

## **CATEGORIZATION OF GENERATORS AND OTHER RADIATION SOURCES**

Category	Source / Practice	Activity Ratio (A/D) & Risk Level
<b>1</b>	<ul style="list-style-type: none"> <li>High energy accelerators (Linacs, Cyclotron)</li> <li>Teletherapy (<sup>60</sup>Co Unit)</li> <li>Gamma Knife</li> <li>Unsealed sources</li> <li>Nuclear Reactors</li> <li>Irradiators</li> <li>Storage of radioactive material or waste and disposal</li> <li>Radioisotope thermoelectric generators (RTGs)</li> </ul>	$A/D \geq 1000$ or Personally extremely dangerous (HIGH RISK)
<b>2</b>	<ul style="list-style-type: none"> <li>PET</li> <li>SPECT</li> <li>CT scanners (including CT simulators)</li> <li>Conventional Simulators</li> <li>Brachytherapy (High Dose Rate and Medium Dose Rate)</li> <li>Industrial radiography sources (including NDT devices)</li> <li>Gamma radiography camera</li> <li>Gamma radiography crawlers</li> <li>VACIS scanners</li> </ul>	$1000 > A/D \geq 10$ or Personally very dangerous (HIGH RISK)
<b>3</b>	<ul style="list-style-type: none"> <li>X-ray fluoroscopy machines</li> <li>Angiography machines</li> <li>C-Arm</li> <li>Plane X-ray machines (includes portable x-ray machines)</li> <li>Superficial X-rays</li> <li>Fixed industrial high-activity gauges</li> <li>Well logging gauges</li> <li>Density gauges</li> <li>Level gauges Backscatter gauges</li> <li>Moisture or density gauges</li> <li>In-stream analysis gauges</li> <li>Portable gauges</li> </ul>	$10 > A/D \geq 1$ or Personally dangerous (MEDIUM RISK)
<b>4</b>	<ul style="list-style-type: none"> <li>X-ray industrial gauges</li> <li>Low activity industrial gauges</li> <li>Panoramic and cephalometric dental X-rays</li> <li>Whole body bone densitometers</li> <li>Full scan vehicle imaging system</li> </ul>	$1 > A/D \geq 0.1$ or Unlikely to be dangerous (LOW RISK)
<b>5</b>	<ul style="list-style-type: none"> <li>Brachytherapy permanent implants</li> <li>X-ray Fluorescence (XRF) analysers</li> <li>X-ray Diffraction (XRD) machines</li> <li>Mammography units</li> <li>Intra oral and portable dental units</li> <li>Veterinary X-rays units</li> <li>Baggage scanners</li> <li>Portable bone densitometers</li> <li>Check sources</li> </ul>	$0.01 > A/D$ and $A > \text{exempt}$ or Not dangerous (LOW RISK)

## **CATEGORIZATION OF GENERATORS AND OTHER RADIATION SOURCES**

### **Plain Language Description of the Categories**

<b>Category</b>	<b>Risk in being exposed to an individual source within close proximity</b>
<b>1</b>	<b>Extremely dangerous to the person:</b> This source, if not safely managed or securely protected, would be likely to cause permanent injury to a person who handled it or who was otherwise in contact with it for more than a few minutes. It would probably be fatal to be close to this amount of unshielded radioactive material for a period in the range of a few minutes to an hour.
<b>2</b>	<b>Very dangerous to the person:</b> This source, if not safely managed or securely protected, could cause permanent injury to a person who handled it or who was otherwise in contact with it for a short time (minutes to hours). It could possibly be fatal to be close to this amount of unshielded radioactive material for a period of hours to days.
<b>3</b>	<b>Dangerous to the person:</b> This source, if not safely managed or securely protected, could cause permanent injury to a person who handled it or who was otherwise in contact with it for some hours. It could possibly — although it would be unlikely — be fatal to be close to this amount of unshielded radioactive material for a period of days to weeks.
<b>4</b>	<b>Unlikely to be dangerous to the person:</b> It is very unlikely that anyone would be permanently injured by this source. However, this amount of unshielded radioactive material, if not safely managed or securely protected, could possibly — although it would be unlikely — temporarily injure someone who handled it or who was otherwise in contact with it for many hours, or who was close to it for a period of many weeks.  Exposure may, however, result in possible delayed health effects.
<b>5</b>	<b>Most unlikely to be dangerous to the person:</b> No one could be permanently injured by this source.  Exposure may, however, result in possible delayed health effects.

*Reference: IAEA Safety Guide No. RS-G-1.9 Categorization of radioactive sources.*