



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

July 2, 2018

Andrea Burlee, President  
Drawn Metal Tube Company  
P.O. Box 370  
Thomaston, CT 06787

SUBJECT: PROPERTY AT 219 ELM STREET—REQUEST FOR INITIAL SITE VISIT AND  
TO PERFORM RADIOLOGICAL SURVEYS

Dear Ms. Burlee:

I am writing to inform you that our records indicate that the property at 219 Elm Street, Thomaston, Connecticut, which was used by the Seth Thomas Clock Company, is a site where radium-226 may have been used in the manufacturing of clocks with luminous radium dials. If you are not the current owner of the property, please let us know whom we should contact.

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). 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 surveys and sample collection, we need to schedule an initial site visit. The initial site visit will serve two purposes: 1) to determine whether there is any readily detectable radium contamination; and 2) to determine whether your site requires remediation to remove residual contamination. After the visit, we will share results with you as soon as they are available.

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 recognize that you may not have been aware of the historical radium use at your site, and 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 manufacturing at the property, which was 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. Stephen Koenick, Chief, Materials Decommissioning Branch, Division of Decommissioning, Uranium Recovery and Waste Programs, Office of Nuclear Materials Safety and Safeguards, at (301) 415-6631, or Mr. Jeffrey Whited, Project Manager, at (301) 415-4090.

Sincerely,

***/RA/ M. Sampson for***

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

Docket No. 03039095

Enclosures:

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

REGISTERED LETTER – RETURN RECEIPT REQUESTED

SUBJECT: PROPERTY AT 219 ELM STREET – REQUEST FOR INITIAL SITE VISIT AND TO PERFORM RADIOLOGICAL SURVEYS, DATED JULY 2, 2018

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**OFFICIAL RECORD COPY**

**Seth Thomas Clock Company, 219 Elm Street: Site Summary**

**Prepared by  
Oak Ridge Associated Universities  
Under NRC Contract Number HQ-50-17-A-0001**

**June 8, 2018**

**Prepared for  
U.S. Nuclear Regulatory Commission**

## Seth Thomas Clock Company, 219 Elm Street: Site Summary

The following information was extracted from public records.

### Address

219 Elm Street, Thomaston, Connecticut 06787

### Site Description/History

The Seth Thomas Clock Company (Seth Thomas) began making clocks in 1813 in the town of Plymouth Hollow, later renamed Thomaston after the clock maker. They continued to manufacture clocks and watches until the early 1980s (Master Clock Repair 2017, HBC 2014). In review of historic maps, there was a Seth Thomas Clock Company Movement Shop identified on Elm Street in addition to the 135 South Main Street Seth Thomas Clock Company location. Note, the balance of the Elm Street complex (242 Elm Street) is dispositioned under a separate summary report. As will be discussed, it is not completely certain that radium was either present or used at the Elm Street Movement Shop, which was part of the former Seth Thomas complex. Possible radium use at the property is suggested by the 1911 Sanborn map (Figure 1) that notes "Dial Painting" and the fact that radium contamination was positively identified at the South Main Street facility (ATSDR 1999, Sciencetech 2003, ORAU 2017a). The 0.5-mi distance between the Elm Street and South Main Street facilities is illustrated in Figure 2.

The three-story, approximately 30,000-ft<sup>2</sup> 219 Elm Street building, pictured in Figures 3 and 4, was constructed in 1900 (Thomaston 2017). The 0.97-acre property includes a 2,000-ft<sup>2</sup> asphalt parking lot to the west of the structure and resides in an area that is developed for both commercial and residential use. The original building, pictured in Figure 4, consists of brick, stone, and concrete. It is unknown when the additional, adjacent structures were added. The current owner of the property is the Drawn Metal Tube Company (Thomaston 2017), a company that has manufactured metal tubing since 1937. A comparison of the 1911 Sanborn map and recent photographs shows that the 219 Elm Street building is one of two original structures that remain from the Seth Thomas Movement Shop era.

According to the Thomaston Town Clerk's Office, the Seth Thomas Company owned the site until 1936 when it was transferred to the General Time Instruments Corporation (ORAU 2017b). Seth Thomas became a division of the General Time Instruments Corporation in 1930 or 1931, later known as General Time Corporation (Master Clock Repair 2017, Antique Clocks Guy 2017, ClockHistory.com 2017, HBC 2017). In 1970, General Time Corporation was taken over by Talley Industries, which closed the Thomaston plant (presumably including the building at 219 Elm Street) and moved all operations to Norcross, Georgia (HBC 2014). Since the current owner obtained the deed to 219 Elm Street in October 1967 (Thomaston 2017), the property may not have been owned by Talley Industries. The sign painted on the outside of the building reads: "The Drawn Metal Tube Co" and "Hartley Tool & Die Company" (Figure 4), while an article in the Hartford Courant (1962) discussing a fire at the site refers to the "Hartley Drawn Metal Tube Co. and Hartley Tool and Die Co." This suggests that the two businesses are owned by the same individual/group (Hartford Courant 1962). It is unknown if there were any different owners between General Time Corporation and the Drawn Metal Tube Company.

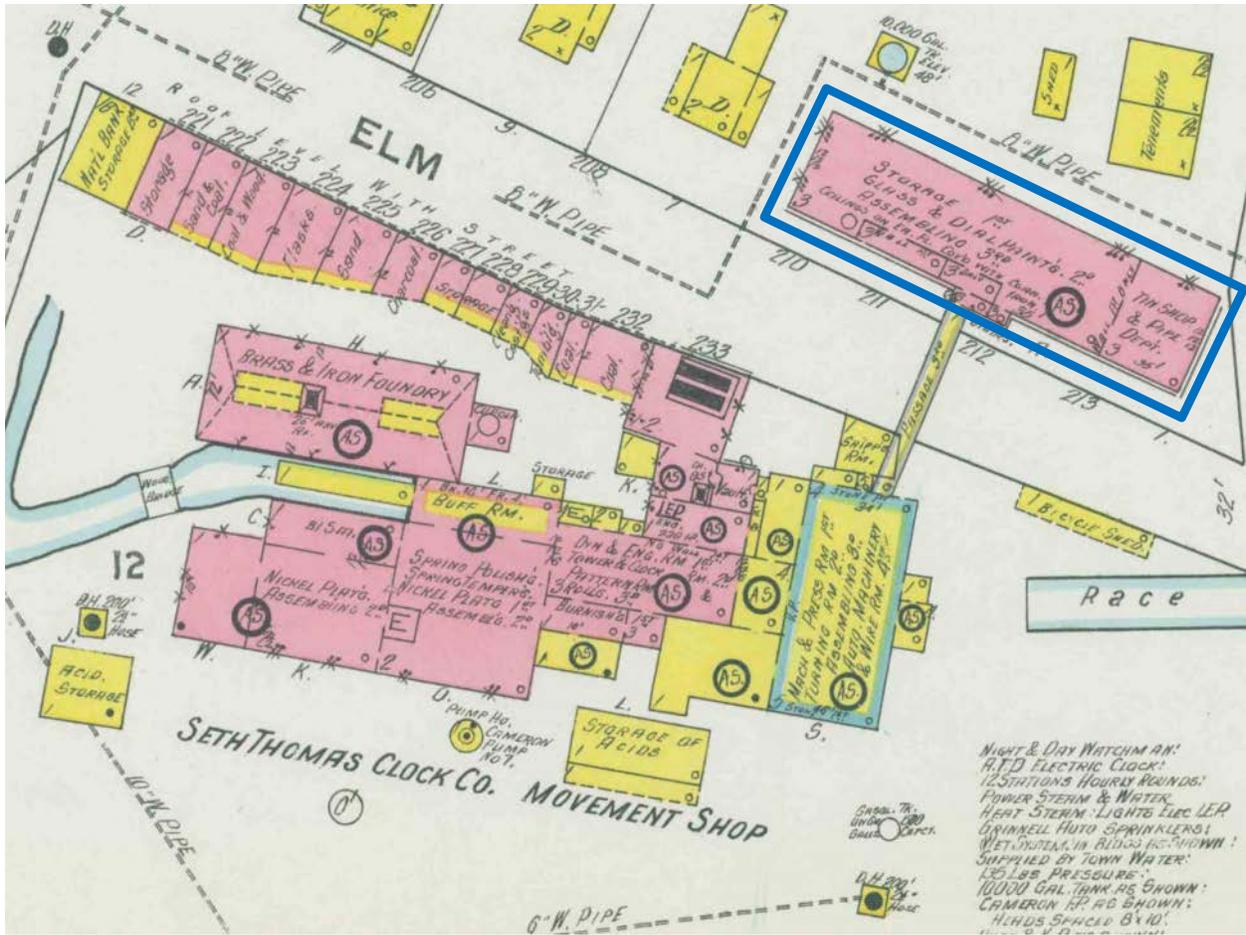
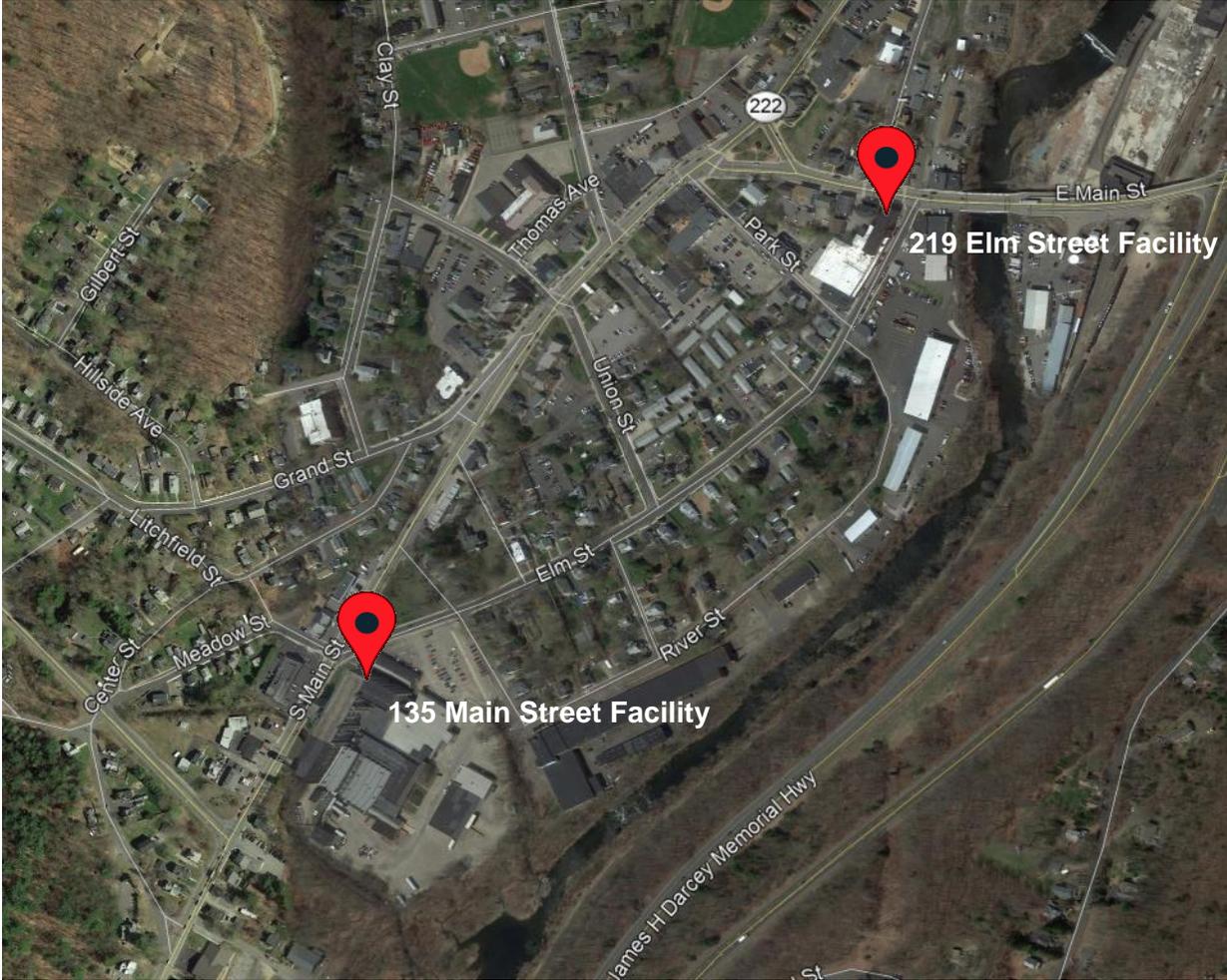


Figure 1. Seth Thomas Clock Company Movement Shop (Sanborn 1911)



**Figure 2. Seth Thomas Main Facility at 135 S Main Street in Relation to the Site at 219 Elm Street (Google Earth Pro 2017)**



**Figure 3. April 2016 Photo of Site at 219 Elm Street  
(original building outlined in blue) (Google Earth Pro 2017)**



**Figure 4. October 2008 Street View Photo of 219 Elm Street  
(Google Earth Pro 2017)**

## **Information Regarding Radium Sources/Contamination at the Site**

It is not known whether radium was either present or used at the Elm Street facility; though a 1911 Sanborn map (Figure 1) indicates that the building at 219 Elm Street was used for “Storage,” “Glass & *Dial Painting*,” (emphasis added) and “Assembling.” Radium dial painting did not begin in general until 1917 and not at Seth Thomas until after 1917 (Clark 1997). Therefore, the potential link between radium contamination and the Elm Street “Movement Shop” is based on the term “Dial Painting” and knowledge that radium dial painting was practiced within the Seth Thomas complex as late as the 1940s (CT DPH 1998). Radium contamination was positively identified at the South Main Street facility (ATSDR 1999, Scientech 2003, ORAU 2017a). However, radium use at the Elm Street Movement Shop could not be confirmed.

The 219 Elm Street site is on the Connecticut Department of Energy and Environmental Protection’s (DEEP’s) list of “Contaminated or Potentially Contaminated Sites” (DEEP 2017). According to DEEP, the site was investigated, starting in 1996, and was given an Environmental Land Use Restriction (ELUR) for no residential use. DEEP could not indicate why the ELUR was given, but only confirmed that the site was somehow out of compliance with Connecticut regulations (ORAU 2017c). The earliest known radiological investigation of any Seth Thomas property is in 1998 (ATSDR 1999), so it is possible that the DEEP 1996 investigation of the 219 Elm Street site property is unrelated to radium operations.

### Summary of Current Radium Levels:

As of October 2017, it is not known if radium sources and/or radium contamination are present at the site.

## **Location and Population Near the Site**

The site at 219 Elm Street is located in the town of Thomaston in Litchfield County, Connecticut. The area contains businesses and residences (shown in Figures 2 and 3) and is within approximately 300 feet of the Naugatuck River. According to the 2010 U.S. Census, the population of Thomaston was 7,887; the 2016 population estimate for Thomaston was 7,595 (U.S. Census Bureau 2017).

## **Current State/other Federal Involvement**

DEEP has put an ELUR of no residential use on the property. An extensive Internet search of public records did not reveal any other information about state or federal involvement at the site.

## **Current Access and Activities at the Site**

The site appears to be accessible and is currently occupied by the Drawn Metal Tube Company. The company manufactures and distributes different types of metal tubing. The Drawn Metal Tube Company can be contacted by phone at (888) 339-1442.

## **Existing Engineering and Administrative Controls**

No information about engineering or administrative controls could be identified.

## Prioritization Ranking

NRC assigns a prioritization ranking for each site based on two factors. The first factor relates to whether or not the historical record confirms the presence of radium and there is no documentation that the radium contamination was previously remediated. The second factor considers the potential for human exposure. Based on these factors, the site is assigned Tier 1, 2, 3, or 4 using the following criteria:

- Tier 1 = the historical record confirms the presence of radium, the building or adjacent lands are occupied or frequented by visitors, and site access is not controlled.
- Tier 2 = the historical record confirms the presence of radium, the building or adjacent lands are not occupied or frequented by visitors, and site access is weakly controlled.
- Tier 3 = the historical record confirms the presence of radium, the building or adjacent lands are not occupied or frequented by visitors, and site access is strongly controlled.
- Tier 4 = the presence of radium is suspected but not confirmed by the historical record.

Radium use is suspected at the former Movement Shop based on the term “Dial Painting” on the Sanborn map (1911) and given that radium use was confirmed at the 135 Main Street facility. However, radium use has not been confirmed within any Movement Shop building, including the 219 Elm Street facility. Therefore, the former Seth Thomas building located on 219 Elm Street is classified as Tier 4.

## References

Antique Clocks Guy 2017, “Seth Thomas Clock Company History,” <http://www.clockguy.com/SiteRelated/SiteReferencePages/SethThomasHistory.html>, Internet site accessed October 20

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*, prepared by the Connecticut Department of Public Health under Cooperative Agreement with The Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services. January 29. (Agencywide Documents Access and Management System [ADAMS] Accession No. ML17038A052).

Clark 1997. *Radium Girls: Women and Industrial Health Reform, 1910-1935*, Clark, Claudia, the University of North Carolina Press, Chapel Hill, North Carolina, ISBN 0-8078-4640-6.

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Master Clock Repair 2017, "Seth Thomas Clock Company, A Brief History," <http://masterclockrepair.com/seththomas.html>, Internet site accessed October 20

ORAU 2017a. *Site Status Report for the Former Seth Thomas Clock Company at 135 South Main Street, Thomaston, Connecticut*, DCN 5307-SR-19-1, Oak Ridge Associated Universities, Oak Ridge, Tennessee, October 3.

ORAU 2017b. Notes on personal communication between Andrew Owens/Oak Ridge Associated Universities and the Thomaston Town Clerk's Office 860-283-4141, phone conversation, October 16.

ORAU 2017c. Notes on personal communication between Andrew Owens/Oak Ridge Associated Universities and DEEP 860-424-3705, phone conversation, October 16.

Sanborn 1911. "Thomaston, Litchfield County, Connecticut August 1911," <http://findit.library.yale.edu/catalog/digcoll:385831>, Internet site accessed October 16.

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Thomaston 2017. "Thomaston, CT: Commercial Property Record Card for 219 Elm Street," City of Thomaston, Connecticut, [http://www.thomaston.univers-clt.com/view\\_property\\_C.php?account\\_no=T0263300&series\\_card=1](http://www.thomaston.univers-clt.com/view_property_C.php?account_no=T0263300&series_card=1), Internet site accessed October 16.

U.S. Census Bureau 2017. <https://www.census.gov/quickfacts/fact/table/thomastontownlitchfieldcountyconnecticut/PST040216>, Internet site accessed October 16.

## 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.

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## Regional Public Affairs Offices



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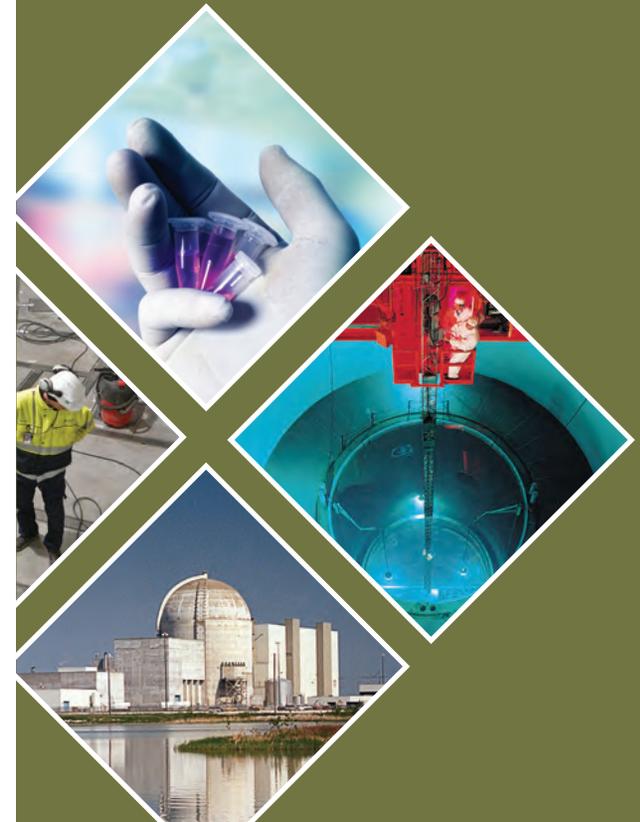
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## U.S. Nuclear Regulatory Commission Overview



## 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.