



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Monday October 1, 2018 Morning

### OPENING REMARKS

8:00-8:15 [Welcome and Introductions](#)

[Alan Waltar](#)

8:15-8:30 [Goals of the Conference](#)

[Mike Lawrence](#)

8:30-8:40 [Society Presidents' Welcome](#)

[HPS President Nolan Hertel](#)  
[ANS Past President Andy Klein](#)



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Monday October 1, 2018 Morning

8:40 PLENARY SESSION #1 - Opening Session

Chair: Nick Dainiak

8:40-9:10 Keynote Address

David Brenner

The Strengths and Weaknesses for Linearity in Radiation Risks at Very Low Doses

9:10-9:40 Historical Context

Roger McClellan

Science and Judgment in Setting Radiation Protection Standards:  
Over a Century of Experience

9:40-10:00 BREAK

Monday October 1, 2018 Morning

10:00 PLENARY SESSION #2 - Dose-Response Relationships in the Context of  
Standards for Radiation Protection

Chair: Christopher Clement

10:00-10:20 NCRP

Roy Shore

Report Commentary #27, Implications of Recent Epidemiological Studies for the  
LNTH Model and Radiation Protection

10:20-10:40 ICRP

Werner Rühm

Status of ICRP Committee 1 on Low Dose and Low Dose Rate Effects for Ionizing



## Applicability of Radiation-Response Models to Low Dose Protection Standards



### Radiation

10:40-11:00 UNSCEAR

Abel Gonzalez and Patricia Wieland

Protection Against Low-Dose Radiation: An Evolving International  
Paradigm for Regulatory Decisions

11:00-11:20 IAEA Oleg Belyakov

Radiation Response Models and International Radiation Protection  
Guidelines

11:20-11:40 NRC

Cynthia Jones

The U.S. Nuclear Regulatory Commission's Radiation Protection Policy: What  
Does it Take for Change

11:40-12:00 EPA

David Pawel

Environmental Protection Agency Perspectives on Risk Projections for  
Exposures to Low Dose Rate Radiation

12:00 Noon - Luncheon Speaker  
The Making of the Radiation Panic

Michael Shellenberger

Monday October 1, 2018 Afternoon

1:00 PANEL #1 - Can Regulators Accommodate an Alternative Dose-Response  
Paradigm?

Moderator: William Magwood

Panelists



## Applicability of Radiation-Response Models to Low Dose Protection Standards



William Sacks

Radiation Harm vs Hormesis

Peter Colgan

IAEA Safety Standards

Antony Hooker

South Australian Experience

Julian Preston

David Pawel

Monday October 1, 2018 Afternoon

2:00 PLENARY SESSION #3 – Epidemiology

Chair: Barrett Fountos

2:00-2:25

Barrett Fountos

Russian Health Studies

2:25-2:50

Bruce Napier

Dosimetry for Mayak and Techa River Populations

2:50-3:15

Dan Stram

Epidemiology of the Mayak and Techa River Populations

3:15-3:40

Dale Preston

Comparing High and Low Dose Radiation Rates

3:40-4:10 BREAK



## Applicability of Radiation-Response Models to Low Dose Protection Standards



### 4:10 PANEL #2 - Epidemiology and Basis for Current Radiation Protection Standards

Moderator: Roger O. McClellan

#### Panelists

Richard Bull

Internal Dosimetry

Yutaka Hamaoka

Analysis of Worker Data

Bruce Napier

Dan Stram

Dale Preston

5:10-5:30

Nick Priest

The Strategic Low Dose Program of the Canadian Nuclear Utilities – Addressing the Worries and Concerns of the Public

5:30 Poster Session and “Walk-Around Dinner/Reception”

Tuesday October 2, 2018 Morning

### PLENARY SESSION #4 - Mechanistic Biology and Radiation Standards

Chair: Doug Boreham

8:00-8:25

Antone Brooks

Keynote Address - Paradigm Shifts in Radiation Biology



## Applicability of Radiation-Response Models to Low Dose Protection Standards



8:25-8:45

Sujeenthar Tharmalingam

Molecular Biology and Mechanisms of Action

8:45-9:05

Randy Jirtle

Radiation Induced Epigenetic Changes

9:05-9:25

Julian Preston

Using Mechanism of Action to Reduce Uncertainty in Risk Estimates

9:25-9:45

Alia Zander & Stephanie Puukila

Molecular, Cellular and Animal Data

9:45-10:20 BREAK

10:20-10:40

Nick Dainiak

Understanding Paracrine Signaling and Stem Cell Function through  
Computational Modeling

10:40-11:00

Dmitry Klovov

Low Dose Radiation Biology in Canada

11:00 PANEL #3 - Can We use Mechanistic Data in Risk Assessment?

Moderator: Ludwig Feinendegen

Panelists

Ludwig Feinendegen

Protective Adaptation



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Janet Baulch

Epigenetics in Brain

Noy Rithidech

Delayed Effects Radiation

Helmut Sies

Redox Biology

Tony Brooks

12:00 "Walk-Around" Lunch Visiting Posters

Tuesday October 2, 2018 Afternoon

1:00 PLENARY SESSION #5 - The Role of Modeling in Radiation Protection

Chair: Kathy Higley

1:00-1:20

Darrell Fisher

Keynote Address - Basis for Updating the Limits on Radiation Dose to the Public

1:20-1:40

John Dunn

Arguments Against Linearity at Low Doses

1:40-2:00

Kathy Higley

Information Needed to Alter Standards

2:00-2:20

Allen Chan

GAO Report: Interagency Collaboration to Improve  
Health Effects Research



## Applicability of Radiation-Response Models to Low Dose Protection Standards



2:20-2:40

Mohan Doss

Radiation Hormesis and Radiation Protection

2:40-3:00

Bennett Greenspan

The Case for a Threshold

3:00-3:30 BREAK

Tuesday October 2, 2018 Afternoon

3:30 PANEL #4 - Models of Dose Response Relationships

Moderator: David Brenner

Panelists

Jerry Cuttler

Hormesis and Disease

Mark Miller

SARI and its Goals

Darrell Fisher

Kathy Higley

Tuesday October 2, 2018 Afternoon

4:30 PLENARY SESSION #6 - Needs in Low Dose Radiation Biology for Medicine  
and Industry

Chair: Michael O'Connor

4:30-5:00

Cynthia McCollough





## Applicability of Radiation-Response Models to Low Dose Protection Standards



Keynote Address - Benefits of the Low Doses of Radiation Delivered in Medical Imaging

5:00-5:20

Jim Conca

The Value of a Human Life

5:20-5:40

Wade Allison

Public Support for Nuclear

6:00 BANQUET and POSTERS

Banquet Speaker: William D. Magwood, IV  
Science and Values in Radiological Protection

Wednesday October 3, 2018 Morning

8:00 PLENARY SESSION #7, Continuing Needs in Low Dose Radiation Biology for  
Medicine and Industry

Chair, Isaf Al-Nabulsi

8:00-8:20

Robin Elgart

Low Dose Radiation in Space

8:20-8:40

Edward Bramlitt

Low Dose Radiation in the Airline industry

Wednesday October 3, 2018 Morning

8:40 PLENARY SESSION #8 - Risk Communication, Fear and Regulations



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Chair, Tony Hooker

8:40-9:00

Jacques Lochard

Lessons Learned in Communication from the Fukushima Accident

9:00-9:20

Ryoko Ando

Connecting Science and Life with Trust

9:20-9:40

Yuliya Lyamzina

Public Communication after Accidents

9:40-10:00

Ohtsra Niwa

Science Must Develop Trust and Empathy in the Public

10:00-10:30 BREAK

10:30-11:00

Thomas Hansen

Risk Tradeoffs in Policy Making

Wednesday October 3, 2018 Morning

11:00 PANEL #5 - Communication and Policy

Moderator, Paul Locke

Panelists

Bonne Posma

An Economics Perspective on Nuclear Reactor Safety



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Ryoko Ando

Thomas Hansen

Ohtsra Niwa

John Dunn

12:00 Noon - Luncheon Speaker  
Radiation, Fear, and Public Policy

Paul Lorenzini

Wednesday October 3, 2018 Afternoon

1:00 PLENARY SESSION #9 - Scientific Needs to Move Forward in Low Dose  
Biology and Risk

Chair, Gayle Woloschak

1:00-1:20

Paul Locke

Incorporating Low Dose Information into US Laws, Regulations and Policy

1:20-1:40

Dmitry Klovov

Research Needs in Low Dose Biology

1:40-2:00

Nick Priest

Needs in Communication

2:00-2:20

Christopher Clement

ICRP Views on Radiation Risk at Low Doses through the Lens of Fukushima



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Wednesday October 3, 2018 Afternoon

2:20 PANEL #6 - Requirements to Update Regulations

Moderator: Christopher Clement

Panelists

Nick Priest

Dmitry Klokov

Mohan Doss

Doug Boreham

Dan Stram

Barrett Fountos

Paul Locke

3:20-3:40 BREAK

Wednesday October 3, 2018 Afternoon

3:40 PANEL #7 - Path Forward-- How? and Who Will Have the Action?

Facilitator, Larry Oates

Panelists



## Applicability of Radiation-Response Models to Low Dose Protection Standards



Roger O. McClellan

Werner Rühm

David Pawel

Gayle Woloschak

David Brenner

Antone Brooks

Alan Waltar

Christopher Clement

Ludwig Feinendegen

Wednesday October 3, 2018 Afternoon

4:40 Open Discussion

Focus on the Future

Chair, Alan Waltar

5:00 Summarize Meeting

Facilitator, Ludwig Feinendegen