



Harmonisation of Radiation Protection in the European Union

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Adopting the International System of Units for Radiation Measurements in the United States,
29 – 30 September 2016, Washington DC, United States



European Commission



The European Union

- 500 million people
- 28 countries
- surface area ~ 4 million km²

Member States of the European Union



Candidate countries and potential candidates

The Treaties:

1952 The European Coal and Steel Community

1958 The treaties of Rome:

~~The European Economic Community~~

The European Atomic Energy Community (EURATOM)

1987 The European Single Act: the Single Market

1993 Treaty on European Union - Maastricht

1999 Treaty of Amsterdam

2003 Treaty of Nice

2009 Treaty of Lisbon





Legal Basis

The Euratom Treaty (1958)

Chapter on health and safety

- Establish **uniform basic safety standards** for the protection of the health of workers and the general public against dangers arising from ionising radiations
- Carry out continuous monitoring of the **level of radioactivity in air, water and soil**
- Provide **information** on level of radioactivity in air, water and soil
- Plan to **authorise radioactive discharges** of an installation into the environment (gaseous, liquid or solid) – assess **radiological impact** on other Member States



Euratom Basic Safety Standards Directive

Main objective of the Basic Safety Standards

Ensure the highest possible protection of **workers, members of the public and patients** against the dangers arising from exposure to ionising radiation

- First Directive adopted already in **1959** – regularly amended in 1962, 1966, 1976, **1980**, 1984, 1996 and latest **2013**

*Modernisation and Consolidation
of European Radiation Protection
Legislation*

*1980 revision:
Change to **SI units**:
Bq, Gy, Sv*

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English edition

Legislation

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Contents

II Non-legislative acts

DIRECTIVES

- ★ Council Directive 2013/59/Euratom of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom



Content of the Basic Safety Standards

Protection of workers, members of the public, patients

- Justification of exposure, dose limitation, optimisation of protection, dose assessment and recording, health surveillance, ...

Regulatory control of practices

- Justification of practices, exemption, notification, authorisation, release from regulatory control, clearance, discharge authorisations, ...

Natural radiation sources

- Regulatory control of NORM, protection from indoor radon, protection from gamma radiation from building materials, ...

Emergency preparedness and response

- Emergency management system, response plans, preparedness, international cooperation, definition of reference levels, ...

Safety and control of high-activity sealed sources

- Activity values defining high-activity sealed sources, ...

Legacy – contaminated sites

- Strategies for appropriate management, Definition of reference values, ...

...

Complementing the Basic Safety Standards

Drinking water quality

- Requirements for the protection of the health of the general public with regard to radioactive substances in water intended for human consumption

Food and feed

- Laying down maximum permitted levels of radioactive contamination of food and feed following a nuclear accident or any other case of radiological emergency

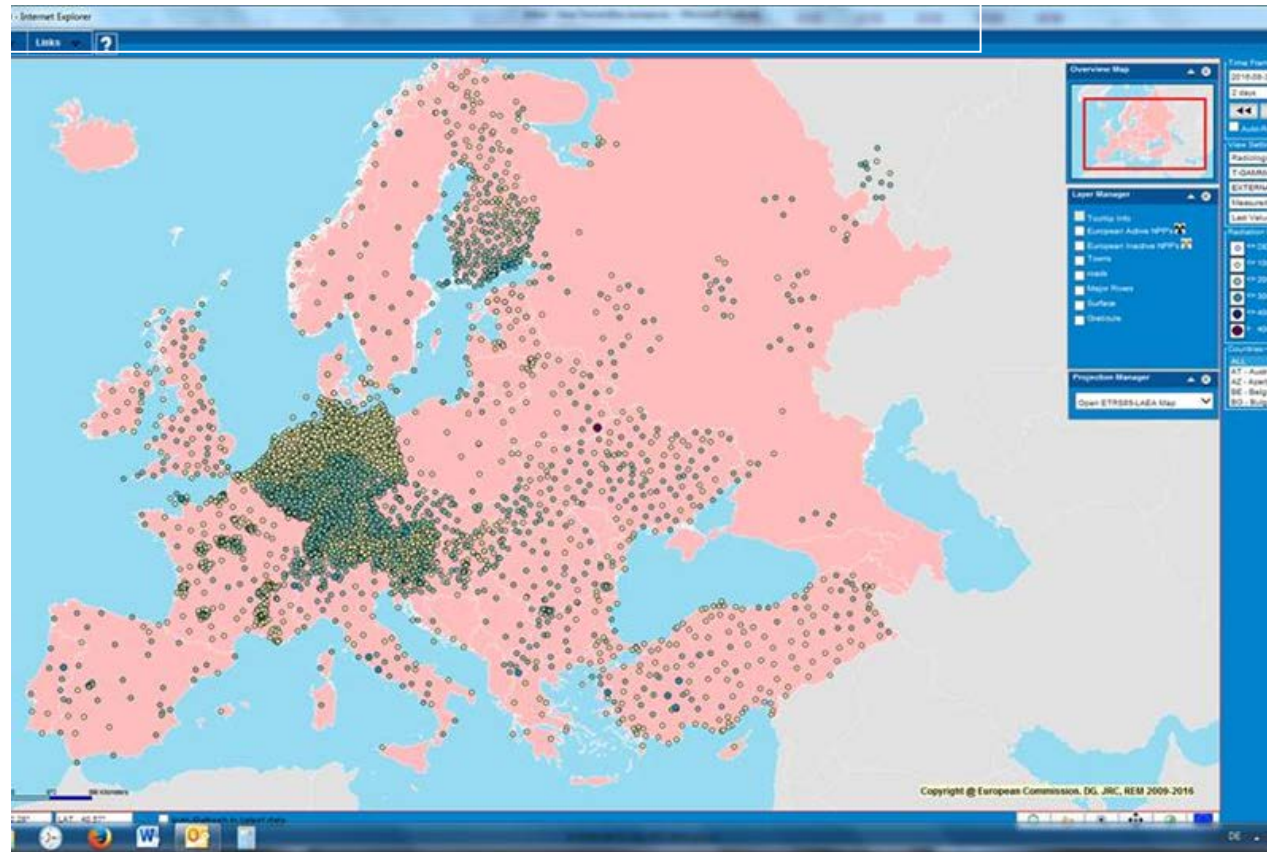
Information exchange in case of a nuclear accident or radiological emergency

- Alerting the European Community: **ECURIE** (European Community Urgent Radiological Information Exchange)
- Data base on radiological data: **EURDEP** (EUropean Radiological Data Exchange Platform)
- ...

Emergency preparedness and response

EURDEP (European Radiological Data Exchange Platform)

- Gamma dose rate (1 hour frequency – in emergency mode 10 minutes frequency)
- Airborne radioactivity (more sparse)
- Online (public and restricted)



Radioactivity in air, water and soil



Radioactivity in air, water and soil

Member States obliged to establish facilities necessary to carry out continuous monitoring of the **level of radioactivity in air, water and soil**

European Commission right to **verify measurement facilities, operation and efficiency**

- Verification missions to Member States
- Main findings published

Member States obliged to **communicate monitoring results** periodically to European Commission

European Commission **publishes data** on the level of **radioactivity in air, water and soil**

- Radioactivity Environmental Monitoring (REM) data base
- Web site with public access

European Commission **publishes data** on **radioactive discharges** from nuclear power plants and reprocessing facilities

- Compiled in *European Commission Radioactive Discharges Database – RADD*
- Web site with public access

The European Union single market: freedom of choice



Four freedoms of movement:

- goods
- services
- people
- capital
- consumer products containing radioactivity, food and feed, building material, ...
- dosimetry services, occupational health services, radiation protection experts, ...
- radiation workers, ...

European Union Single Market – numerical constraints

Consumer products

- Radioactivity in consumer products
- Gamma radiation from building materials
- Clearance and exemption values

Dose limits and dose assessment for radiation workers travelling Europe

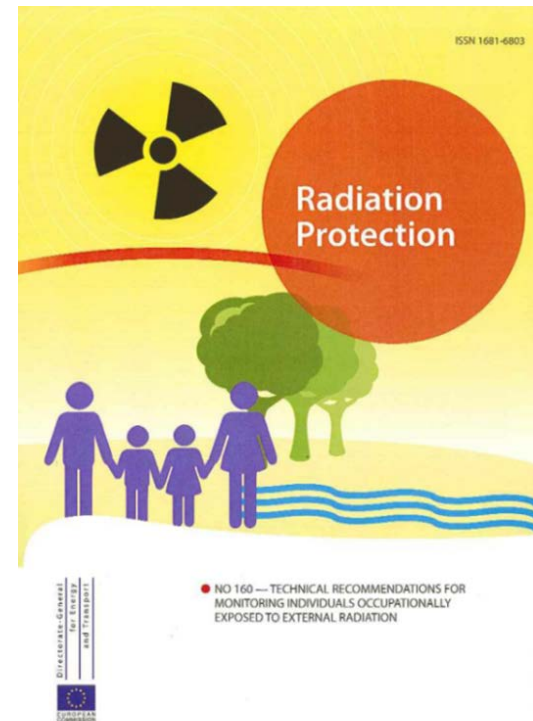
- Dosimetric approach, individual monitoring, dose assessment, dose passbooks, dose registries ...

Emergency preparedness and response

- Reference levels, measurement strategies, decision criteria, ...

Food and feed

- Maximum permitted levels of radioactive contamination of food and feed



Fukushima Daiichi



Import of food and feed

- After accident – decision to monitor all food imported
- Maximum permissible levels harmonised with those adopted by Japan
- Measurement certificates issued in Japan accepted in Europe
- Control sample of 10% of food imported

Contamination of aircraft, ships, containers and consumer products

- Less straight forward – no internationally agreed levels available...

Résumé

- Europe densely populated
- Comprehensive set of radiation protection legislation (compulsory for Member States)
 - ✓ Basic safety standards for the protection of workers, members of the public and patients
 - ✓ Early notification system for nuclear accidents and radiological emergencies
 - ✓ Emergency preparedness and response
 - ✓ Systems to monitor radioactivity in air, water and soil
 - ✓ Numerical values harmonised with international standards
- European Union Single market – the freedom of choice
 - ✓ Free market for goods, services, people and capital
 - ✓ Numerical constraints
 - ✓ Radiation measurements matter



*Thank you for your
attention*

