**Roentgen(R):** is a unit of measurement to the exposure of ionizing radiation in air, produced from X-rays and gamma rays.

More specifically, it is defined as the electric charge freed by such radiation in a specified volume of air divided by the mass of that air.

Named after German physicists Wilhelm Roentgen who is credited with the discovery of X-rays in 1895.

1 Roentgen is equal to 1,000 MilliRoentgens (mR)

**Milli-Roentgen (mR):** This is a smaller unit of measuring ionizing radiation.

1,000 mR = 1 R

The safe radiation exposure rate for the public is 2 mR/hour.

The safe radiation exposure rate for a certified radiographer is 5 mR/hr

**Sievert (SI**): is the SI unit of measuring the radiation dose and therefore the effect on the body. 1 Sievert is equal to 100 REM’s (Roentgen Equivalent Man)

**Activity:** The rate of decay of a radioactive material.

In simple terms, the Activity (measured in ci or Bq) can be thought of as the amount of radiation

Different gamma sources have different activity levels.

**Curie (ci):** the unit used to describe the rate of decay or **ACTIVITY** of a radioactive material in disintegrations per second.

1 ci = 37,000,000,000 disintegrations per second

(That is, 37 Billion disintegrations per second)

Or (3.7 x 10 10 dps)

**Becquerel (Bq):** the **SI** unit to measure the activity in a radioactive material.

1 Bq = 1 disintegration per second

**Specific Activity:** describes the activity per unit of mass of an isotope.

Different isotopes have differing Specific Activities

When performing gamma radiography, the Specific Activity can be factored in on how the source will behave – a smaller source physical size will have a smaller focal spot and thus may have better definition on the finished radiographs.

**Radioactive Half-life:** the amount of time required for ½ of the original number of radioactive atoms to decay or change into daughter atoms.