RADIATION PROTECTION REGULATIONS IN SLOVAKIA AND APPLICATION OF BSS AND EC COUNCIL DIRECTIVES PROVISIONS

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Slovakia, a part of the former Czechoslovak Federation, has been on the map of Europe as an independent country for only 10 years. It is a relatively small country with 5,5 million of inhabitants. The use of radiation sources in medicine, industry and research is extensive, but it corresponds with the size of country and the number of inhabitants. Nowadays here are nearly 600 licensee holders in medicine and in industry and 5000 radiation sources in national registry.

The nuclear industry is relatively developed in Slovakia. Six nuclear reactors of type VVER 440 are in operation. One reactor is being decommissioned. There are also other nuclear installations in operation, such as interim storage for spent nuclear fuel in Bohunice, the conditioning center for radioactive waste in Bohunice, with incineration, solidification - bitumenation and cementation, vitrification unit, several experimental installations for solidification of radioactive waste operated by Research institutes for Nuclear Installations, and the near surface disposal for low and medium radioactive waste in Mochovce. It is expected, that two reactors of NPP V1 in Bohunice will be shutdown in year 2006 and 2008, and that two units in Mochovce will be completed. The construction is interrupted now. The interim storage for spent fuel in Mochovce is in design stage and there is also a geological investigation for geological repository for high level radioactive waste and spent fuel. From this long list of important sources is it clear, that the legislation in radiation protection is and will be very important.

In the former Czechoslovakia, the responsibilities for nuclear safety and radiation protection were divided between two authorities. The federal authority for nuclear safety and regional authorities – regional hygienist for the radiation protection were responsible. Regional health protection authorities were managed by two separate Ministries of the Health of Czech and Slovak federal Republics. After the splitting of Czechoslovakia the development differs slightly in both countries. In the Czech Republic both authorities have merged, in Slovakia the people in power were not able to carry out such a radical change, so here the model of two independent authorities have remained. This system has been working since 1950s. After the splitting a small paradox has occurred. The newly established Slovak Nuclear Regulatory Authority has won the international reputation but in radiation protection you can perceive some prolonged scepsis and problems. One of the reasons are limited financial resources. I think, that in the health departments of all transformed countries there is a permanent lack of resources. This is also the reason for relative limited scientific background and support for radiation protection executive bodies. Despite of recommendations of some international missions and visits to join both authorities, there is no willingness in the Health Ministry to merge or to make an other basic change within the health department, as it was done in Lithuania. On the other hand, the ecological organizations mostly prefer to have two independent authorities.

National legal framework

There are two basic acts. Act no. 130/1998 on peaceful use of nuclear energy determines the authority, its responsibilities and basic requirements for nuclear safety The authority is Nuclear safety regulatory, which is also empowered to issue particular regulations. Provisions on radiation protection are in the act No. 272/1994 on the public health protection. The legislation in radiation protection in Slovakia has been amended several times in last decade, not only because of radiation protection requirements. Even the system of authorities has been changed several times. At the beginning of nineties the authority was the state district physician, since 1995 it was chief hygienist of the Slovak Republic and since 2001 the authority for radiation protection has been the state regional hygienist for practices with standard medical and industrial radiation sources and the Chief hygienist for important practices (production of radionuclides, distribution of radiation sources) and important sources (nuclear installations, large accelerators). The act empowered the Ministry of Health to issue the regulation on radiation protection (Regulation No. 12/2001 on radiation protection). Ministry of Health is also empowered to issue instructions, standard procedures and guidances how to exercise the provisions of the act and regulation. At present some of them are in the phase of preparation.

There was a very good chance not only to apply the recommendations of BSS, but also to create completely new legislation system and regulations in connection with Slovak efforts to be accepted as a new member of EU. We did not succeeded completely in everything. In my opinion, one of the main reasons for this is that

we do not have separate act for radiation protection. The provisions on radiation protection are only a part of the public health protection act. This leads to the problem which is not easy to solve, harmonization of sometimes different interests in the areas of epidemiology, communal hygiene, working hygiene, radiation protection and in other areas of preventive protection of health. In the crucial phase of the act and regulation development the possibilities for radiation protection experts to correct the provisions are limited. This can sometimes cause mistakes.

A brief summary of some important provisions on radiation protection in the act and regulation.

Terms which not fully correspond with BSS

- radiation source, radioactive substance, source classes

the radioactive substance is considered as the source only if exemptions levels are exceeded, and radioactive substance is considered as radioactive without any lower bound. Sources are divided into 6 classes. Sources of class one are not authorized, sources of class 2 and 3 are reported to the authority, and sources of class 4-6 are licensed,

- supervised area is not defined and not used,
- concerning exposed workers category, there is only category A and exposed worker without classification

Basic framework and principles

Quantities and units, system of dose estimation, system of practices and interventions and basic principles are less or more defined in the sense of BSS

Limits are the same as in BSS: effective dose 50 mSv in any particular calendar year, 100 mSv in any consecutive five calendar years period, and equivalent doses limits for lens of eye, skin and extremities.

Optimization principle has more or less the same wording as in BSS. It is necessary to optimize radiation protection measures if the expected annual doses in particular practice exceed the level of 1 mSv for workers, 10 mikroSv for the public, or annual collective effective dose of workers exceed 100 man mSv for workers, or 1 manSv for public, or collective effective dose of workers exceed 20man mSv per a particular task. There are also monetary values for collective doses in our regulation and additional conditions for the optimization process.

Authorities

Radiation protection authorities are part of the state administration structure. For licensing and radiation protection control for practices with radiation sources of classes 2-5 the regional hygienists are responsible. There are 8 regions in Slovakia. Regional hygienists are nominated by the Health Ministry and they are a part of the regional state administration.

The Ministry of Health, represented by the Chief Hygienist of the Slovak Republic is responsible for licensing of nuclear installations and some other specified important radiation sources.

The regional Institutes of Public Health act as the executive bodies in radiation protection supervision. The regulatory body or executive body for radiation protection supervision in NPPs is the National Public Health Institute of the Slovak Republic. There is a section for radiation protection and its part is the department for radiation protection in Nuclear Installations.

Licensing process

Practices with radiation sources of class 2 and 3 are notified (reported), practices with sources of class 4-6 are licensed. Any practice could be licensed if the applicant demonstrate that the provisions of legislation in radiation protection are met. In the Act, there is a list of documents which should be provided by the applicant. Some documents are approved by the authority, such as quality assurance program, radiation protection program, monitoring program, emergency plan. The Nuclear Regulatory Authority and the Health Protection Authority issue a permit for the nuclear installations. Final licence is given by the local authority responsible for licensing construction and operation of installations, but the licence can be issued only if both authorities issued the permits.

Empowerment of the regulatory bodies and supervision system

The act guarantees that the inspectors have the free entrance into the objects, buildings and controlled area. The inspectors have the right to ask for documents, results of monitoring, to take samples, to ask for the information and to look into the documents. But the rights of the inspectors are limited. In case he finds out some lacks or shortcomings during the inspection he does not have the right to stop the practice or to give sanctions on a place. In this case, an inspector has to inform the authority and to prepare a decision for the

authority which is empowered to give measures or sanctions, to stop the activity or practice or to cancel the licence. This procedures, of course, can cause the delay of sanctions. My experience is that if any shortcomings appear the requirements of inspectors are most of time accepted and corrective measures taken.

Discharges, clearance of radioactive material

Release of radioactive substances into the air or surface water are licensed practices. The authority for health protection is responsible for licence issuing. The Chief hygienist is responsible for that in nuclear installations. The dose constraints for planning and construction of the nuclear installations is 250 mikroSv for annual effective dose of the individual in most exposed reference group of the public. In licensing process the applicant has to propose the limits of discharges in the activity. He has to demonstrate that dose constraint is met and to asses the public doses due to discharges. The system of discharges processing should be optimized and should warrant that only effluents with activities are discharged if further processing is not effective and justified.

Clearance of radioactive substances from controlled area is also licensed. Generally the clearance of radioactive contaminated material could be allowed if the applicant demonstrate that clearance of material is optimal solution and that assessed annual individual public doses are bellow 10 mikro Sv and collective dose bellow 1 man Sv. The Regulation allows also higher public doses in special conditions if the radiation protection is optimized.

Radioactive waste

There is not a clear border in the responsibilities of the Nuclear Regulatory Authority and Health Ministry in case of treatment, conditioning and disposal of radioactive waste from NPPs. Only very close co-operation of both authorities could be the proper solution. We have to develop the co-operation system to avoid unnecessary overlaps of responsibilities.

Services

Activities which are important from the point of view of radiation protection (monitoring service, personal dosimetry, testing or examination of radiation sources, education in radiation protection) are licensed by the Health Ministry.

Emergency situation

The radiation protection authorities generally approve the emergency plans, but only Nuclear regulatory authority is responsible for nuclear installations emergency plans approval. The Regulation contains determined intervention and action levels according the BSS. Health protection authority is also empowered to order the intervention or protective measures and to license the remedial measures and management of residual activity.

Natural radiation

In the Regulation there are intervention levels for activities of natural radionuclides in drinking water, in building materials and radon in soil, in working places and in homes, and provision on protection of aircrew.

Conclusions

Generally the legislation in radiation protection in Slovakia harmonizes with BSS and EC directives. The system of radiation protection and the level which has been achieved is of a relatively good standard and is comparable with the level in developed countries. It is necessary to emphasize that the positive results have been achieved thanks to the cooperation within the IAEA, WANO and also ISOE. Mainly the persons responsible for radiation protection in NPPs have the wide international experience, they have many possibilities to compare and improve. We from regulatory body try also to apply our experience gained in IAEA projects and ISOE information net. The process of harmonizing of our legislation with BSS and EC directives is not direct and still not finished. There are some unexpected obstacles, sometimes we are disappointed with the results of our efforts. There are still some unnecessary inaccuracies and provisions which should or could be better formulated and harmonized. We have to develop the third level of legislation - guidances and instructions. The existence of the two authorities should be carefully evaluated.