RETROSPECTIVE ASSESSMENT OF EXPOSURES TO IONISING RADIATION

CONTENTS

Tl	HE INTERN	TIONAL COMMISSION ON RADIATION UNITS AND MEASUREMENTS	. 6
C	ONTENTS .		. {
Al	BSTRACT .	•••••••••••••••••••••••••••••••••••••••	. {
ΡI	REFACE	•••••••••••••••••••••••••••••••••••••••	1:
Εž	XECUTIVE	UMMARY	15
1	INTRODU	TION	19
	1.1 1.2	Dose reconstruction based on measurements performed for individual persons Dose reconstruction based on environmental measurements	20
	1.3	Comparative studies	
2	DOSE QU. 2.1 2.2 2.3	NTITIES	25 26
3	RADIATIO	MEASUREMENTS PERFORMED ON INDIVIDUALS	29
	3.1	EPR retrospective dosimetry with teeth 3.1.1 General definitions and principles of the method 3.1.2 Historical development 3.1.3 Scope of application 3.1.4 Procedures 3.1.5 Determination of dose to enamel 3.1.6 Conversion from dose in enamel to other quantities of interest 3.1.7 Assessment of uncertainties 3.1.8 Perspectives and future work Chromosome aberrations in human lymphocytes 3.2.1 General definitions and principles of the method 3.2.2 Historical development 3.2.3 Indicator system 3.2.4 Conventional dicentric analysis 3.2.5 FISH chromosome painting	29 31 31 32 34 37 39 40 40 40 41 41 41 46
	3.3	8.2.6 Future perspectives	51

CONTENTS

		3.3.2	Historical development
		3.3.3	Scope of application
			<i>Procedures</i>
			Determination of the dose
			Confounding factors
			Future perspectives
	3.4	Soma	tic-mutation assays
		3.4.1	General definitions and principles of the methods
			Historical development
			Scope of application
			<i>Procedures</i>
•			Determination of the dose
			Assessment of uncertainties
			Future perspectives
	3.5		onuclides in the human body
			Measurement techniques
		3.5.2	Reconstruction of internal dose $\dots \dots \dots$
4	ENVIRON	MENTA	AL MEASUREMENTS AND MODELLING
	4 -	.	
	4.1		nescence retrospective dosimetry
			General definitions and principles of the method
			Historical development
			Procedures
			Conversion of the absorbed dose in ceramic to the air kerma
			Assessment of uncertainty
			Future perspectives
	4.2		erator mass spectrometry
			General definitions and principles of the method
			Historical development
		4.2.3	Scope of application
			<i>Procedures</i>
			Determination of the dose
			Assessment of uncertainties
			Future perspectives
	4.3		onuclides in the environment: external exposures
			General definitions and principles of the method
			Scope of application
			Determination of the dose $\dots \dots \dots$
			Assessment of uncertainties
			Future perspectives
	4.4		onuclides in the environment: internal exposures
		4.4.1	General definitions and principles of the method
		4.4.2	Historical development and scope of application
		4.4.3	<i>Procedures</i>
		4.4.4	Combination of human and environmental measurement data
		4.4.5	Determination of uncertainties
_	COLEDADA		
5	COMPARA	TIVE A	ANALYSES
	E 1	T	01
	5.1 5.2		nese atomic-bomb survivors
	5.2 5.3		Mayak Production Association
	0.5		Commental measurements in Hiroshima and Nagasaki
		5.3.1 5.3.2	Gamma rays
			Neutrons with energies above 1 MeV
		0.5.5	Treations with energies above 1 Mev
			6

RETROSPECTIVE ASSESSMENT OF EXPOSURES TO IONISING RADIATION

5.4	Environmental measurements at the Nevada Test Site
5.5	The Chernobyl accident, absorbed doses in air
	5.5.1 Procedures
	5.5.2 Highly contaminated and evacuated settlements
	5.5.3 Populated settlements
6 CONCLUS	IONS AND RECOMMENDATIONS
6.1	Appropriateness of dose reconstruction methods for individuals and for
	population groups
	6.1.1 Measurements performed on individuals
	6.1.2 Environmental measurements
6.2	Appropriateness of dose reconstruction methods for different exposure
	conditions
6.3	Perspectives
APPENDIX: (COLLECTION OF TOOTH SAMPLES FOR EPR ANALYSES
SYMBOLS	
REFERENCE	S
INDEX	