



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

October 6, 2016

Current Owner  
TSJ, Inc.  
P.O. Box 5136  
Milford, CT 06460

**SUBJECT: NEW HAVEN CLOCK COMPANY – REQUEST FOR INITIAL SITE VISIT AND TO  
PERFORM RADIOLOGICAL SURVEYS**

Dear Current Owner:

I am writing to inform you that our records indicate that your property at 133-135 Hamilton Street, New Haven, Connecticut, is a site where radium-226 was previously used in the manufacturing of clocks and wrist watches with luminous-radium dials. Specifically, records from the late 1990s indicate that radium contamination was identified at your site. Recent surveys performed by the State of Connecticut indicate that radium contamination still exists in the unoccupied portions of your property. Radium-226 is a radioactive isotope that, in certain quantities, may pose a risk to public health and safety. Radium-226 is regulated by the U.S. Nuclear Regulatory Commission (NRC). If you are not the current owner of the property, please let us know whom we should contact. We do not know whether there is a current radiological issue at your property, and it is important that you contact us at your earliest convenience. We are requesting access to your property to perform radiological surveys and to collect samples to determine whether there is any residual contamination resulting from this historical manufacturing on your property. This testing will not damage your property and these tests will be conducted at no cost to you. If residual contamination at your property has already been remediated, please provide us with records describing cleanup activities and the status of the remediation.

To successfully complete our tests, we need to schedule an initial visit. The initial site visit will serve two purposes: 1) to determine whether there is any readily detectable radium contamination; and 2) to allow us to start planning a scoping survey, if necessary. During our initial site visit we will determine if a follow-up scoping survey is necessary. The scoping survey will involve a more detailed radiological survey to determine if there is any residual contamination. After each visit, we will share results with you as soon as they are available.

These tests will determine whether your site requires remediation to remove residual contamination. Should remediation be required, we will provide additional information on any actions that may be necessary to ensure protection of public health and safety. Please be aware that under the NRC's regulations, site owners are responsible for the costs associated with these remediation activities; as a regulatory agency, the NRC cannot provide funding. This does not, however, preclude site owners from using alternative legal options that may be available under State or Federal law to fund remediation activities. We will continue to work with you to address and resolve this matter.

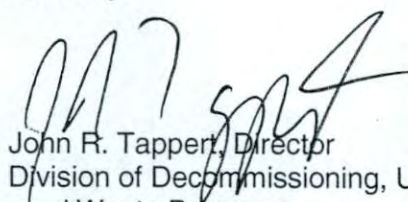
The enclosed Site Summary Report provides all of the information that the NRC has concerning historical radium manufacturing at your property, which we found through a search of publicly

available information. The enclosed Backgrounder provides more detail on the history of radium use and its potential health effects. The enclosed brochure provides an overview of the NRC.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

We would like to work with you to schedule our initial site visit and answer any questions you might have. At your earliest convenience, please contact Mr. Matthew Meyer, Acting Branch Chief, Materials Decommissioning Branch, Division of Decommissioning, Uranium Recovery and Waste Programs, Office of Nuclear Materials Safety and Safeguards, at (301) 415-6198, or Mr. David Misenhimer, Project Manager, at (301) 415-6590.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Tappert", is written over the typed name and title.

John R. Tappert, Director  
Division of Decommissioning, Uranium Recovery  
and Waste Programs  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 3038975

Enclosures:

1. Site Summary Report
2. Radium Backgrounder
3. U.S. Nuclear Regulatory Commission *Overview*

REGISTERED LETTER – RETURN RECEIPT REQUESTED

## **New Haven Clock Company: Site Summary**

The following information was extracted from public records and the "CT File.PDF" (CT-DEP, 2009).

### **Address**

133-135 Hamilton St., New Haven, CT

### **Site Description/History**

In 1853, the New Haven Clock Company was incorporated as a supplier of brass clock movements. This facility produced many types of clocks, including pocket versions (started in 1880) and wrist watches (started in 1917). This facility produced over 40 million watches between 1880 and 1959 (ATSDR, 1999), many with radium painted dials.

After 107 years in business, the New Haven Clock Company's facilities and products were sold at public auction in March of 1960, due to financial woes. The company's demise may have been due to is tremendous overproduction of products, which made it impossible to earn a profit.

According to ATSDR (1999), the building occupants of the former New Haven Clock Company in 1999 included: Club International, Goodies Repairs, and St. John's Restaurant. Most of the total building space was unoccupied or abandoned. Club International was housed in the first two floors of the four story building. There was little information about the third and fourth floors of that building. Goodies Repairs was located in the first floor of the small two story section of the building. St. John's Restaurant was located in the first floor of the larger four story section of the building (see Figure 2).

Almost all of the original building is unoccupied, as of November 2015. The only current occupant of the original facility is Primo Gentleman's Club, located at 133 Hamilton Street.

### **The amount/extent of radium contamination at these sites (including historical information and/or informed assumptions about the radium facilities' structures/areas, processes, and activities)**

In 1998, the US EPA contacted the Agency for Toxic Substances and Disease Registry (ATSDR) to assist in conducting a public health assessment of structures that once housed clock factories in four Connecticut municipalities. The purpose of the health assessment was to evaluate the radiological survey data previously collected by the Connecticut Department of Environmental Protection (CT-DEP) at structures that once housed clock factories and to determine whether a public health hazard exists at any of these sites from the radiological contamination. The CT DEP requested assistance from the US Department of Energy (DOE) in conducting radiological surveys of the structures that once housed clock factories. The surveys were completed in April of 1998.

For the former New Haven Clock building (occupied by Club International, Goodies Repairs, and St. John's Restaurant at the time of the 1998 survey), the 1999 ATSDR Public Health Assessment reported

no radiological contamination in the surveyed areas of Club International or St. Johns Restaurant. In the two story portion of the old clock factory, only a small area on the first floor was identified with a positive reading (35  $\mu\text{R/hr}$ ). At the time of the survey, this area was occupied by the Goodies Small Engine Repair (Table 1). Surveys of other areas of the building that were abandoned were still pending in 1998. The ATSDR (1999) Public Health Assessment (PHA) concluded that radiological contamination was detected at levels that may pose a public health hazard to occupants of the former New Haven Clock Company building; however, ATSDR stated that none of the radiation levels detected pose an immediate health problem. The Connecticut Department of Public Health recommended that individuals be disassociated from areas with radiation at levels exceeding 15 mrem/year.

Table 1. 1998 Radiological Survey Results for the former New Haven Clock Company Building (Goodies Small Engine Repair) (ATSDR 1999).

Radiological Parameter (units)	Location	Measurement Description	Maximum Level	Background	CL
Gamma radiation ( $\mu\text{R/hr}$ )	1st floor	Direct contact	35	10	15
		Measured at Waist level	13		
Alpha, Beta gamma activity		not measured			

EPA cleanup level = 15; Source = ATSDR, 1999

#### Summary of Current Radium Levels:

As of November 2015, current levels of radium are unknown based on information reviewed for this report.

#### **Location and population near the sites**

The former New Haven Clock Company facility is located in an industrial part of New Haven, CT (see Figure 1). New Haven is located on New Haven Harbor on the northern shore of the Long Island Sound in New Haven County, which in turn comprises the outer limits of the New York metropolitan area. It is the second-largest city in Connecticut. According to the 2010 U.S. Census, the population of New Haven was 129,890; the 2014 population estimate for the city was 130,282 (United States Census Bureau, 2015).



Figure 1. Location of New Haven Clock Company (Google Earth, 2014)

#### **Current State/other Federal involvement**

In 2001, the CT State Bond Commission approved \$750,000 to support cleanup of radioactive material found at old clock factory sites in Bristol, New Haven, Thomaston and Waterbury. It is unknown if any of these clean-up funds were allocated to the former New Haven Clock Company site.

#### **Current access, activities, and uses at the site**

Images from Google Earth (September 2014) indicate that most of the 2 and 4 story sections of the building are boarded and do not appear to be in use (see Figures 2 and 3). The only current occupant of the site is Primo Gentlemen's Club, at 133 Hamilton Street (see Figure 4)





Figure 2. Former New Haven Clock Company Building (Google Earth, 2014)



Figure 3. Former New Haven Clock Company Building (Google Earth, 2014)





Figure 4. Primo Gentlemen's Club, at the corner of Hamilton Street and St John Street (Google Earth, 2014)

### Existing Engineering Controls

Most of the windows have been covered, but there doesn't appear to be any signs, fences, or restrictions on use (Figs. 2 and 3). A couple of the boarded windows appear to be cut out (Figure 3).

### Prioritization Ranking

Radium is confirmed to have been present at the site based on historical documentation of radium use and radiological surveys. The site consists of buildings that are potentially contaminated by radium. Portions of the buildings are occupied. Therefore, the site is classified as Tier 1.

### References

Agency for Toxic Substances and Disease Registry (ATSDR). 1999. Public Health Implications of Radiation Contamination at Former Clock Factories Located in Bristol (Hartford County), New Haven (New Haven County), Thomaston (Litchfield County), and Waterbury (New Haven County) Connecticut , January 29, 1999. <http://www.atsdr.cdc.gov/HAC/pha/PHA.asp?docid=959&pg=0>.



CT-Department of Environmental Protection (DEP). 2009. Correspondence from CT-DEP to NRC NMSS. Collection of pdf documents about Connecticut Clock Companies. Document dates range from 1998-2004. CT File.pdf, 1806 pages.

CT Department of Public Health (DPH). 1998. The Former New Haven Clock Factory: Questions and Answers About Radium. November 1998.

[http://www.ct.gov/dph/lib/dph/environmental\\_health/eoha/atsdr/newhavenclock1198.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/eoha/atsdr/newhavenclock1198.pdf).

Google Earth. 2014. Accessed August 2015: <http://www.google.com/maps/>.

United States Census Bureau. Accessed October 2015.

<http://quickfacts.census.gov/qfd/states/09/0952000.html>.

Summary of New Haven Clock Company Information in "CTfile.pdf" (CT-DEP, 2009).

Site_Name	Source_date	Title	Pages
New Haven Clock Company	unknown	Clock Factory Contacts	
New Haven Clock Company	April 21, 1998	Department of Energy (DOE) Radiological Assistance Report cover letter and Radiological Assistance Call notes	744-747
New Haven Clock Company	unknown	New Haven Information	241-242
New Haven Clock Company	January 29, 1999	PUBLIC HEALTH ASSESSMENT; PUBLIC HEALTH IMPLICATIONS OF RADIATION CONTAMINATION AT FORMER CLOCK FACTORIES LOCATED IN BRISTOL (HARTFORD COUNTY), NEW HAVEN (NEW HAVEN COUNTY), THOMASTON (LITCHFIELD COUNTY), AND WATERBURY (NEW HAVEN COUNTY) CONNECTICUT	1578-1619

## Radium

Radium was one of the first radioactive elements ever discovered. Marie and Pierre Curie unlocked the atom's secrets in 1898, opening the door for important innovations using radioactivity in medicine and industry. Radiation quickly became a consumer and medical sensation and radium was the posterchild. Experts concluded radiation was a lifesaver after finding it reduced tumor growth and was present in the waters at some health spas. Soon there were many radium products on the market that purported to improve health and vitality. But tragic stories began to emerge of the health impacts. Perhaps the most well-known is the "radium girls," who painted watch faces with glow-in-the-dark radium paint and developed infections and jaw cancer from licking their brushes into fine points.

### Early regulation

When evidence of harm began to emerge in the early 1900s, the states each made their own decisions about how to regulate. Courts also took varying approaches on victim compensation. The federal government took action to guard against false advertising and regulate mail shipments, conducted studies, and organized some voluntary protections.

As radioactive materials became more widely available following World War II, they remained largely under state control. Radium use declined in medical and consumer products in favor of other safer materials.

### Regulation today

Work on securing radioactive materials took on new urgency following the terrorist attacks on the United States in September 2001. Those attacks prompted the International Atomic Energy Agency to develop a code of conduct in 2004 to limit the potential for malicious acts. That code places one form of radium, known as radium-226, and other radioactive materials into categories based on their quantity and potential hazard.

The NRC has specific security requirements tied to these categories. As support for the IAEA code grew, Congress passed the Energy Policy Act in 2005, giving the NRC authority over radium-226. This law marked the first time the federal government had a comprehensive role in ensuring the safe use of radium-226.

Many states had developed strong programs for regulating radium and other naturally-occurring radioactive materials and it took time to transition authority. The NRC had regulations in place and fully assumed oversight in 2009. Initially, NRC staff worked exclusively with the military to identify sites



where radium might be present. These discussions made clear that the NRC's role would include ensuring that sites where radium was used are maintained in a way that protects public health and safety.

In 2016, the NRC and Department of Defense signed a [Memorandum of Understanding \(MOU\)](#) describing roles in the cleanup of radium and other unlicensed radioactive materials at military sites. The MOU and a [Regulatory Issue Summary](#) clarify NRC's jurisdiction over military radium. In late 2016, the NRC began monitoring two sites under the MOU: Treasure Island Naval Station in San Francisco and Dugway Proving Ground in Utah.

In 2013, the agency learned of two commercial sites where radium-226 had been found and other federal agencies had gotten involved. The Environmental Protection Agency was overseeing portions of the Waterbury Clock Company in Connecticut. The National Park Service was overseeing Great Kills Park in New York.

NRC staff is working with the current owner of the Waterbury Clock Company site. Contaminated areas of the site are under EPA oversight through its Brownfields Program, which provides assistance to clean up contaminated properties. NRC staff is working with EPA to clarify oversight roles and responsibilities under that program.

In 2016, NRC staff began developing an MOU with the National Park Service that will also clarify the NRC's jurisdiction over radium at Great Kills Park. The NRC is monitoring cleanup activities that the Park Service is implementing under Superfund, more formally known as the Comprehensive Environmental Response, Compensation and Liability Act.

Those projects prompted a search to identify sites in NRC's jurisdiction where radium was used, and to find out how much, if any, cleanup was done. This search was not a result of any known health and safety issues. Rather, because of its mandate to protect public health and safety, the NRC wanted to be sure there were no additional sites that might pose a risk.

With the help of the Oak Ridge National Laboratory, the NRC began to develop a fuller picture of commercial radium use. The lab produced a [catalog](#) of the various products developed and sold to the public in the early 20<sup>th</sup> century. By reviewing publicly available records, Oak Ridge identified sites where radium may have been used to make consumer goods. Then the lab looked for any cleanup records. Oak Ridge transmitted the results to the NRC in November 2015. Since that time, the agency has been working on plans to gather more information about those sites.

The NRC is working with state and local governments to identify any additional records that may help clarify whether any site cleanup has taken place. The goal is to ensure that public health and safety is adequately protected at these sites.

**October 2016**

## OTHER KEY OFFICES

- ◆ The **Office of Enforcement** develops policies and programs to enforce NRC requirements. Enforcement action is used as a deterrent to emphasize the importance of compliance with regulatory requirements and to encourage prompt identification and prompt, comprehensive correction of violations. The office manages major enforcement actions against licensees, and assesses the effectiveness and uniformity of enforcement actions taken by NRC regional offices. Enforcement powers include notices of violations, fines, and orders to modify, suspend or revoke a license. Two separate offices are responsible for investigations.
- ◆ The **Office of Investigations** conducts investigations of licensees, applicants, contractors and vendors. The office investigates all allegations of wrongdoing by individuals or organizations other than NRC employees and NRC contractors. In addition, the office keeps abreast of inquiries and inspections and advises on the need for formal investigations. It also keeps other components of the agency informed of matters under investigation as they affect safety.
- ◆ The **Office of the Inspector General** is a statutory post mandated by the Inspector General Amendments Act of 1988. The office conducts independent reviews and appraisals of internal NRC programs and conducts investigations of alleged wrongdoing by NRC employees and contractors.

## Office of Public Affairs

Washington, DC 20555-0001

Telephone: (301) 415-8200

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E-mail: [opa.resource@nrc.gov](mailto:opa.resource@nrc.gov)

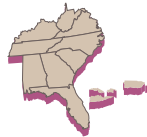
Website: [www.nrc.gov](http://www.nrc.gov)

## Regional Public Affairs Offices



### Region I

2100 Renaissance Blvd., Suite 100  
King of Prussia, PA 19406-2713  
(610) 337-5330 or 337-5331



### Region II

245 Peachtree Center Ave., NE., Suite 1200  
Atlanta, GA 30303-1257  
(404) 997-4417 or 997-4416



### Region III

2443 Warrenville Road, Suite 210  
Lisle, IL 60532-4352  
(630) 829-9663 or 829-9662



### Region IV

1600 E. Lamar Blvd.  
Arlington, TX 76011-4511  
(817) 200-1128



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June 2016

## STAY CONNECTED



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## U.S. Nuclear Regulatory Commission Overview



## NRC MISSION

The NRC licenses and regulates the Nation's civilian use of radioactive materials to protect public health and safety, promote the common defense and security, and protect the environment. Specifically, the NRC regulates commercial nuclear power plants; research, test and training reactors; nuclear fuel cycle facilities; and the use of radioactive materials in medical, academic and industrial settings.

The agency also regulates the transport, storage, and disposal of radioactive materials and waste, and licenses the import and export of radioactive materials. While the NRC only regulates industries within the United States, the agency works with agencies around the world to enhance global nuclear safety and security.

## STATUTORY AUTHORITY

The Energy Reorganization Act of 1974 created the NRC from the Atomic Energy Commission. The new agency was to oversee — but not promote — the commercial nuclear industry. The agency began operations on January 18, 1975. The NRC's regulations can be found in Title 10, "Energy," of the *Code of Federal Regulations* (10 CFR).

The NRC, its licensees (those licensed by the NRC to use radioactive materials), and the Agreement States (States that assume regulatory authority over use of certain nuclear materials) share a responsibility to protect public health and safety and the environment. Federal regulations and the NRC's regulatory program are key, but the primary responsibility for safely handling and using these materials lies with the licensees.



## ORGANIZATIONS AND FUNCTIONS

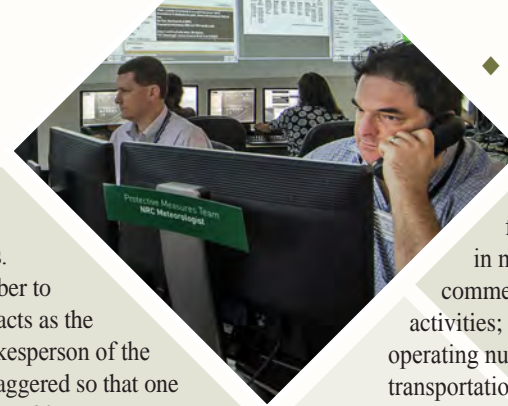
The NRC's Commission is made up of five members nominated by the President and confirmed by the U.S. Senate for 5-year terms. The President designates one member to serve as Chairman. The Chairman acts as the principal executive officer and spokesperson of the agency. The members' terms are staggered so that one Commissioner's term expires on June 30 every year. No more than three Commissioners can belong to the same political party.

The Commission formulates policies and regulations governing nuclear reactor and materials safety, issues orders to licensees, and adjudicates legal matters. The Executive Director for Operations carries out the policies and decisions of the Commission, and directs the activities of the program and regional offices. The NRC has about 3,600 employees and an annual budget of about \$1 billion.

The NRC is headquartered in Rockville, Md., and has four regional offices. The **Regional Offices** conduct inspection, enforcement (in conjunction with the Office of Enforcement), investigation, licensing, and emergency response programs. At least two NRC employees, called Resident Inspectors, are assigned to, and work out of, each nuclear power plant. The NRC also has a Technical Training Center in Tennessee.

The major program offices within the NRC include:

- ◆ **The Office of Nuclear Reactor Regulation.** Handles all licensing and inspection activities for existing nuclear power reactors and research and test reactors.
- ◆ **The Office of New Reactors.** Oversees the design, siting, licensing, and construction of new commercial nuclear power reactors.
- ◆ **The Office of Nuclear Security and Incident Response.** Oversees agency security policy for nuclear facilities and users of radioactive materials. It provides a safeguards and security interface with other Federal agencies and maintains the agency's emergency preparedness and incident response program.



- ◆ **The Office of Nuclear Material Safety and Safeguards.** Regulates activities and oversees the regulatory framework for the safe and secure production of commercial nuclear fuel and the use of nuclear material in medical, industrial, academic and commercial applications; uranium recovery activities; and the decommissioning of previously operating nuclear facilities. It regulates safe storage, transportation, and disposal of high- and low-level radioactive waste and spent nuclear fuel. The office also works with Federal agencies, States, and Tribal and local governments on regulatory matters.
- ◆ **The Office of Nuclear Regulatory Research.** Provides independent expertise and information for making timely regulatory judgments, anticipating problems of potential safety significance, and resolving safety issues. It helps develop technical regulations and standards and collects, analyzes, and disseminates information about the safety of commercial nuclear power plants and certain nuclear materials.

Three independent groups serve the Commission:

- ◆ **Advisory Committee on Reactor Safeguards,** mandated by statute, is a committee of scientists and engineers independent of NRC staff. They review and make recommendations to the Commission on all applications to build and operate nuclear power reactors, the safety aspects of nuclear facilities and the adequacy of safety standards. This includes update license amendments and license renewals.
- ◆ **Advisory Committee on the Medical Uses of Isotopes** is made up of physicians and scientists who consider medical questions and, when asked, give expert opinions to the NRC on the medical uses of radioactive materials.
- ◆ **Atomic Safety and Licensing Board Panel** provides a way for the public to get a full and fair hearing on civilian nuclear matters. Individuals who are directly affected by licensing action involving certain facilities producing or using nuclear materials may submit a request to participate in a hearing before these independent judges.



available information. The enclosed Backgrounder provides more detail on the history of radium use and its potential health effects. The enclosed brochure provides an overview of the NRC.

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Sincerely,

**/RA/**

John R. Tappert, Director  
Division of Decommissioning, Uranium Recovery  
and Waste Programs  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 3038975

Enclosures:

1. Site Summary Report
2. Radium Backgrounder
3. U.S. Nuclear Regulatory Commission *Overview*

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