STUK

GUIDE **ST 7.4** / 8 DECEMBER 2014

THE DOSE REGISTER AND DATA REPORTING

This Guide is valid as of 1 January 2015 until further notice.It replaces Guide ST 7.4, The dose register and data reporting, issued on 9 September 2008.

Helsinki 2014
ISSN 1456-8160
ISBN 978-952-309-219-8 (pdf)
ISBN 978-952-309-220-4 (html)

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Authorization

The Radiation Act stipulates that the party running a radiation practice is responsible for the safety of the operations. The responsible party is obliged to ensure that the level of safety specified in the ST Guides is attained and maintained.

Under section 70, paragraph 2, of the Radiation Act (592/1991), STUK – Radiation and Nuclear Safety Authority (Finland) issues general instructions, known as Radiation Safety Guides (ST Guides), concerning the use of radiation and operations involving radiation.

Translation. In the event of any differences in interpretation of this guide, the Finnish and Swedish versions shall take precedence over this translation.

This Guide includes the requirements relating to the implementation of Council Directive 96/29/Euratom; OJ No. L 159, 29.6.1996, p. 1 and 90/641/Euratom; OJ No. L 349, 13.12.1990, p. 21.

1 General

A party running on radiation practice (hereafter the responsible party) must arrange individual monitoring for workers in radiation work category A and if necessary also for other workers. The Radiation and Nuclear Safety Authority (STUK) maintains a record of the radiation exposure of radiation workers. This record is known as the Dose Register. The responsible party is liable for ensuring that the results of individual monitoring are submitted for recording in the Dose Register in the manner prescribed by STUK.

This Guide sets out the duties of a responsible party to report data to the Dose Register and the requirements governing the data to be reported. It also presents the principles governing the release of information from the Dose Register.

In the maintenance of the Dose Register and in the use of the information therein, STUK follows the Personal Data Act.

Chapter 3 of the Radiation Decree (1512/1991) sets forth requirements concerning the responsible party's duty to arrange radiation exposure monitoring and medical surveillance. Guide ST 7.1 sets the requirements concerning the arranging of the individual monitoring of workers. In addition, Guide YVL C.2 applies to nuclear power plants. Section 34 of the Radiation Act (592/1991) contains provisions concerning the Dose Register. The requirements for reporting information concerning natural radiation exposure into the Dose Register are set out in Guides ST 12.1 and ST 12.4. The Personal Data Act (523/1999) contains provisions for the processing of personal data.

2 The responsible party shall ensure the correctness of the result of individual monitoring

The responsible party must:

- use an approved dosimetry service for individual monitoring of workers
- ensure that STUK is notified of the results of individual monitoring of workers and other data to be recorded in the Dose Register
- ensure that the data submitted is correct; generally, it is expedient to auhorize an approved dosimetry service to submit data to STUK for recording into the Dose Register
- ensure that the results of the individual monitoring are reported to STUK without delay, and no later than within one month of completing the measurement period
- ensure that the worker in question is informed of the results of individual monitoring
- advice the workers that the results of individual monitoring and the identifying details of the workers subject to such monitoring will be reported to STUK for recording in the Dose Register.

STUK will send the responsible party at least once a year a summary of exposure data on workers in the responsible party's service that have been reported to the Dose Register. The responsible party must check the information in the summary, correct it as necessary, and return it to STUK endorsed with the signature of the responsible party or of the radiation safety officer.

Section 12 of the Radiation Act contains provisions concerning approved dosimetry services.

3 Information concerning the worker, employer and exposure must be reported to the Dose Register

At a minimum, the following data must be reported to STUK for recording in the Dose Register:

- the name, business sector, address and business ID of the employer
- the name of the employer's contact person
- the personal information of the worker
  - the name and personal identity code of a Finnish worker
  - the name, date of birth, sex and nationality of a foreign worker
- the duties of the worker

- details, in accordance with the Dose Register classification, of the radiation source causing exposure to radiation
  - external radiation: such as X-radiation, radiotherapy appliance, sealed source, unsealed source, nuclear power plant, cosmic radiation
  - internal radiation: radioactive substance, its measured activity, date of measurement, and date of intake
- the worker's radiation work category
- the name of the approved dosimetry service that performed the dose determination
- the dates of beginning and ending the monitoring period
- the radiation dose determination method employed
- the result of the dose determination.

STUK issues detailed instructions on the details to be recorded in the Dose Register and procedures on commencing individual monitoring. Further information and the up-to-date abbreviations for the business sector, radiation sources and duty groups can be found on STUK's website.

A radiation dose that is caused during an abnormal incident must be reported in the Dose Register separately from doses caused by occupational exposure. If the radiation dose measurement results are not available, the dose must be estimated. An account of the circumstances of the abnormal incident and of how the dose was determined must also be provided. The same approach is used for radiation doses caused by actions done in accidental situation to limit danger of radiation or to gain control of the radiation source.

Section 17 of the Radiation Decree contains provisions for reporting on abnormal incidents, and Section 13 a of the Radiation Decree contains provisions for reporting observations with safety significance. Guide ST 1.6 and the other ST Guides concerning different functions discuss abnormal incidents related to radiation safety. Section 8 of the Radiation Decree contains provisions for immediate action to be taken in case of an accident.

4 The quantities, units and recording levels provided must be used when reporting dose information

Doses due to external radiation must be reported to the Dose Register using the quantities personal dose equivalent $H_p(10)$ (deep dose) and personal dose equivalent $H_p(0.07)$ (shallow dose).

Deep dose caused by neutron radiation must be reported separately from deep dose caused by photon radiation.

A dose to the fingers and other doses to the hands must be reported as a shallow dose.

A dose to the eye is determined using the quantity $H_p(3)$, which may be estimated from the deep dose and shallow dose. In practice, an adequately precise approximation for the eye dose is the measured shallow dose $H_p(0.07)$ therefore the eye doses are reported in the Dose Register as shallow doses.

The dose determined by calculation must be reported using the quantity effective dose.

A dose due to internal radiation must be reported using the quantity committed effective dose or equivalent dose to thyroid.

The doses must be reported in millisieverts

Table 1. Recording levels (external radiation).

Quantity	Recording level (mSv)	
	Monitoring period 1 months	Monitoring period 3 months
Deep dose (photon radiation)	0.10	0.30
Deep dose (neutron radiation)	0.20	0.60
Shallow dose	1.00	3.00
Dose to the fingers	1.00	3.00
Dose to the eye	1.00	3.00

(mSv) with two decimals. The recording levels applied to measurements of external radiation are presented in Table 1. Doses smaller than the recording levels are registered as 0.00 mSv.

The recording level for an effective dose of external radiation estimated by calculation is 0.10 mSv.

The recording level for a committed effective dose of internal radiation is 0.10 mSv. The recording level for an equivalent dose to the thyroid is 2.00 mSv.

Guide ST 1.9 sets forth the requirements concerning the precision of the radiation measurements, the approval, calibration and verification of the operability of radiation meters and the requirements for the radiation dose measurement services of workers performing radiation work (approved dosimetry services). Guide ST 1.9 also presents the definitions of the quantities and units used in radiation measurements. The maximum values for radiation exposure are enacted in Chapter 2 of the Radiation Decree. Guide ST 7.2 presents the radiation protection quantities that are used to estimate the detrimental effects of radiation and using which the maximum values of radiation exposure (equivalent dose and effective dose) have been provided.

5 Information from the Dose Register is only released to persons authorized to receive it

A worker whose data are recorded in the Dose Register has a right to check his/her own data. The data in the Dose Register may be released, without the consent of the worker, to the practitioner responsible for medical surveillance appointed by the responsible party and to the responsible party for the practice causing the exposure. The data may also be released to a responsible party in a Member State of the European Union when this is necessary to fulfil the obligations of the employer concerning monitoring of radiation exposure.

The data is released in writing form. The Personal Data Act is followed in all transfer and processing of data.

Data may be released for research purposes, subject to the requirements of the Personal Data Act.

The Personal Data Act (523/1999) contains provisions for the processing of personal data. Section 26 of the Personal Data Act contains provisions concerning the worker's right to check his/her own data. Section 33 of the Radiation Act contains provisions regarding the appointment of a responsible practitioner for the medical surveillance of workers in radiation work category A. Section 34 of the Radiation Act contains provisions concerning the release of data from the Dose Register. Section 14 of the Personal Data Act contains provisions concerning the release of data from the person register for research purposes.

6 When performing radiation work abroad, the dose data travels both ways

6.1 The employer must ensure that the information is reported to the Dose Register

A Finnish employer must ensure that data concerning the worker's radiation exposure is reported to STUK's Dose Register even for radiation work that is performed abroad in the employ of a Finnish employer.

When a Finnish worker returns to Finland after performing radiation work abroad for a foreign employer, before any work begins in Finland the Finnish employer must ensure that data on the worker's radiation exposure abroad are properly reported to STUK's Dose Register.

Section 35 of the Radiation Act contains provisions for the employer's duty to confirm that radiation exposure caused by radiation work performed abroad is reported to the Dose Register.

6.2 A Radiation Passbook is required to monitor the overall exposure

A worker leaving to perform radiation work abroad requires information on his/her radiation exposure for the foreign employer. In the EU countries, the Radiation Passbook is used to report the commonly agreed data. The Finnish Radiation Passbook consists of a radiological

monitoring document (see Annex for English template) and a certificate from the practitioner responsible for medical surveillance. The radiological monitoring document is ordered from STUK. The document can be ordered by the responsible party or the worker himself/herself. The prerequisites for the release of information are described in chapter 5.

The Radiation Passbook allows a foreign employer to verify that the worker has been subject to the required medical surveillance and that the doses received by the worker do not exceed the prescribed dose limits. The radiological monitoring document included in the Radiation Passbook is also used to report the radiation doses received by the worker abroad to the Dose Register maintained by STUK.

The foreign employer or approved dosimetry service will record details of the duration of radiation work, exposure during the time at work, and any medical surveillance in the radiological monitoring document. When the work abroad comes to an end, the radiological monitoring document must be returned to STUK in order for its data to be reported the Dose Register. STUK will only issue a new radiological monitoring document to the worker if the previous radiological monitoring document has been returned. The employer must ensure that the radiological monitoring document is returned to STUK. If a Radiation Passbook has been required for work abroad that is not designated by a Finnish employer, the user of the Radiation Passbook is personally responsible for returning the radiological monitoring document.

Appendix C to Guide ST 7.5 contains a template for the doctor's certificate provided for a medical examination.

APPENDIX

STUK

Date
No.

Page 1 (2)

RADIOLOGICAL MONITORING DOCUMENT

This Document is used by Finnish workers exposed to ionizing radiation outside Finland. The Document shall be returned to STUK after working period abroad.
Page 2 of this Document is to be completed by an Approved Dosimetry Service outside Finland.

Surname		
First names		
Identity Number [1]		Male
Last health review [2]		
Nationality		Female
Employer in Finland		

A. EXPOSURE TO RADIATION PRIOR TO THE ISSUANCE OF THIS DOCUMENT

Year		Dose from external radiation (mSv) [3]				Dose from internal radiation (mSv) [4]	Effective dose (mSv) [5]
	$H_p(10)$	$H_p(0.07)$	$H_p(3)$	H_p (0.07) (extremity dose for fingers)	$H_p(10)$ (neutrons)	E(50)	
Sum							

[1] The Identity Number is given the form DDMMYY-NNNN, in which the first part is the date of birth (DD is the day, MM is the month and YY is the year) and the second part is the individual check code.
[2] The document of the last health review is to be kept attached to this Document.
[3] The dose from neutrons is given separately. The estimate $H_p(3)$ of the dose to the lens of the eye is given in cases in which the dose to the lens is remarkably greater than $H_p(10)$ or $H_p(0.07)$.
[4] The dose from internal radiation is given if internal contamination is detected or suspected and if the measured committed effective dose is 0.10 mSv or greater.
[5] The effective dose is the sum $H_p(10)$ + $H_p(10)$ (neutrons) + E(50).

Only the original Document with a signature and stamp is valid.

Signature: _____

Stamp

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B. EXPOSURE TO RADIATION AFTER THE ISSUANCE OF THIS DOCUMENT

This page is to be completed by an Approved Dosimetry Service outside Finland.

Monitoring period		Dose from external radiation (mSv) [1]				Dose from internal radiation (mSv) [2]	Effective dose (mSv)
From to	$H_p(10)$	$H_p(0.07)$	$H_p(3)$	H_p (0.07) (extremity dose for fingers)	$H_p(10)$ (neutrons)	E(50)	

Employer outside Finland	Name: Address:	Contact person: Telephone:
Work	Date of beginning:	Date of end:
Approved Dosimetry Service	Name: Address:	Contact person: Telephone: Signature and stamp:

Employer outside Finland	Name: Address:	Contact person: Telephone:
Work	Date of beginning:	Date of end:
Approved Dosimetry Service	Name: Address:	Contact person: Telephone: Signature and stamp:

[1] Monitoring data after the issuance of this Document is requested to be given as personal dose equivalents $H_p(10)$ and $H_p(0.07)$. When necessary, the estimate $H_p(3)$ of the dose to the lens of the eye shall also be given. The neutron dose $H_p(10)$ (neutrons) is requested to be given separately. If the monitoring data is given in a different way than requested, please make a note of it in the Further information box below.

[2] The dose from internal radiation is requested to be given as the committed effective dose E(50) or as the activity measured with e.g. a whole body counter. The results of the measurements (nuclides, activities and date of intake) and any other information is requested to be given in the Further information box below.

Further information (dose measurements and health reviews):

ST GUIDES (2.4.2015)

General guides

ST 1.1 Safety in radiation practices, 23 May 2013
ST 1.3 Warning signs for radiation sources, 9 December 2013 (in Finnish)
ST 1.4 Radiation user's organization, 2 November 2011
ST 1.5 Exemption of radiation use from safety licensing, 12 September 2013
ST 1.6 Operational radiation safety, 10 December 2009
ST 1.7 Radiation protection training in health care, 10 December 2012
ST 1.8 Qualifications and radiation protection training of persons working in a radiation user's organization, 17 February 2012
ST 1.9 Radiation practices and radiation measurements, 17 March 2008
ST 1.10 Design of rooms for radiation sources, 14 July 2011
ST 1.11 Security arrangements of radiation sources, 9 December 2013

Radiation therapy

ST 2.1 Safety in radiotherapy, 18 April 2011

Diagnostic radiology

ST 3.1 Dental X-ray examinations in health care, 13 June 2014
ST 3.3 X-ray examinations in health care, 20 March 2006
ST 3.8 Radiation safety in mammography examinations, 25 January 2013

Industry, research, education and commerce

ST 5.1 Radiation safety of sealed sources and devices containing them, 7 November 2007
ST 5.2 Use of control and analytical X-ray apparatus, 26 September 2008
ST 5.3 Use of ionising radiation in the teaching of physics and chemistry, 4 May 2007
ST 5.4 Trade in radiation sources, 19 December 2008.
ST 5.6 Radiation safety in industrial radiography, 9 March 2012
ST 5.7 Shipments of radioactive waste and spent fuel, 6 June 2011
ST 5.8 Installation, repair and servicing of radiation appliances, 4 October 2007

Unsealed sources and radioactive wastes

ST 6.1 Radiation safety when using unsealed sources, 17 March 2008
ST 6.2 Radioactive wastes and discharges, 1 July 1999
ST 6.3 Radiation safety in nuclear medicine, 14 January 2013

Radiation doses and health surveillance

ST 7.1 Monitoring of radiation exposure, 14 August 2014
ST 7.2 Application of maximum values for radiation exposure and principles for the calculation of radiation doses, 8 August 2014
ST 7.3 Calculation of the dose caused by internal radiation, 13 June 2014
ST 7.4 The dose register and data reporting, 8 December 2014
ST 7.5 Medical surveillance of occupationally exposed workers, 13 June 2014

Veterinary medicine

ST 8.1 Radiation safety in veterinary X-ray examinations, 20 March 2012

Non-ionizing radiation

ST 9.1 Radiation safety requirements and regulatory control of tanning appliances, 1 July 2013 (in Finnish)
ST 9.2 Radiation safety of pulsed radars, 2 September 2003 (in Finnish)
ST 9.3 Radiation safety during work on masts at FM and TV stations, 2 September 2003 (in Finnish)
ST 9.4 Radiation safety of high power display lasers, 28 February 2007 (in Finnish)

Natural radiation

ST 12.1 Radiation safety in practices causing exposure to natural radiation, 2 February 2011
ST 12.2 The radioactivity of building materials and ash, 17 December 2010
ST 12.3 Radioactivity of household water, 9 August 1993
ST 12.4 Radiation safety in aviation, 1 November 2013