

# Nouvelles Normes de Base Euratom, dispositions pour la protection de l'environnement



The new Basic Safety Standards Directive and its implications for the protection of the environment



SFRP 19 June 2012

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# Role of the European Union



## *Euratom Treaty (1957)*

- **allow the development of nuclear energy while ....**
- **establishing uniform Basic Safety Standards**
- **ensuring the protection of the “environment”**

## *Article 2:*

*In order to perform its task, the Community shall, as provided in this treaty:*

*a) ....*

*b) establish uniform safety standards to protect the **health of workers and of the general public** and ensure that they are applied;*

## *Chapter III “Health and Safety”*

- **Article 30: The expression “basic standards” means:**
  - a) ...
  - b) maximum permitted levels of exposure and contamination
  - c) ...
- **Articles 35-38**

# Art. 35 Euratom Treaty



*Each Member State shall establish the facilities necessary to carry out continuous monitoring of the level of radioactivity in the air, water and soil and to ensure compliance with the basic standards*

*The Commission shall have the right of access to such facilities; it may verify their operation and efficiency*

# Basic Safety Standards

European  
Commission

## *Directives:*

- **Basic Safety Standards (workers, general public): 1996**
- **Patients/Medical Directive: 1997**
- **Informing the public on measures in the event of a radiological emergency: 1989**
- **Outside Workers: 1990**
- **High Activity Sealed Sources (HASS): 2003**

*Radon Recommendation 90/143/Euratom*

# Revision of EU-BSS

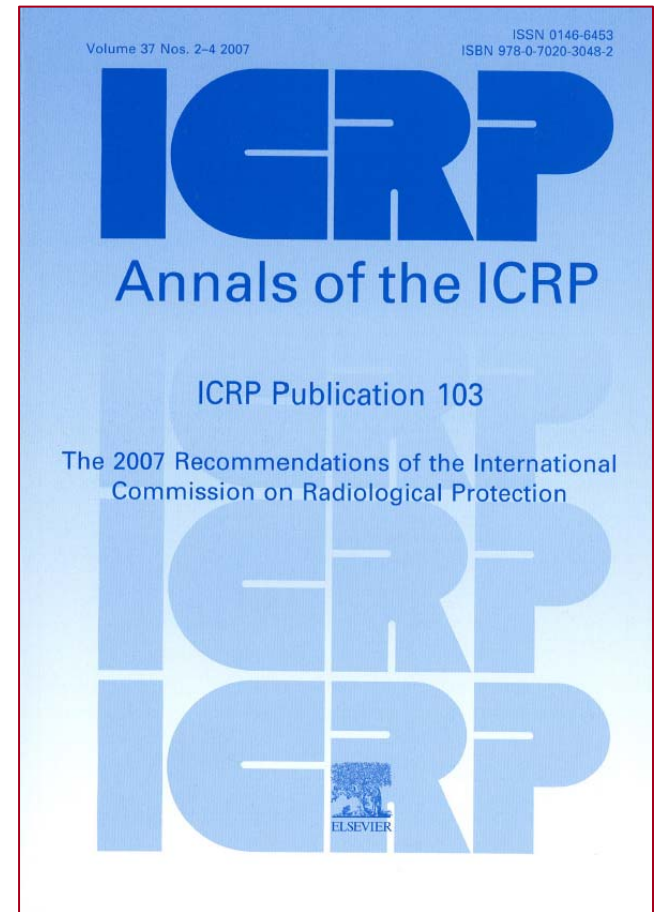


*Consolidation of current Directives*

*Allow for ICRP/IAEA*

- **Exposure situations**  
rather than processes:  
practices/interventions
- **Protection of the environment**

*Incorporate natural radiation sources*



# International Standards



## *IAEA Safety Fundamentals*

- **SAFETY OBJECTIVE:**

The fundamental safety objective is to protect people and the environment from harmful effects of ionizing radiation.

- **Principle 7: People and the environment, present and future, must be protected against radiation risks.**

*The present system of radiation protection generally provides appropriate protection of ecosystems in the human environment. The general intent of the measures taken for the purposes of environmental protection has been to protect ecosystems against radiation exposure that would have adverse consequences for populations of a species (as distinct from individual organisms).*

## *IAEA SAFETY STANDARDS for protecting people and the environment (GSR Part 3)*

- **Introduction (1.32-35): Protection of the Environment**

... an issue necessitating assessment ... decision making commensurate with radiation risks.

- **Scope?**

- **Responsibilities of the government (2.14)**

- **Licensees' application for authorisation (3.8 (e))**

# Protection of the Environment



## *Scope of the Euratom BSS:*

*The subject matter and general purpose of this Directive is the health protection of the population and workers against the dangers of ionizing radiation; this Directive also applies to the protection of the human environment as a pathway from environmental sources to the exposure of man, complemented where appropriate with specific consideration of the exposure of biota in the environment as a whole;*

## *Why under the Euratom Treaty?*

- **protection of man and the environment, as a whole, should be coherent**
  - considered jointly for the authorisation of discharges of radioactive effluent
- **benefit to long-term health protection**
- **overall environmental legislation (EC) and International Agreements**

# International Agreements



- **Espoo Convention on environmental impact assessment in a trans-boundary context**
- **Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean**
- **Helsinki Convention on the protection of the marine environment of the Baltic Sea area (HELCOM)**
- **OSPAR (Oslo-Paris) Convention for the protection of the marine environment of the North-East Atlantic**



# OSPAR Strategy on Radioactive Substances



*In achieving this objective, the following issues should, inter alia, be taken into account:*

- **legitimate uses of the sea;**
- **technical feasibility;**
- **radiological impacts on man and biota;**

*For this purpose, the OSPAR Commission has decided:*

- **to review and prioritise radioactive substances and/or human activities which may give rise to concern in order to identify topics for action;**
- **to develop environmental quality criteria for the protection of the marine environment against the adverse effects of radioactive substances and to report on progress made by 2003.**

# Marine Strategy



- **OSPAR (Oslo-Paris) Convention for the protection of the marine environment of the North-East Atlantic**
- **Marine Strategy Framework Directive (MSFD) 2008/56/EC**
- **Recital 39: Articles 30-31 Euratom regulate discharges**
- **Article 8 (initial assessment) and Annex III Table 2 (hazardous substances) consider the "introduction of radionuclides"**
- **Information note:**
  - The establishment of measures already covered by Euratom is not necessary under MSFD (Article 13)
  - Euratom Directive would require MS's to demonstrate that discharges of radionuclides to the environment are not liable to have any effect on ecosystems and vulnerable species
- **"Habitats" Directive**

# Environmental Impact Assessment



- **Scope of Directives on the assessment of the effects of certain public and private projects on the environment (Directive 85/337/EEC of 27 June 1985, as amended by Directive 97/11/EC of 3 March 1997):**
  - 2(b) **Nuclear power stations** and other nuclear reactors, including the dismantling or decommissioning of such power stations or reactors (except research installations for the production and conversion of fissionable and fertile materials, whose maximum power does not exceed 1 kilowatt continuous thermal load).
  - 2(b) **Nuclear power stations** and other nuclear reactors, including the dismantling or decommissioning of such power stations or reactors (except research installations for the production and conversion of fissionable and fertile materials, whose maximum power does not exceed 1 kilowatt continuous thermal load).
  - 3(a) Installations for the **reprocessing of irradiated nuclear fuel**;
  - 3(b) Installations designed:
    - For the production or **enrichment** of nuclear fuel;
    - For the processing of **irradiated nuclear fuel or high-level radioactive waste**;
    - ....
- **Article 37 Euratom?**
  - Impact (air, water, soil) on neighbouring Member States



## *Bergen Conference (June 2008):*

- **Needs of the regulator:**

- Clear objectives

- Precise legal requirements

- Mature and agreed methodology for demonstration of compliance

- Means to ensure enforcement of the requirements

## *Are these conditions met at this stage?*

- **RTD projects: PROTECT-ERICA-FASSET**
- **ICRP approach**



*ICRP Publication 103 (2007): need for a scientific framework*

*ICRP Publication 108 (2008): "The concept and use of Reference Animals and Plants" (see also publication 114)*

- **Including an assessment methodology and**
- **Derived Consideration Reference Levels (DCRL)**

*ICRP Publication 1xx (2012): "The approach to protection of the environment under different exposure situations"*

- **Environmental Reference Levels for planned exposure situations**

ERL < lower bound of DCRL

Starting point of optimisation of environmental exposures

No dose limits, compliance based solely on concentrations of radionuclides in the environment (or rate of discharge)

- **Emergency exposure situations**

Severe effects: one or more orders of magnitude > DCRL

Limited options for mitigation

Impact on siting

- **Existing exposure situations**

DCRL starting point of optimisation of environmental exposures

# Planned



**Relevant  
DCRL**

**All sources**

*“Environmental  
reference level”*

**Single source**

**(source upper bound)**

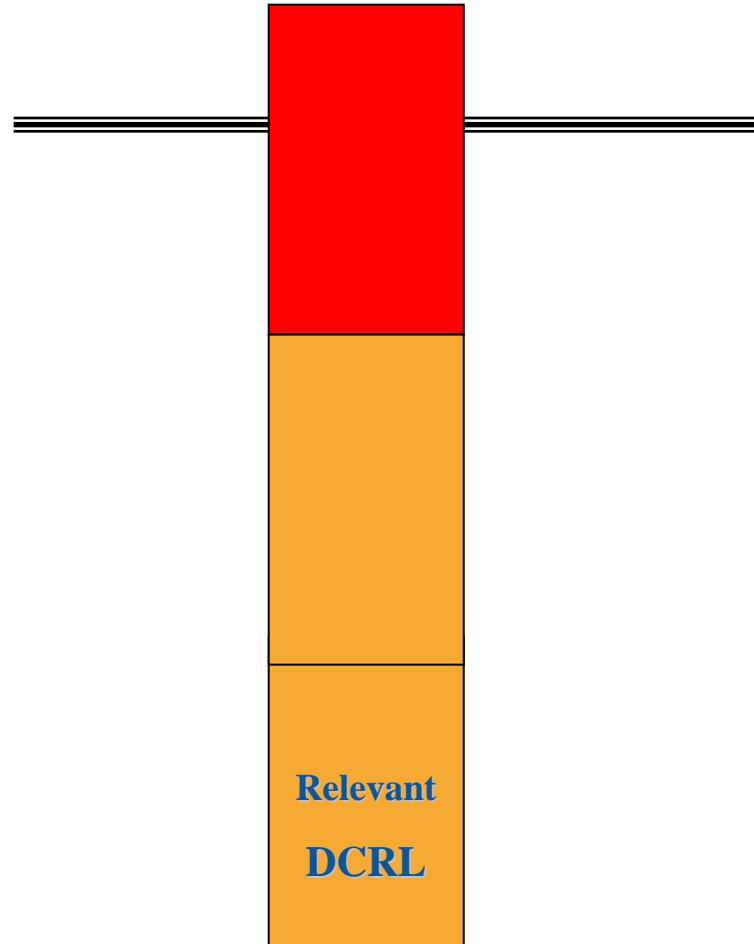


Energy

# Emergency



*Emergency planning  
environmental  
reference level*



# Euratom BSS table of contents



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Chapter VIII	Protection of Members of the Public
<b>Chapter IX</b>	<b>Protection of the Environment</b>
Chapter X	Requirements for Regulatory Control
Chapter XI	Final provisions





## *National legal framework*

- **provision for protection of non-human species**
- **populations of vulnerable or representative species**
  - significance as part of the ecosystem
- **environmental criteria**
- **identify practices for which regulatory control is warranted**

## *Authorised limits of discharges*

- **generic screening assessment**

*Technical measures to mitigate the environmental consequences of accidents*

*Specific environmental monitoring*

# Protection or assessment?



*New recital (draft):*

*For this purpose, current legislation for the protection of workers and members of the public needs to be complemented with additional requirements to avoid or prevent levels of radioactivity in the environment that would constitute a detriment to species other than man.*

*These requirements are without prejudice to other legislation applying whenever such a detriment is demonstrated or cannot be ruled out without further investigation.*



## *National legal framework*

- **provision for assessment of possible impact on-human species**
- **identify practices for which assessment is warranted**

## *Authorised limits of discharges*

- **generic screening assessment (ERL)**
- **to avoid or prevent any environmental detriment**

## *Technical measures to mitigate the environmental consequences of accidents*

- **emergency environmental reference level?**

## *Specific environmental monitoring (DCRL)*



*Environmental radioactivity enshrined in primary law (Euratom Treaty)*

*New Basic Safety Standards enhance the legal framework for protection of members of the public*

- **Focus on authorisation and monitoring of effluent**

*Protection of the environment still in discussion:*

- **Legal basis (TFEU/Euratom)**  
Protection or prevention?
- **Methodology for the assessment**
- **Environmental criteria (2012?)**

The background of the slide is the European Union flag, featuring a circle of twelve gold stars on a blue field. The text "Merci pour votre attention!" is centered over the flag.

**Merci pour votre attention!**

[http://ec.europa.eu/energy/nuclear/radiation\\_protection/radiation\\_protection\\_en.htm](http://ec.europa.eu/energy/nuclear/radiation_protection/radiation_protection_en.htm)