

CATEGORIZATION OF GENERATORS AND OTHER RADIATION SOURCES

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

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Plain Language Description of the Categories

Category

Risk in being exposed to an individual source within close proximity

1 **Extremely dangerous to the person:** 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.

2 **Very dangerous to the person:** 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.

3 **Dangerous to the person:** 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.

4 **Unlikely to be dangerous to the person:** 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.

5 **Most unlikely to be dangerous to the person:** 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.