

APPENDIX - INFORMATION ABOUT RADIOACTIVITY

BECQUEREL

Becquerel is the measurement unit for an object's level of radioactivity (or activity) (symbol: Bq).

1 Bq is equal to one transformation per second in the nucleus of one atom.

As this unit is so low, multiples are usually used:

1 MBq (megabecquerel) = 10^6 Bq = 1 million Bq

1 GBq (gigabecquerel) = 10^9 Bq = 1 billion Bq

1 TBq (terabecquerel) = 10^{12} Bq = 1,000 billion Bq

FROM BECQUERELS TO SIEVERTS OR FROM RADIOACTIVITY TO THE ABSORBED DOSE

Becquerels (symbol: Bq) express an object's radioactivity (or activity).

Sieverts (symbol: Sv) express the dose absorbed by a person from the surrounding radioactive elements or from the elements absorbed.

The dose accounts for the biological effect produced by ionizing radiation emitted by radioactive objects on living bodies.

Converting Becquerels into Sieverts is based on a calculation that considers the nature of the radiation specific to each radionuclide and the sensitivity of the human body's various tissues and organs.

As the Sievert is a unit which represents quite a large dose, sub-multiples are usually used:

1 mSv (millisievert) = 10^{-3} Sv = 0.001 Sv

1 μ Sv (microsievert) = 10^{-6} Sv = 0.000 001 Sv

NATURAL EXPOSURE

So the reader can grasp what the annual dose absorbed by the population living in the vicinity of the Flamanville CNPE represents, we have indicated below the annual doses from natural radiation.

Internal exposure

The natural presence of radionuclides in the human body's composition (mainly carbon-14 and potassium-40) results in an annual dose of around 0.2 mSv.

External exposure

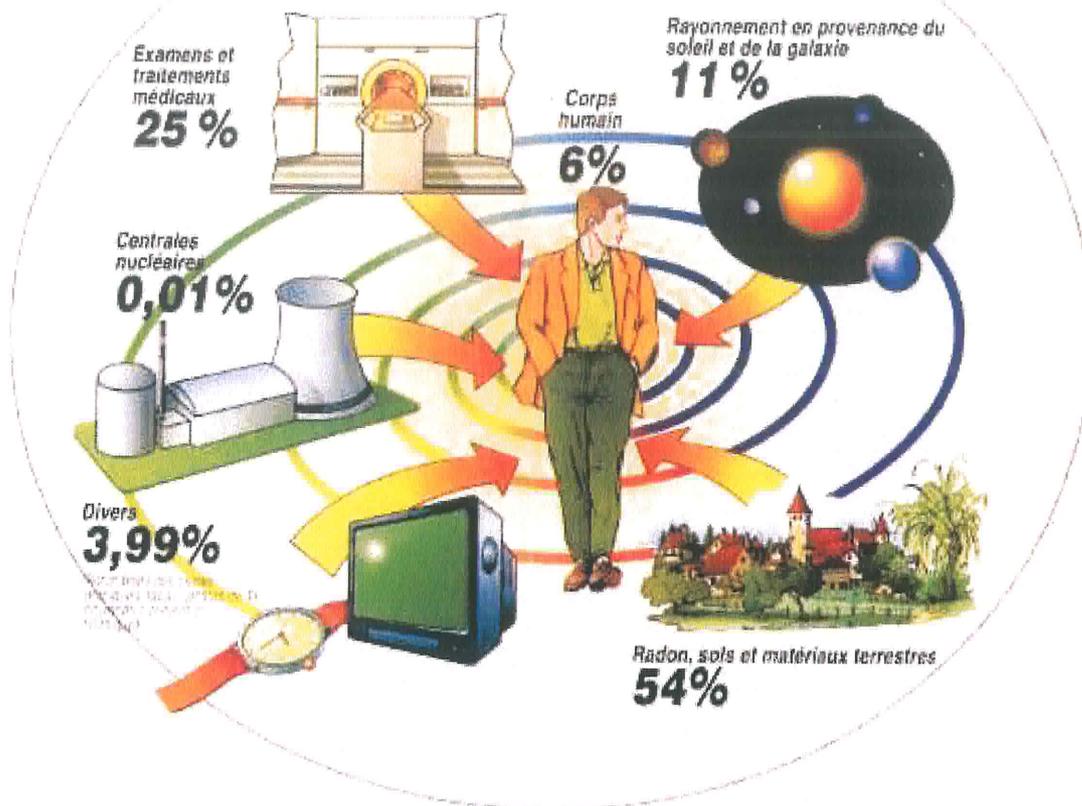
Since life began on earth, mankind has been exposed to external radiation from space and materials which form the earth's crust.

The annual dose from this kind of radiation is around one milliSievert with important differences depending on the altitude and the nature of the soil, varying between 1 and 10 mSv and reaching 100 mSv in extensive regions such as Kerala in India and the city of Ramsar in Iran.

Global exposure

The global annual exposure due to this internal and external natural irradiation is about 2 to 3 milliSieverts, which represents 4 lungs' radiographies.

Répartition des différentes expositions



In France, the annual dose from natural radiation absorbed by man is around 2.4 mSv.