15 Annex - Energy

78. RULEBOOK ON REQUIREMENTS TO BE MET BY LEGAL PERSONS FOR CARRYING OUT SYSTEMATIC TESTING OF THE RADIONUCLIDE CONTENT IN THE ENVIRONMENT

RULEBOOK

ON REQUIREMENTS TO BE MET BY LEGAL PERSONS FOR CARRYING OUT SYSTEMATIC TESTING OF THE RADIONUCLIDE CONTENT IN THE ENVIRONMENT

(Official Gazette of the Federal Republic of Yugoslavia 32/98, 67/2002 and 70/2002 - corr.)

I BASIC PROVISIONS

Article 1

This Rulebook shall prescribe requirements in regard to staff, equipment and space to be met by legal persons for carrying out systematic testing of the radionuclide content in the environment in regular conditions, in case of suspected emergency and during emergency.

Legal persons referred to in the Paragraph 1 of this Article shall carry out systematic testing of the radionuclide content by measuring the degree of external radiation, gamma-spectrometric measuring of radionuclide content in the samples from the environment, testing the content of tritium and strontium in the environment samples and measuring radon content in the air.

Article 2

Instruments used for measurements for the purpose of systematic testing of the radionuclide content in the environment must meet the prescribed metrological requirements.

II TESTING THE DEGREE OF THE EXTERNAL RADIATION

Article 3

Legal persons shall be able to carry out testing the degree of the external radiation by measuring the intensity of absorbed dose of gamma radiation in the air and by measuring the absorbed dose of gamma radiation in the air providing they have:

a) Staff:

1) electrical engineers – with specialisation in technical physics, i.e. medical and nuclear technical engineering or persons with a degree in physics or in physical chemistry with a masters or specialisation in protection against ionising radiation and three years of working experience on tasks of protection against ionising radiation;

2) electrical engineers – with specialisation in technical physics or persons with a degree in physics or in physical chemistry, with three years of working experience on tasks of protection against ionising radiation and trained for carrying out measures for protection against ionising radiation;

3) persons who have acquired at least IV degree of professional education in electro-technical and mathematical sciences, trained for carrying out measures for protection against ionising radiation;

b) Equipment:

1) dosimeter for continual measuring of intensity of absorbed dose of gamma radiation in the air (from 0.1 mGy/h to 15 mGy/h) with resolution of 0.01 mGy/h;

2) TL dosimeters which meet metrological requirements for measuring of absorbed dose of gamma radiation in the air in the environment;

3) TL reader;

4) radioactive etalon source for calibration of TL dosimeters;

5) computer for processing and recording findings;

c) Space:

1) facilities for dosimeters reading;

2) facilities for calibration of dosimeters and appropriate space for safekeeping of calibration sources of ionising radiation;

3) facilities for processing findings.

III GAMMA SPECTROMETRIC TESTING OF THE RADIONUCLIDE CONTENT IN THE ENVIRONMENT SAMPLES

Article 4

Legal persons shall be able to carry out gamma spectrometric testing of the radionuclide content in the environment samples (air, solid and liquid precipitation, rivers, lakes, seas, soil, drinking water, food, objects of common use, livestock food and construction material), providing they have:

a) Staff:

1) electrical engineers – with specialisation in technical physics, or persons with a degree in physics or in physical chemistry with a masters or specialisation in protection against ionising radiation and three years of working experience on tasks of protection against ionising radiation;

2) electrical engineers – with specialisation in technical physics or persons with a degree in physics or in physical chemistry, with three years of working experience on tasks of protection against ionising radiation and trained for carrying out measures for protection against ionising radiation;

3) persons who have acquired at least IV degree of professional education in mathematical and natural sciences, major in physics or chemistry, trained for carrying out measures for protection against ionising radiation;

b) Equipment:

1) semi-conduction gamma spectrometer with computerised data processing, the efficiency of which is no less than 18%, and resolution is 1.8 keV at the energy of 1.33 MeV in low-phonic protection which must enable lowering of the phon to a maximum of three impulses in a second for an energetic scope of 40 keV to 2700 keV and efficiency of 18%;

2) scintillation gamma spectrometer with NaI detector 3x3 inches, resolution of 6.8% and efficiency of 8.7% for 137Cs with computerised data processing;

3) set of radioactive etalon sources for calibration;

4) equipment for sample preparing (dryer, incandescence kiln, spring-balance, grinder, pairing system);

5) standard laboratory instruments and vessels;

6) system for taking samples of the air with air flow of at least 300 m3 per 24 hours;

7) computer;

c) Space:

1) Facilities for sample preparation;

2) Facilities for washing laboratory instruments and vessels;

3) low-phonic laboratory;

4) facilities for processing of findings;

5) facilities for sample storing.

The legal person that performs only tasks on gamma spectrometric testing of the radionuclide content in samples of foodstuff originated from plants and animals and livestock food must, apart from the requirements referred to in the Paragraph 1 of the Item 1 of this Article employ either a veterinarian with a doctor's degree in protection against ionising radiation with 5 years of relevant working experience on tasks of protection against ionising radiation and trained for carrying out measures for protection against ionising radiation.

IV TESTING OF THE TRITIUM CONTENT IN THE ENVIRONMENT SAMPLES

Article 5

Legal persons shall be able to carry out testing of the tritium content in the environment samples (rivers), providing they have:

a) Staff:

1) persons with a degree in physical chemistry or chemistry, who have a masters or have specialised in protection against ionising radiation and three years of working experience on tasks of protection against ionising radiation;

2) persons with a degree in physical chemistry or physics, with three years of working experience on tasks of protection against ionising radiation and trained for carrying out measures for protection against ionising radiation;

3) persons who have acquired at least IV degree of professional education in chemistry, trained for carrying out measures for protection against ionising radiation;

b) Equipment:

1) equipment for enrichment of the tritium content in the environment samples;

2) liquid scintillation counter for low-energetic beta emitters;

3) set of radioactive etalon sources for calibration;

4) computer;

c) Space:

1) laboratory facilities for preparation of samples which meets the requirements for radiochemical laboratories;

2) facilities for washing laboratory instruments and vessels;

3) facilities for sample measuring;

4) facilities for sample storing;

5) facilities for processing of findings.

V TESTING OF THE STRONTIUM CONTENT IN THE ENVIRONMENT SAMPLES

Article 6

Legal persons shall be able to carry out testing of the strontium content in the environment samples (air, solid and liquid precipitation, rivers, lakes, seas, soil, drinking water, food, objects of common use, livestock food and construction material), providing they have:

a) Staff:

1) persons with a degree in physical chemistry or chemistry, who have a masters or have specialised in protection against ionising radiation and three years of working experience on tasks of protection against ionising radiation;

2) persons with a degree in physical chemistry or physics, with three years of working experience on tasks of protection against ionising radiation and trained for carrying out measures for protection against ionising radiation;

3) persons who have acquired at least IV degree of professional education in chemistry, trained for carrying out measures for protection against ionising radiation;

b) Equipment:

1) proportional low phonic beta counter;

2) standard laboratory equipment for sample preparation (dryer, incandescence kiln, spring-balance, centrifuge);

3) standard laboratory vessels;

4) system for taking samples of the air with air flow of at least 300 m3 per 24 hours;

5) set of radioactive etalon sources for calibration;

6) computer;

c) Space:

1) laboratory for preparation of samples which meets the requirements for radiochemical laboratories;

2) facilities for washing laboratory instruments and vessels;

3) facilities for sample measuring;

4) facilities for processing of findings;

5) facilities for sample storing.

VI TESTING OF THE RADON CONTENT IN THE AIR

Article 7

Legal persons shall be able to carry out testing of the radon content in the air in spaces people spend time in and in the working environment providing they have:

a) Staff:

1) persons with a degree in physical chemistry or in physics or electrical engineers – with specialisation in technical physics, with a masters or specialisation in protection against ionising radiation and three years of working experience on tasks of protection against ionising radiation;

2) persons with a degree in physical chemistry or in physics or electrical engineers – with specialisation in technical physics, with three years of working experience on tasks of protection against ionising radiation and trained for carrying out measures for protection against ionising radiation;

3) a person who have acquired at least IV degree of professional education in chemistry, trained for carrying out measures for protection against ionising radiation;

b) Equipment:

1) diffusion radon chamber with trace detectors or an electronic ion chamber or a system for collecting samples with carbonic adsorbers with appropriate gamma spectrometric equipment or a silicon (Si) semi-conducting detector or a scintillation radon chamber;

2) appropriate system for calibration;

c) Space:

1) laboratory facilities;

2) facilities for processing of findings.

VII TESTING OF THE DEGREE OF THE ENVIRONMENT CONTAMINATION IN CASE OF SUSPECTED EMERGENCY AND DURING AN EMERGENCY

Article 8

Legal persons shall be able to carry out testing of the degree of the environment contamination in case of a suspected emergency and during an emergency providing that, apart from meeting the requirements referred to in the Articles 3, 4 and 6 of this Rulebook, they also have:

1) portable air sampler;

2) sampling filters 131I;

3) alpha spectrometric system.

VIII CONCLUDING PROVISIONS

Article 9

78. RULEBOOK ON REQUIREMENTS TO BE MET BY LEGAL PERSONS FOR CARRYING OUT SYSTEMATIC TESTING OF THE RADIONUCLIDE CONTENT IN THE ENVIRONMENT

This Rulebook shall come into effect on the eight day upon its publication in the Official Gazette of the Federal Republic of Yugoslavia.