



*Effective and Economical  
Environmental Solutions*

**Lead in Drinking Water Screening  
Fort Lee Elementary School #4  
279 Columbia Avenue  
Cliffside Park, New Jersey 07010**

**Karl Environmental Group Project #: 16-0620**

**July 19, 2016**

Prepared for:  
Mr. Scott Bendul  
Supervisor of Buildings & Grounds & Security  
Fort Lee Public Schools  
2175 Lemoine Avenue  
Fort Lee, NJ 07024

Prepared by:  
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July 19, 2016

Mr. Scott Bendul  
Supervisor of Buildings & Grounds & Security  
Fort Lee Public Schools  
2175 Lemoine Avenue  
Fort Lee, NJ 07024

**Re: Lead in Drinking Water Screening  
Fort Lee Elementary School #4: 279 Columbia Avenue, Cliffside Park, New Jersey 07010  
Karl Environmental Group Project #: 16-0620**

Dear Mr. Bendul:

Thank you for selecting Karl Environmental Group (“Karl Environmental”) for this project. This report details the methods and findings of the Lead-in-Drinking Water screening performed at the Fort Lee Elementary School #4 located at 279 Columbia Avenue, Cliffside Park, New Jersey 07010 (the “Facility”). Karl Environmental performed two lead in drinking water screening events: a first-draw screening on May 4, 2016 and a follow-up second-draw on June 9, 2016.

## **1.0 PROJECT BACKGROUND**

Karl Environmental was contacted by the Fort Lee Public Schools (the “Client”) to conduct lead in drinking water screening to determine the lead content of water sampled from potable water collection points throughout the facility.

The purpose of the screening was to determine if any sampled drinking water sources exhibit lead levels exceeding the recommended Action Level of fifteen (15) parts per billion (ppb). The Action Level is the concentration of contaminant at which remedial action is warranted. Potable water collection points can include any water source from which an occupant may drink or from which the water may be used for cooking, including water fountains/bubblers, kitchen faucets, Nurse’s Office faucets, and the Faculty/Staff lounge. Additionally, the Facility’s water service and main lines are sampled at or near the main building connection to aid in the interpretation of results.



## **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. There are currently no state or federal regulations that require the testing of drinking water in schools supplied by a municipal water utility, however, the United States Environmental Protection Agency (EPA) provides general guidance for the testing of potable water sources in school buildings. The EPA's "3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance" (October 2006) provides recommendations for sampling strategy, methodology, and interpretation for schools that are supplied by municipal water.

## **3.0 DRINKING WATER SAMPLING METHODOLOGY**

Karl Environmental collected drinking water samples from potable water outlets throughout the Facility. The sampling strategy was planned in general accordance with the guidance provided by the EPA in the "3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance."

At each collection point, Karl Environmental filled a 250 milliliter (mL) wide-mouth high density polyethylene (HDPE) sample collection bottle pretreated with a Nitric Acid (HNO<sub>3</sub>) preservative 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 18 hours, and prior to the building's daily opening. 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). If the first draw sample exceeds the action level of fifteen (15) ppb, a follow-up second draw sample would be taken to represent the water in the upstream plumbing from the initial sample point. A service line sample and a water main sample were also collected from the Facility and are representative of the water service line from the main line to the Facility and the municipal water line, respectively. The samples were recorded under proper chain of custody and couriered directly 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.

Karl Environmental collected the following number of water samples from the Facility:

- One (1) Service Line Sample
- One (1) Water Main Sample
- Fourteen (14) First Draw Samples
- Three (3) Second Draw Sample



According to the client, the number of water samples taken at the Fort Lee Elementary School #4 represents all of the drinking water sources within the Facility.

#### 4.0 DRINKING WATER ANALYSIS RESULTS

The analytical lead in drinking water results for each first draw sample are listed in Table 1, below:

**Table 1: Analytical Lead Results for First Draw Drinking Water Samples Collected from Fort Lee Elementary School #4**

Sample I.D.	Location	Type of Collection Point	Lead Concentration (mg/L)	Lead Concentration (ppb)	Above Action Level?
FL-ES4-S-1	Service Line	SS	0.003	3	No
FL-ES4-M-1	Water Main	SS	<0.001	<1	No
<b>FL-ES4-01-A</b>	<b>Nurse's Office</b>	<b>MWF</b>	<b>0.049</b>	<b>49</b>	<b>Yes</b>
FL-ES4-02-A	Hallway – Near Faculty Room	PWF	0.004	4	No
FL-ES4-03-A	Faculty Room	KF	0.007	7	No
FL-ES4-04-A	Hallway – Across from Room 11 (Left)	PWF	0.003	3	No
FL-ES4-05-A	Hallway – Across from Room 14 (Right)	PWF	0.003	3	No
FL-ES4-06-A	Hallway – Across from Room 14 (Left)	PWF	0.005	5	No
FL-ES4-07-A	Hallway – Across from Coach's Storage Room	PWF	0.011	11	No
<b>FL-ES4-08-A</b>	<b>Room 20</b>	<b>MWF</b>	<b>0.028</b>	<b>28</b>	<b>Yes</b>
FL-ES4-09-A	Hallway – Near Room 21	MWF	0.006	6	No
FL-ES4-10-A	Room 21	KF	0.014	14	No
FL-ES4-11-A	Room 24	KF	0.014	14	No
<b>FL-ES4-12-A</b>	<b>Room 23</b>	<b>MWF</b>	<b>0.019</b>	<b>19</b>	<b>Yes</b>
FL-ES4-13-A	Room 22	MWF	0.014	14	No
FL-ES4-14-A	Third Floor Hallway – Across from Men's Room	PWF	0.009	9	No

**PWF = Porcelain Water Fountain**  
**MWF = Metal Water Fountain**  
**KF = Kitchen Faucet**

**PS = Porcelain Sink**  
**BD = Bottle Water Dispenser**  
**SS = Slop Sink**



Laboratory analytical results were compared to the New Jersey Department of Environmental Protection (NJDEP) Drinking Water Quality Standard of 15 ppb for lead. This value coincides with the EPA's Action Level of 15 ppb. Analysis of lead in the first draw drinking water samples indicated that sample FL-ES4-01-A, FL-ES4-08-A and FL-ES4-12-A exceeded the EPA's Action Level of 15ppb.

On June 9, 2016, Karl Environmental performed a follow-up second draw Lead-in-Drinking Water Screening at the Facility. The result of the second draw sampling is illustrated below.

**Table 2: Analytical Lead Results for Second Draw Drinking Water Samples Collected from Fort Lee Elementary School #4**

Sample I.D.	Location	Type of Collection Point	Lead Concentration (mg/L)	Lead Concentration (ppb)	Likely Source of Lead Contamination
FL-ES4-01-B	Nurse's Office	MWF	0.013	13	Water Fountain and Upstream Plumbing
FL-ES4-08-B	Room 20	MWF	0.012	12	Water Fountain and Upstream Plumbing
FL-ES4-12-B	Room 23	MWF	0.032	32	Water Fountain and Upstream Plumbing

According to EPA guidance documentation, if a second draw sample result exhibits lead levels at very low levels, the likely source of the contamination identified in the corresponding first draw sample is the collection point or outlet. EPA guidance documentation indicates that very low levels of Lead-in-Drinking Water would be equal or less than five (5) ppb. If a second draw sample result exhibits lead levels below the corresponding first draw sample, but above very low levels, both the outlet and the upstream plumbing are likely contributing to the lead contamination identified in the first draw sample. Finally, if a second draw sample result exhibits lead levels above the corresponding first draw sample, the upstream plumbing is the likely source of lead contamination. The service and main line sample results are then considered when determining if the municipal water entering the building is also contributing to lead contamination.

As illustrated in Table 2, based on the first and follow-up second draw sample results, the lead contamination identified during the May 4, 2016 and June 9, 2016 Lead in Drinking Water Screenings at Fort Lee Elementary School #4 in the Nurse's Office, Room 20 and Room 23 were likely from the combination of the water fountains and associated upstream plumbing. Analytical laboratory results and chains of custody are included in *Attachment A*.

## 5.0 MUNICIPAL WATER QUALITY

Public water systems are required by law to monitor for contaminants. Results of this monitoring are provided to the public as annual consumer confidence report. Fort Lee, New Jersey is serviced by American Water New Jersey. Karl Environmental obtained the most recently released



consumer confidence report dated 2015 and reviewed the results of water quality testing as it relates to lead in drinking water. According the consumer confidence report, the most common source of lead in public water systems is the corrosion of household plumbing and erosion of natural deposits.

American Water New Jersey reported no exceedances of the Action Level of 15 ppb for lead in 2014. Based on the reported statistics for 2014, American Water New Jersey was in compliance with regards to lead contamination in water. The water main sample (FL-ES4-M-1) collected at the Facility are representative of the water entering the building. The sample results for the water main samples identified very low lead levels, indicating that the municipal water is not likely to be a significant source of lead contamination within the Facility. The EPA guidance implies that “very low lead levels” are less than five (5) ppb. The consumer confidence report is included in *Attachment B*.

## 6.0 RECOMMENDATIONS

Karl Environmental screened fourteen (14) drinking water sources within the Fort Lee Elementary School #3. Three (3) out of fourteen (14) Lead-in-Drinking samples (FL-ES4-01-A, FL-ES4-08-A and FL-ES4-12-A) exceeded EPA’s Action Level of 15ppb. the lead contamination identified during the May 4, 2016 and June 9, 2016 Lead in Drinking Water Screenings at Fort Lee Elementary School #4 in the Nurse’s Office, Room 20 and Room 23 were likely from the combination of the water fountains and associated upstream plumbing. Based on the findings of the lead in drinking water screening and observations made during sample collection, Karl Environmental offers the following recommendations at this time:

- Immediately remove the water point sources which exhibited lead contamination above the Action Level 15ppb from service.
- Replace the drinking water the outlets in the Nurse’s Office, Room 20 and Room 23 where elevated lead levels were identified.
- Install in-line filter upstream from the outlets in the Nurse’s Office, Room 20 and Room 23. Regularly replace spent water filters according to manufacturer recommendations to prevent contaminants from passing through to the drinking water port.
- Replace any newly discovered lead piping with lead-free piping.



## **ADDITIONAL RECOMMENDATIONS**

Karl Environmental also offers the following additional recommendations at this time:

- Continue to monitor lead in drinking water levels as part of a regular sampling and maintenance plan. It is recommended that this include sampling any remaining untested drinking water outlets in the facilities. Additional parameters may also be considered for analysis, such as: Antimony, Asbestos, Cadmium, Copper, Mercury, Nickel, Silver, Zinc, and biologicals.
- In the event that water drinking source(s) are remediated, the source(s) should be resampled before being placed back into service to ensure the efficacy of the remediation actions.
- Where in use, regularly clean aerators to prevent the build-up of debris behind the screen which may contribute to elevated lead levels.
- Use only cold water for food and beverage preparation. Hot water is more likely to contribute to the corrosion of plumbing materials and therefore contain a greater level of contaminants from the plumbing system.
- Check piping for ground wiring for electricity. Such wiring may cause premature corrosion of the affected piping and lead to contamination of the water contained within.

## **7.0 LIMITATIONS**

The purpose of the sampling event outlined within this report was to provide a general screening of potable water sources for potential lead contamination. 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 screening event focused upon the water outlets most likely to be used for consumption and did not attempt to sample all water outlets in each building. As such, Karl Environmental strongly recommends that the District continue to sample the remaining water sources at each building as part of a continuing sampling and maintenance plan. In the event that Karl Environmental Group could not access a building's water main connection, the nearest downstream water source was used to represent the service line and main line samples (a protocol recommended by the EPA). Sampling was completed prior to the enactment of new amendments and rules in the New Jersey regulation N.J.A.C. 6A:26, Educational Facilities.



## 8.0 CLOSING

Thank you for using Karl Environmental 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***

A handwritten signature in black ink, appearing to read "KB" with a flourish extending to the right.

Kristian Bills  
Environmental Consultant  
610-856-7700 (office)  
610-914-0214 (cell)  
610-856-5040 (fax)  
kbills@karlenv.com





**Attachment A**  
**Laboratory Analytical Results**



## Results Report

Order ID: 6051217

Karl Environmental Group  
20 Lauck Road  
Mohnton, PA 19540

Project: Copper & Lead

Attn: Kristian Bills

Regulatory ID:

Sample Number: 6051217-01  
Collector: KB

Site: FL-ES4-1-S  
Collect Date: 05/03/2016 3:09 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead 0.003 mg/L EPA 200.8 0.001 1 05/13/16 JGY 05/14/16 0:57 RPV

Sample Number: 6051217-02  
Collector: KB

Site: FL-ES4-1-M  
Collect Date: 05/03/2016 3:12 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead < 0.001 mg/L EPA 200.8 0.001 1 05/13/16 JGY 05/14/16 0:59 RPV

Sample Number: 6051217-03  
Collector: KB

Site: FL-ES4-01-A  
Collect Date: 05/03/2016 3:14 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead 0.049 mg/L EPA 200.8 0.001 1 05/13/16 JGY 05/14/16 1:01 RPV

Sample Number: 6051217-04  
Collector: KB

Site: FL-ES4-02-A  
Collect Date: 05/03/2016 3:16 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead 0.004 mg/L EPA 200.8 0.001 1 05/13/16 JGY 05/14/16 1:03 RPV

Sample Number: 6051217-05  
Collector: KB

Site: FL-ES4-03-A  
Collect Date: 05/03/2016 3:18 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead 0.007 mg/L EPA 200.8 0.001 1 05/13/16 JGY 05/14/16 1:13 RPV

Report Generated On: 05/17/2016 4:22 pm  
STL\_Results Revision #1.6

6051217  
Effective: 07/09/2014





# SUBURBAN TESTING LABS

Sample Number: 6051217-06  
Collector: KB

Site: FL-ES4-04-A  
Collect Date: 05/03/2016 3:20 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead 0.003 mg/L EPA 200.8 0.001 1 05/13/16 JGY 05/14/16 1:14 RPV

Sample Number: 6051217-07  
Collector: KB

Site: FL-ES4-05-A  
Collect Date: 05/03/2016 3:23 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead 0.003 mg/L EPA 200.8 0.001 1 05/13/16 JGY 05/14/16 1:16 RPV

Sample Number: 6051217-08  
Collector: KB

Site: FL-ES4-06-A  
Collect Date: 05/03/2016 3:24 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead 0.005 mg/L EPA 200.8 0.001 1 05/13/16 JGY 05/14/16 1:18 RPV

Sample Number: 6051217-09  
Collector: KB

Site: FL-ES4-07-A  
Collect Date: 05/03/2016 3:26 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead 0.011 mg/L EPA 200.8 0.001 1 05/13/16 JGY 05/14/16 1:20 RPV

Sample Number: 6051217-10  
Collector: KB

Site: FL-ES4-08-A  
Collect Date: 05/03/2016 3:30 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead 0.028 mg/L EPA 200.8 0.001 1 05/13/16 JGY 05/14/16 1:22 RPV

Sample Number: 6051217-11  
Collector: KB

Site: FL-ES4-09-A  
Collect Date: 05/03/2016 3:32 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead 0.006 mg/L EPA 200.8 0.001 1 05/13/16 JGY 05/14/16 1:09 RPV

Report Generated On: 05/17/2016 4:22 pm 6051217  
STL\_Results Revision #1.6 Effective: 07/09/2014





Sample Number: 6051217-12	Site: FL-ES4-10-A	Sample ID:
Collector: KB	Collect Date: 05/03/2016 3:34 am	Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead	0.014	mg/L	EPA 200.8	0.001	1	05/13/16	JGY	05/14/16 3:37	RPV
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Sample Number: 6051217-13	Site: FL-ES4-11-A	Sample ID:
Collector: KB	Collect Date: 05/03/2016 3:36 am	Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead	0.014	mg/L	EPA 200.8	0.001	1	05/13/16	JGY	05/14/16 3:39	RPV
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Sample Number: 6051217-14	Site: FL-ES4-12-A	Sample ID:
Collector: KB	Collect Date: 05/03/2016 3:38 am	Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead	0.019	mg/L	EPA 200.8	0.001	1	05/13/16	JGY	05/14/16 3:41	RPV
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Sample Number: 6051217-15	Site: FL-ES4-13-A	Sample ID:
Collector: KB	Collect Date: 05/03/2016 3:40 am	Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead	0.014	mg/L	EPA 200.8	0.001	1	05/13/16	JGY	05/14/16 3:43	RPV
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Sample Number: 6051217-16	Site: FL-ES4-14-A	Sample ID:
Collector: KB	Collect Date: 05/03/2016 3:44 am	Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
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Metals

Lead	0.009	mg/L	EPA 200.8	0.001	1	05/13/16	JGY	05/14/16 3:27	RPV
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**Data Qualifiers:**

Report Generated On: 05/17/2016 4:22 pm 6051217  
 STL\_Results Revision #1.6 Effective: 07/09/2014





# SUBURBAN TESTING LABS

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.

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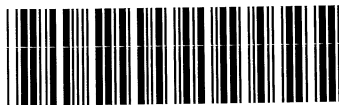
Results are considered Preliminary unless report is signed by authorized representative of STL.

**Reviewed and Released By:**

William Smith  
Client Services

Report Generated On: 05/17/2016 4:22 pm 6051217  
STL\_Results Revision #1.6 Effective: 07/09/2014





6051217  
Sarah Tyrrell

TAT(Check One):  Standard  24hr  48hr  72hr  Other  
(Additional charges may apply for rush TAT. If not specified, standard TAT will apply)

Order ID: \_\_\_\_\_

Client Name: Karl Environmental Group

Address: 20 Lauck Road Phone: 610-856-7700  
Mohnton, PA 19540 Fax: 610-856-5040

Contact Name: Kristian Bills Email: kbills@karlenv.com

Client Name: Fort Lee Lead-in-Drinking Water Screening

Address: Elementary School #4

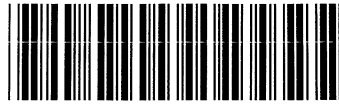
Payment / P.O. Info: 16-0620

Comments:

SWTL Sample Number	Sample Description / Site ID:	Date Sampled	Time Sampled	Samplers Initials	Test(s) Requested:	Bottle Quantity	See Codes Below				Comments / Field Data:
							Matrix	Sample Type	Bottle Type	Preservative	
	FL-ES4-S-1	5/3/16	0309	DT/KM/KB	LEAD <i>pH=2</i>	1	PW	G	P	H	Service Line
	FL-ES4-M-1		0312	DT/KM/KB	LEAD	1	PW	G	P	H	Water Main
	FL-ES4-01-A		0314	DT/KM/KB	LEAD	1	PW	G	P	H	First Draw
	FL-ES4-02-A		0316	DT/KM/KB	LEAD	1	PW	G	P	H	First Draw
	FL-ES4-03-A		0318	DT/KM/KB	LEAD	1	PW	G	P	H	First Draw
	FL-ES4-04-A		0320	DT/KM/KB	LEAD	1	PW	G	P	H	First Draw
	FL-ES4-05-A		0323	DT/KM/KB	LEAD	1	PW	G	P	H	First Draw
	FL-ES4-06-A		0324	DT/KM/KB	LEAD	1	PW	G	P	H	First Draw

Relinquished By: <i>[Signature]</i>	Date: <u>5-3-16</u>		<b>Sample Conditions</b>	<b>Matrix Key</b>	<b>Bottle Type Key</b>	<b>Reporting Options</b>
Received By: <i>[Signature]</i>	Date: <u>5-3-16</u>	Temp °C: _____	Submitted with COC? <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	NPW = Non-Potable Water	P = Plastic	<input type="checkbox"/> SDWA Reporting
Relinquished By: <i>[Signature]</i>	Date: <u>5-3-16</u>	Acceptable: Y / N	Number of containers match number on COC? <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	Solid = Raw Sludge, Dewatered sludge, soil, etc. (reported as mg/kg)	G = Glass	PWSID: _____
Received in Lab By: <i>[Signature]</i>	Date: <u>5-3-16</u>	Acceptable: Y / N	All containers in tact? <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	PW = Potable Water (not for SDWA compliance)	O = Other	<input type="checkbox"/> Fax
	Date: <u>5-3-16</u>	Temp °C: <u>19.6?</u>	Tests within holding times <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	SDWA = Safe Drinking Water Act Potable Sample	<b>Preservative Key</b>	<input checked="" type="checkbox"/> Email
	Date: <u>5-3-16</u>	Acceptable: <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	40 mL VOA vials free of headspace? <input type="checkbox"/> Y / <input checked="" type="checkbox"/> N	<b>Sample Type Key</b>	N = Sodium Thiosulfate	<input type="checkbox"/> Other
	Date: <u>5-3-16</u>			<b>SDWA Sample Types</b>	A = Ascorbic Acid	<input type="checkbox"/> Return a copy of this form with Report
	Date: <u>5-3-16</u>			G = Grab	H = HNO <sub>3</sub>	
	Date: <u>5-3-16</u>			8HC = 8 Hr. Composite	C = HCl	
	Date: <u>5-3-16</u>			24HC = 24 Hr. Composite	S = H <sub>2</sub> SO <sub>4</sub>	
	Date: <u>5-3-16</u>				OH = NaOH	
	Date: <u>5-3-16</u>				O = Other	
	Date: <u>5-3-16</u>				NA = None Required	

Signing this form indicates your agreement with SWTL's Standard Terms and Conditions unless otherwise specified in writing. SLF059 Rev. 1.4 Effective November 12, 2014  
Shaded areas are for SWTL use only.



6051217  
Sarah Tyrrell

TAT(Check One):  Standard  24hr  48hr  72hr  Other  
(Additional charges may apply for rush TAT. If not specified, standard TAT will apply)

Order ID: \_\_\_\_\_

Client Name: Karl Environmental Group

Address: 20 Lauck Road  
Mohnton, PA 19540

Contact Name: Kristian Bills

Phone: 610-856-7700

Fax: 610-856-5040

Email: kbills@karlenv.com

Project Name: Fort Lee Lead-in-Drinking Water Screening

Address: Elementary School #4

Payment / P.O. Info: 16-0620

Comments:

SWTL Sample Number	Sample Description / Site ID:	Date Sampled	Time Sampled	Samplers Initials	Test(s) Requested:	Bottle Quantity	See Codes Below				Comments / Field Data:
							Matrix	Sample Type	Bottle Type	Preservative	
	FL-ES4-07-A	5/3/16	0326	DT/KM/KB	LEAD <i>pH &lt; 2</i>	1	PW	G	P	H	First Draw
	FL-ES4-08-A		0330	DT/KM/KB	LEAD	1	PW	G	P	H	First Draw
	FL-ES4-09-A		0332	DT/KM/KB	LEAD	1	PW	G	P	H	First Draw
	FL-ES4-10-A		0334	DT/KM/KB	LEAD	1	PW	G	P	H	First Draw
	FL-ES4-11-A		0336	DT/KM/KB	LEAD	1	PW	G	P	H	First Draw
	FL-ES4-12-A		0338	DT/KM/KB	LEAD	1	PW	G	P	H	First Draw
	FL-ES4-13-A		0340	DT/KM/KB	LEAD	1	PW	G	P	H	First Draw
	FL-ES4-14-A		0344	DT/KM/KB	LEAD	1	PW	G	P	H	First Draw

Relinquished By: <i>[Signature]</i>	Date: <u>5-3-16</u>		<b>Sample Conditions</b>	<b>Matrix Key</b>	<b>Bottle Type Key</b>	<b>Reporting Options</b>
Received By: <i>Kelly Z maup</i>	Date: <u>5-3-16</u>	Temp °C: _____	Submitted with COC? <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	NPW = Non-Potable Water	P = Plastic	<input type="checkbox"/> SDWA Reporting
Relinquished By: <i>Kelly Z maup</i>	Date: <u>5-3-16</u>	Acceptable: Y / N	Number of containers match number on COC? <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	Solid = Raw Sludge, Dewatered sludge, soil, etc (reported as mg/kg)	G = Glass	PWSID: _____
Received in Lab By: <i>[Signature]</i>	Date: <u>5-3-16</u>	Temp °C: _____	All containers in tact? <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	PW = Potable Water (not for SDWA compliance)	O = Other	<input type="checkbox"/> Fax
	Date: <u>5-3-16</u>	Acceptable: Y / N	Tests within holding times <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	SDWA = Safe Drinking Water Act Potable Sample	<b>Preservative Key</b>	<input checked="" type="checkbox"/> Email
	Date: <u>5-3-16</u>	Temp °C: <u>19.6°C</u>	40 mL VOA vials free of headspace? <input type="checkbox"/> Y / <input checked="" type="checkbox"/> N	<b>Sample Type Key</b>	N = Sodium Thiosulfate	<input type="checkbox"/> Other _____
	Date: <u>5-3-16</u>	Acceptable: Y / N		G = Grab	A = Ascorbic Acid	<input type="checkbox"/> Return a copy of this form with Report
	Date: <u>5-3-16</u>			8HC = 8 Hr. Composite	H = HNO <sub>3</sub>	
	Date: <u>5-3-16</u>			24HC = 24 Hr. Composite	C = HCl	
	Date: <u>5-3-16</u>				S = H <sub>2</sub> SO <sub>4</sub>	
	Date: <u>5-3-16</u>				OH = NaOH	
	Date: <u>5-3-16</u>				O = Other	
	Date: <u>5-3-16</u>				NA = None Required	

Signing this form indicates your agreement with SWTL's Standard Terms and Conditions unless otherwise specified in writing. SLF059 Rev. 1.4 Effective November 12, 2014  
Shaded areas are for SWTL use only.



## Results Report

Order ID: 6062438

Karl Environmental Group  
20 Lauck Road  
Mohnton, PA 19540

Project: Copper & Lead

Attn: Kristian Bills

Regulatory ID:

Sample Number: 6062438-01  
Collector: KB

Site: FL-ES4-08-B  
Collect Date: 06/09/2016 4:14 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
-------------------------------	--------	-------	--------	------	----	-----------	----	---------------	----

Metals

Lead	0.013	mg/L	EPA 200.8	0.001	1	07/05/16	TPK	07/13/16 23:10	RPV
------	-------	------	-----------	-------	---	----------	-----	----------------	-----

Sample Number: 6062438-02  
Collector: KB

Site: FL-ES4-12-B  
Collect Date: 06/09/2016 4:07 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
-------------------------------	--------	-------	--------	------	----	-----------	----	---------------	----

Metals

Lead	0.012	mg/L	EPA 200.8	0.001	1	07/05/16	TPK	07/13/16 23:12	RPV
------	-------	------	-----------	-------	---	----------	-----	----------------	-----

Sample Number: 6062438-03  
Collector: KB

Site: FL-ES4-01-B  
Collect Date: 06/09/2016 4:29 am

Sample ID:  
Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
-------------------------------	--------	-------	--------	------	----	-----------	----	---------------	----

Metals

Lead	0.032	mg/L	EPA 200.8	0.001	1	07/05/16	TPK	07/13/16 23:14	RPV
------	-------	------	-----------	-------	---	----------	-----	----------------	-----

**Data Qualifiers:**

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.

Report Generated On: 07/14/2016 4:21 pm  
STL\_Results Revision #1.6

6062438  
Effective: 07/09/2014







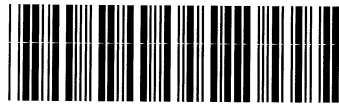
**SUBURBAN**  
TESTING LABS

**Reviewed and Released By:**

William Smith  
Client Services

Report Generated On: 07/14/2016 4:21 pm 6062438  
STL\_Results Revision #1.6 Effective: 07/09/2014





6062438  
Sarah Tyrrell

TAT(Check One):  Standard  24hr  48hr  72hr  Other \_\_\_\_\_  
(Additional charges may apply for rush TAT. If not specified, standard TAT will apply)

Order ID: \_\_\_\_\_

Client Name: Karl Environmental Group

t Name: Fort Lee School District

Address: 20 Lauck Road  
Mohnton, PA 19540

Phone: 610-856-7700

Address: Fort Lee School #4

Fax: 610-856-5040

1193 Anderson Ave, Fort Lee, NJ 07024

Contact Name: Kristian Bills

Email: kbills@karlenv.com

Payment / P.O. Info: 16-0620

Comments:

SWTL Sample Number	Sample Description / Site ID:	Date Sampled	Time Sampled	Samplers Initials	Test(s) Requested:	Bottle Quantity	See Codes Below				Comments / Field Data:
							Matrix	Sample Type	Bottle Type	Preservative	
	<del>FL-ES4-01-B</del>	<del>6/9/16</del>			<del>LEAD</del>	1	PW	G	P	NA	Second Draw
	FL-ES4-08-B	6/9/16	0414	KIS	LEAD	1	PW	G	P	NA	Second Draw
	FL-ES4-12-B	6/9/16	0407	KB	LEAD	1	PW	G	P	NA	Second Draw
	FL-ES4-01-B	6/9/16	0429	KB	LEAD	1	PW	G	P	NA	Second draw
											Added HNO3 PH 2
											W/S 6-10-16

Relinquished By:	Date: <u>6/9/16</u>	Temp °C: _____ Acceptable: Y / N	<b>Sample Conditions</b>		<b>Matrix Key</b>		<b>Bottle Type Key</b>		<b>Reporting Options</b>	
	Time: <u>1345</u>		Submitted with COC? <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	NPW = Non-Potable Water		P = Plastic G = Glass O = Other		<input type="checkbox"/> SDWA Reporting		PWSID: _____
Received By:	Date: _____	Temp °C: _____ Acceptable: Y / N	Number of containers match number on COC? <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N		Solid = Raw Sludge, Dewatered sludge, soil, etc. (reported as mg/kg)		<b>Preservative Key</b>		<input type="checkbox"/> Fax	
	Time: _____		All containers in tact? <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	PW = Potable Water (not for SDWA compliance)		SDWA = Safe Drinking Water Act Potable Sample		N = Sodium Thiosulfate A = Ascorbic Acid H = HNO <sub>3</sub> C = HCl S = H <sub>2</sub> SO <sub>4</sub> OH = NaOH O = Other NA = None Required		<input checked="" type="checkbox"/> Email
Relinquished By: _____	Date: _____	Temp °C: _____ Acceptable: Y / N	Tests within holding times? <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N		<b>Sample Type Key</b>		<b>SDWA Sample Types</b>		<input type="checkbox"/> Other: _____	
	Time: _____		40 mL VOA vials free of headspace? <input type="checkbox"/> Y / <input type="checkbox"/> N	G = Grab 8HC = 8 Hr. Composite 24HC = 24 Hr. Composite		D=Distribution E=Entry Point R=Raw C=Check S=Special M=Maximum Residence		<input type="checkbox"/> Return a copy of this form with Report		
Received in Lab By:	Date: <u>6-9-16</u>	Temp °C: <u>26.0</u> Acceptable: <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N								

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Shaded areas are for SWTL use only.



**Attachment B**  
**Consumer Confidence Reports**



2015 Annual

# Water Quality Report

Fort Lee District  
PWS ID: VA3149247



Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

This report contains important information about your drinking water. If you do not understand it, please have someone translate it for you.

## A Message from the Virginia American Water President

To Our Valued Customer:

Virginia American Water is proud to be your local water service provider, and I am pleased to share with you good news about the quality of your drinking water. Each year, we provide you with our Annual Water Quality Report – and like so many years prior -- we continue to supply water that meets or surpasses all state and federal water quality regulations for **about a penny per gallon— an exceptional value.**



This is no small task. Quite a lot goes into bringing that water to your home. The miles of pipeline hidden below the ground. The facilities that draw water from the source. The plant where it's treated and tested. Our treatment plant operators, water quality experts, engineers, and maintenance crews working around the clock to make sure that water is always there when you need it. Delivering high-quality, reliable water service to your tap around the clock also requires significant investment in our water infrastructure to upgrade aging facilities. In 2015 alone, we invested \$16.1 million in water system improvements statewide.

We do this because we believe we're delivering more than just water service. We deliver a key resource for public health, fire protection, the economy and overall quality of life. Our job is to ensure that quality water keeps flowing not only today, but well into the future. It's part of our commitment to you and the communities we serve.

We hope you agree, it's worth every penny and worth learning more about. Please, take the time to review this report. It provides details about the source and quality of your drinking water using the data from water quality testing conducted for your local water system from January through December 2015.

Thanks for allowing us to serve you.

Sincerely,

Barry Suits, P.E.

President



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WE CARE ABOUT WATER. IT'S WHAT WE DO.®

## Information on the Internet

Virginia American Water, a subsidiary of American Water (NYSE: AWK), is the largest investor-owned water utility in the state, providing high-quality and reliable water services to more than 350,000 people.

American Water is the largest and most geographically diverse publicly traded U.S. water and wastewater utility company. Marking its 130th anniversary this year, the company employs 6,700 dedicated professionals who provide regulated and market-based drinking water, wastewater and other related services to an estimated 15 million people in 47 states and Ontario, Canada. More information can be found by visiting [www.amwater.com](http://www.amwater.com).

The U.S. EPA Office of Water ([www.epa.gov/safewater](http://www.epa.gov/safewater)) and the Center for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)) web sites provide a substantial amount of information on many issues relating to water resources, water conservation and public health. Also, the Virginia Department of Health and the Virginia Department of Environmental Quality have web sites that provide complete and current information on water issues in Virginia. These web sites are located at ([www.vdh.virginia.gov](http://www.vdh.virginia.gov)) and ([www.deq.state.va.us](http://www.deq.state.va.us)). All these web sites have numerous links that will direct you to other professional organizations, public education and public health topics related to water.

## Protecting Your Water Source

The Source Water Assessment Program is a result of the 1996 amendments to the Federal Safe Drinking Water Act (SDWA). Those amendments require all states to establish a program to assess the vulnerability of public water systems to potential contamination. While Fort Lee is classified as a consecutive water system, the Virginia Department of Health, Office of Water Programs, performed a source water assessment of the Appomattox and James Rivers in 2001 for the Hopewell District. This assessment consisted of defining the drainage-watershed area, provided an inventory of known land use activity, and identified any known contamination that occurred within the last five years within a five mile radius of our water intakes. The report became available in the year 2002, and is the first step in the preparation of a Source Water Protection Program. The following paragraphs which have been prepared by the Virginia Department of Health are required to be included in the CCR.

“The Virginia Department of Health conducted a Source Water Assessment of the Appomattox and James Rivers in 2001. The rivers were determined to be of high susceptibility to contamination using the criteria developed by the state in its approved Source Water Assessment Program. The assessment report consists of maps showing the Source Water Assessment area, an inventory of known land use activities and potential sources of contamination of concern, best management practices utilized at land use activity sites in zone 1, documentation of any known contamination within the last five years, susceptibility explanation chart, and definitions of key terms. The report is available by contacting your waterworks system owner at (804) 446-9822.”

“The Virginia Department of Health conducted a Source Water Assessment of the ARWA source water during 2002. Lake Chesdin (Appomattox River) was determined to be of high susceptibility to contamination, using criteria developed by the State in its EPA-approved Source Water Assessment Program. The assessment report consists of maps showing the source water assessment area, and inventory of known land use activities of concern and documentation of any known contamination within the last five years from the date of the assessment. The report is available by contacting Dr. Robert Wichser at (804) 590-1145.

## What Is a Water Quality Report?

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

To comply with Virginia Department of Health and U.S. Environmental Protection Agency (EPA) regulations, Virginia American Water issues a report annually describing the quality of your drinking water. The purpose of this report is to provide you an overview of last year's (2015) drinking water quality. It includes details about where your water comes from and what it contains. We hope the report will raise your understanding of drinking water issues and awareness of the need to protect your drinking water sources.

## Share This Report

Landlords, businesses, schools, hospitals and other groups are encouraged to share this important water quality information with water users at their location who are not billed customers of Virginia American Water and therefore do not receive this report directly.



## Where Does My Water Come From?

In April 2001, the Virginia American Water Company acquired ownership and is the current operator of the water system at the U.S. Army Garrison at Fort Lee, Virginia. Virginia American Water customers at Fort Lee enjoy an abundant water supply from two major surface water treatment plants. Fort Lee is a consecutive water system. That is, the drinking water that enters the base is supplied from other treatment facilities outside the installation. Currently, water is supplied from both the Appomattox River Water Authority (ARWA) in Petersburg, and Virginia American Water (VAWC) in Hopewell. For the Hopewell District, the water is withdrawn from the Appomattox River, at the confluence with the James River. The combined drainage area of these two watersheds is approximately 9,000 square miles. Lake Chesdin, which is supplied by the Appomattox River, is the water source for the Appomattox River Water Authority. To learn more about our watershed on the Internet, go to U.S. EPA's Search Your Watershed at [www.epa.gov/safewater](http://www.epa.gov/safewater).

### Other Drinking Water Constituents You May Be Interested In Are As Follows:

The sodium concentration in the sample collected from Virginia American Water plant effluent was 21.2 ppm. These concentrations exceed the recommended maximum contaminant level guidance of 20 ppm for persons on a "strict" sodium intake diet.

## Water Quality: What You Can Do

Everyone can play a role in improving the health of the source water and the Chesapeake Bay watershed:

- Avoid overuse of pesticides, herbicides and fertilizers, which contribute to the growth of algae that can cause taste and odor in drinking water.
- Clean up after your pet so the rain won't wash pet waste into the watershed through storm sewers.
- Dispose of pharmaceutical and personal care products in the trash, not down the toilet.
- Properly dispose of chemicals, paints and hazardous waste products so they don't enter the watershed through storm sewers.
- If you have a boat, keep it clean to avoid bringing algae, dirty water or contaminants into your marina.

Support regulations and other efforts to reduce nutrients in the watershed.

## Lead Education Statement

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Virginia American Water is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using the water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800) 426-4791 or at <http://www.epa.gov/safewater/lead>.

## Special Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA's Safe Drinking Water Hotline (800) 426-4791.

### Other Drinking Water Constituents You May Be Interested In Are As Follows:

The sodium concentration in the sample collected from the plant effluent was 21.2 ppm. This concentration exceeds the recommended maximum contaminant level guidance of 20ppm for persons on a "strict" sodium intake diet.



## Water Information Sources

**Virginia American Water:**

[www.amwater.com/vaaw](http://www.amwater.com/vaaw)

**Virginia Department of Health:**

[www.vdh.virginia.gov](http://www.vdh.virginia.gov)

**United States Environmental Protection Agency**

[www.epa.gov/safewater](http://www.epa.gov/safewater)

**Safe Drinking Water Hotline:** (800) 426-4791

**Centers for Disease Control and Prevention:**

[www.cdc.gov](http://www.cdc.gov)

**American Water Works Association:**

[www.awwa.org](http://www.awwa.org)

**National Library of Medicine/National Institute of Health:**

[www.nlm.nih.gov/medlineplus](http://www.nlm.nih.gov/medlineplus)

## Substances Expected to be in Drinking Water

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. Environmental Protection Agency's Safe Drinking Water Hotline (800) 426-4791.

The sources of drinking water (both tap water and bottled water) includes rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

**Contaminants that may be present in source water include:**

**Microbial Contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife.

**Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

**Pesticides and Herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

**Organic Chemical Contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may also come from gas stations, urban stormwater runoff, and septic systems.

**Radioactive Contaminants**, which can be naturally occurring or may be the result of oil and gas production and mining activities.

## Opportunities for Public Participation

Virginia American Water does not schedule regular meetings for public participation in decisions that affect drinking water quality. However when public participation is required, meetings would be announced in the local newspaper and information would be posted on our website ([www.amwater.com/vaaw](http://www.amwater.com/vaaw)).

## Why does my water sometimes have a chlorine taste and odor?

Periodically, you may notice the taste and odor of chlorine in your water. Virginia American Water uses free chlorine instead of the less noticeable combined chlorine (chloramines) as a disinfectant during distribution system flushing. Free chlorine provides the best method of disinfection, during the water main flushing program done each year, to maintain a high level of water quality. Keeping an open container of drinking water in the refrigerator allows the chlorine to dissipate, which usually improves the taste of the water. Change the water in your refrigerated container weekly.



## How to Read the Data Tables

Virginia American Water conducts extensive monitoring. The results of our monitoring are reported in the accompanying tables. While most monitoring was conducted in 2015, certain substances are only monitored once every three to nine years because the levels do not change frequently. For help with interpreting this table, see the "Table Definitions" section.

Starting with a **Substance**, read across. **Year Sampled** is usually in 2015 but may be a prior year. **MCL** shows the highest level of substance (contaminant) allowed. **MCLG** is the goal level for that substance (this may be lower than what is allowed). **Average Amount Detected** represents the measured amount (less is better). **Range** tells the highest and lowest amounts measured. A **Yes** under **Compliance Achieved** means the amount of the substance met government requirements. **Typical Source** tells where the substance usually originates.

## Table Definitions and Abbreviations

- **Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **MCL (Maximum Contaminant Level):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- **MCLG (Maximum Contaminant Level Goal):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **MRDL (Maximum Residual Disinfectant Level):** The highest level of disinfectant routinely allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **MRDLG (Maximum Residual Disinfectant Level Goal):** The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.
- **NA:** Not applicable
- **ND:** Not detected
- **NTU – Nephelometric Turbidity Units:** Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- **pCi/L (picocuries per liter):** Measurement of the natural rate of disintegration of radioactive contaminants in water (also beta particles).
- **ppm (parts per million):** One part substance per million parts water, or milligrams per liter. 1 ppm = 1 minute in 2 years or 1 penny in \$10,000.
- **ppb (parts per billion):** One part substance per billion parts water, or micrograms per liter. 1 ppb = 1 minute in 2,000 years or 1 penny in \$10,000,000.
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.

## Unregulated Contaminant Monitoring

**Definition:** Unregulated contaminants are those for which the U.S. Environmental Protection Agency has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether regulation is warranted.

The list of unregulated contaminants applicable for monitoring during 2013-2016 under the unregulated contaminants monitoring rule 3 is located on EPA's website at: <http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3/index.cfm>

## Water Quality Statement

For your information, we have compiled a list in the table, showing what substances were detected in your drinking water during 2015. We feel it is important that you know exactly what was detected and how much of the substance was present in the water. For information concerning our results, please contact Water Quality Supervisor, Kelly Ryan, at (804) 446-9822.





# Fort Lee Water Quality 2015

## Regulated Substances (from the treatment facilities)

Substance (units)	Year Sampled <sup>1</sup>	MCL	MCLG	ARWA		VAWC		Violation	Typical Source
				Amount Detected	Range of Detected Levels	Amount Detected	Range of Detected Levels		
Alpha emitters (pCi/L)	2014 ARWA 2015 VAWC	15	0	<0.6	NA	NA	NA	No	Erosion of natural deposits
Barium (ppm)	2015	2	2	0.027	NA	NA	NA	No	Erosion of natural deposits, Discharge of drilling waste and, metal refineries
Beta emitters (pCi/L) <sup>2</sup>	2014 ARWA 2015 VAWC	50	0	4.9 ± 0.8	NA	3.4	NA	No	Decay of natural and man-made deposits
Fluoride (ppm)	2015	4	4	0.68	0.01 - 1.31	0.63	NA	No	Added to water to promote healthy teeth
Nitrate (ppm)	2015	10	10	0.3	NA	0.11	NA	No	Erosion of natural deposits; Runoff from fertilizer use
Radium (pCi/L)	2014 ARWA 2015 VAWC	5	0	<0.6	NA	3.9	NA	No	Erosion of natural deposits
TOC	2015	TT	NA	1.35	1.25 - 1.46	1.20	1.16 - 1.23	No	Naturally present in the environment
Turbidity (NTU) <sup>3</sup>	2015	TT = 1 NTU	NA	0.615	NA	0.450	NA	No	Soil erosion and runoff
		Percent of readings ≤ 0.3 NTU on a monthly basis	NA	99.95% of readings ≤ 0.3 NTU	NA	99.86% of readings ≤ 0.3 NTU	NA		
Chlorine Dioxide (ppm) <sup>4</sup>	2015	MRDL = 0.8	MRDLG = 0.8	0.19	-0.12 - 0.19	NA	NA	No	Additive used to control microbes; Used during pre-treatment only

<sup>1</sup> Year Sampled: The state requires monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

<sup>2</sup> Beta/Photon emitters: The MCL for Beta/photon emitters is written as 4 mrem/year. EPA considers 50 pCi/L as the level of concern for beta emitters.

<sup>3</sup> Turbidity: Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. During the reporting year, a minimum of 99.3% of all samples taken to measure turbidity met water quality standards.

<sup>4</sup> Chlorine Dioxide: Is a calculated value, when the chlorine dioxide level is low in the finished water, the concentration will sometimes be a negative number.

## Disinfection By-Products (from the distribution system)

Substance (units)	Year Sampled	MCL	MCLG	Amount Detected <sup>5</sup>	Range of Detected Levels <sup>6</sup>	Violation	Typical Source
Haloacetic acids (HAAs)	2015	60	NA	14.6	7.2 - 22.0	No	By-product of drinking water disinfection
Total Trihalomethanes (TTHM)	2015	80	NA	48.58	18.6 - 66.9	No	By-product of drinking water disinfection
Chlorite (ppm)	2015	1.0	0.8	0.25	ND - 0.26	No	By-product of drinking water disinfection

Trihalomethanes: Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

<sup>5</sup> Amount detected is the locational running annual average of the 4 Stage 2 compliance sample sites

<sup>6</sup> The range is determined using all compliance sites

## Regulated Lead and Copper (Tap water samples were collected from 30 homes on Base)

Substance (units)	Year Sampled	MCL	MCLG	Amount Detected (90 <sup>th</sup> Percentile)	Number of Samples Over Action Level	Violation	Typical Source
Copper (ppm)	2014	AL = 1.3	1.3	0.141	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2014	AL = 15	0	<1	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline at (800) 426-4791.



## Bacteriological Results (from the distribution system)

Substance (units)	Year Sampled	MCL	MCLG	Highest Level Detected	Compliance Achieved	Typical Source
Total Coliform (number of positive samples)	2015	1 positive monthly sample	0	0	Yes	Bacteria naturally present in the environment
Chlorine/Chloramine Residual	2015	MRDL = 4	MRDLG = 4	Range: 0.4 - 3.4 Average: 1.93	Yes	Additive used to control microbes

## Unregulated Substances (from the distribution system)<sup>7</sup>

Substance (units)	Year Sampled	ARWA		VAWC		Typical Source
		Amount Detected	Range of Detected Levels	Amount Detected	Range of Detected Levels	
Bromide (ppm)	2015	NA	NA	0.02	ND - 0.02	By-product of drinking water disinfection
Bromochloroacetic Acid (ppb)	2015	NA	NA	2.0	ND - 2.0	By-product of drinking water disinfection
Bromodichloromethane (ppb)	2015	NA	NA	14.3	3.4 - 14.3	By-product of drinking water disinfection
Chlorate (ppm)	2015	NA	NA	0.61	ND - 0.61	By-product of drinking water disinfection
Chloroform (ppb)	2015	NA	NA	48.7	15.2 - 48.7	By-product of drinking water disinfection
Chlorodibromomethane (ppb)	2015	NA	NA	3.9	ND - 3.9	By-product of drinking water disinfection
Dichloroacetic Acid (ppb)	2015	NA	NA	12.0	4.1 - 12.0	By-product of drinking water disinfection
Monobromoacetic Acid (ppb)	2015	NA	NA	3.1	ND - 3.1	By-product of drinking water disinfection
Trichloroacetic Acid (ppb)	2015	NA	NA	8.9	2.4 - 8.9	By-product of drinking water disinfection

<sup>7</sup> Unregulated Substances (from the distribution system) are results from disinfection by-product sampling locations.

## Other Unregulated Substances (from the treatment facilities)

Substance (units)	Year Sampled	ARWA		VAWC		Typical Source
		Amount Detected	Range of Detected Levels	Amount Detected	Range of Detected Levels	
Calcium (ppm)	2015	NA	NA	14	NA	Naturally occurring
Magnesium (ppm)	2015	NA	NA	3	NA	Naturally occurring
Sodium (ppm)	2015	NA	NA	21.2	NA	Naturally occurring and water treatment additive
Giardia (cysts/L)	2015	NA	NA	0.400	ND - 0.400	Organism naturally present in the environment
Cryptosporidium (oocyst/L)	ARWA: 2015 VAWC: 2015	0.019	NA	0.178	ND - 0.178	Organism naturally present in the environment
Bromodichloromethane (ppb)	2015	3.6	NA	NA	NA	By-product of drinking water disinfection
Chloroform (ppb)	2015	25	NA	NA	NA	By-product of drinking water disinfection
MTBE (ppb)	2015	<5.0	NA	NA	NA	Leaking underground gasoline storage tanks
Zinc (ppm)	2015	NA	NA	0.134	NA	Water treatment additive
Sulfate (ppm)	2015	26.7	NA	32.5	NA	Erosion of natural deposits and water treatment additive
Chloride (ppm)	2015	NA	NA	16.6	NA	Naturally occurring
Chlorite (ppm)	2015	0.57	ND - 0.57	NA	NA	By-product of drinking water disinfection
Total Chlorine (ppm)	2015	3.16	0.70 - 3.8	3.98	0.20 - 3.98	Additive used to control microbes; Values reported for ARWA are from distribution system prior to Ft Lee entry point

## Unregulated Substances (from the distribution system and treatment facility) UCMR3

Substance (units)	Year Sampled	Amount Detected <sup>5</sup>	Range of Detected Levels <sup>6</sup>	Typical Source
Strontium (ug/L)	2014	43.2	38.3 - 43.2	Soil Runoff
Vanadium (ug/L)	2014	0.5	0.3 - 0.5	Discharge from power plants; erosion of natural deposits
Chromium VI (ug/L)	2014	0.07	0.05 - 0.07	Discharge from steel and pulp mills
Chlorate (ug/L)	2014	470	ND - 470	By Product of disinfection





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