Effective and Economical
Environmental Solutions

Lead in Drinking Water
Per amendments to N.J.A.C 6A:26 Educational Facilities
Fort Lee School District
3000 Lemoine Ave
Fort Lee, NJ 07024
Karl Environmental Group Project #:21-0808

June 28, 2022

Prepared for:

Jack DeNichilo
Acting Supervisor of Buildings & Grounds
Fort Lee School District
3000 Lemoine Ave
Fort Lee, NJ 07024

Prepared by:

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June 28, 2022

Jack DeNichilo
Acting Supervisor of Buildings & Grounds
Fort Lee School District
3000 Lemoine Ave, Fort Lee, NJ 07024

Re: Lead in Drinking Water Sampling
Per amendments to N.J.A.C 6A:26 Educational Facilities
Fort Lee School District
Karl Environmental Group Project #: 21-0808

Dear Mr. DeNichilo:

Thank you for selecting Karl Environmental Group ("Karl") for this project. This report details the methods and findings of the lead in drinking water services as per New Jersey state regulations (amendments to N.J.A.C 6A:26 Educational Facilities) performed within the Fort Lee School District buildings (the "Facilities"), on April 13 and 14 of 2022.

1.0 PROJECT BACKGROUND

Karl Environmental was contracted by the Fort Lee School District (the "Client") to perform lead in drinking water sampling to determine the lead content of drinking water from sources throughout all the Facilities within the district.

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). Drinking water collection 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. As per client request, point of entries into the facilities were also tested for lead concentrations.

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

Karl collected drinking water samples from water outlets throughout the Facilities. Karl Environmental filled a 250 milliliter (mL) wide-mouth high density polyethylene (HDPE) sample collection bottle from the selected 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. Samples were preserved using concentrated Nitric Acid (HNO_3). 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 or tap).

A field blank using lead-free laboratory reagent water was also collected at each Facility during the sampling event to rule out contamination of samples during the collection and transportation process. All samples were recorded under proper chain of custody and couriered to Suburban Testing Labs (Suburban), a New Jersey certified laboratory (NJ Lab ID #PA081) located in Reading, Pennsylvania for analysis by EPA method 200.8, NJ DOE.

During the initial sampling event, Karl Environmental Group collected the following number of samples at each Facility:

Fort Lee High School
- Twenty-six (26) First Draw Samples
- One (1) Field Blank

Fort Lee Intermediate School
- Seventeen (17) First Draw Samples
- One (1) Field Blank

Fort Lee Middle School
- Fourteen (14) First Draw Samples
- One (1) Field Blank

Fort Lee ES1 Elementary School 250 Hoym St.
- Ten (10) First Draw Samples
- One (1) Field Blank

Fort Lee ES2 Elementary School 2047 Jones St.
- Seven (7) First Draw Samples
- One (1) Field Blank

Fort Lee ES3 Elementary School 2405 2nd St.
- Eighteen (18) First Draw Samples
- One (1) Field Blank

Fort Lee ES4 Elementary School 279 Columbia Ave.
- Four (4) First Draw Samples
- One (1) Field Blank

Following the receipt of results from the First Draw Lead in Water sampling event, the Fort Lee Board of Education replaced/installed filters on outlets that exceeded the Regulatory Action Level (AL) prior to the second draw sampling event on June 14, 2022. Karl Environmental Group collected the following number of samples at each Facility during the second draw sampling event:

Fort Lee High School

- One (1) Second Draw Sample
- One (1) Field Blank

Lewis F. Cole Middle School

- One (1) Second Draw Sample
- One (1) Field Blank

4.0 DRINKING WATER ANALYSIS RESULTS

The analytical lead in drinking water results are listed in Tables 1-7 below:

Table 1: Fort Lee High School

Sample I.D.	Type of Collection Point	Lead Concentration (ppb)	Above Regulatory Action Level?
FL-HS-Blank	Field Blank	<1.00	No
FL-HS-02-A	Nurse's Office	<1.00	No
FL-HS-02-B	Nurse 127B	73.9	Yes
FL-HS-04-A	Bottle Filler Opposite Boiler RM R	<1.00	No
FL-HS-05-A	Hallway – Across from Room 124 (Right)	<1.00	No
FL-HS-07-A	Faculty Room	1.30	No
FL-HS-11-A	Cafeteria – Near vending machine	<1.00	No
FL-HS-12-A	Kettle Kitch BF	<1.00	No
FL-HS-13-A	Kitchen – Pan/Dishwashing Sink	2.25	No
FL-HS-14-A	Kitchen – Center Table Food Prep	1.61	No
FL-HS-15-A	Room 191 Sink	5.84	No
FL-HS-16-A	Kitchen – Food Prep Sink near Meat Cutting Table	1.42	No
FL-HS-17-A	Kitchen – Dishwashing Sink in back of Kitchen (Right)	<1.00	No
FL-HS-18-A	Kitchen – Dishwashing Sink in back of Kitchen (Left)	<1.00	No
FL-HS-20-A	Weight Room (bottle fill dispenser)	<1.00	No
FL-HS-21-A	Trainer Room – Ice Machine	<1.00	No
FL-HS-22-A	Trainer Room – Handwashing Sink	<1.00	No
FL-HS-23-A	Gym Area – Ice Machine	<1.00	No
FL-HS-24-A	Gym – Near Electric Panel Room	<1.00	No
FL-HS-25-A	Custodian Office	<1.00	No
FL-HS-27-A	Second Floor Hallway – Across from Map Room (bottle fill dispenser)	<1.00	No
FL-HS-30-A	Second Floor Hallway – Across from Room 222 (Right)	<1.00	No
FL-HS-32-B	Art Room-R	<1.00	No
FL-HS-33-A	Guidance	2.25	No
FL-HS-34-A	Athl. Dept.	2.35	No
FL-HS-35-A	Hall Rm 150	<1.00	No
FL-HS-36-A	Hall Rm 260	<1.00	No

Results above action level

All laboratory analytical results were compared to the Regulatory Action Level of 15 ppb for lead. Analysis of lead in the first draw drinking water samples indicated that at the time of the sampling event, one (1) sample collected was above the Regulatory Action Level, denoted by orange highlight above.

Table 2: Fort Lee Intermediate School

Sample I.D.	Type of Collection Point	Lead Concentration (ppb)	Above Regulatory Action Level?
FL-IS-Blank	Blank	<1.00	No
FL-IS-01-A	FL-IS-01-A	<1.00	No
FL-IS-02-A	FL-IS-02-A	<1.00	No
FL-IS-03-A	FL-IS-03-A	<1.00	No
FL-IS-04-A	FL-IS-04-A	<1.00	No
FL-IS-05-A	FL-IS-05-A	<1.00	No
FL-IS-05-B	FL-IS-05-B	<1.00	No
FL-IS-06-A	FL-IS-06-A	18.1	Yes
FL-IS-07-A	FL-IS-07-A	12.4	No
FL-IS-08-A	FL-IS-08-A	3.80	No
FL-IS-09-A	FL-IS-09-A	3.56	No
FL-IS-10-A	FL-IS-10-A	<1.00	No
FL-IS-11-C	FL-IS-11-C	<1.00	No
FL-IS-12-C	FL-IS-12-C	<1.00	No
FL-IS-13-A	FL-IS-13-A	<1.00	No
FL-IS-14-A	FL-IS-14-A	13.8	No
FL-IS-15-C	FL-IS-15-C	1.00	No
FL-IS-16-C	FL-IS-16-C	<1.00	No

Results above action level

All laboratory analytical results were compared to the Regulatory Action Level of 15 ppb for lead. Analysis of lead in the first draw drinking water samples, that at the time of the sampling event, one (1) sample collected was above the Regulatory Action Level, denoted by orange highlight above.

Table 3: Fort Lee Middle School

Sample I.D.	Type of Collection Point	Lead Concentration (ppb)	Above Regulatory Action Level?
FL-MS-Blank	Field Blank	<1.00	No
FL-MS-01-A	Kit. Dbl sink R adjacent to office	<1.00	No
FL- MS -02-A	Kit. Dbl sink L adjacent to office	<1.00	No
FL- MS -03-A	Kit. Triple Dishwasher Sink L	<1.00	No
FL- MS -04-A	Kit. Triple Dishwasher Sink R	<1.00	No
FL- MS -05-A	Does not exist	NA	NA
FL- MS -06-A	Does not exist	NA	NA
FL- MS -07-A	Cafeteria	<1.00	No
FL- MS -08-A	Non functioning	NA	NA
FL- MS -09-A	Non functioning	NA	NA
FL- MS -10-A	Non functioning	NA	NA
FL- MS -11-B	Rm 156	9.59	No
FL- MS -14-A	Hall opposite rm 167 - bubbler	1.00	No
FL- MS -15-A	Office suite – rm 177B	1.00	No
FL- MS -16-A	Nurse's office – main room	1.00	No
FL- MS -17-A	Sample not required	NA	NA
FL- MS -18-A	Science prep rm 178A	1.00	No
FL- MS -22-B	FL- MS -22-B	<1.00	No
FL- MS -26-A	Faculty rm – rm 142	1.60	No
FL- MS -31-A	Hall – opp rm 130BF	1.00	No
FL-MS-32-A	FL-MS-32-A	18.0	No

Results above action level **Not sampled**

All laboratory analytical results were compared to the Regulatory Action Level of 15 ppb for lead. Analysis of lead in the first draw drinking water samples, indicated that at the time of the sampling event, one (1) sample collected was above the Regulatory Action Level, denoted by orange highlight above.

Table 4: Fort Lee Elementary School 250 Hoym St.

Sample I.D.	Type of Collection Point	Lead Concentration (ppb)	Above Regulatory Action Level?
FL-ES1-Blank	Field Blank	<1.00	No
FL-ES1-01-A	Kitchen	1.15	No
FL-ES1-02-A	Non functioning	NA	NA
FL-ES1-03-A	Main lobby right	<1.00	No
FL-ES1-04-A	Non functioning	NA	NA
FL-ES1-05-A	Hallway outside faculty (L)	5.93	No
FL-ES1-06-A	Hallway outside faculty (R)	5.27	No
FL-ES1-07-A	Hallway outside faculty (M)	5.98	No
FL-ES1-08-A	Non functioning	NA	NA
FL-ES1-09-A	Does not exist	NA	NA
FL-ES1-10-A	Does not exist	NA	NA
FL-ES1-11-A	Hallway across Rm 10	<1.00	No
FL-ES1-12-A	Non functioning	NA	NA
FL-ES1-13-A	Non functioning	NA	NA
FL-ES1-14-A	Non functioning	NA	NA
FL-ES1-15-A	Non functioning	NA	NA
FL-ES1-16-A	Non functioning	NA	NA
FL-ES1-17-A	Non functioning	NA	NA
FL-ES1-18-A	Non functioning	NA	NA
FL-ES1-19-A	Nurse's office	1.55	No
FL-ES1-19-B	Nurse IM	1.47	No
FL-ES1-20-A	Facutly Room	<1.00	No

Not sampled

All laboratory analytical results were compared to the Regulatory Action Level of 15 ppb for lead. Analysis of lead in the first draw drinking water samples indicated that at the time of the sampling event, all results were within permissible limits.

Table 5: Fort Lee Elementary School 2047 Jones Road

Sample I.D.	Type of Collection Point	Lead Concentration (ppb)	Above Regulatory Action Level?
FL-ES2-Blank	Field Blank	<1.00	No
FL-ES2-01-A	Main Office – Faculty Room	<1.00	No
FL-ES2-02-A	Nurse's Office	3.86	No
FL-ES2-03-A	Kitchen Sink	1.85	No
FL-ES2-04-A	Main Lobby – Outside Gym	<1.00	No
FL-ES2-05-A	2nd fl outside elec. Panel rm	<1.00	No
FL-ES2-11-A	2nd fl Faculty Rm.	<1.00	No
FL-ES2-15-A	3rd fl Hall Outside Elec Panel Rm	<1.00	No

All laboratory analytical results were compared to the Regulatory Action Level of 15 ppb for lead. Analysis of lead in the first draw drinking water samples indicated that at the time of the sampling event, all results were within permissible limits.

Table 6: Fort Lee Elementary School 2405 2nd Street

Sample I.D.	Type of Collection Point	Lead Concentration (ppb)	Above Regulatory Action Level?
FL-ES3-Blank	Field Blank	<1.00	No
FL-ES3-01-A	Non functioning	NA	NA
FL-ES3-02-A	Main Lobby (L) BF	<1.00	No
FL-ES3-03-A	Nurse's Office	<1.00	No
FL-ES3-04-A	Main Office Sink	<1.00	No
FL-ES3-05-A	Hall outsie RM 105 BF	<1.00	No
FL-ES3-06-A	Kitchen	<1.00	No
FL-ES3-07-A	Hall Outside RM 115 (L)	<1.00	No
FL-ES3-08-A	Non functioning	NA	NA
FL-ES3-09-A	Library	7.58	No
FL-ES-10-A	Does not exist	NA	NA
FL-ES3-11-A	2nd Fl hall – Across roof door access	<1.00	No
FL-ES3-12-A	Non functioning	NA	NA
FL-ES3-13-A	Faculty Room	1.30	No
FL-ES3-14-A	3rd Fl Hal – Across RM 304 BF	<1.00	No
FL-ES3-15-A	2nd Fl hall – Across Rm 204	<1.00	No
FL-ES3-16-A	Custodian	1.02	No
FL-ES3-17-A	Rm 203	3.54	No
FL-ES3-18-A	Rm 207	14.3	No
FL-ES3-19-A	Rm 205	10.7	No
FL-ES3-20-A	Rm 209	2.58	No
FL-ES3-21-A	Shut off	NA	NA
FL-ES3-22-A	Rm 121	7.17	No
FL-ES3-23-A	Rm 113	1.83	No

Not sampled

All laboratory analytical results were compared to the Regulatory Action Level of 15 ppb for lead. Analysis of lead in the first draw drinking water samples indicated that at the time of the sampling event, all results were within permissible limits.

Table 7: Fort Lee Elementary School 279 Columbia Ave.

Sample I.D.	Type of Collection Point	Lead Concentration (ppb)	Above Regulatory Action Level?
FL-ES4-Blank	Field Blank	<1.00	No
FL-ES4-01-A	Nurse's office	5.38	No
FL- ES4-03-A	Faculty Room	2.97	No
FL- ES4-04-A	Hall – Across Rm11	<1.00	No
FL- ES4-05-B	Hall – Across Rm14 (R)	<1.00	No

All laboratory analytical results were compared to the Regulatory Action Level of 15 ppb for lead. Analysis of lead in the first draw drinking water samples indicated that at the time of the sampling event, all results were within permissible limits.

Table 8 Second Draw: Fort Lee High School

Sample I.D.	Type of Collection Point	Lead Concentration (ppb)	Above Regulatory Action Level?
FL-HS-Blank	Field Blank	1.02	**No**
FL-HS-02-B	Nurse 127B	2.14	**No**

All laboratory analytical results were compared to the Regulatory Action Level of 15 ppb for lead. Analysis of lead in the second draw drinking water samples indicated that at the time of the sampling event, all results were within permissible limits.

Table 9 Second Draw: Fort Lee Middle School

Sample I.D.	Type of Collection Point	Lead Concentration (ppb)	Above Regulatory Action Level?
FL-MS-Blank	Field Blank	1.00	No
FL-MS-32-A	FL-MS-32-A	<1.00	No

All laboratory analytical results were compared to the Regulatory Action Level of 15 ppb for lead. Analysis of lead in the second draw drinking water samples indicated that at the time of the sampling event, all results were within permissible limits.

At the time of the second sampling, outlet FL-IS-06-A was removed from service.

5.0 CONCLUSIONS & RECOMMENDATIONS

As of the final drinking water sampling event conducted on June 14, 2022, all samples within the District were in compliance with the regulatory Action Level of 15 ppb. All outlets that were resampled that had initially exhibited levels of lead greater than 15 ppb were corrected by adequately flushing the lines. At the conclusion of the lead in drinking water services, Karl Environmental offers the following recommendations at this time:

- Continue to monitor lead in drinking water levels as part of a regular sampling and maintenance plan, as per New Jersey State regulations. Amendments will require district-wide sampling every three (3) years.
- In the interim, when drinking water outlets are replaced/added, or the plumbing is disturbed, sampling of the impacted outlets should be completed to determine if lead levels were affected.
- Implement an aerator cleaning maintenance program to prevent the build-up of debris behind the screen which may contribute to elevated lead levels.
- Enter all filter maintenance, aerator maintenance, plumbing repairs/changes and any other pertinant information into the Field Log Book for each Facility.
- Use only cold water for food and beverage preparation. Hot water is more likely to contribute to the corrosion of plumbing materials and thefore contain a greater level of contaminants from the plumbing system.

6.0 LIMITATIONS

This investigation focused on lead in drinking water only. No other heavy metals or additional contaminants were sampled for or analyzed. Lead concentrations can change as water continues to move through the water system. Each sample was a grab sample and represents lead concentrations only at the specific time of collection and may vary based on 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.

This lead sampling event was in response to the amendments to N.J.A.C. 6A:26, Educational Facilities dated July 13, 2016, which requires testing for lead in the drinking water of public and charter school districts every three (3) years.

7.0 CLOSING

Thank you for using Karl Environmental Group to assist you 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.

Respectfully submitted,

Karl Environmental Group
David Hopkins
Industrial Hygienist
(Tel): 610-856-7700
(Mobile): 484-345-9846
(Fax): 610-856-5040

Attachment A:

Analytical Lab Results

SUBURBAN TESTING LABS

Results Report

Order ID: 2F04500

Karl Environmental Group
20 Lauck Road
Mohnton, PA 19540

Project: Ft. Lee High School
3000 Lemoine Avenue
Ft. Lee, NJ 07024

Attn: Varsha Swaminathan

Regulatory ID:

Sample Number: 2F04500-01 | Site: FL-127B | Sample ID: 2nd Draw
Collector: DH | Collect Date: 06/14/2022 12:10 pm | Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
Metals									
Lead	2.14	µg/L	EPA 200.8	1.00	1	06/21/22	RPV	06/21/22 21:02	MKS

Sample Number: 2F04500-02 | Site: BLANK | Sample ID: 2nd Draw
Collector: DH | Collect Date: 06/15/2022 11:33 am | Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
Metals									
Lead	1.02	µg/L	EPA 200.8	1.00	1	06/21/22	RPV	06/21/22 21:10	MKS

Sample Receipt Conditions:

All samples met the sample receipt requirements for the relevant analyses.

Units P/A = Present/Absent
Units P/F = Pass/Fail

The test *pH, Lab* is performed in the Laboratory as soon as possible. These results are not appropriate for compliance with NPDES, SDWA, or other regulatory programs that require analysis within 15 minutes of sample collection and should be considered for informational purposes only.

**pH, Final* for ASTM leachate is performed by method SM 4500-H-B.

All results meet the requirements of STL's TNI (NELAC) Accredited Quality System unless otherwise noted. If your results contain any data qualifiers or comments, you should evaluate useability relative to your needs.

If collectors initials include "STL", samples have been collected in accordance with STL SOP SL0015.

All results reported on an As Received (Wet Weight) basis unless otherwise noted.

This laboratory report may not be reproduced, except in full, without the written approval of STL.

Results are considered Preliminary unless report is signed by authorized representative of STL.

Reviewed and Released By:
Ryan F Knerr
Project Manager II

Report Generated On: 06/22/2022 5:46 pm 2F04500
STL_Results Revision #2.0 Effective: 04/20/2022

SUBURBAN TESTING LABS

Results Report

Order ID: 2F04503

Karl Environmental Group
20 Lauck Road
Mohnton, PA 19540

Project: Lewis F. Cole Middle School
467 Stillwell Avenue
Fort Lee, NJ 07024

Attn: Varsha Swaminathan

Regulatory ID:

Sample Number: 2F04503-01 | Site: FL-MS-32A | Sample ID: 2nd Draw
Collector: DH | Collect Date: 06/14/2022 12:40 pm | Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
Metals									
Lead	< 1.00	µg/L	EPA 200.8	1.00	1	06/21/22	RPV	06/21/22 21:12	MKS

Sample Number: 2F04503-02 | Site: BLANK | Sample ID: 2nd Draw
Collector: DH | Collect Date: 06/15/2022 11:10 am | Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
Metals									
Lead	1.00	µg/L	EPA 200.8	1.00	1	06/21/22	RPV	06/21/22 21:13	MKS

Sample Receipt Conditions:
All samples met the sample receipt requirements for the relevant analyses.

Units P/A = Present/Absent
Units P/F = Pass/Fail

The test *pH, Lab* is performed in the Laboratory as soon as possible. These results are not appropriate for compliance with NPDES, SDWA, or other regulatory programs that require analysis within 15 minutes of sample collection and should be considered for informational purposes only.

**pH, Final* for ASTM leachate is performed by method SM 4500-H-B.

All results meet the requirements of STL's TNI (NELAC) Accredited Quality System unless otherwise noted. If your results contain any data qualifiers or comments, you should evaluate useability relative to your needs.

If collectors initials include "STL", samples have been collected in accordance with STL SOP SL0015.

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Results are considered Preliminary unless report is signed by authorized representative of STL.

Reviewed and Released By:
Ryan F Knerr
Project Manager II

Report Generated On: 06/22/2022 5:45 pm 2F04503
STL_Results Revision #2.0 Effective: 04/20/2022