

THE FORMER NEW HAVEN CLOCK FACTORY : QUESTIONS & ANSWERS

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Main Points

- Radium is a radioactive material that was used in painting clock dials at the former New Haven Clock Factory in New Haven.
- The CT DPH has evaluated radiation levels measured at this site.
- None of the radiation levels were high enough to cause immediate health problems or to require moving building occupants.
- One small area was found to have radiation levels that present a very low health risk with long-term exposure.
- It is important that exposure to radiation be ended. The EPA and CT DEP are evaluating the best clean-up method.

Background

This fact sheet was developed by the CT Department of Public Health (DPH) to update site workers and others about the former New Haven Clock Factory in New Haven on Hamilton St. The Connecticut Department of Environmental Protection (DEP), the U.S. Environmental Protection Agency (EPA), the federal Agency for Toxic Substances and Disease Registry (ATSDR) and the Connecticut Department of Public Health have been investigating the use of radium at this and other sites in Connecticut. Radium is a radioactive material that was used in painting dials on clocks because it makes paint glow in the dark. It was believed to be used from the early 1900's through the 1940's in the production of clocks.



The New Haven Clock Factory produced clocks, clock parts, and pocket and wrist watches from 1853 until 1959. The complex consists of several buildings. Most of the building space is unoccupied or abandoned. Club International and St. John's Restaurant are located in two separate four story buildings. Goodies Repair is located in the first floor of the two story building.

This fact sheet summarizes the findings of a Public Health Assessment that evaluated radiation contamination data collected by the CT DEP, EPA and the U.S. Department of Energy. This evaluation was done to determine whether a risk to public health exists at these sites.

What are the Types of Radiation?

Radiation is produced when unstable elements such as radium decay (break down) and give off radioactive particles or rays. *Radon* is a gas formed when radium decays. The hazard associated with radiation depends on:

- the form of radiation;
- the element that is radioactive and its decay products; and
- the route of exposure.

Forms of Radiation Associated with Radium

Alpha is a heavy particle that is mainly a hazard to internal organs exposed to radium or radon. These particles only travel a short distance (inches) in air and cannot go through the skin.

Beta is a light particle that can sometimes penetrate the skin. Beta particles can travel several feet through the air and may expose the skin and internal organs of those living or working near the radium dust.

Gamma is a ray that can penetrate nearly any substance. Gamma rays can travel great distances in air, and expose those living or working near the radium dust.

What are the Health Effects of Radium Radiation Exposure?

The health effects of radiation are well studied at high levels of exposure, but the long-term effects of exposure to low levels of radiation - such as those found in the clock factories - have never been observed in humans. We assume that radiation exposure increases the risk of cancer by a small amount. That means the lower the exposure, the lower the risk.

Radiation is energy that may damage the human body by damaging cells or their genetic material (DNA). Some forms of radiation are known to cause cancer. There are 3 types of potential exposures when radium is present:

- *gamma ray exposure* occurs when people are near the radium;
- *radon exposure*, occurs when radium decays into radon and is inhaled (breathed); and
- *radium dust exposure* occurs through *inhalation and ingestion (through the mouth)* of airborne dust.

For both radon and radium, the hazard comes from radioactive materials getting into the body. The effects are mainly to specific organs:

- the lungs for radon and its decay products
- lungs and bone for inhaled or ingested radium.

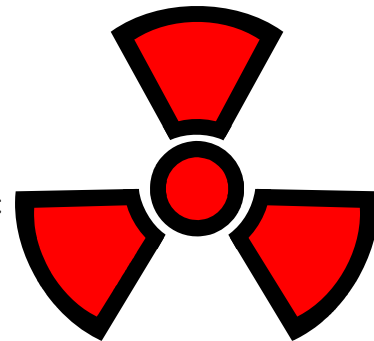
Bone cancer is connected with radium exposures. It was found among workers who worked directly with radium and ingested large amounts of it over a long period of time. It is important to remember that the health effects of radiation exposure vary according to:

- * how long you were exposed; and



How is Exposure to Radiation Measured?

The DEP measured the amount of radiation exposure caused by radium contamination in the buildings. The unit for this measurement is called a millirem. We are all exposed to background radiation, at about 350 millirems per year. Radiation occurs naturally in the environment from the sun, cosmic rays, and other sources. Background radiation refers to these naturally occurring sources, as well as medical exposures (X-rays).



Radiation surveys were conducted in the areas that are occupied by the businesses. Further radiation surveys are needed in the unoccupied areas of the actively used buildings. In addition, the abandoned buildings on the site need to be surveyed. The results of the evaluation of the surveys completed so far are presented below.

What Were the Results of the Assessment?

Building Occupied by Club International: The first two floors were not affected by radium radiation. The third and fourth floors have not been surveyed.

Building Occupied by Goodies Repairs: The first floor has one spot with radiation levels above the EPA clean-up level (15 millirems per year). The second floor has not been surveyed.

Building Occupied by St. John's Restaurant: The first floor is not affected. The second through fourth

I Work at the Former New Haven Clock Factory Site. What Do the Results Mean For My Health?



Most of the areas that were surveyed in the building complex were not affected by radium radiation, therefore there were no likely exposures. In the one area in Goodies Repair where there was radiation detected, the radiation level poses a very low health concern for long-term (life-time – 70 years) exposures. This concern would only be for someone who had continuous direct contact with the contamination. However, the chance of this having occurred is highly unlikely. Someone who worked close to this area would not be at risk. If you have specific questions about a specific area in the building, call the CT DPH at (860) 509-7742.

Should I Talk with my Doctor or Health Provider?

It is always wise to consult with your medical provider if you have questions about your health. The DPH believes it is unlikely that any radium exposures at the site will cause health effects.

What Should be Done About the Contamination?

Although levels of radiation are not high enough to cause immediate health problems, it is important that exposures to radiation contamination above the EPA level be stopped to minimize potential long-term health effects. The EPA and CT DEP are reviewing the health assessment findings to decide on the best clean-up method.

FOR MORE INFORMATION:

CT Department of Environmental

Air Quality & Radiation Division

79 Elm St.

Hartford, CT 06106

(860) 424-3029

CT Department of Public Health

EEOH Division

410 Capitol Ave

Hartford, CT 06134-0308

(860) 509-7742

New Haven Health Department

New Haven, CT 06519

(203) 946-6999

U.S. Environmental Protection

Region I

JFK Building CPT

Boston, MA 02203-2211

1-888-372-7341

Agency for Toxic Substances &

1600 Clifton Rd, MS E-56

Atlanta, GA 30333

1-800- 447-1544



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