

Radiation Outside Workers; the current situation in Greece

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Introduction

The involvement of outside workers in activities carried out in controlled areas has been under consideration by many international scientific and professional organizations. The issue was initially addressed in order to ensure the safety of technical personnel involved in activities with ionizing radiation which were performed mainly in nuclear power plant facilities in the same or different countries. Several issues have been raised since then with respect to outside workers involving: a) the monitoring of their doses, and who is responsible for summing the doses received at different facilities and checking if the annual dose limits have been exceeded; b) their education and training in radiation protection; and c) the localization of any possible overexposure.

Due to the importance of these issues, the European Community issued the Directive 90/641/Euratom “on the operational protection of outside workers exposed to the risk of ionizing radiation during their activities in controlled areas”[1]. ‘Outside worker’ is defined as any worker of category A (according to Article 23 of Directive 80/836/Euratom [2]), performing activities of any sort in a controlled area, whether employed temporarily or permanently by an outside undertaking, including trainees, apprentices and students, or whether he provides services as a self-employed worker. ‘Outside undertaking’ is considered any natural or legal person, other than the operator, including member of his staff, performing an activity of any sort in a controlled area.

Regarding the safety of the outside workers Directive 90/641/Euratom presents specific requirements [1]. Outside undertakings must ensure the radiological protection of their workers in accordance with the relevant provisions of Directive 80/836/Euratom [2]. Moreover, the operators (i.e. any natural or legal person who under national law, is responsible for the controlled area in which the activity will be carried out) shall be responsible, either directly or through contractual agreements, for the operational aspects of the workers’ radiological protection which are directly related to the nature of the controlled area and of the activities.

As far as the national competent authorities are concerned, they must establish specific mechanisms for the reporting or authorization of the outside undertakings. Additionally, they shall ensure that the

radiological monitoring system affords outside workers equivalent protection to that for workers employed on a permanent basis by any operator.

Current situation in Greece

In Greece there are no nuclear facilities and the issue concerns outside workers providing services mainly to public and private medical facilities using ionizing radiation, i.e.:

- technicians performing the installation, maintenance and servicing of radiology, nuclear medicine and radiotherapy systems
- people providing assistance during interventional procedures (pacemaker and stent positioning, orthopedics, etc)
- persons undertaking the installation/replacement of radioactive sources

Directive 90/641/Euratom was transposed in the national legislation as a Ministerial Order in 1996 [3]. Under this piece of legislation, the outside undertakings must be licensed to allow their employees to provide services in controlled areas. For a license to be granted the undertakings must submit to the Greek Atomic Energy Commission (GAEC) the following:

1. Application with the necessary information regarding the undertaking
2. Legal documents describing the activities in controlled areas
3. Assignment of responsibilities (undertaking representative, RPO)
4. List of the names of the personnel involved in activities within controlled areas including relevant skills as well as education and training in radiation protection
5. Dose monitoring documentation. The worker must be equipped with an official dosimeter, an electronic dosimeter, as well as a radiation passbook
6. A written commitment of the undertaking to report any amendment regarding the above.

After the evaluation of the submitted documentation, GAEC performs on-site inspection at the installations of the outside undertakings in order to verify compliance with the existing requirements. The inspection includes: a) the compliance with the general radiation protection principles; b) the provision of appropriate information and training on radiation protection; and c) the existence of procedures for the assessment of exposures and for medical surveillance, etc. If compliance is verified, GAEC issues a license which is valid for 5 years.

It has to be pointed out that the competence of the outside workers is also evaluated by GAEC during the on-site inspections performed at the controlled areas where their activities take place. At this stage, GAEC also verifies the compliance of the operator with the respective legislative requirements. Before the initiation of any activity inside a controlled area, the operator must ensure that the worker is: a) is medically fit for the activity assigned to him; b) has received specific training with respect to the characteristics of both the controlled area and the activities undertaken; and c) has been provided with the necessary personal protective equipment. Additionally, the operator must ensure that after every job, the radiological data of individual exposure monitoring of the worker is recorded in the radiation passport.

The findings of the on-site inspections show that:

- Some outside workers:
 - do not use their electronic dosimeter
 - own a radiation passport without having an electronic dosimeter
 - use their personal electronic dosimeter as survey meters
- There is a lack of appropriate training on radiation protection as well as ALARA/Safety culture among the outside workers.
- The parties involved (undertakings, workers, operators) are not fully aware of their role and responsibilities

Furthermore, it was found that some outside undertakings and operators were not aware of their role and responsibilities in relation to the existing legislative framework.

Taking into account that most of the above findings were related to the lack of appropriate education and training, GAEC organized special seminars on radiation protection for outside workers which were performed in Athens (2) and in Thessaloniki (1).

These eight-hour seminars covered a wide range of topics, including:

1. The physics of ionizing radiations
2. The biological effects of ionizing radiations
3. The current legislative framework regarding outside workers
4. Licensing procedure for outside undertakings
5. Ionizing radiation detection systems
6. Dose monitoring
7. Practical aspects of radiation protection for outside workers in radiology, nuclear medicine and radiotherapy.

60 outside workers out of the 239 registered in the National Radiation Protection Data Base attended the three seminars already performed. Therefore, it is necessary for similar seminars to be organized in the near future. Additionally, appropriate actions (i.e. dissemination of informative material, continuous communication with related professional bodies, etc) should be taken in order to increase awareness of outside undertakings and operators and to support the development of ALARA/Safety culture among all the involved parties (undertakings, workers and operators).

References

1. European Commission Council Directive 90/641/Euratom, on the operational protection of outside workers exposed to the risk of ionizing radiation during their activities in controlled areas. Official Journal of the European Communities.
2. European Commission Council Directive 80/836/Euratom, amending the Directives laying down the basic safety standards for the health protection of the general public and the workers against the dangers of ionizing radiation Official Journal of the European Communities.

3. Government Gazette, Ministerial Decision No. 9087(FOR) 1004, Second Issue, Folio No. 849, November 13, 1996, "Protection in practice of outside workers exposed to ionizing radiation during their activities in controlled areas".
4. Government Gazette, Joint Ministerial Decision No. 1014 (FOR) 94, Second Issue, Folio No. 216, March 6, 2001, "Approval of Radiation Protection Regulations".