

**The IAEA's Programme on
Environmental Modelling for Radiation Safety
(EMRAS II)**

**EMRAS II
Reference Approaches for Biota Dose Assessment
Working Group 5
Wildlife Transfer Coefficient Handbook
MINUTES
of the First Meeting held at IAEA Headquarters, Vienna
19–23 January 2009**

IAEA Scientific Secretary	Working Group Leader
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*Initials used to refer to participants within minutes and actions as appropriate.

Background

The TRS handbook will be drafted largely by a Core Group (Brenda Howard (BJH), Nicholas Beresford (NAB), CEH, David Coppleson, EA (DC), UK; Kathryn Higley, Oregon University, USA (KH); Justin Brown, NRPA, Norway (JB) – with Diego Telleria (DMT) as the IAEA Scientific Secretary) which convened in November 2008. The handbook is being prepared in close collaboration with the ICRP Committee 5: Transfer task group and the International Union of Radioecology, Task force on Doses to Biota. National support has currently been given by Norway and the UK (funding for database development).

Objectives

The objectives of the Handbook are to: 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.

The EMRAS II Working Group 5 “Wildlife Transfer Coefficient Handbook” (WG 5) is focusing on the provision of relevant data via an online database to support the production of a Transfer handbook for wildlife. The Core Group (except Kathryn Higley (KH)), of participants are listed above.

Interest has also been expressed by IAEA Monaco, and scientists in India and Ukraine.

Workplan

The workplan agreed at the meeting was:

- online database, populated with ERICA database – end of March 2009;
- 15–19 June 2009 [IAEA Monaco have kindly agreed to host this meeting] – 1.5 day ICRP Task Group (TG) Meeting (TG members only) then EMRAS workshop on aquatic transfer to midday 19 June;
- 20–24 July 2009 [IAEA Headquarters, Vienna] – 22–24^{July} midday ‘ 2.5 day WG 5 Working Group Meeting on terrestrial transfer and generic approaches (20–21 July will be the EMRAS II Working Group 4 “Biota Modelling” (WG 4) Meeting);
- September/October 2009 [Oregon, USA] – text drafting workshop [also database with participants from American continent] possible ICRP meeting also.
- 25–29 January 2010 (IAEA Headquarters, Vienna) Second EMRAS II Technical Meeting – final draft for peer review by Working Groups 4–6 under the theme entitled “Reference Approaches for Biota Dose Assessment”;
- Ongoing database supplementation after TRS publication.

So far the **contents of the handbook** have been agreed and some text has been prepared. The major chapter headings are:

- (1) Introduction;
- (2) Definitions and units;
- (3) Concepts and quantification;
- (4) Data manipulations and evaluation;
- (5) Transfer values for non human biota; and
- (6) Approaches for filling data gaps.

The text was briefly reviewed by the group and the need for conversion factors for dry and ash weight to fresh weight, and for organ to whole body weights was noted. The potential for data derived for foodchain studies from wild species to be reworked to provide whole body values was discussed and will be evaluated by relevant partners. The group agreed that they would consider whether they could derive new data from analysis of stored samples by techniques such as ICP MS and Neutron Activation. It may be possible for analysis to be carried out in laboratories of some of the participants – requests for analyses to go through BJH if useful.

The draft online database (draft format below), developed in collaboration with the IUR, was presented and improvements were discussed. The database web site will now be revised by the EA in the UK and populated with the individual entries from the ERICA Tool. Hopefully, the database will be made available for other entries to everyone by the end of March 2009 and all inputs will be quality checked. The database will eventually provide the tables for the TRS Handbook (see draft format below) and for the ICRP C5 Transfer report concerning Reference Animals and Plants (RAPs). Anyone who enters data will be acknowledged in the list of contributors in the IAEA Handbook. A special issue of a journal is also being considered.

DRAFT of on-line database entry page:

The screenshot shows a web-based data entry form for the 'Non-Human Species Transfer Parameter Database'. The form is organized into several sections with various input fields, dropdown menus, and text boxes. At the top, there is a green header with the title and navigation links (Home, Help, Report problems, Logout). Below the header, there is a note about adding new records and a link to 'Send paper electronically'. The form fields include: Reference ID Number (10_93352), Year, Author, Article Title, Publication type (Abstract), Location (Electronic), Habitat (Terrestrial), Wildlife Group (Amphibian), Species Common (Green frog), Species Latin, ICRP RAP (Frog), Studytype (Field), Measurement Date (2000), Location, Lifestage (Adult), Notes, Biological half life info, Element/Nuclide, Media Type (Soil), Media wetdry (Dry), Media conc (1000), Media units (Bq/kg), N for media (12), SD for media (45), Tissue type (Wholebody), Status of biota (Wet), Biota conc (55), Biota units (Bq/kg), N for biota (20), SD for biota (44), Concentration Ratio (0.055), N of CR (20), and SD of CR (0.03). At the bottom, there are 'Add All' and 'Add Mid' buttons.

Non-Human Species Transfer Parameter Database							
Home Help Report problems Logout							
Transfer: <input type="text" value="Amphibian"/>							
<input type="checkbox"/> Show all <input type="button" value="Submit"/> <input type="button" value="Cancel"/>							
Element	Mean	Min of FW CR	Max of FW CR	SD of FW CR	Geo Mean	GE90%	N
Air	0.43485	0.0174	2.09	0.82271	0.20321	3.43328	139
Cd	0.0143	0.005	0.024	0.01344			2
Ca	0.16186	0.10309	0.2433	0.06444	0.13016	1.46018	139
Pu	0.00926	0.00042	0.125	0.02179	0.00362	3.9362	61
Sr	0.08484	0.00686	0.38123	0.07825	0.06131	2.20361	56
H	0.29						1

Action List (discussed in and around the meeting)		
Action	Responsible	Deadline/Status
Set dates for mid term meetings on transfer and biota modelling in Vienna	BJH, NAB	Done 22 nd – 24 th midday 2.5 day workshop terrestrial transfer & generic approaches (20-21 st Biota Modelling Group meeting)
Set dates for mid term meetings on transfer and ICRP C5 TG meeting in Monaco	BJH, NAB	Done 15 th – 16 th midday ICRP TG only; 16 th midday – 19 th midday workshop aquatic transfer
Request rooms with internet wifi	BJH	Requested 24/1/09 for Vienna Requested 30/1/09 for Monaco
Explore potential special issue (or joint publication in one volume) of a journal	CEH	Done. Special issue agreed with Radiat. Environ Biophys. 28/2/09
Database draft guidance document and circulation for comment	DC, NAB	6/2/09
Send comments on guidance	All	15/2/09
Provide data to facilitate conversion in database from ash-dry-weight and organ weights to whole body	All	28/2/09
Contact Posiva re potential data for entry into database	STUK	28/2/09
Database available online for data entry with ERICA data	DC, NAB, JB, TY	31/3/09
Email IUR members re database	DC	31/3/09
Email BJH, NAB if attending Monaco June meeting	All	13/3/09
Email BJH, NAB if attending Vienna July meeting	All	11/5/09
Look for source info for data in USA	TH, KH	31/3/09
Collate data for database entry at meetings and thereafter	All	Ongoing activity; deadline for inclusion in TRS autumn 09
Identify possible stored wildlife samples or collectible samples of biota/media which might be analysed by ICP-MS or NAA to provide additional database entries	All	31/3/09
Explore potential for converting data collected for human foodchain (ie edible fractions of wildlife) to whole body using suitable conversion factors	All	June and July meetings