

EMRAS II

WG 5:

Radionuclide Transfer to wildlife

TRS:

RADIONUCLIDE TRANSFER TO WILDLIFE

EMRAS II Jan 2011



Centre for
Ecology & Hydrology

NATURAL ENVIRONMENT RESEARCH COUNCIL

Activities

- Key output TRS on transfer to wildlife
 - Core ‘drafting group’
- On-line database – all contributions acknowledged in TRS
- Publication in Radiation Environ Biophys
- First draft considered at TM in 2010
- Second draft considered in mid term meeting in Sept 2010
- Final draft at this meeting

Equilibrium whole organism concentration ratios (CR_{wo})

- used to predict radionuclide activity concentrations in wildlife from exposure to radionuclides in media.
- The CR_{wo} value is defined as the radionuclide conc in whole organism (Bq/kg fw) divided by the radionuclide concentration in the media (Bq/kg dw soil, water or sediment) or Bq/m³ air)

Database

- Collate & summarise transfer data
- Outputs
 - IAEA handbook
 - ICRP transfer task group
- Database will remain available
- Regular updates

Objectives

Provide IAEA Member States with data for use in the radiological assessment of wildlife as a consequence of routine discharges of radionuclides to the environment and existing contamination situations. Application to accidental release is also considered.

CONTENTS

1. INTRODUCTION

- *Background*
- *Objectives*
- *Scope*
- *Structure*

2. CONCEPTS AND QUANTIFICATION

- Transfer processes and exposure pathways
 - Physical and chemical processes
 - Biological uptake
 - Exposure routes
- Current approaches used in assessment models
 - Equilibrium Concentration Ratios
 - Specific activity approaches
 - Approach used in this handbook

3. DATA COLLATION, MANIPULATION AND EVALUATION

- Purpose of the wildlife transfer database
- Structure of the wildlife transfer database
 - Data entry issues
- Data transformations
- Calculation of the summary concentration ratios

4. TRANSFER VALUES FOR WILDLIFE

CR_{WO} tables for:

- *Terrestrial environments*
- *Freshwater environments*
- *Marine environments*
- *Estuarine environments*

Guidance on how to use the values provided

5. APPROACHES FOR FILLING DATA GAPS

- Surrogate organisms
- Phylogenetic relationships
- Biogeochemical analogues and ionic potential
- Allometry
- Data from a different ecosystem
- Use of published reviews

6. CURRENT LIMITATIONS OF THE APPROACH AND DATA

- **Appendix I.** Tissue conversion tables
- **Appendix II:** References for CR_{wo} tables
- **Appendix III:** glossary
- **References**
- Contributors to drafting and review

This week

- Sessions
 - Monday afternoon
 - Briefing on final data selection for TRS
 - Handbook comments
 - Thursday
 - Handbook comments
 - Presentations on the CR_{wo} values
 - Using the new TRS values for different sources / applications
 - Future actions