

Radiation Protection Training in Germany - National Views -

A. Schmitt-Hannig⁽¹⁾, R. Sefzig⁽²⁾

(1) Bundesamt für Strahlenschutz, Neuherberg, Germany

***(2) Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit, Bonn,
Germany***



Radiation Protection Training in Germany

In Germany, each licensee needs at least one person who is in charge of radiation protection matters in relation to the licensee's type of 'practice'. This person, who could be for example a technician, an engineer, a physicist, a medical doctor etc., needs

- adequate education and training in radiation protection depending on the type of practice and on his/her qualification and radiation protection tasks;

Radiation Protection Training in Germany

- practical experience in a typical relevant practice, in general some months (i.e. for small sources) up to 2 years (i.e. medical physicists or radiation protection personnel in nuclear power plants) or 3 years (i.e. for medical therapy - this time may be included in the physician's professional training as a specialist in a specific therapeutic field);
- task specific training courses in radiation protection (mainly legal requirements, guidelines, practical issues) lasting from some days up to several weeks, ending with an examination; the training centres providing the courses need accreditation by the competent authority.



Guidelines (GL) concerning the expert knowledge in radiation protection

MEDICAL AREA

- GL „Radiation Protection in Medicine“
- GL on the „Qualified Competence according to the X-Ray Ordinance“
- GL on “Medical Surveillance of Occupationally Exposed Persons”
- GL on “Radiation Protection in Veterinary Medicine”

INDUSTRY and RESEARCH

- GL on the „Qualified Competence in Radiation Protection“
- GL on the „Qualified Competence for the Operation of Non-Medical X-Ray Units“

NUCLEAR AREA

- GL on the „Qualified Competence of Personnel in Charge of Radiation Protection in NNP and other Nuclear Installations”
- GL on the “Demonstration of Qualified Competence of NNP Personnel”
- GL on the “Demonstration of Qualified Competence of Research Reactor Personnel”

Necessary Information for Occupationally Exposed Workers

- Information about
 - radiation hazards and safety precautions
 - important subjects of the regulations
- Instructions at regular intervalls (6 months)
- Special training and continuing education for radiographers, employees of firebrigades and police

Expert Knowledge of Radiation Protection Supervisors

Expert knowledge is composed of:

- Theoretical knowledge
- Practical experiences

Vocational education

Vocational experiences

Radiation protection courses

Differentiation Criteria for Expert Knowledge

- **Activity of radioactive substances**
- **Mode of radioactive substances** (sealed/unsealed)
- **Kind of radioactive substances** (nuclear fuel, other substances)
- **Field of work** (X-ray, nuclear engineering, medical and technical applications, e.g. measurement technique, control engineering, non-destructive testing, handling of radio-nuclides in laboratories, radiation sources in schools)

Expert knowledge - Application of sealed radioactive sources

Expert knowledge	Minimum period of vocational experience dependant on the vocational education in months				Radiation protection course
	no sw	e, m	gu, gc	Duration	
CL: clearance level Vocational education					
2 Application of sealed radioactive sources					
21 Use and storage of devices with r. s ($A \leq 10^5$ -times the CL)	3	0	0	14h	
22 Handling of r. s ($A \leq 10^5$ -times the CL)	12	3	0	26h	
23 Handling of r. s (if not covered by 21 or 22)	-	12	3	39h	

sw skilled worker; e, m engineer, master; 0 no vocational experience necessary
gu, gc: graduate from university, technical college; no no technical degree
- not provided by the corresponding vocational education;

Expert knowledge - non-destructive testing with sealed radioactive sources

Expert knowledge	Vocational education	Minimum period of vocational experience dependent on the vocational education in months				Radiation protection course
		Nb	sw	e, m	gu, gc	duration
	3 Nondestructive testing (with sealed radioactive sources)					
	31 Radiation protection supervisor with restricted competence (at changing places of work) (RPA)	12	6	3	3	32h
	32 Radiation protection supervisor with overall responsibility	-	12	6	3	38h

sw skilled worker; e, m engineer, master; 0 no vocational experience necessary
 gu, gc: graduate from university, technical college; no no technical degree
 - not provided by the corresponding vocational education;



Expert knowledge - Application of unsealed radioactive sources

Expert knowledge		Minimum period of vocational experience dependent on the vocational education in months				Radiation protection course duration
		no	sw	e, m	gu, gc	
CL: clearance level						
Vocational education						
4	Application of unsealed radioactive sources					
41	Handling of r. s ($A \leq 10^5$ -times the CL)	24	9	6	3	39h
42	Handling of r. s ($A > 10^5$ -times the CL)	-	24	9	6	54h
43	Handling of nuclear materials	-	-	9	6	60h

sw skilled worker; e, m engineer, master; 0 no vocational experience necessary
 gu, gc graduate from university, technical college; no no technical degree
 - not provided by the corresponding vocational education;



Recognition

If the prerequisites are fulfilled (appropriate verification and certificates are required) the person is recognised (assessment of proofs and certificates) by the competent authority (or an appropriate institution when the competent authority has delegated the recognition) either

- in an individual accreditation document (physicians or medical physicists); or
- within the scope of licensing procedures, for all other persons trained - or later on, when persons change,
- via reporting to the competent authorities.

Accreditation for all persons trained as well as subsequent regular 'refreshment' of training every 5 years is required in the Radiation Protection Ordinance and in the X-Ray Ordinance.

Strengths and weaknesses

The strength of this system is that each person in charge of radiation protection matters receives, in a very efficient way and specific for all types of practices, country-wide the equivalent qualification to perform their work safely.

A weakness of the system may be its complexity which makes it difficult to leave flexibility for the recognition of qualifications acquired abroad.

Conclusion

In order to achieve an equivalent level of qualified competence in radiation protection in Europe, action has to be taken, beyond national systems and different approaches, to harmonize curricula, duration and recognition of the qualification and experience acquired in courses and during practical training within Europe. The formulation of European guidelines for minimum requirements of content, duration and recognition of training incorporated in the regulatory framework could be a first step to a more uniform approach.

Expectations

It is expected that the EUTERP platform will help to harmonize radiation protection education and training in Europe by defining the role of radiation protection experts and establishing criteria for the mutual recognition of their qualification within Europe.

Expectations

- sustainability of the platform

1 What do we expect from EUTERP?

- exchange of information: be informed about other countries' regulatory requirements including planned revisions or modifications, training events (courses, OJT opportunities) in RP,
- facilitation of participating in foreign training events
- facilitation of mutual recognition of qualified competence

Expectations

- sustainability of the platform

2 How can we support EUTERP?

- contributing to platform activities
(discussions/opinions/statements by email, specific tasks on request, participation to workshops and meetings)
- financial support: majority of EUTERP countries share coordination costs for an initially fixed period of time (2-3 years for example), continuation depending on evaluation results

Expectations

- **approach to mutual recognition in relation to E&T**
- by recognising the “profession” (RPE, MPE, RPO)
- by recognising the parts of the qualification (education, work experience, RP courses)

Expectations

- consequences of the implementation of the RPE and RPO in the BSS

In Germany, the existing system does not need to be changed, some adjustments will do.

In addition to the definition of the RPE and RPO and the description of their role and function, the minimum requirements for their qualification and the content and duration of courses and OJT/work experience have to be clarified.