

TRANSITION EFFECTS IN THE IMPLEMENTATION OF THE NEW RECOMMENDATIONS- BSS

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ABSTRACT

According to the Constitution, the Romanian nuclear national legislation, which is in a growing process of developing, is tightly connected to the actual international legislative framework.

The provisions and the recommendations lay down by the International Community in the ICRP-60 document and in the International Basic Safety Standards, led to specific approaches that take into account the different levels of development in the nuclear field as well as countries social and economic peculiarities. Thereby, a process of harmonization of the international provisions with the local features is a logic and necessary step toward a rational enforcement of these standards.

Both the principles and the quantitative values (limits and levels) acquired in the ICRP-60 document and in the International Basic Safety Standards after a mutual general consent have a specific impact on practices and interventions related to the existed sources as well as on the new sources, for instance the process of implementation of a multi-purpose irradiator in Romania.

GENERALITIES

The unprecedented international effort that has been started in 1992, oriented on providing standards for protection against the ionizing radiation and the safety of the sources, according to the spirit inspired by the International Commission for Radiological Protection in [1], has been fulfilled in 1994 through an interim IAEA' Safety series report, hereinafter BSS, [2].

Although, these are the first global international standards, with a comprehensive content of the domain, on which the all relevant international organizations have had a mutual consent, the harmonization of the Member State's different positions left the standards' provisions with some weaker points which could create confusion in the process of adoption and enforcement at a national level.

Besides, the efforts of tacking over the new terms are not always a smooth process and finally the funds for the measure implementation are not wholly available. Legislative and practical problems should consider the transition effects in the implementation of the new recommendations in Romania.

LEGISLATIVE FEATURES

Current Status:

The present legislative status is still dominated, unfortunately not for longer time, by: the old Board of the Ministers' Decision, 1961, followed by regulations in which both nuclear practices have been classified in four distinctive categories and control as well as supervised areas are defined; the nuclear law, 1974, and the law for the quality assurance, 1982. All legislative approaches are obsolete and do not answer properly and internationally accepted at most of the problems. For instance these are not structured distinctly in requirements for the practices and requirements for the interventions, the organizational and institutional changes imply the redefinition of the competent authorities, medical exposure is not among its subjects. Also, our regulations for practices,[3], 1976, have outdated notions, quantities and values. Many basic concepts are no longer valid and even the internal structure of these regulations could no longer stand against BSS's provisions. The old custom of separate and distinct treatment of the radiation protection and safety of the sources missed most of the provisions on potential, emergency and chronic exposure.

For the intervention activities, we have distinct regulations, intensively used in the emergency preparedness plans, which could be considered as being bread- new, 1993, but the intervention levels and the action levels are different; also some terms have to be revised.

In absence of specific regulations, the IAEA's guidelines have been used.

Changes:

A general process of revising of the national legislative framework started several years ago with new proposed nuclear laws concerning the promotion of research and applications as well as the organization and the responsibilities of the Regulatory Authority. These laws are presently under the debates of the Parliament. Their content had to be changed quickly because at the time the BSS document was in work, drafts of the laws were ready. After it was accepted that the new international standards will have a strong impact on these laws, divergent opinions argued to what extend the BSS should be followed.

One opinion stressed out the necessity of inclusion as many as practicable provisions in a harshly translativ manner so that the requirements contended do not be already outdated at the very day of the law's enforcement. The other opinion pointed out that only the BSS' structure should be retained and a carefully process of adoption should be focused on the basic and necessary provisions as well as on the definitions, leaving for the regulations the most delicate aspects together with the values. Anyway it is sure that these new laws will treat separately practices and interventions, will include medical exposure and will give an understandable meaning to radiation safety culture.

The new regulations that are expected to be drawn from the national nuclear laws but no effective initiative have been started so far. So, an anachronism situation is going to occur because we are expecting to have laws in compliance to BSS but older regulations in which terms and notions like: source, nuclear installations, irradiating installations, the distinctive meanings of dose and exposure, clearance and exception and the various guidance levels, dose constraints, kerma, radiation weighting factors and tissue weighting factors, risk, safety culture, controlled and surveillance areas, working levels, etc., are not met or have different sense.

Besides, there are others important issues that could not be easily eluded:

- the problem of fitting the BSS's concepts to the Romanian language; based on the experience gained through our specialists involved in the drafting of BSS, we tried to avoid such aspects by organizing conferences, seminars and debates on the BSS in which we worked on the adoption of the new raised terms to Romanian language. Thus, we found real difficulties in deriving Romanian correspondents for clearance, exceptions- to obtain a different meaning vis a vis exclusions- projected and adverted doses or risks.
- the shortcomings of some data; because of divergent opinions, BSS looses aspects that affect the initial goal of comprehensively, we mention here: guidance levels for chronic exposure situations, others except the radon, values for the operational intervention levels for each radionuclide like the committed effective doses per unit of intake which BSS offers for the practices, values of the risk limits and constraints for the potential exposure.
- ambiguities in the definition of ionizing radiation- an energy threshold is asked by the regulations- and the lack of definitions for the source term, raw nuclear material and environmental restoration; all these could lead the considering of the other documents.

Here, we appreciate that a positive movement is that the Romanian Society for Radiological Protection, [4], is accepted as a counterpart of the civil society for legislative proposals analyzing.

On the other hand BSS should be followed by the guides and practices that have to develop in depth the generally provisions.

An internationally agreed content for license and registration should be recommended to gain a harmonization among various kinds of authorization.

PRACTICAL FEATURES

Current Status:

There are sources that are operated for years according to the older requirements, limits and levels; the decision to change should be carefully weighted, and without doubts, accompanied by cost-benefit analysis. Also there are installations under construction, on-going projects, sources near to be commissioned or decommissioned. Comprehensive assessments should be performed on what are we going to change, how will we change it and who will finally pay for that changes; anyway cost-benefit analysis should be carried out.

Specifically, the new limits for occupational exposure translated into the operational quantities, dose rate, together with quantitative values for risk of potential exposure, [5], are going to lead to re-assessing of the controlled and the supervised areas next to radiation sources.

There is a widely spreader restrained in switching to new terms and quantities. All the existent literature displays an old and slightly different approach of radiation safety. A similar situation has been met at the time of transition from a roentgenological way of approaching the field to an energetical one, particularly the movement from exposure to absorbed dose through intermediate status of roentgen equivalent physically. Even after years the old units are used in practice; for example, even whether ICRP and BSS recognize absorbed dose as the basic idea for radiation protection the calibration is still largely performed in terms of exposure. So, just for tackling over this particular situation it is necessary for training and funds.

Comparative it could be image that lectures, laboratory work as well as handbooks are conditions for a wholly offensive.

5 Changes:

To meet BSS requirements for areas zoning a methodology was developed. Although some older sources comply even to the new limits, being considered at its time under more restrictive conditions, there are many of them that need revising of the normal and potential exposure's boundaries. Often the implementation of practicable measures is out of the question because of the lack of the funds at this stage. However, the methodology will be helpfully for the new sources, for example for the commission of a large scale irradiation installation, at the design phase at the time of BSS endorsement. This is an example of possible change with minimal social and financial cost.

By using the values of the new committed effective dose per unit of activity via inhalation or ingestion, instead of the older ALI values, a few source-related assessments and individual-related assessments were carried out for assessing both the impact and the new source constraints. Also through the same data new planning zones for intervention have been obtained, thereof it is a need to revise the emergency plans.

CONCLUSIONS

1. At this stage we are in a "legislative phase" in which we are expecting to have soon recent national nuclear laws in compliance with BSS provisions, limits and levels, and a "practical phase" of assessing the possible changes- new controlled and supervised areas, new environmental impact studies, new planning zones for interventions; for all these facts cost- benefit analyses are imperatively asked.

2. The presence of older regulations, which could not be discharged in the very next years, and de facto status of the sources, related to practices or interventions, are realities in the actual Romanian nuclear framework.

3. The transition will be a continuous process without thresholds; this aspect is conditioned even by the transition of the BSS itself.

4. Training courses and workshops are imperatively to be organized in this period of transition.

5. BSS should be followed by guidance and practices for the basic requirements supporting.

6. A free process of information and data exchange have to be supported through the Member States.

7. The overall social, economic, politic and institutional effect as well as the psychological impact ought to be assessed; generally people do not like changes, furthermore they have an aversion to them.

8. For some aspects BSS misses the declared comprehensively and even symmetry, the lack of: guidance levels for chronic exposure for radionuclides others than Rn, operational quantities for interventions, zoning of the nuclear areas, transport of the radioactive materials.

9. It is necessary to evaluate the degree of correlation between BSS and other international documents and agreements, a specific case is the liability in case of nuclear accident; IRPA could take the initiative on bringing all the internationally distinct actions at a common factor.

10. The long- time projects, decommissioning, waste management, repository for radioactive waste, should be treated carefully considering the actual requirements of the BSS as well the future expected changes that could be promoted by ICRP.

REFERENCES

- [1] ICRP Publication 60; Annals of the ICRP Vol.21 No. 1-3; "1990 Recommendations of the International Commission on Radiological Protection"; Pergamon Press, (1990).
- [2] IAEA - Safety Standards; Safety Series No. 1151; "International Basic Standards for Protection against Ionizing Radiation and for the Safety of the Radiation Sources"; Interim Edition; Vienna, (1994).
- [3] State Committee for Atomic Energy; "National Norms for Nuclear Safety- National Norms for Radiation Protection"- in Romanian, (1974).
- [4] Romanian Society for Radiological Protection; "The Status"- in Romanian, (1992).
- [5] ICRP Publication 64; Annals of the ICRP; "Potential Exposure"; Pergamon Press (1991).