

Radium

Human Health Risk	M - H
Ecological Risk	
Socioeconomic Risk	L

Radium is a naturally occurring radioactive element that exists in rocks, soil, and groundwater. The main route of exposure to humans is via drinking water, although certain foods accumulate radium and may pose a significant source. There are also contaminated sites where historical use of radium has resulted in the potential for small populations to receive additional exposures.

What's at risk?

The risk varies with geographic region, mainly related to the level of radium in drinking water. The main risk to humans at exposures likely to be encountered in the New Jersey environment is cancer, including bone, lung, and stomach cancer. Drinking water with the potential for elevated radium levels appears to be confined to ground water sources.

What are the human health impacts in New Jersey?

In some areas of the state more than 50% of drinking water wells exceed health based standards. The total number of individuals with significant exposure depends not only on the particular source of the drinking water, but also on the extent and type of water treatment. It is estimated that 100,000 – 300,000 individuals statewide use water which exceeds the drinking water standard. In many cases ground water provides only a portion of the drinking water supply, with the remainder from surface water. Calculations of average exposure suggest that the risks from radium in drinking water can be expected to result in 21 additional lifetime cancers, which is less than one per year for the New Jersey population. However, there are significant uncertainties in these calculations and the actual numbers could be higher or lower. Individuals living near hazardous waste sites may be exposed to higher levels, but the additional population risk should be small.

What are the socioeconomic impacts in New Jersey?

The Socioeconomic Technical Work Group considered the risks from radium together with the risks from radon. Most of the socioeconomic risk is associated with health care costs and property damage, and most of that risk can be attributed to radon, therefore the socioeconomic risk attributed to radium should be small.

What's being done?

There are regulations in place to monitor the levels of radium in drinking water from public water supplies. Exceedances of standards lead to action to reduce exposure. Private water supplies are not monitored or regulated.