor
Constantine J. Maletskos	Technical Staff Consultant
Morton W. Miller	Technical Staff Consultant
Cindy L. O'Brien	Managing Editor
Beverly A. Ottman	Receptionist, Text Processor, ISR Support Staff
Terry C. Pellmar	Technical Staff Consultant
Harold T. Peterson, Jr.	Technical Staff Consultant
Marvin Rosenstein	Technical Staff Consultant
Carlotta M. Teague	Publications Manager, Sales and Marketing
Bonnie G. Walker	Assistant Managing Editor
E. Ivan White	Technical Staff Consultant
Myrna A. Young	Financial Records Manager

NCRP

Program Area Committees and Advisory Panels

The program area and advisory committees advise the NCRP President and Board of Directors on issues specific to their expertise. They have responsibility for evaluating the need for new NCRP activities related to the philosophy and the basic principles and requirements in their subject areas.

The work of the Council is supported by six program area committees and two advisory panels. They are:

Program Area Committees

Basic Criteria, Epidemiology, Radiobiology, and Risk	William F. Morgan
Operational Radiation Safety	David S. Myers
Nuclear and Radiological Security and Safety	John W. Poston, Sr.
Radiation Protection in Medicine	Jerrold T. Bushberg
Environmental Radiation and Radioactive Waste Issues	S.Y. Chen
Radiation Measurements and Dosimetry	Raymond A. Guilmette

Advisory Panels

Public Policy
Nonionizing Radiation

Vice Presidents

Each scientific program area committee is chaired by an NCRP Vice President. The Vice Presidents:

- Chair their program area committee
- Provide recommendations for new work in their area
- Represent NCRP to federal agencies and other potential supporters
- Represent NCRP at scientific meetings
- Advise on membership of their program area committee
- Assist NCRP President and chairmen of new scientific committees with selection of potential committee or advisory members
- Assist in management of scientific committee efforts
- Provide the chairman of the nominating committee with potential candidates for Council membership
- Review all draft publications within their program area committee prior to Council review

Basic Criteria, Epidemiology, Radiobiology, and Risk

Vice President, William F. Morgan

Key Functions of Program Area Committee (PAC) 1

- Evaluate and approve all NCRP scientific committee draft recommendations on exposure limits
- Evaluate new epidemiological and radiobiological data and determine their potential effect on human risk coefficients for radiation protection

Members of PAC 1

William F. Morgan, *Vice President*
Sally A. Amundson
Joel S. Bedford
Bruce B. Boecker
Antone L. Brooks
David J. Grdina
Eric J. Hall
Kenneth R. Kase
Ann R. Kennedy
Amy Kronenberg
Charles E. Land
Gregory A. Nelson
Roy E. Shore
Julie E.K. Timins
Susan D. Wiltshire
Gayle E.Woloschak
Warren K. Sinclair, *Advisor*
Thomas S. Tenforde, *NCRP Contact*

Authorized but Unfunded Activities

- Lung cancer risks from inhaled radionuclides

Active Scientific Committees Under PAC 1

SC 1-13 Impact of Individual Susceptibility and Previous Radiation Exposure on Radiation Risk for Astronauts

Status: Revising after Council review
Antone L. Brooks, *Chairman*
Mary M. Austin-Seymour
Joel S. Bedford
Keith H. Dinger
Roger W. Howell
Ritsuko Komaki
William F. Morgan
Roger P. Shaw
Ellen Baker, *Consultant*
Barbara Hinze, *Consultant*
C. Griffin Trotter, *Consultant*
Michael P. Grissom, *Technical Staff Consultant*

SC 1-15 Radiation Protection and Science Goals for Short-Term Lunar Missions

Status: Preparing for Council review
Thomas S. Tenforde, *Chairman*
Jay Apt
Stephen A. Benjamin
Ethel S. Gilbert
Michael J. Golightly
Richard P. Hill
George E. Iliakis
Karen E. Jenni
Stephen W.S. McKeever
John E. Moulder
Peggy L. Olive
C. Griffin Trotter
Kathryn D. Held, *Advisor*
Richard A. Mewaldt, *Advisor*
J. Leslie Redpath, *Advisor*
R.J. Michael Fry, *Consultant*
Amy Kronenberg, *Consultant*
Gregory A. Nelson, *Consultant*
Kenneth Souza, *Consultant*
Harold T. Peterson, Jr., *Technical Staff Consultant*

SC 1-16 Uncertainties in the Estimation of Radiation Risks and Probability of Disease Causation
Status: Committee drafting stage
R. Julian Preston, *Chairman*
John D. Boice, Jr.
A. Bertrand Brill
Ranajit Chakraborty
Rory Conolly
Richard W. Hornung
Dale L. Preston
Gayle E. Woloschak
F. Owen Hoffman, *Advisor*
Charles E. Land, *Advisor*
Morton W. Miller, *Technical Staff Consultant*

SC 1-17 Second Cancers and Cardiopulmonary Effects After Radiotherapy
Status: Preparing for PAC review
Lois B. Travis, *Chairman*
John D. Boice, Jr., *Vice Chairman*
Kimberly E. Applegate
Louis S. Constine
Jean M. Cosset
Ethel S. Gilbert
Ann R. Kennedy
David Malkin
Andrea K.M. Ng
Ching-Hon Pui
James A. Purdy
X. George Xu
Joachim Yahalom
James M. Allan, *Consultant*
Charles C. Church, *Technical Staff Consultant*

SC 1-18 Use of Ionizing Radiation Screening Systems for Detection of Radioactive Materials That Could Represent a Threat to Homeland Security
Status: Committee early drafting stage
Kenneth L. Miller, *Chairman*
Debbie B. Gilley, *Vice Chairman*
J. Donald Cossairt
Thomas A. Cotton
David M. Hassenzahl
Joseph M. Kaminski
Sayed H. Rokni
Scott O. Schwahn

Norman C. Fost, *Consultant*
Glen Reeves, *Consultant*
S. James Adelstein, *Advisor*
Terry C. Pellmar, *Technical Staff Consultant*

SC 1-19 Health Protection Issues Associated with Use of Active Detection Technology Security Systems for Detection of Radioactive Threat Materials
Status: Committee early drafting stage
John F. Ahearne, *Chairman*
Lawrence T. Dauer
Christine A. Donahue
Norman C. Fost
Helen A. Grogan
Daniel F.H. Kassiday
James C. Liu
Kathryn H. Pryor
Scottie W. Walker
Glen Reeves, *Consultant*
S. James Adelstein, *Advisor*
John R. Frazier, *Technical Staff Consultant*

SC 85 Risk of Lung Cancer from Radon
Status: Preparing for Council review
Naomi H. Harley, *Chairman*
Douglas B. Chambers
Fred T. Cross
Aurel Goodwin
Jay H. Lubin
John S. Neuberger
Janet B. Schoenberg
Peter G. Groer, *Advisor*
Howard L. Kusnetz, *Advisor*
Edith S. Robbins, *Consultant*
David A. Schauer, *NCRP Contact*

Operational Radiation Safety

Vice President, David S. Myers

Key Functions of Program Area Committee (PAC) 2

- Serve as a national resource for information on operational radiation safety
- Formulate guidance regarding the application of operational radiation safety principles

Members of PAC 2

David S. Myers, *Vice President*
Edgar D. Bailey
Carol D. Berger
Mary L. Birch
John R. Frazier
Eric M. Goldin
Kenneth L. Miller
John W. Poston, Sr.
Kathryn H. Pryor
Joshua Walkowicz
James G. Yusko
Thomas S. Tenforde, *NCRP Contact*

Authorized but Unfunded Activities

- Air monitoring
- Operational radiation safety in medical fusion imaging procedures
- Design of facilities and installed equipment for handling unsealed radioactive materials
- Response to and investigation of radiological accidents and incidents
- Radiation protection guidelines for industrial accelerators and irradiators

Active Scientific Committees Under PAC 2

SC 2-2 Key Decision Points and Information Needed by Decision Makers in the Aftermath of a Nuclear or Radiological Terrorism Incident
Status: Revising after Council review
John W. Poston, Sr., *Chairman*
Brooke R. Buddemeier
Abel J. Gonzalez
Robert Ingram
Cynthia G. Jones
Kathleen Kaufman
John Lanza
Edwin M. Leidholdt
Debra McBaugh
Stephen V. Musolino
Tammy P. Taylor
Jerrold T. Bushberg, *Consultant*
Kenneth L. Groves, *Technical Staff Consultan*t

SC 2-3 Radiation Safety Issues for Image-Guided Interventional Medical Procedures
Status: Revising after PAC review
Stephen Balter, *Chairman*
Donald L. Miller, *Vice Chairman*
Beth A. Schueler, *Vice Chairman*
Jeffrey A. Brinker
Charles E. Chambers
Kenneth F. Layton
M. Victoria Marx
Cynthia H. McCollough
Keith J. Strauss
Louis K. Wagner
John F. Angle, *Consultant*
Andrew J. Einstein, *Consultant*
John W. Hopewell, *Consultant*
Norman J. Kleiman, *Consultant*
Matthew Williams, *Consultant*
Marvin Rosenstein, *Technical Staff Consultant*

Published in 2009

NCRP Report No. 162, *Self Assessment of Radiation-Safety Programs*, was approved for publication in 2009. This Report was drafted by Scientific Committee 2-4 under the chairmanship of David S. Myers.

Nuclear and Radiological Security and Safety

Vice President, John W. Poston, Sr.

Key Functions of Program Area Committee (PAC) 3

- Identify important steps to be taken in the interdiction of, preparedness for, and effective responses to possible acts of nuclear or radiological terrorism
- Define performance requirements, instrumentation, and testing criteria for security surveillance systems
- Develop operational strategies and optimization procedures for early, intermediate and late-phase responses to a nuclear or radiological terrorism incident
- Recommend effective methods for protecting against, mitigating, and treating traumatic injuries and long-term health and psychological effects of radiation exposure and other immediate stress effects such as thermal burns, shock, and contaminated shrapnel wounds resulting from a nuclear or radiological explosions to possible acts of nuclear or radiological terrorism
- Analyze methods for optimizing the cleanup, site restoration, and disposition of contaminated materials resulting from a nuclear or radiological terrorism incident
- Develop operational strategies and optimization procedures for early, intermediate and late-phase responses to a nuclear or radiological terrorism incident

Members of PAC 3

John W. Poston, Jr., *Vice President*
Debra McBaugh, *Vice Chair*
Steven M. Becker
Brooke R. Buddemeier
Stephen V. Musolino
Terry C. Pellmar
Tammy P. Taylor
Leslie A. Braby, *Liaison*
Jerrold T. Bushberg, *Liaison*
Jill A. Lipoti, *Liaison*
Julie E.K. Timins, *Liaison*
Thomas S. Tenforde, *NCRP Contact*

NCRP

Radiation Protection in Medicine

Vice President, Jerrold T. Bushberg

Key Functions of Program Area Committee (PAC) 4

- Identify areas with which NCRP should be concerned in radiation protection of patients in medical, dental and chiropractic practice
- Examine and evaluate techniques and procedures to eliminate unnecessary radiation exposure to the patient
- Examine and evaluate training of medical personnel in radiation protection

Members of PAC 4

Jerrold T. Bushberg, *Vice President*
E. Stephen Amis
James A. Brink
John F. Cardella
Cindy C. Cardwell
Marc Edwards
Donald P. Frush
Ronald E. Goans
Linda A. Kroger
Edwin M. Leidholdt
Fred A. Mettler, Jr.
Theodore L. Phillips
J. Anthony Seibert
Stuart C.White
Shiao Y. Woo
Thomas S. Tenforde, *NCRP Contact*

Authorized but Unfunded Activities

- Medical evaluation of workers
- Radiological protection standards and ethical issues in studies involving radiation exposure of human research subjects
- Revision of NCRP Report No. 102 on *Medical X-Rays, Electron Beam and Gamma-Ray Protection for Energies Up to 50 MeV* (1989)

Active Scientific Committees Under PAC 4

SC 4-2 **Population Monitoring and Decontamination Following a Nuclear or Radiological Incident**
Status: Revising after Council review
Richard J. Vetter, *Chairman*
Steven M. Becker
Eugene Carbaugh
James R. Cassata
Scott Davis
Fun H. Fong, Jr.
P. Andrew Karam
Steven H. King
Adela Salame-Alfie
Casper Sun
Katherine Uraneck
George J. Vargo
Bruce B. Boecker, *Technical Staff Consultant*

SC 4-3 **Diagnostic Reference Levels in Medical Imaging: Recommendations for Application in the United States**
Status: Committee drafting stage
James A. Brink, *Chairman*
John M. Boone
Kate A. Feinstein
Jeffrey M. Michalski
Robert J. Pizzutiello
David C. Spelic
Stuart C. White
Judy Yee
Joel E. Gray, *Technical Staff Consultant*

SC 4-4 **Risks of Ionizing Radiation to the Developing Embryo, Fetus and Nursing Infant**
Status: Preparing for PAC review
Robert L. Brent, *Chairman*
Donald P. Frush
Robert O. Gorson
Roger W. Harms
Linda A. Kroger
Martha S. Linet
Andrew D. Maidment
John J. Mulvihill
Shiao Y. Woo
Jerrold T. Bushberg, *Consultant*
Joseph J. Morissey, *Consultant*
Susan D. Wiltshire, *Consultant*
Marvin C. Ziskin, *Consultant*
Brian D. Dodd, *Technical Staff Consultant*

NCRP

Environmental Radiation and Radioactive Waste Issues

Vice President, S.Y. Chen

Key Functions of Program Area Committee (PAC) 5

- Serve as a national resource for environmental radiation and radioactive waste information and data
- Prepare scientific reports, commentaries and statements that can be used as fundamental scientific references dealing with radionuclides in the environment
- Help formulate NCRP recommendations on disposal of radioactive and mixed wastes
- Encourage scientific and technical discourse on the disposal of radioactive and mixed wastes including environmental and human risk from disposal
- Encourage scientific and technical discourse on the cost-benefit of activities generating radioactive and mixed wastes

Members of PAC 5

S.Y. Chen, *Vice President*
Mary E. Clark
Thomas F. Gesell
Martin J. Letourneau
Jill A. Lipoti
Margaret M. MacDonell
Bruce A. Napier
Carl J. Paperiello
Frank L. Parker
Andrew Wallo, III
Chris G. Whipple
Anthony B. Wolbarst
Thomas S. Tenforde, *NCRP Contact*

Authorized but Unfunded Activities

- Assessment of measurement methodologies for environmental indicators of past releases (joint with PAC 6)
- Case studies and lessons learned from remediation of sites and facilities with radioactive contamination

- Clearance as a radiation protection strategy for radioactive material management
- Development of a risk assessment and risk management parameter handbook
- Radiation protection criteria for plants and animals
- Risk-based corrective actions in remediation of contaminated ecosystems
- Usage factors for environmental dose calculations

Active Scientific Committees Under PAC 5

SC 64-22 Design of Effective Effluent and Environmental Monitoring Programs
Status: Preparing for PAC review
Bernd Kahn, *Chairman*
James D. Berger
John Glissmeyer
Carl V. Gogolak
Norbert Golchert
Richard E. Jaquish
Janet A. Johnson
Shyam K. Nair
Richard Conatser, *Consultant*
Bruce A. Napier, *Consultant*
E. Ivan White, *Technical Staff Consultant*

NCRP

Radiation Measurements and Dosimetry

Vice President, Raymond A. Guilmette

Key Functions of Program Area Committee (PAC) 6

- Evaluate the field of radiation measurements and dosimetry
- Serve as a source of information to scientific committees preparing reports that include radiation measurements and dosimetry
- Maintain liaison with other organizations and professional societies that have similar interests

Members of PAC 6

Raymond A. Guilmette, *Vice President*
Harold L. Beck
William F. Blakely
Wesley E. Bolch
Leslie A. Braby
Paul M. DeLuca
John F. Dicello
Keith F. Eckerman
Shawna Eisele
Richard T. Kouzes
Margaret McMahn-Norris
David A. Schauer
Steven L. Simon
Christopher G. Soares
David A. Schauer, *NCRP Contact*

Authorized but Unfunded Activities

- Aerosol measurements
- Biological dosimetry
- Requirements and methods for recording information for accurate dose reconstruction in nuclear or radiological incidents
- Update of Report 58, A Handbook of Radioactivity Measurements
- Wound model dose coefficients

Published in 2009

NCRP Report No. 160, *Ionizing Radiation Exposure of the Population of the United States*, was issued in 2009. This Report was drafted by Scientific Committee 6-2 under the chairmanship of Kenneth R. Kase.

NCRP Report No. 163, *Radiation Dose Reconstruction: Principles and Practices*, was approved for publication in 2009. This Report was drafted by Scientific Committee 6-4 under the chairmanship of Bruce A. Napier.

NCRP Report No. 164, *Uncertainties in Internal Radiation Dosimetry*, was approved for publication in 2009. This Report was drafted by Scientific Committee 6-3 chaired by Andre Bouville.

Public Policy

Key Functions of Public Policy Panel

- Identify policy implications of NCRP publications
- Suggest members or serve as members of new NCRP scientific committees whose topics relate to public policy
- Provide advice and wording on public policy issues when needed for NCRP reports
- Ensure that NCRP communications make it clear that NCRP's publications provide scientific information and recommendations to assist policy makers, but that NCRP does not participate in policy decisions

Members of Advisory Panel

John F. Ahearne
Steven M. Becker
Mary E. Clark
David C. Kocher
Jill A. Lipoti
Paul A. Locke
Charles W. Miller
Paul Slovic
Chris G. Whipple
Susan D. Wiltshire
Thomas S. Tenforde, *NCRP Contact*

Nonionizing Radiation

Key Functions of Nonionizing Radiation Panel

- Analyze mechanisms of interaction of nonionizing radiation with biological systems, including humans
- Identify biological responses and potential human health effects
- Evaluate theoretical and applied aspects of dosimetry and exposure assessment of humans to nonionizing radiation
- Provide recommendations on acceptable exposure levels for nonionizing radiation in occupational, medical and public environments
- Analyze procedures for mitigating exposure in public and occupational settings

Members of Advisory Panel

Jerrold T. Bushberg
James E. Cleaver
Arthur W. Guy
David G. Hoel
James C. Lin
David H. Sliney
Jan A.J. Stolwijk
Richard A. Tell
Marvin C. Ziskin
Thomas S. Tenforde, *NCRP Contact*

NCRP

Collaborating Organizations

Organizations or groups of organizations that are national in interest and are concerned with scientific problems involving radiation quantities, units, measurements and effects, or radiation protection may be granted collaborating status by NCRP. Collaborating Organizations provide a means by which NCRP can gain input into its activities from a wider segment of society. At the same time, the relationships with the Collaborating Organizations facilitate wider dissemination of information about the Council's activities, interests and concerns. Collaborating Organizations have the opportunity to comment on draft documents at the time that drafts are submitted to the members of the Council. This is intended to capitalize on the fact that Collaborating Organizations are in an excellent position to both contribute to the identification of what needs to be treated in NCRP documents and to identify problems that might result from proposed recommendations. The Collaborating Organizations for the year 2009 are:

Organization	Contact Person
American Academy for Dermatology	Karen Collishaw, Robert O. Gorson
American Academy of Environmental Engineers	William C. Anderson
American Academy of Health Physics	Howard W. Dickson
American Academy of Orthopaedic Surgeons	Karen L. Hackett
American Association of Physicists in Medicine	Lynne Fairobent, Angela R. Keyser
American Brachytherapy Society	Rick Guggolz, Mark J. Rivard
American College of Cardiology	Rebecca Kelly Gretchen Wyatt
American College of Medical Physics	Lawrence N. Rothenberg
American College of Nuclear Physicians	Bennett Greenspan, Virginia Pappas
American College of Occupational and Environmental Medicine	Joel R. Bender, Thomas S. Ely
American College of Radiology	Harvey L. Neiman
American Conference of Governmental Industrial Hygienists	James Price

American Dental Association	James B. Bramson
American Industrial Hygiene Association	O. Gordon Banks, Irene Patrek
American Institute of Ultrasound in Medicine	Carmine M. Valente, Marvin C. Ziskin
American Medical Association	Barry Dickinson, James Lyznicki
American Nuclear Society	Bernard L. Cohen, Shawn Coyne-Naubett, Patricia Schroeder
American Pharmaceutical Association	Anne Burns
American Podiatric Medical Association	James Christina, Glenn B. Gastwirth
American Public Health Association	Georges C. Benjamin
American Radium Society	Ritsuko Komaki
American Roentgen Ray Society	James A. Brink
American Society for Radiation Oncology	Laura Thevenot
American Society of Emergency Radiology	Stephen R. Baker
American Society of Health-System Pharmacists	Henri Manasse, Jr.
American Society of Nuclear Cardiology	Steven Carter
American Society of Radiologic Technologists	F. Lynn May, Greg Morrison
Association of Educators in Imaging and Radiological Sciences	Valerie Christensen
Association of University Radiologists	Josette Szalko
Bioelectromagnetics Society	Stefan Engstrom, Gloria Parsley
Campus Radiation Safety Officers	Ninni Jacob
College of American Pathologists	Myron Pollycove, Lee Van Breman
Conference of Radiation Control Program Directors, Inc.	David Allard, Ruth McBurney
Council on Radionuclides and Radiopharmaceuticals	Henry Kramer, Leonard R. Smith
Defense Threat Reduction Agency	Paul K. Blake
Electric Power Research Institute	Kurt E. Yeager

Federal Aviation Administration	Wallace Friedberg, Frederick Tilton
Federal Communications Commission	Robert F. Cleveland, Jr.
Federal Emergency Management Agency	Vanessa Quinn
Genetics Society of America	Seymour Abrahamson
Health Physics Society	President, Richard Burk
Institute of Electrical and Electronics Engineers, Inc.	Ronald C. Petersen, Mary Ward-Callan
Institute of Nuclear Power Operations	Jeff Place
International Brotherhood of Electrical Workers	William F. Paul
National Aeronautics and Space Administration	NASA Administrator
National Association of Environmental Professionals	Clay E. Easterly
National Center for Environmental Health / Agency for Toxic Substances and Disease Registry	Sam Keith
National Electrical Manufacturers Association	Stephen Vastagh
National Institute for Occupational Safety and Health	William G. Lotz
National Institute of Standards and Technology	David Gilliam, James Turner
Nuclear Energy Institute	Ralph Andersen
Office of Science and Technology	John Marburger
Paper, Allied-Industrial, Chemical and Energy Workers International Union	Mark Griffon, Herman Potter
Product Stewardship Institute	Scott Cassel
Radiation Research Society	Martin Brown
Radiological Society of North America	Mark Watson
Society for Cardiovascular Angiography and Interventions	Charles Chambers, Wayne Powell, Bonnie H. Weiner
Society for Pediatric Radiology	Marilyn J. Goske
Society for Risk Analysis	Robin Cantor
Society of Cardiovascular Computed Tomography	President, Carrie Kovar
Society of Chairmen of Academic Radiology Departments	Lise Swanson
Society of Interventional Radiology	Stephen Balter, Debbie Katsarelis

Society of Nuclear Medicine	Virginia Pappas, Henry D. Royal
Society of Radiologists in Ultrasound	Susan Roberts
Society of Skeletal Radiology	David Rubin
U.S. Air Force	Ramachandra K. Bhat
U.S. Army	Surgeon General U.S. Army, Robert Eng
U.S. Coast Guard	Michael Adess
U.S. Department of Energy	Secretary of DOE
U.S. Department of Housing and Urban Development	Secretary of HUD
U.S. Department of Labor	Secretary of DOL
U.S. Department of Transportation	Richard W. Boyle
U.S. Environmental Protection Agency	EPA Administrator, Elizabeth Cotsworth
U.S. Navy	Chairman, Navy Radiation Safety Committee
U.S. Nuclear Regulatory Commission	NRC Chairman, Casper Sun
U.S. Public Health Service	Petro Shandruk
Utility Workers Union of America	John M. Walsh, Jr.

Special Liaison Organizations

Special Liaison relationships are established with various organizations outside of the United States that have an interest in radiation protection and measurements. This relationship provides: (1) an opportunity for participating organizations to designate an individual to provide liaison between the organization and NCRP; (2) that the individual designated will receive copies of draft NCRP publications (at the time that these are submitted to the members of the Council) with an invitation to comment but not vote; and (3) that new NCRP efforts might be discussed with liaison individuals as appropriate, so that they might have an opportunity to make suggestions on new studies and related matters. The Special Liaison Organizations for 2009 are:

Organization	Contact Person
Australian Radiation Laboratory	Keith H. Lokan
Bundesamt fur Strahlenschutz (Germany) (Federal Office for Radiation Protection)	Wolfram Konig
Canadian Nuclear Safety Commission	J.K. Pereira
Central Laboratory for Radiological Protection (Poland)	Slawomir Sterlinski
China Institute for Radiation Protection	Huating Yang
Commissariat a l'Energie Atomique (France)	Jean-Francois Lecomte
Commonwealth Scientific Instrumentation Research Organization (Australia)	Stan Barnett
European Commission	Hans Forsstrom
Health Council of the Netherlands	A. Wijbenga
Health Protection Agency	John Cooper
International Commission on Non-Ionizing Radiation Protection	Paolo Vecchia
International Commission on Radiation Units and Measurements	Paul M. DeLuca
International Commission on Radiological Protection	Claire Cousins
International Radiation Protection Association	Kenneth R. Kase
Japanese Nuclear Safety Commission	Atsuyki Suzuki
Japan Radiation Council	Yasuhito Sasaki
Korea Institute of Nuclear Safety	Kwang Sik Choi
Russian Scientific Commission on Radiation Protection	Anatoly F. Tsyb
South African Forum for Radiation Protection	D. van As
World Association for Nuclear Operators	Edgar Hux
World Health Organization, Unit of Radiation and Environmental Health	Zhanat Carr

Corporate Sponsors

The Corporate Sponsor's Program facilitates the interchange of information and ideas, and corporate sponsors provide valuable fiscal support for the NCRP program. The Corporate Sponsors for 2008 are:

Organization	Contact Person
3M	Frederick Entwistle
GE Healthcare	Mark Doruff
Global Dosimetry Solutions	Sander Perle
Landauer, Inc.	R. Craig Yoder
Nuclear Energy Institute	Ralph L. Andersen

Review Process

The review process for draft publications is elaborate and comprehensive. It begins with a review by a group of critical reviewers designated by the appropriate Program Area Committee Vice President and the NCRP Secretariat. Second, following modification of the draft on the basis of the comments of the critical reviewers, the publication is submitted for review to the full Council membership (100), Distinguished Emeritus members (51), Collaborating organizations (77), and Special Liaison organizations (21). At the time a draft is submitted for Council review it is also placed on NCRP's website for public comment (http://NCRPonline.org). Further modification of draft reports on the basis of the comments received follows, with the goal of reaching a scientific consensus on the material included in the report. An NCRP report can be released for publication by the President only if there are no more than two remaining disapprovals by members of the Council after resolution of review comments.

In addition to full reports, NCRP also produces statements, commentaries, and presidential reports. Statements are brief documents (usually four or fewer pages) that succinctly address topics of contemporary interest and importance for radiation protection. The review and approval process for statements is the same as for reports. NCRP commentaries are documents that provide preliminary evaluations, critiques, reviews and results of exploratory studies, or extensions of previously published NCRP reports on an accelerated schedule when time for the normal review process is not available. Approval is by the Board of Directors with involvement by other Council members to an extent dependent on the time available. Presidential reports are documents on specific issues in radiation health protection that are developed by a scientific committee, reviewed by members of Council and other subject-area experts as needed, and approved for publication by the Board of Directors and the President.

Lauriston S. Taylor Lectures

Year	Title	Lecturer
2009	Radiation Epidemiology: The Golden Age and Remaining Challenges	John D. Boice, Jr.
2008	Radiation Standards, Dose/Risk Assessments, Public Interactions, and Yucca Mountain: Thinking Outside the Box	Dade W. Moeller
2007	The Quest for Therapeutic Actinide Chelators	Patricia W. Durbin
2006	Fifty Years of Scientific Investigation: The Importance of Scholarship and the Influence of Politics and Controversy	Robert L. Brent
2005	Nontargeted Effects of Radiation: Implications for Low-Dose Exposures	John B. Little
2004	Radiation Protection in the Aftermath of a Terrorist Attack Involving Exposure to Ionizing Radiation	Abel J. Gonzalez
2003	The Evolution of Radiation Protection: From Erythema to Genetic Risks to Risks of Cancer to ?	Charles B. Meinhold
2002	Developing Mechanistic Data for Incorporation into Cancer Risk Assessment: Old Problems and New Approaches	R. Julian Preston
2001	Assuring the Safety of Medical Diagnostic Ultrasound	Wesley L. Nyborg
2000	Administered Radioactivity: *Unde Venimus Quoque Imus*	S. James Adelstein
1999	Back to Background	Naomi H. Harley
1998	From Chimney Sweeps to Astronauts: Cancer Risks in the Work Place	Eric J. Hall
1997	Radionuclides in the Body: Meeting the Challenge	William J. Bair
1996	70 Years of Radiation Genetics: Fruit Flies, Mice and Humans	Seymour Abrahamson
1995	Certainty and Uncertainty in Radiation Research	Albrecht M. Kellerer
1994	Mice, Myths, and Men	R.J. Michael Fry
1993	Science, Radiation Protection and the NCRP	Warren K. Sinclair

1992	Dose and Risk in Diagnostic Radiology: How Big? How Little?	Edward W. Webster
1991	When is a Dose Not a Dose?	Victor P. Bond
1990	Radiation Protection and the Internal Emitter Saga	J. Newell Stannard
1989	Radiobiology and Radiation Protection: The Past Century and Prospects for the Future	Arthur C. Upton
1988	How Safe is Safe Enough?	Bo Lindell
1987	How to be Quantitative about Radiation Risk Estimates	Seymour Jablon
1986	Biological Effects on Non-Ionizing Radiations: Cellular Properties and Interactions	Herman P. Schwan
1985	Truth (and Beauty) in Radiation Measurements	John H. Harley
1984	Limitation and Assessment in Radiation Protection	Harald H. Rossi
1983	The Human Environment—Past, Present and Future	Merril Eisenbud
1982	Ethics, Trade-Offs and Medical Radiation	Eugene L. Saenger
1981	How Well Can We Assess Genetic Risk? Not Very	James F. Crow
1980	From "Quantity of Radiation" and "Dose" to "Exposure" and "Absorbed Dose"—An Historical Review	Harold O. Wyckoff
1979	Radiation Protection—Concepts and Trade Offs	Hymer L. Friedell
1978	Why be Quantitative About Radiation Risk Estimates?	Sir Edward Pochin
1977	The Squares of the Natural Numbers in Radiation Protection	Herbert M. Parker

2009 Lauriston S. Taylor Lecture

The Thirty-Third Lauriston S. Taylor Lecture presented by John D. Boice, Jr., *Radiation Epidemiology: The Golden Age and Remaining Challenges*, will be published in *Health Physics*.

Annual Meetings

Year	Topic
2009	Future of Nuclear Power Worldwide: Safety, Health and Environment
2008	Low Dose and Low Dose-Rate Radiation Effects and Models
2007	Advances in Radiation Protection in Medicine
2006	Chernobyl at Twenty
2005	Managing the Disposition of Low-Activity Radioactive Materials
2004	Advances in Consequence Management for Radiological Terrorism Events
2003	Radiation Protection at the Beginning of the 21st Century—A Look Forward
2002	Where the New Biology Meets Epidemiology: Impact on Radiation Risk Estimates
2001	Fallout from Atmospheric Nuclear Tests—Impact on Science and Society
2000	Ionizing Radiation Science and Protection in the 21st Century
1999	Radiation Protection in Medicine: Contemporary Issues
1998	Cosmic Radiation Exposure of Airline Crews, Passengers and Astronauts
1997	The Effects of Pre- and Postconception Exposure to Radiation
1996	Implications of New Data on Radiation Cancer Risk
1995	Environmental Dose Reconstruction and Risk Implications
1994	Extremely-Low-Frequency Electromagnetic Fields: Issues in Biological Effects and Public Health
1993	Radiation Science and Societal Decision Making
1992	Radiation Protection in Medicine
1991	Genes, Cancer and Radiation Protection
1990	Health and Ecological Implications of Radioactively Contaminated Environments
1989	Radiation Protection Today—The NCRP at Sixty Years
1988	Radon
1987	New Dosimetry at Hiroshima and Nagasaki and Its Implications for Risk Estimates
1986	Nonionizing Electromagnetic Radiations and Ultrasound
1985	Radioactive Waste
1984	Some Issues Important in Developing Basic Radiation Protection Recommendations

1983 Environmental Radioactivity
1982 Radiation Protection and New Medical Diagnostic Approaches
1981 Critical Issues in Setting Radiation Dose Limits
1980 Quantitative Risk in Standards Setting
1979 Perceptions of Risk

2009 Annual Meeting

The Forty-Fifth Annual Meeting of NCRP was held March 2–3, 2009 at the Hyatt Regency Bethesda in Bethesda, Maryland. The topic of the meeting was *Future of Nuclear Power Worldwide: Safety, Health and Environment*. The sessions and presentations were as follows:

Sixth Annual Warren K. Sinclair Keynote Address
The Role of a Strong Regulator in Safe and Secure Nuclear Energy, Peter B. Lyons

Panel on Safety, Health and the Environment: Implications of Nuclear Power Growth
Sama Bilbao y Leon, Moderator
Panelists:
Challenges to New Nuclear Plant Development, Charles Pardee
Impact of the Renewed Growth in Nuclear Power on State Radiation Control Programs, John P. Winston
Other Side of the Waste Confidence Consideration, Robert M. Bernero
Next Generation Safeguards for Future Nuclear Power, Michael C. Miller

Trends in Worldwide Use of Nuclear Power
Angelina Howard, Session Chair
NEA Nuclear Energy Outlook 2008, Uichiro Yoshimura
U.S. Evolutionary Power Reactor: Certainty in Safety, Thomas A. Christopher
Advanced Reactors and Associated Fuel-Cycle Facilities: Safety and Environmental Impacts, Robert N. Hill, W. Mark Nutt, and James J. Laidler

Panel on International Perspectives on Future of Nuclear Power
Joseph C. Perkowski, Moderator
Panelists:
Expanded Development and Use of Nuclear Energy: Important Way to Solve Environmental Pollution in China, Liu Senlin and Ziqiang Pan
New Nuclear Power Stations in the United Kingdom, David Bennett
International Perspectives on Nuclear Fuel Cycle, Alan Hanson

Experience Feedback on Radiation Protection in Nuclear Power Generation: Japanese Perspective, Shojiro Matsuura and Shizuyo Kusumi
Nuclear Energy in the United States, Alexander Marion

Infrastructure Needs for Future Nuclear Power
Patrice M. Bubar, Session Chair
Radiation Protection at U.S. Nuclear Power Plants: Today and Tomorrow, Michael Blevins
World Nuclear Association's Worldwide Overview on Front-End Fuel-Cycle Growth and Health, Safety and Environmental Issues, Sylvain Saint-Pierre and Steve Kidd
Reactor Based Management of Used Nuclear Fuel: Assessment of Major Options, Phillip Finck, Robert Hill, John Kelly, and Roald Wigeland
International Safeguards and the Global Expansion of Nuclear Power, Thomas E. Shea

Key Challenges to be Addressed for Nuclear Power in the 21st Century
Audeen W. Fentiman, Session Chair
Essential Infrastructure: National Nuclear Regulation, Carl J. Paperiello
Maintaining a Highly-Qualified Nuclear Industry Workforce, Carol L. Berrigan
U.S. Department of Energy Facilities Needed to Advance Nuclear Power, John F. Ahearne
New Nuclear Build and Evolving Radiation Protection Challenges, Edward Lazo
Communicating with Stakeholders about Nuclear Power Plant Radiation, Ann Stouffer Bisconti
Role of the International Radiation Protection Association, Kenneth R. Kase and Philip Metcalf

Panel on How to Meet the Challenges for Nuclear Power
Mary E. Clark, Moderator
Panelists:
Nuclear Power Expansion: Challenges and Opportunities, Paul W. Lisowski
Three Most Important Actions For the Growth of Nuclear Power, Wayne L. Johnson
How to Meet the Challenges Reinvigorating the Research and Development Community and Infrastructure, Mark T. Peters
Outlook for Nuclear Energy in a Shifting Political Climate, Annie Caputo
Low-Level Radioactive Waste Management: Status, Challenges and Solutions, Michael T. Ryan
Challenges and Opportunities of a Global Nuclear Energy Future, Thomas Isaacs

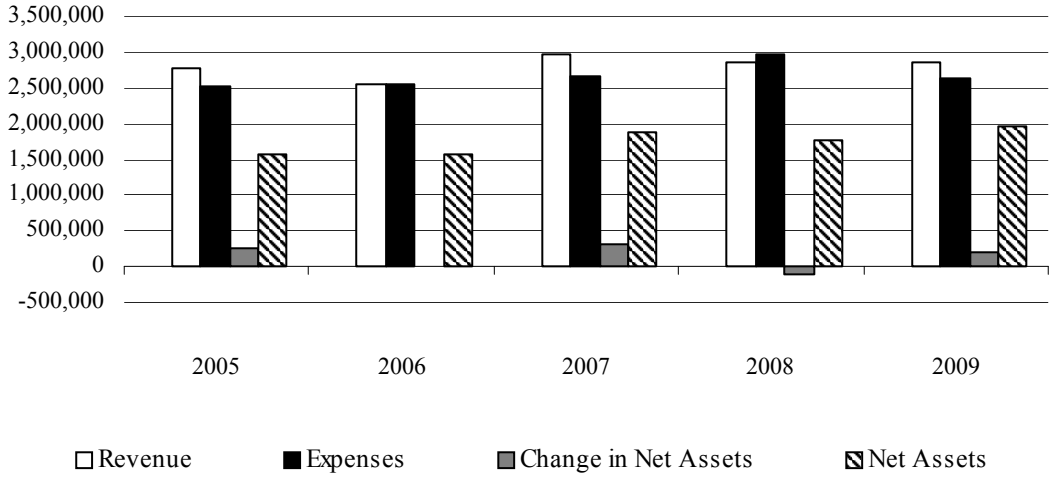
Serving on the Program Committee for the 2009 Annual Meeting were: Michael L. Corradini, *Chairman*; John F. Ahearne, Ralph L. Andersen, S.Y. Chen, Marvin S. Fertel, Alan S. Hanson, Ryoko Kusumi, Shizuyo Kusumi, Edward Lazo, Paul W. Lisowski, William H. Miller, Carl J. Paperiello, Mark T. Peters, and Sylvain Saint-Pierre. The proceedings of the 2009 Annual Meeting will be published in *Health Physics.*

APPENDICES

Financial Summary

The table and bar graph presented below exhibit NCRP's year-end financial data for 2009 and the four preceding years in the categories: (1) total revenue from grants, contracts, contributions, corporate sponsorships, contributed professional services, administrative services, sales of publications, and investments; (2) total operating and investment expenses; (3) change in net assets of the corporation; and (4) net assets. NCRP had a financially successful year with revenue exceeding expenses by $210K.

Year	Revenue	Expenses	Change in Net Assets	Net Assets
2005	2,765,706	2,507,843	257,863	1,570,946
2006	2,548,731	2,542,101	6,630	1,577,576
2007	2,955,060	2,647,516	307,544	1,885,120
2008	2,856,006	2,975,790	(119,784)	1,765,336
2009	2,854,973	2,645,003	209,970	1,975,306



Appendix 1. Finances

Exhibit A
Statement of Financial Position
December 31, 2009

(unaudited)

Current Assets	
Cash and cash equivalents	631,258
Investments [at market]	1,268,193
Accounts receivable:	
Publications [net of allowance of $1,224]	29,012
Grants and contracts	170,030
International Commission on Radiation Units and Measurements	1,119
International Society of Radiology	1,959
Other	8
Inventory—publications	323,611
Prepaid expenses and other assets	28,686
Total current assets	2,453,876
Property and Equipment [at cost]	
Furniture and equipment	361,879
Leasehold improvements	8,610
	370,489
Less accumulated depreciation and amortization	(332,539)
Total property and equipment	37,950
TOTAL ASSETS	2,491,826
Liabilities	
Accounts payable and accrued expenses	222,429
Total current liabilities	222,429

Other Liabilities	
Deferred rent liability	23,745
Accrued post retirement benefits	270,346
Total other liabilities	294,091
TOTAL LIABILITIES	516,520
Net Assets	
Unrestricted:	
Undesignated	683,685
Board designated	1,136,600
Temporarily restricted	155,021
TOTAL NET ASSETS	1,975,306
TOTAL LIABILITIES AND NET ASSETS	2,491,826

Exhibit B
Statement of Activities
For the year ended December 31, 2009
(unaudited)

	Unrestricted	Temporarily Restricted	Total
Revenue and Other Increases			
Contracts and grants	1,956,307		1,956,307
Contributions	134,632		134,632
Corporate sponsorship	30,000		30,000
Contributed professional services	249,800		249,800
Sales of publications	250,358		250,358
Dividends and interest	33,599	3,162	36,761
Net realized and unrealized gains on investments	117,523	35,286	152,809
Professional and administrative services	44,306		44,306
Total revenue and other increases	2,816,525	38,448	2,854,973
Expenses and other decreases			
Program costs:			
Contracts and grants	1,171,485		1,171,485
Publications	159,480		159,480
Contributed professional services	249,800		249,800
Total program costs	1,580,765	0	1,580,765
Management and general expenses	1,082,684	0	1,082,684
Total expenses	2,663,449	0	2,663,449
Post-retirement benefit changes	(28,813)		(28,813)
Investment fees	8,882	1,485	10,367
	2,643,518	1,485	2,645,003
Change in Net Assets	173,007	36,963	209,970
Net Assets at Beginning of Year	1,647,278	118,058	1,765,336
Net Assets at End of Year	1,820,285	155,021	1,975,306

Exhibit C
Statement of Cash Flow
For the year ended December 31, 2009

(unaudited)

Cash flows from operating activities:	
Change in net assets	209,970
Adjustments to reconcile change in net assets to cash provided by operating activities	
Depreciation and amortization	16,646
Net realized and unrealized gain on investments	(152,809)
(Increase) decrease in assets:	
Accounts receivable	41,868
Inventory—publications	(15,713)
Prepaids and other assets	(4,516)
Increase (decrease) in liabilities:	
Accounts payable and accrued expenses	(8,406)
Deferred rent liability	14,385
Accrued post retirement benefits	(28,813)
Net cash provided by operating activities	72,612
Cash flows from investing activities:	
Purchase of furniture and equipment	(16,439)
Purchase of investments	(1,432,126)
Sale of investments	1,387,025
Net cash used by investing activities	(61,540)
Net increase in cash and cash equivalents	11,072
Cash and cash equivalents at beginning of year	620,186
Cash and cash equivalents at end of year	631,258

Schedule 1
Schedule of Contracts and Grants Revenue
For the year ended December 31, 2009

(unaudited)

Contracts	
Centers for Disease Control and Prevention	422,967
Defense Threat Reduction Agency and Veterans Administration	659,144
Defense Threat Reduction Agency	213,296
Department of Homeland Security, Domestic Nuclear Detection Office	225,715
National Institute for Occupational Safety and Health	71,994
Nuclear Regulatory Commission	55,562
U.S. Navy	49,044
Total contracts	1,697,722
Grants	
Department of Energy	36,254
Environmental Protection Agency	25,000
National Aeronautics and Space Administration	30,000
National Cancer Institute	167,331
Total grants	258,585
Total contracts and grants revenue	1,956,307

Schedule 2
Schedule of Contributions & Corporate Sponsorship Revenue
For the year ended December 31, 2009

(unaudited)

Contributions	
American Academy of Health Physics	1,000
American Academy of Oral and Maxillofacial Radiology	500
American Association of Physicists in Medicine	15,000
American College of Medical Physics	500
American College of Radiology Foundation	45,000
American Nuclear Society	3,000
American Osteopathic College of Radiology	275
American Roentgen Ray Society	7,500
American Society for Radiation Oncology	3,000
American Society of Radiologic Technologists	6,000
Council on Radionuclides and Radiopharmaceuticals	2,500
Health Physics Society	20,004
Individuals	2,853
Landauer, Inc.	5,500
Lillian and Robert Brent Fund	1,500
Radiological Society of North America	20,000
Society for Pediatric Radiology	500
Total contributions	134,632
Corporate Sponsors	
3M	5,000
GE Healthcare	5,000
Global Dosimetry Solutions	5,000
Landauer, Inc.	10,000
Nuclear Energy Institute	5,000
Total Corporate Sponsors	30,000

Appendix 2. Publications

Distribution of NCRP Publications

(during the period May 16, 1931 through December 31, 2009)

No.	Title and Year of Publication	Number of Copies Distributed: Government Printing Office[a]	NCRP Publications[b] 2009: Hardcopy	NCRP Publications[b] 2009: E-Pub	Total NCRP Publications	All Sources Combined
NCRP Reports						
164	Uncertainties in Internal Radiation Dosimetry (2009)	__d				
163	Radiation Dose Reconstruction: Principles and Practices (2009)	__d				
162	Self Assessment of Radiation-Safety Programs (2009)	__d				
161	Management of Persons Contaminated with Radionuclides (2009)	__d				
160	Ionizing Radiation Exposure of the Population of the United States (2009)	__d	247	338	585	585
159	Risk to the Thyroid from Ionizing Radiation (2008)	__d	21	65	86	86
158	Uncertainties in the Measurement and Dosimetry of External Radiation (2007)	__d	47	89	554	554
157	Radiation Protection in Educational Institutions (2007)	__d	22	34	755	755
156	Development of a Biokinetic Model for Radionuclide-Contaminated Wounds and Procedures for Their Assessment, Dosimetry and Treatment (2006)	__d	28	34	655	655
155	Management of Radionuclide Therapy Patients (2006)	__d	20	66	906	906
154	Cesium-137 in the Environment: Radioecology and Approaches to Assessment and Management (2006)	__d	8	10	503	503
153	Information Needed to Make Radiation Protection Recommendations for Space Missions Beyond Low-Earth Orbit (2006)	__d	29	11	632	632
152	Performance Assessment of Near-Surface Facilities for Disposal of Low-Level Radioactive Waste (2005)	__d	8	11	523	523
151	Structural Shielding Design and Evaluation for Megavoltage X- and Gamma-Ray Radiotherapy Facilities (2005)	__d	53	187	2,907	2,907
150	Extrapolation of Radiation-Induced Cancer Risks from Nonhuman Experimental Systems to Humans (2005)	__d	8	9	662	662

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	NCRP Publications[b] 2009		Total NCRP Publications	All Sources Combined
			Hardcopy	E-Pub		
149	A Guide to Mammography and Other Breast Imaging Procedures (2004)	__d	4	33	1,073	1,073
148	Radiation Protection in Veterinary Medicine (2004)	__d	11	31	1,072	1,072
147	Structural Shielding Design for Medical X-Ray Imaging Facilities (2004)	__d	58	157	3,749	3,749
	Compact disk version of Report No. 147	__d	0	0	143	143
146	Approaches to Risk Management in Remediation of Radioactively Contaminated Sites (2004)	__d	3	12	1,052	1,052
145	Radiation Protection in Dentistry (2003)	__d	16	80	1,927	1,927
144	Radiation Protection for Particle Accelerator Facilities (2003)	__d	19	77	1,937	1,937
143	Management Techniques for Laboratories and Other Small Institutional Generators to Minimize Off-Site Disposal of Low-Level Radioactive Waste (2003)	__d	2	4	702	702
142	Operational Radiation Safety Program for Astronauts in Low-Earth Orbit: A Basic Framework (2002)	__d	2	7	1,124	1,124
141	Managing Potentially Radioactive Scrap Metal (2002)	__d	2	8	1,184	1,184
140	Exposure Criteria for Medical Diagnostic Ultrasound: II. Criteria Based on All Known Mechanisms (2002)	__d	2	8	768	768
139	Risk-Based Classification of Radioactive and Hazardous Chemical Wastes (2002)	__d	1	5	949	949
138	Management of Terrorist Events Involving Radioactive Material (2001)	__d	15	33	7,425	7,425
137	Fluence-Based and Microdosimetric Event-Based Methods for Radiation Protection in Space (2001)	__d	0	4	757	757
136	Evaluation of the Linear-Nonthreshold Dose-Response Model for Ionizing Radiation (2001)	__d	4	14	1,304	1,304
135	Liver Cancer Risk from Internally-Deposited Radionuclides (2001)	__d	0	0	1,094	1,094
134	Operational Radiation Safety Training (2000)	__d	3	27	1,261	1,261
133	Radiation Protection for Procedures Performed Outside the Radiology Department (2000)	__d	5	26	1,591	1,591
132	Radiation Protection Guidance for Activities in Low-Earth Orbit (2000)	__d	3	14	999	999
131	Scientific Basis for Evaluating the Risks to Populations from Space Applications of Plutonium (2001)	__d	0	3	786	786
130	Biological Effects and Exposure Limits for “Hot Particles” (1999)	__d	0	9	1,085	1,085

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	NCRP Publications[b] 2009		Total NCRP Publications	All Sources Combined
			Hardcopy	E-Pub		
129	Recommended Screening Limits for Contaminated Surface Soil and Review of Factors Relevant to Site-Specific Studies (1999)	__d	2	13	1,631	1,631
128	Radionuclide Exposure of the Embryo/Fetus (1998)	__d	2	21	1,528	1,528
127	Operational Radiation Safety Program (1998)	__d	49	40	2,173	2,173
126	Uncertainties in Fatal Cancer Risk Estimates Used in Radiation Protection (1997)	__d	6	9	1,852	1,852
125	Deposition, Retention and Dosimetry of Inhaled Radioactive Substances (1997)	__d	2	10	2,505	2,505
124	Sources and Magnitude of Occupational and Public Exposures from Nuclear Medicine Procedures (1996)	__d	1	27	3,081	3,081
123	Screening Models for Releases of Radionuclides to Atmosphere, Surface Water, and Ground (1996)	__d	3	22	3,064	3,064
122	Use of Personal Monitors to Estimate Effective Dose Equivalent and Effective Dose to Workers for External Exposure to Low-LET Radiation (1995)	__d	4	68	3,202	3,202
121	Principles and Application of Collective Dose in Radiation Protection (1995)	__d	0	18	2,418	2,418
120	Dose Control at Nuclear Power Plants (1994)	__d	1	9	2,981	2,981
119	A Practical Guide to the Determination of Human Exposure to Radiofrequency Fields (1993)	__d	2	38	3,436	3,436
118	Radiation Protection in the Mineral Extraction Industry (1993)	__d	0	4	2,608	2,608
117	Research Needs for Radiation Protection (1993)	__d	1	3	1,924	1,924
116	Limitation of Exposure to Ionizing Radiation (1993)	__d	2	66	6,968	6,968
115	Risk Estimates for Radiation Protection (1993)	__d	2	15	3,108	3,108
114	Maintaining Radiation Protection Records (1992)	__d	2	13	2,425	2,425
113	Exposure Criteria for Medical Diagnostic Ultrasound: I. Criteria Based on Thermal Mechanisms (1992)	__d	1	2	3,257	3,257
112	Calibration of Survey Instruments Used in Radiation Protection for the Assessment of Ionizing Radiation Fields and Radioactive Surface Contamination (1991)	__d	5	27	3,731	3,731
111	Developing Radiation Emergency Plans for Academic, Medical and Industrial Facilities (1991)	__d	0	7	4,038	4,038
110	Some Aspects of Strontium Radiobiology (1991)	__d	1	4	2,549	2,549
109	Effects of Ionizing Radiation on Aquatic Organisms (1991)	__d	3	10	2,177	2,177
108	Conceptual Basis for Calculations of Absorbed-Dose Distributions (1991)	__d	1	6	3,107	3,107

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	NCRP Publications[b] 2009		Total NCRP Publications	All Sources Combined
			Hardcopy	E-Pub		
107	Implementation of the Principle of As Low As Reasonably Achievable (ALARA) for Medical and Dental Personnel (1990)	__d	2	18	3,324	3,324
106	Limit for Exposure to "Hot Particles" on the Skin (1990)	__d	0	5	2,862	2,862
105	Radiation Protection for Medical and Allied Health Personnel (1989)	__d	33	25	6,725	6,725
104	The Relative Biological Effectiveness of Radiations of Different Quality (1990)	__d	0	5	2,386	2,386
103	Control of Radon in Houses (1989)	__d	2	4	3,742	3,742
102	Medical X-Ray, Electron Beam and Gamma-Ray Protection for Energies up to 50 MeV (Equipment Design, Performance and Use) (1989)	__d	4	21	7,634	7,634
101	Exposure of the U.S. Population from Occupational Radiation (1989)	__d	1	8	4,149	4,149
100	Exposure of the U.S. Population from Diagnostic Medical Radiation (1989)	__d	0	10	4,959	4,959
99	Quality Assurance for Diagnostic Imaging (1988)	__d	6	18	4,752	4,752
98	Guidance on Radiation Received in Space Activities (1989)	__d	0	0	3,387	3,387
97	Measurement of Radon and Radon Daughters in Air (1988)	__d	0	6	4,181	4,181
96	Comparative Carcinogenicity of Ionizing Radiation and Chemicals (1989)	__d	0	1	4,079	4,079
95	Radiation Exposure of the U.S. Population from Consumer Products and Miscellaneous Sources (1987)	__d	0	9	4,240	4,240
94	Exposure of the Population in the United States and Canada from Natural Background Radiation (1987)	__d	0	12	4,386	4,386
93	Ionizing Radiation Exposure of the Population of the United States (1987)	__d	0	8	7,349	7,349
92	Public Radiation Exposure from Nuclear Power Generation in the United States (1987)	__d	0	3	3,675	3,675
91	Recommendations on Limits for Exposure to Ionizing Radiation (1987)	__d	0	0	8,486	8,486
90	Neptunium: Radiation Protection Guidelines (1988)	__d	0	2	2,897	2,897
89	Genetic Effects from Internally Deposited Radionuclides (1987)	__d	1	1	3,950	3,950
88	Radiation Alarms and Access Control Systems (1986)	__d	2	6	4,768	4,768
87	Use of Bioassay Procedures for Assessment of Internal Radionuclide Deposition (1987)	__d	2	9	4,208	4,208

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	NCRP Publications[b] 2009		Total NCRP Publications	All Sources Combined
			Hardcopy	E-Pub		
86	Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields (1986)	__d	0	7	5,241	5,241
85	Mammography—A User's Guide (1986)	__d	0	0	32,654	32,654
84	General Concepts for the Dosimetry of Internally Deposited Radionuclides (1985)	__d	1	3	4,229	4,229
83	The Experimental Basis for Absorbed-Dose Calculations in Medical Uses of Radionuclides (1985)	__d	2	1	3,534	3,534
82	SI Units in Radiation Protection and Measurements (1985)	__d	2	5	4,555	4,555
81	Carbon-14 in the Environment (1985)	__d	0	15	3,969	3,969
80	Induction of Thyroid Cancer by Ionizing Radiation (1985)	__d	0	0	4,260	4,260
79	Neutron Contamination from Medical Electron Accelerators (1984)	__d	1	27	4,765	4,765
78	Evaluation of Occupational and Environmental Exposures to Radon and Radon Daughters in the United States (1984)	__d	1	0	6,458	6,458
77	Exposures from the Uranium Series with Emphasis on Radon and Its Daughters (1984)	__d	2	5	6,641	6,641
76	Radiological Assessment: Predicting the Transport, Bioaccumulation, and Uptake by Man of Radionuclides Released to the Environment (1984)	__d	0	0	6,658	6,658
75	Iodine-129: Evaluation of Release from Nuclear Power Generation (1983)	__d	0	2	5,932	5,932
74	Biological Effects of Ultrasound: Mechanisms and Clinical Implications (1983)	__d	0	3	11,206	11,206
73	Protection in Nuclear Medicine and Ultrasound Diagnostic Procedures in Children (1983)	__d	0	2	5,485	5,485
72	Radiation Protection and Measurement for Low-Voltage Neutron Generators (1983)	__d	0	6	4,413	4,413
71	Operational Radiation Safety—Training (1983)	__d	0	0	5,067	5,067
70	Nuclear Medicine—Factors Influencing the Choice and Use of Radionuclides in Diagnosis and Therapy (1982)	__d	1	2	5,399	5,399
69	Dosimetry of X-Ray and Gamma-Ray Beams for Radiation Therapy in the Energy Range 10 keV to 50 MeV (1981)	__d	1	3	4,990	4,990
68	Radiation Protection in Pediatric Radiology (1981)	__d	2	3	4,469	4,469
67	Radiofrequency Electromagnetic Fields—Properties, Quantities and Units, Biophysical Interaction and Measurements (1981)	__d	1	2	5,431	5,431
66	Mammography (1980)	__d	0	0	4,598	4,598
65	Management of Persons Accidentally Contaminated with Radionuclides (1980)	__d	2	31	18,402	18,402

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	NCRP Publications[b] 2009		Total NCRP Publications	All Sources Combined
			Hardcopy	E-Pub		
64	Influence of Dose and Its Distribution in Time on Dose-Response Relationships for Low-LET Radiations (1980)	__d	0	0	5,235	5,235
63	Tritium and Other Radionuclide Labeled Organic Compounds Incorporated in Genetic Material (1979)	__d	0	0	4,317	4,317
62	Tritium in the Environment (1979)	__d	2	3	3,935	3,935
61	Radiation Safety Training Criteria for Industrial Radiography (1978)	__d	0	4	6,151	6,151
60	Physical, Chemical and Biological Properties of Radiocerium Relevant to Radiation Protection Guidelines (1979)	__d	0	0	4,025	4,025
59	Operational Radiation Safety Program (1979)	__d	0	0	8,046	8,046
58	A Handbook of Radioactivity Measurements Procedures (1978)	__d	1	8	13,574	13,574
57	Instrumentation and Monitoring Methods for Radiation Protection (1978)	__d	0	18	10,939	10,939
56	Radiation Exposure from Consumer Products and Miscellaneous Sources (1977)	__d	__e	0	5,905	5,905
55	Protection of the Thyroid Gland in the Event of Releases of Radioiodine (1977)	__d	0	0	6,830	6,830
54	Medical Radiation Exposure of Pregnant and Potentially Pregnant Women (1977)	__d	2	22	10,507	10,507
53	Review of NCRP Radiation Dose Limit for Embryo and Fetus in Occupationally Exposed Women (1977)	__d	__e	0	9,289	9,289
52	Cesium-137 from the Environment to Man: Metabolism and Dose (1977)	__d	0	2	4,688	4,688
51	Radiation Protection Design Guidelines for 0.1-100 MeV Particle Accelerator Facilities (1977)	__d	0	0	8,511	8,511
50	Environmental Radiation Measurements (1976)	__d	1	4	7,899	7,899
49	Structural Shielding Design and Evaluation for Medical Use of X Rays and Gamma Rays of Energies up to 10 MeV (1976)	__d	1	44	17,406	17,406
	Adjunct to NCRP Report 49 (1976)	__d	0	0	2,796	2,796
48	Radiation Protection for Medical and Allied Health Personnel (1976)	__d	__e	0	14,359	14,359
47	Tritium Measurement Techniques (1976)	__d	0	3	6,359	6,359
46	Alpha-Emitting Particles in Lungs (1975)	__d	1	2	6,072	6,072
45	Natural Background Radiation in the United States (1975)	__d	__e	0	7,296	7,296
44	Krypton-85 in the Atmosphere—Accumulation, Biological Significance, and Control Technology (1975)	__d	0	0	6,560	6,560

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	NCRP Publications[b] 2009		Total NCRP Publications	All Sources Combined
			Hardcopy	E-Pub		
43	Review of the Current State of Radiation Protection Philosophy (1975)	__d	__e	0	9,722	9,722
42	Radiological Factors Affecting Decision-Making in a Nuclear Attack (1974)	__d	0	3	47,212	47,212
41	Specification of Gamma-Ray Brachytherapy Sources (1974)	__d	0	1	5,456	5,456
40	Protection Against Radiation from Brachytherapy Sources (1972)	__d	0	10	9,766	9,766
39	Basic Radiation Protection Criteria (1971)	__d	__e	0	40,393	40,393
38	Protection Against Neutron Radiation (1971)	__d	1	21	8,895	8,895
37	Precautions in the Management of Patients who have Received Therapeutic Amounts of Radionuclides (1970)	__d	0	0	17,402	17,402
36	Radiation Protection in Veterinary Medicine (1970)	__d	0	0	7,620	7,620
35	Dental X-Ray Protection (1970)	__d	0	0	28,559	28,559
34	Medical X-Ray and Gamma-Ray Protection for Energies up to 10 MeV—Structural Shielding Design and Evaluation (1970)	__d	__e	0	17,622	17,622
33	Medical X-Ray and Gamma-Ray Protection for Energies up to 10 MeV—Equipment Design and Use (1968)	__d	__e	0	98,134	98,134
32	Radiation Protection in Educational Institutions (1966)	__d	0	0	22,359	22,359
31	Shielding for High Energy Electron Accelerator Installations (1964)	3,700	__e	0	2,697	6,397
30	Safe Handling of Radioactive Materials (1964)	24,450	1	3	9,925	34,375
29	Exposure to Radiation in an Emergency	55,705	__e	0	3,678	59,383
28	A Manual of Radioactivity Procedures (1961)	22,892	__e	0	3,665	26,557
27	Stopping Powers for Use with Cavity Chambers (1961)	4,144	0	0	3,824	7,968
26	Medical X-Ray Protection up to Three Million Volts (1961)	75,894	__e	0	27,154	103,048
25	Measurement of Absorbed Dose of Neutrons and Mixtures of Neutrons and Gamma Rays (1961)	10,790	0	0	4,082	14,872
24	Protection Against Radiations from Sealed Gamma Sources (1960)	35,710	__e	0	953	36,663
23	Measurement of Neutron Flux and Spectra for Physical and Biological Applications (1960)	11,849	0	0	3,072	14,921
22	Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure (1959)	52,526	0	0	7,437	59,963
21	Safe Handling of Bodies Containing Radioactive Isotopes (1958)	29,304	__e	0	2,352	31,656

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	NCRP Publications[b] 2009		Total NCRP Publications	All Sources Combined
			Hardcopy	E-Pub		
20	Protection Against Neutron Radiation up to 30 Million Electron Volts (1957)	16,989	__e	0	353	17,342
19	Regulation of Radiation Exposure by Legislative Means (1955)	15,140	__e	0	0	15,140
18	X-Ray Protection (1955)	98,713	__e	0	0	98,713
17	Permissible Dose from External Sources of Ionizing Radiation (1954)	60,530	__e	0	2,038	62,568
16	Radioactive Waste Disposal in the Ocean (1954)	16,203	__e	0	2,664	18,867
15	Safe Handling of Cadavers Containing Radioactive Isotopes (1953)	14,486	__e	0	0	14,486
14	Protection Against Betatron-Synchrotron Radiations up to 100 Million Electron Volts (1954)	27,190	__e	0	1,710	28,900
13	Protection Against Radiation from Radium, Cobalt-60 and Cesium-137 (1954)	22,785	__e	0	0	22,785
12	Recommendations for the Disposal of Carbon-14 Wastes (1953)	23,506	__e	0	2,571	26,077
11	Maximum Permissible Amounts of Radioisotopes in the Human Body and Maximum Permissible Concentrations in Air and Water (1953)	32,494	__e	0	0	32,494
10	Radiological Monitoring Methods and Instruments (1952)	59,651	__e	0	3,894	63,545
9	Recommendations for Waste Disposal of Phosphorus-32 and Iodine-131 for Medical Users (1951)	28,810	__e	0	5,682	34,492
8	Control and Removal of Radioactive Contamination in Laboratories (1951)	50,500	0	1	7,641	58,141
7	Safe Handling of Radioactive Isotopes (1949)	60,867	__e	0	0	60,867
6	Medical X-Ray Protection up to Two Million Volts (1949)	70,261	__e	0	0	70,261
5	Safe Handling of Radioactive Luminous Compounds (1941)	6,187	__e	0	0	6,187
4	Radium Protection (1938)	10,086	__e	0	0	10,086
3	X-Ray Protection (1936)	16,490	__e	0	0	16,490
2	Radium Protection (1934)	__g	__e	0	0	0
1	X-Ray Protection (1931)	1,596	__e	0	0	1,596
	Total NCRP Reports Distributed	959,448	810	2,275	938,239	1,897,687

Lauriston S. Taylor Lectures

33 Radiation Epidemiology: The Golden Age and Remaining Challenges, John D. Boice, Jr. (2009)

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	NCRP Publications[b] 2009		Total NCRP Publications	All Sources Combined
			Hardcopy	E-Pub		
32	Radiation Standards, Dose/Risk Assessments, Public Interactions, and Yucca Mountain: Thinking Outside the Box, Dade W. Moeller (2008) Health Phys. **97**, 376–391	__i	__i	__i		__i
31	The Quest for Therapeutic Actinide Chelators, Patricia W. Durbin (2007) Health Phys. **95**, 465–492	__i	__i	__i		__i
30	Fifty Years of Scientific Investigation: The Importance of Scholarship and the Influence of Politics and Controversy, Robert L. Brent (2006) Health Phys. **93**, 348–379	__i	__i	__i		__i
29	Nontargeted Effects of Radiation: Implications for Low-Dose Exposures, John B. Little (2005) Health Phys. **91**, 416–426	__i	__i	__i		__i
28	Radiation Protection in the Aftermath of a Terrorist Attack Involving Exposure to Ionizing Radiation, Abel J. Gonzalez (2004), Health Phys. **89**, 418–446	__i	__i	__i		__i
27	The Evolution of Radiation Protection–From Erythema to Genetic Risks of Cancer ? Charles B. Meinhold (2003). Health Phys. **87**, 240–248	__i	__i	__i		__i
26	Developing Mechanistic Data for Incorporation into Cancer and Genetic Risk Assessments: Old Problems and New Approaches, R. Julian Preston (2002). Health Phys. **85**, 4–12	__i	__i	__i		__i
25	Assuring the Safety of Medical Diagnostic Ultrasound, Wesley L. Nyborg (2001). Health Phys. **82**, 578–587	__i	__i	__i		__i
24	Administered Radioactivity: *Unde Venimus Quoque Imus,* S. James Adelstein (2000). Health Phys. **80,** 317–324	__i	__i	__i		__i
23	Back to Background: Natural Radiation and Radioactivity Exposed, by Naomi H. Harley (1999). Health Phys. **79**, 121–128	__i	__i	__i		__i
22	From Chimney Sweeps to Astronauts: Cancer Risks in the Work Place, by Eric J. Hall (1998). Health Phys. **75**, 357–366	__i	__i	__i		__i
21	Radionuclides in the Body: Meeting the Challenge, by William J. Bair (1997). Health Phys. **73**, 423–432	__i	__i	__i		__i
20	70 Years of Radiation Genetics: Fruit Flies, Mice and Humans, by Seymour Abrahamson (1996). Health Phys. **71**, 624–633	__i	__i	__i		__i
19	Certainty and Uncertainty in Radiation Research, by Albrecht M. Kellerer (1995). Health Phys. **69**, 446–453	__i	__i	__i		__i
18	Mice, Myths and Men, by R.J. Michael Fry (1995)	__d	0	__j	512	512
17	Science, Radiation Protection and the NCRP, by Warren K. Sinclair (1993)	__d	0	__j	544	544

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	NCRP Publications[b] 2009		Total NCRP Publications	All Sources Combined
			Hardcopy	E-Pub		
16	Dose and Risk in Diagnostic Radiology: How Big? How Little?, by Edward W. Webster (1992)	__d	0	3	1,426	1,426
15	When is a Dose Not a Dose?, by Victor P. Bond (1992)	__d	0	1	752	752
14	Radiation Protection and the Internal Emitter Saga, by J. Newell Stannard (1990)	__d	0	1	352	352
13	Radiobiology and Radiation Protection: The Past Century and Prospects for the Future, by Arthur C. Upton (1989)	__d	0	0	578	578
12	How Safe is Safe Enough?, by Bo Lindell (1988)	__d	0	0	1,006	1,006
11	How to Be Quantitative about Radiation Risk Estimates, by Seymour Jablon (1988)	__d	0	1	1,021	1,021
10	Biological Effects of Non-Ionizing Radiations: Cellular Properties and Interactions, by Herman P. Schwan (1987)	__d	0	1	1,688	1,688
9	Truth (and Beauty) in Radiation Measurement, by John H. Harley (1985)	__d	0	2	764	764
8	Limitation and Assessment in Radiation Protection, by Harald H. Rossi (1984)	__d	0	1	1,527	1,527
7	The Human Environment—Past, Present and Future, by Merril Eisenbud (1983)	__d	0	0	1,034	1,034
6	Ethics, Trade-Offs and Medical Radiation, by Eugene L. Saenger (1982)	__d	0	0	1,247	1,247
5	How Well Can We Assess Genetic Risk? Not Very, by James F. Crow (1981)	__d	0	0	1,404	1,404
4	From "Quantity of Radiation" and "Dose" to "Exposure" and "Absorbed Dose"—An Historical Review, by Harold O. Wyckoff (1980)	__d	0	0	1,845	1,845
3	Radiation Protection—Concepts and Trade Offs, by Hymer L. Friedell (1979)	__d	0	1	2,084	2,084
2	Why be Quantitative about Radiation Risk Estimates? by Sir Edward E. Pochin	__d	0	__j	2,338	2,338
1	The Squares of the Natural Numbers in Radiation Protection, by Herbert M. Parker (1977)	__d	0	__j	1,512	1,512
	Total Lectures Distributed		0	11	21,634	21,634

NCRP Annual Meeting Proceedings

31 Future of Nuclear Power Worldwide: Safety, Health and Environment, Proceedings of the Forty-Fifth Annual Meeting held March 2–3, 2009. Health Phys.

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	NCRP Publications[b] 2009		Total NCRP Publications	All Sources Combined
			Hardcopy	E-Pub		
30	Low Dose and Low Dose-Rate Radiation Effects and Models, Proceedings of the Forty-Fourth Annual Meeting held April 14–15, 2008. Health Phys. **97**(5), 373–541	__i	__i	__i		__i
29	Advances in Radiation Protection in Medicine, Proceedings of the Forty-Third Annual Meeting held April 16–17, 2007. Health Phys. **95**(5), 461–686	__i	__i	__i		__i
28	Chernobyl at Twenty, Proceedings of the Forty-Second Annual Meeting held April 3–4, 2006. Health Phys. **93**(5), 345–595	__i	__i	__i		__i
27	Managing the Disposition of Low-Activity Radioactive Materials, Proceedings of the Forty-First Annual Meeting held March 30–31, 2005. Health Phys. **91**, 413–536 (2006)	__i	__i	__i		__i
26	Advances in Consequence Management for Radiological Terrorism Events, Proceedings of the Fortieth Annual Meeting held April 14–15, 2004. Health Phys. **89**(5), 415–588 (2005)	__i	__i	__i		__i
	Compact disk version of Proceedings No. 26		0	0	102	102
25	Radiation Protection at the Beginning of the 21st Century—A Look Forward, Proceedings of the Thirty-Ninth Annual Meeting held April 9–10, 2004. Published in Health Phys. **87**(3), 249–318 (September 2004)	__i	__i	__i		__i
24	Where the New Biology Meets Epidemiology: Impact on Radiation Risk Estimates, Proceedings of the Thirty-eighth Annual Meeting held April 10–11, 2002. Health Phys. **85**, 1–108 (2003)	__i	__i	__i		__i
23	Fallout from Atmospheric Nuclear Tests—Impact on Science and Society, Proceedings of the Thirty-seventh Annual Meeting held April 4–5, 2001. Health Phys. **82**, 573–748 (2002)	__i	__i	__i		__i
22	Ionizing Radiation Science and Protection in the 21st Century, Proceedings of the Thirty-sixth Annual Meeting held April 5–6, 2000, Health Phys. **80**, 317-402 (2001)	__i	__i	__i		__i
21	Radiation Protection in Medicine: Contemporary Issues, Proceedings of the Thirty-fifth Annual Meeting held April 7–8, 1999 (1999)	__d	0	0	203	203
	Compact disk version of Proceedings No. 21	__d	0	0	82	82
20	Cosmic Radiation Exposure of Airline Crews, Passengers and Astronauts, Proceedings of the Thirty-fourth Annual Meeting held on April 1–2, 1998, Health Phys. **79**, 466–613 (2000)	__i	__i	__i		__i
19	The Effects of Pre- and Postconception Exposure to Radiation, Proceedings of the Thirty-third Annual Meeting held on April 2–3, 1997, Teratology **59**, 181–317 (1999)	__i	__i	__i		__i

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	NCRP Publications[b] 2009		Total NCRP Publications	All Sources Combined
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18	Implications of New Data on Radiation Cancer Risk, Proceedings of the Thirty-second Annual Meeting held April 3–4, 1996 (1997)	__d	0	1	381	381
17	Environmental Dose Reconstruction and Risk Implications, Proceedings of the Thirty-first Annual Meeting held April 12–13, 1995 (1996)	__d	0	0	424	424
16	Extremely-Low-Frequency Electromagnetic Fields: Issues in Biological Effects and Public Health, Proceedings of the Thirtieth Annual Meeting held on April 6–7, 1994 [not published]	__d	0	__j	0	0
15	Radiation Science and Societal Decision Making, Proceedings of the Twenty-Ninth Annual Meeting held April 7–8, 1993 (1994)	__d	0	__j	565	565
14	Radiation Protection in Medicine, Proceedings of the Twenty-Eighth Annual Meeting held April 1–2, 1992 (1993)	__d	0	0	847	847
13	Genes, Cancer and Radiation Protection, Proceedings of the Twenty-Seventh Annual Meeting held April 3–4, 1991 (1992)	__d	0	0	689	689
12	Health and Ecological Implications of Radioactively Contaminated Environments, Proceedings of the Twenty-Sixth Annual Meeting held April 4–5, 1990 (1991)	__d	0	0	917	917
11	Radiation Protection Today—The NCRP at Sixty Years, Proceedings of the Twenty-Fifth Annual Meeting held April 4–5, 1990 (1990)	__d	0	__j	654	654
10	Radon, Proceedings of the Twenty-Fourth Annual Meeting held March 30–31, 1988 (1989)	__d	0	__j	1,452	1,452
9	New Dosimetry at Hiroshima and Nagasaki and Its Implications for Risk Estimates, Proceedings of the Twenty-Third Annual Meeting held April 8–9, 1987 (1989)	__d	0	__j	748	748
8	Nonionizing Electromagnetic Radiations and Ultrasound, Proceedings of the Twenty-Second Annual Meeting held April 2–3, 1986 (1988)	__d	0	__j	1,022	1,022
7	Radioactive Waste, Proceedings of the Twenty-First Annual Meeting held April 3–4, 1985 (1986)	__d	0	__j	1,417	1,417
6	Some Issues Important in Developing Basic Radiation Protection Recommendations, Proceedings of the Twentieth Annual Meeting held April 4–5, 1984 (1985)	__d	0	__j	1,537	1,537
5	Environmental Radioactivity, Proceedings of the Nineteenth Annual Meeting held April 6–7, 1983 (1984)	__d	0	1	3,976	3,976
4	Radiation Protection and New Medical Diagnostic Approaches, Proceedings of the Eighteenth Annual Meeting held April 6–7, 1982 (1983)	__d	0	__j	1,210	1,210

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	NCRP Publications[b] 2009		Total NCRP Publications	All Sources Combined
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3	Critical Issues in Setting Radiation Dose Limits, Proceedings of the Seventeenth Annual Meeting held April 8–9, 1981 (1982)	__d	0	__j	1,662	1,662
2	Quantitative Risk in Standards Setting, Proceedings of the Sixteenth Annual Meeting held April 2–3, 1980 (1981)	__d	__e	__j	2,158	2,158
1	Perceptions of Risk, Proceedings of the Fifteenth Annual Meeting held March 14–15, 1979 (1980)	__d	0	0	1,944	1,944
	Total Proceedings Distributed	0	0	2	21,991	21,991

NCRP Commentaries

20	Radiation Protection and Measurement Issues Related to Cargo Scanning With Accelerator-Produced High-Energy X Rays	__d	7	10	318	318
19	Key Elements of Preparing Emergency Responders for Nuclear and Radiological Terrorism	__d	176	34	1,165	1,165
18	Biological Effects of Modulated Radiofrequency Fields (2003)	__d	1	7	429	429
17	Pulsed Fast Neutron Analysis System Used in Security Surveillance (2003)	__d	1	5	475	475
16	Screening of Humans for Security Purposes Using Ionizing Radiation Scanning Systems (2003)	__d	6	122	541	541
15	Evaluating the Reliability of Biokinetic and Dosimetric Models and Parameters Used to Assess Individual Doses for Risk Assessment Purposes (1998)	__d	0	1	646	646
14	A Guide for Uncertainty Analysis in Dose and Risk Assessments Related to Environmental Contamination (1996)	__d	0	5	1,640	1,640
13	An Introduction to Efficacy in Diagnostic Radiology and Nuclear Medicine (Justification of Medical Radiation Exposure) (1995)	__d	1	4	1,385	1,385
12	Radiation Exposure and High-Altitude Flight (1995)	__d	0	3	548	548
11	Dose Limits for Individuals Who Receive Exposure from Radionuclide Therapy Patients (1995)	__d	0	3	1,299	1,299
10	Advising the Public about Radiation Emergencies: A Document for Public Comment (1994)	__d	1	1	1,160	1,160
9	Considerations Regarding the Unintended Radiation Exposure of the Embryo, Fetus or Nursing Child (1994)	__d	0	10	1,367	1,367

No.	Title and Year of Publication	Number of Copies Distributed: Government Printing Office[a]	NCRP Publications[b] 2009: Hardcopy	NCRP Publications[b] 2009: E-Pub	Total NCRP Publications	All Sources Combined
8	Uncertainty in NCRP Screening Models Relating to Atmospheric Transport, Deposition and Uptake by Humans (1993)	__d	0	1	903	903
7	Misadministration of Radioactive Material in Medicine—Scientific Background (1991)	__d	0	1	1,078	1,078
6	Radon Exposure of the U.S. Population—Status of the Problem (1991)	__d	0	0	1,099	1,099
5	Review of the Publication, "Living Without Landfills" (1989)	__d	0	1	3,099	3,099
4	Guidelines for the Release of Waste Water from Nuclear Facilities with Special Reference to the Public Health Significance of the Proposed Release of Treated Waste Waters at Three Mile Island (1987)	__d	0	0	854	854
3	Screening Techniques for Determining Compliance with Environmental Standards—Releases of Radionuclides to the Atmosphere (1986)	__d	__e	0	3,602	3,602
2	Preliminary Evaluation of Criteria for the Disposal of Transuranic Contaminated Waste (1982)	__d	__e	0	292	292
1	Krypton-85 in the Atmosphere—with Specific Reference to the Public Health Significance of the Proposed Controlled Release at Three Mile Island (1980)	__d	0	0	697	697
	Total Commentaries Distributed	0	193	98	22,597	22,597
	NCRP Symposia Proceedings					
3	Acceptability of Risk from Radiation—Application to Human Space Flight, Proceedings of a Symposium held May 29, 1996 (1997)	__d	0	1	645	645
2	Radioactive and Mixed Waste—Risk as a Basis for Waste Classification, Proceedings of a Symposium held November 9, 1994 (1995)	__d	0	0	460	460
1	The Control of Exposure of the Public to Ionizing Radiation in the Event of Accident or Attack, Proceedings of a Symposium held April 27-28, 1981 (1982)	__d	0	0	1,849	1,849
	Total Symposia Proceedings Distributed	0	0	1	2,954	2,954
	Total NCRP Publications Distributed	959,448	1,003	2,387	1,007,415	1,966,863

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