

# Radiation Dosimetry Services

## WHAT WE DO:

Provide independent peer review of beam output calibrations for external beam radiation therapy machines through a TLD mail audit system. Available for:

- Cobalt-60
- Orthovoltage (1.9 mm Al – 3 mm Cu HVL)
- Megavoltage photon (2 – 25 MV) and Electron (4 – 22 MeV)

## WHY USE OUR PEER REVIEW SERVICE:

- **Patient Safety is Directly Linked to Accurate Beam Output:** Independent and routine validation of your beams' calibrations provides confidence that there are no output issues at your center
- **Meet International Recommendations<sup>1</sup> for Routine Independent Peer Review:** AAPM (Task Group 103), EORTC, ACR, ASTRO APEX, ACRO, IROC, JCOG
- **Inexpensive:**
  - Monitor a single photon beam for only **\$110 USD**
  - Monitor ALL beam energies for typical linac (2 photons 5 electrons) for as little as **\$995 USD**
  - Full pricing at <https://rds.mdanderson.org>
- **Simple:** RDS mails TLD to you, you irradiate and return to us, we analyze and report results to you
- **Reliable:** RDS has provided beam output checks for > 35 years to more than 2000 centers worldwide
- **On Demand Service:**
  - **You Choose When:** Shipment month(s)
  - **You Choose Which Beams:** Monitor all beams, some beams, or a single beam
  - **You Choose What Frequency:** Annual, semi-annual, quarterly, monthly, or by request service
- **Traceability to a Primary Standard:** Results are based on standards irradiated at a secondary standards dosimetry laboratory (SSDL) at MD Anderson
- **Confidentiality:** RDS reports results only to you and we never publish individual results
- **Problem Resolution:** When results are out of criteria, we help identify the source of the discrepancy

**Peace of mind that your calibrations are accurate is priceless!**

***We ship worldwide and on demand! Contact us today to set-up your independent peer review.***

## Radiation Dosimetry Services (RDS)

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Office Hours: Mon – Fri 7:30 a.m. – 4:30 p.m. CST

**PATIENT SAFETY AND DATA SUPPORTING THE VALUE OF ROUTINE PEER REVIEW OF ALL BEAMS:** Based on a survey of 210,167 worldwide audit results, the Global Harmonization Group concluded that there is “*substantial value to routine and/or periodic auditing of radiotherapy beams*” because (1) machine calibrations are challenging due to the number of processes involved that can go awry, (2) calibration errors originate from a wide range of sources, (3) calibration errors can impact a single beam, multiple beams, or all beams at a facility, and (4) calibration errors can be introduced into beams with historically accurate output.

**DOSIMETRY METHODS:** The irradiated TLD are read and doses calculated using a well-established protocol with an uncertainty of  $\leq 1.5\%$ .<sup>2,3</sup> Our system is calibrated with TLD standards irradiated at the MD Anderson SSDL.

**OUR TEAM:** The RDS has highly qualified and very dedicated faculty and staff including medical physicists, medical dosimetrists, computational scientists, radiological technicians, as well as accounting and administrative staff. The RDS Director, Dr. Rebecca Howell has 20 years clinical experience, is a Fellow of the AAPM, and is certified by the ABR in therapeutic radiologic physics.

### Pricing for Radiation Therapy Machine Output Checks

Beam Type	Details	Price per Beam	One Time Setup Fee per Customer
MV Photon <sup>†</sup>	2 - 25MV	\$110	\$85 for photon irradiation phantom
Orthovoltage <sup>‡</sup>	$\geq 1.9$ mm Al HVL	\$110	
Cobalt-60		\$110	
Electron	4 - 20 MeV	\$155	\$165 for electron irradiation phantom

\* For platform used for irradiation of photon TLD blocks. \*\* For phantom used for irradiation of electron TLD blocks.

<sup>†</sup>Megavoltage photon monitoring is available for all manufacturers' C-arm linacs, TomoTherapy, CyberKnife, Halcyon.

<sup>‡</sup>Orthovoltage monitoring is available for both clinical patient units and small animal irradiators.

### Other Dosimetry Services

Service	Dosimeter Packets	Price per Unit
Total Body Dosimetry	12	\$435
Total Skin Dosimetry	15	\$545

### Additional Fees

Shipping Method	Price
USPS	Free shipping for orders sent by regular mail within the U.S.
Express Shipping	\$30 overnight (domestic), \$20 2-day (domestic)
International Shipping	Contact our office for a quote
Wire Transfer Fees	Add Wire Transfer fee of \$30 to your payment

**PAYMENT METHODS:** We offer several payment methods including credit cards, checks, and wire transfers. If purchase orders are required by your institution, we can also send you a formal quote to set-up this payment mechanism. Note that all prices are listed in U.S. dollars.

#### References:

- [1] Kry SF, Peterson CB, Howell RM, Izewska J, Lye J, Clark CH, Nakamura M, Hurkmans C, Alvarez P, Alves A, Bokulic T, Followill D, Kazantsev P, Lowenstein J, Molineu A, Palmer J, Smith SA, Taylor P, Wesolowska P, Williams I. Remote beam output audits: a global assessment of results out of tolerance. *phiRO*, 2018.
- [2] Kirby TH, Hanson WF, Johnston DA. Uncertainty Analysis of Absorbed Dose Calculations from Thermoluminescence Dosimeters. *Med Phys* 19(6): 1427-1433, 1992
- [3] Kry SF, Alvarez P, Cygler JE, DeWerd LA, Howell RM, Meeks S, O'Daniel J, Reft JC, Sawakuchi G, Yukihara EG, Mihailidis D. AAPM TG 191: Clinical use of luminescent dosimeters: TLDs and OSLDs. *Med Phys*, 2019