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Consequences of the New Slovenian Legislation on Radiation Protection and Nuclear Safety for Radiation Protection Training

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ABSTRACT

The paper presents brief description of the old Slovenian regulations and an overview of the new, harmonised regulations in the field of radiation protection training. The most important novelties were pointed out with possible consequences for the implementation of radiation protection training. Some suggestions on how to overcome transitional problems and how to improve training were also given.

1 INTRODUCTION

Radiation protection training has always been recognised as one of the most important factors for implementation of radiation protection in practice. While the radiation protection principles and international recommendations have been implemented in legislation and regulating documents, as well as in different technical papers related to the use of sources of ionising radiation, it is the training that transfers knowledge and skills to end-users of sources. This is also valid for Slovenian legislation and practice, which has now long and quite solid experience that was formalised in the legislation at the beginning of the eighties with the start of operation of Krško Nuclear Power Plant. The aim of the regulation involved was to make legal training for radiation protection officers and Krško NPP staff, which had been already developed.

The second important change happened just recently. It was the consequence of the accession to European Union. One of the segments in the harmonisation of Slovenian legislation before accession to European Union was also law and regulations in the field of radiation protection. Apart from Euratom Treaty [1], which is the regulatory basis for EU regulations in this field, the most important documents in EU are Council Directive 96/29/Euratom of 13 May 1996 [2], laying down basic safety standards for the health protection of the general public and workers against the dangers of ionizing radiation, and Communication from the Commission concerning the implementation of Council Directive 96/29/Euratom [3].

In all these documents, only the general request has been established for countries to arrange for relevant training in the field of radiation protection to be given to occupationally exposed workers, apprentices and students. Request for training and education of qualified experts has been elaborated in more details in the Communication from the Commission enlisting the basic knowledge of a person qualified for implementation of radiation protection principles in the practice. Consequently, radiation protection training in EU countries has been regulated and implemented in dissimilar ways, even if the main objectives of training have been compatible and achieved to the comparable level.

Therefore, it was not possible for us simply to adopt some “standard” approach or introduce some “standard” programs. This has become a part of harmonisation, where entire new legislation in the field of radiation protection and nuclear safety has been developed, including the basic Act On Ionising Radiation Protection And Nuclear Safety [4] and supplementary regulations. While some regulations are still to come, the regulation related to radiation protection training [5] already has been adopted and it is possible to compare it with the old one [6], and to evaluate some consequences for the radiation protection training in Slovenia.

2 RADIATION PROTECTION TRAINING PRECEDING THE HARMONISATION OF LEGISLATION

2.1 Background

Regulatory basis for radiation protection training, as implemented in last two decades, was established in year 1981 with the special regulation related to requirements for education and training of all occupationally exposed workers, i.e. radiation protection professionals and radiation workers [6]. This regulation has been adopted as supplement to federal regulation from year 1977. As we mentioned, the adoption of the regulation was connected with the start of operation of Krško NPP. The regulation was general and not very extensive, but it covered all fields of use of ionising radiation.

2.2 Regulation From 1981

Apart for the general syllabus to be covered, the training for specific groups of occupationally exposed workers has been regulated for the duration (Figure 1) and the responsibility for contents and implementation has been transferred to authorised organisations. This authorisation was "universal" and based on recognition of the competency for radiation protection tasks in general. Republic Committee for Health and Social Security has been appointed for the approval of the drafts for training programs and approval of examination boards in authorised organisations. Other than that, there was no other formal involvement from the state.

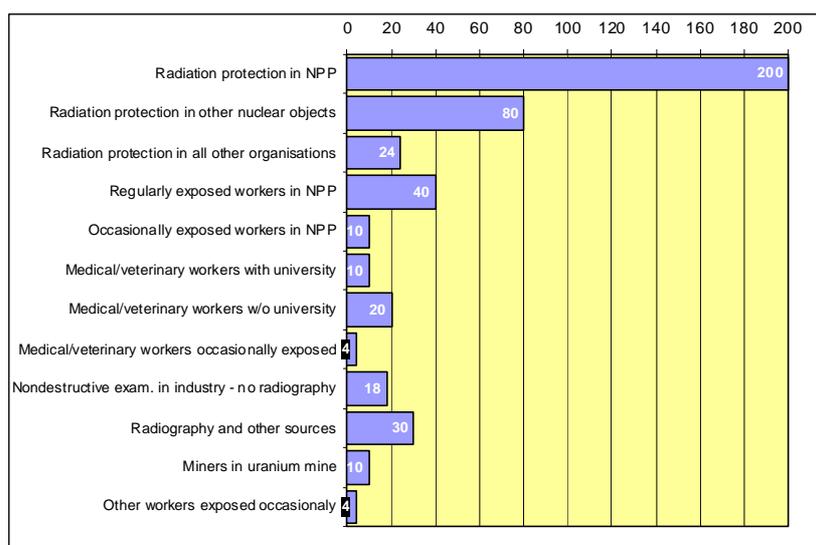


Figure 1: Required course duration according to 1981 Regulation (in hours).

The Regulation introduced the term “occasionally exposed workers”. Their training was shorter, and could be implemented in licensed organisations, but in cooperation with the authorised organisation.

The Regulation was very brief regarding the training of radiation protection professionals: only request for level of education and duration of training has been mentioned. Authorised organisations were also approved to implement training of radiation protection professionals. Formally, there was no difference between them and other occupationally exposed workers, but due to the demanding implementation, the training has never been implemented properly for radiation protection professionals from nuclear installations.

The need for retraining has been recognised, but not implemented. In general, just request for re-examination every five years has been established, and every two years for radiation protection professionals.

We can say that, in spite of being very short, this Regulation was not defective. Although briefly, it covered all aspects of training, and has established training courses which need not be changed extensively to comply with requirements of new Regulations.

3 RADIATION PROTECTION TRAINING IN HARMONISED LEGISLATION

3.1 Structure of Regulations

There are three documents in harmonised regulation, which are regulating radiation protection training. The first one is the basic document of harmonised legislation, i.e. Act On Ionising Radiation Protection And Nuclear Safety [4] (we will refer to it as to *the Act*). The second one, Regulation On Obligations Of A Person Carrying Out Radiation Practice And Holder Of Source Of Ionizing Radiation [5] (*the Regulation*) directly regulates radiation protection training. The third, Regulation On Approval Of Persons Performing Expert Tasks In The Field Of Ionizing Radiation [7] (*the Regulation on Approval*), covers requirements for approval of legal and natural persons for implementing radiation protection training.

The basic Act establishes solid requirement for radiation protection of workers, and among the enlisted elements, there are also training and acquaintance of workers with radiation protection issues. Persons, who have been **approved as radiation protection experts**, the new category introduced with the Act, should perform training. This introduction of approved radiation protection experts (and also **approved experts in medical physics** and **approved experts in radiation and nuclear safety**) has been one of the novelties of the Act. One very important aspect of this introduction is, that the State has expressed commitment *to ensure resources for the financing the training of approved experts in radiation protection, approved experts in medical physics, approved experts in radiation and nuclear safety and the development of studies and independent expert reviews and international expert cooperation in the field of protection against ionising radiation and nuclear safety* [4].

The Act has transferred responsibilities for control of the training and criteria for approval of experts to the minister competent for health and to the minister competent for the environment. They have issued aforementioned Regulations, establishing legal framework for training in radiation protection according to the new, harmonised legislation.

3.2 Approval for Establishing Radiation Protection Training

According to the Regulation on Approval, only legal person could be approved to perform and implement training in radiation protection. It must have **approved training program**, as defined in the Regulation related to training, and at least a half of staff involved should be **approved for presenting subjects in radiation protection** (i.e. he/she should be

approved radiation protection expert for training). Altogether, threefold approval (trainers, programs, legal person - organisation) is necessary for the beginning of radiation protection training.

Novelty in the Regulation on Approval is also the request that legal person - organisation - should have Quality assurance program established and operative.

3.3 Implementation of Training

The new Regulation related to radiation protection training is much more elaborated and detailed than the previous one. It has a section dedicated to the training of radiation protection professionals - persons working in radiation protection organisational units and persons responsible for radiation protection in smaller organisations and a section dedicated to the training of radiation workers.

According to the Regulation, organisation of training for radiation protection professionals and radiation workers, as well as implementation, should be covered in similar way through approved programs and approved legal persons – organisations. Exemption regarding occasionally exposed workers allows employers to perform training, but in cooperation with approved radiation protection experts. In all cases, involvement of the facility operator for the facility particularities is required.

Apart from the extent, the main difference in implementation of training programs for professionals and others is in the final examination. For that purpose, the Regulation has anticipated creation of special Commission, which should verify and approve all final exams for all training programs, and will be directly involved in final oral exams for professionals. This particular exam will have status of the state exam.

For all workers there should be re-examination on regular basis (every two years for majority of professionals and every five years for the rest and other occupationally exposed workers), but as in the old Regulation, there is no obligatory retraining.

3.4 Training Programs

Appendix to the Regulation holds extensive and comprehensive lists of training programs and topics to be covered. In the process of approval of a training program, organisation applying for the approval should demonstrate compliance of submitted program with the recommended syllabus in the Appendix.

There are four groups of programs in the Appendix. The first group of programs is related to nuclear and radiation facilities. The second group is related to medical use of sources of ionising radiation. The third group covers exposure to natural sources and the fourth different industrial sources, as well as practices in research institutions. Each of these programs is divided into general and specialised part, where general parts are similar or equal for different programs within each group of programs and topics particular to that program should be covered in specialised part of the training.

There is also an addition to the program for persons who are responsible for radiation protection in non-nuclear or non-radiation facilities.

Figure 2 presents the list of all programs, which are described in Regulation, and required durations of defined programs. If we compare Figure 2 with Figure 1, where training programs according to the old Regulation were enlisted, the first thing noticed is larger number of programs. Old programs for medical and industrial use of sources have been differentiated into number of specialised programs, while the distinction according to previous education has disappeared.

Some programs, like programs related to medical therapy, nuclear medicine, industrial radiography or use of unsealed sources of Category I and II, have been significantly extended in comparison to the old requirements.

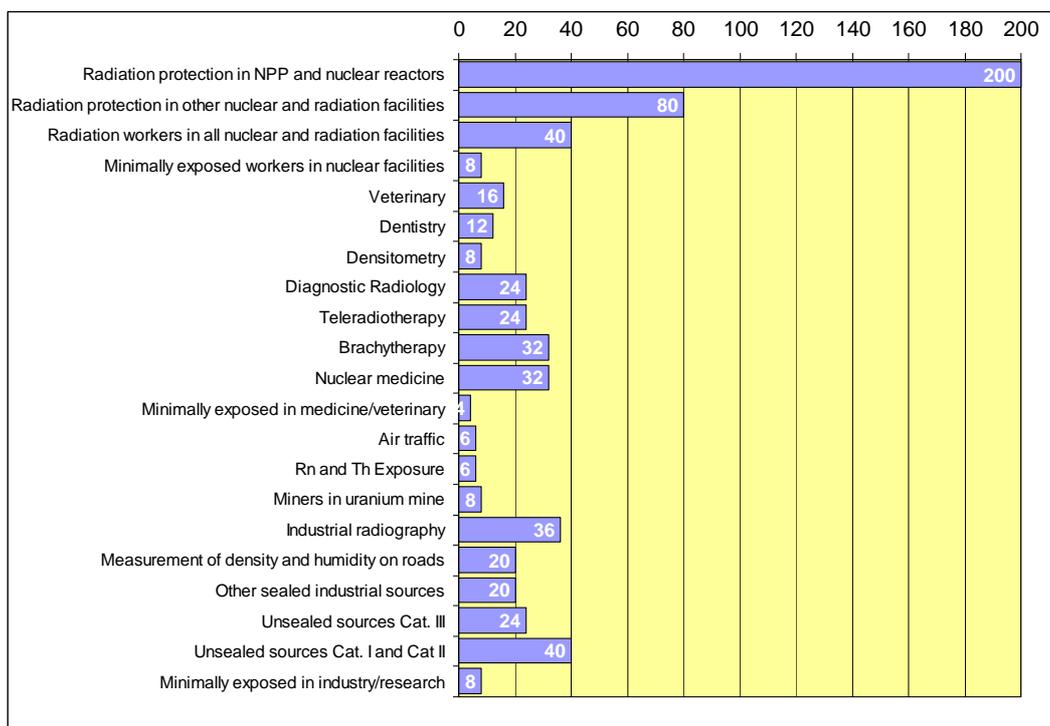


Figure 2: Required course duration according to 2004 Regulation (in hours). Additional part to the enlisted programs for persons responsible for radiation protection in medical, industrial and research institutions, is four hours.

What have not changed much, are programs for nuclear facilities. These programs have been already well developed at the time, when they were introduced. In fact, we can say that radiation protection training programs for nuclear workers has become some kind of “model” on how to prepare and implement radiation protection training.

4 THE PROS AND CONS OF NEW LEGISLATION

Due to the request for harmonisation with EU legislation and “legacy” of old federal legal regulation, it was necessary to update legal documents in the field of radiation protection and nuclear safety. New, harmonised legislation has introduced new terms and new requests for all people involved in implementation of radiation safety: users of sources, radiation protection professionals, experts and authorities, as well. It is also the main problem connected with the new legislation: all regulations have been changed and introduced in relatively short period and all new demands were brought into effect practically immediately, producing pressure and unnecessary confusion.

Introduction of radiation protection experts will have beneficial influence to radiation protection practice. This also applies to training. Transition time is three years, which is quite reasonable period.

Motives for introduction of state commission, which will also verify exams for all training programs, are not clear. Since the verification of training is a part of training process related to achievement of training objectives, it would be much more effective to recommend and verify implementation of SAT (Systematic Approach to Training). Primary task of the

commission should be related to state exams of radiation protection professionals and verification of radiation protection experts.

Increased number and variety of different training programs is producing additional pressure and requests for training organisations. Approval of programs is connected with additional work and requires time. Therefore, some transition period would be beneficial. But eventually, we should expect positive effect on the quality of radiation protection training.

Although training programs have similar elements, due to the requests of Regulation we will finish up with smaller and more differentiated training courses than before. Additional funds and work time should be invested in new training materials. This will have effect on the financial aspects of the training and, eventually, it will be more expensive for employers.

Another problem is that there will be fewer courses per year for particular professions. This will require more planning on the employers side, an also some “flexibility” from the authorities.

It would be wise to introduce some new training technologies for radiation protection training, like OJT (On the Job Training) or distant learning (e.g. for minimally exposed workers, for smaller groups or for refreshing courses). It is the task for the authorities to consider this possibility and verify legal premises for the implementation. Initially, these new technologies will require additional investments from the side of training organisers, but could eventually lead to training that is more effective and also cheaper for end-users. Some financial support from the state would be beneficial for initial steps in this direction.

5 CONCLUSION

Harmonisation of legislation with European Union was opportunity to modify and update regulations regarding radiation protection training. We can say that “update” was successful and, after the transition period, when all elements anticipated in new regulations become operational, we will finish with better radiation protection training.

It would be wise to consider possibility of introducing some new or less conventional learning technologies. Legal premises for this approach should be verified or introduced, if necessary.

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