



Hheads of the European Radiological
protection Competent Authorities

Implementation of Radiation Protection Expert and Radiation Protection Officer

HERCA Task Force on Education and Training on Radiation Protection

Exchange on National Approaches Relating to the Implementation of the Euratom BSS on REP/RPO

Approaches Relating to the Implementation of the BSS on RPE/RPO in Hungary

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RPE in the current Hungarian legislation

Article 4 (73) "radiation protection expert" means **an individual** or, if provided for in the national legislation, a group of individuals having the **knowledge, training and experience** needed to give **radiation protection advice** in order to ensure the effective protection of individuals, and whose competence in this respect is recognised by the **competent authority**

I. Authorities responsible for RPE recognition

Hungarian Chambers of Engineers

→ For Hungarian citizens

Hungarian Atomic Energy Agency

→ For foreign citizens (outside of EEA)

Health Registration and Training Center

→ No specification

Ila. RPEs recognized by the Hungarian Chambers of Engineers

Expert in radiation protection

Expert in radiation preparedness

Expert in radiation quality assurance

Ilb. RPEs recognized by the Hungarian Atomic Energy Agency

- Recognition for citizens of non-EEA countries only
- Case-sensitive, permits are released on a case-by-case basis

Ilc. RPEs recognized by the Hungarian Health Registration and Training Center

Expert in radiation protection

III. Criteria for RPE independence and compatibility

(defined only for RPE recognized by IIa and IIb)

RPE cannot act as expert if:

- Is employed by the undertaking for which expertise is needed
- Is member of the management or of supervisory board of the undertaking for which expertise is needed
- Shares ownership in the company for which expertise is needed
- If one of the above mentioned criteria apply for a close relative or partner of RPE
- If RPE took part in the preparation of the documentation for which RP advice is needed

RPE has to declare prior to giving the advice that he/she fulfills all compatibility criteria

IV. Competence of RPE

RPEs recognized by the Hungarian Chambers of Engineers

Expert in radiation protection

Fields of competence:

- Radiation doses and dosimetry
- Biological effects of ionizing radiation
- Norms of radiation safety
- Technical parameters of radiation protection
- Calculation of biological protection
- Nuclear measuring technology, methods for measuring ionizing radiation, detector types, spectrometry, radiography
- Radioactive waste management

Education and training:

1. BSc or MSc
 - Mechanical engineer
 - Electric engineer
 - Energy engineer
 - Environmental engineer
 - Chemical engineer/chemist
 - Bioengineer
 - Health engineer
 - Physicist/physicist-engineer
 - IT
 - Medical doctor
 - Physics/chemistry teacher
2. OR professional engineer
3. OR postgraduate qualification equivalent with 1 or 2.

**AND comprehensive level
radiation protection training course**

Fields of expertise:

- Research,
- Measurement
- Analysis
- Prevention of accidents in radiation protection
- Supervision of nuclear safety

IV. Competence of RPE

RPEs recognized by the Hungarian Chambers of Engineers

Expert in radiation preparedness

Fields of competence:

- Accident preparedness
- Preparation of action plans
- Estimation of dose source
- Calculations of spreading of radioactivity
- Reducing the effects of radioactive exposure and contamination

Education and training:

1. BSc or MSc
 - Mechanical engineer
 - Electric engineer
 - Energy engineer
 - Environmental engineer
 - Chemical engineer/chemist
 - Bioengineer
 - Health engineer
 - Physicist/physicist-engineer
 - IT
 - Medical doctor
 - Physics/chemistry teacher
 - *Postgraduate qualification in disaster management*
2. OR professional engineer
3. OR qualification equivalent with 1 or 2.

AND comprehensive level radiation protection training course

Fields of professional experience:

- Technical and administrative planning, organization and carry-out of nuclear radiation preparedness,
- Preparation, conduction and interpretation of nuclear radiation preparedness exercises
- Participation in the decisions concerning nuclear radiation preparedness

IV. Competence of RPE

RPEs recognized by the Hungarian Chambers of Engineers

Expert in radiation quality assurance

Fields of competence:

- Planning, supervising and operating of quality management systems
- Quality control and conformity assessment
- Supervision of quality assurance of ongoing projects

Education and training:

1. BSc or MSc
- Quality assurance engineer
 - Professional quality engineer

Fields of professional experience:

- Planning and supervising activity in the field of quality control and assessment,
- Proven experience in supervising and analysing nuclear safety based on internationally accepted codes
- Publications, presentations, validated reports in the field

Required professional experience:

BSc: 8 years

MSc: 5 years

Further requirement:

comprehensive level radiation protection training course

IV. Competence of RPE

RPEs recognized by the Hungarian Health Registration and Training Center

Expert in radiation protection

Fields of competence:

- Not specified
- „Person with outstanding professional experience”

Education and training:

1. Secondary education
2. Higher education

Fields of professional experience:

- Not specified

Required professional experience:

secondary education: 10 years

higher education: 5 years

Permits of expertise are valid for 5 years

Open questions, fields of harmonisation with BSS

- Definition of RPE tasks in conformity with BSS
- Uniform recognition of RPE

Medical physics expert in the current Hungarian legislation

Article 4 (49) "medical physics expert" means an **individual** or, if provided for in national legislation, a group of individuals, having the **knowledge, training and experience** to act or **give advice on matters relating to radiation physics applied to medical exposure**, whose competence in this respect is **recognised by the competent authority**

Tasks of medical physics experts:

- Participate in the planning and carry-out of radiotherapy activities
- Dosimetry
- Quality control and assurance
- Radiation protection

Education and training requirements:

BSc or MSc in physics + 2 years of special medical physics education

**Medical physics
(expert)**



Need for harmonization!!

RPO in the current Hungarian legislation

Article 4 (74) "radiation protection officer" means an individual who is technically competent in radiation protection matters relevant for a given type of practice to supervise or perform the implementation of the radiation protection arrangements

- The Radiation Protection Service shall, as minimum, be made up of one Radiation Protection Officer +/- a deputy (depending on the type of licencing procedure of the workplace).
- The radiation protection qualification of the RPO shall comply with the highest qualification requirements specified for the employees of the organisational unit.
- The RPO and its deputy shall be entrusted with this work by the employer in writing. A copy of the letter of commission shall be a submitted to the Regional Radiation Protection Department, which also keeps a register of RPOs.
- The control and supervision of the organisation and operation of the RPO will be performed by regional Radiation Protection Departments.

Duties of RPOs (I)

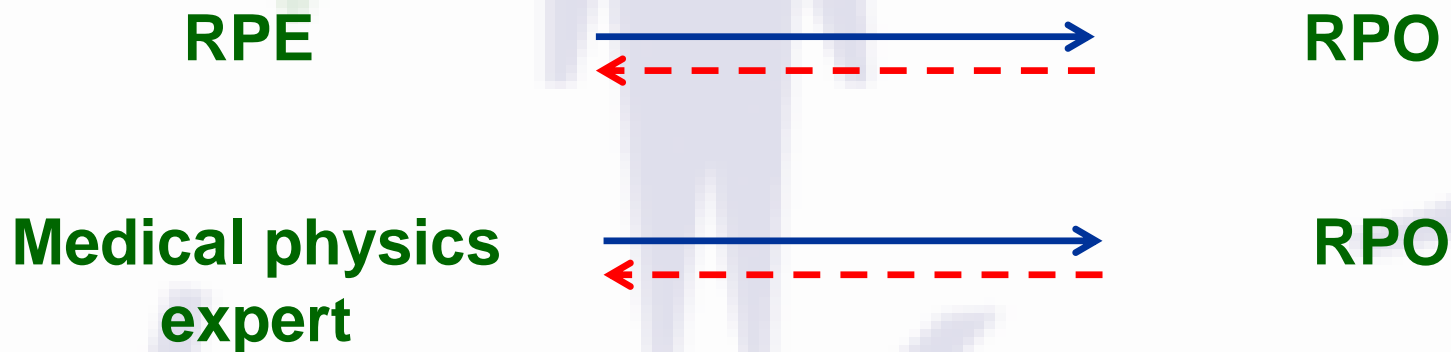
1. Recording, renewal, or modification of the authority licenses of the facility and initiation of the withdrawal in case of cessation of the activity.
2. For employees working on a work site exposed to radiation hazard:
 - a. organization of the RP training,
 - b. arrangement for the health fitness examinations and record keeping
 - c. organization of the personal radiation exposure monitoring and recording of the results.
3. Approval to radioactive material orders, acceptance of the materials and inspection of the use, organisation and recording of the removal. Inspection of the site transport of radioactive material.
4. Elaboration, or providing for the elaboration of the related radiation protection requirements if new radiation hazardous procedure, method is introduced, and approval to the adaptation of the new procedure.
5. Providing for the regular maintenance and calibration / verification of the radiation protection instrumentation as specified by a separate law.

Duties of RPOs (II)

6. Inspection of the contingent radioactive contamination of the work and governing the decontamination work.
7. Reporting, together with proposals for the solution, of problems to the manager of the organisational unit or the facility if the action to be taken is beyond the competence of the RPO
8. Proceeding in accordance with accident prevention plans in case of a radiation accident/incident.
9. Supervision of the collection, storage and handling of radioactive wastes and control and recording of the activity of solid, gaseous and liquid materials discharged from the work site or organisational unit.
10. Recording of the measurements and measurement protocols to be performed after repair and maintenance works affecting the radiation protection.
11. Monitoring of the environment of the facility from radiation protection point of view.
12. Participation in the labour protection audits and authority inspection of works sites exposed to radiation hazard.

Duties of RPOs (III)

13. Contact with the authorities and data supply for the authorities.
14. Fulfilling the reporting responsibilities provided in the decree and other legal regulations.
15. Completion of all radiation protection tasks required by legal regulations



Radiation protection qualification system in Hungary

Persons performing conducted work in the field of the use of the nuclear energy must possess radiation protection qualification provided by radiation protection training courses.

Three levels of radiation protection qualifications depending on the risk associated with the completion of the work:

Basal level of radiation protection

- Persons who fulfil a job associated with activities exposed to radiation hazard, but do not perform work with radiation sources

Professional requirements of the training:

- | | |
|-------------------------------------|----------------|
| 1. Radiation Physics principles: | min. 2 lessons |
| 2. Radiation protection principles: | min. 4 lessons |
| 3. Consultation: | min. 2 lessons |

Advanced level of radiation protection

- fulfil a job, handle radiation sources independently, or supervise such work in industrial or medical fields using ionizing radiation, including unsealed or sealed radiation sources,
- work in a health welfare institute using ionizing radiation,

Professional requirements of the training:

1. Radiation Physics and dosimetry principles: min. 4 lessons
2. Health Physics principles: min. 2 lessons
3. Radiation protection principles, dose limits, authority monitoring system: min. 12 lessons
4. Nuclear accident prevention: min. 2 lessons
5. Practice: min. 2 lessons
6. Consultation: min. 4 lessons

Comprehensive level of radiation protection

- independently fulfil or manage or supervise activities accompanied by risk of high exposure to ionising radiation, or monitor such activities from radiation protection point of view.
- are involved in the planning of the radiation protection of work sites exposed to radiation hazard or in the evaluation such schedules from radiation protection point of view.
- are involved in the design, management or supervision, from radiation protection point of view, of medical therapy procedures using ionizing radiation, in health welfare institutes,
- perform authority inspections of work sites exposed to radiation hazard,
- perform RPE activities,
- give lectures or conduct examinations for advanced or comprehensive grade radiation protection trainings,
- are authorised managers, in the field of nuclear accident prevention entitled to give instructions in emergency.

Professional requirements of the training:

- | | |
|--|-----------------|
| 1. Radiation Physics principles: | min. 6 lessons |
| 2. Health Physics principles: | min. 6 lessons |
| 3. Radiation protection principles, dose limits, authority monitoring system, radiation accidents and medical attendance of radiation injured persons: | min. 18 lessons |
| 4. Nuclear accident prevention: | min. 2 lessons |
| 5. Practice: | min. 4 lessons |
| 6. Consultation: | min. 4 lessons |

All radiation protection qualifications are valid for 5 years and re-training courses are needed thereafter

Open questions, fields of harmonisation with BSS

**Introduction of a course on radiation protection in
the basic curriculum of medical and dental schools**

(Special courses depending on the field of application)

Preparations for the implementation of BSS regarding RPE/RPO:

Fundamental reorganization of the nuclear energy monitoring and supervision system in Hungary (valid from January 1, 2016)

- **Necessary legislative changes are on-course**
- **All legislative changes are BSS-conform**