

ESOREX 2005

European Studies on Occupational Radiation Exposure

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The European Study on Occupational Radiation Exposure called ESOREX was initiated by the European Commission in the 1997 year. The objectives of this European study are:

- to provide the European Commission and the national competent radiation protection authorities with reliable information on how personal radiation monitoring, reporting and recording of dosimetric results is structured in European countries;
- to collect reliable and directly comparable data on individual and collective radiation exposure in all occupational sectors where classified workers are employed. Therefore, it is important to receive information about the levels of individual personal radiation doses to workers in the different sectors and the trends and developments of these doses over a period of several years;
- at present, all 25 European Union Member States, plus Bulgaria, Iceland, Norway, Romania and Switzerland, participate in the study;
- the study was executed under the leadership of German BfS in co-operation with Czech SUJB.

First results and analyses based on the data collected in the previous studies are presented in the paper "Frasch, Petrová: Occupational Exposure Trends and the problems to be solved. As a result of a call for tender of the European Commission/DGTREN in the 2003 year, the new ESOREX study called "ESOREX2005" has been initiated. This study will end at the 2006 year and its main objectives are - to finalise the updating of the country reports by describing the current situation on the field of occupational exposure control, evaluation and registration of personal doses of radiation workers and as a second part of the study, to collect dosimetric data for the period of the years 2001 - 2005.

Purpose and objectives of the ESOREX project

ESOREX consists of numerous data surveys on occupational radiation monitoring and exposure that were and still are executed in most of the European countries. The surveyed and assembled information shall form an information base for practical steps that should be taken so that European countries can meet the challenge of establishing a harmonised radiological protection system in Europe including future legislative initiatives of the Commission.

At present, all 25 European Union Member States, plus Bulgaria, Iceland, Norway, Romania and Switzerland, participate in the study.

The work is directly linked with the operational implementation of the Council Directive 96/29/Euratom, laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation.

Administrative measures and arrangements are needed for the operational implementation of the radiation protection requirements provided by Titles IV, V, VI and VII of the Basic Safety Standards Directive. The provisions laid down by these Titles require that Member States shall make the necessary arrangements for the establishment of systems for monitoring, reporting and

recording of worker doses. Furthermore, the Directive provides for a reduction in the annual dose limits for occupational exposure and exposure of members of the public. The directive also requires that occupational exposure from activities received from naturally occurring radiation material at specified workplaces shall be monitored.

The implementation requires not only substantial changes in the respective legal framework for radiation protection (i.e. acts, ordinances, guidelines) of each Member State, it may also lead to considerable changes in the national dose monitoring and recording systems:

- the reduction of the annual dose limits for workers leads to a shift of national recording and reporting levels;
- due to technical detection limits it is also a new challenge for services monitoring the internal exposure of the workers;
- in the case of the introduction of a 5-years dose limit, the accumulation of individual dose measurements over a longer period is necessary;
- the monitoring of occupational radon exposure in mines, caves or drinking water facilities requires new monitoring facilities and structures;
- the evaluation of doses for air crew is officially required, programs for the calculation of flight doses have to be approved.

The European Commission has not only the duty to monitor the status of Directives adoption, it also supports this process by issuing action-guiding recommendations. These shall enable the Member and Candidate States to meet these new requirements, by adopting appropriate legal provisions and practical measures. The last Technical recommendations concerning the individual monitoring is EUR 14852,1994, and may now require revision to take account of the Directive. For this purpose, reliable information on the national personal monitoring systems in European countries including the information on the current registration systems used as well as comprehensive overview of data about the radiation exposure of radiation workers, are necessary and valuable.

ESOREX survey concept

The Survey consists of two parts. Each project contains always a qualitative information survey (Part I) and a quantitative data survey (Part II).

Part I surveys how radiation protection monitoring, recording and reporting is arranged within each of the 30 European countries. The structure of national systems applied to monitor and register individual occupational radiation exposures in each country is surveyed: legislative framework of occupational radiation protection (Acts, Ordinances, Guidelines), surveillance structures, administrative and scientific support dose quantities, dose levels, dose limits, monitoring of individual occupational exposure (external, internal, natural radiation), dosimetric services, accreditation, quality assurance, approved dosimeters, methods in internal dosimetry, dose reporting and information flow, central registration of radiation doses, registration of outside workers, radiation passbooks, medical surveillance. The survey results are presented in country specific files, following as much as possible the same structure.

The surveys of part II provide data for a comparable overview over the exposure of radiation workers in the European countries. In order to gain a maximum of comparability between the countries, a common structure of work sectors and sub-classes has been derived from the classification systems used in every country. On this base the total number of occupational radiation exposed persons and the distribution of doses in the shortest and best comparable dose bands, broken down by work sectors and its sub-classes are surveyed. Statistical parameters and collective doses are calculated for each country. It is the aim to cover a ten-years time series of the calendar years 1995 to 2004.

In all ESOREX studies a beneficial, effective and extensive information base about thirty European States has been created. The studies resulted in the final reports describing the

legislative, administrative, organizational and technical aspects of the national dose monitoring and recording systems for occupationally radiation exposed workers in a standardised and where possible internationally comparable structure. The dose distributions of the radiation workers and the annual average and collective doses in the various work sectors and work sub-categories for the years 1995 - 2004 in as far as possible internationally comparable system of work categories and dose intervals are also described in the reports. One major aim of this 10-years time series is to document how occupational radiation exposure in Europe changed after the implementation of the new dose limits by the Council Directive 96/29 EURATOM.

Previous ESOREX studies

Since 1997 the following ESOREX studies have been executed

- ESOREX WEST (Austria, Belgium, Denmark, Germany, Finland, France, Greece, Iceland, Ireland, Italy, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom), part I + part II (1995)
- ESOREX EAST (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia), part I + part II (1997)
- ESOREX 2000, update of part I + part II (1995-2000)

These studies were executed under the management of the German Bundesamt für Strahlenschutz (BfS) and accompanied by an international steering committee.

A first overview of the results from ESOREX 2000 study has been presented on the IRPA 11 conference in Madrid in 2004 and also in EURADOS 2005 conference in Vienna. The comprehensive overview of the first results is also presented in the paper Frasch, Petrová: Dose trends in occupational radiation exposure in Europe - Results from the ESOREX project, IM2005 conference Vienna.

ESOREX 2005

As a result of a call for tender of the European Commission/DG TREN in 2003 the new ESOREX study called "ESOREX 2005" is initiated and will be managed under the responsibility of the State Office for Nuclear Safety of the Czech Republic (SUJB).

SUJB would like to guarantee the compatibility of this fourth ESOREX study with the previous surveys. Therefore, the study will be performed in close co-operation with the German BfS, which was successfully leading the three previous ESOREX studies: ESOREX WEST, ESOREX EAST and ESOREX 2000.

The ESOREX Steering Committee will continue to accompany the project with the same members from the following institutions: EC/DG TREN; BfS, Germany; NRPB, UK; NRG, the Netherlands; SUJB, Czech Republic.

ESOREX 2005 is scheduled for the years 2004 - 2006 and the main goals will be to finalize the updating of the country reports by describing the current situation on the field of occupational exposure control, evaluation and registration of personal doses of radiation workers and as a second part of the study, to collect dosimetric data for the period of the years 2001 - 2005.

ESOREX workshops

Two workshops were already organized in the frame of ESOREX studies with the aim to establish close relationships of involved countries and individuals: in Luxembourg in 1997 during ESOREX WEST and in Prague in 1998 for ESOREX EAST. But so far there was no opportunity to meet all participating countries together at the same time and for the same reason. Therefore, in the beginning of the ESOREX2005 study there was an effort made to refresh the relationships established because it is obvious that the success of this international co-operation depends very much on a personal contacts. The third ESOREX workshop was organized in December 2004 in Prague with the participation of 25 European countries. The invited papers on the selected actual topics were presented as well as the presentation of each

country representative on the recent situation in respective country on the field of occupational exposure evaluation and registration.

ESOREX website

A special web site has been in preparation and currently awaits EU/EC approval (respectively participating countries approval) to publish all collected data and results. Some general information are already available on the address www.esorex.cz.