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Exceptional service in the national interest

Sandia National Laboratories

In-Vivo Capabilities

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Sandia National Laboratories

Radiation Protection and Sample Diagnostics Program

SAND xxxx-xxxxC

Overview

- Equipment
  - History
  - Purpose
  - Contingency
- Quality Control
  - In-house
  - Inter-comparison
  - Accreditation
- Questions

Equipment

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Canberra Accuscan II

Equipment: History

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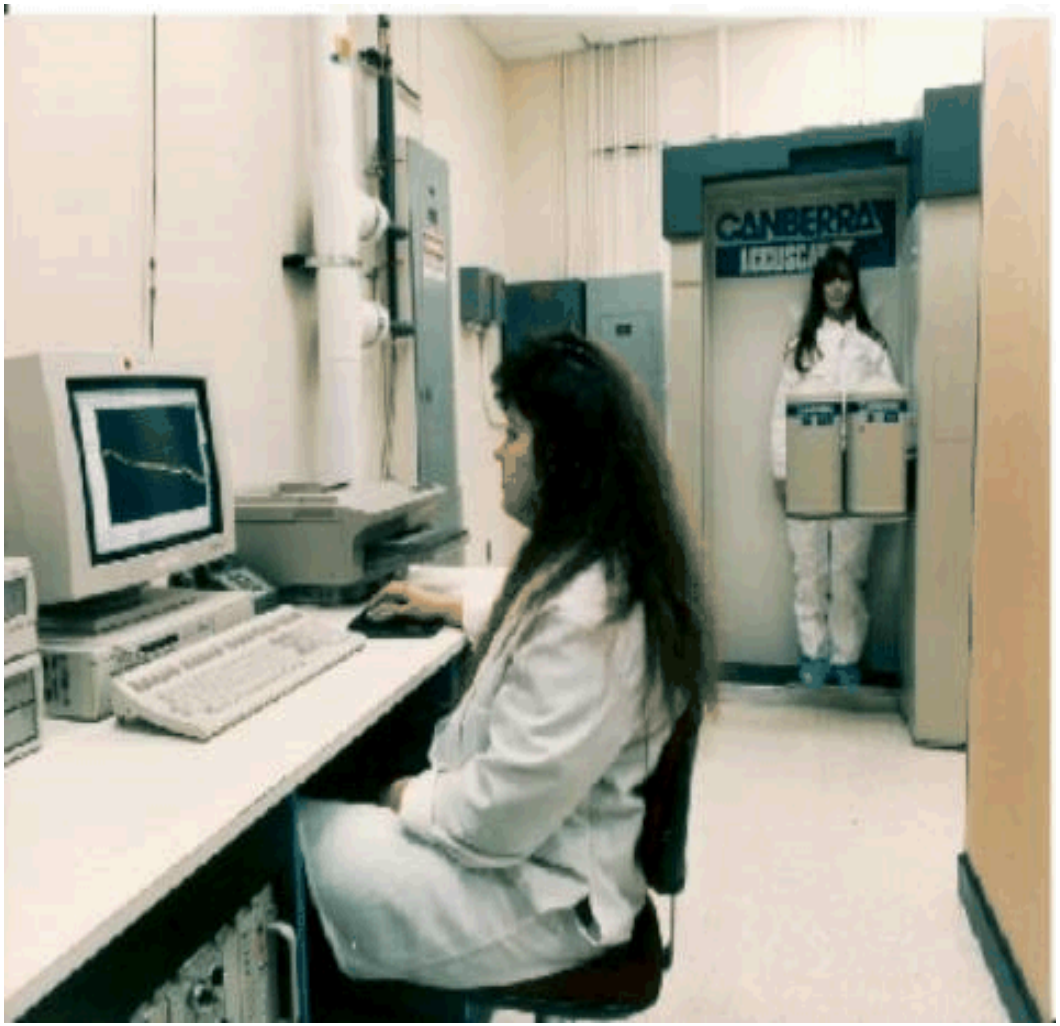
Purchased MCMXCII

60 patients per year



Equipment

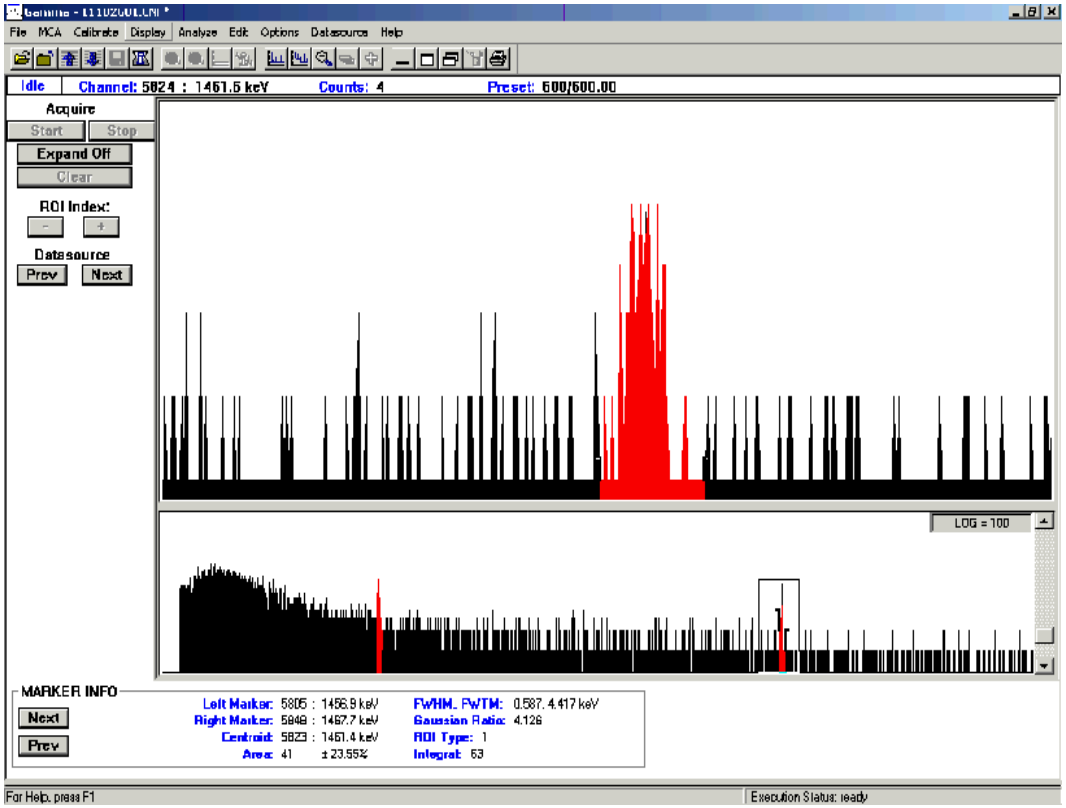
Array of two LN-cooled 40% HPGe (P-type)

Equipment

Sandia National Laboratories

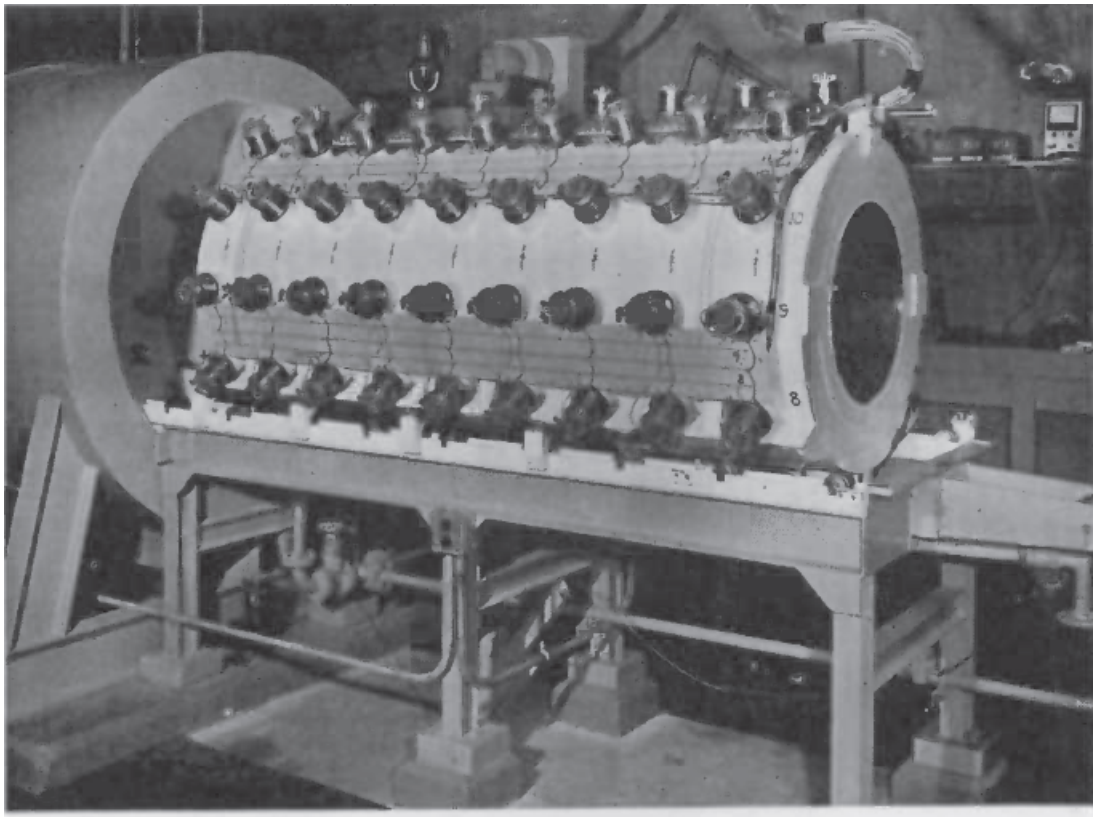
Original Analog Amps, ADCs, AIM

Equipment: Purpose



- Detect and quantify energetic photons from internal sources.
- Quick: High resolution and efficiency give results in ten minutes.
- Little concern about transuranics at SNL

Equipment: Contingency



THE LOS ALAMOS HUMAN COUNTER

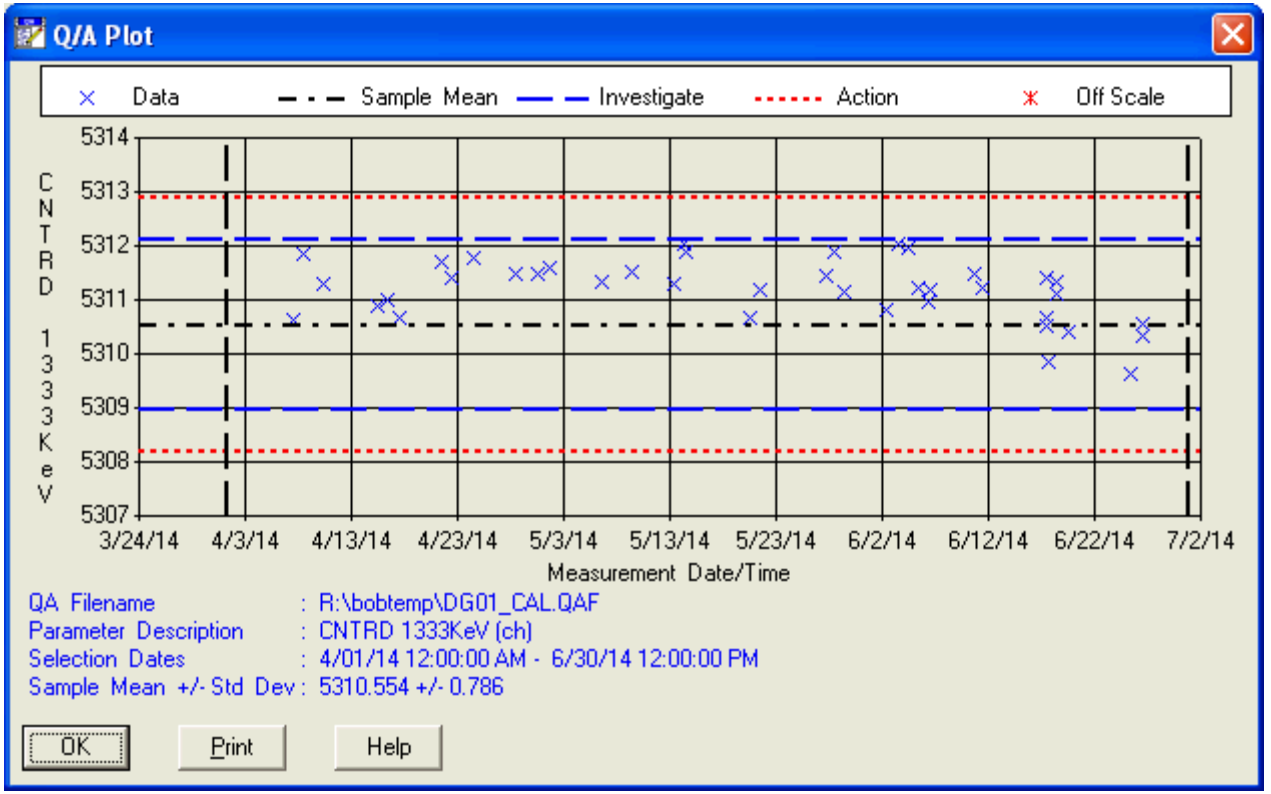
LANL PHOTO ca. 1957

lsc1957_211.pdf

We have assistance agreement with LANL if TRUs are a concern or if we are inoperable.

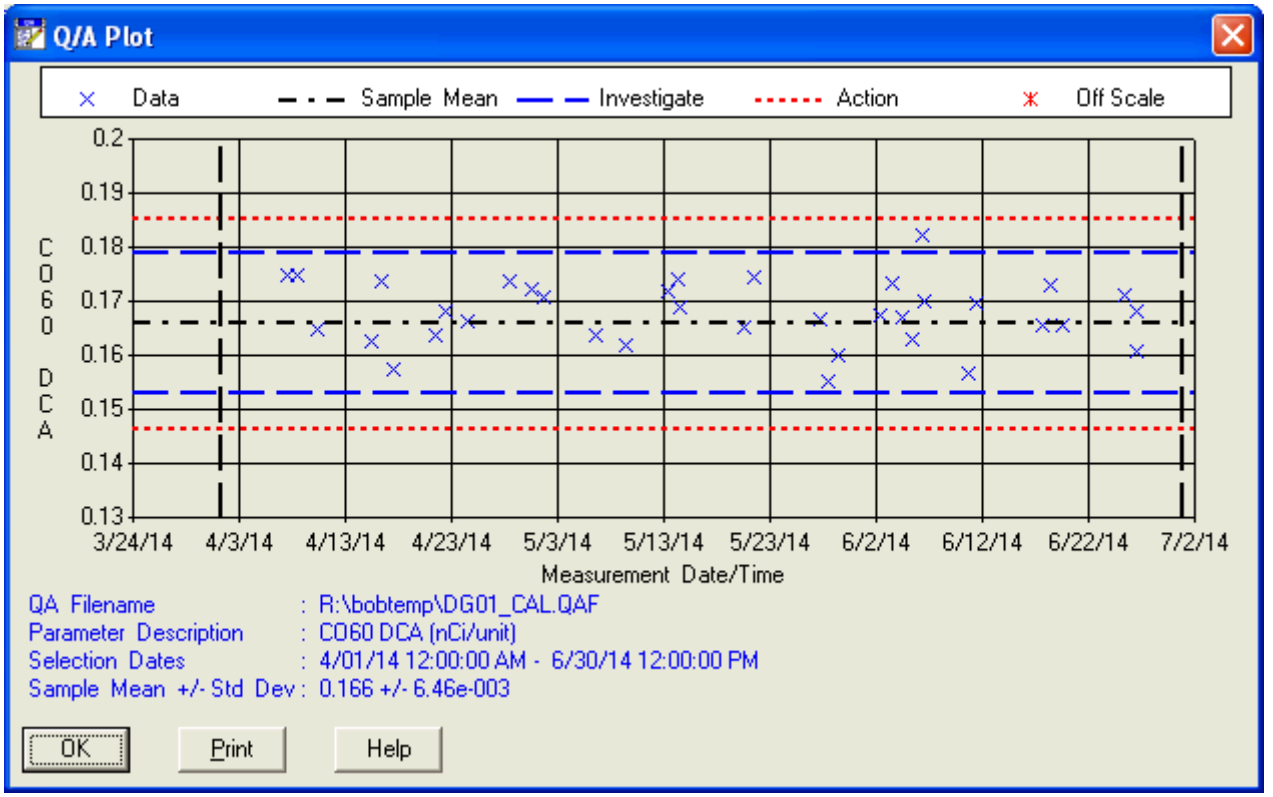
Quality Control: In House

We track amplifier gain,



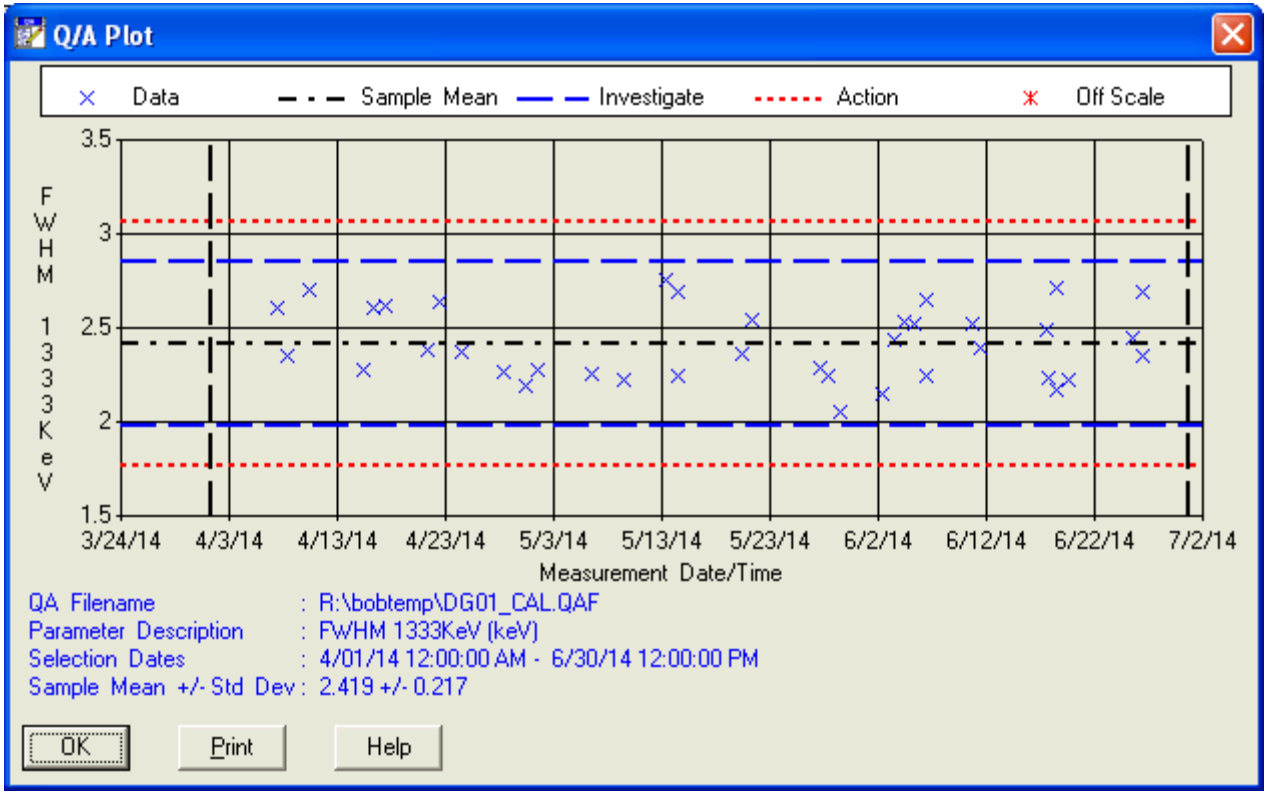
Quality Control: In House

detector efficiency,



Quality Control: In House

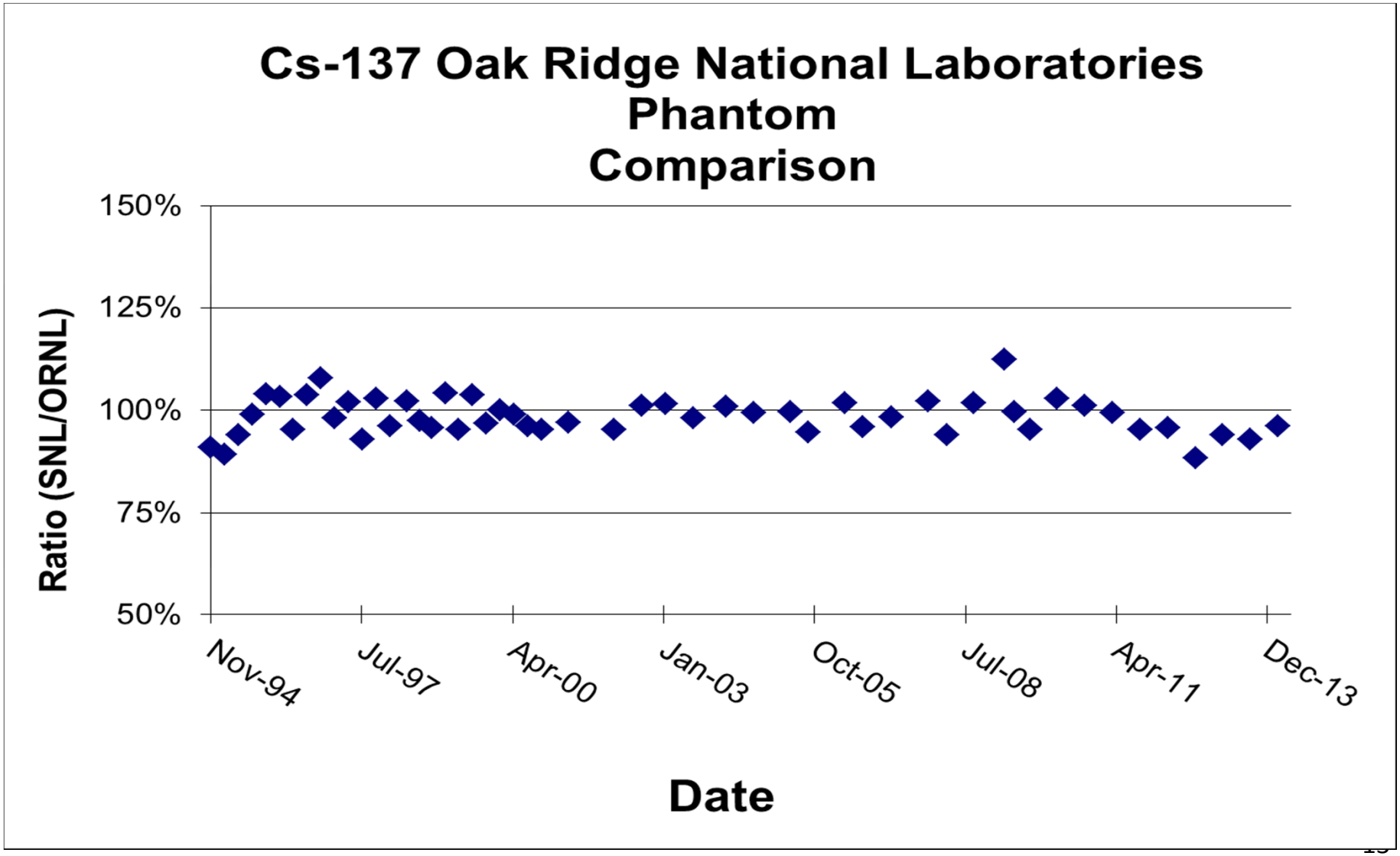
and system resolution.



Quality Control: Inter-comparison

- ORNL Whole-body blind test
- Occasional “round-robin” phantom sharing from INL
- DOELAP phantom

Quality Control: Inter-comparison



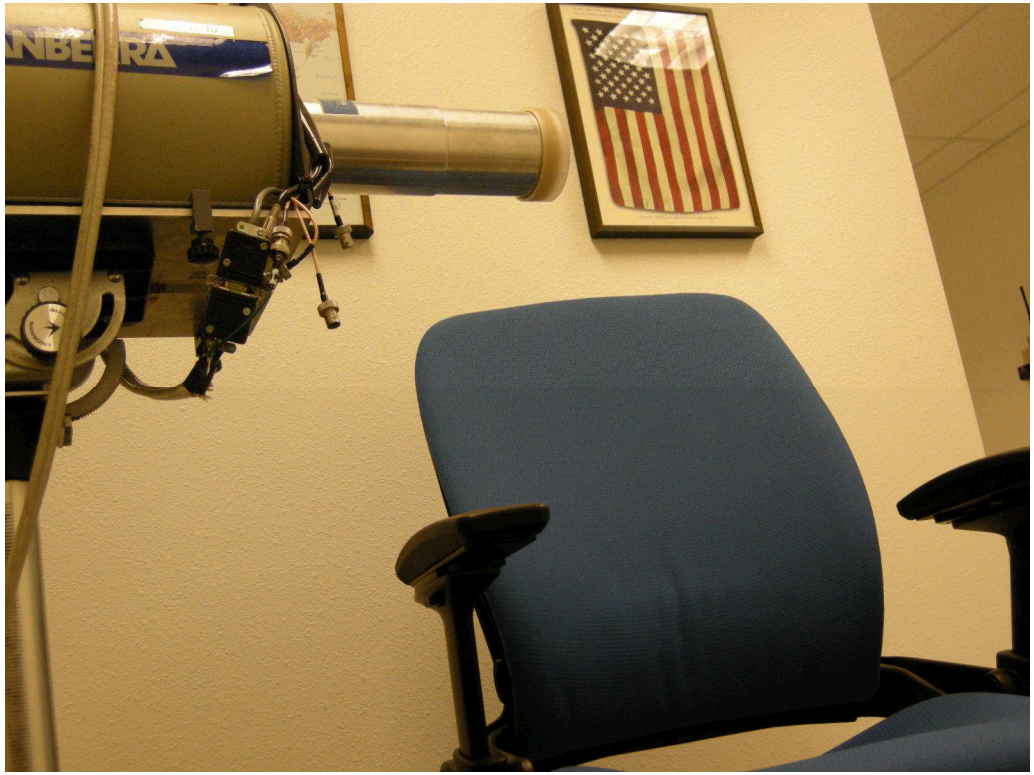
Quality Control: Accreditation

Tri-annual exam of SNL Internal Dosimetry Program earns DOELAP accreditation.

Other In-Vivo: PCM

External contamination frisker– thin plastic scintillators – required for accreditation.

Other In-Vivo: PGE



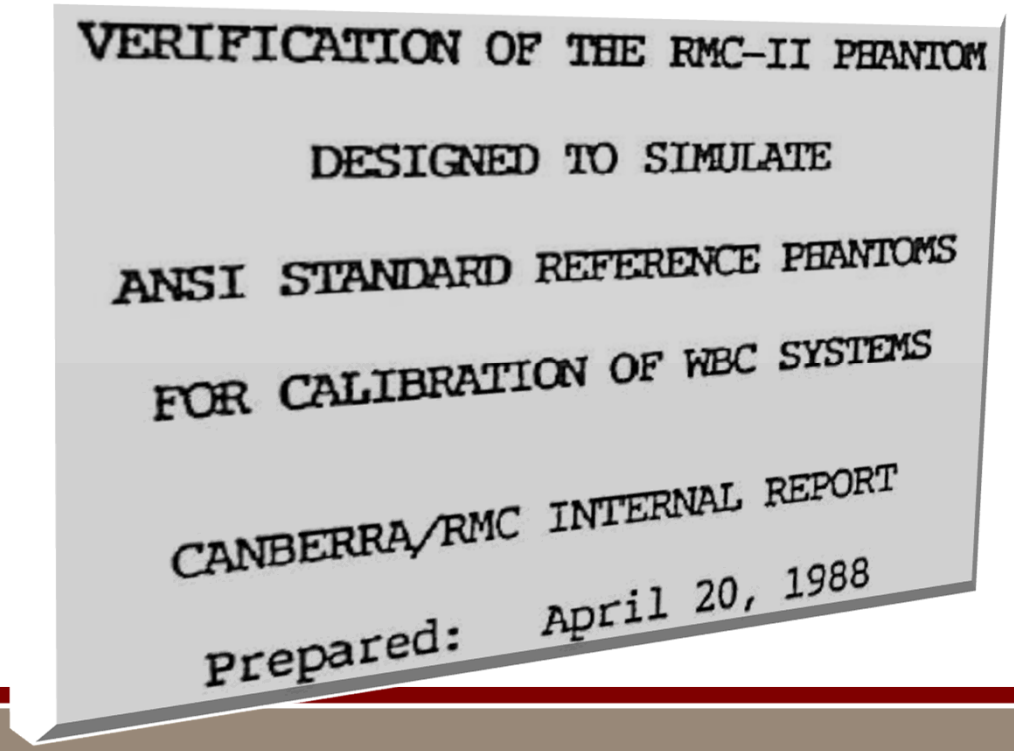
Used for iodine in thyroid and wound counting.

Other In-Vivo: PGE

Just joined Thyroid Radioiodine Inter-comparison Program (TRIP) from LLNL.

Other In-Vivo: RMC-II

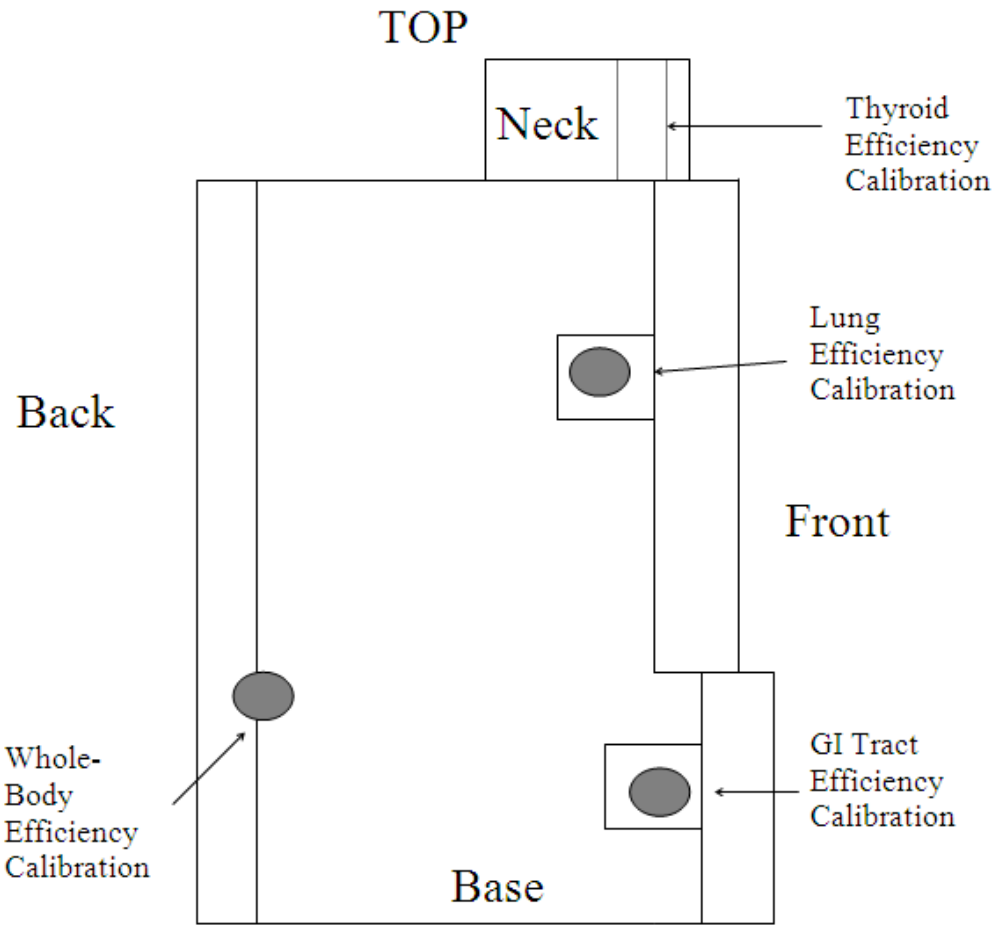
- Canberra/RMC-II phantom has capability for WB, GI, thyroid and lung, validated in 1988.



Other In-Vivo: RMC-II

"Canberra/RMC has developed an inexpensive and easy to handle phantom appropriate for calibrating linear geometry fission-product WBC systems. This phantom closely approximates the source/absorber configurations provided by the more expensive and complex reference phantoms specified by ANSI as appropriate for WBC calibrations. This phantom is to be used with point-geometry radioactive sources (typically prepared in one-inch diameter liquid scintillation vials). These point sources may be loaded in four standard positions within the phantom, thereby simulating reference phantom configurations for lung, thyroid, G.I. region and whole body activity distributions. This phantom is hereafter referred to as the "RMC-II" phantom (with the "II" added to indicate a significant design change from the REMCAL Transfer phantom previously used by RMC)."

Other In-Vivo: RMC-II



Questions?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