
Getting ready: Registration & Welcome

10:15 - 10:30

Dose Quantities for Internal and External Exposure

10:30 - 11:10

- Outlining quantities and units for exposure
- From organ dose to effective dose
- Monitoring operational quantities of external radiation
- Explaining the technical principles of dosimetry
- Identifying quantities for internal exposure
- Examples of monitoring of internal exposure

Participants

Christopher Perks - ., Personal Dosimetry and Radiation Protection Specialist

Biological Effects of Ionising Radiation

On demand

- Understanding the basic interactions of radiation with DNA, cells and tissues
- The importance of radiation track structure in determining biological response
- Explaining stochastic and deterministic effects
- Radiation risk: epidemiology, the LNT approach and uncertainties

Participants

Mark Hill - Head of Radiation Biophysics, Oxford Institute for Radiation Oncology, University of Oxford

IAEA work on Public and Environmental Protection

14:00 - 14:45

Participants

Joanne Brown - Unit Head, Assessment & Management of Environmental Releases (AMER), International Atomic Energy Agency (IAEA)

Break

14:45 - 15:00

The System of Radiological Protection

15:00 - 15:45

Participants

Chris Clement - Scientific Secretary, International Commission on Radiological Protection

Live Q&A for more questions and pre-recorded sessions Day 1

15:45 - 16:05

The International Nuclear and Radiological Event Scale

On demand

Participants

Hugh Wilkins - Consultant, Radiation Consultancy Services Ltd

Radiation Protection in the Submarine Environment

On demand

- The naval PWR & PWR design
- Hazards associated with Naval PWR
- Submarine design and limitations
- Safety management organisation

Participants

Ashley Dunn - Royal Navy Health Physicist, Royal Navy

SCHEDULE

2020 AGENDA DAY ONE - 24/08/2020

31st Annual Radiological Protection Summer School

24 - 28 August 2020

Virtual Summer School

Delivered Live Online (BST time) & On-Demand Afterwards

TIME	
10:00	10:15 - Getting ready: Registration & Welcome 10:30 - Dose Quantities for Internal and External Exposure
11:00	On demand - Biological Effects of Ionising Radiation
12:00	
13:00	
14:00	14:00 - IAEA work on Public and Environmental Protection 14:45 - Break
15:00	15:00 - The System of Radiological Protection 15:45 - Live Q&A for more questions and pre-recorded sessions Day 1
16:00	On demand - The International Nuclear and Radiological Event Scale On demand - Radiation Protection in the Submarine Environment

Chair remarks: Paul Attenborough

09:20 - 09:30

Environmental Regulation in the UK

09:30 - 10:10

- Overview of Radioactive Substances Regulation in the UK
- Developments in the UK radioactive waste policies and strategies
- Analysing the impact of international developments in environmental regulation

Participants

Juliet Long - Head of Legacy and Waste Issues, Radioactive Substances & Installations Regulation, Environment Agency

How to Remove Radioactive Substances Regulations

10:10 - 10:50

- Requirements and arrangements to remove environmental permits on nuclear and non-nuclear sites in the UK
- Consideration of the duties of the environment agencies and the nuclear safety regulator

Participants

Juliet Long - Head of Legacy and Waste Issues, Radioactive Substances & Installations Regulation, Environment Agency

Radiological protection in industry

On demand

- Uses of ionising radiation in industry
- Radioactively contaminated land
- Challenges
- Recent developments

Participants

Paul Attenborough - Radiation Protection Adviser, Radman Associates

Radiation Protection in the Nuclear Fuel Cycle

12:00 - 13:10

- Explaining the role of the RPA
- Applying the IRR99 to a nuclear processing plant
- Identifying internal and external radiation exposures
- Understanding the practical applications of ALARA
- Learning from radiation accidents

Participants

Ken Doyle - Magnox East River and Calder Safety Manager RPA, Sellafield Ltd

Understanding Instrument Selection

14:40 - 15:20

- Analysing the purpose of monitoring
- Understanding radiation sources
- Learning how to select the appropriate monitoring equipment
- Understanding instrument ergonomics

Participants

Pete Burgess - Radiation Measurement Advisor, Radiation Metrology Ltd

Break

15:20 - 15:40

Practical Application of Instrument Selection

15:40 - 16:35

Select a monitoring problem and debate in groups on the best instrument to use

Participants

Pete Burgess - Radiation Measurement Advisor, Radiation Metrology Ltd

Live Q&A for more questions and pre-recorded sessions Day 2

17:00 - 17:20

SCHEDULE

2020 AGENDA DAY TWO - 25/08/2020

31st Annual Radiological Protection Summer School

24 - 28 August 2020

Virtual Summer School

Delivered Live Online (BST time) & On-Demand Afterwards

TIME	
09:00	09:20 - Chair remarks: Paul Attenborough 09:30 - Environmental Regulation in the UK
10:00	10:10 - How to Remove Radioactive Substances Regulations On demand - Radiological protection in industry
11:00	
12:00	12:00 - Radiation Protection in the Nuclear Fuel Cycle
13:00	
14:00	14:40 - Understanding Instrument Selection
15:00	15:20 - Break 15:40 - Practical Application of Instrument Selection
16:00	
17:00	17:00 - Live Q&A for more questions and pre-recorded sessions Day 2

Registration & Welcome

09:15 - 09:30

Operational Health Physics at a Pressurised Water Reactor

09:30 - 10:10

- Overview of the pressurised water reactor
- Outlining the principal radiological hazards
- Identifying radiologically significant tasks
- Examining the practical aspects of ALARP
- Understanding human performance, RP performance indicators and benchmarking

Participants

Richard Parlone - Radiation Protection Adviser, EDF Sizewell B

Emergencies and Contingency Planning

10:20 - 11:20

- Reviewing major accidents/incidents
- Utilising contingency planning and preparation
- undertaking emergency organisation
- Assessing countermeasures, recovery and reassurance monitoring

Participants

Pete Burgess - Radiation Measurement Advisor, Radiation Metrology Ltd

Interactive Exercise: Emergency and Contingency Planning

11:20 - 12:20

Delegates will be asked to work in groups to consider the HP provisions required in emergency/contingency plans for a number of facilities.

Participants

Pete Burgess - Radiation Measurement Advisor, Radiation Metrology Ltd

Exploring Environmental Radioactivity

14:00 - 15:00

- Definitions
- Sources
- Processes controlling the environmental transport and distribution of radionuclides
- Assessing impacts of environmental radioactivity on humans and other biota
- Software for radiological impact assessments
- Applications to environmental discharges and solid waste disposal
- A case example of waste disposal

Participants

James Penfold - Director, Quintessa

Non-ionising Radiation – Electromagnetic Fields and Optical Radiation

15:20 - 16:00

- The electromagnetic spectrum – effects on people
- Explaining the Control of EMF and Control of Artificial Optical Radiation Regulations
- Reviewing some sources of non-ionising radiation in the workplace

Participants

Raj Bungler - Laser Protection Adviser and Non-Ionising Radiation Specialist, Aurora Health Physics Services

Live Q&A for more questions and pre-recorded sessions Day 3

16:00 - 16:20

Radiation Monitoring of People in a Nuclear or Radiological Emergency

On demand

Participants

Hugh Wilkins - Consultant, Radiation Consultancy Services Ltd

SCHEDULE

2020 AGENDA DAY THREE - 26/08/2020

31st Annual Radiological Protection Summer School

24 - 28 August 2020

Virtual Summer School

Delivered Live Online (BST time) & On-Demand Afterwards

TIME	
09:00	09:15 - Registration & Welcome 09:30 - Operational Health Physics at a Pressurised Water Reactor
10:00	10:20 - Emergencies and Contingency Planning
11:00	11:20 - Interactive Exercise: Emergency and Contingency Planning
12:00	
13:00	
14:00	14:00 - Exploring Environmental Radioactivity
15:00	15:20 - Non-ionising Radiation – Electromagnetic Fields and Optical Radiation
16:00	16:00 - Live Q&A for more questions and pre-recorded sessions Day 3 On demand - Radiation Monitoring of People in a Nuclear or Radiological Emergency

Registration & Welcome

09:15 - 09:30

Radiological Protection in the Design of the EPR (European Pressurised Reactor)

09:30 - 10:30

- Analysing the design approach
- Learning from past experiences
- Estimating the levels of radiation
- Protecting site personnel

Participants

Sébastien Poirier - Radiation Protection Engineer, Edvance

Radiation Protection in Medicine

On demand

Participants

Graham Whish - Lead Clinical Scientist - Radiation Protection, Addenbrooke's Hospital, Cambridge

International recommendations on radon and their application

11:30 - 12:20

- Risk estimates for radon-induced lung cancer – higher values for lower levels of exposure
- Effective dose coefficients – approximate doubling of ICRP values
- Reference levels
- Legislation and practical requirements

Participants

John Harrison - International Commission on Radiological Protection and Public Health England, ICRP

Data Quality Objectives for Nuclear Plant and Fuel Cycle Facility Radioactive By-product Characterisation

13:20 - 14:20

- Developing a radioactive byproduct characterisation strategy
- Data Quality Objectives (DQOs)
 - Quality Assurance Objectives (QAOs)
 - Measurement Quality Objectives (MQOs)
- Waste stream identification - sample types and sizes
 - Characterisation methods
- Materials Accountability (MA)
 - Classification by Source (CS)
 - Dose-to-Activity (DTA) Measurements
 - Direct Measurement (DM)
 - Scaling factors for difficult-to-measure radionuclides
 - Process Knowledge (PK)
- Evaluating uncertainties and interferences
 - Building context in radioactive byproduct characterisation
 - Basic software quality assurance when using spreadsheets

Participants

James Hylko - Radioactive Byproduct Characterisation & E = 0 Safety Concept, Independent Consultant

Risk, Hazard Identification and Mitigation

14:20 - 15:30

Review of classical risk concepts

- Likelihoods and consequences.
- Systems and society

Conducting an activity hazard review

- Field walkdowns

Applying the E=0 safety concept

Energy sources

- Chemical
- Electrical Alternating (AC) and direct (DC) currents
- Gravitational objects
- Hydraulic
- Mechanical
- Pneumatic
- Radiation
- Thermal

Potential Energy

- Stored energy that can be drawn upon to do work

Kinetic Energy

- Energy from moving objects

Achieving a "Safe State" of E = 0

Monitoring progress when implementing safety/management programs

- Quantitative and qualitative markers
- Daily and weekly metrics

Review sample case study

Participants

James Hylko - Radioactive Byproduct Characterisation & E = 0 Safety Concept, Independent Consultant

Break

15:30 - 16:00

Workshop: Hazard Identification and Mitigation

16:00 - 16:50

Identify and mitigate known and suspect hazards when encountering different scenarios.

Participants

James Hylko - Radioactive Byproduct Characterisation & E = 0 Safety Concept, Independent Consultant

Live Q&A for more questions and pre-recorded sessions Day 4

16:50 - 17:10

SCHEDULE

2020 AGENDA DAY FOUR - 27/08/2020

31st Annual Radiological Protection Summer School

24 - 28 August 2020

Virtual Summer School

Delivered Live Online (BST time) & On-Demand Afterwards

TIME	
09:00	09:15 - Registration & Welcome 09:30 - Radiological Protection in the Design of the EPR (European Pressurised Reactor)
10:00	On demand - Radiation Protection in Medicine
11:00	11:30 - International recommendations on radon and their application
12:00	
13:00	13:20 - Data Quality Objectives for Nuclear Plant and Fuel Cycle Facility Radioactive By-product Characterisation
14:00	14:20 - Risk, Hazard Identification and Mitigation
15:00	15:30 - Break
16:00	16:00 - Workshop: Hazard Identification and Mitigation 16:50 - Live Q&A for more questions and pre-recorded sessions Day 4

SESSIONS

2020 AGENDA DAY FIVE - 28/08/2020

31st Annual Radiological Protection Summer School

24 - 28 August 2020

Virtual Summer School

Delivered Live Online (BST time) & On-Demand Afterwards

Registration & Welcome

09:15 - 09:30

Communicating Radiation Risks

On demand

Participants

Hugh Wilkins - Consultant, Radiation Consultancy Services Ltd

Radiation Safety Culture

On demand

Participants

Hugh Wilkins - Consultant, Radiation Consultancy Services Ltd

Brexit Insight – How does leaving Euratom impact the Radiological Protection industry?

On demand

Participants

Peter Bryant - President, The Society for Radiological Protection

Introduction to Human Factors

On demand

Participants

Julie Robinson - Deputy Head of Radiation Safety, Guy's & St Thomas' NHS Foundation Trust

End of the Summer School -Summary Session Certifications granted & thank you

13:15 - 13:30

Live Q&A for more questions and pre-recorded sessions Day 5

16:00 - 17:20

SCHEDULE

2020 AGENDA DAY FIVE - 28/08/2020

31st Annual Radiological Protection Summer School

24 - 28 August 2020

Virtual Summer School

Delivered Live Online (BST time) & On-Demand Afterwards

TIME	
09:00	09:15 - Registration & Welcome On demand - Communicating Radiation Risks
10:00	
11:00	On demand - Radiation Safety Culture On demand - Brexit Insight – How does leaving Euratom impact the Radiological Protection industry?
12:00	On demand - Introduction to Human Factors
13:00	13:15 - End of the Summer School -Summary Session Certifications granted & thank you
14:00	
15:00	
16:00	16:00 - Live Q&A for more questions and pre-recorded sessions Day 5