



NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE
Mary T. Bassett, MD, MPH
Commissioner

2017 Annual Report on the Status of Primary Indicators Associated with Cooling Towers

Introduction

This report is submitted pursuant to §3 of Local Law 77 (LL77), which requires that the Commissioner of the Department of Health and Mental Hygiene (DOHMH) submit to the Mayor and City Council Speaker a report detailing the status of the Office of Building Water System Oversight's (BWSO) cooling tower program and the number of cases of Legionnaire's disease in the city. Specifically LL77 requires the following information annually;

1. The number of new cooling tower registrations
2. The number of notifications of discontinued use (decommissioning) of a cooling tower
3. The number of annual certifications that a cooling tower was inspected, tested, cleaned and disinfected
4. The number of reports of tests for the presence of microbes that reveal levels that present a serious health threat received by the department of health and mental hygiene
5. The number of cooling tower system inspections conducted
6. The number and types of any violations cited during such inspections
7. The number of cleanings, disinfections or other actions performed by or on behalf of the department
8. The number of persons diagnosed with Legionnaire's disease in the city in each of the previous 10 years

This report represents the first full year of program implementation under Chapter 8 of Title 24 of the Rules of the City of NY (24 RCNY 8). 24 RCNY 8 forms the regulatory framework for reducing the disease risk associated with the spread of *Legionella* bacteria by improperly maintained and operated cooling tower systems.

Program Implementation

This reporting period saw further program development in the areas of staff training, technology improvements and stakeholder education and outreach.

- *Staff Training* - Program staff were provided training in technical aspects of heating, ventilation and air conditioning (HVAC) systems, the updated inspection and compliance software, compliance workflows and building water system hazard analysis and control.
- *Technology Improvements* - In response to workflow development, this reporting period also saw significant improvements to the handheld inspection platform and the supporting online registration portal. These include development of an electronic compliance workflow and integration with Environmental Control Board, modification of inspection questions to better support citations and streamline inspection process and changes to violation enforcement logic.
- *Stakeholder Education and Outreach* - Educational efforts focused on development of an educational curriculum for the regulated community, water treatment vendors and BWSO staff, development of



educational materials for in-person training, website posting and printed distribution, development of a 'self-assessment' tool for deployment to the regulated community in early 2018.

As of November 1, 2017, 6,129 cooling towers were registered with DOB, representing 5,075 cooling tower systems in 4,011 buildings across all five boroughs. With few exceptions, a routine inspection was performed for each of these cooling tower systems and summonses were issued for violations noted during the course of an inspection.

While many program workflows and policies were still under development in this time period, the end of 2017 saw more routine workflows and standardized policies. It is clear that the inspection efforts have improved operation and maintenance of cooling towers. The inspection program has resulted in cooling towers with high levels of *Legionella* being remediated. Routine testing by building owners has triggered proactive interventions designed to keep *Legionella* levels low. In situations where there is an investigation of Legionnaire's Disease, DOHMH has effectively utilized the cooling tower registration system to locate cooling towers and respond quickly to prevent further disease.

Data Reporting

Table 1 below provides all of the information required by LL77 for the period from 1/1/2017 through 12/31/2017. As a background, there are 30 possible violations divided into three categories:

- **Public Health Hazard (PHH).** A PHH is a condition that demonstrates a lack of basic cooling tower system monitoring and management and is the most serious category. Out of the 30 possible violations, three are classified as PHH: not having a Management Program and Plan (MPP), failure to take a recent *Legionella* sample, and failure to take a corrective action following a high *Legionella* sample.

Because a PHH presents a significant risk, they must be corrected quickly. If the violation is for failing to take a sample, DOHMH takes a sample at the time of the inspection. If the violation is for failing to take corrective action following a high *Legionella* sample result, the building owner is directed to take corrective action based on the level of the *Legionella* culture result. For example, if the *Legionella* culture result indicates the presence of greater than 1000 CFU/ml of *Legionella*, the building owner is required to initiate disinfection by increasing biocides within 24 hours; perform full remediation of the tower by hyperhalogenating, draining, cleaning and flushing within 48 hours; and retesting the water within three to seven days.

If a PHH is cited, DOHMH follows up with building management until the violation has been corrected.

- **Critical.** A critical violation is a condition that demonstrates a lack of process control associated with treatment, cleaning, disinfection and management of the cooling tower system. There are 14 possible critical violations.
- **General.** A general violation is associated with conditions that demonstrates a lack of recordkeeping, administrative control or non-critical process control. There are 13 possible general violations.

Figure 1 illustrates the number of persons diagnosed with Legionnaire's disease in the city in each of the previous 10 years. It should be noted that Table 8-1 of Chapter 8 requires that samples from cooling



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towers with results greater than 1,000 cfu/mL be reported to DOHMH and that cleaning and disinfection of the offending cooling tower takes place within 48 hours of receipt of the sample result.

Table 1- Local Law 77 Reporting Metrics for Time Period 1/1/2017 – 12/31/2017

Reporting Condition	Total # (1/1/2017 through 12/31/2017)
New Cooling Tower Registrations	807
Decommission Notifications	391
Annual Certifications*	4,621
Number of <i>Legionella</i> Results > 1,000 CFU/mL	59
Cooling Towers Inspected	6,447
Violations Cited**	75,822
<i>Public Health Hazard Violations Cited</i>	5,496
<i>Critical Violations Cited</i>	26,795
<i>General Violations Cited</i>	43,531
Cleanings/disinfections performed by or on behalf of the Department	7

*An annual certification must be submitted by November 1st of the certification year. Approximately 1500 cooling towers failed to submit their annual certification and can be subject to enforcement action from DOB.

**Violations are cited based on cooling tower systems. Each cooling tower system may receive more than one violation. DOHMH pursues only Public Health Hazard and Critical Violations at the Environmental Control Board.

Fig 1. Average Violations Found per Inspection by Type by Quarter 2017

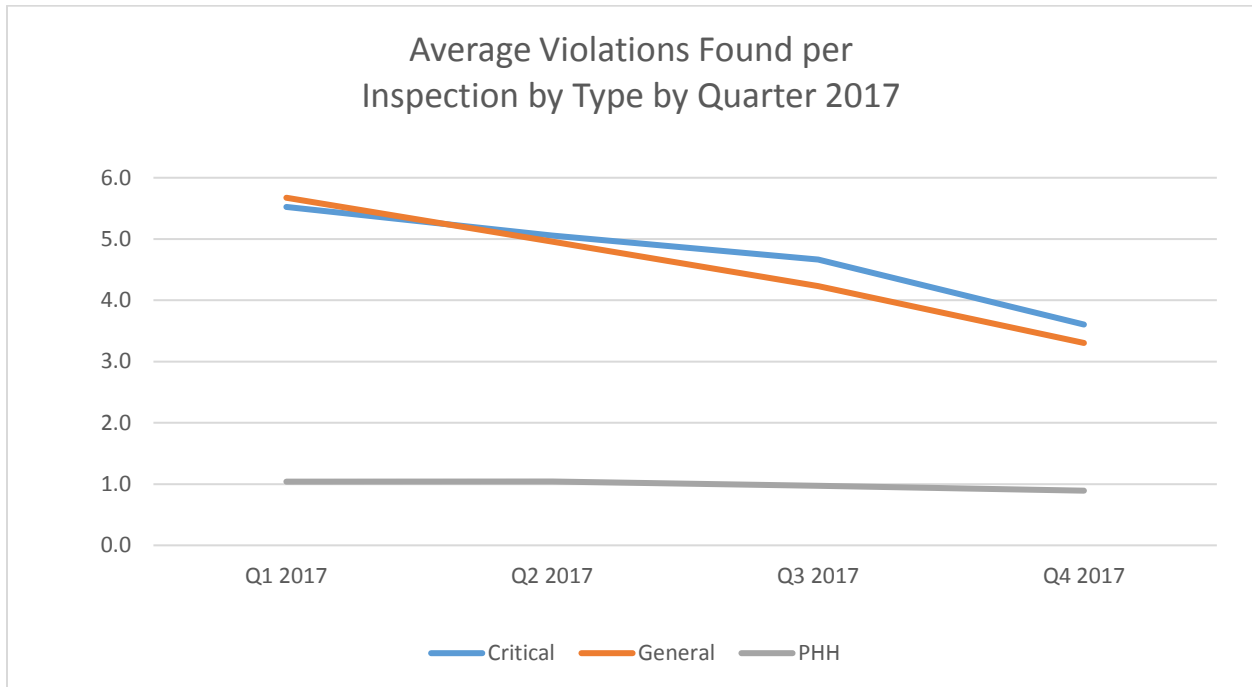


Fig 2. Reported Legionellosis Cases, NYC, 2007-2017

