

range (from approximately 60 to 100 keV) than that one determined in exposure, but still does not meet the IEC standard. As indicated in Fig.1, the number of calibrated RK-67 dosimeters is about 48% of all instruments. These considerations showed that users of radiation protection instruments need energy compensated G-M dosimeter designed to measure in terms of ICRU quantities.

3.8 MODERNISATION OF CALIBRATION LABORATORY FOR ESTABLISHING THE SECONDARY STANDARD DOSIMETRY LABORATORY (SSDL) AT CLARE

H. Dzikiewicz-Sapiecha, J. Zieliński



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The Calibration Laboratory (CL) at Central Laboratory for Radiological Protection (CLOR), established in the year 1960, is responsible for calibration of personal and area monitoring dosimeters and instruments for radiation protection. RAPAT Mission in Poland (November 1993) recommended in its report „that a national Secondary Standard Dosimetry Laboratory policy be considered with the aim to assure that well established facilities be able to provide good service for instruments measuring both low (personnel monitoring, some environmental measurements) and high level radiation doses and dose rates (radiotherapy, etc.)”. According to national and international regulations, a calibration laboratory for ionising radiation must be designated as SSDL by the appropriate national authority (the National Office of Measures) and than it will be able to make efforts to join the IAEA/WHO Network of SSDLs.

Taking into account the importance of accuracy of calibration measurements and the requirements of coherent relationship to international measurements system, the CLOR has initiated the upgrading of the existing Calibration Laboratory to achieve the level of the national SSDL for radiation protection. The technical and organisation assumptions for the SSDL at CLOR have been prepared according to the criteria for establishment of a SSDL (prepared by the IAEA Expert Group)]. The national regulations as well as recommendations of ICRU, ICRP, IEC and ISO standards on operational units, calibration procedures and qualification tests were taken into consideration for preparation of the SSDL's technical assumptions.

The following SSDL's activity is planned:

- A. calibration of area and personal dosimeters and instruments for radiation protection:
- B. documentation and preserving records of all procedures and the calibration results,
- C. development of new calibration procedures in compliance with national regulations and international standards,

- D. co-operation with the IEAE/WHO network and with other metrological laboratories in the exchange of information and improvement of measurement instruments and techniques,
- E. report on the status of secondary standards, radiation sources, calibration performed, to the Secretariat of SSDL Network,
- F. participation in IAEA Research Programs on Intercomparison for Individual Monitoring,
- G. research programs; organization of dose comparisons within the country.

Modernisation of Calibration Laboratory for establishing the Secondary Standard Dosimeter Laboratory at CLOR is supported by Polish National Atomic Energy Agency. The project „Upgrading of Calibration Laboratory System for Radiation Protection Measurements” is realised within the framework of Regular Programme of Technical Co-operation for 1995-1996 of International Atomic Energy Agency, (project POL9/019). The IAEA Expert Mission on the Project POL/9/019 was taking place in 1995. The aim of this mission was:

- to visit CLOR and Nofer's Institute of Occupational Medicine (NIOM) for the assessment of the shielding properties of the irradiation bunkers,
- to visit the National Office of Measures - primary laboratory, the M.Sklodowska-Curie Memorial Cancer Centre (therapy-level SSDL) and the National Atomic Energy Agency,
- to elaborate a comprehensive programme for calibration and standardisation of ionising radiation instruments.

The recommendations for the Polish government, CLOR and NIOM, and to IAEA are included in the report „Establishment of Calibration Facilities for Ionising Radiation in Poland” prepared by Dr J. Haider (Vienna, July 1995), among others the following one:

„ When the calibration laboratory at CLOR becomes operational it should join the IAEA/WHO Network of SSDLs. In the National Office of Measurement (GUM) a national SSDL co-ordinating office is to be created under which both, the therapy-level SSDL and CLRP protection-level SSDL will be organised”.

In the year 1995, within the framework of NAEA/CLRP project, the following documents were prepared and approved by National Nuclear Safety and Radiological Protection Surveillance:

1. Technical and Economical Assumptions (TEA) for modernisation of Calibration Laboratory to establish SSIDL at CLOR (designer - Polish Design Office PROATOM, consultant of the technical and conceptual assumptions - H.Dzikiewicz-Sapiecha). General descriptions of TEA contains: justification of the project realisation, laboratory location, premises, responsibilities of the SSDL, calibration facilities and equipment, technological procedures, laboratory staff duties.
2. Technical Design for Calibration Laboratory - X ray metrology laboratory (designer - PROATOM).

In the year 1995 some of the premises for Calibration Laboratory were rebuild. The X-ray calibration room with separated control room fulfil the appropriate requirements relating to radiation shielding, stability of voltage supply, water supply and water removal for cooling system and control of environmental conditions, particularly air conditioning.

The irradiation facility is the HF 320 C X-ray Calibration Unit, type 32-00-00C produced by PANTAK Company. The measurements section of X-ray unit mainly consists of table supporting the X-ray tube housing with lead shielding, tube collimator, remote control filter device with shutter functions.

The SSDL should be equipped with a large number of measuring instruments and accessories to carry out many types of calibrations. Actually the secondary standard dose meter is Universal Dosimeter UNIDOS (manufactured by PTW) equipped with the ionisation spherical chamber type LS-01 and Farmer ionisation chamber 0.6 cc.

The project will be probably completed in two years, depending on the support which is solicited from the IAEA. It is hoped that upgrading the Calibration Laboratory System for radiation protection measurements will ensure high accuracy in monitoring of occupational and public exposure in normal and emergency radiological situation.

3.9 PREVENTION AND EMERGENCY SERVICE

R. Tańczyk
Prevention and Emergency Service Department



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In the years 1994-1995 Central Laboratory For Radiological Protection (CLOR) continued activity of emergency service, registering and inspections of users of radioactive source.

At the end of the 1995 year, approximately 2985 users of radioactive sources were registered at the CLOR. The sources were utilized in medicine, research, industry and agriculture. Dealers and producers of radioactive sources were also registered. In CLOR documents are collected relating to the licensing and activities of the users. Type and number of users are shown in Table 1.