

## The Service

*Gamma Scanning is used to determine*

- Damaged or missing trays and internals
- Height of aerated liquid loading on trays
- Height of liquid in downcomers
- Location of entrainment and liquid weeping
- Location and characteristics of foaming
- Location and extent of flooding
- Fouling of packing or catalysts
- Flow maldistributions in packing
- Base liquid levels



## The Technology

The Gamma Scan technique is used to determine what is happening inside a vessel. A small gamma ray source and an electronic detector are positioned on opposite sides of a vessel. As the source and detector move along the exterior of the vessel a density profile of the interior contents is generated. Gamma rays emitted from the source travel through the vessel, are moderated by the contents, and are then counted by the detector.

If the source and detector spacing are held constant, the count rate at the detector is directly related to the density of the material the gamma rays pass through. Vapours allow more gamma rays through than either liquid or vessel internals and this allows creation of the density plot.

The Gamma Scan technique is most often used on trayed columns or packed bed towers but can be used on almost any vessel to determine the internal operating characteristics.

## The Kit

A radioactive source and detector are used on opposite sides of the vessel to transmit data to computer software during scanning.

## The Benefits

- Quick reliable service
- Cost-effectiveness
- Operations carried out on-line ensuring no disturbance to production
- Non-intrusive (external to vessel)
- No special setup or preparation of vessel needed before scanning.
- Regular scanning program can be used to monitor a column's performance over time to allow the operator to take corrective action only when needed, reducing down-time and the need for entry during shutdowns.

