Annual Report

2024

Year in Review

NCRP

Contents

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.

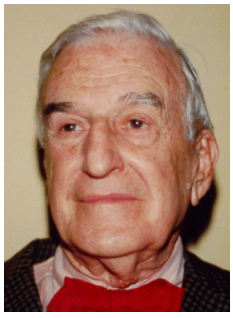
The Council is the successor to the unincorporated association of scientists known as the National Committee on Radiation Protection and Measurements and was formed to carry on the work begun by the Committee in 1929.

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.

Presidents



Lauriston S. Taylor
1929 – 1977

Warren K. Sinclair
1977 – 1991

Charles B. Meinhold
1991 – 2002

Thomas S. Tenforde
2002 – 2012

John D. Boice, Jr.
2012 –2018

Kathryn D. Held
2019 – 2024

Kathryn A. Higley
2024 –

President's Message

As I reflect on my first year as President of the National Council on Radiation Protection and Measurements (NCRP), I am filled with deep respect and gratitude for the extraordinary individuals who make up this historic organization.

In times of great challenge and uncertainty, the quiet, steadfast efforts of dedicated professionals form the foundation of our nation's resilience. To the scientists, physicians, and technical experts who generously volunteer their time and expertise to the NCRP: your contributions are invaluable and inspiring. Through your selfless service, you provide the nation with essential guidance in the broad and complex field of radiation protection and measurements. This responsibility demands not only scientific excellence but also an unwavering commitment to the public good. Your work informs policy, advances knowledge, and, most importantly, helps safeguard the health and safety of individuals and communities. All of this happens without fanfare, yet its impact is profound. In the face of evolving challenges, you continue to meet complexity with clarity and uncertainty with resolve.

Thank you for your extraordinary dedication. It is an honor to serve alongside you as we carry forward the legacy and responsibility of this remarkable organization.

Highlights of 2024

Annual Meeting

The annual meeting focused on advanced and small modular nuclear reactors. The event was led by William E. Kennedy, Jr., with Willie O. Harris and Kathryn A. Higley as co-chairs. Notable presentations included:

- Kathryn Huff from the U.S. Department of Energy (DOE) Office of Nuclear Energy, who delivered the 20th Warren K. Sinclair Keynote Lecture.
- Christopher Hanson, past Chair of the U.S. Nuclear Regulatory Commission (NRC), who gave the 7th Thomas S. Tenforde Lecture on "Embracing Risk-Informed Thinking at the NRC."
- Richard A. Meserve, who presented the 47th Lauriston S. Taylor Lecture on "Lessons from the Fukushima Daiichi Accident."

The meeting also covered reactor basics, key terms, and the fundamentals of electrical generation, with insights from the EPA and state regulators via the Conference of Radiation Control Program Directors, Inc. (CRCPD). Attendees received an overview of reactor technologies across a wide range of developers and uses, including National Aeronautics and Space Administration's (NASA) space exploration initiatives and three advanced high-temperature reactor designs. The event concluded with a discussion of radiation protection and safety aspects of these designs, followed by a panel discussion.

The Million Person Study (MPS) continues to receive strong support from federal agencies, and we have also received new grants from the U.S. Food and Drug Administration (FDA).

NCRP Website Rework

We are in the process of giving the NCRP website a major upgrade, with a fresh new look set to launch in late 2025. The redesigned site will be easier for the public to navigate and will feature a secure Council members-only section as well as a collaborative space just for scientific committees and PAC members to work on documents and projects. Stay tuned!

Committees at Work

SC 1-28: Recommendations on Statistical Approaches to Account for Dose Uncertainties in Radiation Epidemiologic Risk Models, *Co-Chairs: Jonine L. Bernstein and Harry M. Cullings*

Formed in 2022 with DOE support, SC 1-28 addressed the complex issue of handling dose uncertainties in radiation epidemiology studies. The group reviewed current methods, hosted a workshop with experts, and produced a comprehensive commentary covering external and internal exposures. Their publication provides guidance on accounting for different types of dose uncertainty both shared and unshared in statistical modeling. The Council and Board reviewed the final draft, with feedback thoughtfully addressed. This is a valuable resource for anyone working with radiation risk models.

SC 2-9: Radiation Safety Program Concerns Transitioning from Operating Facility to Decommissioning Phase. *Chair: Willie O. Harris*

Launched in October 2023, SC 2-9 is focused on maintaining effective radiation safety programs as nuclear reactor facilities transition from active operation to decommissioning. With more sites expected to enter decommissioning, the group [part of Program Area Committee (PAC) 2] is preparing a report offering practical guidance, lessons learned, and recommendations for updating safety programs during this transition. The team is outlining the document and assigning writing tasks, with completion expected in the next 2 to 3 y. This effort has the potential for significant industry impact.

SC 4-13: Patient Shielding in Medical Imaging, *Chair: Rebecca Milman*

Formed in September 2022 as a follow-up to NCRP Statement No. 13 on gonadal shielding, SC 4-13 aims to develop a commentary with updated, evidence-based recommendations on patient shielding in medical imaging. The group is evaluating shielding for various body parts, including the thyroid, breast and gonads, across multiple imaging modalities, and considering age and sex where relevant. The team meets regularly and has drafted sections of the commentary, with funding from the Centers for Disease Control and Prevention (CDC), the American Board of Radiology (ABR) Foundation, and FDA.

SC 6-13: Methods and Models for Estimating Organ Doses from Intakes of Radium
Chair: Derek W. Jokisch; Vice Chair: Nicole Martinez

SC 6-13 is working on a DOE-funded project to update methods for estimating organ doses following radium intake. The team is making steady progress and meeting regularly to draft the document, which supports key deliverables for the MPS. A draft will be ready for PAC review soon. Updates were presented at the 2025 annual meeting.

SC 8-1: Webpages to Provide Authoritative Information About the Use of Wireless Technology and Current Evidence on Health Effects Coming Soon!, *Chair: David A. Savitz*

SC 8-1 is developing science-based, user-friendly webpages on wireless technology and its health effects, funded by CDC. The goal is to provide a reliable resource for members of the public and federal health agencies. The team has held several virtual meetings, and content is being written and reviewed by subject matter experts, PACs 7 and 8, and the Board. The content will include background information and frequently asked questions (FAQ) and will be posted to our new website.

TG 4-9: Medical Exposure Assessment in the U.S. Patient Population, *Chair: Jennifer G. Elee*

Task Group 4-9 is a collaboration between NCRP and CRCPD (Task Force H-58), with CDC support. The group is building on NCRP Report No. 184 by exploring ongoing data collection on medical radiation exposures. Efforts include sharing and expanding methodologies from Report No. 184. The group has held three in-person workshops and several virtual meetings and is currently drafting a questionnaire for CRCPD to distribute to states.

NCRP Publications Completed in 2024

We could not accomplish our mission without the dedication of our committee members, who freely volunteer their time. Your efforts are essential, and we are grateful for everything you do. In 2024, we published one commentary:

Commentary No. 34: *Recommendations on Statistical Approaches to Account for Dose Uncertainties in Radiation Epidemiologic Risk Models*

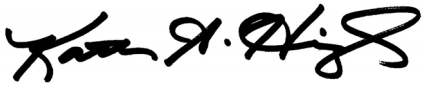
Other Publications

It is inspiring to see the outstanding work of our scientific committees (SC) reach a wider audience. Chairs and members are encouraged to publish papers in peer-reviewed journals based on their committee efforts, and several have done so. Below is a list of recent articles highlighting SC work and other publications tied to NCRP projects, including those supported through MPS funding. It is exciting to see NCRP's impact continue to grow through these contributions!

- Bellamy MB, Bernstein J L, Cullings HM, French B, Grogan HA, Held KD, Tekwe CD. 2024. Recommendations on statistical approaches to account for dose uncertainties in radiation epidemiologic risk models. Int J Radiat Biol. 100(10):1393–1404.
- Dauer DT, Bouville A, Toohey RE, Boice JD, Beck HL, Eckerman EF, Hagemeyer D, Leggett RW, Mumma MT, Napier B. et al. 2024. Dosimetry and uncertainty approaches for the million-worker study of radiation workers and veterans: overview of the recommendations in NCRP Report No. 178. In: The Million Person Study of Low-Dose Radiation Health Effects. New York: CRC Press. p 81–90.
- Kennedy WE, Meserve RA, Higley KA, Huff KD, Hanson CT, Ford M, Schultheisz D, Smith T, Kugelmass, B, Abou-Jaoude A, Lovering JR. et al. 2024. National Council on Radiation Protection (NCRP) 2024 annual meeting: advanced and small modular nuclear power reactors. J Radiol Prot 44(4):043002.
- Dauer LT, Walsh L, Mumma MT, Cohen SS, Golden AP, Howard SC, Roemer GE, Boice JD Jr. 2024. Moon, Mars and minds: evaluating Parkinson's disease mortality among U.S. radiation workers and veterans in the million person study of low-dose effects. Z Med Phys 34(1):100–110.
- Dauer LT, Mumma MT, Lima JC, Cohen SS, Andresen D, Bahadori AA, Bellamy M, Bierman DA, Blattnig S, French B. et al. 2024. A million person study innovation: evaluating cognitive impairment and other morbidity outcomes from chronic radiation exposure through linkages with the Centers for Medicaid and Medicare Services assessment and claims data. Radiat Res 202(6):847–861.
- Boice JD, Quinn B, Al-Nabulsi I, Ansari A, Blake PK, Blattnig SR, Caffrey EA, Cohen SS, Golden AP, Held KD, Jokisch DW. 2024. A million persons, a million dreams: a vision for a national center of radiation epidemiology and biology. In: Dauer DT, Bouville A, Toohey RE, Boice JD, Beck HL, Eckerman EF, Hagemeyer D, Leggett RW, Mumma MT, Napier B. et al., Eds. The Million Person Study of Low-Dose Radiation Health Effects. New York: CRC Press. p 327–354.
- Boice JD, Cohen SS, Mumma MT, Howard SC, Yoder RC, Dauer LT. 2024. Mortality among medical radiation workers in the United States, 1965–2016. In: Dauer DT, Bouville A, Toohey RE, Boice JD, Beck HL, Eckerman EF, Hagemeyer D, Leggett RW, Mumma MT, Napier B. et al., Eds. The Million Person Study of Low-Dose Radiation Health Effects. New York: CRC Press. p 255–279.
- Boice JD, Cohen SS, Mumma MT, Hagemeyer DA, Chen H, Golden AP, Yoder RC, Dauer LT. 2024. Mortality from leukemia, cancer, and heart disease among US nuclear power plant workers, 1957–2011. In: Dauer DT, Bouville A, Toohey RE, Boice JD, Beck HL, Eckerman EF, Hagemeyer D, Leggett RW, Mumma MT, Napier B. et al., Eds. The Million Person Study of Low-Dose Radiation Health Effects. New York: CRC Press. p 141–162.

- Boice JD, Cohen SS, Mumma MT, Golden AP, Howard SC, Girardi DJ, Ellis ED, Bellamy MB, Dauer LT, Samuels C. et al. 2024. Mortality among workers at the Los Alamos National Laboratory, 1943–2017. In: Dauer DT, Bouville A, Toohey RE, Boice JD, Beck HL, Eckerman EF, Hagemeyer D, Leggett RW, Mumma MT, Napier B. et al., Eds. The Million Person Study of Low-Dose Radiation Health Effects. New York: CRC Press. p 206–233.
- Dauer LT, Woods M, Miodownik D, Serencsits B, Quinn B, Bellamy M, Yoder C, Liang X, Boice JD, Bernstein J. 2024. Cohort profile-MSKCC radiation workers: a pilot sub-cohort of a multicenter medical radiation worker component of the Million Person Study of low-dose radiation health effects. In: Dauer DT, Bouville A, Toohey RE, Boice JD, Beck HL, Eckerman EF, Hagemeyer D, Leggett RW, Mumma MT, Napier B. et al., Eds. The Million Person Study of Low-Dose Radiation Health Effects. New York: CRC Press. p 72–78.
- Boice JD, Cohen SS, Mumma MT, Golden AP, Howard SC, Girardi DJ, Ellis ED, Bellamy MB, Dauer LT, Eckerman KF, et al. 2024. Mortality among Tennessee Eastman Corporation (TEC) uranium processing workers. In: Dauer DT, Bouville A, Toohey RE, Boice JD, Beck HL, Eckerman EF, Hagemeyer D, Leggett RW, Mumma MT, Napier B. et al., Eds. The Million Person Study of Low-Dose Radiation Health Effects. New York: CRC Press. p 234–254.
- Boice JD, Bouville A, Dauer LT, Golden AP, Wakeford R. 2024. Introduction to the US Million Person Study of health effects from low-level exposure to radiation. In: Dauer DT, Bouville A, Toohey RE, Boice JD, Beck HL, Eckerman EF, Hagemeyer D, Leggett RW, Mumma MT, Napier B. et al., Eds. The Million Person Study of Low-Dose Radiation Health Effects. New York: CRC Press. p 3–6.
- Tolmachev SY, Martinez FT, Linson JE, Brockman JD, Thomas EM, Avtandilashvili M, Tabatadze G, et al. 2024. Distribution of plutonium and radium in the human heart. J Radiol Prot 44(4):041515.
- Boice JD, Cohen SS, Mumma MT, Hagemeyer DA, Chen H, Golden AP, Yoder RC, Dauer LT. 2024. Mortality from leukemia, cancer and heart disease among US nuclear power. In: Dauer DT, Bouville A, Toohey RE, Boice JD, Beck HL, Eckerman EF, Hagemeyer D, Leggett RW, Mumma MT, Napier B. et al., Eds. The Million Person Study of Low-Dose Radiation Health Effects. New York: CRC Press. p 141.
- Goans RE, Dauer LT, Iddins CJ, Mumma MT, McComish SL, Tolmachev SY. 2025. Chronic inflammation in a radium dial painter cohort: elevated neutrophil to lymphocyte ratio and radiation-induced hearing loss. J Radiol Prot. 45(1): doi: 10.1088/1361-6498/adac69.
- Full KM, Shi H, Lipworth L, Dauer LT, Mumma MT, Xiao Q. 2024. Associations of long-term sleep duration trajectories with overall and cause-specific mortality among middle-to-older aged black and white adults. MedRxiv. doi: 10.1101/2024.05.23.24307845.
- Martinez NE, Jokisch DW, Mumma M, Tolmachev SY, Avtandilashvili M, Tabatadze G, Leggett R, Samuels C, Golden A, Howard S, et al. 2024. Archival records housed at USTUR support radium dial worker dosimetry. J Radiol Prot. doi: 10.1088/1361-6498/ad8bcf.
- Till JE, Beck HL, Aanenson JW, Grogan HA, Mohler HJ, Mohler S, Voillequé PG. 2024. Dosimetry associated with veterans who participated in nuclear weapons testing. In: Dauer DT, Bouville A, Toohey RE, Boice JD, Beck HL, Eckerman EF, Hagemeyer D, Leggett RW, Mumma MT, Napier B. et al., Eds. The Million Person Study of Low-Dose Radiation Health Effects. New York: CRC Press. p 91–99.

Thank you again for your service and commitment to the NCRP. Together, we are making a lasting difference in the field of radiation protection and public health.



Kathryn A. Higley
President

Membership

There are up to 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 chairs, 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 engineering, nuclear medicine, pathology, physics, public health, public policy, radiation measurements, radiation therapy, radiobiology, radiology, risk analysis and communication, statistics, and waste management. In 2024, five new members were elected, and 13 members were re-elected. The six new members were:

Amir A. Bahadori
Lisa Bruedigan
Harry M. Cullings
Benjamin C. French
Quentin T. Moore

2024 Council Membership, Affiliation, and Current Term

Isaf Al-Nabulsi	Retired	2022–2028
Sally A. Amundson	Columbia University Medical Center	2022–2028
Armin Ansari	U.S. Environmental Protection Agency	2021–2027
A. Iulian Apostoaei	Oak Ridge Center for Risk Analysis, Inc.	2024–2030
Kimberly E. Applegate	University of Kentucky	2019–2025
Maia Avtandilashvili	Washington State University	2023–2029
Edouard I. Azzam	Retired	2024–2030
Amir A. Bahadori	Kansas State University	2024–2030
Michael B. Bellamy	Memorial Sloan Kettering Cancer Center	2023–2029
Jonine L. Bernstein	Memorial Sloan-Kettering Cancer Center	2024–2030
Luiz Bertelli	Los Alamos National Laboratory	2019–2025
William F. Blakely	Armed Forces Radiobiology Research Institute	2021–2027
Daniel J. Blumenthal	U.S. Department of Energy	2021–2027

John D. Boice, Jr.	National Council on Radiation Protection and Measurements	2024–2030
Wesley E. Bolch	University of Florida	2023–2029
Michael A. Boyd	U.S. Environmental Protection Agency	2020–2026
Richard R. Brey	Idaho State University	2019–2025
Lisa Bruedigan	Texas Department of State Health Services	2024–2030
Brooke R. Buddemeier	Lawrence Livermore National Laboratory	2021–2027
Manuela Buonanno	Columbia University	2022–2028
Jerrold T. Bushberg	University of California, Davis	2020–2026
Emily A. Caffrey	University of Alabama, Birmingham	2021–2027
Polly Y. Chang	SRI International	2023–2029
Jeffrey A. Chapman	Oak Ridge National Laboratory	2021–2027
Harry M. Cullings	Radiation Effects Research Foundation	2024–2030
Lawrence T. Dauer	Memorial Sloan-Kettering Cancer Center	2024–2030
Sara D. DeCair	U.S. Environmental Protection Agency	2023–2029
Christine A. Donahue	Weiss Associates	2021–2027
Joseph R. Dynlacht	Indiana University School of Medicine	2020–2026
Andrew J. Einstein	Columbia University	2019–2025
Jennifer G. Elee	Louisiana Department of Environmental Quality	2023–2029
K. Frieda Fisher-Tyler	State of Delaware	2020–2026
Patricia A. Fleming	Retired	2021–2027
Benjamin C. French	Vanderbilt University	2024–2030
Donald P. Frush	Duke University Medical Center	2022–2028
Eric M. Goldin	Retired	2021–2027
Eric J. Grant	Radiation Effects Research Foundation	2019–2025
Helen A. Grogan	Cascade Scientific, Inc.	2020–2026
Barbara L. Hamrick	University of California, Irvine Health	2019–2025
Willie O. Harris	CN Associates	2023–2029
Lawrence H. Heilbronn	University of Tennessee	2019–2025
Kathryn D. Held	National Council on Radiation Protection and Measurements & Massachusetts General Hospital	2024–2030
Kathryn A. Higley	Oregon State University	2020–2026
E. Vincent Holahan	U.S. Nuclear Regulatory Commission	2019–2025
Janice L. Huff	National Aeronautics and Space Administration	2023–2029
Adam R. Hutter	National Urban Security Technology Laboratory	2019–2025
Randall N. Hyer	Center for Risk Communication	2022–2028
Carol J. Iddins	Radiation Emergency Assistance Center/Training Site	2021–2027
William E. Irwin	Vermont Department of Health	2021–2027
Thomas E. Johnson	Colorado State University	2024–2030
Derek W. Jokisch	Francis Marion University	2021–2027

Cynthia G. Jones	U.S. Nuclear Regulatory Commission	2023–2029
Ziad N. Kazzi	Emory University	2019–2025
William E. Kennedy, Jr.	WE Kennedy Consulting	2022–2028
Gladys A. Klemic	U.S. Department of Homeland Security	2022–2028
Linda A. Kroger	Retired	2022–2028
Evagelia C. Laiakis	Georgetown University	2019–2025
Edwin M. Leidholdt, Jr.	U.S. Department of Veterans Affairs	2024–2030
Michael A. Lewandowski	3M Company	2023–2029
Mark P. Little	National Cancer Institute	2022–2028
Mahadevappa Mahesh	Johns Hopkins Hospital	2021–2027
Nicole E. Martinez	Clemson University	2022–2028
Ruth E. McBurney	Conference of Radiation Control Program Directors, Inc.	2019–2025
Michael T. Milano	University of Rochester Medical Center	2020–2026
Donald L. Miller	U.S. Food and Drug Administration	2024–2030
Rebecca Milman	University of Colorado School of Medicine	2023–2029
Quentin T. Moore	U.S. Food and Drug Administration	2024–2030
Stephen V. Musolino	Brookhaven National Laboratory	2020–2026
Wayne D. Newhauser	Louisiana State University	2019–2025
Michael D. O'Hara	U.S. Food and Drug Administration	2023–2029
Harald Paganetti	Massachusetts General Hospital	2024–2030
David J. Pawel	U.S. Environmental Protection Agency	2023–2029
Leticia S. Pibida	National Institute of Standards and Technology	2024–2030
Kathryn H. Pryor	Retired	2022–2028
Mark J. Rivard	Tufts Medical Center	2023–2029
James C. Root	Memorial Sloan Kettering Cancer Center / Weill Cornell Medical College	2022–2028
Adela Salame-Alfie	Centers for Disease Control and Prevention	2021–2027
David A. Savitz	Brown University	2022–2028
Dörthe Schaue	University of California, Los Angeles	2021–2027
J. Anthony Seibert	University of California Davis Medical Center	2020–2026
Kathleen L. Shingleton	Retired	2023–2029
Angela R. Shogren	U.S. Environmental Protection Agency	2019–2025
Steven L. Simon	Retired	2022–2028
Tony C. Slaba	NASA Langley Research Center	2022–2028
David C. Spelic	U.S. Food and Drug Administration	2022–2028
Michael D. Story	University of Texas, Southwestern Medical Center at Dallas	2020–2026
Julie M. Sullivan	U.S. Food and Drug Administration	2019–2025
Steven G. Sutlief	Banner MD Anderson Cancer Center	2024–2030
Sergei Tolmachev	Washington State University	2020–2026

Michael M. Weil	Colorado State University	2023–2029
Jeffrey J. Whicker	Los Alamos National Laboratory	2023–2029
Robert C. Whitcomb, Jr.	Retired	2020–2026
Jessica S. Wieder	Federal Emergency Management Agency	2023–2029
Gayle E. Woloschak	Northwestern University	2021–2027
X. George Xu	University of Science and Technology China	2020–2026
R. Craig Yoder	Retired	2020–2026
Lydia B. Zablotska	University of California, San Francisco	2020–2026
Pat B. Zanzonico	Memorial Sloan-Kettering Cancer Center	2024–2030
Cary J. Zeitlin	Leidos	2020–2026

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Polly Y. Chang	J. Anthony Seibert	Jessica S. Wieder

*Elected March 27, 2024.

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David A. Schauer, *Executive Director Emeritus*

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Robert L. Ullrich
Richard J. Vetter
F. Ward Whicker
Chris G. Whipple
Jacqueline P. Williams*

*Elected to Distinguished Emeritus Membership March 27, 2024.

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
E. Stephen Amis, Jr.
Jeri L. Anderson
Larry E. Anderson
Mary M. Austin-Seymour
Judith L. Bader
Daniel J. Barnett
John W. Baum
Steven M. Becker
Merrill A. Bender
Mythreyi Bhargavan-Chatfield
Harold S. Boyne
John W. Brand
David J. Brenner
A. Bertrand Brill
Thomas F. Budinger
John F. Cardella
Stephanie K. Carlson
Paul L. Carson
Donald K. Chadwick
Lawrence L. Chi
Chung-Kwang Chou
Kelly L. Classic
Stephen F. Cleary
James E. Cleaver
Fred T. Cross
Francis A. Cucinotta
Stanley B. Curtis
John F. Dicello
Richard L. Doan
Carl H. Durney
David A. Eastmond
Marc Edwards
Charles M. Eisenhauer
Joe A. Elder
Alan J. Fischman
Cynthia Flannery
H. Keith Florig
Norman C. Fost
Kenneth R. Foster
Everett G. Fuller
Barry B. Goldberg
Robert L. Goldberg
Marvin Goldman
John D. Graham
Douglas Grahn
Andrew J. Grosovsky
Milton G. Guiberteau
Ellis M. Hall
Roger W. Harms
Robert J. Hasterlik
Martin Hauer-Jensen
John M. Heslep
John W. Hirshfeld, Jr.
David G. Hoel
Roger W. Howell
George B. Hutchison
Hank C. Jenkins-Smith
John R. Johnson
Timothy J. Jorgensen
Katherine A. Kiel
H. William Koch
Harold L. Kundel
Richard W. Leggett
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James C. Lin
Thomas A. Lincoln
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David I. Livermore
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Donald M. Mayer
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Cynthia H. McCollough
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William H. Miller
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Christopher N. Passmore
Terry C. Pellmar
Lester J. Peters
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Ehsan Samei
Jonathan M. Samet
Keith J. Schiager
Robert A. Schlenker
Beth A. Schueler
Thomas M. Seed
George Sgouros
Ferdinand J. Shore
Igor Shuryak*
Edward A. Sickles
Kenneth W. Skrable
David H. Sliney
Christopher G. Soares
Michael G. Stabin
Daniel O. Stram
Louise C. Strong
Glenn M. Sturchio
Richard A. Tell
Elizabeth L. Travis
Lois B. Travis
Fong Y. Tsai
Louis K. Wagner
Stuart C. White
J. Frank Wilson
Shaio Y. Woo
Andrew J. Wyrobek
Marco A. Zaider
Gary H. Zeman

*Consociate Membership effective March 27, 2024.
†Died during 2024.

Administrative Committees

Budget & Finance Committee (appointed by the Board of Directors, March 27, 2024)

William E. Kennedy, Jr., *Chair*

Helen A. Grogan
Willie O. Harris
Kathleen L. Shingleton
R. Craig Yoder

Nominating Committee (appointed by the Board of Directors, March 27, 2024)

Michael A. Boyd, *Chair*

Jonine L. Bernstein
J. Anthony Seibert
Julie M. Sullivan
Jeffrey J. Whicker

Program Committee for 2025 Annual Meeting

(appointed by the Board of Directors, March 27, 2024)

Lawrence T. Dauer & Nicole E. Martinez, *Co-Chairs*

Amir A. Bahadori
Michael B. Bellamy
David A. Bierman
Ashley P. Golden
Caliegh E. Samuels
Angela R. Shogren

John D. Boice, Jr. Young Investigator Award Committee

(appointed by the Board of Directors, March 27, 2024)

Wesley E. Bolch, *Chair*

Polly Y. Chang
J. Anthony Seibert

Scientific & Administrative Staff

Laura J. Atwell	Director of Operations
John D. Boice, Jr.	Director of Science
Matthew J. Butcher	Assistant to Senior Vice President
Sarah S. Cohen	Technical Staff Consultant
Lawrence T. Dauer	Advisor to President
Helen A. Grogan	Technical Staff Consultant
Kathryn A. Held	Advisor to the President
Julie Lima	Technical Staff Consultant
Cindy L. O'Brien	Consultant
Roy E. Shore	Advisor to Director of Science
Kali Thomas	Technical Staff Consultant
Lawrence W. Townsend	Technical Staff Consultant
Linda Walsh	Technical Staff Consultant
Myrna A. Young	Financial Records Manager

Program Area Committees

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 eight program area committees. They are:

Program Area Committees and Committee Chairs

Basic Criteria, Epidemiology, Radiobiology, and Risk	Gayle E. Woloschak Jonine L. Bernstein
Operational Radiation Safety	Willie O. Harris
Nuclear and Radiological Security and Safety	Brooke R. Buddemeier Julie M. Sullivan
Radiation Protection in Medicine	Donald L. Miller Rebecca Milman
Environmental Radiation and Radioactive Waste Issues	William E. Kennedy, Jr.
Radiation Measurements and Dosimetry	Wesley E. Bolch Jeffrey J. Whicker
Radiation Education, Risk Communication, and Outreach	Randall N. Hyer
Nonionizing Radiation	David A. Savitz

Vice Presidents

Each scientific program area committee is chaired by a 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 chairs of new scientific committees with selection of potential committee or advisory members
- Assist in management of scientific committee efforts
- Provide the chair 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, & Risk

Vice President, Gayle E.Woloschak

Goals of Program Area Committee (PAC) 1

- Evaluate and approve all 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

Gayle E.Woloschak, *Vice President*
Jonine L. Bernstein, *Co-Chair*
Isaf Al-Nabulsi
Sally A. Amundson
Armin Ansari
A. Iulian Apostoaei
Edouard I. Azzam
Joel S. Bedford
Marjan Boerma
John D. Boice, Jr.
Polly Y. Chang
Harry M. Cullings
Benjamin C. French
Eric J. Grant
Nobuyuki Hamada
Kathryn D. Held
Ann R. Kennedy
Amy Kronenberg
Evagelia C. Laiakis
Mark P. Little
Gregory A. Nelson
Harald Paganetti
David J. Pawel
James C. Root
Dörthe Schaue
George Sgouros
Roy E. Shore
Brock Sishc
Tony C. Slaba

Michael D. Story
Michael M. Weil
Jacqueline P. Williams
Lydia B. Zablotska

Completed in 2024

NCRP Commentary No. 34, *Recommendations on Statistical Approaches to Account for Dose Uncertainties in Radiation Epidemiologic Risk Models*, was issued May 10, 2024. The Commentary was drafted by Scientific Committee 1-28 Co-Chaired by Jonine L. Bernstein and Harry M. Cullings. Committee members included Michael B. Bellamy, Benjamin C. French, Mark P. Little, Carmen Tekwe, and *Technical Staff Consultant,* Helen A. Grogan.

Operational Radiation Safety

Vice President, Willie O. Harris

Goals 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

Willie O. Harris, *Vice President*
Edgar D. Bailey
Christine A. Donahue
Eric M. Goldin
Barbara L. Hamrick
Michael Lewandowski
Michael L. Littleton
David S. Myers
Kathryn H. Pryor
Debra M. Scroggs
Kathleen L. Shingleton
Glenn M. Sturchio
Joshua Walkowicz (2013–2024)
James S. Willison
James G. Yusko

Active Scientific Committees Under PAC 2

SC 2-9 Radiation Safety Program Concerns Transitioning from Operating Facility to Decommissioning Phase
Status: Drafting
Willie O. Harris, *Chair*
Edgar D. Bailey
Christine A. Donahue
Eric M. Goldin
Barbara L. Hamrick
Michael Lewandowski

Michael L. Littleton
David S. Myers
John W. Poston, Sr.
Kathryn H. Pryor
Debra M. Scroggs
Kathleen L. Shingleton
Glenn M. Sturchio
James S. Willison
James G. Yusko

Nuclear & Radiological Security & Safety

Vice President, Brooke R. Buddemeier

Goals 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 nuclear or radiological explosions or 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.

Members of PAC 3

Brooke R. Buddemeier, *Vice President*
Julie M. Sullivan, *Co-Chair*
Judith L. Bader (2017 – 2024)
Daniel J. Blumenthal
Jeffrey A. Chapman
Thomas W. Chenworth
Sara D. DeCair
Andrea DiCarlo-Cohen
Joseph R. Dynlacht
K. Frieda Fisher-Tyler
Jonathan Gill
Carol J. Iddins
William E. Irwin
Ziad N. Kazzi
Gladys A. Klemic
Angela E. Leek
Craig Marianno
Stephen V. Musolino
Michael A. Noska

Leticia S. Pibida
Adela Salame-Alfie
Robert C. Whitcomb, Jr.

Radiation Protection in Medicine

Vice President, Donald L. Miller

Goals 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

Donald L. Miller, *Vice President*
Rebecca Milman, *Co-Chair*
Kimberly E. Applegate
Stephen Balter
Edward I. Bluth
David Borrego
Lawrence T. Dauer
Andrew J. Einstein
Jennifer G. Elee
Donald P. Frush
Joel E. Gray
Linda A. Kroger
Edwin M. Leidholdt, Jr.
Alan G. Lurie
Mahadevappa Mahesh
Fred A. Mettler, Jr.
Michael T. Milano
Quentin T. Moore
Wayne D. Newhauser
Madan M. Rehani
Mark J. Rivard
J. Anthony Seibert
David C. Spelic
Steven G. Sutlief
Julie E.K. Timins
Shiao Y. Woo
Pat B. Zanzonico
Angela R. Shogren, *PAC 7 Liaison*

Active Scientific Committees Under PAC 4

SC 4-13 Patient Shielding in Medical Imaging

Status: Preparing for PAC review

Rebecca Milman, *Chair*
Veeratrishul Allareddy
Kimberly E. Applegate
Jennifer G. Elee
Donald P. Frush
Joel E. Gray
Summer L. Kaplan
Cari Kitahara
Emily Marshall
Sarah McKenney
Quentin T. Moore
Darcy J. Wolfman
Helen A. Grogan, *Technical Staff Consultant*

Environmental Radiation & Radioactive Waste Issues

Vice President, William E. Kennedy, Jr.

Goals 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

William E. Kennedy, Jr., *Vice President*
Michael A. Boyd
S.Y. Chen
Allen G. Croff
R. William Field (2016 – 2023)
Patricia A. Fleming
Helen A. Grogan
Kathryn A. Higley (2014–2024)
E. Vincent Holahan
Katherine A. Kiel
Jill A. Lipoti
Ruth E. McBurney
Bruce A. Napier
Brian A. Powell
David Stuenkel

Radiation Measurements & Dosimetry

Vice President, Wesley E. Bolch

Goals 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

Wesley E. Bolch, *Vice President*
Jeffrey J. Whicker, *Co-Chair*
Amir A. Bahadori
Michael B. Bellamy
Luiz Bertelli
William F. Blakely
Leslie A. Braby
Richard R. Brey
Emily A. Caffrey
Lukas M. Carter
Shaheen A. Dewji
Derek W. Jokisch
Richard T. Kouzes
Nicole E. Martinez
Deepeesh Poudel
Steven L. Simon
Sergei Y. Tolmachev
R. Craig Yoder
Cary J. Zeitlin
Sara Dumit, *PAC 7 Liaison*

Active Scientific Committee Under PAC 6

SC 6-13 Methods and Models for Estimating Organ Doses from Intakes of Radium
Status: Drafting

Derek W. Jokisch, *Chair*
Nicole E. Martinez, *Vice Chair*
Maia Avtandilashvili
Luiz Bertelli
Elizabeth M. Brackett
Emily A. Caffrey
Sara Dumit
Richard Leggett
Caleigh Samuels
Thomas R. LaBone, *Advisor*

Radiation Education, Risk Communication, & Outreach

Vice President, Randall N. Hyer

Goals of Program Area Committee (PAC) 7

- Identify the policy implications of NCRP publications, meetings and other events, and seek to communicate those implications in a credible and comprehensible manner to policy makers and the public.
- Suggest members or serve as members of new NCRP scientific committees whose topics relate to education, risk communication, policy, and outreach.
- Provide advice, wording, and strategic outreach options to policy makers and the public for NCRP reports.
- Ensure that NCRP communications and outreach emphasize NCRP's paramount role in providing scientific information and develop communications and outreach strategies so that recommendations are of maximum assistance to policy makers.
- Bolster educational efforts aimed at recruiting, training and retaining radiation health professionals.

Members of PAC 7

Randall N. Hyer, *Vice President*
Lisa Bruedigan
Manuela Buonanno
Jerrold T. Bushberg
Vince Covello
Sara Dumit
Thomas E. Johnson
Michelle Laver
Paul A. Locke
Caitlyn Lutfy
Charles W. Miller (2012 – 2024)
Judith F. Rader
Angela Shogren
Jessica S. Wieder

Nonionizing Radiation

Vice President, David A. Savitz

Goals of Program Area Committee (PAC) 8

- Analyze mechanisms of interaction of nonionizing radiation with biological systems and identify biological responses and potential human health effects.
- Evaluate dosimetry and exposure assessments of humans to nonionizing radiation and procedures for mitigating exposure in public and occupational settings.
- Make recommendations on acceptable exposure levels for nonionizing radiation in occupational, medical and public environments.

Members of PAC 8

David A. Savitz, *Vice President*
Martha S. Linet
Michael D. O'Hara
Martin Röösli
Vijayalaxmi

Active Scientific Committee Under PAC 8

SC 8-1 Development of NCRP Informational Webpages to Provide Authoritative Information About the Use of Wireless Technology and Current Evidence on Health Effects
Status: Preparing for Council review
David A. Savitz, *Chair*
Manuela Buonanno
Gregory Durgin
Randall N. Hyer
Martha S. Linet
Donald L. Miller
Michael D. O'Hara
Martin Röösli
Vijayalaxmi
Lawrence W. Townsend, *Technical Staff Consultant*

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 2024 are:

American Academy for Dermatology

American Academy of Environmental Engineers

American Academy of Health Physics

American Academy of Orthopaedic Surgeons

American Association of Physicists in Medicine

American Brachytherapy Society

American College of Cardiology

American College of Nuclear Physicians

American College of Occupational and Environmental Medicine

American College of Radiology

American Conference of Governmental Industrial Hygienists

American Dental Association

American Industrial Hygiene Association

American Institute of Ultrasound in Medicine

American Medical Association

American Nuclear Society

American Pharmacists Association

American Podiatric Medical Association

American Public Health Association
American Radium Society
American Roentgen Ray Society
American Society for Radiation Oncology
American Society of Emergency Radiology
American Society of Health-System Pharmacists
American Society of Nuclear Cardiology
American Society of Radiologic Technologists
American Thyroid Association
Association of Educators in Imaging and Radiological Sciences
Association of University Radiologists
Bioelectromagnetics Society
College of American Pathologists
Conference of Radiation Control Program Directors, Inc.
Council on Radionuclides and Radiopharmaceuticals
Defense Threat Reduction Agency
Electric Power Research Institute
Federal Aviation Administration
Federal Communications Commission
Federal Emergency Management Agency
Genetics Society of America
Health Physics Society
Institute of Electrical and Electronics Engineers, Inc.
Institute of Nuclear Power Operations
International Brotherhood of Electrical Workers
International Society of Exposure Science
National Aeronautics and Space Administration
National Association of Environmental Professionals
National Center for Environmental Health / Agency for Toxic Substances and Disease Registry
National Electrical Manufacturers Association
National Institute for Occupational Safety and Health
National Institute of Standards and Technology
Nuclear Energy Institute

Office of Science and Technology
Product Stewardship Institute
Radiation Research Society
Radiological Society of North America
Society for Cardiovascular Angiography and Interventions
Society for Pediatric Radiology
Society for Risk Analysis
Society of Cardiovascular Computed Tomography
Society of Chairs of Academic Radiology Departments
Society of Interventional Radiology
Society of Nuclear Medicine and Molecular Imaging
Society of Radiologists in Ultrasound
Society of Skeletal Radiology
U.S. Air Force
U.S. Army
U.S. Coast Guard
U.S. Department of Energy
U.S. Department of Homeland Security
U.S. Department of Housing and Urban Development
U.S. Department of Labor
U.S. Department of Transportation
U.S. Environmental Protection Agency
U.S. Navy
U.S. Nuclear Regulatory Commission
U.S. Public Health Service
Utility Workers Union of America

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 2024 are:

Australian Radiation Protection and Nuclear Safety Agency

Bundesamt fur Strahlenschutz (Germany)
(Federal Office for Radiation Protection)

Canadian Association of Medical Radiation Technologists

Canadian Nuclear Safety Commission

Central Laboratory for Radiological Protection (Poland)

China Institute for Radiation Protection

Commissariat a l'Energie Atomique (France)

Commonwealth Scientific Instrumentation Research
Organization (Australia)

European Commission

Heads of the European Radiological Protection Competent
Authorities

Health Council of the Netherlands

International Commission on Non-Ionizing Radiation
Protection

International Commission on Radiation Units and
Measurements

International Commission on Radiological Protection

International Radiation Protection Association

Japan Radiation Council

Korea Institute of Nuclear Safety

Nuclear Regulation Authority of Japan

Public Health England

Russian Scientific Commission on Radiation Protection

South African Forum for Radiation Protection

World Association for Nuclear Operators

World Health Organization, Unit of Radiation and Environmental Health

Contracts & Grants

The following entities have provided support in 2024 for NCRP's work through contracts and grants:

Centers for Disease Control and Prevention
National Aeronautics and Space Administration
U.S. Department of Energy
U.S. Food and Drug Administration

Contributors & Corporate Sponsors

American Academy of Health Physics
American College of Radiology Foundation
American Roentgen Ray Society
American Society of Radiologic Technologists
Council on Radionuclides and Radiopharmaceuticals
Institute of Electrical and Electronics Engineers
Nuclear Energy Institute
Radiological Society of North America
Society for Pediatric Radiology

Giving Tuesday Donations

William F. Blakely
Michael A. Boyd
Jerrold T. Bushberg
S.Y. Chen
Lawrence Chi
Lawrence T. Dauer
William E. Kennedy, Jr.
John J. Lanza
Edwin M. Leidholdt
Martha S. Linet
Donald L. Miller
David S. Myers
Bruce A. Napier
Jerome S. Puskin
Adela Salame-Alfie
Debra M. Scroggs
J. Anthony Seibert
Julie M. Sullivan

Review Process

The review process for draft publications is elaborate and comprehensive. It begins with a review by members of the appropriate Program Area Committee and other critical reviewers designated by the 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 (99), Distinguished Emeritus Members (71), Collaborating Organizations (77), and Special Liaison Organizations (23). 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 documents on the basis of the comments received follows, with the goal of reaching a scientific consensus on the material included in the document. 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 commentaries, statements, and presidential 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 as needed. Statements are brief documents 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. 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
2024	Lessons from the Fukushima Daiichi Accident	Richard A. Meserve
2023	Cancer Risks and Public Health Issues Across the Radiation Frequency Spectrum: The Long and the Short of It	Martha S. Linet
2022	Long-Term Radiation Animal Studies: A Story Continues	Gayle Woloschak
2021	Taking Up Space: The Path to Understanding Radiation Risks	Robert L. Ullrich
2019	Fallout from Nuclear Weapons Tests: Environmental, Health, Political, & Sociological Considerations	André Bouville
2018	Radiation Dosimetry Research for Medicine and Protection: A European Journey	Hans-Georg Menzel
2017	Environmental Radiation and Life: A Broad View	F. Ward Whicker
2016	Radiation Protection and Regulatory Science	John W. Poston, Sr.
2015	Dosimetry of Internal Emitters: Contributions of Radiation Protection Bodies and Radiological Events	Keith F. Eckerman
2014	On the Shoulders of Giants: Radiation Protection Over 50 Years	Fred A. Mettler, Jr.
2013	When Does Risk Assessment Get Fuzzy?	John E. Till
2012	From the Field to the Laboratory and Back: The *What Ifs*, *Wows*, and *Who Cares* of Radiation Biology	Antone L. Brooks
2011	What Makes Particle Radiation so Effective?	Eleanor A. Blakely
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: *Unde Venimus Quoque Imus*	S. James Adelstein
1999	Back to Background	Naomi H. Harley
1998	From Chimney Sweeps to Astronauts: Cancer Risks in the Work Place	Eric J. Hall
1997	Radionuclides in the Body: Meeting the Challenge	William J. Bair
1996	70 Years of Radiation Genetics: Fruit Flies, Mice and Humans	Seymour Abrahamson
1995	Certainty and Uncertainty in Radiation Research	Albrecht M. Kellerer
1994	Mice, Myths, and Men	R.J. Michael Fry
1993	Science, Radiation Protection and the NCRP	Warren K. Sinclair
1992	Dose and Risk in Diagnostic Radiology: How Big? How Little?	Edward W. Webster
1991	When is a Dose Not a Dose?	Victor P. Bond
1990	Radiation Protection and the Internal Emitter Saga	J. Newell Stannard
1989	Radiobiology and Radiation Protection: The Past Century and Prospects for the Future	Arthur C. Upton
1988	How Safe is Safe Enough?	Bo Lindell

1987	How to be Quantitative about Radiation Risk Estimates	Seymour Jablon
1986	Biological Effects of 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

Warren K. Sinclair Keynote Addresses

Year	Title	Lecturer
2024	U.S. Department of Energy, Office of Nuclear Energy Advanced Reactor Research, Design, Development and Demonstration	Kathryn Huff
2023	What do Risk Modelers Want? What Can Biologists Provide?	Michael M. Weil
2022	Developing a Long-Term Strategy for Low-Dose Radiation Research in the United States	Joe W. Gray
2021	Perception of Radiation Risk from the Astronaut Office	Serena M. Auñón-Chancellor
2019	Frontiers in Medical Radiation Science	C. Norman Coleman
2018	Jus·ti·fied and Com·men·su·rate	Marvin Rosenstein
2017	Aren't We Ready Yet? Closing the Planning, Response and Recovery Gaps for Radiological Terrorism	Jack Herrmann
2016	WARP: Where are the Radiation Professionals?	Richard E. Toohey
2015	Influence of NCRP on Radiation Protection in the United States: Guidance and Regulation	Kenneth R. Kase
2014	Science, Radiation Protection, and the NCRP: Building on the Past, Looking to the Future	Jerrold T. Bushberg
2013	Fukushima Nuclear Power Plant Accident and Comprehensive Health Risk Management	Shunichi Yamashita
2012	Childhood Exposure: An Issue from Computed Tomography Scans to Fukushima	Fred A. Mettler, Jr.
2011	Heavy Ions in Therapy and Space: Benefits and Risks	Marco Durante
2010	Effective Risk Communication Before, During and After a Radiological Emergency: Challenges, Guidelines, Strategies and Tools	Vincent T. Covello

2009	The Role of a Strong Regulator in Safe and Secure Nuclear Energy	Peter B. Lyons
2008	Issues in Quantifying the Effects of Low-Level Radiation	Dudley T. Goodhead
2007	Use and Misuse of Radiation in Medicine	James A. Brink
2006	Retrospective Analysis of Impacts of the Chernobyl Accident	Mikhail Balonov
2005	Contemporary Issues in Risk-Informed Decision Making on Waste Disposition	B. John Garrick
2004	Current Challenges in Countering Radiological Terrorism	John W. Poston, Sr.

Thomas S. Tenforde Topical Lectures

Year	Title	Lecturer
2024	Embracing Risk-Informed Thinking at the U.S. Nuclear Regulatory Commission	Christopher T. Hanson
2023	Towards Evaluating Cell Damage *via* Microscopy Imaging and Analysis of Cell Organization	Susanne M. Rafelski
2022	Opportunities in Radiation Science: Applying Our Collective Knowledge to the Challenges of Our Time	Jill A. Lipoti
2021	Collision or Cooperation? The Law, Ethics & Science of Personalized Risk Assessments for Space & Air Travel	Paul A. Locke
2019	HPS Ask the Experts: Our Most Intriguing Questions & Answers	Genevieve S. Roessler
2018	Recent Epidemiologic Studies and the Linear Nonthreshold Model for Radiation Protection – Considerations Regarding NCRP Commentary No. 27	Roy E. Shore
2015	Ethics and Radiation Protection	Jacques Lochard

John D. Boice, Jr. Young Investigator Award

Year	Recipient
2024	Lukas M. Carter
2023	Michael B. Bellamy
2022	Sara Dumit
2021	Deepesh Poudel

Annual Meetings

Year	Topic
2024	Advanced and Small Modular Nuclear Power Reactors
2023	Integration of Physics, Biology and Epidemiology in Radiation Risk Assessment
2022	Opportunities in Radiation Science: From Low Dose to Climate Change
2021	Radiation & Flight: A Down-to-Earth Look at Risks
2019	NCRP Meeting the Challenge at 90: Providing Best Answers to Your Most Pressing Questions About Radiation
2018	Radiation Protection Responsibility in Medicine
2017	Assessment of National Efforts in Emergency Preparedness for Nuclear Terrorism
2016	Meeting the Needs of the Nation for Radiation Protection
2015	Changing Regulations and Radiation Guidance: What Does the Future Hold?
2014	NCRP: Achievements of the Past 50 Years and Addressing the Needs of the Future
2013	Radiation Dose and the Impacts on Exposed Populations
2012	Emerging Issues in Radiation Protection in Medicine, Emergency Response, and the Nuclear Fuel Cycle
2011	Scientific and Policy Challenges of Particle Radiations in Medical Therapy and Space Missions
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

2024 Annual Meeting

The Sixtieth Annual Meeting of NCRP was held March 25–26, 2024. The topic of the meeting was "Advanced and Small Modular Nuclear Power Reactors." The sessions and presentations were as follows:

Twentieth Annual Warren K. Sinclair Keynote Address
U.S. Department of Energy, Office of Nuclear Energy Advanced Reactor Research, Design, Development and Demonstration, Kathryn D. Huff

Advanced and Small Modular Reactors Technology Overview: Part 1
Radiation Protection Professional's Guide to Nuclear Reactors, Kathryn A. Higley
Advanced Reactors: Implications for EPA's Fuel-Cycle Standards, Daniel Schultheisz
Small Modular Reactors, Advanced Reactors, and Other Nuclear Technologies: State Perspectives Jeffrey D. Semancik

Advanced and Small Modular Reactors Technology Overview: Part 2
Space Nuclear Reactor Commonalities with Advanced and Small Modular Reactors, Michael G. Houts
Natrium© Technology Overview, Jesse Cheatham
Technology Overview of Fluoride Salt Cooled High-Temperature Reactors, Per F. Peterson
Auora Powerhouse: A New Reactor Design, Everett L. Redmond, II

Advanced and Small Modular Reactor Critical Issues: Part 1
NuScale VOYGR Small Modular Reactor Emergency Planning Zone Methodology Overview, Steven M. Mirsky
New Perspective on Nuclear Regulation: Insights from Aviation's Hazard Threshold, Bret Kugelmass
Changing Paradigms: Meeting Radiological Survey Requirements with Robotics, Matt Mahowald
Future of Nuclear in the Pacific Northwest, Gregory V. Cullen
Economics of Nuclear Reactors: Large and Small, Abdalla Abou-Jaoude
Key Findings of the National Academy of Engineering Study "Laying the Foundation for New and Advanced Nuclear Reactors in the United States," Michael Ford
Oklo: Fast Reactors and Recycling, Everett L. Redmond, II
Radiation Protection Considerations for Small Mobile Nuclear Reactors, Jama D. VanHorne-Sealy

Forty-Seventh Lauriston S. Taylor Lecture on Radiation Protection & Measurements
Lessons from the Fukushima Daiichi Accident, Richard A. Meserve

Seventh Thomas S. Tenforde Topical Lecture
Embracing Risk-Informed Thinking at the Nuclear Regulatory Commission, Christopher T. Hanson

Advanced and Small Modular Reactor Critical Issues: Part 2
Radiological Emergency Preparedness: How Risk-Informed Regulation Prepares Us for the Future Todd R. Smith
How do Advanced and Small Modular Reactors Affect the Environmental Impacts of Nuclear Energy, Jessica R. Lovering
Operational Radiation Protection for Small Modular Reactors, John Duhig
Radiation Protection Aspects for Advanced Reactors, David Perkins

Closing Panel Discussion
Cynthia G. Jones, *Moderator*
Jesse Cheatham
Michael Ford
Kathryn A. Higley
Michael G. Houts
Bret Kugelmass

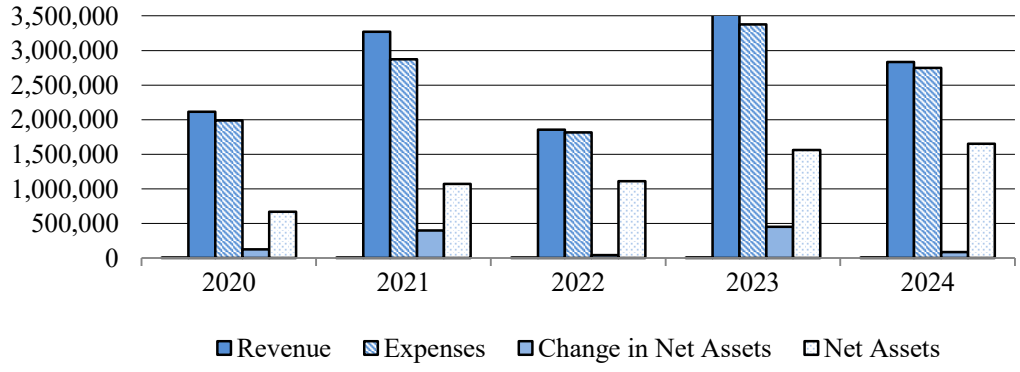
Wrap-Up
William E. Kennedy, Jr., *Program Chair*

NCRP Vision for the Future and Program Area Committee Activities
Kathryn A. Higley, *President Nominate*

Financial Summary

The table and bar graph presented below exhibit NCRP's year-end financial data for 2024 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.

Year	Revenue	Expenses	Change in Net Assets	Net Assets
2020	2,114,498	1,989,180	125,318	670,830
2021	3,270,626	2,871,740	398,886	1,069,716
2022	1,857,388	1,814,299	43,089	1,112,805
2023	3,826,315	3,375,244	451,071	1,563,876
2024	2,832,534	2,747,528	85,006	1,648,882



Appendix 1. Finances

Exhibit A
Statement of Financial Position
For the year ended December 31, 2024

(unaudited)

Current Assets		
Cash and cash equivalents	$	182,259
Investments [at market]		1,437,801
Accounts receivable:		
Publications		4,753
Grants and contracts		226,228
International Commission on Radiation Units and Measurements		727
Inventory—publications		53,539
Prepaid expenses and other assets		9,892
Total current assets		1,915,199
Property and Equipment [at cost]		
Furniture and equipment		190,269
Website		193,513
Less accumulated depreciation		(182,844)
Total property and equipment		200,938
Right of use asset, net		534,424
TOTAL ASSETS		2,650,561
Liabilities		
Accounts payable and accrued expenses		336,381
Deferred revenue		—
Lease liability, current		59,569
Total current liabilities		395,950
Other Liabilities		
Accrued post-retirement benefits		130,874
Lease liability, noncurrent		474,855
Total other liabilities		605,729
TOTAL LIABILITIES		1,001,679

Net Assets	
Without donor restrictions	1,218,886
With donor restrictions	429,996
TOTAL NET ASSETS	1,648,882
TOTAL LIABILITIES AND NET ASSETS	$ 2,650,561

Exhibit B
Statement of Activities
For the year ended December 31, 2024
(unaudited)

	Net Assets without Donor Restrictions	Net Assets with Donor Restrictions	Total
Revenue and Other Increases			
Contracts and grants	$ 2,264,669	$ —	$ 2,264,669
Contributions	126,218	2,500	128,718
Corporate sponsorship	5,000	—	5,000
Contributed professional services	126,100	—	126,100
Sales of publications	97,789	—	97,789
Dividends and interest	38,802	4,564	43,366
Net realized and unrealized gain on investments	114,065	15,051	129,116
Professional and administrative services	37,776	—	37,776
Total revenue and other increases	2,810,419	22,115	2,832,534
Expenses and Other Decreases			
Program costs:			
Contracts and grants	1,808,790	—	1,808,790
Publications	37,107	—	37,107
Contributed professional services	126,100	—	126,100
Total program costs	1,971,997	—	1,971,997
Management and general expenses	808,016	—	808,016
Total expenses	2,780,013	—	2,780,013
Investment fees	13,736	—	13,736
Post-retirement benefit change	(46,221)	—	(46,221)
	2,747,528	—	2,747,528
Change in Net Assets	62,891	22,115	85,006
Net Assets at Beginning of Year	1,155,995	407,881	1,563,876
Net Assets at End of Year	$ 1,218,886	$ 429,996	$ 1,648,882

Exhibit C
Statement of Cash Flow
For the year ended December 31, 2024

(unaudited)

Cash flows from operating activities:	
Change in net assets	$ 85,006
Adjustments to reconcile change in net assets to cash provided by operating activities	
Depreciation and amortization	2,415
Net realized and unrealized gain on investments	(129,116)
(Increase) decrease in assets:	
Accounts receivable	254,451
Inventory—publications	(158)
Prepaid expenses and other assets	129,334
Increase (decrease) in liabilities:	
Accounts payable and accrued expenses	(144,950)
Deferred revenue	(40,000)
Accrued post-retirement benefits	(44,689)
Net cash provided by operating activities	112,293
Cash flows from investing activities:	
Purchase of equipment	(76,247)
Purchase of investments	(192,609)
Sale of investments	168,268
Net cash used by investing activities	(100,588)
Cash flows from financing activities:	
Net repayments on line of credit	—
Net increase in cash and cash equivalents	11,705
Cash and cash equivalents at beginning of year	170,554
Cash and cash equivalents at end of year	$ 182,259

Schedule 1
Schedule of Contracts and Grants Revenue
For the year ended December 31, 2024

(unaudited)

Contracts	
U.S. Food and Drug Administration	$ —
Total contracts	—
Grants	
Centers for Disease Control and Prevention	274,391
National Aeronautics and Space Administration	1,730,920
U.S. Department of Energy	259,358
Total grants	**2,264,669**
Total contracts and grants revenue	**$ 2,264,669**

Schedule 2
Schedule of Contributions & Corporate Sponsorship Revenue
For the year ended December 31, 2024

(unaudited)

Contributions	
American Academy of Health Physics	$ 1,000
American College of Radiology	25,000
American Roentgen Ray Society	7,500
American Society of Radiologic Technologists	10,000
Council on Radionuclides and Radiopharmaceuticals	2,500
Health Physics Society	10,000
Individuals	42,218
Institute of Electrical and Electronics Engineers	5,000
Radiological Society of North America	25,000
Society of Pediatric Radiology	500
Total contributions	**$ 128,718**
Corporate Sponsors	
Nuclear Energy Institute	$ 5,000
Total Corporate Sponsors	**$ 5,000**

Appendix 2. Publications

Distribution of NCRP Publications

(during the period May 16, 1931 through December 31, 2024)

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	by NCRP Secretariat[b] 2024		Total NCRP Publications[c]	All Sources Combined
			Hardcopy	E-Pub		
NCRP Reports						
187	Operational Radiation Safety Program (2022)	__d	6	61	620	620
186	Approaches for Integrating Information from Radiation Biology and Epidemiology to Enhance Low-Dose Health Risk Assessment (2020)	__d	2	5	388	388
185	Evaluating and Communicating Radiation Risks for Studies Involving Human Subjects: Guidance for Researchers and Institutional Review Boards (2020)	__d	5	10	615	615
184	Medical Radiation Exposure of Patients in the United States (2019)	__d	6	10	1,096	1,096
183	Radiation Exposure in Space and the Potential for Central Nervous System Effects: Phase II (2019)	__d	0	2	286	286
182	Radiation Safety of Sealed Radioactive Sources (2019)	__d	0	9	564	564
181	Evaluation of the Relative Effectiveness of Low-Energy Photons and Electrons in Inducing Cancer in Humans (2018)	__d	0	0	427	427
180	Management of Exposure to Ionizing Radiation: Radiation Protection Guidance for the United States (2018) (2018)	__d	3	13	839	839
179	Guidance for Emergency Response Dosimetry (2017)	__d	1	7	542	542
178	Deriving Organ Doses and Their Uncertainty for Epidemiologic Studies (with a Focus on the One Million U.S. Workers and Veterans Study of Low-Dose Radiation Health Effects) (2018)	__d	2	3	302	302
177	Radiation Protection in Dentistry and Oral & Maxillofacial Imaging (2019)	__d	0	31	1,100	1,100
176	Radiation Safety Aspects of Nanotechnology (2017)	__d	0	0	313	313
175	Decision Making for Late-Phase Recovery from Major Nuclear or Radiological Incidents (2014)	__d	0	3	766	766
174	Preconception and Prenatal Radiation Exposure: Health Effects and Protective Guidance (2013)	__d	0	4	1,917	1,917

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	by NCRP Secretariat[b]		Total NCRP Publications[c]	All Sources Combined
			2024			
			Hardcopy	E-Pub		
173	Investigation of Radiological Incidents (2012)	__d	1	4	930	930
172	Reference Levels and Achievable Doses in Medical and Dental Imaging: Recommendations for the United States (2012)	__d	0	2	1,902	1,902
171	Uncertainties in the Estimation of Radiation Risks and Probability of Disease Causation (2012)	__d	0	2	946	946
170	Second Primary Cancers and Cardiovascular Disease After Radiation Therapy (2011)	__d	1	1	863	863
169	Design of Effective Radiological Effluent Monitoring and Environmental Surveillance Programs (2010)	__d	2	6	509	509
168	Radiation Dose Management for Fluoroscopically-Guided Interventional Medical Procedures (2010)	__d	0	4	2,448	2,448
167	Potential Impact of Genetic Susceptibility and Previous Radiation Exposure on Radiation Risk for Astronauts (2010)	__d	0	0	389	389
166	Population Monitoring and Radionuclide Decorporation Following a Radiological or Nuclear Incident (2010)	__d	0	4	684	684
165	Responding to a Radiological or Nuclear Terrorism Incident: A Guide for Decision Makers (2010)	__d	0	14	1,666	1,666
164	Uncertainties in Internal Radiation Dosimetry (2009)	__d	0	5	598	598
163	Radiation Dose Reconstruction: Principles and Practices (2009)	__d	0	2	981	981
162	Self Assessment of Radiation-Safety Programs (2009)	__d	2	7	1,159	1,159
161	Management of Persons Contaminated with Radionuclides (2009)	__d	0	17	2,117	2,117
160	Ionizing Radiation Exposure of the Population of the United States (2009)	__d	1	12	3,412	3,412
159	Risk to the Thyroid from Ionizing Radiation (2008)	__d	0	1	685	685
158	Uncertainties in the Measurement and Dosimetry of External Radiation (2007)	__d	0	1	1,476	1,476
157	Radiation Protection in Educational Institutions (2007)	__d	0	1	1,201	1,201
156	Development of a Biokinetic Model for Radionuclide-Contaminated Wounds and Procedures for Their Assessment, Dosimetry and Treatment (2006)	__d	2	1	1,057	1,057
155	Management of Radionuclide Therapy Patients (2006)	__d	1	2	2,548	2,548
154	Cesium-137 in the Environment: Radioecology and Approaches to Assessment and Management (2006)	__d	0	0	798	798

No.	Title and Year of Publication	Number of Copies Distributed				
		Government Printing Office[a]	by NCRP Secretariat[b]		Total NCRP Publications[c]	All Sources Combined
			2024			
			Hardcopy	E-Pub		
153	Information Needed to Make Radiation Protection Recommendations for Space Missions Beyond Low-Earth Orbit (2006)	__d	0	0	975	975
152	Performance Assessment of Near-Surface Facilities for Disposal of Low-Level Radioactive Waste (2005)	__d	0	2	765	765
151	Structural Shielding Design and Evaluation for Megavoltage X- and Gamma-Ray Radiotherapy Facilities (2005)	__d	0	9	8,790	8,790
150	Extrapolation of Radiation-Induced Cancer Risks from Nonhuman Experimental Systems to Humans (2005)	__d	0	0	955	955
149	A Guide to Mammography and Other Breast Imaging Procedures (2004)	__d	0	0	1,769	1,769
148	Radiation Protection in Veterinary Medicine (2004)	__d	1	9	1,761	1,761
147	Structural Shielding Design for Medical X-Ray Imaging Facilities (2004)	__d	5	19	8,223	8,223
	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	0	0	1,290	1,290
145	Radiation Protection in Dentistry (2003)	__d	0	0	3,421	3,421
144	Radiation Protection for Particle Accelerator Facilities (2003)	__d	0	10	3,209	3,209
143	Management Techniques for Laboratories and Other Small Institutional Generators to Minimize Off-Site Disposal of Low-Level Radioactive Waste (2003)	__d	0	0	928	928
142	Operational Radiation Safety Program for Astronauts in Low-Earth Orbit: A Basic Framework (2002)	__d	0	2	1,383	1,383
141	Managing Potentially Radioactive Scrap Metal (2002)	__d	0	0	1,450	1,450
140	Exposure Criteria for Medical Diagnostic Ultrasound: II. Criteria Based on All Known Mechanisms (2002)	__d	0	1	1,148	1,148
139	Risk-Based Classification of Radioactive and Hazardous Chemical Wastes (2002)	__d	1	0	1,175	1,175
138	Management of Terrorist Events Involving Radioactive Material (2001)	__d	0	3	7,952	7,952
137	Fluence-Based and Microdosimetric Event-Based Methods for Radiation Protection in Space (2001)	__d	0	0	986	986
136	Evaluation of the Linear-Nonthreshold Dose-Response Model for Ionizing Radiation (2001)	__d	1	0	1,885	1,885
135	Liver Cancer Risk from Internally-Deposited Radionuclides (2001)	__d	0	1	1,292	1,292

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		Government Printing Office[a]	by NCRP Secretariat[b]		Total NCRP Publications[c]	All Sources Combined
			2024			
			Hardcopy	E-Pub		
134	Operational Radiation Safety Training (2000)	__d	0	1	1,867	1,867
133	Radiation Protection for Procedures Performed Outside the Radiology Department (2000)	__d	0	5	2,276	2,276
132	Radiation Protection Guidance for Activities in Low-Earth Orbit (2000)	__d	0	2	1,283	1,283
131	Scientific Basis for Evaluating the Risks to Populations from Space Applications of Plutonium (2001)	__d	0	0	969	969
130	Biological Effects and Exposure Limits for “Hot Particles” (1999)	__d	0	1	1,394	1,394
129	Recommended Screening Limits for Contaminated Surface Soil and Review of Factors Relevant to Site-Specific Studies (1999)	__d	0	2	1,892	1,892
128	Radionuclide Exposure of the Embryo/Fetus (1998)	__d	1	2	2,059	2,059
127	Operational Radiation Safety Program (1998)	__d	0	1	3,095	3,095
126	Uncertainties in Fatal Cancer Risk Estimates Used in Radiation Protection (1997)	__d	0	0	2,199	2,199
125	Deposition, Retention and Dosimetry of Inhaled Radioactive Substances (1997)	__d	0	0	2,789	2,789
124	Sources and Magnitude of Occupational and Public Exposures from Nuclear Medicine Procedures (1996)	__d	0	1	3,670	3,670
123	Screening Models for Releases of Radionuclides to Atmosphere, Surface Water, and Ground (1996)	__d	0	12	3,594	3,594
122	Use of Personal Monitors to Estimate Effective Dose Equivalent and Effective Dose to Workers for External Exposure to Low-LET Radiation (1995)	__d	1	11	3,982	3,982
121	Principles and Application of Collective Dose in Radiation Protection (1995)	__d	0	1	2,700	2,700
120	Dose Control at Nuclear Power Plants (1994)	__d	0	0	3,202	3,202
119	A Practical Guide to the Determination of Human Exposure to Radiofrequency Fields (1993)	__d	0	2	3,796	3,796
118	Radiation Protection in the Mineral Extraction Industry (1993)	__d	0	0	2,813	2,813
117	Research Needs for Radiation Protection (1993)	__d	0	0	2,156	2,156
116	Limitation of Exposure to Ionizing Radiation (1993)	__d	1	11	8,979	8,979
115	Risk Estimates for Radiation Protection (1993)	__d	0	1	3,640	3,640
114	Maintaining Radiation Protection Records (1992)	__d	0	0	2,738	2,738
113	Exposure Criteria for Medical Diagnostic Ultrasound: I. Criteria Based on Thermal Mechanisms (1992)	__d	0	1	3,495	3,495

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		Government Printing Office[a]	by NCRP Secretariat[b]		Total NCRP Publications[c]	All Sources Combined
			2024			
			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	0	3	4,360	4,360
111	Developing Radiation Emergency Plans for Academic, Medical and Industrial Facilities (1991)	__d	0	3	4,345	4,345
110	Some Aspects of Strontium Radiobiology (1991)	__d	0	0	2,745	2,745
109	Effects of Ionizing Radiation on Aquatic Organisms (1991)	__d	0	0	2,397	2,397
108	Conceptual Basis for Calculations of Absorbed-Dose Distributions (1991)	__d	0	1	3,477	3,477
107	Implementation of the Principle of As Low As Reasonably Achievable (ALARA) for Medical and Dental Personnel (1990)	__d	0	0	3,763	3,763
106	Limit for Exposure to “Hot Particles” on the Skin (1990)	__d	0	0	3,087	3,087
105	Radiation Protection for Medical and Allied Health Personnel (1989)	__d	3	0	7,270	7,270
104	The Relative Biological Effectiveness of Radiations of Different Quality (1990)	__d	1	1	2,760	2,760
103	Control of Radon in Houses (1989)	__d	0	0	4,004	4,004
102	Medical X-Ray, Electron Beam and Gamma-Ray Protection for Energies up to 50 MeV (Equipment Design, Performance and Use) (1989)	__d	1	5	8,464	8,464
101	Exposure of the U.S. Population from Occupational Radiation (1989)	__d	0	0	4,391	4,391
100	Exposure of the U.S. Population from Diagnostic Medical Radiation (1989)	__d	0	1	5,212	5,212
99	Quality Assurance for Diagnostic Imaging (1988)	__d	1	3	5,644	5,644
98	Guidance on Radiation Received in Space Activities (1989)	__d	0	1	3,610	3,610
97	Measurement of Radon and Radon Daughters in Air (1988)	__d	0	2	4,469	4,469
96	Comparative Carcinogenicity of Ionizing Radiation and Chemicals (1989)	__d	1	0	4,286	4,286
95	Radiation Exposure of the U.S. Population from Consumer Products and Miscellaneous Sources (1987)	__d	0	2	4,498	4,498
94	Exposure of the Population in the United States and Canada from Natural Background Radiation (1987)	__d	1	1	4,668	4,668
93	Ionizing Radiation Exposure of the Population of the United States (1987)	__d	0	1	7,660	7,660
92	Public Radiation Exposure from Nuclear Power Generation in the United States (1987)	__d	0	0	3,846	3,846

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		Government Printing Office[a]	by NCRP Secretariat[b] 2024		Total NCRP Publications[c]	All Sources Combined
			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	0	0	3,042	3,042
89	Genetic Effects from Internally Deposited Radionuclides (1987)	__d	0	0	4,125	4,125
88	Radiation Alarms and Access Control Systems (1986)	__d	0	4	5,008	5,008
87	Use of Bioassay Procedures for Assessment of Internal Radionuclide Deposition (1987)	__d	0	5	4,460	4,460
86	Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields (1986)	__d	0	2	5,575	5,575
85	Mammography—A User's Guide (1986)	__d	0	0	32,655	32,655
84	General Concepts for the Dosimetry of Internally Deposited Radionuclides (1985)	__d	0	2	4,465	4,465
83	The Experimental Basis for Absorbed-Dose Calculations in Medical Uses of Radionuclides (1985)	__d	0	1	3,770	3,770
82	SI Units in Radiation Protection and Measurements (1985)	__d	0	3	4,931	4,931
81	Carbon-14 in the Environment (1985)	__d	0	0	4,161	4,161
80	Induction of Thyroid Cancer by Ionizing Radiation (1985)	__d	0	0	4,442	4,442
79	Neutron Contamination from Medical Electron Accelerators (1984)	__d	0	5	5,544	5,544
78	Evaluation of Occupational and Environmental Exposures to Radon and Radon Daughters in the United States (1984)	__d	0	2	6,645	6,645
77	Exposures from the Uranium Series with Emphasis on Radon and Its Daughters (1984)	__d	0	1	6,808	6,808
76	Radiological Assessment: Predicting the Transport, Bioaccumulation, and Uptake by Man of Radionuclides Released to the Environment (1984)	__d	0	0	6,846	6,846
75	Iodine-129: Evaluation of Release from Nuclear Power Generation (1983)	__d	0	0	6,083	6,083
74	Biological Effects of Ultrasound: Mechanisms and Clinical Implications (1983)	__d	0	1	11,452	11,452
73	Protection in Nuclear Medicine and Ultrasound Diagnostic Procedures in Children (1983)	__d	0	0	5,690	5,690
72	Radiation Protection and Measurement for Low-Voltage Neutron Generators (1983)	__d	2	2	4,645	4,645
71	Operational Radiation Safety—Training (1983)	__d	0	0	5,075	5,075
70	Nuclear Medicine—Factors Influencing the Choice and Use of Radionuclides in Diagnosis and Therapy (1982)	__d	0	0	5,625	5,625

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		Government Printing Office[a]	by NCRP Secretariat[b]		Total NCRP Publications[c]	All Sources Combined
			2024			
			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	0	1	5,400	5,400
68	Radiation Protection in Pediatric Radiology (1981)	__d	0	1	4,764	4,764
67	Radiofrequency Electromagnetic Fields—Properties, Quantities and Units, Biophysical Interaction and Measurements (1981)	__d	0	0	5,674	5,674
66	Mammography (1980)	__d	0	0	4,598	4,598
65	Management of Persons Accidentally Contaminated with Radionuclides (1980)	__d	0	1	18,703	18,703
64	Influence of Dose and Its Distribution in Time on Dose-Response Relationships for Low-LET Radiations (1980)	__d	0	0	5,440	5,440
63	Tritium and Other Radionuclide Labeled Organic Compounds Incorporated in Genetic Material (1979)	__d	0	0	4,468	4,468
62	Tritium in the Environment (1979)	__d	0	2	4,132	4,132
61	Radiation Safety Training Criteria for Industrial Radiography (1978)	__d	0	0	6,330	6,330
60	Physical, Chemical and Biological Properties of Radiocerium Relevant to Radiation Protection Guidelines (1979)	__d	0	0	4,181	4,181
59	Operational Radiation Safety Program (1979)	__d	0	0	8,046	8,046
58	A Handbook of Radioactivity Measurements Procedures (1978)	__d	0	4	14,052	14,052
57	Instrumentation and Monitoring Methods for Radiation Protection (1978)	__d	0	2	11,299	11,299
56	Radiation Exposure from Consumer Products and Miscellaneous Sources (1977)	__d	0	0	5,905	5,905
55	Protection of the Thyroid Gland in the Event of Releases of Radioiodine (1977)	__d	0	0	7,028	7,028
54	Medical Radiation Exposure of Pregnant and Potentially Pregnant Women (1977)	__d	0	0	11,118	11,118
53	Review of NCRP Radiation Dose Limit for Embryo and Fetus in Occupationally Exposed Women (1977)	__d	0	0	9,289	9,289
52	Cesium-137 from the Environment to Man: Metabolism and Dose (1977)	__d	0	0	4,870	4,870
51	Radiation Protection Design Guidelines for 0.1-100 MeV Particle Accelerator Facilities (1977)	__d	0	0	8,515	8,515
50	Environmental Radiation Measurements (1976)	__d	0	0	8,122	8,122

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49	Structural Shielding Design and Evaluation for Medical Use of X Rays and Gamma Rays of Energies up to 10 MeV (1976)	__d	0	9	19,106	19,106
	Adjunct to NCRP Report 49 (1976)	__d	0	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	0	3	6,557	6,557
46	Alpha-Emitting Particles in Lungs (1975)	__d	0	0	6,249	6,249
45	Natural Background Radiation in the United States (1975)	__d	__e	0	7,296	7,296
44	Krypton-85 in the Atmosphere—Accumulation, Biological Significance, and Control Technology (1975)	__d	0	0	6,714	6,714
43	Review of the Current State of Radiation Protection Philosophy (1975)	__d	__e	0	9,725	9,725
42	Radiological Factors Affecting Decision-Making in a Nuclear Attack (1974)	__d	0	0	47,425	47,425
41	Specification of Gamma-Ray Brachytherapy Sources (1974)	__d	0	0	5,747	5,747
40	Protection Against Radiation from Brachytherapy Sources (1972)	__d	0	3	10,319	10,319
39	Basic Radiation Protection Criteria (1971)	__d	__e	0	40,393	40,393
38	Protection Against Neutron Radiation (1971)	__d	0	3	9,340	9,340
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	17,662	17,662
33	Medical X-Ray and Gamma-Ray Protection for Energies up to 10 MeV—Equipment Design and Use (1968)	__d	__e	0	98,134	98,134
32	Radiation Protection in Educational Institutions (1966)	__d	0	0	22,363	22,363
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	0	0	9,955	34,405
29	Exposure to Radiation in an Emergency	55,705	__e	0	3,679	59,384
28	A Manual of Radioactivity Procedures (1961)	22,892	__e	0	3,665	26,557
27	Stopping Powers for Use with Cavity Chambers (1961)	4,144	0	0	3,836	7,980

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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	4,083	14,873
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	3,073	14,922
22	Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure (1959)	52,526	0	0	7,450	59,976
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	0	0	7,661	58,161
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

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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
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NCRP Commentaries						
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33	Recommendations for Stratification of Equipment Use and Radiation Safety Training for Fluoroscopy (2023)	__d	22	13	225	225
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28	Implementation Guidance for Emergency Response Dosimetry	__d	0	6	921	921
27	Implications of Recent Epidemiologic Studies for the Linear-Nonthreshold Model and Radiation Protection (2018)	__d	1	10	863	863
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21	Radiation Protection in the Application of Active Detection Technologies (2011)	__d	0	0	312	312
20	Radiation Protection and Measurement Issues Related to Cargo Scanning With Accelerator-Produced High-Energy X Rays (2007)	__d	0	0	577	577
19	Key Elements of Preparing Emergency Responders for Nuclear and Radiological Terrorism (2005)	__d	0	1	1,668	1,668
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16	Screening of Humans for Security Purposes Using Ionizing Radiation Scanning Systems (2003)	__d	0	0	922	922
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12	Radiation Exposure and High-Altitude Flight (1995)	__d	0	0	883	883
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	Total Lectures Distributed	0	0	0	21,673	21,673
NCRP Annual Meeting Proceedings						
40	Radiation Protection Responsibility in Medicine, Proceedings of the Fifty-Fourth Annual Meeting held March 5–6, 2018, Health Phys. 116(2):111–294 (2019)	__i	__i	__i		__i

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38	Meeting the Needs of the Nation for Radiation Protection: How Did We Get Here?, Proceedings of the Fifty-Second Annual Meeting held April 11–12, 2016. Health Phys. 112(2):111–234 (2017)	__i	__i	__i		__i
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36	NCRP: Achievements of the Past 50 Years and Addressing the Needs of the Future, Proceedings of the Fiftieth Annual Meeting held March 10–11, 2014. Health Phys. 108(2):97–241 (2015)	__i	__i	__i		__i
35	Radiation Dose and the Impacts on Exposed Populations, Proceedings of the Forty-Ninth Annual Meeting held March 11–12, 2013. Health Phys. 106(2):145–329 (2014)	__i	__i	__i		__i
34	Emerging Issues in Radiation Protection in Medicine, Emergency Response, and the Nuclear Fuel Cycle, Proceedings of the Forty-Eighth Annual Meeting held March 12–13, 2012. Health Phys. 105(5):401–468 (2013)	__i	__i	__i		__i
33	Scientific and Policy Challenges of Particle Radiations in Medical Therapy and Space Missions, Proceedings of the Forty-Seventh Annual Meeting held March 7–8, 2011. Health Phys. 103(5):529–684 (2012)	__i	__i	__i		__i
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30	Low Dose and Low Dose-Rate Radiation Effects and Models, Proceedings of the Forty-Fourth Annual Meeting held April 14–15, 2008. Health Phys. 97(5):373–541 (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. 95(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. 93(5):345–595 (2007)	__i	__i	__i		__i

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26	Advances in Consequence Management for Radiological Terrorism Events, Proceedings of the Fortieth Annual Meeting held April 14–15, 2004. Health Phys. 89(5):415–588 (2005)	__i	__i	__i	1	1
	Compact disk version of Proceedings No. 26	__i	0	0	102	102
25	Radiation Protection at the Beginning of the 21st Century—A Look Forward, Proceedings of the Thirty-Ninth Annual Meeting held April 9–10, 2003. Health Phys. 87(3):249–318 (2004)	__i	__i	__i		__i
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23	Fallout from Atmospheric Nuclear Tests—Impact on Science and Society, Proceedings of the Thirty-seventh Annual Meeting held April 4–5, 2001. Health Phys. 82(5):573–748 (2002)	__i	__i	__i		__i
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19	The Effects of Pre- and Postconception Exposure to Radiation, Proceedings of the Thirty-third Annual Meeting held on April 2–3, 1997, Teratology **59**(4):181–317 (1999)	__i	__i	__i		__i
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