

## HEALTH PHYSICS DOCUMENTATION

Gottfried Stäblein

Safety Department, Karlsruhe Nuclear Research Center,  
D-7500 Karlsruhe, Federal Republic of Germany

When dealing with radioactive material the health physicist gets innumerable papers and documents within the field of researching, prosecuting, organizing and justifying radiological protection.

One group of documentation comprises the description and publication of scientific experiences. It is used to give directions and obligations to health physics in international recommendations, national ordinances and standards.

On the other hand a lot of measurements are registered in order to prove the functioning of radiological protection itself.

Decisions when comparing scientific documentation with measured values still produce more papers.

Book-keeping and storage of radioactive and fissile materials cause more reports on stock, balance and modifications.

In consequence the German Radiological Protection Ordinance requires from the licensee the following written documentation:

- license to handle radioactive material
- appointment of responsible persons
- radiological protection directions
- accident prevention
- instruction of exposed persons
- measurement results: personal dose  
air  
water  
environment
- medical supervision
- radiation passport
- functional tests of radiation monitoring instruments
- inventory of radioactive material

Some figures of the Karlsruhe Nuclear Research Center as an example:

	<u>Fixed data</u>
occupied persons	4 000
occupational-exposed persons	2 500
health physics experts	150
registrars	10
institutes	40
atomic energy act licenses	300
fissile material balance areas	10
	<u>Annual amounts</u>
scientific publications in the field of health physics	70
measurements:	
survey of persons - dosimeter exploitations	40 000
- incorporation controls	5 000
working areas - wiping tests	500 000
- contamination controls	175 000
environment - waste water	16 000
- other activity	
measurements	45 000
book-keeping reports	<u>2 500</u>
Sum data per year	<u>10<sup>6</sup></u>

On the whole radiological protection has to cope with

$10^6$  data per year = 5 000 data per working day  
 = 500 data per hour  
 = 50 data per hour and expert  
 = 1 datum per minute and expert

The result of all data concerning occupational-exposed persons is

only 7 exceedings of personal dose limits  
 or 200 peculiarities (= > 1.5 rem/a) within 10 years.

All data have to be recorded according to law.

Personal dose 30 years  
 radiation passport during the whole professional life  
 material referred measurements 5 years

The necessity of keeping these values should be examined and all registration should be clearly arranged.

As a good motivation for health physics documentation we assume

- distribution of health physics experiences
- check of an positive result of a planned operation
- responsibility for the public.

As a bad motivation for documentation we assume

- demonstration of work
- justification of cost
- uncertainty of measurement results
- political reasons

More than 95 % of all data are useless and will never be used again according to the following decisions:

- Is the measurement correctly made?
- Is a dose limit exceeded?
- Did radiological protection function?

Health physics need more confidence in expert decisions.

By contrentation of

longer periods of time  
collective dose  
risk areas

individual data can be omitted.

Modern administration technics are a real help, i.e.

- office machinery
- computer documentation
- microfilms.

In the Karlsruhe Nuclear Research Center data of personal dosimetry are already dealt with by computer documentation, for material referred values this will be provided in the near future.

Summary:

- Health physics are practical work
- We cannot do without an accompanying documentation
- The scope of nowadays' used documentations could be reduced by critical selection
- documentation is an instrument not a justification of the health physicist.