Radiation Stats and Facts

DID YOU KNOW?

According to the World Health Organization, “Radiation can impair the functioning of tissues and/or organs and can produce acute effects such as skin redness, hair loss, radiation burns, or acute radiation syndrome. These effects are more severe at higher doses and higher dose rates”.

When workers are exposed to extended, intense, or repeated doses of radiation beyond the regulated limit, this can cause radiation poison or sickness, which can lead to permanent disability or death.

Companies must implement controls to ensure that employee exposure does not exceed the exposure limit set by their country’s regulators. These controls can include monitoring activities, training, signage, and protective equipment, but let’s focus on another key control: implementing a radiation dosimetry program. Dosimetry refers to measuring, calculating, and assessing radiation absorbed by humans, and dosimeters are devices used to measure an absorbed dose of radiation.

Many organizations implement dosimetry programs where they provide employees with dosimeter badges, and employees are mandated to attach these badges onto their uniform while they work. These badges are removed periodically and sent to a lab where they analyze the amount of radiation that an employee has been exposed to. Companies can then use this data and identify whether their controls are effective or if corrective actions are required. Organizations can also use direct-reading dosimeters that do not require laboratory analysis, which is typically the case for employees who work at nuclear power plants.

Advancements in technology have made the collection and analysis of exposure more efficient. Cority provides out of the box functionality within our Industrial Hygiene solution to help

clients track their radiation data. Industrial hygiene staff or designees can use these fields to consolidate data in one place, get quick and easy access to employees' radiation information, create reports for management, and find trends and insights to make better decisions. This ultimately helps organizations protect employees from unsafe exposure and improves their ability to be compliant with radiation regulations.

The results of this study suggest a positive association between ionizing radiation exposure and death from solid cancer, all cancer, and all cancer excluding leukemia among more than 300,000 nuclear workers.

- The rate of death from cancer increased with radiation dose.
    - We found that the risk of solid cancer increased by about 5% per 100 millisieverts (mSv) (10 rem).
    - The average dose of the group of workers in our study was 21 mSv (2.1 rem).
- We estimated that, within the group of workers we studied, about 2 in every 200 deaths from cancer (other than leukemia) were due to their workplace radiation exposure.
- Among the cohort members who received at least 5 mSv of radiation dose in the workplace, we estimated that out of every 200 deaths from cancer other than leukemia, about 5 were due to their workplace radiation exposure.

Exposure to ionizing radiation cannot be avoided completely. According to the National Council on Radiation Protection & Measurements, on average persons in the U.S. receive an effective dose of about 6.0 mSv, or 0.006 Sieverts (Sv) each year from natural and man-made radiation sources.

In addition, users can conduct risk assessments to identify radiation hazards, create surveys and monitoring plans to collect sample data on workplace radiation, input radiation dosimetry data, and report on employees' radiation risk.