CONTENTS

1. INTRODUCTION 1

1.1. Background 1
1.2. Scope 2
1.3. Objective 3

2. SCENARIOS FOR THE ILLEGAL TRANSPORT OF RADIOACTIVE MATERIAL 3

2.1. Introduction 3
2.2. Scenarios for the illicit trafficking of radioactive material in public mail 5

3. DISTRIBUTION PATHS OF PUBLIC MAIL AND POSSIBLE MONITORING LOCATIONS 7

3.1. International mail stream 7
3.2. Mail monitoring strategy 8
3.2.1. Introduction 8
3.2.2. Comparing monitoring methods 10
3.2.3. Monitoring of a vehicle or container 11
3.2.4. Automatic monitoring of single mail items with RCMs 11
3.2.5. Combination of vehicle and single mail monitoring ... 11
3.2.6. Monitoring with PRDs 12

4. RADIATION MONITORING EQUIPMENT 12

4.1. Introduction 12
4.2. Radiation portal monitors 13
4.2.1. General 13
4.2.2. Operation 13
4.2.3. Calibration and routine checking 15
4.3. Radiation conveyor belt monitors 15
4.3.1. General 15
4.3.2. Operation 15
4.3.3. Calibration and routine checking 16
4.4. Personal radiation detectors 17

4.4.1. General 17
4.4.2. Operation 17
4.4.3. Calibration and routine checking 18
4.5. Neutron search detectors 18
4.5.1. General 18
4.5.2. Operation 19
4.5.3. Calibration and routine checking 19
4.6. Multipurpose hand-held RIDs 19
4.6.1. General 19
4.6.2. Operation 20
4.6.3. Calibration and routine checking 20

5. RESPONSE PLAN 21

5.1. Detection and verification 21
5.2. Assessment and localization 21
5.3. Identification 22
5.4. Model for a response plan 23

6. IMPLEMENTATION OF PUBLIC MAIL RADIATION MONITORING 26

6.1. Establishing the legal basis 26
6.2. Defining the responsible authority 27
6.3. Contracting a project management team 27
6.4. Defining and implementing a mail radiation monitoring project 27
6.4.1. Design of a mail radiation monitoring strategy 28
6.4.2. Definition of national monitoring locations 28
6.4.3. Identification of appropriate equipment 28
6.4.4. Test phase of equipment 29
6.4.5. Installation of monitoring equipment 29
6.4.6. Development of the response plan 29
6.4.7. Training the local public postal operator 29
6.4.8. Support for the local public postal operator 29

7. TRAINING 30

REFERENCES 33

ANNEX I: PROCESS LEADING TO DETECTION OF RADIOACTIVE MATERIAL IN PUBLIC MAIL 35
ANNEX II: RADIOACTIVE MATERIAL IN PUBLIC MAIL: FOUR DIFFERENT SCENARIOS 36