

## Country profile - Sweden

### Relevant national authorities and responsibilities

The Swedish Radiation Safety Authority (SSM) is the authority under auspice of the Swedish Ministry of the Environment with national responsibility within the areas of nuclear safety, radiation protection and nuclear non-proliferation. The SSM works proactively and preventively in order to ensure high levels of nuclear safety and radiation protection in the society.

The SSM has the mandate to issue regulations concerning nuclear safety and radiation protection for nuclear as well as non-nuclear activities. SSM is also responsible to conduct supervision and to control that licensees comply with applicable laws and regulations. Moreover, SSM is fully empowered to issue, with reference to safety, prohibitions and conjunctions combine

### National legislation and basis for regulation

#### *The Swedish Radiation Protection Act*

The aim of the Radiation Protection Act (2018:396) is the protection of man and the environment against harmful effects of radiation.

#### *The Radiation Protection Ordinance*

The Radiation Protection Ordinance (2018:506) contains details pursuant to authorisation for the application of the Radiation Protection Act. The Ordinance authorises the SSM to act as the central administrative authority in the area of radiation protection and to issue regulations concerning radiation protection and environmental monitoring. The ordinance also contains dose limits and dose constraints.

#### *The Environmental Code*

The Environmental Code is a comprehensive legislation covering a wide range of environmental issues, including provisions on environmental impact assessments, licensing procedures, etc. The Code is applicable to activities generating ionizing radiation in the environment. Such activities are categorized as 'environmentally hazardous', together with numerous other activities.

#### *Regulations issued by the SSM*

On the basis of the authorisation granted in the Radiation Protection Ordinance, SSM has issued specific regulations concerning releases of radioactive substances from nuclear facilities "Regulations on the Protection of Human Health and the Environment from the releases of Radioactive Substances from Certain Nuclear Facilities" (SSMFS 2008:23). The regulations entered into force 1st February 2009, and was updated (SSMFS 2018:16). The regulations cover surveillance and monitoring, environmental programmes and quality assurance.

SSM has also issued general radiation safety regulations for all licensed facilities (SSMFS 2018:1). These regulations cover e.g. methods for dose calculations to individuals in the general public and reporting and assessment of the radiation safety for the public and the environment.

**ICRP 101:** Assessing Dose of the Representative Person for the Purpose of Radiation Protection of the Public and The Optimisation of Radiological Protection: Broadening the Process. Edited by J. Valentin. Volume 36, Issue 3, Pages 1-104 (September 2006)

## Application of BAT/BEP in domestic legislation

*The Radiation Protection Act* stipulates that measures shall be taken to limit the generation of radioactive waste and emissions of radioactive substances as far as possible and reasonable, taking into account existing technical knowledge and economic and societal factors (chapter 3, section 9). In the explanatory text to the Act (Governmental Bill 2017/18:94) it is clarified that the requirement *inter alia*, refers to the agreements according to the OSPAR and HELCOM convention on the application of best available technique in order to limit radioactive discharges to the sea, but is also applicable to all emissions to water and sea from nuclear installations in Sweden. This paragraph aims mainly at the protection of the environment and should be used in parallel with the provisions on optimisation of radiation protection.

*The Environmental Code* includes requirements on that BAT should be applied in order to prevent, hinder or counteract harm or inconvenience to human health or the environment.

## Dose limit, constraints and discharge limit setting rationale

According to *the Radiation Protection Ordinance* the dose limit for individuals of the general public, resulting from all practices, is 1 milliSievert annual effective dose. This is a requirement in EU BSS. An upper limit for dose restrictions for the public from individual practices is set to 0,1 milliSievert a year. There are no other general discharge limits.

## Regulation, surveillance and monitoring

Surveillance and monitoring of discharges of radioactive nuclides are regulated in *Regulations on the Protection of Human Health and the Environment from the releases of Radioactive Substances from Certain Nuclear Facilities* (SSMFS 2008:23). The regulations entered into force 1<sup>st</sup> February 2009, and has been updated a couple of times since then.

## Environmental monitoring programmes

According to SSMFS 2008:23 environmental monitoring should be performed in the vicinity of the nuclear facilities according to a specific Environmental monitoring programme issued by the SSM in 2004. New, more site specific programmes are under development according to new regulations which are planned to enter into force in January 2021.

## Radiation dose assessment methods

Effective dose to the public is assessed using detailed, site-specific dose models (the PREDO platform). Dose is assessed using the concept of representative person (ICRP 101a) and dose is calculated for three different age-groups.

## Environmental norms and standards

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## Quality assurance

According to *Regulations on the Protection of Human Health and the Environment from the releases of Radioactive Substances from Certain Nuclear Facilities* (SSMFS 2008:23) surveillance and monitoring should be quality assured and documented according to relevant ISO-standard procedures. Also the laboratories involved are obliged to take part in inter calibrations on the demand of the SSM.

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