

# Radiation Safety Guidance at Water Treatment Facilities

Radiation is a naturally occurring phenomenon that happens when radionuclides (radioactive materials) break down and decay. In water treatment plants there are two main sources of radiation that should be kept in mind. First, the top of the filter media has a high concentration of radionuclides. The first 18 inches of media should be treated with caution and the appropriate PPE. Second, the waste basin has a high concentration of radionuclides. Treat with caution and minimize the amount of time spent near the waste basin.

## Health Effects

- The three primary pathways of radiation exposure are inhalation, ingestion, and direct exposure. Unsafe exposure to radiation will increase the chances of developing cancers.
- Inhalation: Prevent this by wearing an OSHA approved respirator near filter media and waste basins.
- Ingestion: Prevent by washing hands before eating, and do not store food near filter media or waste basins.
- Direct Exposure: Reduce by staying away from waste basins and filter media as much as possible.

## Assessment Options

The Minnesota Department of Health can be contacted to help evaluate treatment plants for radiation concerns. These evaluations can involve investigative steps such as using a Geiger counter. This helps determine the level of radiation and which areas of the plant have the highest amounts of radiation. Certified technicians can come out and measure for Radium/Radon. Water can be tested for Radon, Radium, Uranium, and Alpha emissions.

## Links

- CDC's Radiation Safety Principles: [Radiation Safety \(https://www.cdc.gov/nceh/radiation/safety.html\)](https://www.cdc.gov/nceh/radiation/safety.html).
- EPA's Radiation Protection Guide: [Radiation Protection \(https://www.epa.gov/radiation\)](https://www.epa.gov/radiation).
- EPA's Water Treatment Radiation: [Radiation Health and Safety Practices for Community Water Systems \(PDF\) \(https://www.epa.gov/sites/default/files/201505/documents/cws\\_brochure\\_v5.pdf\)](https://www.epa.gov/sites/default/files/201505/documents/cws_brochure_v5.pdf)

Minnesota Department of Health  
Environmental Health Division  
651-201-4700  
[health.drinkingwater@state.mn.us](mailto:health.drinkingwater@state.mn.us)  
[www.health.state.mn.us](http://www.health.state.mn.us)

February 21, 2024

*To obtain this information in a different format, call: 651-201-4700.*