

2017 ANNUAL DRINKING WATER QUALITY REPORT

This report is a snapshot of the drinking water quality that was provided last year.

Included are details about where your water came from, what it contained, and how it compared to state and federal standards. Our system makes every effort to provide you with safe and pure drinking water.

for

Madden Estates
PWS ID #2323002



Prepared by

McCLURE
ENGINEERING, INC

The water system at Madden Estates is owned by Arthur and Fern Maskell. If you have any questions about this report, or for additional copies, please contact the Maskell's or the McClure Engineering website at <http://www.mcclureengineers.com/water.html> or office at #508.248.2005.

This report contains very important information about your drinking water.
Please translate it, or speak with someone who understands it.

Community Drinking Water Source

Madden Estates is located in West Brookfield, MA and is supplied water by PWS Source ID#2323002-04G (04G) (Well #4). Data in this report reflects water quality from Well 04G.

Madden Estates continuously strives to produce the highest quality water possible to meet or surpass every water quality standard. We monitor our water source and distribution system very closely. The standards we operate under were enacted by the U.S. Congress as the Safe Drinking Water Act in 1974 and were amended in 1986 and 1996.

Is My Water Treated?

To ensure that we provide the highest quality of water available, certified operators and MassDEP regularly monitor water quality. When standards are exceeded, MassDEP requires treatment. Currently Well 04G is treated with an acid neutralizer to control (raise) the pH level and a water softener for the removal of iron and manganese. Water is regenerated with a sodium chloride brine rinse. Chlorine disinfection is available for emergency situations.

Substances Found in Tap Water ~

Sources of drinking water (both tap water and bottled water) include 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, and wildlife.
- **Inorganic contaminants**, such as salts and metals, which can be naturally occurring or result from urban storm water runoff or domestic wastewater discharges, oil and gas production, mining, and farming.
- **Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- **Radioactive contaminants**, can be naturally occurring or be the result of oil and gas production and mining activities.

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 US Environmental Protection Agency (EPA) Safe Drinking Water Hotline (1-800-426-4791.)

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 can be particularly at risk from infections. These people should seek advice from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

In order to ensure that tap water is safe to drink, the Department of Environmental Protection (MassDEP) and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

~ CROSS CONNECTION CONTROL AND PREVENTION ~

Cross connections are the links through which it is possible for contaminating materials to enter a potable water supply. The contaminant enters the potable water system when the pressure of the polluted source exceeds the pressure of the potable source. The action may be called backsiphonage or backflow. Essentially it is reversal of the hydraulic gradient that can be produced by a variety of circumstances. A cross connection is an actual or potential connection between a drinking water pipe and a polluted source. The pollution can come from your own home. Using a backflow prevention device on your hose connection when washing your car, for example, can prevent backsiphonage of car wash chemicals into a water supply.

Madden Estates recommends the installation of low-cost hose bibb vacuum breakers for all inside and outside threaded spigots and hoses. You can purchase them at a hardware store or plumbing supply store. This is a great way to help protect the water system that serves your home and community!

~ IMPORTANT DEFINITIONS ~

Maximum Contaminant Level (MCL) – 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.

Maximum Contaminant Level Goal (MCLG) – 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.

Secondary Maximum Contaminant Level (SMCL) – These standards are developed to protect aesthetic qualities of drinking water and are not health-based.

Office of Research and Standards Guideline (ORSG) – This is the concentration of a chemical in drinking water, at or below which, adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Action Level (AL) – The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

90th Percentile – Out of every 10 homes sampled, 9 were at or below this level. This number is compared to the action level to determine lead and copper compliance.

ppm = parts per million, or milligrams per liter (mg/l)

ppb = parts per billion, or micrograms per liter (ug/l)

pCi/l = picocuries per liter (measure of radioactivity)

ND = Not Detected

N/A = Not Applicable

DISTRIBUTION SYSTEM WATER QUALITY

The quality information presented in the tables below is from the most recent round of testing done in accordance with the regulations. All data shown was collected during the last calendar year unless otherwise noted in the tables.

Lead & Copper	Last Date Collected	* 90 th Percentile	Action Level (AL)	MCLG	# of sites sampled	# of sites above Action Level	Exceeds Action Level	Possible Sources of Contamination
Lead (ppb)	12/26/2017	3.9	15	0	5	0	N	Corrosion of household plumbing; erosion of natural deposits
Copper (ppm)	12/26/2017	0.0565	1.3	1.3	5	0	N	Corrosion of household plumbing; erosion of natural deposits; leaching from wood preservatives.
<p>*4 out of every 5 sites sampled were at or below this level. Lead and copper compliance is determined by comparing the 90th percentile value to the Action Level (AL) for each contaminant. The AL is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.</p> <p>Lead and copper sampling is scheduled twice annually. The last samples collected were in December 2017, and the next sample collection will be during Quarters 2 and 4 of 2018.</p>								

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. Madden Estates 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 2 minutes before using water for drinking or cooking. If you are concerned about lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

- **In 2017 and 2018 Notices of Non-Compliance (NONs) were issued in regards to the Lead and Copper Rule and Public Notification Rule. Please see attached Public Notices.**

DISTRIBUTION SYSTEM WATER QUALITY (continued)

Regulated Contaminants	Date Collected	Highest Result or Highest Avg	Range detected	MCL	MCLG	Violation (Y/N)	Possible Sources
Inorganic Contaminants							
Barium (ppm)	5/3/2016	0.0004	N/A	2	2	N	Discharge from drilling wastes; discharge from metal refineries; erosion of natural deposits.
Nitrate (ppm) (annual)	4/12/2017	0.717	N/A	10	10	N	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits
Antimony (ppb)	5/3/2016	0.51	N/A	6	N/A	N	Rocket propellants, fireworks, munitions, flares, blasting agents
Radioactive Contaminants							
Gross Alpha (pCi/L)	2015	0.153	-0.28 – 0.153	15	N/A	N	Erosion of natural deposits
Radium 226 (pCi/L)	2015	0.148	0 – 1.48	5	N/A	N	Erosion of natural deposits
Radium 228 (pCi/L)	2015	0.713	0.344 – 0.713	5	N/A	N	Erosion of natural deposits
- Inorganic Contaminants (IOCs) sampled in May 2016. Next sampling due 2019. - Gross Alpha Particle Activity were sampled quarterly in 2015. Next sampling due in 2024. - Radium 226 & Radium 228 were sampled quarterly in 2015. Next sampling due in 2021. - Volatile Organic Contaminants (VOCs) were sampled in April 2017. <u>VOCs were non-detected</u> . Next sampling due in 2018. - Synthetic Organic Contaminants (SOCs) were sampled in July 2016. <u>SOCs were non-detected</u> . Next sampling due in 2019.							

*Unregulated Contaminants	Last Date Collected	Result or Range Detected	SMCL (ppb)	ORSG	Possible Sources
Iron (ppb) (quarterly)	2017	ND	300	--	Naturally occurring, corrosion of cast iron pipes
Manganese** (ppb) (quarterly)	2017	75.8 – 194	50	Health advisory of 300 ppb	Erosion of natural deposits
pH	12/4/2017-12/26/2017	5.92-8.05	6.5-8.5	N/A	Runoff and leaching from natural deposits
Sodium*** (ppm)	5/3/2016	27.1	None	20	Discharge from the use & improper storage of sodium-containing de-icing compounds or in water-softening agents.
Conductivity	7-10-2017	291	N/A	N/A	

- *Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist US EPA in determining their occurrence in drinking water and whether future regulation is warranted.

- **US EPA and MassDEP have established public Health Advisory (HA) levels for manganese to protect against concerns of potential neurological effects and a one-day and 10-day HA of 1000 ppb for acute exposure.

- ***Sodium: Some people who drink water containing sodium at high concentrations for many years could experience an increase in blood pressure.

SWAP (Source Water Assessment and Protection) ~

In 2010, Well 04G was constructed and approved by MassDEP. A SWAP Report was not prepared by MassDEP for this drinking water source. Currently, Well 04G has a 243 feet Zone I radius and an Interim Wellhead Protection Area (IWPA) of 600 feet. The Zone I is restricted to just water supply activities and Well 04G meets this MassDEP requirement.

Opportunities to Participate ~

Any matters that concern your drinking water supply or issues you would like to see addressed can be presented at the regularly scheduled meeting of the trustees, association or board. If your concerns need immediate attention contact System Owner, Fern Maskell at 508-867-7972.

Water System Improvements ~

Our water system is routinely inspected by MassDEP for its technical, financial and managerial capacity to provide safe drinking water to you. MassDEP issued an Administrative Consent Order, ACOP-CE-09-5D003-Amend 1 (ACOP) that required the system to permit and construct a new public water supply source to serve the community and to abandon and decommission existing water sources. The PWS has done this and has been operating with new Well 04G since November 22, 2013, and a new treatment system that reduces iron and manganese in the water and increases pH to control corrosion properties in the water. The PWS continues to monitor the water and make adjustments when necessary. In 2017, the PWS installed a new sanitary vented well cap and changed the well pump out. Maintenance on the treatment system was also performed in April, July, and December.

WATER SYSTEM NOTIFICATIONS

2017

- A Notice of Non-Compliance (NON) was issued June 2017 (#: NON-CE-17-5D036-CSA) for failing to provide notices of the results from lead and copper tap monitoring to persons served at the specific sampling sites from which the sample was taken within 30 days after learning the results for the monitoring period January 1, 2016 - June 30, 2016. **This NON has been complied with.** Madden Estates followed MassDEP's Pre-determined Compliance Plan, issued the required notices to the homeowners, and reported this NON in the 2016 Consumer Confidence Report (CCR).
- A NON was issued December 2017 (#: NON-CE-17-00003798-CSA) for violating monitoring and reporting requirements, associated with collecting Water Quality Parameters (WQP) related to the treatment system. **To address this**, Madden Estates contracted with a certified laboratory and has been collecting the required bi-weekly pH and alkalinity samples.
- **Madden Estates has included the Public Notification attached to this CCR.**

2018

- A NON was issued June 2018 (#: NON-CE-18-00004013-CSA) for violations occurring in 2010, 2013, 2014, 2015, and 2016. These violations are associated with the Lead and Copper Rule and the Public Notification Rule.
- **Madden Estates has included the Public Notification attached to this CCR. This Public Notification details the violations and the corrective actions the PWS is taking to stay in compliance.**

For more information please contact:

Madden Estates
PWS ID# 2303002
46 Madden Road, Unit 19
West Brookfield, MA 01585
#508.867.7972

This report was prepared by McClure Engineering, Inc.

Also available at <http://www.mcclureengineers.com/>

This notice for PWS ID# 2323002 was distributed by the Maskell's by July 1, 2018

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Notice of Lead and Copper Rule (LCR) Violation ~ NON-CE-18-00004013

Madden Estates is required to provide corrosion control treatment to the drinking water it supplies to its customers to reduce lead levels at consumers' taps. In December 2013, Madden Estates installed an acid neutralizer to control (increase) the pH and buffering capacity of the water to make it less corrosive. An acid neutralizer is a tank to which calcite (calcium carbonate) media is added. As the water comes into contact with this media, it raises the pH of our well water to a neutral pH, making the water less corrosive and thereby reducing the leaching of lead from plumbing materials into the drinking water.

We are required to inform you that our water system failed to maintain proper operation of the **corrosion control treatment system** on three separate occasions since 2014. Our failure to maintain and properly operate this treatment system is a treatment technique violation requiring us to notify our customers within a specified timeline. In two of the three events (November 2014 and May 2015), we also failed to notify both you, our customers, of the situation by issuing the required public notice within the required 30 day timeline, and MassDEP within 48 hours of learning of the treatment technique violation.

In accordance with the Lead and Copper Rule, we are required to collect samples of water from consumers' taps to be analyzed for lead and copper every six months. In each of the three events, it was the results from this routine sampling (in November 2014, May 2015 and November 2016), that showed elevated lead levels at some taps, demonstrating that the corrosion control treatment system was not functioning optimally. Upon further investigation, we discovered that the treatment media (calcite) had become depleted in each of these three events. Upon each of these discoveries we replenished the treatment media and confirmed that the system was working as expected with follow-up lead and copper monitoring results that met the lead action level. **We acknowledge that it is unacceptable to operate the corrosion control treatment system in this manner and are committed to maintain our compliance with the Lead and Copper Rule by updating our standard operating procedures and ensuring that the treatment system is being closely monitored and operated by a certified water operator.**

We are also required to provide a **Public Education Program** on the health effects of lead in drinking water to our customers when results from samples collected from approved taps cause an exceedance of the lead action level. Following sampling events in August 2010, September 2013, November 2014, and May 2015, delivery of the program was not done or was delivered late, and not within the required 60 day timeline. Failure to deliver the public education program is also a treatment technique violation requiring us to notify our customers within 30 days and MassDEP within 48 hours. In each of these events, we failed to provide this notification. The public education program was delivered properly in December 2016.

Madden Estates is required to collect first draw samples from five customers' taps every six months and to provide the lead and copper results of each tap sample to the resident/occupant within 30 days of when we learn of the results. Notifying participants in our lead and copper sampling program is called a **Consumer Notice**. Failure to provide the consumer notice on time or with the required content is a monitoring and reporting violation. We failed to properly notify participants in our sampling program of the results for the samples that they provided in August 2010, September 2013, and November 2014. We were issued a Notice of Noncompliance (NON) previously in 2017 for late delivery of the consumer notice in 2016. This NON was included in the 2016 Annual Drinking Water Quality Report provided to all our customers and we have since returned to compliance for this violation.

Although our lead and copper sampling results have been in compliance with the action levels in subsequent monitoring periods, January-June 2017 and July-December 2017, you should know that when the treatment system was not operating optimally, it is possible that the levels of lead in your tap water may have been elevated. In order to allow the public to determine if their water system is in compliance with the lead and copper rule, MassDEP has provided a link on their webpage at: <https://www.mass.gov/service-details/public-water-systems-90th-percentile-lead-sampling-results> that will bring you to a link to a downloadable spreadsheet that will let you know if your system has exceeded the action level for lead.

What should I do?

Listed below are some steps you can take to reduce your exposure to lead and copper in drinking water:

- Find out whether your pipes contain lead or lead solder; most household plumbing contains copper.
- Run your water for 30 seconds or until it becomes cold before using it for drinking or cooking. This flushes any standing lead or copper from the pipes.
- Don't cook with or drink water from the hot water tap; lead and copper dissolves more easily into hot water.
- **Do not boil your water to remove lead or copper.** Excessive boiling of water makes the lead and copper more concentrated - the lead and copper remains when the water evaporates.
- Call us at the number below to find out how to get your water tested for lead and copper.
- If you chose to use a treatment device to control lead levels, select a treatment devices that is ANSI/NSF certified for the removal of both particulate and dissolved lead to levels below the lead action level.

If you have health concerns, please contact your health care provider with any questions.

What does this mean?

This is not an emergency. If it was an emergency, we would have notified you within 24 hours.

Typically, lead enters the water supply by leaching from home or building service piping, lead solder used in plumbing, and lead and brass pipes and plumbing components. New lead pipes and plumbing components containing lead are no longer allowed for this reason; however, many older homes may contain these types of plumbing materials. Your water is more likely to contain high lead levels if water pipes in or leading to your home or building are made of lead or contain lead solder. Copper pipes are still commonly used in household and building plumbing. Homes that have copper pipes may notice some color changes (green staining) in the sinks, tubs, etc.

“Lead can cause serious health problems, especially for pregnant women and young children. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.”

What is being done?

Madden Estates is currently monitoring water quality by taking the required pH and alkalinity samples (Water Quality Parameters) bi-weekly and scheduling routine maintenance on the treatment system to ensure compliance. Madden Estates is also complying with the Lead and Copper Rule (LCR) and Public Notification Rule by performing the required sampling of lead and copper semi-annually and notifying consumers in the required time frame. Madden Estates is also working closely with a Certified Operator, Contractors, and MassDEP to continue to stay in compliance and optimize the treatment system to ensure quality drinking water.

In addition, Madden Estates will be collecting lead and copper tap samples in the distribution system at its routine monitoring sites to ensure the treatment system is functioning properly. Madden Estates will provide an updated notice to the customers whose taps were sampled by hand delivery within 30 days of learning the results of the sampling. In 2017, all samples from the required semi-annual lead and copper sampling events were below the Action Levels. The first set of samples for 2018 were below the Action Levels for lead and copper and the sampling event notices were distributed on time on June 3, 2018.

For more information, please contact Fern Maskell at (508)-867-7972.

Madden Estates
PWS ID# 2323002
46 Madden Road, Unit 19
West Brookfield, MA 01585
#508.867.7972

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

Date Distributed: _____

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

DRINKING WATER NOTICE

Monitoring Requirements Not Met for:

PWS NAME:

MADDEN ESTATES

We violated monitoring and reporting requirements of the drinking water regulations. Even though this was not an emergency, as our customers, you have a right to know what happened and what we are doing to correct this

We are required to monitor your drinking water for specific man-made and naturally occurring contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the monitoring period(s) listed below we did not monitor and/or did not complete all monitoring for the contaminant(s) listed below and therefore cannot be sure of the quality of our drinking water during that time.

WHAT THIS MEANS: There is nothing you need to do at this time.

The table below lists the contaminant(s) we did not properly test for and/or report to the Department of Environmental Protection (DEP) during the required monitoring period(s).

Monitoring Period		Contaminant Group	Violation Comments
7/1/2014	12/31/2014	LEAD AND COPPER RULE	2 SETS WQP @ 1 DISTRIBUTION SITE (PH & ALK)
1/1/2015	6/30/2015	LEAD AND COPPER RULE	BIWEEKLY PH & ALK @ PLANT TAP (FINISHED)
1/1/2015	6/30/2015	LEAD AND COPPER RULE	2 SETS WQP @ 1 DISTRIBUTION SITE (PH & ALK)
7/1/2015	12/31/2015	LEAD AND COPPER RULE	BIWEEKLY PH & ALKALINITY @ PLANT TAP (FINISHED)
7/1/2016	12/31/2016	LEAD AND COPPER RULE	2 SETS WQP @ 1 DISTRIBUTION SITE (PH & ALK)
1/1/2017	4/30/2017	LEAD AND COPPER RULE	BIWEEKLY PH & ALK @ PLANT TAP (FINISHED)
1/1/2017	6/30/2017	LEAD AND COPPER RULE	LEAD & COPPER @ PLANT TAP (FINISHED)

CONTACT INFORMATION:

Please share this information with all people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

For more information or questions regarding this notice, please contact:

Responsible Party Name:

M. John Maskell

at Phone #:

508-864-7972

CERTIFICATION:

DEP Reference Number:

NON-CE-17-00003798-CSA

PWSID: 2323002

The Public Water system indicated above hereby affirms that public notice has been provided to consumers in accordance with 310 CMR 22.16 including: delivery, content, format requirements, notification deadlines and that the Public Water system will meet future requirements for notifying new billing units and new customers of the violation. I certify under penalty of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best of my knowledge and belief.

Notice Distributed by: hand delivered on 6/28/2018

[Delivery Method]

[Date]

Notice Distributed by: CCR on 6/28/2018

[Delivery Method]

[Date]

M. John Maskell 12
Signature of Responsible Party Date

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

* WQP (Water Quality Parameters) = pH, alkalinity, silica, orthophosphate, and/or calcium

STEPS WE ARE TAKING:

In response to monitoring and reporting violations of the Massachusetts Drinking Water Regulations, our system is taking the following corrective actions:

1. We are notifying our customers of the violation(s) by providing this public notice to you as well as submitting a copy of this public notice to the MassDEP and local board of health.
2. Sample Collection (check appropriate boxes):
 - ☒ We have scheduled to collect and analyze sample(s) for the contaminants listed above and will submit copies of the sampling results to the MassDEP upon completion.
 - ☒ We have already collected and analyzed sample(s) for the contaminants listed above and have submitted copies of the sampling results to the DEP. These contaminant(s) were collected AFTER the required monitoring period(s) on: ongoing [Date].
3. We will continue to collect samples for all contaminants according to our most recent sampling schedule.
4. Other Corrective Actions Taken:

CONTACT INFORMATION:

Please share this information with all people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

For more information or questions regarding this notice, please contact:

Responsible Party Name: Fern Maskell at Phone #: 508-867-7972

CERTIFICATION:

DEP Reference Number: NON-CE-17-00003798-CSA PWSID: 2323002

The Public Water system indicated above hereby affirms that public notice has been provided to consumers in accordance with 310 CMR 22.16 including: delivery, content, format requirements, notification deadlines and that the Public Water system will meet future requirements for notifying new billing units and new customers of the violation. I certify under penalty of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best of my knowledge and belief.

Notice Distributed by: _____ on _____
[Delivery Method] [Date]

Notice Distributed by: _____ on _____
[Delivery Method] [Date]

Signature of Responsible Party

Date