

The Beginning of the Korean Whole Body Counting Intercomparison Program

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EXTENDED ABSTRACT

The Korea Atomic Energy Research Institute (KAERI) is intending to establish a national *In-Vivo* intercomparison program for whole body counting, lung counting and thyroid monitoring. To assist in getting the program established quickly, KAERI invited the head of the Human Monitoring Laboratory (HML) to visit KAERI and advise them on topics of interest.

The Republic of Korea is a densely populated country that is rapidly industrialising. The population is approximately 50,000,000 persons and the population density is 509 km⁻² (1,316 m⁻²). The industrialisation and rising population are putting more demands on the power generating capabilities of the Republic.

The Korean nuclear program is, therefore, expanding and radiation protection has become very important in Korea. It is intended that the four power reactor sites will be expanded so the existing 9 units, currently generating 7,720 MW, will be expanded to 16, generating 10,000 MW. Currently 40% of the Republic's electricity is generated by nuclear power. This will rise to 71% after the new reactor's come on-line. The Republic of Korea also has a fuel fabrication site co-located with KAERI.

The Internal Dosimetry section of KAERI is interested in implementing quality assurance (QA) and performance criteria for the different nuclear sites in the republic. Part of the QA will be a national *in-vivo* intercomparison program. This program has been divided into three sections:

- whole body counting
- lung counting
- thyroid counting

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Whole body counting: KAERI will use BOMAB phantoms with a variety of radionuclides that would be expected to be present at their power reactor sites. Currently all of the sites have close-chair geometry whole body counters. It is expected that the results of the forthcoming intercomparison will prompt these facilities to upgrade their counters to a less geometry sensitive whole body counter.

Lung counting: KAERI has a third generation LLNL phantom. The lungs are sliced and flat laminated sources will be used.

Thyroid counting: No plans to implement this program in the near future.

Equipment: Steel counting chamber with graded liner. Two Canberra Act II germanium detectors and a rectangular NaI scanning detector below the bed. Abacus software for spectral analysis.

This presentation will discuss:

- the state of the laboratories
- the locale
- some interesting sites
- the scope of the intended programs
- the equipment to be used in the intercomparisons.