EnviroVision Consultants, Inc.
20-21 Wagaraw Road – Bldg. 35E, Fair Lawn, NJ 07410
PH (973) 636-9145 FAX (973) 636-9144
Email: Envirovision@optonline.net

CLIENT: Ramapo Indian Hills HS District, **Proj #19-333**
PROJECT: Indian Hills HS Outside Athletic field water supply, Lead in water sampling
ADDRESS: 97 Yawpo Ave, Oakland, NJ 07436
FIELD TECHNICIAN: Polina Pikes REPORT DATE: Sept 3, 2019

EnviroVision Consultants, Inc. was contracted by Ramapo Indian Hills High School District to conduct initai Lead (Pb) in water sampling at Indian Hills High School Athletic Filed water suppy (jug filler), 97 Yawpo Ave, Oakland, NJ.

Polina Pikes, EnviroVision's environmental field technician arrived at the project site early morning on August 16, 2019, prior to teachers, students, employee's or occupant's arrival and and proceeded to collect water samples from the designated athletic field outsde supply (jug filler). Water sources that have any chance of being used for drinkling, cooking etc need evaluation… The sample collected and analyzed was a First Draw Samples – first 250 ml of cold water collected from the drinking water outlet. The water in the school facility (or used by) must remain motionless in the plumbing for a minimum 8 hours but no more than 48 hours.

Samples were analyzed at EMSL Analytical, Inc. in Cinnaminson, New Jersey (NJDEP#03036), accredited in accordance with NELAC (National Environmental Laboratory Accreditation Conference). Analytical method was by Lead in Water by inductively coupled plasma mass spectrometry ICP-MS (EPA 200.8 or SM3113B).

Analysis of the water sample indicated that the first draw sample collected from the athletic filed water supply (jug filler) had lead concentrations below the recommended 'action level' as established by The United States Environmental Protection Agency (USEPA) of 15 parts per billion (ppb). At this time no additional preventive steps need to be taken for the sampled outlet.

If you have any questions, or if we could be of any further assistance, please feel free to contact our office. EnviroVision looks forward to providing your School District with the service and attention to detail you have come to expect from us.

Sincerely,
EnviroVision Consultants, Inc.

Frederick Larson

Frederick Larson, President

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone: (856) 303-2500 Fax: (856) 858-4571 Email: EnvChemistry2@emsl.com

Attn: **Fred Larson**
EnviroVision Consultants, Inc
20-21 Wagaraw Rd
Bldg 35E
Fair Lawn, NJ 07410
Phone: (973) 636-9145
Fax: (973) 636-9144

9/3/2019

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 8/20/2019. The results are tabulated on the attached data pages for the following client designated project:

19-333 Indian Hills High School

The reference number for these samples is EMSL Order #011910449. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 303-2500.

Approved By:

Phillip Worby, Environmental Chemistry
Laboratory Director

The test results contained within this report meet the requirements of NELAP and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 03036, NY 10872, PA 68-00367, CA ELAP 1877

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (856) 303-2500 / (856) 858-4571
http://www.EMSL.com EnvChemistry2@emsl.com

EMSL Order: 011910449
CustomerID: RAMA51
CustomerPO:
ProjectID:

Attn: **Fred Larson**
EnviroVision Consultants, Inc
20-21 Wagaraw Rd
Bldg 35E
Fair Lawn, NJ 07410

Phone: (973) 636-9145
Fax: (973) 636-9144
Received: 08/20/19 9:00 AM

Project: **19-333 Indian Hills High School**

Analytical Results

Client Sample Description FB
Field Blank
Collected: 8/16/2019 9:08:00 AM
Lab ID: *011910449-0001*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date & Analyst*	*Analysis Date & Analyst*
METALS						
200.8	Lead	ND	1.00	µg/L	8/30/2019 JS	08/30/19 11:51 JS

Client Sample Description I-Football Field-O-DW-62 Athletic Field Jug Filler
Collected: 8/16/2019 9:10:00 AM
Lab ID: *011910449-0002*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date & Analyst*	*Analysis Date & Analyst*
METALS						
200.8	Lead	7.32	1.00	µg/L	8/28/2019 JD	08/29/19 14:51 JW

Definitions:
MDL - method detection limit
J - Result was below the reporting limit, but at or above the MDL
ND - indicates that the analyte was not detected at the reporting limit
RL - Reporting Limit (Analytical)
D - Dilution

OrderID: 011910449

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Lead (Pb) Chain of Custody

EMSL Order ID *(Lab Use Only)*: 011910449

PHONE ( )
FAX ( )

Company: EnviroVision Consultants, Inc.	**EMSL-Bill to:** ■ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 20-21 Wagaraw Rd., Bldg #35E	
City: Fair Lawn **State/Province:** NJ	**Zip/Postal Code:** **Country:**
Report To (Name): Fred Larson	**Telephone #:**
Email Address: envirovision@optonline.net	**Fax #:** **Purchase Order:**
Project Name/Number: 19-333 Indian Hills High School	**Please Provide Results:** ☐ Fax ■ Email
U.S. State Samples Taken: NJ	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☐ 1 Week ■ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide*

Matrix	Method	Instrument	Reporting Limit	Check
Chips ☐ % by wt. ☐ mg/cm² ☐ ppm (mg/kg)	SW846-7000B	Flame Atomic Absorption	0.01%	☐
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	☐
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	☐
	NIOSH 7300M/NIOSH 7303	ICP-OES	0.5 µg/filter	☐
Wipe* ASTM ☐ non ASTM ☐ *If no box checked, non-ASTM Wipe assumed	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	☐
	SW846-6010B or C	ICP-OES	1.0 µg/wipe	☐
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-1311/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	☐
SPLP	SW846-1312/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-1312/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	☐
TTLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	22 CCR App. II, SW846-6010B or C	ICP-OES	2 mg/kg (ppm)	☐
STLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	22 CCR App. II, SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	☐
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	SW846-6010B or C	ICP-OES	2 mg/kg (ppm)	☐
Wastewater Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.7	ICP-OES	0.020 mg/L (ppm)	☐
Drinking Water Unpreserved ☐ Preserved with HNO_3 pH < 2 ☒	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	☒
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.5	ICP-OES	0.003 mg/L (ppm)	☐
TSP/SPM Filter	40 CFR Part 50	ICP-OES	12 µg/filter	☐
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	☐
Other:				☐

Name of Sampler: Polina Pikes **Signature of Sampler:** Pikes

Sample #	Location	Volume/Area	Date/Time Sampled
(1) FB	field blank	250 ml	08/16/19 09:08 a.m
(2) T-football field-0-DW-62	Athletic field jug filler	250 ml	08/16/19 09:10 a.m

Client Sample #s - **Total # of Samples:** 3

Relinquished (Client):	Pikes	**Date:**	08/16/19	**Time:**	12:30 p.m.
Received (Lab):		**Date:**	08/19/19	**Time:**	12:42 12:42 pm

Comments: Analyze flush sample only if first draw ≥ 15 ppb

8/19/19 8/20

Page 1 of 2 pages

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

LEAD (Pb) CHAIN OF CUSTODY

EMSL ORDER ID *(Lab Use Only):*

011910449

PHONE: ( )
FAX: ( )

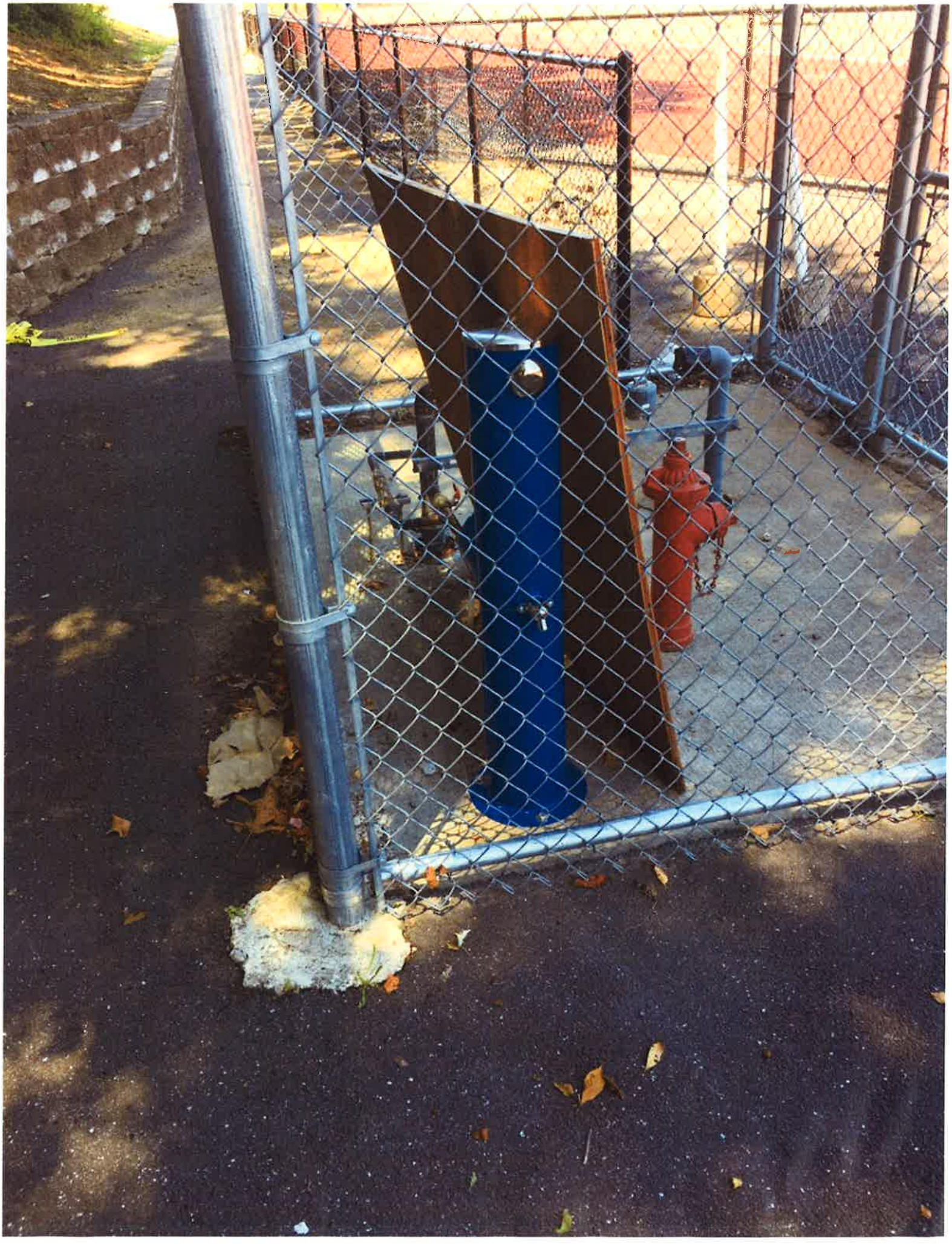
Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

(3)

Sample #	Location	Volume/Area	Date/Time Sampled
1-Football Field-0-DW-62	Flush	250 ml	08/16/19 09:12 am

Comments/Special Instructions:

Page 2 of 2 pages



Drinking Water Facts: Lead

NJ Health
New Jersey Department of Health

Key Points

- **Lead in drinking water comes from lead soldering, lead pipes, and leaded brass faucets.**
- **Too much lead in the human body can damage the nervous system, brain, and kidneys. Young children and fetuses are at greatest risk of toxic effects of lead.**
- **To lower exposure to lead in drinking water: Flush your cold water faucet about 30 seconds if water has been sitting for several hours. Never drink, cook, or prepare beverages from the hot water faucet.**

What is lead?

Lead is a soft gray metal. Until it was banned by federal law in 1986 and by New Jersey law in 1987, lead was used in the solder that connects copper pipes, in pipes used in household plumbing, and in service lines that connect houses to the public water mains in the street. Some of these lead pipes may still be found in parts of New Jersey where housing is more than 50 years old. Lead in drinking water has no taste, scent, or color.

The primary source of exposure to children is lead-based paints used inside or on houses built before 1978. Lead is still used in fishing sinkers, and in car wheel weights and batteries, as well as in some imported glazed ceramic ware, crystal, and food cans. Some imported cosmetics, cultural remedies, and candies have been found to be contaminated with lead.

It is estimated that 20% or more of human exposure to lead may come from lead in drinking water, while formula-fed infants can receive 40-60% of their lead exposure from drinking water containing lead.

What factors affect how much lead can get into drinking water?

- **Type of plumbing materials:** Lead solder used for connecting pipes contains about 50% lead. Sloppy soldering can increase the amount of lead dissolved into the water. Houses built after the 1987 ban on the use of lead soldering are less likely to have lead in drinking water.
  Brass fixtures and faucets can contain up to 8% lead and are also a significant source of lead in drinking water.
- **Length of time water stands in pipes:** The longer the time water stands in the plumbing the more likely it is that lead will build up in drinking water.

Continued...What factors affect how much lead can get into drinking water?

- **Corrosiveness of water:** Corrosive water – caused by high acidity, low mineral content, or high chloride – can increase the amount of lead that can get into drinking water. Acidic water tends to dissolve lead from pipes or solder into the water, and high chloride can make lead water soluble. Typically, minerals tend to form a protective barrier around lead solder and decrease the amount of lead that could be dissolved. Water that has a low mineral content can dissolve lead from solder into the water. One indication of corrosion in copper pipes is a blue-green stain around a drain of a white enamel sink. The absence of such a stain does not mean that corrosion is not occurring.
- **Grounding of electrical wires to water pipes:** The grounding of electrical wiring and telephone lines to water pipes can increase the rate of corrosion.
- **If you have a private well:** Lead can get into your drinking water from well parts made of lead or from a nearby industrial waste facility or municipal landfill.

How do I know if I have lead in my drinking water?

In order to prevent or reduce the chances of health effects due to lead in drinking water "Action Levels" have been established by the EPA and the NJDEP as enforceable trigger points at which corrective action should be undertaken by the public water company. **The Action Level for lead = 15ppb (µg/L).**

If you are a private well owner, you should test your drinking water for lead using a New Jersey-certified laboratory. A list of PWTA New Jersey certified labs in your area can be obtained from http://datamine2.state.nj.us/DEP_OPRA/OpraMain/categories?category=Certified+Laboratories

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Is lead harmful to my health?

Lead can cause a variety of harmful health effects. The type and severity of these health effects depend upon how much lead has built up in the body over time. When water or food found to contain lead is swallowed, some of it is absorbed through the digestive tract. Once absorbed, lead is distributed to all parts of the body through the blood and builds up mostly in the bone. A certain amount of lead remains in the blood.

Children and fetuses are the most sensitive to the harmful effects of lead since they absorb more lead into their bodies than adults and are more susceptible to its effects on brain development. Even low levels of lead in blood may affect the ability to pay attention, academic achievement, and behavioral problems. Most children with elevated blood lead levels do not exhibit any symptoms, however effects may appear later in age. Other health effects may include kidney damage, anemia, and reductions in birth weight. Symptoms of severely elevated blood lead levels (lead poisoning) may include stomach aches, vomiting, poor appetite, or nausea.

It is the buildup of lead from all sources over time that determines whether harmful health effects will occur. Typically, drinking water alone has not been associated with elevated blood lead levels. Combined with other sources, however, the amount of lead from drinking water may be enough to increase the chances of harmful health effects in sensitive individuals, such as infants and children.

Is there a medical test to measure the level of lead in the body?

Children can be given a blood test to measure the level of lead in their blood. The Centers for Disease Control and Prevention (CDC) consider the level of blood lead of concern as levels in the top 2.5% of children ages 1-5 years in the U.S. Currently, a blood lead level equal to or greater than 5 micrograms per deciliter (µg/dL) is reportable. However, there is no safe level of lead.

NJ law requires that children be screened at both 1 and 2 years of age. Children 3 to 5 years of age should also be screened if they have not been screened before. Consult your health care provider or local health department if you have a reason to believe a member of your family has been exposed to lead.

How can I reduce my exposure to lead in drinking water?

1. If water from the cold water faucet has been sitting for several hours, you should let it run for 15 to 30 seconds until you feel the temperature of the water become and stay colder. You should flush your water before using it for drinking, cooking, or preparing beverages.

2. Lead is likely to be highest in hot water faucets so never drink, cook, or prepare beverages from the hot water faucet.

3. Boiling does not remove lead from drinking water, and excessive boiling of water for food preparation, drinking, or preparing beverages increase the lead concentration in the water by evaporation.

What should I do if my lead levels are elevated?

Washing clothes and dishes and showering and bathing are considered safe uses of water containing lead.

If contaminants are found in your well water above the action level, you should retest your well water to make sure that the first sample was collected and analyzed properly. If lead is found in the second sample take steps to reduce the levels in your well water. Contact your lab, local health department, or NJDOH, for help in understanding your test results and for advice on steps you can take to reduce contaminants in your well water.

What can I do to remove lead from my private well water?

Point-of use (POU) devices can remove lead at your tap, and ***point-of-entry (POE) devices*** can reduce corrosivity at the point where the water enters your home. NSF International is a non-profit organization which tests and certifies (POU/POE) drinking water treatment standards. More information about certified drinking water treatment devices can be found at:
[http://info.nsf.org/Certified/DWTU/]

Water softeners and reverse osmosis units will remove lead from water, but can also make the water more corrosive to lead solder and plumbing by removing certain minerals. The installation of softeners or reverse osmosis units at the point of entry on older homes that may have lead plumbing should only be done under supervision of a qualified water treatment professional.

Drinking Water Facts:

Lead in Drinking Water at Schools and Child Care Centers

General Information

There is no safe level of lead in the body. Sources of lead exposure include ingestion of lead-based paint chips and dust, inhalation of lead dust in the air, and ingestion of lead in drinking water. Imported candies, cosmetics, toys, and other products may also contain lead.

Lead in Drinking Water

Potential sources of lead in drinking water are lead-based solder, brass and chrome-plated faucets, and lead pipe and pipe fittings. Lead in drinking water usually comes from water distribution lines or household plumbing and fixtures rather than the water source.

The US Environmental Protection Agency (EPA) estimates that drinking water can make up 20 percent or more of a person's total exposure to lead. Formula-fed infants can receive up to 60 percent of their exposure to lead from drinking water.

Did You Know?

Typically, drinking water alone has not been associated with elevated blood lead levels. Combined with other sources, however, the amount of lead from drinking water may be enough to increase the chances of harmful health effects.

Health Effects of Lead

Even low levels of lead in blood may affect a child's ability to pay attention, academic achievement, behavior, and development. Most children with elevated blood lead levels do not exhibit any symptoms, however effects may appear later in age. Other health effects may include kidney damage, anemia, and reductions in birth weight. Symptoms of severely elevated blood lead levels (lead poisoning) may include stomach aches, vomiting, poor appetite, or nausea.

Young Children at Greatest Risk

Children younger than 6 years are at greatest risk from exposures to lead. The impact of exposure to lead in drinking water depends on the child's age, source of water consumption, the potential concentration of lead in drinking water, and other sources of lead exposure.

- Children younger than 6 years, particularly toddlers, are most likely to engage in frequent hand-to-mouth activities which increases the potential for them to ingest lead-based paint chips and dust.
- Infants who drink formula mixed with water containing lead are ingesting much more lead than older children who receive most of their nourishment through food.
- Young children absorb more lead through their stomach than older children or adults.
- Young children have developing brains and nervous systems which make them the most vulnerable to lead's health effects.

Should my child be tested if lead is found in the water at their school?

If you have concerns about your child's exposure to lead, consult with your child's doctor about blood testing. While lead in drinking water is a source of concern, lead-based paint chips and dust remain the most significant exposure to lead.

Did You Know?

New Jersey requires lead screening of all children at ages 1 and 2 years. Other states only screen children identified to be at increased risk for lead exposure, otherwise known as targeted screening. New Jersey's approach is far more protective.

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Consumer, Environmental and Occupational Health Service
Environmental and Occupational Health Surveillance Program
http://www.nj.gov/health/ceohs/sanitation-safety/drinking-water-public-health/index.shtml

NJ Health
New Jersey Department of Health

Testing for Lead in Drinking Water

- The NJ Department of Education requires sampling in school facilities. Visit the NJ Department of Environmental Protection website for guidance and resources. See Resources section below.
- Public water systems (PWSs) are required by federal standards to test for lead throughout the distribution system to identify system-wide problems, not to specifically sample individual buildings or taps.
- EPA developed a recommendation called the 3Ts (Training, Testing, and Telling) to encourage schools and child care centers to test for lead in drinking water.

Did You Know?

Effective July 13, 2016, schools in New Jersey are required to test for lead in drinking water (N.J.A.C. 6A:26-1.2 and 12.4). In addition, effective January 12, 2017, all licensed child care centers in New Jersey are required to test for lead in drinking water (N.J.A.C. 3A:52-5.3(i)5). See Resources section below.

Lead Testing of Drinking Water in Schools and Child Care Centers

If drinking water lead sample results are above the EPA guidance of 15 ppb, then the school should take fountains or outlets where levels were elevated out of service. Lead may be detected in drinking water at some locations within a building and not others.

In addition, schools should take short- and long-term solutions that are effective and manageable for their facility. Some solutions to the problem may include providing bottled water, installing filters, or replacing lead pipes.

Schools and child care centers can take actions to reduce exposures to lead in school drinking water, but parents should take steps to reduce exposures at home as well.

Did You Know?

All licensed child care centers in New Jersey built prior to 1978 must have a lead risk assessment completed. If lead-based paint is identified, they must be re-inspected and certified as lead hazard-free every three years by a licensed lead risk assessor.

Tips to Reduce Potential Drinking Water Lead Exposure at Home

- If water in a particular faucet is not used for six hours or longer, "flush" the pipes by running cold water through it until the water is noticeably colder—about one minute. The more time water sits in your home's pipes, the more lead and other dissolved metals the water may contain.
- Use only cold water for drinking, cooking, and making baby formula. Hot water may contain higher levels of lead.
- Clean the screens and aerators in faucets frequently to remove captured lead particles.
- If building or remodeling, only use "lead free" piping and materials for plumbing.
- A home water filter which is NSF-certified for lead removal (NSF/ANSI Standard 53 or 58) can reduce lead levels in your water below the federal standard for lead. It is important to maintain home water filters according to the manufacturer's instructions.
- Lead is odorless, tasteless, and colorless so the only way to determine if lead is in your drinking water is to have the water tested.
- If you test your drinking water and find the levels of lead are above the federal standard of 15 ppb you should stop using this water for drinking and cooking. Use a NSF-certified filter for lead removal or drink and prepare food with bottled water.

Resources

- **NJ Department of Education** - Regulations regarding testing for lead in drinking water, visit: http://www.nj.gov/education/lead/
- **NJ Department of Environmental Protection**: Lead Sampling Information:
  - Schools http://www.nj.gov/dep/watersupply/schools.htm
  - Child care centers http://www.nj.gov/dep/watersupply/pw_child.html
  - List of certified labs to test your water for lead: https://www13.state.nj.us/DataMiner
- **Other Resources**:
  - For information on how to reduce exposures to lead-based paint in your home and for resources regarding blood lead testing, visit: http://www.nj.gov/health/childhoodlead/prevention.shtml
  - For information on NSF home water filters, visit: http://www.nsf.org/consumer-resources/water-quality/drinking-water/

Abbreviations: ppb=parts per billion; NSF=National Sanitation Foundation; ANSI=American National Standards Institute

LEAD (Pb) GENERAL INFORMATION

§ 5:17-3.5. Lead hazards

(a) The following lead dust levels resulting from a lead screening shall indicate that a full evaluation shall be recommended in the report produced by the inspector/risk assessor:
1. Floor wipes in excess of 25 [mu] g/square foot; or
2. Window sill wipes in excess of 125 [mu] g/square foot.

(b) The following lead dust levels shall indicate lead hazards:
1. Floors--equal to or greater than 40 [mu] g/square foot;
2. Interior window sills--equal to or greater than 250 [mu] g/square foot;
3. Window wells--equal to or greater than 400 [mu] g/square foot.

(e) The following lead dust levels are acceptable for clearance:
1. Floors--100 [mu] g/square foot;
2. Interior window sills--500 [mu] g/square foot; and
3. Window wells, exterior concrete, rough surfaces--800 [mu] g/square foot.

(f) The following lead dust levels are acceptable for clearance at residential buildings and child occupied facilities:
1. Floors--less than 40 [mu] g/square foot;
2. Interior window sills--less than 250 [mu] g/square foot;
3. Window wells--less than 400 [mu] g/square foot.

LEAD DUST (Surface wipe sampling, analysis by AAS)
Maximum allowable lead dust levels post abatement (clearance standards) – New Jersey and HUD

Floors	<40 ug/ft2
Window Sills	<250 ug/ft2
Window Wells	<400 ug/ft2
Exterior Building Components (porches, side walks)	800 mcg/ft2

Abatement or Hazard Reduction Action Levels for Lead in Paint

Lead-Based Paint – paint or other surface coating, contains lead equal to or in excess of 1.0 milligrams per centimeter squared (1.0mg/cm2) or in excess of 0.5% by weight

XRF – 1.0 mg/cm2 (HUD Standard) Some states may be more stringent

PAINT CHIP SAMPLES – ATOMIC ABSORBPTION SPECTROSCOPY (AAS) (Wet Chemistry) 0.5% or 5000 ppm

Note that these are not health based standards. If paint is being sanded, scraped, or otherwise converted to dust or fume, no level should be considered perfectly safe.
Paint 0.5% by weight

CPSC standard for maximum levels of lead in the new residential paint

Pb<0.06% by weight

LEAD IN SOIL Standards do not exist. EPA has recently published a "health based guideline" for *action levels. These action levels are as follows:

Bare residential soil where there is child contact:	400 ppm	Action: Take measures to eliminate contact
Bare residential soil where there is minimal or no child contact	2,000 ppm	Action: Interim control measures to cover soil or eliminate contact
Non-bare residential soil:	5,000 ppm	Action: abate the soil by removing or covering permanently

*New Jersey has adopted EPA recommendations

LEAD IN WATER

15 ppb (mcg/liter) EPA action level for residential drinking water.
15 ppb cleanup level for Superfund sites.

BLOOD LEAD

Workers	50 mcg/dl is the OSHA/HUD standard for medical remocal; 25 mcg/deciliter is recommended as a more reasonable protective standard
Children	10 mcg/dl is the current level established by the CDC as a level of concern, above which permanent neurological effects may occur
Pregnant Women	No standard at present. 10 mcg/dl recommended as the level of concern, above which possibly permanent neurological and developmental deficits may occur in the fetus.

AIRBORNE LEAD

50 mcg/m^3 is the current OSHA permissible exposure level. Since unacceptable high blood leads can occur at lower levels, OSHA recommends that appropriate respirators and protective clothing be worn throughout abatement, regardless of airborne lead levels. The OSHA standard (and MOSH lead in construction standard) requiring respiratory protection at 50 mcg/m^3 is far too high for abatement workers and fails to take into account ingestion of surface lead.

30 mcg/m^3 is current OSHA action level. Exposure to this high level of lead for even one day per year requires medical monitoring of workers, training of workers, and ongoing exposure monitoring. Wash-up facilities are also required.

EPA's National Ambient Air Quality Standard Quarterly average is 1.5 mcg/m^3

Certain activities are considered by OSHA to be so inherently hazardous that full protection of workers, including respirators, protective clothing, wash up facilities and a prohibition of eating, drinking and smoking in the work place is required until exposure monitoring indicates it is not necessary. These activities include the following:

Welding, cutting or burning where lead-based paint is present
Manual Demolition of lead paint components
Machine sanding of lead-based paint
Abrasive blasting of lead-based paint

HAZARDOUS WASTE

5 ppm Pb for TLCP Test under RCRA

PESTICIDES

1 mc/g of lead residue on fruits and vegetables as lead arsenate

ABBREVIATIONS

mcg or up = micrograms	XRF = X-ray fluorescence
mg = milligrams	AAS = Atomic absorption spectroscopy
dl = deciliter	ppm = parts per million
m^3 = cubic meter	ppb = part per billion