

Radioactive pollution and Thermal pollution

- Radioactive pollution can be defined as the emission of high energy particles or radioactive substances into air ,water or land due to human activities in the form of radioactive waste Production of nuclear fuel Nuclear power reactors Use radio nuclides in industries for various applications Nuclear tests carried out by defense personnel Disposal of nuclear waste Uranium mining.

Types of conditions

- 1. Continuous pollution: This type of condition exists in Uranium mines, nuclear reactors and laboratories where the humans are under continuous exposure to radioactive contaminants.
- 2. Accidental pollution: This type of condition exists during accidental exposure to radiations by virtue of equipment failure, radiation leak.
- 3. Occasional pollution: This condition exists during isolated experiment or test of nuclear substance.

SOURCES

- 1. Production of nuclear weapons
- 2. Decommissioning of nuclear weapons
- 3. Mining of radioactive ore (uranium, phosphate etc.)
- 4. Nuclear power plants

Production of nuclear weapons

- Radioactive materials used in this production have high health risks and release a small amount of pollution. Thanks to good current health-standards this release is not significant and is not a danger to us unless an accident occurs.

Decommissioning of Nuclear Weapons

- The decommissioning of nuclear weapons causes slightly more radioactive pollution than in the production, however, the waste (alpha particles) is still of low risk and not dangerous unless ingested.

Mining of radioactive ore

- Mining these involves crushing and processing of the radioactive ores and this generates radioactive waste which emits alpha particles. This waste is of low risk unless ingested.

Nuclear power plants

- Nuclear power plants under current standards produce little radioactive pollution due to safety precautions that must be adhered to. Accidents at these power plants can cause dangerously high radioactive pollution, such as in the case of Chernobyl, the most well-known and worst nuclear disaster in history and the more recent

Effects

- The impact of radioactive pollution on human beings can vary from mild to fatal; the magnitude of the adverse effects largely depends on the level and duration of exposure to radioactivity. Low levels of localized exposure may only have a superficial effect and cause mild skin irritation.
- Long-term exposure or exposure to high amounts of radiation can have far more serious health effects. Radioactive rays can cause irreparable damage to DNA molecules and can lead to a life-threatening condition.

Prevention

- Nuclear devices should be exploded underground.
- Contaminants may be employed to decrease the radioactive emissions.
- Production of radio isotopes should be minimised.
- Extreme care should be exercised in the disposal of industrial wastes contained with radionuclide's.
- Use of high chimney and ventilations at the working place where radioactive contamination is high.
- In nuclear mines, wet drilling may be employed along with underground drainage.
- Fission reactions should be minimised.

Treatment of radioactive pollutant

- The study demonstrates an efficient method for decontamination of groundwater based on bacteria in sludge that naturally convert uranium into an insoluble form that can be more easily removed.
- Nuclear reprocessing - Already, caesium-137, strontium-90 and a few other isotopes are extracted for certain industrial applications such as food irradiation and radioisotope thermoelectric generators.