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FACTSHEET: RADIATION

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Radiation

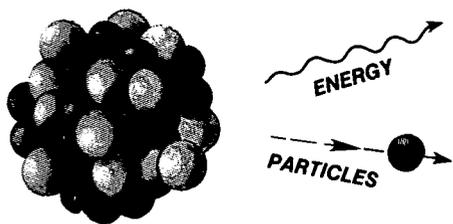
What is radiation?

Radiation is a type of invisible energy that is given off by unstable atoms. Radiation is emitted by uranium, a naturally occurring radioactive element found in the Earth's soil. Other sources like the sun, water, and even food emit radiation. Because radiation occurs naturally, everyone is exposed to certain levels of it all the time.

We also receive radiation from manmade sources such as medical x rays, televisions, luminous watch dials, and smoke detectors. After uranium has been processed at the Feed Materials Production Center (FMPC), it too is considered a manmade source of radiation.

We cannot detect radiation with our own senses. However, much research is available that explains what radiation is, where it is, and how to detect and measure the amounts we receive. This information enables necessary protective measures to be taken in handling radioactive material such as uranium.

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The release of invisible energy or particles, called "ionizing radiation," is a characteristic of radioactive atoms.

Why monitor radiation?

Radioactive materials emit invisible energy or particles that can damage living tissue. This energy is called "ionizing radiation." Most research indicates that the amount of radiation we receive from everyday sources, such as television and medical x rays, is not dangerous. Standards for radiation protection, however, have been developed on the assumption that all radiation causes some harm to the body. Therefore, radiation exposure should be kept to an absolute minimum.

Protecting Against Exposure

At FMPC many systems monitor radiation, and new monitoring equipment is being installed. One improvement is the upgrading of employee radiation dosimetry that began in 1983. Each employee carries a new type of thermo luminescent dosimeter badge that monitors individual exposure to radiation. These badges use advanced technology to accurately measure radiation exposure for each employee. Another important upgrade is the installation of an in-vivo, or whole body, counter.

The in-vivo counter will be used with the dosimetry program and other monitoring systems to determine an employee's total radiation exposure.



Personnel monitors determine if an employee has come into contact with uranium or radioactive materials.

Inside the production and storage areas at FMPC, aluminum shields and rubber mats protect employees and help keep work areas clean. In addition, a new dust collector system removes airborne uranium particles from the production area.

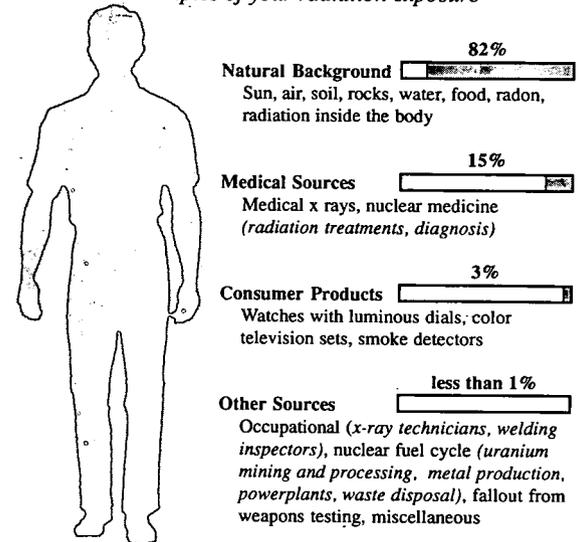
In an effort to further improve radiation protection, FMPC has developed methods for reducing emissions of radon (a radioactive gas) from two concrete silos on site, called the K-65 Silos.

Radiation Standards

The U.S. Department of Energy (DOE) standards strictly limit radiation exposure for industry workers, the public, and the environment. Furthermore, DOE requires that its facilities keep the actual exposures as far below these limits as possible. This principle is often referred to as "ALARA" — As Low As Reasonably Achievable.

Sources of Radiation

Some examples of your radiation exposure



Source: National Council on Radiation Protection and Measurements NCRP Report No. 93

Varying amounts of radiation are emitted from both natural and manmade sources. Natural background radiation is the largest source of individual exposure.



FMPC employees are better shielded from low levels of radiation in part due to a new radiation protection program called "Five Alive," which originated in Plant 5 on site.

The ALARA principle is also the policy of FMPC. To continue maintaining ALARA standards, FMPC plans to continue modernizing its environmental and employee monitoring systems. Although many upgrades have been completed, additional improvements are planned. A heightened commitment to the ALARA principle will help FMPC remain below the established radiation limits.