

## IAEA/EMRAS

### **Revision of the IAEA Technical Reports Series No. 364 :Handbook of parameter values for the prediction of radionuclide transfer in temperate environments**

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#### **Background**

The IAEA TRS 364 "Handbook of parameter values for the prediction of radionuclide transfer in temperate environments" was published in 1994, based on data available up to 1992. Since that period, new data have also been produced, such as post-Chernobyl information, and new experimental results, potentially completing the existing data and syntheses, which are now more than 10 years old.

TRS 364 is widely used as a major source of information, because it addresses numerous environmental transfer parameters and radionuclides. It is thus quoted in nearly all impact assessments, even if amended or completed by the scientific community (radiation protection, radioecology). In particular, it is used in the most recent international methodologies, like the IAEA SRS 19 published in 2001. It is consequently important to keep such a document as accurate, relevant, and complete as possible.

Among the various issues which had to be discussed, there were two major items which are prominent because belonging to the driving process of the revision :

1) The question of the implicit assessment purpose which would be borne in mind when selecting data : should the parameter values considered as realist, reflecting a given reality, or best estimates, as average of relevant source data, or conservative, as used in numerous impact assessments ? The answer was not straightforward, since prominent international documents like SS 57 (1982) and its revision SRS 19 (2001), as well as TRS 364 itself were not clear and consistent about that matter. There is certainly a need to homogenise these views and be more careful about uncertainty specifications.

2) The question concerning the implicit modelling assumptions : most often, steady state modelling has been assumed as a general feature of most existing methodologies (previous assessments, IAEA documents), and this view should be kept due to some scientific necessities (lack of knowledge) or due to the required technical consistency with previous assessments. However, it is well known that the equilibrium assumption may be wrong (e.g. soil migration and accumulation, animal physiology), and that there are domains where time dependency is prominent (accidental release, routine release when not averaged over the year). Therefore, the introduction of dynamic parameters should be considered when possible.

#### **Overall objective**

Review and revise the IAEA TRS 364.

#### **Specific objectives**

The aims of the programme which need to be addressed include :

- to critically review data quality and analysis
- to provide critical missing data and key processes
- to extend information to other processes and climatic zones
- to consider dynamic modelling approaches

## **Availability of data**

Since 1992, new data have been made available, either through well controlled experiments, or arising from field measurements. Their identification, review and inclusion will be one of the first major tasks to perform.

## **Modus operandi**

- Distribution of initial draft recommendations produced in 2000 and of a questionnaire regarding participation
- Plenary meeting in September 2003 : identify core group consisting of people willing to contribute to major tasks, and appraise the extent of the overall interested participants
- Core group should have close collaboration and interchange with the Working Group (*e.g.* web based system) ; links with other EMRAS Working Groups should exist because some of their inputs are necessary for the revision (*e.g.* watershed WG and improvement of the river chapter in the TRS)
- Initial phase : establishing links with key people, consider new data availability
- Compilation and evaluation of databases for parameter values
- Anticipate one working group meeting per year for 4 years to discuss working materials
- Target new TRS draft available in 3 years

## **Work plan**

- August 2003 (before EMRAS first plenary) : distribution of modified existing recommendations issued in 2000, and distribution of a questionnaire
- September 2003, EMRAS plenary : need to identify key participants, volunteers by domain for centralising efforts, and key data owners ; need to agree on work and milestones
- May 2004, WG meeting, Cadarache, with all interested participants
- End 2004, EMRAS plenary : first draft on the critical analysis of TRS 364, synthesis on new available data, draft of computerised database
- April/May 2005, WG meeting, Cadarache, with all interested participants
- End 2005, EMRAS plenary : final documents on the TRS critical analysis and on data availability, draft of TRS concerning already included parameters, draft on new parameters/ processes to be included, draft CD-rom with new data
- April/May 2006, WG meeting, Cadarache, with all interested participants
- End 2006, EMRAS plenary : draft of overall new TRS, draft 2 of CD-rom with source data
- 2007 : finalisation

## **Potential participants**

The participants will critically depend on who replies, and what level of support they have from their organisations (regarding both travel and labor resources).

The types of radioecological expertise which would be needed include : agricultural (atmosphere to plants, soil to plant, plant to animal) under various climate conditions (*e.g.* temperate, Mediterranean, tropical) ; semi-natural (atmosphere to plants, soil to fungi, plants and animals) under various climate conditions (*e.g.* temperate, arctic, boreal), aquatic freshwater only. Dynamic modelers should participate too.

According to initial replies and registrations, several tens of people are expected to participate. Active participation at the first plenary was around 20 people.

**Necessary funding**

Funding is a critical issue but is difficult to address before the actual work is launched. It is assumed that it could be useful for helping some participants to attend meetings, but that it cannot be used for subsidising “home-work” : the actual work should be self-funded.

**Potential sources of funding**

Potential donors could include national bodies or international organisms. Discussions are only at their beginning.

**Chairperson**

Pascal Santucci, Institute of Radiological Protection and Nuclear Safety (IRSN, France), head of the laboratory of environmental modelling.

**IAEA scientific secretary**

Gabriele Voigt, director of the Agency's laboratories Seibersdorf (IAEA/NAAL).