**DECREE ON THE REDUCTION OF EXPOSURES DUE TO NATURAL RADIONUCLIDES AND PAST ACTIVITIES OR EVENTS**

**(UV5)**

**UNOFFICIAL TRANSLATION**

*Prepared by the Slovenian Nuclear Safety Administration in December 2018.*

*The official text of the Decree is located on the pages of* [*the Legal Information System*](http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED7673)*.*

***WARNING:*** *The unofficial text of this Act is just an informative work tool, for which the Slovenian Nuclear Safety Administration does not guarantee.*

Based on the third paragraph of Article 63 of the Ionising Radiation Protection and Nuclear Safety Act (Official Gazette of the Republic of Slovenia, No. 76/17) the Government of the Republic of Slovenia hereby issues the

## D E C R E E

**on the reduction of exposures due to natural radionuclides and past activities or events**

# Article 1

# (Content)

1. This Decree defines a programme to provide protection against the increased exposure of workers and members of the public resulting from radioactive contamination of areas by residual radioactive material or activities with materials containing naturally-occurring radionuclides.
2. This Decree lays down the scope and frequency of the examination of the working and living environment in the event of past activities or emergencies, measures to reduce exposure and criteria for taking actions.
3. This Decree transposes into the legal order od Republic of Slovenia the provisions of Council Directive 2013/59/Euratom of 5th 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 (OJ L 13, 17.1.2014, p. 1), last amended with the Corrigendum to 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 (OJ L 72, 17.3.2016, p. 69).

# Article 2(Activities)

1. The activities with materials containing naturally-occurring radionuclides are handling, storage or disposal and other activities leading to exposure of materials or wastes which, due to their properties, have an increased content of natural radionuclides or due to technological processing have an increased content of natural radionuclides (hereinafter: NORM).
2. Exposure to products from contaminated areas, resulting in the case of past activities or emergencies, shall be regulated by a regulation on the monitoring of radioactivity.

# Article 3(Systematic examination of the working environment)

1. Systematic examination of the working environment shall be carried out by the authority responsible for nuclear safety for activities with materials containing naturally-occurring radionuclides.
2. Systematic examination of the working environment shall include:
	* measurements of gamma radiation dose rate and, where appropriate, the analysis of the causes of increased dose rate;
	* measurements of radon or thoron concentrations, and where appropriate, measurements of the concentration of their decay products, the equilibrium factor and other parameters, as well as analysis of the causes of increased radon or thoron concentrations;
	* measurement of the activity concentration of natural radionuclides in materials, which may include NORM and, where appropriate, measurement of the activity concentration of natural radionuclides in surface and underground waters in the impact zone for activities involving these materials.
3. The nature and extent of the measurements referred to in the preceding paragraph must be selected in such a way as to be able to assess the exposure of workers or members of the public and to assess the need for measures to reduce exposure.
4. The measurements referred to in the second paragraph of this Article shall be carried out by a radiation protection expert who is authorized to carry out such measurements. After the measurements have been taken, the authorized radiation protection expert shall write a report assessing the exposure of workers or members of the public. The report must also include proposals for protective measures to reduce radiation exposure.
5. Systematic examination of the working environment must be ensured above all in places where workers are exposed to natural sources and where there is a greater probability that the annual dose from natural radiation could exceed 1 mSv or 6 mSv for gamma radiation due to exposure to radon and thoron and their progeny.

# Article 4

**(Scope and frequency of systematic examination)**

1. The activities referred to in the [Annex to this Decree](#_bookmark1) must be subject to systematic examination. At least five operators must be inspected per year. Other activities may also be examined if it is probable that workers or reference group of the population are exposed to increased radiation from natural sources.
2. The authority responsible for nuclear safety shall produce an annual programme of inspections so that in the period of five-years the representatives of all activities listed in the Annex to this Decree undergo examination. Companies where workers may potentially be exposed shall be selected for inspection. Where appropriate, a sample of companies that represent a major proportion of the production of certain activities referred to in the Annex to this Decree shall be inspected to assess overall exposure.

# Article 5

**(Measures in the event of increased exposures identified during systematic examination)**

1. If it is found, based on the measurement and assessment of the doses, that worker or member of the public receive a higher annually dose as prescribed in the fifth paragraph of the Article 3 of this Decree, the authority responsible for nuclear safety shall order the employer or the operator of an installation or facility to take measures to reduce exposures.
2. Measures to reduce exposures may include a reorganization of work tasks and working time, ventilation of premises, relocation of worker or member of the public to other premises, changing material-handling methods, changing raw materials and products, their storage or disposal and other measures that help to reduce exposure.
3. The measures imposed must be proportionate to the exposure to achieve the most effective and permanent reduction of exposure in the most economically effective manner.
4. Following implementation of the measures referred to in the previous paragraphs, the authority responsible for nuclear safety must be provided with evidence of the effectiveness of the actions carried out by control measurements made by an authorized radiation protection expert referred to in the fourth paragraph of the Article 3 of this Decree. The scope of the control measurements must be such that the effectiveness and efficiency of the actions carried out are examined.

# Article 6

**(Examination of exposures due to residues of previous activities or because of an emergency)**

1. The examination of a working or living environment due to increased exposure occurred in the case of past activities or emergencies may be initiated based on a notification of intent, the findings of the inspection, reports on inspection and measurements by an authorized radiation protection expert, historical information about activities or any other information which would lead to suspicion of exposure in an area where there are residues from past activities or because of an emergency.
2. Examining the working or living environment referred to in the preceding paragraph may comprise the following measurements:
	* measurements of gamma radiation dose rate and, where appropriate, analysis of the causes of increased dose rate;
	* identification and measurements of the activity or activity concentration of radionuclides expected given the type of past activity or type of incident and, where appropriate, measurements of activity concentration in surface and underground waters in the impact zone of activities involving such materials;
	* measurements of the contamination of an area or of products originating in that area;
	* measurements of radon or thoron concentrations, and where appropriate, measurements of the concentration of their decay products, the equilibrium factor and other parameters, as well as analysis of the causes of increased of radon or thoron concentrations.
3. The nature and extent of the measurements referred to in the preceding paragraph must be selected to assess the exposure of worker or a reference group of the population, as set out in the regulation on the monitoring of radioactivity, and assess whether there is a need for measures to reduce exposures or to establish a surveillance zone. If the measurements referred to in the preceding paragraph are not sufficient to assess exposure, an authorized radiation protection expert may propose other measurements which before being implemented shall be approved by the competent administrative authority which ordered the measurements.
4. If the measurements referred to in the second and third paragraph of this Article are carried out due to residual contamination because of an emergency, measurements obtained during the emergency must also be considered when planning the measurements and measures to reduce exposure.
5. The measurements referred to in the second paragraph of this Article shall be carried out by a radiation protection expert who is authorized to carry out such measurements. After the measurements have been carried out, the authorized radiation protection expert must write a report on the measurements with an exposure assessment for workers or the population reference group, which must include at least the following:
* definition of contamination areas based on contamination measurements with a statement of the radionuclides causing the excess exposure;
* the demarcation of the areas with different dose rates;
* proposal for the demarcation and marking of areas with different levels of contamination and dose rate;
* assessment of the exposure of residents, if they remained in the contaminated area and remediation did not take place;
* assessment of the exposure of residents in the immediate vicinity of the contaminated area;
* proposal for radiation protection measures to reduce exposures and to control the spread of contamination and appropriate decontamination of people, equipment and material.

# Article 7

**(Raising awareness of exposure to natural radiation sources and past activities)**

The authority responsible for nuclear safety shall ensure the awareness of workers and members of the public by means of seminars, technical meetings and workshops and publications on exposure to natural radiation sources and the recognition of past activities that could lead to exposure.

# Article 8

**(Transitional and final provisions)**

On the entry into force of this Decree, the Decree on the programme of systematic monitoring of working and residential environments and raising awareness of the importance of measures to reduce public exposure to natural radiation sources (Official Gazette of the Republic of Slovenia, No. 19/16, 76/17 – ZVISJV-1 and 18/18) shall cease to be valid.

# Article 9

**(Entry into force)**

This Decree shall enter into force on the fifteenth day following its publication in the Official Gazette of the Republic of Slovenia.

No. 00719-32/2018
Ljubljana, 30th May 2018
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## Government of the Republic of Slovenia

**Dr. Miroslav Cerar**

Prime Minister

## Annex: Identification of practices involving naturally-occurring radioactive material

* Extraction of rare earths from monazite
* Primary iron production
* Production and processing of natural stone
* Cement and building material production, maintenance of clinker ovens
* Oil and gas production
* Geothermal energy production
* Phosphoric acid production
	+ Production of phosphate fertilizers
	+ TiO2 pigment production
	+ Production of thorium compounds and manufacture of thorium-containing products
	+ Processing of niobium/tantalum ore
	+ Thermal phosphorus production
	+ Zircon and zirconium industry
	+ Coal-fired power plants, maintenance of boilers
	+ Tin/lead/copper smelting
	+ Water pumping stations
	+ Waste water treatment plants
	+ Mining of ores other than uranium ore
	+ Aluminum production
	+ Processing of bauxite ores
	+ Processing of ferrous metals
	+ Production of heat-insulating materials
	+ Dismantling and storage of exhibits containing NORM