

Effective and Independent Regulatory National Infrastructure *Uruguay case*

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Abstract. Since inception in 1986 the National Direction of Nuclear Technology has fulfilled with the assignment known as “Control of the ionizing radioactivity in its medical and industrial applications”. This strategic task as far as safety, was performed with significant and crucial deficiencies which they even motivated the users to question the reliability of the institution. The deficiencies were mainly as follows: 1) absence of a regulatory frame; 2) insufficient qualification of technical human resources and 3) lack of suitable equipment. From the use for Uruguay of the Model Project and the beginning of a new management of Dinaten (October 2000), a sensible and well-known increase in the quality and efficiency of the regulating function in the country, which we can summarize in the following landmarks: regulatory frame with the use of a basic norm and eight regulating norms according to the main practices that are developed in the country; intensive training of the regulatory body staff; permanent accomplished update of the inventory of sources; beginning of licensing activities; equipment of last generation; regulation of the personal dosimetry services and management of radioactive waste and establishment of a National Program of Radiological Emergencies.

1. Introduction

The primary and superior target of the present management of Dinaten has been the upgrading of the infrastructure of radiological safety, in order to improve in sustainable fashion its assignment like Regulatory Authority. The goal is to technically consolidate the Model Project and to obtain its effective autonomy as an entity. To accomplish this, the Model Project has been created as an effective and necessary instrument by means of which the predicted strategic targets are being obtained.

2. Reached Goals

2.1. In the regulating area

It was elaborated and it was approved by ministerial resolution the basic regulations of protection and radiological security”, norm uy the 100 and following applicable norms in the following practices:

- norm uy 101 “radiological safety for the operation of industrial gammagraphy”.
- norm uy 102 “use of sealed sources in brachytherapy”.
- norm uy 103 “operation of linear accelerator of medical use”.
- norm uy 104 “operation of Co⁶⁰ equipment”.
- norm uy 105 “use of not sealed radioactive sources in nuclear medicine”.
- norm uy 106 “management of radioactive waste”.
- norm uy 107 “safe transport of radioactive materials”.

- norm uy 108 “ radiological safety for the practice of medical and odontological radiodiagnostic” and its annexed “ radiological safety for facilities and x-rays equipment used in the control of luggage and load”.

The project of law of radiological safety was drafted and is presently under congress review. It is important to remark that the lack of a suitable regulatory frame in connection with radioprotection was detected by extensive and detailed peer review done by experts. It is so, that different and precised norms were designed ut supra, which were approved without delays and put in place. Simultaneously a law project is drafted which unifies the different norms under which the regulating institution performs and fulfills its assignment’s nouns, until and finally the project becomes a law, by means of which we will have among others the possibility of counting on the coercion power.

Once completed with the national inventory of ionizing radiation sources and settled the Regulatory Authority Information System - RAIS, which stays updated in dynamic form, having itself registered 1.313 sources in the whole country, including radiodiagnostic, x-ray, nuclear medicine, industrial gammagraphy and industrial measurers. As far as them inspection and control of the sources were carried out inspection of equipment and facilities in the following areas: brachytherapy, x-ray, nuclear medicine, medical and odontological Rx; also new areas were inspected like: industrial measurers, industrial gammagraphy, equipment of Rx for the control of people and luggage in airports. During year 2002, we were emitted 484 authorizations altogether to operate; having exceeded itself thanks to the new strong regulatory body, the effectiveness and deficiencies of previous years.

Equipment of measurement of last generation like Geiger accountants, ionization chambers, detectors of Rx, neutron sounding were obtained.

New recording equipment for each area of the regulatory division was acquired and settled as a server and internal network of communications between the different positions.

The Web page of the Dinaten has been designed to easily locate the effective norms and the different instructive forms for the activities that the division continually develops and update; providing the user the opportunity to unload directly from the Web.

They were elaborated according to the new effective regulating norm, the self-adhesive posters of identification of the areas or are controlled or supervised areas and were given to the users free.

The process of granting of licenses of operation to institutions and individual permissions to people started. First authorizations and permissions have been granted recently.

As far as the qualification and updating of all personnel committed to regulating activity, within the framework of the agreement signed by the Dinaten and the Nuclear Regulatory Authority of Argentina - ARN - one is becoming qualified to the technical and administrative personnel in the Argentina Republic, or through personal training like by the concurrence of professionals to the courses of PhD. and technical level in radiological safety.

The referred relationship between both regulatory institutions of Uruguay and Argentina was achieved via the Model Project, and has been recognized as a start-up landmark as far as the interaction between regulatory organisms in the region.

Missions of qualified experts have been received for the training of people in charge of radiological safety in the areas of nuclear medicine and external beam therapy and in management of radioactive waste.

It has been dictated of a cycle to char them on the part of technical personnel to the administrative personnel of the division, on basic concepts that do to the activities of the regulating authority gathering acquired concepts in the courses and training on the job, before mentioned.

We are working in the implementation of quality management system interested in obtaining the corresponding certification in a medium term.

2.2. In the area of control occupational exposition

The norm that was approved establishes the “indispensable requirements for the evaluation of the competent of the services of individual control of the exposition to the external radiation by photons” and culminated with the process of transference of the service of personal dosimetry to the division promotion and development, reserving the regulating authority the control of the public and private institutions that offers this service.

2.3. In the area of control of the public exposition

An agreement with the University of the Republic facilitated and allowed the entrance without cost for the user, of sources of Co-60 in disuse in the premises of storage located in the nuclear research center that belongs to the Faculty of Sciences. The Dinaten will take the control from the management of sources in disuse and radioactive waste.

2.4. In the area of answers for cases of emergency

The decree project was elaborated restoring the national plan of radiological emergencies, within the framework of the National System of Emergencies

3. Goals predicted to reach

3.1. In the institutional area

To consolidate the Uruguayan Nuclear Regulatory Authority like recognized and independently effective technical institution.

3.2. In the regulating area

- approval of the Law of Radiological safety.
- approval of the National Plan of Radiological Emergencies.
- to increase the process of licensing and the granting of leave.
- to continue with the qualification and training of the regulating staff.
- incorporation of equipment adapted to the inspectivas tasks.
- to make them inspection of x-ray with own personnel.
- ministerial approval of the second group of regulatory norms according to the following structure:
 - norm uy 109 “individual license for the use of radioactive material in human beings”
 - norm uy 110 “individual license for operators of equipment of industrial gammagraphy”
 - norm uy 111 “operation of panoramic plants of irradiation, type IV”
 - norm uy 112 “schedule for the presentation of the documentation before the putting in operation of an irradiation plant”
 - norm uy 113 “individual license and specific authorizations for the personnel, in the operation of irradiation plants”
 - norm uy 114 “design of panoramic industrial plants of irradiation, type IV, with deposited radioactive source under water”
 - norm uy 115 “requirements of psychophysical aptitude for specific authorizations in an irradiation plant”
 - norm uy 116 “industrial measurers”.

4. Effectiveness of the regulatory body

Since the approval of the basic regulation of radiological safety in June 2002, 8 regulating norms were approved for the first time in our country, which are detailed in point 2.1. Two external inspectors were contracted for the medical and odontologic radiodiagnostic practices. The inspections in all the practices increased in 27 % average. We have a new and modern protocol to make inspections in radiodiagnostic (conventional, fluoroscopy, mamography and computed tomography). Now we have an annual plan of inspection and a calendar of the new ones.

In the field of the radioteraphy, now we make the inspections with the technicians of our own regulating staff, thanks to the training received by the project model

5. Conclusion

The precondition for a suitable regulating infrastructure is the education and the training of all human resources. Through the Model project, the education and advance of our regulating staff in Uruguay is allowing us, in such a short time, to present a regulating structure well-known improved cradle in three landmarks:

- Qualification with training.
- Regulation.
- Suitable equipment.

The task is permanent. We want to obtain a continuous and dynamic improvement to approach the most efficient safety systems and protection. Our experience with the Model Project has been and is extremely positive. It became our strategic guide on which we are working and we hope to be able to consolidate an efficient regulating authority.