OCCUPATIONAL RADIATION PROTECTION ASSESSMENT SERVICE (ORPAS)

Ecuador MISSION
September 21-29 - 2015

EXECUTIVE SUMMARY

In response to the request made by the Government of Ecuador, the IAEA organized and carried out this evaluation on occupational radiological protection from September 21 to 29, 2015. The mission's national counterpart was the Undersecretariat for Nuclear Control and Applications (SCAN) part of the Ministry of Electricity and Renewable Energy (MEER).

The mission was designed to independently study and assess the occupational radiation protection program at end-user and technical service facilities.

The purpose of the mission was to support the institutions to evaluate their occupational radiological protection program and, if necessary, provide them with guidelines for its improvement.

NATIONAL COUNTERPART
Subsecretaría de Control y Aplicaciones Nucleares (Undersecretariat for Control and Nuclear Applications) -SCAN part of the Ministerio de Electricidad y Energía Renovable (Ministry of Electricity and Renewable Energy) -MEER.

TECHNICAL SERVICE
- Subsecretaría de control y aplicaciones nucleares (Undersecretariat for nuclear control and applications)
- Dosisrad - servicio especializado en seguridad radiológica (specialized radiological safety service)

END-USERS
- Hospital metropolitano
- Hospital carlos andrade marin
- Sociedad de lucha contra el cancer (Cancer Society)
- Constructora fopeco s.a.
- Gammagrafía industrial radincevall cia.
- Subsecretaría de control y aplicaciones nucleares (Undersecretariat for nuclear control and applications)

The general conclusions and recommendations were drawn from the results of the evaluation and in relation to the application by the participants of the international safety standards in the field of occupational protection.

The general conclusions are:

The national regulatory framework is outdated and does not include important aspects of the new NBS, IAEE - GSR Part 3. However, the institutions visited and the Regulatory Authority
SCAN, have shown willingness and documentary evidence of their intention to apply and implement these recommendations.

The institutions have taken important steps in the implementation of the international recommendations in the aspects of PRO. Globally, they have an organization of work that favors compliance with radiological protection measures. They have roughly the basis of an occupational radiological protection program. Although in some cases it is not formalized in documents, with weaknesses and well-identified areas for improvement in each specific case. In the areas of Radiodiagnosis and industrial applications, it presents greater difficulties in terms of establishment of a PRP, quality assurance, staff training, etc.

In general, there are no integrated quality management systems that include all the aspects of radiological protection, knowledge management, risk management, etc.

Internal contamination of SOPs is not monitored, nor are related doses calculated nor totals that the POE receives for the different concepts or jobs. The national registry of doses is implemented but it is incomplete because it includes only exposure due to gamma radiation.

The legislation only provides for training in terms of PR, without considering other comprehensive education and training requirements necessary for the correct staff performance in their duties.

There is no national strategy for comprehensive specialized training (which includes the PR) of human resources that are related to the safety of medical practices. That includes medical physicists, nuclear medicine doctors, radiation therapists, specialized technologists etc., which is an indispensable requirement for the optimization of the PR of the POE, patients, and the public.

Facilities were found without the proper operating license in force.

Some companies operate with procedures that regulate all their work.

There are procedures that support the PRO.

Source deposits meet minimum security requirements. Including signaling, in some cases they include an alarm with monitoring by a security company private and notice to the police authorities.

IAEA transport regulations are not complied with. The transport is carried out according to the requirements of American Regulations 49 CFR Part 177 (Code of Federal Regulations).

Daily doses of POE are not recorded.

Staff are qualified and trained to the level necessary to carry out all monitoring tasks.
In general, there is no quality management system in place for services dosimetry, but there are documents that contain instructions and information which can be considered a step towards having a quality manual. In some cases, the process is more advanced.

Quality management systems are not applied in their entirety, and they are not certified accredited. The quality management system should be established based on the ISO 17025 standard.

Not all sources of uncertainty are considered because the country does not have any laboratory with these capacities, an important aspect in the type of service.

The calibration service is not able to verify the energy and angular dependency for personal dosimetry services using TLDs. There is no evaluation of intakes by in vivo dosimetry. Equipment is calibrated on only one scale.

The general recommendations are:

To modify the national regulatory framework to stimulate compliance with the new international safety recommendations (BSS – IAEA GSR Part 3).

To favor the development of radiological protection and a safety culture, promoting knowledge about the management of RP by hospital managers (especially in RD and industrial applications) and its role as the main link in the MR.

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To favor the implementation of an internal contamination monitoring program of the SOPs, complete the monitoring technologies required for national practices and its integration with the national dose registry.

To promote the development and implementation of Safety Guides for the different practices that establish the minimum equipment, structural, management, monitoring, etc., including staff and their training, not only in terms of PR but also in the unequivocal profiles of basic training that they must have.

To stimulate the development of accredited national training programs in the different specialties that include aspects of PR (MN, FM, RT, RD, etc.).

To review the regulatory infrastructure and the availability of trained human resources, to have all the necessary personnel to develop the licensing processes, renewal, audits, etc. that guarantee timely and periodic reviews of the licenses and their validity.

To favor the development of continuous training programs for regulatory personnel, in such a way as to guarantee the knowledge and standardization of the criteria for security in different applications.
To include the ALARA criteria in the operational and management procedures, to achieve the optimization of the operative doses.

To take as good practice the implementation of at least one management system according to ISO 9000 standards.