



West Orange Public Schools

179 Eagle Rock Avenue
West Orange, New Jersey 07052
(973) 669-5400, ext. 20515 Fax (973) 243-6059

Acting Superintendent of Schools

Mrs. Eveny de Mendez

Memorandum

To: Board of Education
From: Eveny de Mendez
Date: December 10, 2018
Re: Legionella Report

WHAT IS LEGIONELLA PNEUMOPHILIA?

Legionella Pneumophila (SG-1) is a bacterium found in water that can cause Legionnaire's disease.

WHY ARE WE TESTING FOR LEGIONELLA PNEUMOPHILIA?

- Earlier this year, a parent reported that their child had contracted Legionella at Redwood Elementary. This was an unconfirmed case. The student did not have Legionnaires.
- In response, the Board and public requested that all schools be tested for Legionella Pneumophila.
- An initial sampling was conducted at Redwood Elementary School on 8/2/18. Of the fourteen (14) areas tested, three (3) tested positive.
- A chlorination process was used to remediate the water from 9/10-9/11 and post remediation results returned *Not-Detected* on 9/14/18.
- The remaining West Orange Schools were tested, yielded positive results.

IS LEGIONELLA PNEUMOPHILIA COMMON IN NEW JERSEY AND HOW IS IT CONTRACTED?

- It is not well known to the public that Legionella in large building water supplies is common, specifically in New Jersey.
- The fact that Legionella was found in the water systems does not automatically mean that the drinking water is a source for Legionnaires.
- Legionnaires' disease is normally contracted by inhaling small droplets of water (aerosols), suspended in the air, containing the bacteria (i.e. showers, cooling towers, and hot tubs).
- "Legionella is not contagious, person to person; it is not airborne; it cannot be contracted by drinking or touching water; and the way it is contracted is by inhaling contaminated mist." Township Director of Health, Theresa DeNova.

IS THE DRINKING WATER SAFE?

- Water in most large buildings contain Legionella bacteria.
- Healthy people exposed to Legionella in drinking water are at little risk, if any.
- Drinking water poses a risk only to select individuals
 - 50 years or older
 - Lung disease, current or former smokers, alcoholics
 - Underlying immune-deficiency diseases such as chronic respiratory disease
 - Kidney disease, diabetics, cancer
 - Organ transplant recipients
- If you have a history of pneumonia or you are a cigarette smoker, you should avoid drinking tap water anywhere.

HOW IS LEGIONELLA PNEUMOPHILIA ENTERING OUR WATER SYSTEM?

- Water enters our system from the township and is provided through New Jersey American Water.
- Plumbing in older buildings with “dead ends” provide opportunity for Legionella to grow, including plumbing that is infrequently used.
- Water temperature that enters an outlet at appropriate levels that would normally kill Legionella, but exit the plumbing at a lower temperatures (due to travel distance), also have the potential for harboring the Legionella bacterium.

ARE OUR SCHOOLS FREE FROM LEGIONELLA?

- All of the schools in West Orange have been tested for Legionella by Garden State Environmental.
- Initial testing at the following district locations concluded that Legionella Pneumophilia was *Not Detected* (See attached reports). As such, remediation efforts were not required.
 - Early Childhood Center (8/30/18)
 - Kelly Elementary School (8/30/18)
 - Liberty Middle School (8/30/18)
 - Bus Garage (9/27/18)
- Initial testing at the following district locations yielded positive results for Legionella Pneumophilia. A chlorination process was applied to remediate. Post remediation results concluded that the chlorination process was successful and Legionella was *Not Detected*.

| Initial Testing | Chlorination | 1 st Post Remediation Results | Additional Post Remediation Results |
|--|------------------------------------|---|--|
| Redwood Elementary 8/02/18 | OMEGA – Entire System 9/10-9/11 | Not Detected 9/14/18 | |
| Washington Elementary 8/30/18 | OMEGA – Entire System 9/21-9/22 | Not Detected 9/24/18 | |
| St. Cloud Elementary 8/30/18 | OMEGA – Entire System 9/21-9/22 | Not Detected 9/24/18 | |
| Mt. Pleasant Elementary 8/30/18 | OMEGA – Entire System 9/18-9/19 | Not Detected 9/24/18 | |
| Roosevelt Middle School 8/30/18 | Clarity – Entire System 10/6/18 | Positive - One Showerhead in Boys Locker Room 10/10/18 | Replaced Showerhead Not Detected 11/5/18 |
| Hazel Elementary 8/29/18 | Clarity – Entire System 9/29/18 | Positive – Faculty Restroom Sink in Library | Nephros Filter Installed on outlet Retesting 12/13/18 |
| Gregory Elementary 8/29/18 | Clarity – Entire System 9/29/18 | Positive – Left sink boys restroom across from 207 | Nephros Filter Installed Retesting 12/13/18 |
| Edison Middle School 8/29/18 | Clarity – Entire System 10/6/18 | Positive – 8 outlets | Nephros Filters Installed 11/30/18 Retesting 12/13/18 |

| Initial Testing | Chlorination | 1 st Post Remediation Results | Additional Post Remediation Results |
|--|------------------------------------|--|-------------------------------------|
| West Orange High School 8/29/18 | Clarity – Entire System 10/5/18 | Positive – 26 outlets | Positive – 24 outlets |

West Orange High School

- Nephros filters have been installed on all outlets that have tested positive.

Shower Rooms

- All showers have been turned off until the following remediation efforts and retesting has been completed.
- 68 showerheads have been removed in the boy’s locker room, girl’s locker room, and boy’s team room.
- Nephros filters will be installed on a select number of showers for which we anticipate consistent use. Showers not used regularly will remain turned off.
- New shower heads will be replaced on same select number of showers, in addition to the nephros filter.

Kitchen

- Legionella Pneumophilia **Not Detected** 8/29/18 and 11/5/18

COMMUNICATION TO STAFF, PARENTS/GUARDIANS, COMMUNITY

- Letters for schools where Legionella was not detected were sent to parents/guardians and posted on the district website in September.
- Letters with updated test results / remediation efforts as of Friday, December 7th, are being sent home today, December 11, 2018, and will be posted on the district’s website by Wednesday, December 12, 2018.

SHORT-TERM REMEDIATION EFFORTS

In response to positive legionella results in water testing, the district has successfully employed the following remediation efforts.

Chlorination

- The process of introducing chlorine into the plumbing system, is designed to cleanse the plumbing system of the Legionella bacteria. Greatest success was observed with OMEGA environmental.
- Recommendation: Obtain a detailed description of the chlorination treatment protocol followed by Clarity. Since they did both Edison and the High School, it is possible that their protocol is not as effective as Omega’s which is very complex and detailed to maximize potential for success.

Nephros Filters

- Nephros filters installed at the point of use are designed to remove Legionella bacteria.
- For areas that tested positive after chlorination, filters have been installed for immediate remediation, until long-term planning and water management plans are investigated.

Aerators

- Aerators are located on the end of a faucet and have been proven to trap legionella bacteria on the faucet itself. Although water has been filtered, the aerators can provide a source for the bacteria, and therefore have been removed.

LONG-TERM REMEDIATION EFFORTS

To date, West Orange High School and Edison Middle School continue to present positive results despite short-term remediation efforts. In consultation with Garden State Environmental, OMEGA Environmental, and RiskNomics, the following long-term remediation efforts are being pursued.

- Develop a Water Management Plan to reduce Legionella growth and spread in school buildings to include:
 - Establishing a water management program team
 - Describing the building water systems using text and flow diagrams
 - Identify areas where Legionella could grow and spread
 - Establish ways to intervene when control limits are not met
 - Decide where control measures should be applied and how to monitor them
 - Make sure the program is running as designed and is effective
 - Document and communicate all the activities

- Investigate water filtration on incoming water supply from NJ American Water.

- In consultation with a recommended plumbing contractor, review the plumbing profile that the District prepared for the Lead in Drinking Water project last year (or other plumbing plans that may be available) and try to identify dead ends/loops/areas of the system that are infrequently used which results in water stagnation, build-up of biofilm and pockets of bacteria that chlorination may not reach.

- Test the water temperatures at all outlets that ever tested positive compared to the hot water control settings and actual temperatures at the hot water heater(s). All possible steps must be taken to maintain water temperature above 120°F in ALL areas of the hot water system from hot water tank to taps.

- Explore aggressive hot water flushing (minimum of 15 to 30 minutes at fully open setting) for all infrequently used outlets and those that persistently test positive. Establish a flushing log book to document the date, time, exact location and person doing the flushing.