

CONTENTS

1.	INTRODUCTION	1
1.1.	Background	1
1.2.	Objectives	2
1.3.	Scope	3
1.4.	Structure	4
2.	APPROACH FOR DEVELOPMENT OF A NEAR SURFACE REPOSITORY	4
2.1.	Past experience	6
2.2.	Phases of the repository life cycle	8
2.2.1.	Pre-operational phase	8
2.2.2.	Operational phase	8
2.2.3.	Post-closure phase	9
2.3.	Overview of the approach	9
2.3.1.	Waste management framework and waste inventory	9
2.3.2.	Pre-operational phase	10
2.3.3.	Operational phase	12
2.3.4.	Post-closure phase	12
2.4.	Ensuring safety and establishing confidence	13
2.4.1.	Assessment of impacts	13
2.4.2.	Approval, licensing and regulatory oversight	13
2.4.3.	Monitoring and surveillance	14
2.4.4.	Establishing confidence	14
3.	WASTE MANAGEMENT FRAMEWORK AND WASTE INVENTORY	14
3.1.	General	14
3.2.	Legal and regulatory framework	15
3.2.1.	Legal framework	15
3.2.2.	Regulations	15
3.3.	Policy and strategies	17
3.3.1.	Evaluation of needs	17
3.3.2.	Development of a national strategy for waste management	17
3.4.	Institutional factors	18

3.4.1. Waste generators	18
3.4.2. Waste management organization	19
3.4.3. Regulatory body	19
3.5. Cost considerations	20
3.5.1. Costs incurred during the life cycle of a repository	20
3.5.2. Financing repository development and operation	21
3.6. Waste inventory	22
3.6.1. Sources and inventory of waste	22
3.6.2. Waste form	23
3.6.3. Waste packages	24
4. PRE-OPERATIONAL PHASE	25
4.1. General	25
4.2. Selection of disposal concept	25
4.3. Repository siting	26
4.3.1. Siting criteria	26
4.3.2. Site selection and characterization	28
4.3.3. Environmental impact assessment	31
4.4. Repository design	32
4.5. Waste acceptance criteria	34
4.5.1. Radiological criteria	35
4.5.2. Non-radiological criteria	35
4.6. Licensing and authorization	36
4.7. Repository construction	37
4.8. Monitoring and surveillance	38
5. OPERATIONAL AND POST-CLOSURE PHASES	39
5.1. Introduction	39
5.2. Waste receipt and emplacement	40
5.2.1. Receipt of waste	40
5.2.2. Waste emplacement	41
5.2.3. Monitoring and surveillance during the operational phase ..	41
5.3. Backfilling of completed repository sections	42
5.4. Emergency preparedness	42
5.5. Closure	42
5.6. Post-closure phase	43
5.6.1. Institutional controls period	43
5.6.2. Monitoring and surveillance during the post-closure phase ..	44
5.6.3. Corrective actions	45

6.	ASSESSMENT OF SAFETY AND ENVIRONMENTAL IMPACTS . . .	46
6.1.	Safety impacts	46
6.1.1.	Types of assessment	46
6.1.2.	Assessment purpose	48
6.1.3.	Assessment methodologies	50
6.2.	Socioeconomic and environmental impacts	52
6.2.1.	Introduction	52
6.2.2.	Management of socioeconomic and environmental impacts	53
6.2.3.	Environmental statement	55
7.	ESTABLISHING CONFIDENCE	55
7.1.	Application of a systematic approach	56
7.2.	Peer review	57
7.3.	Demonstration of robustness	57
7.4.	Identification and management of uncertainties	58
7.5.	Application of quality assurance procedures	59
7.6.	Documentation and maintenance of records	60
7.7.	Public involvement	61
7.7.1.	Public involvement in repository decision making	61
7.7.2.	Facilitating public involvement	62
8.	SUMMARY AND CONCLUSIONS	63
	REFERENCES	64
	CONTRIBUTORS TO DRAFTING AND REVIEW	75