

Regulation on radiation protection during work activities with materials with increased concentration of natural radionuclides

(Adopted: Council of Ministers No. 229 of 25 September 2012, Promulgated: State Gazette No.76 of 5 October 2012)

Section I

General provisions

Article 1

(1) This Regulation shall establish the requirements and measures for radiation protection, control and exposure limits during work activities with materials with increased concentration of natural radionuclides, which are implemented in the industrial sectors listed in Annex I.

(2) The work activities pursuant to (1) shall include:

1. Production, processing, storage and transport of materials with increased concentration of natural radionuclides;
2. Disposal and recycling of residues listed in Annex 2;
3. Repair and disposal of technological equipment contaminated by precipitation and sorption of natural radionuclides.

Article 2

(1) For the purpose of identifying the specific work activities pursuant to Article 1 leading to exposure of workers and members of the public, which cannot be disregarded from radiation protection point of view, analysis and assessments according to Chapter II shall be performed.

(2) Measures for radiation protection shall be taken as appropriate in accordance with Chapter III, based on the analysis and assessments pursuant to Paragraph (1).

(3) Dose limits for exposure of workers and member of the public as a result of work activities with materials with increased concentration of natural radionuclides are specified in Article 9.

Article 3

(1) The requirements for control and exposure limits during production, trade and use of raw materials, products and commodities with increased content of natural radionuclides and the order of admission to the market are specified in Regulation according to Item 5 of Article 65 (1) of the Health Act.

(2) Specific requirements for management of mining waste are specified in Regulation according to Article 22 of the Subsurface Resources Act.

SECTION II

Analysis and assessment of exposure due to materials with increased concentration of natural radionuclides

Article 4

(1) An undertaking implementing activities pursuant to Article 1 shall notify the Chairman of the Nuclear Regulatory Agency and organize:

1. Performance of analysis and assessments of quantities and types of materials with increased concentration of natural radionuclides used in the work activity or a product thereof;

2. Measurement of activity concentration of materials with increased concentration of natural radionuclides used in the work activity or a product thereof;
3. Measurement of ambient equivalent dose rate at the working places and at distances of 0.1 m and 1 m from the used or produced materials with increased concentration of natural radionuclides, referred to the work activity;
4. Performance of assessment of expected doses due to external and internal exposure of the workers and members of the public;

(2) An undertaking pursuant to Paragraph 1 shall submit to the Chairman of the Nuclear Regulatory Agency description of the work activity and the results and assessment under the same Paragraph.

(3) An undertaking pursuant to Paragraph 1 shall organize a new measurement, analysis and assessment in case of change of processing technology and type of used or produced materials with increased concentration of natural radionuclides.

Article 5

Measurements referred to Item 2 and 3 of Article 4 (1) shall be performed by accredited laboratories and assessment according to Item 4 of Article 4 (1) shall be performed by qualified radiation protection experts.

Article 6

The Chairman of the Nuclear Regulatory Agency in co-ordination with Minister of Health shall take a decision in writing on the documentation within two months.

Article 7

An undertaking that intends to start work activity according to Article 1 shall submit to the Chairman of the Nuclear Regulatory Agency information concerning the work activity, activity concentrations of relevant materials and assessment of expected doses not later than two months before commencement of the activity.

Article 8

An undertaking that intends to terminate work activity according to Article 1 shall notify the Chairman of the Nuclear Regulatory Agency not later than one month before termination of the activity.

Section III

Measures of radiation protection and dose limits for work activities with material with increased concentration of natural radionuclides

Article 9

(1) The undertakings performing activities pursuant to Article 1 shall organize radiation monitoring of working environment and control of exposure of the workers performing work activities with materials with increased concentration of natural radionuclides in cases of possible exceeding the effective dose of 1 mSv in a year.

(2) In cases of exceeding the effective dose of 6 mSv in a year, the undertakings performing activities pursuant to Article 1 shall organize individual monitoring of the respective workers and shall apply radiation protection measures specified in the Regulation according to Article 26 (3) of the Act on the Safe Use of Nuclear Energy.

(3) For employees working with material with increased concentration of natural radionuclides, the effective dose limit is 20 mSv per year with observance of the limits of equivalent dose of 20 mSv per year to the lens of the eye and 500 mSv per year to the skin, hands and feet.

(4) The undertakings shall inform annually the Chairman of the Nuclear Regulatory Agency and the Minister of Health of the results of control according to Paragraph (1) and Paragraph (2).

(5) The undertakings shall notify the Chairman of the Nuclear Regulatory Agency and the Minister of Health and shall submit reports of investigation on circumstances and causes in any case, which an worker receives effective dose exceeding 6 mSv in single year.

(6) The Chairman of Nuclear Regulatory Agency and the Minister of Health shall investigate the circumstances and causes and prescribe corrective measures in any case when an worker receives effective dose exceeding 20 mSv in single year or the equivalent dose limits pursuant to Paragraph 3 are exceeded.

Article 10

The Chairman of Nuclear Regulatory Agency and the Minister of Health shall specify the radiation protection measures according to Article 9 (2) for each particular case and these may include:

1. Performance of radiation monitoring of working and surrounding environment;
2. Using the means for individual protection and radiation hygiene according to Chapter 7, Section IV defined in Regulation on radiation protection during the activities with sources of ionizing radiation (*amended: SG No 76 of 5 October 2012*);
3. Classification of employees working with materials with increased concentration of natural radionuclides according to Article 28 of the Regulation on Basic Norms of Radiation Protection (*Promulgated: State Gazette No.76 of 5 October 2012*);
4. Development of internal rules, procedures, instructions and other documents, related to restriction and control of exposure and provision for radiation protection during work activities with increased concentration of natural radionuclides;
5. Accounting and control of the materials with increased concentration of radionuclides according to types, quantities and activity concentrations;
6. Appointment of persons responsible for radiation protection and notification of emergency events.

Article 11

(1) The undertakings, performing activities pursuant to Article 1 shall inform annually the Chairman of the Nuclear Regulatory Agency and the Minister of Health about the implementation of the measures specified in Article 10 and the state of radiation protection in the respective facilities.

(2) The undertakings pursuant to Paragraph 1 shall assure access to the respective facilities to the inspectors of Nuclear Regulatory Agency and to the competent authorities of the Ministry of Health.

Article 12

(1) The Minister of Health shall assess radiation exposure of members of the public and radiation risk due to the activities with material with increased concentration of natural radionuclides, taking into account:

1. Critical group and the members of the public as a whole;
2. The expected doses of external and internal exposure, potential exposure pathways, special features and type of radionuclides, activity concentrations of radionuclides, chemical structures

and physical characteristics;

(2) The assessment according to Paragraph 1 shall be based on the results of radiation monitoring of working and surrounding environment.

(3) The competent authorities of the Ministry of Health shall exercise control of factors of working and surrounding environment in order to specify and reduce the exposure due to materials with increased concentration of natural radionuclides.

(4) The inspectors of the NRA shall carry out regular and special inspections of facilities with materials with increased concentration of natural radionuclide and may issue written directives concerning radiation protection.

Article 13

(1) The performance of work activities with materials with increased concentration of natural radionuclides is prohibited if the effective dose of any member of the public caused by liquid and gaseous discharges in environment exceeds the dose of 0.3 mSv in a year.

(2) Measures of optimization of the radiation protection during the work activities with materials with increased concentration of natural radionuclides shall be undertaken in case of:

1. Exceeding the effective dose of 0.01 mSv in a year of each member of the public, caused by liquid and gaseous discharges in the environment.

2. Exceeding the effective dose of 6 mSv in a year of workers in production conditions;

(3) The Chairman of the Nuclear Regulatory Agency in co-ordination with the Minister of Health shall specify the measures pursuant to Paragraph (2);

Section IV

Control of residues and equipment resulting from work activities with materials with increased concentration of natural radionuclides

Article 14

(1) Residues resulting from activities according to Article 1 are not subject to this regulation if the activity concentrations of residues does not exceed the levels listed in Regulation on Basic Norms of Radiation Protection (*Promulgated: State Gazette No.76 of 5 October 2012*), Annex 1, Table 3.

(2) The undertakings shall organize measurements, analysis and assessments of activity concentrations of residues to verify compliance with the levels according to Paragraph (1) and shall submit the results to the Chairman of the Nuclear Regulatory Agency.

(3) The Chairman of Nuclear Regulatory Agency shall take a decision in writing on the documentation under Paragraph (2) within one month.

(4) Mixing and dilution of residues with other materials for the purpose of reducing respective activity concentration to fulfill the levels according to Paragraph (1) shall be allowed solely by permission from the Chairman of the Nuclear Regulatory Agency in co-ordination with the Minister of Health.

(5) Residues, which have been proved to meet the requirements specified in Paragraph (1), shall be used as raw materials or building materials with observance of the requirements of the Regulation according to Item 5 of Article 65 (1) of the Health Act.

(6) Residues, which have been proved to meet the requirements specified in Paragraph (1) and

are subject to disposal, shall be treated as waste within the meaning given by the Waste Management Act.

Article 15

(1) Residues resulting from the work activities according to Article 1 with higher value of activity concentration than the levels specified in Article 14 (1), shall be stored, disposed, recycled and reused on the production site of given undertaking with observance of the requirements specified in Article 4.

(2) Residues resulting from the work activities according to Article 1, foreseen for storage, disposal, recycling or reuse outside the production site of given undertaking shall meet the following requirements:

1. The undertaking shall notify the Chairman of Nuclear Regulatory Agency of intention to store, dispose or deposit for recycling or reuse residues outside the site thereof.

2. Concerning given residue the undertaking shall submit to the Chairman of the Nuclear Regulatory Agency the following documents:

a) Results of the measurement according to Item 2 of Article 4 (1);

b) Descriptions of the type and quantity of material and work activities, which the residue arises from;

c) Justification of appropriateness of storage, disposal, recycling or reuse of residue at another facility or another site;

d) Written statement issued by the respective legal entity confirming consent and preparedness to accept material/equipment for storage, disposal, recycling or reuse;

e) Description of transport of the material from the undertaking to the envisaged site (conveyance, route, package design, loading, unloading) and description of the site.

Article 16

(1) The Chairman of Nuclear Regulatory Agency shall take a decision in writing on the documentation according to Item 2 of Article 15 (2) within two months and shall instruct and specify measures of radiation protection in co-ordinance with the Minister of Health.

(2) The Chairman of Nuclear Regulatory Agency shall specify the conditions of safety transport of materials according to Article 15.

(3) The Chairman of Nuclear Regulatory Agency shall require a statement concerning the necessity of applicable procedure from the Minister of Environment and Water in compliance with the effective statutory instruments of environmental protection for selection of a site for storage or disposal of materials according to Article 15.

Article 17

(1) Technological equipment resulting from activities according to Article 1 is not subject to this Regulation if complies the requirements pursuant to Article 14.

(2) Technological equipment resulting from activities according to Article 1 shall be deposited for scrap metal melting provided that the activity concentration of the equipment does not exceed the levels specified in Article 15 (1).

(3) If the activity concentration of technological equipment resulting from work activities according to Article 1 exceeds the levels specified in Article 14 (1), requirements of Articles 15 and 16 shall be provided.

Article 18

Residues according to Article 15 and technological equipment according to Article 17, which are subject to disposal, shall be treated as radioactive waste within the meaning of the Act on the Safe Use of Nuclear Energy if assessed radiation risk of the workers and member of the public is significant.

SUPPLEMENTARY PROVISION

§ 1. Within the meaning given by this Regulation:

1. “Disposal” means a long-term emplacement in an appropriate manner of residues or technological equipment from work activities with materials with increased concentration of natural radionuclides, without the intention of subsequent use or recycling.
2. “Material with increased concentration of natural radionuclides” means any material (raw material, product, residue, tailings or technological equipment), which contains natural radionuclides in higher concentration than in natural materials and is subject to work activity according to Article 1.
3. “Recycling” means processing of residues for the purpose of receipt of new materials suitable for use.
4. “Residue” means any material with increased concentration of natural radionuclides, produced as waste or by-product during performance of work activities according to Article 1, which may be used, recycled, stored or disposed according to the circumstances.
5. “Storage” means a short-term holding in an appropriate manner of materials with increased concentration of natural radionuclides.
6. “Undertaking” means a legal entity or natural person performing work activities according to Article 1.

TRANSITIONAL AND FINAL PROVISIONS

§ 2. Within 6 months after the entry of this Regulation into force, undertakings performing work activities according to Article 1 shall notify the Minister of Health and the Chairman of the Nuclear Regulatory Agency and shall submit the documentation according to Article 4.

§ 3. This Regulation is adopted pursuant to Article 26, Paragraph (5) of the Act on the Safe Use of Nuclear Energy.

§ 4. The Chairman of Nuclear Regulatory Agency and the Minister of Health shall exercise the control of the fulfillment of this Regulation.

Industrial sectors with identified work activities with materials subject to control of radiation protection point of view:

1. Phosphate industry – phosphorus production, production of phosphoric acid, production of phosphate fertilizers and other products through thermal and wet acid processing of phosphorite (raw phosphate);
2. Oil and gas industry – production and processing of oil and gas;
3. Cement industry – production of cement;
4. Metallurgy (pyrometallurgy) - production of ferrous and non-ferrous metals (steel, cast iron, ferromagnetic alloys, lead, zinc, copper, aluminum, tin etc.) through thermal treatment of respective metal containing ores, different from uranium ore;
5. Production of rare earth metals through ore and mineral processing (zircon, monazite, titanite, rutile, ilmenite, gadolinite etc.) and metal extraction (zircon, scandium, titanium, lanthanum etc.);
6. Production of commodities and products containing thorium and its chemical compounds (lighting, gas lamp mantles, optical lenses, welding rods, pigments, abrasive materials etc.);
7. Production of pigments and incrustations containing TiO_2 .
8. Energetic (use of organic fuels such as coal and peal, in boiler units during production of electricity in thermal power stations).

Types of residues, considered to be contaminated by precipitation and sorption of natural radionuclides during work activities listed in Annex 1 to Article 1 (1):

1. By-products and residues from phosphate industry (phosphogypsum, phosphorus slags, ferrophosphorus, precipitations, incrustations, sludge, dust and other contaminations and residues from filter equipment and heat treatment industrial installations);
2. Residue products from oil and gas industry (precipitations, incrustations, sludge from installations for production and processing of oil and gas – oil wells, platforms, oil refinery, pipelines, fitment, tanks and other technological equipment);
3. Residue products from cement industry (precipitations, incrustations, sludge from clinker kilns, dust cleansing filters and other technological equipment);
4. By-products and residues from pyrometallurgical processing of ferrous and non-ferrous metals (slags, filter dust from exhaust gas installations during agglomeration, precipitation, incrustation, scales from melting furnace and other technological equipment, tailings, sludge, cinder, ash, refractory residues from furnace repair and ore residues);
5. By-products and residues from rare earth ore processing, TiO₂ pigments, commodities and products containing thorium compounds (slags, precipitation, incrustations, sludge, dust and other contamination and residue from technological equipment and used raw materials – zircon, rutile, zircon and monazite sands and other ores and minerals);
6. Residue products from boiler units with coal combustion during thermal power stations exploitation (slag, cinder, ash, dust from cleansing filters, residue from boiler unit maintenance);
7. Residue and other materials with increased concentration of natural radionuclides, produced from former work activities according to Article 1, which have been disposed to certain sites (slag, cinder, building, metal or dust residues, technological equipment, cleansing filters, residues from used raw materials).