



# *Lead in Drinking Water Report*

West Essex Regional School District  
65 West Greenbrook Road  
North Caldwell, NJ 07006

November 2021

Prepared for:  
West Essex Regional  
School District  
65 West Greenbrook Road  
West Caldwell, NJ 07006

Prepared by:  
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November 12, 2021

Mrs. Melissa Kida  
Business Administrator  
West Essex Regional School District  
65 West Greenbrook Road  
North Caldwell, NJ 07006

Re: Lead in Drinking Water Services per NJAC 6A:26  
West Essex High School- 65 West Greenbrook Road North Caldwell, NJ  
West Essex Middle School- 65 West Greenbrook Road North Caldwell, NJ

Dear Ms. Kida,

New Wave is pleased to submit this lead in drinking water report for the West Essex Regional School District. This report details the methods and findings of the comprehensive lead in drinking water services as per New Jersey state regulations (amendments to N.J.A.C 6A:26 Educational Facilities) performed at the various schools in the West Essex Regional School District, located at the above referenced addresses on July 30, 2021 and October 27, 2021.

Best Regards,

*Nadine Bello*

Nadine Bello, MS, RPIH, CIEC, AST  
*New Wave Engineering, LLC*

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## Executive Summary of Lead in Drinking Water Services

November 2021

New Wave Engineering was retained to conduct a first draw “lead in drinking water sampling” at the district’s school buildings located within the West Essex Regional School District in July of 2021 and October 27, 2021. Water samples were collected from designated drinking water outlets at the following schools:

All samples were collected according to the regulatory guidelines outlined in the amendments to the N.J.A.C. 6A:26: Educational Facilities (July 2016) and its supporting documentation.

- **West Essex Regional High School**
- **West Essex Middle School**

First draw sample results indicated that water sources sampled at locations from the schools, exhibited no lead levels above the Regulatory Action Level of .015mg/l, or its equivalent: 15ppb, **except** in two (2) samples in the High School. The two sample areas that exceeded the action level of 15mg/l, or 15ppb, were sinks and *not* drinking water fountains, bottle fillers or bubblers.

A recommendation was made to the district to post signage” For hand washing only” and if the district would to utilize these sinks for drinking purposes is to install a filter to purify the water and reduce the lead levels and other contaminates.

## 1.0 PROJECT BACKGROUND

New Wave Engineering was contacted by the West Essex Regional School District (the "Client") to perform lead in drinking water sampling to determine the lead content of drinking water from sources throughout the school facilities. Additionally, as per State regulations, New Wave was contracted to update a Quality Assurance Project Plan (QAPP) and a Sampling Plan (SP), including: a Drinking Water Outlet Inventory, Filter Inventory, and Outlet Location Schematic in conjunction with the District's Buildings and Grounds Director.

The purpose of lead in drinking water sampling is to determine if any sampled drinking water sources exhibit lead levels exceeding the Regulatory Action Level of 15 parts per billion (ppb) which may also be designated as: .015mg/l. Drinking water concentration points included: any water sources from which a student, staff, or faculty may reasonably drink or from which the water may be used for cooking or beverage preparation, including, but not limited to, water coolers/bubblers, kitchen faucets, Nurse's Office faucets, and Faculty/Staff lounges.

For further information on guidance protocols and Action Levels that were followed please refer to: The EPA's Revised Technical Guidance - *"3Ts for Reduced Lead in Drinking Water in Schools"* and the Guidance Document from NJDEP Division of Water Supply and Geoscience — *"Lead in Drinking Water: Guidance for Schools and Child Care Facilities Served by Public Water"*.

## 2.0 LEAD IN DRINKING WATER

Lead is a toxic substance that can be harmful to human health. As compared to adults, children are more susceptible to the detrimental health effects of lead, as their nervous systems are not yet fully developed. Exposure to lead can occur in a variety of ways including through food, soil, deteriorating lead-based paint, and drinking water. Lead can leach into drinking water from plumbing materials such as pipes and solder, as well as brass plumbing fixtures. For this investigation, planning, preparation, methodology, sampling, and follow up actions were conducted according to the technical guidance provided by New Jersey following the adoption of amendments to N.J.A.C. 6A:26: *"Educational Facilities, requiring the sampling of drinking water for Lead in Schools"*

### 3.0 DRINKING WATER SAMPLING METHODOLOGY

New Wave collected drinking water samples from water outlets throughout each school building. At each collection point, New Wave filled a 250 milliliter (ml) wide-mouth high density polyethylene (HDPE) sample collection bottle from the designated water source. Samples were collected after the water in each building had not been used for at least 8 hours, but not more than 48 hours. The initial sample at each collection point represents the first draw sample. The first draw sample is representative of the water from the end point of the water source (i.e., the bubbler/bottle filler or tap).

A field blank using lead-free laboratory reagent water was also collected for each Facility during the sampling event to rule out contamination of samples during the collection and transportation process. All samples were recorded utilizing proper chain of custody documents and couriered to *Garden State Laboratory*, a New Jersey certified laboratory (NJ Lab ID #20044) located in Hillside, New Jersey for analysis via EPA method 200.80

During the initial sampling event on July 30, 2021 and October 27, 2021, New Wave collected the following number of samples at each School Building:

#### **High School**

- 1) 1 Field Blank Sample
- 2) 50 first draw samples

#### **Middle School**

- 1) 1 Field Blank Sample
- 2) 31 first draw samples

After receipt of the first draw sampling result, sampling investigation was conducted to aid with the determination of the source of any lead contamination. A secondary first draw sampling will take place once the inoperable locations have been reinstated. At that time if the board wishes to continue to utilize the two sinks which exceeded the action level for consumption, a flush sample can be obtained.

For a complete drinking water outlet inventory and sampling location diagram for each facility, please refer to the Sampling Plan, dated May 2017. Updates to this documentation can be found in the Field Log Book for each facility.

## 4.0 DRINKING WATER ANALYSIS RESULTS

The analytical “lead in drinking water results” for each first draw sample is listed in Tables below:

Table 1: Analytical Lead Results for First Draw Water Samples Collected from **High School** July 30, 2021

Sample I.D.	Type of Collection Point	Lead Concentration (mg/l)	Above Regulatory Action Level?
WEHS-21-01	Kitchen Sink	0.0753 mg/l	Yes
WEHS-21-02	Kitchen Sink by Coffee	24.2 mg/l	Yes
WEHS-21-03	Teacher's Sink	<0.00100 mg/l	No
WEHS-21-04	Teacher's Lounge B/F	<0.00100 mg/l	No
WEHS-21-05	Teacher's Lounge Bubbler	<0.00100 mg/l	No
WEHS-21-06	W/F by 701 A	0.00740 mg/l	No
WEHS-21-11	Hallway by Black Café B/F	<0.00100 mg/l	No
WEHS-21-12	Hallway by Black Café Bubbler	<0.00100 mg/l	No
WEHS-21-13	Hallway by Main Office B/F	<0.00100 mg/l	No
WEHS-21-14	Bubbler by Main Office	<0.00100 mg/l	No
WEHS-21-15	Hallway by 123 A W/F	<0.00100 mg/l	No
WEHS-21-16	Sink 100 Red	0.00303 mg/l	No
WEHS-21-17	Sink 100 Orange	0.00148 mg/l	No

BF= Bottle Filler Station W/F = Water Fountain S=Sink

Sample I.D.	Type of Collection Point	Lead Concentration (mg/l)	Above Regulatory Action Level?
WEHS-21-18	Sink 100 Yellow	0.00243 mg/l	No
WEHS-21-19	Sink 100 Green	0.00100 mg/l	No
WEHS-21-20	Sink 100 Blue	0.00326 mg/l	No
WEHS-21-21	Sink 100 Teacher's	0.00136 mg/l	No
WEHS-21-22	Hallway 214 W/F	<0.00100 mg/l	No
WEHS-21-23	Hallway 214 W/F	<0.00100 mg/l	No
WEHS-21-24	Hallway 311 W/F	0.00123 mg/l	No
WEHS-21-26	Library Sink	<0.00100 mg/l	No
WEHS-21-27	Hallway by 513 B/F	<0.00100 mg/l	No
WEHS-21-28	Hallway by 513 Bubbler	<0.00100 mg/l	No
WEHS-21-29	Hallway by 711 B/F	<0.00100 mg/l	No
WEHS-21-30	Hallway by 711 Bubbler	<0.00100 mg/l	No
WEHS-21-31	Hallway 722 W/F	<0.00100 mg/l	No
WEHS-21-32	Hallway 815 W/F	0.00236 mg/l	No
WEHS-21-33	Hallway 815 W/F	<0.00100 mg/l	No
WEHS-21-34	Hallway by 634 B/F	<0.00100 mg/l	No
WEHS-21-35	Hallway by 634 Bubbler	<0.00100 mg/l	No
WEHS-21-37	East Gym BF	<0.00100 mg/l	No
WEHS-21-38	East Gym Bubbler	<0.00100 mg/l	No
WEHS-21-39	Boy's Locker B/F	<0.00100 mg/l	No
WEHS-21-40	Boy's Locker Bubbler	<0.00100 mg/l	No
WEHS-21-41	Hallway 913 W/F	0.0113 mg/l	No
WEHS-21-42	Hallway by 913 W/F	0.00235 mg/l	No
WEHS-21-45	West Gym B/F	<0.00100 mg/l	No
WEHS-21-46	West Gym Bubbler	<0.00100 mg/l	No
WEHS-21-47	Girls Locker B/F	<0.00100 mg/l	No
WEHS-21-48	Girls Locker Bubbler	<0.00100 mg/l	No
WEHS-21-49	Weight Room Sink	0.00263 mg/l	No
WEHS-21-50	Training Room Ice Machine	<0.00100 mg/l	No
WEHS-21-51	Field Blank	<0.00100 mg/l	No



Table 2: Analytical Lead Results for First Draw Water Samples  
Collected from **Middle School** taken on July 30, 2021

Sample ID.	Type of Collection Point	Lead Concentration (mg/l)		Above Regulatory Action Level?
WEMS-21-01	Kitchen Sink	<0.00100 mg/l		No
WEMS-21-02	Teacher's Lounge W/F	<0.00100 mg/l		No
WEMS-21-03	Room 113 Sink	0.00422 mg/l		No
WEMS-21-05	Nurse B/F	<0.00100 mg/l		No
WEMS-21-06	Nurse Bubbler	<0.00100 mg/l		No
WEMS-21-08	Large Gym B/F	<0.00100 mg/l		No
WEMS-21-09	Large Gym Bubbler	<0.00100 mg/l		No
WEMS-21-10	Team Room Ice Machine	<0.00100 mg/l		No
WEMS-21-11	Boys Locker B/F	<0.00100 mg/l		No
WEMS-21-12	Boys Locker Bubbler	<0.00100 mg/l		No
WEMS-21-13	Girls LAX BF	<0.00100 mg/l		No
WEMS-21-14	Girls LAX Bubbler	<0.00100 mg/l		No
WEMS-21-15	Girls Locker B/F	<0.00100 mg/l		No
WEMS-21-16	Girls Locker Bubbler	<0.00100 mg/l		No
WEMS-21-17	W/F by Hallway 102	<0.00100 mg/l		No

WEMS-21-18	Café Bottle Filler	<0.00100 mg/l		No
WEMS-21-19	Café Bubbler	<0.00100 mg/l		No
WEMS-21-20	Main Office Sink	<0.00100 mg/l		No
WEMS-21-21	Library Sink	<0.00100 mg/l		No
WEMS-21-22	Bottle Filler by 206	<0.00100 mg/l		No
WEMS-21-23	Bubbler by 206	<0.00100 mg/l		No
WEMS-21-24	Bottle Filler by 226	<0.00100 mg/l		No
WEMS-21-25	Bubbler Filler by Elevator	<0.00100 mg/l		No
WEMS-21-26	Bottle Filler by Elevator	<0.00100 mg/l		No
WEMS-21-27	Bubbler by Elevator	<0.00100 mg/l		No
WEMS-21-28	Bottle Filler by 120	<0.00100 mg/l		No
WEMS-21-29	Bubbler by 120	<0.00100 mg/l		No
WEMS-21-30	Sink by Special Services	<0.00100 mg/l		No
WEMS-21-31	W/F by Special Services	<0.00100 mg/l		No
WEMS-21-32	Field Blank	<0.00100 mg/l		No

All laboratory analytical results of first-draw samples were compared to the NJDEP's Regulatory Action Level of 15.5 ppb or .015 mg/l for lead. Analysis of lead in the first draw drinking water samples indicated that, at the time of the sampling event, two (2) samples collected from the High School exhibited lead concentrations above the Action Level.

As per the State regulations, a “drinking water outlets exhibiting lead levels above the 15.5 ppb 05 .015 mg/l *Action Level* were immediately removed from drinking service and utilized as hand washing only. Flush sampling (second draw sampling) of the drinking water outlets with elevated lead levels were scheduled on October 27, 2021 and any additional outlets not in service on July 30, 2021 were tested for first draw.

Table 5, below, illustrates the results of the flush sampling conducted on October 27, 2021.

Table 5: Analytical Lead Results for Second Draw Water Samples (high School #1&2) Collected from **The High School and Middle School**  
And first draw sapling, 2021

Sample ID	Type of Collection Point	Lead Concentration (mg/l)	First Draw Results
WEHS-21-10	Black Café Bubbler	<0.00100 mg/l	No
WEHS-21-25	W/F by 500	<0.00100 mg/l	No
WEHS-21-36	Ice Maker	<0.00100 mg/l	No
WEHS-21-43	B/F in Weight Room	<0.00100 mg/l	No
WEHS-21-44	Bubbler in Weight Room	<0.00100 mg/l	No
WEHS-21-01	Kitchen Island Middle	<0.00100 mg/l	No
WEHS-21-02	Kitchen Coffee Table	<0.00100 mg/l	No
WEHS-21-07	Red Café B/F	<0.00100 mg/l	No
WEHS-21-08	Red Café Bubbler	<0.00100 mg/l	No
WEHS-21-52	Nurse Sink	<0.00100 mg/l	No
WEMS-21-04	Small Gym W/F	<0.00100 mg/l	No
WEMS-21-07	Nurse Sink	<0.00100 mg/l	No

## 5.0 CONCLUSIONS & RECOMMENDATIONS

New Wave collected first draw samples from drinking water sources throughout the West Essex Regional School District. First draw sample results indicated that a total of two (2) water samples *exceeded* the regulatory action level of 15 ppb or .015mg/l. Those water outlet sources were immediately taken out of service for drinking purposes or designated hand-washing only. Subsequent *Flush Sampling* was conducted. In conclusion of the comprehensive “lead in drinking water” services, New Wave offers the following recommendations:

- Continue to monitor lead in drinking water levels as part of a regular sampling and maintenance plan, per New Jersey State regulations.
- Implement an aerator cleaning maintenance program to prevent the build up of debris behind the aerator screen which may contribute to elevated lead levels.
- Enter all filter maintenance, aerator maintenance, plumbing repairs/changes and any other important information into the Field Log Book for each School.
- Use only cold water for food and beverage preparation, as hot water is more likely to contribute to the corrosion of plumbing materials and therefore may contain a greater level of water contaminants from the plumbing system.

## 6.0 Disclaimer

This investigation focused on lead in drinking water. No other heavy metals or additional contaminants were sampled for/or analyzed. Note: Lead concentrations in water can change as water continues to move through the water system.

Each sample taken was a “grab sample” and represents lead concentrations only at the specific time of collection and may vary based upon the water usage in the facility. Interpretation of these results is only valid if the facility is serviced by a municipal water supplier or water utility.

Our lead sampling event was in response to recent amendments to N.J.A.C. 6A:26i *Educational Facilities* dated July 13, 2016, which requires testing for lead in drinking water of public and charter school districts

The Lead Hazard Assessment has limitations with regards to identification of actual health and environmental issues. It is limited to only those items listed in the report and all items reflect conditions at the time of the assessment.

New Wave Engineering, LLC warrants only that the contents of this report constitute an informed discussion of the assessment at the subject property and is prepared exclusively for the above noted client. New Wave Engineering, LLC assumes no liability with regards to the use of this information or decisions which are made regarding the subject properties. It is at the discretion of the School District, given the results and information in this report, to use their own best judgment to determine any appropriate course of action.

## **7.0 Closing**

The drinking water in the West Essex Regional School District is below the action level of 15 ppb. It should also be noted that the secondary flush draw at the two locations in the High School proved below the State action level.

Thank you for utilizing New Wave to assist your District with this project. Please do not hesitate to call if you have any questions relating to this report or for any other environmental health and safety concerns.

# APPENDIX A CHAIN OF CUSTODY AND LAB RESULTS