

**2010**

**Year in Review**

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## *Charter*

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

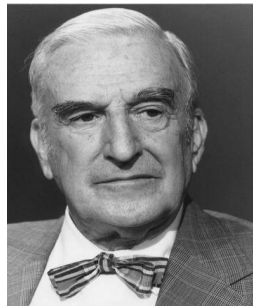
1. Collect, analyze, develop and disseminate in the public interest information and recommendations about (a) protection against radiation and (b) radiation measurements, quantities and units, particularly those concerned with radiation protection.
2. Provide a means by which organizations concerned 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.

## *Mission*

To support radiation protection by providing independent scientific analysis, information and recommendations that represent the consensus of leading scientists.



Lauriston S. Taylor  
1929–1977



Warren K. Sinclair  
1977–1991



Charles B. Meinhold  
1991–2002



Thomas S. Tenforde  
2002–



## *President's Message*

NCRP was scientifically productive in 2010 and completed five reports and the proceedings of the 2009 NCRP Annual Meeting. Significant progress was made on other reports that will be completed in 2011. NCRP publications completed in 2010 are the following.

Report No. 165, *Responding to a Radiological or Nuclear Terrorism Incident: A Guide for Decision Makers*, provides a comprehensive summary of decisions and key decision points for planners at the local, regional, state, tribal and federal levels preparing responses to radiological or nuclear terrorism incidents. The Report is unique relative to earlier publications on this subject in that guidance is specific to the nature of the incident, with differing recommendations for responding to radiological and nuclear acts of terrorism. Report No. 165 has two primary components: (1) information needed by decision makers to protect the health and safety of emergency responders and members of the public; and (2) consolidated recommendations on key decision points; levels of radiation doses; dose rates at which a response should be initiated; and the nature, timing and extent of the response.

Report No. 166, *Population Monitoring and Radionuclide Decorporation Following a Radiological or Nuclear Incident*, provides guidance for emergency responders and medical centers for the development of response plans that include efficient screening of a population for internally-deposited radionuclides, decontamination procedures, and treatment by decorporation therapy. The Report also discusses external monitoring and decontamination of the affected population. The social and psychological impacts of a radiological or nuclear terrorism incident, and the long-term medical monitoring of the affected population, are also discussed. A focus is placed on rapid methods for determining the identity of contaminating radionuclides, and the screening, decontamination, and prompt medical management of contaminated persons.

Report No. 167, *Potential Impact of Genetic Susceptibility and Previous Radiation Exposure on Radiation Risk for Astronauts*, evaluates the effects of genetic factors and prior radiation exposure on radiation health risks for astronauts throughout their lifetimes following space missions. The Report also evaluates whether these factors need to be included in the radiation protection program for astronauts. It was determined that nonoccupational exposures (*e.g.*, from medical procedures or natural background radiation) should not be added to occupational exposure in establishing lifetime radiation risk limits for astronauts. Legal, statutory and ethical issues related to consideration of genetic susceptibility and previous radiation exposures in establishing astronaut radiation risk limits and associated dose limits are also discussed.

Report No. 168, *Radiation Dose Management for Fluoroscopically-Guided Interventional Medical Procedures*, reviews and evaluates the most common image-guided interventional procedures with regard to radiation dose and safety issues. The Report provides recommendations on optimizing imaging protocols, managing image-guided interventional procedure time, available radiation protection

equipment and dose-reduction features, tracking and trending patient and physician radiation doses, and physician credentialing for use of image-guided interventional procedure equipment for specialized procedures. The Report will benefit radiologists and other medical specialists (e.g., cardiologists and orthopedic surgeons) by providing extensive information on the practical radiation protection aspects of fluoroscopically-guided interventional procedures (e.g., equipment operation, optimal imaging techniques, patient and physician dose management, benefit-risk tradeoffs, and the potential for early or late adverse radiation health effects).

Report No. 169, *Design of Effective Radiological Effluent Monitoring and Environmental Surveillance Programs*, provides extensive guidance on assessing and managing contamination resulting from releases of radionuclides to the environment. The Report provides a comprehensive description of key elements of procedures to be used in establishing an effective effluent monitoring and surveillance program at nuclear facilities and the surrounding environment. The Report describes the required radiation detection equipment and state-of-the-art modeling approaches for determining radionuclide transport pathways in the atmosphere, soil, surface water, and groundwater. Evaluations are presented for potential doses to members of the public and natural ecosystems from releases of radionuclides to the environment. Quality assessment and control procedures that must be incorporated into effective effluent monitoring and environmental surveillance programs, and the applicable regulatory requirements, are described in detail.

Proceedings of the 2009 NCRP Annual Meeting on *Future of Nuclear Power Worldwide: Safety, Health and Environment* were also completed in 2010. The Proceedings, along with the 33rd Annual Lauriston S. Taylor Lecture by John D. Boice, Jr. on *Radiation Epidemiology: The Golden Age and Remaining Challenges*, will be published in *Health Physics* [100(1), 2011]. NCRP extends its appreciation to the Program Committee, led by Michael L. Corradini, for organizing the meeting on a timely and important topic. Presentations were made by international experts on projections in the growth of nuclear power over the coming decades, on infrastructure needs for an expanding nuclear power industry, and on key challenges to be met for nuclear power in the 21st century.

NCRP also continued its program on appropriate applications of computed tomography in emergency medicine. Along with eight cosponsors, including scientific organizations and federal agencies, NCRP held a workshop on September 23–24, 2009 on *Applications of Computed Tomography in Emergency Medicine: Ensuring Appropriate Use*. A summary of the workshop will be published in the *Journal of the American College of Radiology*, and has formed the framework for the drafting of a consensus paper on clinical guidelines for appropriate uses of computed tomography in emergency medicine. A team of emergency medicine physicians, radiologists, and medical physicists convened at NCRP on December 14–15, 2010 to draft major sections of the consensus paper, which will be completed by NCRP in 2011 for review by all of the cosponsoring organizations. A final version of the paper will be submitted for publication in both radiology and emergency medicine journals.

It is expected that 2011 will be another productive year for NCRP with the completion of several important publications. Reports and commentaries that are in an advanced stage of preparation for release on the website <http://NCRPpublications.org> are Commentary No. 21 on *Radiation Protection in the Application of Active Detection Technologies*, Commentary No. 22 on *Health Protection Issues*

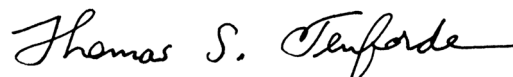
*Associated with the Use of Active Detection Technology Security Systems for Detection of Radioactive Threat Materials*, a report on *Second Cancers and Cardiovascular Effects After Radiotherapy*, and a report on *Diagnostic Reference Levels in Medical and Dental Imaging: Recommendations for Applications in the United States*. Proceedings of the 2010 NCRP Annual Meeting on *Communication of Radiation Benefits and Risks in Decision Making* will also be prepared in 2011.

The 2011 Annual Meeting on *Scientific and Policy Challenges of Particle Radiations in Medical Therapy and Space Missions* has been organized by a Program Committee chaired by Kathryn D. Held, and the final agenda can be viewed at the NCRP website <http://NCRPonline.org>. Topics of discussion will include radiobiological properties of particle radiation, human exposures in medical radiotherapy and space exploration, cancer and noncancer disease risks associated with exposure to particle radiation, including late effects such as second cancer risks, shielding requirements for reduction of doses from exposure to charged particles, and active programs for the use of carbon-ion radiotherapy in Germany and Japan.

In 2010 NCRP continued planning for a new Education and Training Program, with a focus on evaluating the costs and potential income from internet-based and classroom course formats. Several recent and forthcoming NCRP reports are of broad interest (*e.g.*, in areas related to medical applications of radiation and countermeasures to radiological or nuclear acts of terrorism), and could form the basis for training courses. The decision has been made by the NCRP Board of Directors to move forward in launching this program in 2011, working in collaboration with other organizations that have extensive experience in preparing and promoting education and training programs.

NCRP remained in a stable financial position in 2010 with the income from grants, contracts, contributions, investments, and sale of publications exceeding the expenses for operations by \$32K. A detailed discussion of NCRP finances in 2010 is presented in Appendix 1.

As I approach the end of my ninth year as President of NCRP, I look forward 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 2011 and beyond.

A handwritten signature in cursive script that reads "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 2010 there were 21 vacancies; ten new members were elected and 11 members were re-elected. The ten new members were:

Lawrence L. Chi	Martha S. Linet
Milton J. Guiberteau	Kathryn H. Pryor
Martin Hauer-Jensen	Michael G. Stabin
Hank C. Jenkins-Smith	Tammy P. Taylor
John J. Lanza	Louis K. Wagner

### 2010 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	2010–2016
Kimberly E. Applegate	Emory University School of Medicine	2007–2013
Benjamin R. Archer	Baylor College of Medicine	2006–2012
Stephen Balter	Columbia-Presbyterian Medical Center	2007–2013
Steven M. Becker	University of Alabama at Birmingham	2005–2011
Joel S. Bedford	Colorado State University	2010–2016
Mythreyi Bhargavan	American College of Radiology	2009–2015
Eleanor A. Blakely	Lawrence Berkeley National Laboratory	2006–2012



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
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
Lawrence L. Chi	General Electric Hitachi Nuclear Energy Americas	2010–2016
Mary E. Clark	U.S. Environmental Protection Agency	2008–2014
Michael L. Corradini	University of Wisconsin, Madison	2010–2016
Allen G. Croff	Retired	2010–2016
Paul M. DeLuca	University of Wisconsin Medical School	2008–2014
Christine A. Donahue	Energy Solutions	2009–2015
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	2010–2016
Ronald E. Goans	MJW Corporation	2007–2013
Robert L. Goldberg	University of California, San Francisco	2006–2012
Milton J. Guiberteau	Greater Houston Radiology Associates	2010–2016
Raymond A. Guilmette	Lovelace Respiratory Research Institute	2009–2015
Roger W. Harms	Mayo Clinic	2009–2015
Martin Hauer-Jensen	University of Arkansas for Medical Sciences	2010–2016
Kathryn D. Held	Massachusetts General Hospital	2006–2012
Roger W. Howell	University of Medicine and Dentistry of New Jersey	2009–2015
Hank C. Jenkins-Smith	University of Oklahoma	2010–2016
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.	2010–2016
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

John J. Lanza	Florida Department of Health	2010–2016
Edwin M. Leidholdt, Jr.	U.S. Department of Veterans Affairs	2006–2012
James C. Lin	University of Illinois, Chicago	2005–2011
Martha S. Linet	National Cancer Institute	2010–2016
Jill A. Lipoti	New Jersey Department of Environmental Protection	2007–2013
Paul A. Locke	Johns Hopkins University	2010–2016
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
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
Kathryn H. Pryor	Pacific Northwest National Laboratory	2010–2016
Jerome C. Puskin	U.S. Environmental Protection Agency	2006–2012
Abram Recht	Beth Israel Deaconess Medical Center	2007–2013
Adela Salame-Alfie	New York State Department of Health	2009–2015
Beth A. Schueler	Mayo Clinic	2009–2015
J. Anthony Seibert	University of California Davis Medical Center	2008–2014
Stephen M. Seltzer	National Institute of Standards and Technology	2010–2016
Edward A. Sickles	University of California Medical Center	2007–2013
Steven L. Simon	National Cancer Institute	2010–2016
Christopher G. Soares	National Institute of Standards and Technology	2005–2011
Michael G. Stabin	Vanderbilt University	2010–2016
Daniel J. Strom	Pacific Northwest National Laboratory	2008–2014
Tammy P. Taylor	Los Alamos National Laboratory	2010–2016
Thomas S. Tenforde	National Council on Radiation Protection and Measurements	2008–2014
Julie K. Timins	Diagnostic Radiology	2010–2016
Richard E. Toohey	Oak Ridge Associated Universities	2006–2012
Elizabeth L. Travis	MD Anderson Cancer Center	2009–2015

Fong Y. Tsai	University of California Medical Center, Irvine	2006–2012
Louis K. Wagner	University of Texas-Houston Medical School	2010–2016
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	2010–2016
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	Rensselaer Polytechnic Institute	2008–2014
R. Craig Yoder	Landauer, Inc.	2008–2014
Marco A. Zaider	Memorial Sloan-Kettering Cancer Center	2005–2011

## Board of Directors

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

\*Newly elected to the Board of Directors on March 9, 2010.

## 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*

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

\*Elected to Distinguished Emeritus Membership March 9, 2010.

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

†Deceased during 2010.

\*Elected to Consociate Membership March 9, 2010.

## *Administrative Committees*

### **Budget & Finance Committee** (appointed by the Board of Directors, March 9, 2010)

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 9, 2010)

Amy Kronenberg, *Chairman*

Jerrold T. Bushberg  
Christine A. Donahue

Donald P. Frush  
Chris G. Whipple

### **Program Committee for 2011 Annual Meeting**

(appointed by the Board of Directors, March 9, 2010)

Kathryn D. Held, *Chairman*

Eleanor A. Blakely  
Jerrold T. Bushberg  
Stephanie E. Combs  
Francis A. Cucinotta  
Marco Durante  
Joseph R. Dynlacht  
Ritsuko U. Komaki

Amy Kronenberg  
Harald Paganetti  
Gregory A. Nelson  
Wayne D. Newhauser  
John W. Norbury  
Maria Antonella Tabocchini

## *Scientific and Administrative Staff*

David A. Schauer	Executive Director
Laura J. Atwell	Office Manager, ICRU Assistant Executive Secretary
Patricia H. Barnhill	Word Processor
R. Thomas Bell	Technical Staff Consultant
James F. Berg	Accounting Consultant
Bruce B. Boecker	Technical Staff Consultant
Charles C. Church	Technical Staff Consultant
Brian Dodd	Technical Staff Consultant
John R. Frazier	Technical Staff Consultant
Steven R. Frey	Technical Staff Consultant
Joel E. Gray	Technical Staff Consultant
Michael P. Grissom	Technical Staff Consultant
Kenneth L. Groves	Technical Staff Consultant
Luvenia J. Hawkins	Senior Text Processor
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
Bonnie G. Walker	Assistant Managing Editor
E. Ivan White	Technical Staff Consultant
Myrna A. Young	Financial Records Manager

## *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  
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 1-15 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: Preparing for PAC review

R. Julian Preston, *Chairman*

John D. Boice, Jr.

A. Bertrand Brill

Ranajit Chakraborty

Rory Conolly

Richard W. Hornung

Roy E. Shore

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: Revising after Council review

Lois B. Travis, *Chairman*

John D. Boice, Jr., *Vice Chairman*  
James M. Allan  
Kimberly E. Applegate  
Louis S. Constine  
Ethel S. Gilbert  
Ann R. Kennedy  
Andrea K.M. Ng  
Ching-Hon Pui  
James A. Purdy  
X. George Xu  
Joachim Yahalom  
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: Revising after Council review

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 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: Preparing for PAC review

John F. Ahearne, *Chairman*  
Lawrence T. Dauer  
Christine A. Donahue  
Norman 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 1-20 **Biological Effectiveness of Photons as a Function of Energy**

Status: Early draft stage

Steven L. Simon, *Chairman*

Leslie A. Braby

Polly Y. Chang

Dudley Goodhead

Stephen C. Hora

David C. Kocher

Kiyohiko Mabuchi

Jerome S. Puskin

David Richardson

James D. Tucker

Eliseo Vano

Marvin Rosenstein, *Technical Staff Consultant*

## **Completed in 2010**

NCRP Report No. 167, *The Potential Impact of Individual Genetic Susceptibility and Previous Radiation Exposure on Radiation Risk for Astronauts*, was issued in 2010. This Report was drafted by Scientific Committee 1-13 under the chairmanship of Antone L. Brooks and co-chairmanship of William F. Morgan.

## *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
- Radiation protection guidelines for industrial accelerators and irradiators

## Active Scientific Committees Under PAC 2

### SC 2-5 Investigation of Radiological Incidents

Status: Committee early drafting stage

Davis S. Myers, *Chairman*

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*

## Completed in 2010

NCRP Report No. 165, *Responding to a Radiological or Nuclear Terrorism Incident: A Guide for Decision Makers*, was issued in 2010. This Report was drafted by Scientific Committee 2-2 under the chairmanship of John W. Poston, Sr.

NCRP Report No. 168, *Radiation Dose Management for Fluoroscopically-Guided Interventional Medical Procedures*, was issued in 2010. This Report was drafted by Scientific Committee 2-3 under the chairmanship of Stephen Balter, *Chairman* and vice chairmen Donald L. Miller and Beth A. Schueler.

## *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*

## *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 4-3 **Diagnostic Reference Levels in Medical Imaging: Recommendations for Application in the United States**

Status: Preparing for Council review

James A. Brink, *Chairman*

John M. Boone

Kate A. Feinstein

Jeffrey M. Michalski

Robert J. Pizzutiello

David C. Spelic

Stuart C. White

Judy Yee

Stephen Balter, *Consultant*

Jerrold T. Bushberg, *Consultant*

James Duncan, *Consultant*

Donald L. Miller, *Consultant*

Joel E. Gray, *Technical Staff Consultant*

### SC 4-4 **Risks of Ionizing Radiation to the Developing Embryo, Fetus and Nursing Infant**

Status: Preparing for Council 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 (deceased)*

Susan D. Wiltshire, *Consultant*

Marvin C. Ziskin, *Consultant*

Brian Dodd, *Technical Staff Consultant (2008–2010)*

Marvin Rosenstein, *Technical Staff Consultant*

## Completed in 2010

NCRP Report No. 166, *Population Monitoring and Radionuclide Decorporation Following a Radiological or Nuclear Incident*, was issued in 2010. This Report was drafted by Scientific Committee 4-2 under the chairmanship of Richard J. Vetter.

## *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 5-1 Approach to Optimizing Decision Making for Late-Phase Recovery from Nuclear or Radiological Terrorism Incidents

Status: Early draft stage

S.Y. Chen, *Chairman*

Daniel J. Barnett

Brooke R. Buddemeier

Vincent T. Covello

Katherine A. Kiel

Jill A. Lipoti

Debra McBaugh

Andrew Wallo, III

Jonathan D. Edwards, *Advisor*

Anne F. Nisbet, *Advisor*

David J. Allard, *Advisor*

John J. Cardarelli, *Consultant*

Michael A. Noska, *Consultant*

John A. MacKinney, *Consultant*

Steven R. Frey, *Technical Staff Consultant*

## Completed in 2010

NCRP Report No. 169, *Design of Effective Radiological Effluent Monitoring and Environmental Surveillance Programs*, was issued in 2010. This Report was drafted by Scientific Committee 64-22 under the chairmanship of Bernd Kahn.

## *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

## *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*

## 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 2010 are:

<b>Organization</b>	<b>Contact Person</b>
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 Fairbent, 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, Michael Flynn
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 2010 are:

### **Organization**

### **Contact Person**

Australian Radiation Laboratory	Keith H. Lokan
Bundesamt für Strahlenschutz (Germany) (Federal Office for Radiation Protection)	Wolfram König
Canadian Association of Medical Radiation Technologists	Charles A. Shields
Canadian Nuclear Safety Commission	J.K. Pereira
Central Laboratory for Radiological Protection (Poland)	Slawomir Sterlinski
China Institute for Radiation Protection	Huating Yang
Commissariat à l'Énergie Atomique (France)	Jean-Francois Lecomte
Commonwealth Scientific Instrumentation Research Organization (Australia)	Stan Barnett
European Commission	Hans Forsstrom
Health Council of the Netherlands	A. Wijnbenga
Health Protection Agency	John Cooper
International Commission on Non-Ionizing Radiation Protection	Paolo Vecchia
International Commission on Radiation Units and Measurements	Hans G. Menzel
International Commission on Radiological Protection	Claire Cousins
International Radiation Protection Association	Kenneth R. Kase
Japan Radiation Council	Yasuhito Sasaki
Korea Institute of Nuclear Safety	Kwang Sik Choi
Nuclear Safety Commission of Japan	Atsuyuki Suzuki



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 2010 are:

**Organization**

3M

GE Healthcare

Global Dosimetry Solutions

Landauer, Inc.

Nuclear Energy Institute

**Contact Person**

Frederick Entwistle

Mark Doruff

Sander Perle

R. Craig Yoder

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 (43), Collaborating organizations (77), and Special Liaison organizations (22). 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
2010	Radiation Protection and Public Policy in an Uncertain World	Charles E. Land
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: <i>Unde Venimus Quoque Imus</i>	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

## 2010 Lauriston S. Taylor Lecture

The Thirty-Fourth Lauriston S. Taylor Lecture presented by Charles E. Land, *Radiation Protection and Public Policy in an Uncertain World*, will be published in *Health Physics*.



## *Annual Meetings*

<b>Year</b>	<b>Topic</b>
2010	Communication of Radiation Benefits and Risks in Decision Making
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

## 2010 Annual Meeting

The Forty-Sixth Annual Meeting of NCRP was held March 8–9, 2010 at the Hyatt Regency Bethesda in Bethesda, Maryland. The topic of the meeting was *Communication of Radiation Benefits and Risks in Decision Making*. The sessions and presentations were as follows:

### Seventh Annual Warren K. Sinclair Keynote Address

Effective Risk Communication Before, During and After a Radiological Emergency: Challenges, Guidelines, Strategies and Tools, Vincent T. Covello

### Basic Concepts and Examples of Effective Risk Communication

Paul A. Locke, *Session Chair*

Crafting Interactivity: Transforming Assumptions About Communication in Science and Policy, Mark A. Aakhus

Transparency, Openness and Accountability in Risk Assessment: Lessons from the National Academies Science and Decisions Report, Thomas E. McKone

### Panel on Getting the Message Out

Paul A. Locke, *Moderator*

*Panelists:*

Lessons Learned from Communicating with Stakeholders Who Have Many and Varied Perspectives, Todd Martin

Communication 2.0: Increasing Information Reach and Impact Through New Media and Public Engagement, Jay M. Bernhardt

Importance of Science in Accurate News Reporting: A Journalist's Perspective, Terry Moran

Social Networking: How It Can be Used to Improve Public Health Communication, Janice Nall

### Communication, Terrorism and Homeland Security

Steven M. Becker, *Session Co-Chair*

Charles W. Miller, *Session Co-Chair*

## **Panel on New Research, Recent Experience, and Emerging Challenges**

Steven M. Becker, *Moderator*

### *Panelists:*

London Polonium Incident: Lessons for Risk Communication, G. James Rubin

American Attitudes About Terrorism and Other Threats: What Can Be Learned from Rapid  
Emergency Polls of the Public, Gillian K. SteelFisher

Risk Communication with Vulnerable Populations: Best Practices, Deborah C. Glik

Risk Communication and Radiological/Nuclear Terrorism: A Strategic View, Steven M. Becker

## **Panel on New Approaches, Projects and Initiatives**

Charles W. Miller, *Moderator*

### *Panelists:*

Federal Interagency Communication Strategies for Addressing Radiation Emergencies and Other  
Public Health Crises, Charles W. Miller and M. Carol McCulrey

Federal Planning for Nuclear and Radiological Terrorism Community Preparedness, Tammy P.  
Taylor

State Perspectives on Effective Communication in Acts of Terrorism, Adela Salame-Alfie

Informing and Engaging the Public in Preparedness Efforts: The Israeli Experience, Bruria Adini

## **Thirty-Fourth Lauriston S. Taylor Lecture on Radiation Protection and Measurements**

Radiation Protection and Public Policy in an Uncertain World, Charles E. Land

## **Communicating Benefits and Risks of Medical Radiation**

Julie K. Timins, *Session Chair*

Changes in Medical Communication: Historical Perspective, Julie K. Timins

Toward a Holistic Approach in the Presentation of Benefits and Risks of Medical Radiations,  
Louis K. Wagner

Communicating the Benefits and Risks of Radiation Therapy: Maintaining Context, Perspective  
and Reassurance, Lawrence B. Marks

Just the Facts: Mammography Saves Lives with Little if Any Radiation Risk to the Mature Breast,  
Daniel B. Kopans

Legal Aspects of Patient Communication, Leonard Berlin

## **Communication on Children's Imaging and on Computed Tomography**

Fred A. Mettler, Jr., *Session Chair*

Introduction: Computed Tomography Radiation and Population Dose, Fred A. Mettler, Jr.

Image Gently<sup>®</sup> Campaign: The Use of Social Marketing to Promote Radiation Protection for  
Children, Marilyn J. Goske

Image Gently<sup>®</sup> International: Communication Conundrums, Kimberly E. Applegate

Communicating About Computed Tomography: Challenges and Uncertainties, Rebecca Smith-Bindman

Radiation Safety in the Era of Helical Computed Tomography: Methods to Decrease Patient Exposure in the Community Hospital Setting, Steven Birnbaum

### **Communication of Radiation Benefits and Risks in Decision Making**

Jill A. Lipoti, *Session Chair*

Beyond Dose Assessment: Using Risk with Full Disclosure of Uncertainty in Public and Scientific Communication, F. Owen Hoffman and David C. Kocher

Using the International Radiation Protection Association Guiding Principles: Putting Theory into Practice for Sustainable Implementation, C. Rick Jones

Community Environmental Monitoring Program: A Case Study of Public Education and Involvement in Radiological Monitoring, William T. Hartwell and David S. Shafer

Psychosocial and Health Impacts of Uranium Mining and Milling on Navajo Lands, Susan E. Dawson

Stakeholder Engagement Process in the ETHOS Project in Belarus, Thierry Schneider

Panel Discussion: Don M. Curry, Susan E. Dawson, William T. Hartwell, F. Owen Hoffman, C. Rick Jones, and Thierry Schneider

Future Directions of ICRP Committee 4: Application of ICRP Recommendations—From Stakeholder Involvement to Self-Help Protective Actions, Jacques Lochard

Communicating Radiation Benefits and Risks: Some Lessons Learned, Paul A. Locke

Serving on the Program Committee for the 2010 Annual Meeting were: 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. Timinis, Chris G. Whipple, and Susan D. Whiltshire. The proceedings of the 2010 Annual Meeting will be published in *Health Physics*.



**N | C | R | P**

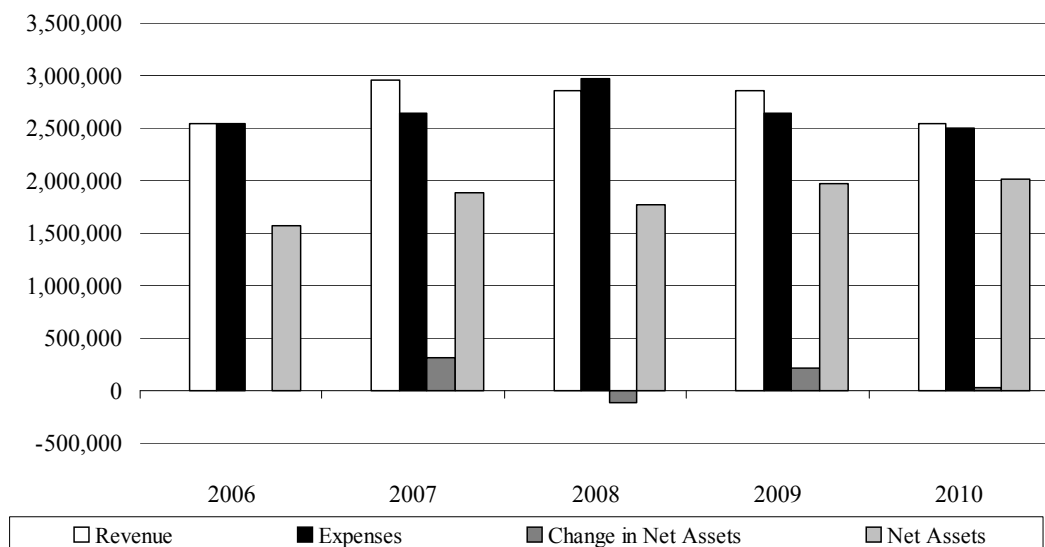
**A | P | P | E | N | D | I | C | E | S**



## Financial Summary

The table and bar graph presented below exhibit NCRP’s year-end financial data for 2010 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 \$32K.

Year	Revenue	Expenses	Change in Net Assets	Net Assets
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	2,645,035	209,938	1,975,274
2010	2,537,383	2,505,323	32,060	2,007,334





## Appendix 1. Finances

### Exhibit A Statement of Financial Position December 31, 2010

(unaudited)

#### Current Assets

Cash and cash equivalents	405,715
Investments [at market]	1,548,393
Accounts receivable:	
Publications [net of allowance of \$194]	23,744
Grants and contracts	68,360
International Commission on Radiation Units and Measurements	9,634
International Society of Radiology	137
Other	1,262
Inventory—publications	320,684
Prepaid expenses and other assets	20,282
Total current assets	<u>2,398,211</u>

#### Property and Equipment [at cost]

Furniture and equipment	361,879
Leasehold improvements	8,610
	<u>370,489</u>
Less accumulated depreciation and amortization	345,384
Total property and equipment	<u>25,105</u>

**TOTAL ASSETS** 2,423,316

#### Liabilities

Accounts payable and accrued expenses	231,891
Total current liabilities	<u>231,891</u>



<b>Other Liabilities</b>	
Deferred rent liability	32,093
Accrued post retirement benefits	151,998
Total other liabilities	<u>184,091</u>
<b>TOTAL LIABILITIES</b>	<u>415,982</u>
<b>Net Assets</b>	
Unrestricted:	
Undesignated	441,161
Board designated	1,399,988
Temporarily restricted	166,185
<b>TOTAL NET ASSETS</b>	<u>2,007,334</u>
<b>TOTAL LIABILITIES AND NET ASSETS</b>	<u><u>2,423,316</u></u>

## Exhibit B Statement of Activities For the year ended December 31, 2010 (unaudited)

	Unrestricted	Temporarily Restricted	Total
<b>Revenue and Other Increases</b>			
Contracts and grants	1,492,132		1,492,132
Contributions	90,625		90,625
Corporate sponsorship	35,000		35,000
Contributed professional services	231,400		231,400
Sales of publications	315,482		315,482
Dividends and interest	38,055	5,001	43,056
Net realized and unrealized gains on investments	142,563	7,104	149,667
Professional and administrative services	52,480		52,480
Post-retirement benefit change	127,541		127,541
Total revenue and other increases	2,525,278	12,105	2,537,383
<b>Expenses and other decreases</b>			
Program costs:			
Contracts and grants	936,313		936,313
Publications	132,353		132,353
Contributed professional services	231,400		231,400
Total program costs	1,300,066	0	1,300,066
Management and general expenses	1,192,868	0	1,192,868
Total expenses	2,492,934	0	2,492,934
Investment fees	11,448	941	12,389
	2,504,382	941	2,505,323
<b>Change in Net Assets</b>	20,893	11,164	32,060
<b>Net Assets at Beginning of Year</b>	1,820,253	155,021	1,975,274
<b>Net Assets at End of Year</b>	1,841,149	166,185	2,007,334

**Exhibit C**  
**Statement of Cash Flow**  
**For the year ended December 31, 2010**  
*(unaudited)*

Cash flows from operating activities:	32,060
Change in net assets	
Adjustments to reconcile change in net assets to cash provided by operating activities	
Depreciation and amortization	10,332
Net realized and unrealized gain on investments	(149,667)
(Increase) decrease in assets:	
Accounts receivable	101,472
Inventory—publications	2,927
Prepaid expenses and other assets	8,404
Increase (decrease) in liabilities:	
Accounts payable and accrued expenses	9,462
Deferred rent liability	8,348
Accrued post retirement benefits	(118,348)
<b>Net cash used by operating activities</b>	<u>(95,010)</u>
Cash flows from investing activities:	
Purchase of investments	(233,142)
Sale of investments	102,609
<b>Net cash used by investing activities</b>	<u>(130,533)</u>
<b>Net increase in cash and cash equivalents</b>	(255,543)
<b>Cash and cash equivalents at beginning of year</b>	<u>631,258</u>
<b>Cash and cash equivalents at end of year</b>	<u><u>405,715</u></u>

## Schedule 1 Schedule of Contracts and Grants Revenue For the year ended December 31, 2010

*(unaudited)*

### Contracts

Centers for Disease Control and Prevention	176,475
Defense Threat Reduction Agency and Veterans Administration	140,179
Defense Threat Reduction Agency	310,618
Department of Homeland Security, Domestic Nuclear Detection Office	150,229
National Institute for Occupational Safety and Health	120,544
Nuclear Regulatory Commission	103,556
U.S. Navy	48,286

<b>Total contracts</b>	<u>1,049,887</u>
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### Grants

Department of Energy	24,993
National Aeronautics and Space Administration	39,788
National Cancer Institute	377,464

<b>Total grants</b>	<u>442,245</u>
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<b>Total contracts and grants revenue</b>	<u><u>1,492,132</u></u>
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**Schedule 2**  
**Schedule of Contributions & Corporate Sponsorship Revenue**  
**For the year ended December 31, 2010**

*(unaudited)*

**Contributions**

American Academy of Health Physics	1,000
American Academy of Oral and Maxillofacial Radiology	500
American Association of Physicists in Medicine	5,000
American College of Medical Physics	500
American College of Radiology Foundation	25,000
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
Individuals	6,350
Landauer, Inc.	3,000
Lillian and Robert Brent Fund	1,500
Radiological Society of North America	20,000
Society for Pediatric Radiology	500
Society of Nuclear Medicine	5,000

**Total contributions**

90,625

**Corporate Sponsors**

3M	5,000
GE Healthcare	5,000
Global Dosimetry Solutions, Inc.	5,000
Landauer, Inc.	10,000
Nuclear Energy Institute	10,000

**Total Corporate Sponsors**

35,000

## Appendix 2. Publications

### Distribution of NCRP Publications

(during the period May 16, 1931 through December 31, 2010)

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office <sup>a</sup>	NCRP Publications <sup>b</sup>		Total NCRP Publications	All Sources Combined
			Hardcopy	E-Pub		
<b>NCRP Reports</b>		__d				
168	Radiation Dose Management for Fluoroscopically-Guided Interventional Medical Procedures (2010)	__d				
167	Potential Impact of Genetic Susceptibility and Previous Radiation Exposure on Radiation Risk for Astronauts (2010)	__d				
166	Population Monitoring and Radionuclide Decorporation Following a Radiological or Nuclear Incident (2010)	__d				
165	Responding to a Radiological or Nuclear Terrorism Incident: A Guide for Decision Makers (2010)	__d				
164	Uncertainties in Internal Radiation Dosimetry (2009)	__d	4	26	30	30
163	Radiation Dose Reconstruction: Principles and Practices (2009)	__d	106	52	158	158
162	Self Assessment of Radiation-Safety Programs (2009)	__d	129	198	327	327
161	Management of Persons Contaminated with Radionuclides (2009)	__d	238	423	661	661
160	Ionizing Radiation Exposure of the Population of the United States (2009)	__d	87	266	938	938
159	Risk to the Thyroid from Ionizing Radiation (2008)	__d	53	38	177	177
158	Uncertainties in the Measurement and Dosimetry of External Radiation (2007)	__d	24	49	627	627
157	Radiation Protection in Educational Institutions (2007)	__d	15	28	798	798
156	Development of a Biokinetic Model for Radionuclide-Contaminated Wounds and Procedures for Their Assessment, Dosimetry and Treatment (2006)	__d	18	36	709	709
155	Management of Radionuclide Therapy Patients (2006)	__d	23	41	970	970
154	Cesium-137 in the Environment: Radioecology and Approaches to Assessment and Management (2006)	__d	12	17	532	532

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office <sup>a</sup>	NCRP Publications <sup>b</sup>		Total NCRP Publications	All Sources Combined
			2010			
			Hardcopy	E-Pub		
153	Information Needed to Make Radiation Protection Recommendations for Space Missions Beyond Low-Earth Orbit (2006)	__d	27	15	674	674
152	Performance Assessment of Near-Surface Facilities for Disposal of Low-Level Radioactive Waste (2005)	__d	9	15	547	547
151	Structural Shielding Design and Evaluation for Megavoltage X- and Gamma-Ray Radiotherapy Facilities (2005)	__d	40	150	3,097	3,097
150	Extrapolation of Radiation-Induced Cancer Risks from Nonhuman Experimental Systems to Humans (2005)	__d	10	10	682	682
149	A Guide to Mammography and Other Breast Imaging Procedures (2004)	__d	11	24	1,108	1,108
148	Radiation Protection in Veterinary Medicine (2004)	__d	14	31	1,117	1,117
147	Structural Shielding Design for Medical X-Ray Imaging Facilities (2004)	__d	44	149	3,942	3,942
	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	7	10	1,069	1,069
145	Radiation Protection in Dentistry (2003)	__d	26	85	2,038	2,038
144	Radiation Protection for Particle Accelerator Facilities (2003)	__d	37	56	2,030	2,030
143	Management Techniques for Laboratories and Other Small Institutional Generators to Minimize Off-Site Disposal of Low-Level Radioactive Waste (2003)	__d	7	4	713	713
142	Operational Radiation Safety Program for Astronauts in Low-Earth Orbit: A Basic Framework (2002)	__d	2	2	1,128	1,128
141	Managing Potentially Radioactive Scrap Metal (2002)	__d	12	8	1,204	1,204
140	Exposure Criteria for Medical Diagnostic Ultrasound: II. Criteria Based on All Known Mechanisms (2002)	__d	7	2	777	777
139	Risk-Based Classification of Radioactive and Hazardous Chemical Wastes (2002)	__d	8	3	960	960
138	Management of Terrorist Events Involving Radioactive Material (2001)	__d	14	57	7,496	7,496
137	Fluence-Based and Microdosimetric Event-Based Methods for Radiation Protection in Space (2001)	__d	2	2	761	761
136	Evaluation of the Linear-Nonthreshold Dose-Response Model for Ionizing Radiation (2001)	__d	9	10	1,323	1,323
135	Liver Cancer Risk from Internally-Deposited Radionuclides (2001)	__d	5	2	1,101	1,101



No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office <sup>a</sup>	NCRP Publications <sup>b</sup>		Total NCRP Publications	All Sources Combined
			2010			
			Hardcopy	E-Pub		
134	Operational Radiation Safety Training (2000)	__d	20	18	1,299	1,299
133	Radiation Protection for Procedures Performed Outside the Radiology Department (2000)	__d	10	17	1,618	1,618
132	Radiation Protection Guidance for Activities in Low-Earth Orbit (2000)	__d	1	6	1,006	1,006
131	Scientific Basis for Evaluating the Risks to Populations from Space Applications of Plutonium (2001)	__d	1	1	788	788
130	Biological Effects and Exposure Limits for "Hot Particles" (1999)	__d	4	9	1,098	1,098
129	Recommended Screening Limits for Contaminated Surface Soil and Review of Factors Relevant to Site-Specific Studies (1999)	__d	9	10	1,650	1,650
128	Radionuclide Exposure of the Embryo/Fetus (1998)	__d	10	9	1,547	1,547
127	Operational Radiation Safety Program (1998)	__d	13	45	2,231	2,231
126	Uncertainties in Fatal Cancer Risk Estimates Used in Radiation Protection (1997)	__d	8	6	1,866	1,866
125	Deposition, Retention and Dosimetry of Inhaled Radioactive Substances (1997)	__d	10	15	2,530	2,530
124	Sources and Magnitude of Occupational and Public Exposures from Nuclear Medicine Procedures (1996)	__d	9	16	3,106	3,106
123	Screening Models for Releases of Radionuclides to Atmosphere, Surface Water, and Ground (1996)	__d	4	17	3,085	3,085
122	Use of Personal Monitors to Estimate Effective Dose Equivalent and Effective Dose to Workers for External Exposure to Low-LET Radiation (1995)	__d	9	24	3,235	3,235
121	Principles and Application of Collective Dose in Radiation Protection (1995)	__d	5	10	2,433	2,433
120	Dose Control at Nuclear Power Plants (1994)	__d	1	4	2,986	2,986
119	A Practical Guide to the Determination of Human Exposure to Radiofrequency Fields (1993)	__d	6	14	3,456	3,456
118	Radiation Protection in the Mineral Extraction Industry (1993)	__d	4	3	2,615	2,615
117	Research Needs for Radiation Protection (1993)	__d	4	6	1,934	1,934
116	Limitation of Exposure to Ionizing Radiation (1993)	__d	12	62	7,042	7,042
115	Risk Estimates for Radiation Protection (1993)	__d	9	8	3,125	3,125
114	Maintaining Radiation Protection Records (1992)	__d	8	5	2,438	2,438
113	Exposure Criteria for Medical Diagnostic Ultrasound: I. Criteria Based on Thermal Mechanisms (1992)	__d	4	2	3,263	3,263

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office <sup>a</sup>	NCRP Publications <sup>b</sup>		Total NCRP Publications	All Sources Combined
			2010			
			Hardcopy	E-Pub		
112	Calibration of Survey Instruments Used in Radiation Protection for the Assessment of Ionizing Radiation Fields and Radioactive Surface Contamination (1991)	__d	46	11	3,788	3,788
111	Developing Radiation Emergency Plans for Academic, Medical and Industrial Facilities (1991)	__d	10	8	4,056	4,056
110	Some Aspects of Strontium Radiobiology (1991)	__d	1	1	2,551	2,551
109	Effects of Ionizing Radiation on Aquatic Organisms (1991)	__d	1	3	2,181	2,181
108	Conceptual Basis for Calculations of Absorbed-Dose Distributions (1991)	__d	3	8	3,118	3,118
107	Implementation of the Principle of As Low As Reasonably Achievable (ALARA) for Medical and Dental Personnel (1990)	__d	7	6	3,337	3,337
106	Limit for Exposure to "Hot Particles" on the Skin (1990)	__d	2	4	2,868	2,868
105	Radiation Protection for Medical and Allied Health Personnel (1989)	__d	12	16	6,753	6,753
104	The Relative Biological Effectiveness of Radiations of Different Quality (1990)	__d	4	7	2,397	2,397
103	Control of Radon in Houses (1989)	__d	4	5	3,751	3,751
102	Medical X-Ray, Electron Beam and Gamma-Ray Protection for Energies up to 50 MeV (Equipment Design, Performance and Use) (1989)	__d	17	19	7,670	7,670
101	Exposure of the U.S. Population from Occupational Radiation (1989)	__d	1	3	4,153	4,153
100	Exposure of the U.S. Population from Diagnostic Medical Radiation (1989)	__d	2	5	4,966	4,966
99	Quality Assurance for Diagnostic Imaging (1988)	__d	6	27	4,785	4,785
98	Guidance on Radiation Received in Space Activities (1989)	__d	1	4	3,392	3,392
97	Measurement of Radon and Radon Daughters in Air (1988)	__d	2	34	4,217	4,217
96	Comparative Carcinogenicity of Ionizing Radiation and Chemicals (1989)	__d	1	2	4,082	4,082
95	Radiation Exposure of the U.S. Population from Consumer Products and Miscellaneous Sources (1987)	__d	1	4	4,245	4,245
94	Exposure of the Population in the United States and Canada from Natural Background Radiation (1987)	__d	1	10	4,397	4,397
93	Ionizing Radiation Exposure of the Population of the United States (1987)	__d	1	7	7,357	7,357
92	Public Radiation Exposure from Nuclear Power Generation in the United States (1987)	__d	1	2	3,678	3,678

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		Government Printing Office <sup>a</sup>	NCRP Publications <sup>b</sup>		Total NCRP Publications	All Sources Combined
			2010			
			Hardcopy	E-Pub		
91	Recommendations on Limits for Exposure to Ionizing Radiation (1987)	__d	0	0	8,486	8,486
90	Neptunium: Radiation Protection Guidelines (1988)	__d	1	0	2,898	2,898
89	Genetic Effects from Internally Deposited Radionuclides (1987)	__d	4	0	3,954	3,954
88	Radiation Alarms and Access Control Systems (1986)	__d	4	10	4,782	4,782
87	Use of Bioassay Procedures for Assessment of Internal Radionuclide Deposition (1987)	__d	4	9	4,221	4,221
86	Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields (1986)	__d	4	11	5,256	5,256
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	5	9	4,243	4,243
83	The Experimental Basis for Absorbed-Dose Calculations in Medical Uses of Radionuclides (1985)	__d	4	2	3,540	3,540
82	SI Units in Radiation Protection and Measurements (1985)	__d	1	6	4,562	4,562
81	Carbon-14 in the Environment (1985)	__d	1	11	3,981	3,981
80	Induction of Thyroid Cancer by Ionizing Radiation (1985)	__d	0	2	4,262	4,262
79	Neutron Contamination from Medical Electron Accelerators (1984)	__d	4	14	4,783	4,783
78	Evaluation of Occupational and Environmental Exposures to Radon and Radon Daughters in the United States (1984)	__d	4	3	6,465	6,465
77	Exposures from the Uranium Series with Emphasis on Radon and Its Daughters (1984)	__d	1	1	6,643	6,643
76	Radiological Assessment: Predicting the Transport, Bioaccumulation, and Uptake by Man of Radionuclides Released to the Environment (1984)	__d	4	4	6,666	6,666
75	Iodine-129: Evaluation of Release from Nuclear Power Generation (1983)	__d	2	0	5,934	5,934
74	Biological Effects of Ultrasound: Mechanisms and Clinical Implications (1983)	__d	3	1	11,210	11,210
73	Protection in Nuclear Medicine and Ultrasound Diagnostic Procedures in Children (1983)	__d	5	1	5,491	5,491
72	Radiation Protection and Measurement for Low-Voltage Neutron Generators (1983)	__d	4	12	4,429	4,429
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	3	5,403	5,403

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		Government Printing Office <sup>a</sup>	NCRP Publications <sup>b</sup>		Total NCRP Publications	All Sources Combined
			2010			
			Hardcopy	E-Pub		
69	Dosimetry of X-Ray and Gamma-Ray Beams for Radiation Therapy in the Energy Range 10 keV to 50 MeV (1981)	__d	7	6	5,003	5,003
68	Radiation Protection in Pediatric Radiology (1981)	__d	5	5	4,479	4,479
67	Radiofrequency Electromagnetic Fields—Properties, Quantities and Units, Biophysical Interaction and Measurements (1981)	__d	3	3	5,437	5,437
66	Mammography (1980)	__d	0	0	4,598	4,598
65	Management of Persons Accidentally Contaminated with Radionuclides (1980)	__d	3	6	18,411	18,411
64	Influence of Dose and Its Distribution in Time on Dose-Response Relationships for Low-LET Radiations (1980)	__d	1	1	5,237	5,237
63	Tritium and Other Radionuclide Labeled Organic Compounds Incorporated in Genetic Material (1979)	__d	1	4	4,322	4,322
62	Tritium in the Environment (1979)	__d	1	10	3,946	3,946
61	Radiation Safety Training Criteria for Industrial Radiography (1978)	__d	4	0	6,155	6,155
60	Physical, Chemical and Biological Properties of Radium-226 Relevant to Radiation Protection Guidelines (1979)	__d	1	1	4,027	4,027
59	Operational Radiation Safety Program (1979)	__d	0	0	8,046	8,046
58	A Handbook of Radioactivity Measurements Procedures (1978)	__d	5	16	13,595	13,595
57	Instrumentation and Monitoring Methods for Radiation Protection (1978)	__d	4	5	10,948	10,948
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	1	1	6,832	6,832
54	Medical Radiation Exposure of Pregnant and Potentially Pregnant Women (1977)	__d	7	19	10,533	10,533
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	1	4	4,693	4,693
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	6	7,906	7,906

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		Government Printing Office <sup>a</sup>	NCRP Publications <sup>b</sup>		Total NCRP Publications	All Sources Combined
			2010			
			Hardcopy	E-Pub		
49	Structural Shielding Design and Evaluation for Medical Use of X Rays and Gamma Rays of Energies up to 10 MeV (1976)	__d	11	50	17,467	17,467
	Adjunct to NCRP Report 49 (1976)	__d	1	0	2,797	2,797
48	Radiation Protection for Medical and Allied Health Personnel (1976)	__d	__e	0	14,359	14,359
47	Tritium Measurement Techniques (1976)	__d	1	2	6,362	6,362
46	Alpha-Emitting Particles in Lungs (1975)	__d	2	2	6,076	6,076
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	1	6,561	6,561
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	1	5	47,218	47,218
41	Specification of Gamma-Ray Brachytherapy Sources (1974)	__d	3	3	5,462	5,462
40	Protection Against Radiation from Brachytherapy Sources (1972)	__d	6	6	9,778	9,778
39	Basic Radiation Protection Criteria (1971)	__d	__e	0	40,393	40,393
38	Protection Against Neutron Radiation (1971)	__d	6	17	8,918	8,918
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	3	0	22,362	22,362
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	4	2	9,931	34,381
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	1	0	3,825	7,969

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office <sup>a</sup>	NCRP Publications <sup>b</sup>		Total NCRP Publications	All Sources Combined
			2010			
			Hardcopy	E-Pub		
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	2	0	7,439	59,965
21	Safe Handling of Bodies Containing Radioactive Isotopes (1958)	29,304	__e	0	2,352	31,656
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	4	0	7,645	58,145
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

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office <sup>a</sup>	NCRP Publications <sup>b</sup>		Total NCRP Publications	All Sources Combined
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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	1,431	2,576	942,246	1,901,694

### Lauriston S. Taylor Lectures

34	Radiation Protection and Public Policy in an Uncertain World, Charles E. Land (2010)	__i	__i	__i		__i
33	Radiation Epidemiology: The Golden Age and Remaining Challenges, John D. Boice, Jr. (2009) <i>Health Phys.</i> <b>100</b> (1) 59-76 (2011)	__i	__i	__i		__i
32	Radiation Standards, Dose/Risk Assessments, Public Interactions, and Yucca Mountain: Thinking Outside the Box, Dade W. Moeller (2008) <i>Health Phys.</i> <b>97</b> , 376-391 (2009)	__i	__i	__i		__i
31	The Quest for Therapeutic Actinide Chelators, Patricia W. Durbin (2007) <i>Health Phys.</i> <b>95</b> , 465-492 (2008)	__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) <i>Health Phys.</i> <b>93</b> , 348-379 (2007)	__i	__i	__i		__i
29	Nontargeted Effects of Radiation: Implications for Low-Dose Exposures, John B. Little (2005) <i>Health Phys.</i> <b>91</b> , 416-426 (2006)	__i	__i	__i		__i
28	Radiation Protection in the Aftermath of a Terrorist Attack Involving Exposure to Ionizing Radiation, Abel J. Gonzalez (2004), <i>Health Phys.</i> <b>89</b> , 418-446 (2005)	__i	__i	__i		__i
27	The Evolution of Radiation Protection—From Erythema to Genetic Risks of Cancer ? Charles B. Meinhold (2003). <i>Health Phys.</i> <b>87</b> , 240-248 (2004)	__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). <i>Health Phys.</i> <b>85</b> , 4-12 (2003)	__i	__i	__i		__i
25	Assuring the Safety of Medical Diagnostic Ultrasound, Wesley L. Nyborg (2001). <i>Health Phys.</i> <b>82</b> , 578-587 (2002)	__i	__i	__i		__i

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office <sup>a</sup>	NCRP Publications <sup>b</sup>		Total NCRP Publications	All Sources Combined
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			Hardcopy	E-Pub		
24	Administered Radioactivity: <i>Unde Venimus Quoque Imus</i> , S. James Adelstein (2000). Health Phys. <b>80</b> , 317–324 (2001)	__i	__i	__i	__i	
23	Back to Background: Natural Radiation and Radioactivity Exposed, by Naomi H. Harley (1999). Health Phys. <b>79</b> , 121–128 (2000)	__i	__i	__i	__i	
22	From Chimney Sweeps to Astronauts: Cancer Risks in the Work Place, by Eric J. Hall (1998). Health Phys. <b>75</b> , 357–366 (1999)	__i	__i	__i	__i	
21	Radionuclides in the Body: Meeting the Challenge, by William J. Bair (1997). Health Phys. <b>73</b> , 423–432 (1998)	__i	__i	__i	__i	
20	70 Years of Radiation Genetics: Fruit Flies, Mice and Humans, by Seymour Abrahamson (1996). Health Phys. <b>71</b> , 624–633 (1997)	__i	__i	__i	__i	
19	Certainty and Uncertainty in Radiation Research, by Albrecht M. Kellerer (1995). Health Phys. <b>69</b> , 446–453 (1976)	__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
16	Dose and Risk in Diagnostic Radiology: How Big? How Little?, by Edward W. Webster (1992)	__d	3	2	1,431	1,431
15	When is a Dose Not a Dose?, by Victor P. Bond (1992)	__d	0	0	752	752
14	Radiation Protection and the Internal Emitter Saga, by J. Newell Stannard (1990)	__d	1	1	354	354
13	Radiobiology and Radiation Protection: The Past Century and Prospects for the Future, by Arthur C. Upton (1989)	__d	0	1	579	579
12	How Safe is Safe Enough?, by Bo Lindell (1988)	__d	3	0	1,009	1,009
11	How to Be Quantitative about Radiation Risk Estimates, by Seymour Jablon (1988)	__d	0	0	1,021	1,021
10	Biological Effects of Non-Ionizing Radiations: Cellular Properties and Interactions, by Herman P. Schwan (1987)	__d	3	0	1,691	1,691
9	Truth (and Beauty) in Radiation Measurement, by John H. Harley (1985)	__d	0	0	764	764
8	Limitation and Assessment in Radiation Protection, by Harald H. Rossi (1984)	__d	0	1	1,528	1,528
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



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		Government Printing Office <sup>a</sup>	NCRP Publications <sup>b</sup>		Total NCRP Publications	All Sources Combined
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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	0	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			10	5	21,649	21,649

## NCRP Annual Meeting Proceedings

32	Communication of Radiation Benefits and Risks in Decision Making, Proceedings of the Forty-Sixth Annual Meeting held March 8–9, 2010. Health Phys.	__i	__i	__i		__i
31	Future of Nuclear Power Worldwide: Safety, Health and Environment, Proceedings of the Forty-Fifth Annual Meeting held March 2–3, 2009. Health Physics <b>100</b> (1), 2–112 (2011).	__i	__i	__i		__i
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. <b>97</b> (5), 373–541 (2009)	__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. <b>95</b> (5), 461–686 (2008)	__i	__i	__i		__i
28	Chernobyl at Twenty, Proceedings of the Forty-Second Annual Meeting held April 3–4, 2006. Health Phys. <b>93</b> (5), 345–595 (2007)	__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. <b>91</b> , 413–536 (2006)	__i	3	__i	3	3
26	Advances in Consequence Management for Radiological Terrorism Events, Proceedings of the Fortieth Annual Meeting held April 14–15, 2004. Health Phys. <b>89</b> (5), 415–588 (2005)	__i	__i	__i	1	1
Compact disk version of Proceedings No. 26			0	0	102	102

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		Government Printing Office <sup>a</sup>	NCRP Publications <sup>b</sup>		Total NCRP Publications	All Sources Combined
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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. <b>87</b> (3), 249–318 (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. <b>85</b> , 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. <b>82</b> , 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. <b>80</b> , 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	1	204	204
	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. <b>79</b> , 466–613 (2000)	__i	__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 <b>59</b> , 181–317 (1999)	__i	__i	__i	__i	__i
18	Implications of New Data on Radiation Cancer Risk, Proceedings of the Thirty-second Annual Meeting held April 3–4, 1996 (1997)	__d	0	0	381	381
17	Environmental Dose Reconstruction and Risk Implications, Proceedings of the Thirty-first Annual Meeting held April 12–13, 1995 (1996)	__d	3	0	427	427
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

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13	Genes, Cancer and Radiation Protection, Proceedings of the Twenty-Seventh Annual Meeting held April 3–4, 1991 (1992)	__d	0	1	690	690
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	3	__j	1,025	1,025
7	Radioactive Waste, Proceedings of the Twenty-First Annual Meeting held April 3–4, 1985 (1986)	__d	3	__j	1,420	1,420
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	0	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
3	Critical Issues in Setting Radiation Dose Limits, Proceedings of the Seventeenth Annual Meeting held April 8–9, 1981 (1982)	__d	3	__j	1,665	1,665
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	15	2	22,008	22,008

### NCRP Commentaries

20	Radiation Protection and Measurement Issues Related to Cargo Scanning With Accelerator-Produced High-Energy X Rays (2007)	__d	5	8	331	331
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19	Key Elements of Preparing Emergency Responders for Nuclear and Radiological Terrorism (2005)	__d	14	36	1,215	1,215
18	Biological Effects of Modulated Radiofrequency Fields (2003)	__d	1	5	435	435
17	Pulsed Fast Neutron Analysis System Used in Security Surveillance (2003)	__d	1	6	482	482
16	Screening of Humans for Security Purposes Using Ionizing Radiation Scanning Systems (2003)	__d	9	46	596	596
15	Evaluating the Reliability of Biokinetic and Dosimetric Models and Parameters Used to Assess Individual Doses for Risk Assessment Purposes (1998)	__d	0	2	648	648
14	A Guide for Uncertainty Analysis in Dose and Risk Assessments Related to Environmental Contamination (1996)	__d	3	4	1,647	1,647
13	An Introduction to Efficacy in Diagnostic Radiology and Nuclear Medicine (Justification of Medical Radiation Exposure) (1995)	__d	0	4	1,389	1,389
12	Radiation Exposure and High-Altitude Flight (1995)	__d	0	4	552	552
11	Dose Limits for Individuals Who Receive Exposure from Radionuclide Therapy Patients (1995)	__d	0	5	1,304	1,304
10	Advising the Public about Radiation Emergencies: A Document for Public Comment (1994)	__d	0	1	1,161	1,161
9	Considerations Regarding the Unintended Radiation Exposure of the Embryo, Fetus or Nursing Child (1994)	__d	1	3	1,371	1,371
8	Uncertainty in NCRP Screening Models Relating to Atmospheric Transport, Deposition and Uptake by Humans (1993)	__d	0	1	904	904
7	Misadministration of Radioactive Material in Medicine—Scientific Background (1991)	__d	0	1	1,079	1,079
6	Radon Exposure of the U.S. Population—Status of the Problem (1991)	__d	0	1	1,100	1,100
5	Review of the Publication, “Living Without Landfills” (1989)	__d	0	1	3,100	3,100
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	1	1	856	856
3	Screening Techniques for Determining Compliance with Environmental Standards—Releases of Radionuclides to the Atmosphere (1986)	__d	__e	0	3,602	3,602

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office <sup>a</sup>	NCRP Publications <sup>b</sup>		Total NCRP Publications	All Sources Combined
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			Hardcopy	E-Pub		
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	35	129	22,761	22,761
<b>NCRP Symposia Proceedings</b>						
3	Acceptability of Risk from Radiation—Application to Human Space Flight, Proceedings of a Symposium held May 29, 1996 (1997)	__d	0	3	648	648
2	Radioactive and Mixed Waste—Risk as a Basis for Waste Classification, Proceedings of a Symposium held November 9, 1994 (1995)	__d	3	0	463	463
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	3	3	2,960	2,960
Total NCRP Publications Distributed		959,448	1,494	2,715	1,011,624	1,971,072

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<sup>c</sup>Since the initiation of the NCRP Publication Program in July 1966.

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<sup>e</sup>Out of print before December 31, 2010.

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<sup>g</sup>No record of distribution is available.

<sup>h</sup>Out of print prior to initiation of Publication Program in July 1966.

<sup>i</sup>Published and distributed by source indicated.

<sup>j</sup>Not available in softcopy (*i.e.*, E-Pubs).