

## APMP/TCRI Activity Summary 2003

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### Introduction

The Asia Pacific Metrology Program (APMP) Technical Committee on Ionizing Radiation (TCRI) was established in August 1998. The initial Chair was Mr Wen-Song Hwang at the Institute of Nuclear Energy Research (INER), Taiwan. In 2000, Dr Tae-Soon Park of the Korean Research Institute of Science and Standards (KRISS) became the TCRI Chair. The present Chair Dr David Webb of ARPANSA was elected to the position in November last year.

Two workshops have been held in conjunction with APMP General Assemblies. The first was in Bangkok, Thailand, in November 2000, and the second was in November the following year in Tsukuba, Japan. No workshop was held in 2002. The next workshop will be held in Singapore, in November 2003 prior to the APMP meeting.

The TCRI has four working groups. Three working groups (Photon & Electron Dosimetry, Radioactivity and Neutron Dosimetry) support the program of regional key and supplementary comparisons. The CMC Review working group undertakes the assessment of submissions from laboratories before being passed to the JCRB for external review.

### CMC submission and review schedule

Since September 2000 there have been four internal review rounds with a major assessment at the Tsukuba workshop. As indicated below, on March 13 this year CMCs from eight economies were submitted to the JCRB for inter-RMO review. Two submissions were withheld, as the laboratories involved had not been formally designated by the signatory of the MRA in the appropriate country. The Office of Atoms for Peace (OAP) in Thailand is also yet to be designated by the signatory in that country (NIMT), but the necessary arrangements are being made.

- Intended but not yet submitted to intra-RMO review

Economy	NMI	No. of CMCs	Planned Date of Submission	Comment
Thailand	OAP	40	28/3/2003	CMCs to Review WG. Questionnaire to be submitted

- CMCs under intra-RMO review

Economy	NMI	No. of CMCs	Date of Submission*	Expected Date of Review Completion**
Japan	AIST	316	17/4/2002	13/3/2003
Australia	ARPANSA	22	17/4/2002	13/3/2003
Australia	ANSTO	27	17/4/2002	13/3/2003
China	NIM	228	31/10/2002	13/3/2003
Korea	KRISS	162	17/4/2002	13/3/2003
Taiwan	INER	90	17/4/2002	13/3/2003
India	BARC	60	17/4/2002	Deferred - non signatory of MRA
Malaysia	MINT	17	17/4/2002	Deferred - non signatory of MRA

\* Date of last round for submission

\*\* Date sent to JCRB for inter-RMO review

### Review scheme and procedure

Experts in the areas of radioactivity, photon and electron dosimetry and neutron dosimetry were appointed to form a CMC Review Working Group which reviewed and evaluated the CMC files and accompanying documents.

The review was carried out according to the APMP criteria for the acceptance of data for entry to Appendix C, which are based on the JCRB criteria as revised in October 2001. Pre-evaluation and discussion between institutes was done at TC workshops in November 2000 and November 2001.

Several issues occurred in the filling of the CMC entries. One was the ambiguity in the description of radiation instruments or artifacts and methods. The specification of radiation qualities also provided confusion. The guidance from the CMC rules is not detailed in those areas where there is a need to reconcile the descriptions with the magnitudes of measurands and their uncertainties. The entries were frequently resolved on a case by case basis, which does not always lead to a consistent result.

Over the past two years, the CMC Review WG has also reviewed the ionising radiation CMCs from the following Regional metrology Organisations (RMOs): EUROMET - 14 Institutes; COOMET - 2 Institutes; SADC MET - 1 Institute; IAEA - 1 Institute.

### 3. Key comparison schedule

The following comparisons have been organised or are in the process of being developed.

Name of Comparison	Field	Pilot Lab	Participating Laboratories	Period or Status
APMP.RI(I)-K1	Air kerma (radiation: Co-60 gamma rays)	KRISS	AIST, ARPANSA, BARC, INER, KRISS, MINT, PNRI, CSIR, IAEA	2003.1 to 2004.12 – to commence
APMP.RI(I)-K3	Air kerma (radiation: medium energy X-rays)	INER	AIST, ARPANSA, BARC, INER, KRISS, MINT, P3KRBiN, CSIR, IAEA, MOPH, NSCL	2000.7 to 2003.6 – in progress
APMP.RI(I)-K4	Absorbed dose to water (radiation: Co-60 gamma rays)	BARC	ARPANSA, BARC, INER, SIRIM, CSIR, NSCL	1999.11 to 2000.8 - completed
APMP.RI(II)-K2.Ho-166m	Activity of radionuclide $^{166m}\text{Ho}$	AIST	AIST, INER, KRISS, MINT, NIM, OAEP, P3KRBiN, CIAE, CNEA, NINT	1999.4 to 1999.9 – complete & published
APMP.RI(II)-K2.Co-58	Activity of radionuclide $^{58}\text{Co}$	AIST	AIST, ANSTO, BARC, INER, KRISS, MINT, NIM, OAEP, P3KRBiN, CIAE, CNEA, LNMRI, NIST, NPIC	2000.3 to 2000.7 – complete & published
APMP.RI(II)-K2.Y-88	Activity of radionuclide $^{88}\text{Y}$	AIST	AIST, ANSTO, BARC, INER, KRISS, MINT, NIM, OAEP, P3KRBiN, CIAE, CNEA, LNMRI, NIST, NPIC	2000.3 to 2000.7 – complete & published
APMP.RI(II)-S1.Cl-36	Surface emission rate of large area source	AIST	AIST, INER, KRISS, CSIR, PTB, NIST, VNIIM	2000.7 to 2002.12 – in progress
APMP.RI(II)-S2.Ho-166m	Response function of ion chamber PA/r(E)/Ho-166m	AIST	AIST, BARC, INER, KRISS, OAEP, P3KRBiN	2002.4 to 2004.3 – in progress

There is one comparison in the table above, which was completed as far as the collection of results is concerned in August 2000, but which is yet to be reported in a published form. The reason for this delay has not been resolved. A possible difficulty may be the availability of a suitable journal in the region that can be utilised for these publications.

The APMP.RI(I).K1 comparison has been in the planning phase for nearly 4 years but has not been initiated. The protocol has been approved by the TCRI but has yet to be ratified by the CCRI. An application is being submitted to this meeting.

These issues might have been addressed in November if the TCRI had had a workshop at the time of the General Assembly and it is felt that for the next few years, workshops should be held annually in order to maintain progress in the comparison program.

## **7. Other matters**

It has been suggested that the TCRI have its own webpage to encourage communication and to list the TC's accomplishments. Offers to host the page have been received from some members. At the present time, there are no links to TC pages from the APMP website.

A meeting of TC Chairs in the APMP region was held in Tsukuba, Japan, on March 24-25. This provided useful discussions of the CMC review process and problems that have been experienced in the different TCs. The procedures to be followed in the APMP for review and acceptance of a quality system required by the MRA were also presented and discussed.