



# Contents

<b>Overview</b>	<b>1</b>
<b>INTERNATIONAL SAFETY CO-OPERATION</b>	<b>1</b>
International Atomic Energy Agency	1
Nuclear Energy Agency of the OECD	3
Commission of the European Communities	3
Council for Mutual Economic Assistance	4
Other international co-operative activities	4
IAEA safety advisory services	5
<b>NUCLEAR POWER PLANT ACCIDENTS: ANALYSIS AND CONTROL</b>	<b>6</b>
Accident prevention and mitigation	6
Feedback of operational safety experience	7
Safety assessment and risk management	7
<b>RADIATION EFFECTS, PROTECTION CONCEPTS AND EXPOSURE CONTROL</b>	<b>8</b>
Basic data on exposure and effects	8
Concepts in radiation protection	9
Applications of radiation protection	9
Emergency response	10
<b>International Safety Co-operation</b>	<b>13</b>
<b>INTERGOVERNMENTAL ORGANIZATIONS</b>	<b>13</b>
International Atomic Energy Agency	13
Nuclear Energy Agency of the OECD	16
Commission of the European Communities	17
Council for Mutual Economic Assistance	19
World Health Organization	20
<b>OTHER CO-OPERATIVE ACTIVITIES</b>	<b>21</b>
World Association of Nuclear Operators: Progress and plans	21
International Nuclear Safety Advisory Group: Programme and progress	21
Nuclear safety programme of the General Conference	22
Operational safety experience with research reactors	22
IAEA consultative meeting with trade unions	22
<b>INTERGOVERNMENTAL AND INTERAGENCY AGREEMENTS</b>	<b>23</b>
Intergovernmental safety co-operation agreements	23
IAEA-WHO co-operation agreement	23
Co-ordination on radiation protection between the IAEA and the CEC	23
Interagency Radiation Safety Committee	24
<b>ENERGY AND THE ENVIRONMENT</b>	<b>24</b>
Nuclear energy and sustainable development	24
Electricity and the environment	24
Intergovernmental Panel on Climate Change	25
Bergen conference on Action for a Common Future	25
Public awareness: Toronto symposium	26
<b>IAEA SAFETY SERVICES</b>	<b>26</b>
Operational Safety Review Teams	26
Assessment of Safety Significant Events Teams	26
IAEA Incident Reporting System	29
Integrated Safety Assessments of Research Reactors	30
International Peer Review Service	30
Peer review of site, design and construction	30
Radiation Protection Advisory Teams	31
Computer codes and databases for safety analysis	32
International Nuclear Safety Standards	34
Nuclear regulatory practices	34
IAEA Emergency Response System	35

<b>Nuclear Power Plant Accidents: Analysis and Control</b>	<b>39</b>
ACCIDENT PREVENTION AND MITIGATION	39
Fire protection and fire fighting	39
Safety implications of plant ageing	40
Reactivity initiated accidents	40
Accident management	41
Updating of IAEA NUSS Codes and Safety Guides	43
Safety research for Soviet WWER reactors	43
Workshop on the safety of future nuclear power plants	43
FEEDBACK OF OPERATIONAL SAFETY EXPERIENCE	46
Recent OSART results	46
Patterns in IAEA-IRS event reports	46
A safety significance scale for events at nuclear power plants	47
Safety experience with pressurized heavy water reactors	49
Safety of research reactors	49
SAFETY ASSESSMENT AND RISK MANAGEMENT	49
Methods, applications and guidelines for probabilistic analysis	49
Probabilistic safety criteria	51
Comparison of the risks of different means of generating electricity	52
Acceptance and tolerance of the risks of nuclear power	52
Assessment of safety significant events	54
Development of safety performance indicators	54
<b>Radiation Effects, Protection Concepts and Exposure Control</b>	<b>57</b>
BASIC DATA ON EXPOSURES AND EFFECTS	57
United Nations Scientific Committee on the Effects of Atomic Radiation	57
BEIR-V report of the Committee on the Biological Effects of Ionizing Radiations	57
Epidemiological studies of leukaemia clusters	58
Activities of the International Commission on Radiation Units and Measurements:	
Status and plans	59
Assessment of the radiological consequences of the Chernobyl accident	60
RADIATION PROTECTION CONCEPTS	63
Activities of the International Commission on Radiological Protection: Status and plans	63
The Chernobyl accident: Criteria adopted for the restriction area	65
Protection in accidents	65
Protection principles for potential exposures	66
Application of exemption principles	67
APPLICATIONS OF EXPOSURE CONTROL	67
Major gamma irradiation facilities	67
Trends in worker exposures	68
Transport of radioactive material	68
Reducing radiation exposure in medical diagnostic examinations	69
Indoor radon: Assessment and control	69
EMERGENCY RESPONSE	70
Emergency decision making tools	70
Environmental transport of radionuclides	71
Monitoring accidental environmental contamination	71
Guidelines of the Codex Alimentarius Commission for trade in foodstuffs	71
Post-accident monitoring of internal contamination	71
Diagnosis and treatment of radiation injuries in emergencies	72
Accident recovery operations	72
Safe disposal of high level radioactive wastes	73
<b>Annexes</b>	<b>77</b>
IAEA Staff Contributors	93
Index	95

