

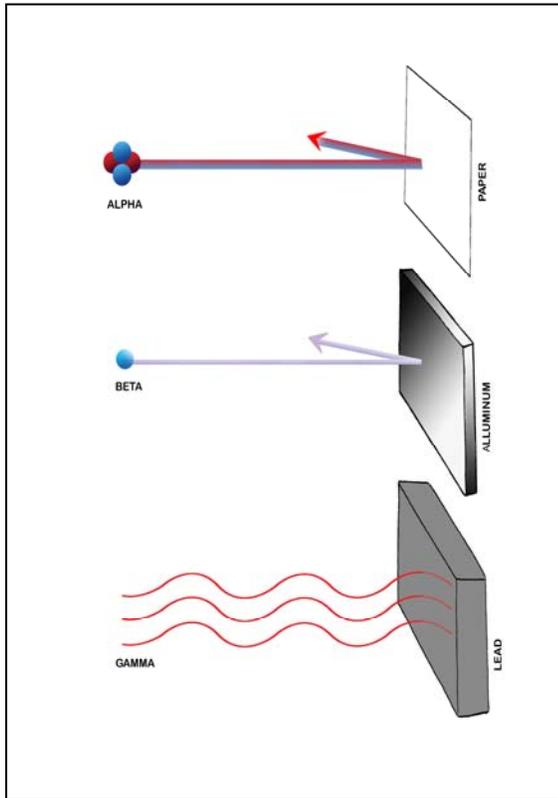


AFN ENVIRONMENTAL STEWARDSHIP

RESPECTING AND PROTECTING MOTHER EARTH

FACT SHEET: *RADIATION & HEALTH*

We are exposed to radiation every day of our lives, from many different sources both natural and man-made. In fact, natural sources of radiation make up most of our entire annual dose.



However, it is the man-made sources of radiation that cause the greatest concern among the public, even though it makes up approximately 20-25% of our annual dosage according to most estimates.

Radiation is energy passing through space, and it comes in many different forms. There are two types of radiation: ionizing and non-ionizing. To ionize means to change the electric charge of an atom, making it positively charged or negatively charged. Non-ionizing radiation does not carry enough energy to ionize atoms, and makes up most of the radiation we are most familiar with. It is a relatively safe form of radiation that has minor health risks for living things.

Ionizing radiation is hazardous because it has enough energy to change the electric charge of atoms, changing their normal state. Used nuclear fuel contains atoms that emit ionizing radiation in the form of alpha and beta particles, and gamma rays. Alpha particles do not travel very far and are usually stopped by a sheet of paper. Beta particles travel a bit further,

and can be stopped by a solid piece of aluminum. Gamma rays travel the furthest and have the ability to pass through bodily tissue, but can be stopped by thick concrete or lead plates.

EXAMPLES OF DIFFERENT RADIATION SOURCES

NON-IONIZING



Radio Waves



Microwaves



Visible Light



Infrared Light

IONIZING



Used Nuclear Fuel



X-Rays



Radiation Therapy



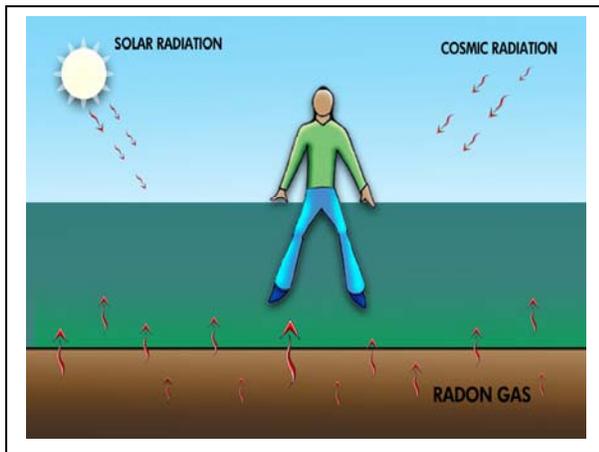
Ultraviolet Rays (Sun)

ASSEMBLY OF FIRST NATIONS

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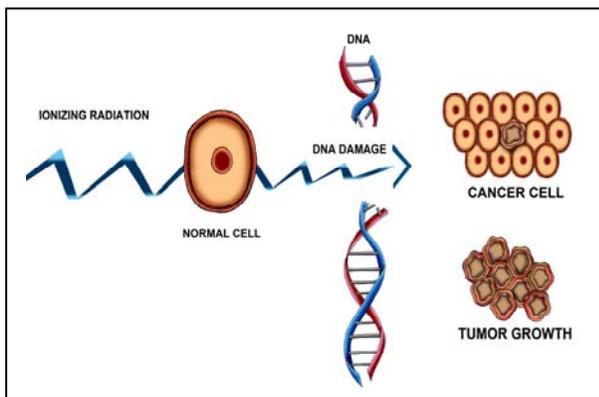
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We are exposed to radiation from many sources every day of our lives. Approximately 75-85% of this radiation comes from our natural environment, depending on where you live, work, and your lifestyle. Radiation from the earth, including radon, accounts for about 50% of our total radiation exposure, while cosmic rays from outer space and the sun account for about 15%, and internal radiation from our own bodies makes up about 15%.

Man-made radiation exposure mostly comes from medical procedures such as X-rays, diagnostic imaging, and radiation therapy. Radiation from nuclear power plants and uranium production accounts for less than 1% of our total exposure, but it causes us the greatest amount of concern.



Used nuclear fuel emits high-energy ionizing radiation that is extremely harmful to living things if not shielded. When ionizing radiation passes through the cells of living creatures, it damages DNA which leads to mutations when new cells are created. These mutated cells can form cancer, and can also lead to mutations in developing babies. It is also possible that cells can either repair the DNA damage or self-destruct (die), avoiding the replication of mutated cells. The amount and type of damage done depends on the amount of exposure, much like the severity of a sunburn

depends on the amount of exposure to sunlight.

SYMPTOMS OF RADIATION EXPOSURE

MILD EXPOSURE



Headaches



Fatigue & weakness



Nausea & vomiting within 24-48 hours, after which time symptoms usually subside.

SEVERE EXPOSURE



Diarrhea or bloody stool



High fever & hair loss



Nausea & vomiting occur within an hour of exposure.

These symptoms are associated with acute (a single large) exposure. Symptoms vary depending on the length and intensity of exposure (i.e. radiation therapy lies between mild and severe exposure).