Radioactivity Standards Laboratory
NMISA
Cape Town, South Africa

Review of the activities at the National Metrology Institute of South Africa
(June 2007 to April 2009)

Contribution to the 20th meeting of Section II, CCRI , June 2009

Staff Members
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International Activities

- Organized and participated in the ICRM 2007 conference held in Cape Town, South Africa in September 2007. Refereed papers in the area of liquid scintillation counting accepted for the conference. In January 2008 collated and submitted all the finalised manuscripts for publishing in the conference proceedings.
- Represented SADCMET at the CCRI RMO Working Group meeting on CMCs held at the BIPM in November 2007. Also participated at two CCRI(II) Working Group meetings (Key Comparison WG and Uncertainties WG) a few days later.
- Undertook a 5-week visit to IRMM, Geel, Belgium in February 2008 and participated in liquid scintillation related projects (WMvW).
- Attended the ICRM Executive Board (EB) meeting held at the Slovak Institute of Metrology (SMU), Bratislava during May 2008.
- Presented a paper in poster form at the Liquid Scintillation Spectrometry Conference (LSC 2008) held at Davos, Switzerland in May 2008.
- Participated in the CCRI(II) Activity Uncertainties and Comparisons Workshop held at the BIPM in September 2008, as well as the CCRI(II) Key Comparisons Working Group and Uncertainties WG meetings.
- Attended the ICRM Scientific Committee and EB meetings held in March 2009 at the SMU, Slovakia.
- Reviewed radioactivity CMCs submitted by various national laboratories (SIM and EUROMET regions) on behalf of the SADCMET region.
- A number of manuscripts that were submitted to an international scientific journal for publication were reviewed on request.
- Participated in the ICRM international comparison of the analysis of ^{99}Tc TDCR data.

- Participated in an international key comparison of tritiated water activity measurements in the first half of 2009.
- Intend to participate in the international key comparison of the activity concentration determination of a ^{177}Lu solution, scheduled to begin in late April 2009.

Research, maintenance of standards and laboratory services

- In July 2007 the Radioactivity Standards laboratory successfully underwent its 2nd three-yearly international assessment by the South African National Accreditation System (SANAS) for accreditation purposes (ISO/IEC 17025).
- In early 2008 all quality management system procedures pertaining to the Radioactivity Standards laboratory were updated.
- Freda van Wyngaardt was awarded the degree of PhD in June 2008 at the University of Cape Town midyear graduation ceremony. The title of her thesis is: *A new liquid scintillation counting technique to resolve mixtures of two pure beta-emitting radionuclides*.
- In July 2008 the RS laboratory was inspected for compliance by the Directorate Radiation Control of the Department of Health.
- The training of two new staff members started, (JL) from October 2008 onwards and (MJvS) from January 2009.
- The RS laboratory successfully underwent an 18 month quality assessment for accreditation purposes in December 2008. Revised and additional radioactivity BMCs were submitted to SANAS to extend the scope of the laboratory.
- Preparation has begun on a manuscript on ^{55}Fe activity measurements that was accepted for the ICRM 2009 conference as a poster presentation and as a full paper for the proceedings.
- A number of ^{131}I capsules, which are administered orally to patients, were measured for clients for verification and calibration purposes. The activity of a ^{137}Cs source was checked for a nuclear medicine facility and two ^{152}Eu sources for an isotope production facility. A number of ionization chambers maintained at a particle accelerator facility were checked for long-term stability and a ^{18}F calibration factor was determined for one of the chambers. The activities of ^{131}I and ^{99}Mo solutions were measured on a number of separate occasions for a reactor based isotope production facility.