



Iodine 131 Found in Philadelphia's Drinking Water

Q&A

April 12, 2011

What is Iodine-131?

Iodine itself occurs very naturally in the environment. Iodine-131 is a radioactive form of iodine. When certain atoms disintegrate, they release a type of energy called ionizing radiation. This energy can travel as either electromagnetic waves (i.e., gamma or X-rays) or as particles (i.e., alpha, beta or neutrons). The atoms that emit radiation are called radionuclides; e.g., radioactive iodine, cesium, and plutonium.

Where does Iodine-131 come from?

I-131 is a byproduct of nuclear energy production. It is also used in medicine to diagnose and treat disorders of the thyroid gland.

What actions is PWD taking based on the EPA test results?

Philadelphia's drinking water is safe to drink. An infant would have to drink almost 600 liters of water at 2.2 pCi/L to receive a radiation dose equivalent to a day's worth of the natural background radiation exposure that we experience continuously from natural sources of radioactivity in our environment. However, this does not mean that PWD is not concerned about these levels. In response to these results, PWD is working with the EPA and DEP and taking the following actions:

- Developing a Joint PADEP, EPA, PWD Action Plan for all Radionuclides
- Initiating a focused sampling program for Iodine
- Developing an aggressive track down program with EPA and DEP to identify the potential sources of Iodine 131 in our source waters
- Using enhanced treatment and activated carbon at our Queen Lane Water Treatment Plant to minimize Iodine 131 concentrations as a precautionary measure. Carbon works to absorb contaminants in drinking water and is removed during the filtration process.

How often is the water monitored? At what locations?

PWD monitors its drinking water every day at its three water treatment plants and at points throughout its 3,000 mile delivery system. Our water consistently does better than Safe Drinking Water Act standards and has always met all health standards. However, SDWA compliance sampling does not include Iodine 131. PWD works with the EPA on a voluntary basis to ensure that this sampling is conducted by them.

How do the levels of iodine-131 found most recently compare to past measurements?

EPA has detected low levels of I-131 in a number of drinking water samples since the Japanese nuclear incident, but because of the levels of I-131 historically seen in Philadelphia's drinking water, it is unclear whether the April 4 results are related to radiation from Japan or other sources in the Philadelphia area.

Are There Standards for Drinking Water Safety?

The federal drinking water standard for Iodine-131 is three pCi/L and is based on a long term average, not a single day sample. These samples are taken on a quarterly basis.

How Long Does it Stay in the Environment?

Iodine-131 is a short-lived radioactive element, with a half-life of 8 days, meaning every 8 days it loses half of its radioactivity. It is not one of the radioactive chemicals that persist for a long time.

Are there elevated levels of any other kind of radioactive particle in Philadelphia drinking water? (I have seen cesium mentioned.)

None have been identified. PWD will be sampling for a variety of radionuclides to ensure that this is the case.