

# 2016 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 ~*

**M**adden 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 a water softener for the removal of iron and manganese and an acid neutralizer to control (raise) the pH level. 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.*

# 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.

| Bacteria 2016  | Highest # Positive Samples in a Month | MCL | MCLG | Violation (Y/N) | Possible Sources of Contamination    |
|----------------|---------------------------------------|-----|------|-----------------|--------------------------------------|
| Total Coliform | 0                                     | 1   | 0    | N               | Naturally present in the environment |
| E. Coli        | 0                                     | *   | 0    | N               | Human and animal fecal waste         |

Coliform are bacteria that are naturally present in the environment and are used as an indicator of potentially harmful bacteria that may be present. \*Compliance with the Fecal Coliform/E.coli MCL is determined upon additional repeat testing.

| Lead & Copper | Last Date Collected | 90 <sup>th</sup> Percentile | Action Level (AL) | MCLG | # of sites sampled | # of sites above Action Level | Exceeds Action Level | Possible Sources of Contamination   |
|---------------|---------------------|-----------------------------|-------------------|------|--------------------|-------------------------------|----------------------|---|
| Lead (ppb)    | 11-3-2016           | 19                          | 15                | 0    | 5                  | 2                             | Y                    | Corrosion of household plumbing; erosion of natural deposits                                    |
| Copper (ppm)  | 11-3-2016           | 0.56                        | 1.3               | 1.3  | 5                  | 0                             | N                    | Corrosion of household plumbing; erosion of natural deposits; leaching from wood preservatives. |

Lead and copper sampling is scheduled twice annually. The last samples collected were in November 2016, and the next sample collection will be during Quarters 2 and 4 of 2017.

*“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.”*

*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>.*

## ➤ See attached Public Education Notice, “Important Information about Lead in Drinking Water.”

The Massachusetts Department of Environmental Protection (MassDEP) requires public water systems that exceed the lead action level to provide this notification to consumers. Please read this information closely to see what you can do to reduce lead in your drinking water.

### 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!

| Inorganic Contaminants   | Date Collected | Highest Result or Highest Avg | Range detected | MCL   | MCLG | Violation (Y/N) | Possible Sources  |
|--------------------------|----------------|-------------------------------|----------------|-------|------|-----------------|---|
| 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)            | 5-3-2016       | 0.791                         | N/A            | 10    | 10   | N               | Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits           |
| Antimony (ppm)           | 5-3-2016       | 0.00051                       | N/A            | 0.006 | 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   |

| *Unregulated Contaminants  | Last Date Collected | Result or Range Detected | SMCL (ppb) | ORSG                       | Possible Sources  |
|----------------------------|---------------------|--------------------------|------------|----------------------------|---|
| Iron (ppb)                 | 2016                | <30 -- 172               | 300        | --                         | Naturally occurring, corrosion of cast iron pipes   |
| Manganese* (ppb)           | 2016                | <4 – 14.8                | 50         | Health advisory of 300 ppb | Erosion of natural deposits   |
| pH                         | 9/2015-10/2015      | 6.76-7.14                | 6.5-8.5    | N/A                        |   |
| Alkalinity (mg/L as CaCO3) | 9/2015-10/2015      | 124-196                  | None       | N/A                        |   |
| Sodium** (ppm)             | 5-5-2016            | 27.1                     | None       | 20                         | Discharge from the use & improper storage of sodium-containing de-icing compounds or in water-softening agents. |
| Conductivity               | 7-7-2016            | 316                      | 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.

Gross Alpha Particle Activity, Radium 226 & Radium 228 were sampled quarterly in 2015 and Synthetic Organic Contaminants (SOCs) were sampled in July 2016. SOCs were non-detected.

**\*Manganese:** Manganese is a naturally occurring mineral found in rocks, soil and groundwater, and surface water. Manganese is necessary for proper nutrition and is part of a healthy diet, but can have undesirable effects on certain sensitive populations at elevated concentrations. US EPA and MassDEP have set an aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 50 ug/L (micrograms per liter), or 50 parts per billion. In addition, MassDEP's Office of Research and Standards (ORS) has set a drinking water guideline for manganese (ORSG), which closely follows the EPA public health advisory for manganese. **Drinking water may naturally have manganese and, when concentrations are greater than 50 µg/L, the water may be discolored and taste bad. Over a lifetime, EPA recommends that people drink water with manganese levels less than 300 µg/L and over the short term, EPA recommends that people limit their consumption of water with levels over 1000 ug/L, primarily due to concerns about possible neurological effects. Children up to 1 year of age should not be given water with manganese concentrations over 300 ug/L, nor should formula for infants be made with that water for longer than 10 days.** The ORSG differs from the EPA's health advisory because it expands the age group to which a lower manganese concentration applies from children less than 6 months of age to children up to 1 year of age to address concerns about children's susceptibility to manganese toxicity. See: EPA Drinking Water Health Advisory for Manganese.

[http://www.epa.gov/safewater/ccl/pdfs/reg\\_determine1/support\\_cc1\\_manganese\\_dwreport.pdf](http://www.epa.gov/safewater/ccl/pdfs/reg_determine1/support_cc1_manganese_dwreport.pdf)

And MassDEP Office of Research and Standards Guideline (ORSG) for Manganese

<http://www.mass.gov/eca/agencies/massdep/water/drinking/manganese-in-drinking-water.html>

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

## ~ 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.

**90<sup>th</sup> 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

## ~ EDUCATIONAL INFORMATION ~

### SWAP (Source Water Assessment and Protection)

MassDEP has prepared a Source Water Assessment and Protection (SWAP) report for Madden Estates. The report assesses the susceptibility of public water supplies to contamination and makes recommendations. This report is available at the office of McClure Engineering at 119 Worcester Road, Charlton, MA and the MassDEP website <http://www.mass.gov/eea/docs/dep/water/drinking/swap/cero/2323002.pdf>.

MassDEP assigned a susceptibility ranking of **Moderate** has been assigned to the well in our system based on the presence of moderate threat land use or activity within the water supply protection area. If you have any questions, please contact McClure Engineering at 508-248-2005.



### 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, Arthur Maskell at 508-867-4783.

### 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.

### Notice of Lead and Copper Rule (LCR) Violation ~ NON-CE-17-5D036-CSA

We are required to inform you that our water system failed to provide notice of the results from the May 25, 2016 lead and copper tap water monitoring to persons served at the specific sampling sites from which the samples were taken within 30 days of receiving the results. The Consumer Notice was delivered late to water customers, submitted on September 30, 2016.

Also see attached Public Education Notice, "Important Information about Lead in Drinking Water."

## ➤ TIER 3 PUBLIC NOTIFICATION

# IMPORTANT INFORMATION ABOUT LEAD IN DRINKING WATER

### Why am I receiving this brochure?

Your public water system (PWS) found elevated levels of lead in drinking water samples collected from some homes during the November 2016 sampling event. Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water. The Massachusetts Department of Environmental Protection (MassDEP) requires public water systems that exceed the lead Action Level to provide this notification to consumers. Lead is a health concern and is commonly found in the environment; most commonly in lead based paint. Lead can also be found in water, though at much lower levels. During the November 2016 sampling period, *Madden Estates* found elevated levels of lead in drinking water in two of the five taps sampled.

### What are the Health Effects of Lead?

*Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water. Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child may receive lead from the mother's bones, which may affect brain development.*

### Sources of Lead:

Lead is a common metal found in the environment. Common sources of lead exposure are lead-based paint, household dust, soil, and some plumbing materials including many faucets. Lead can also be found in other household items such as pottery, make-up, toys, and even food. Lead paint was outlawed in 1978, but dust from homes that still have lead paint is the most common source of exposure to lead. Therefore, make sure to wash your child's hands and toys often as they can come into contact with dirt and dust containing lead.

The water provided by *Madden Estates* is lead-free when it leaves the Well 04G. Distribution pipes that carry the water to your community are made mostly of plastic. However, lead can get into tap water through lead solder used in plumbing, and some brass fixtures. Even though the use of lead solder was banned in the U.S. in 1986, it still might be present in older homes.

The corrosion or wearing away of these lead-based materials can add lead to tap water, particularly if water sits for a long time in the pipes before use. Therefore, water that has been sitting in household pipes for several hours, such as in the morning, or after returning from work or school, is more likely to contain lead. If high levels of lead are found in drinking water, water may contribute up to 20 percent of a person's exposure to lead. Infants who consume mostly formula mixed with lead-containing water can receive up to 60 percent of their exposure from water.

Should you be concerned? That depends, in part, on where you live. In some communities, water distribution lines still have lead service connections. And, if the water in your community is especially acidic or "soft," it can be very corrosive. The more corrosive it is, the more lead it can dissolve as it stands in pipes.

### Steps You Can Take to Reduce Exposure to Lead in Drinking Water

#### **Do NOT boil water to remove lead. Boiling water will not reduce lead.**

Fresh water is better than stale: If your water has been sitting for several hours, run the water until it is consistently cold - usually about 15-30 seconds - before drinking or cooking with it. This flushes water which may contain lead from the pipes.

There are a few simple changes you can make in your habits to protect yourself and your family at home:

- In the morning, run the faucet where you normally take your first drink or fill up your coffee pot until the water turns as cold as it's going to get. This flushes out the water that has been standing in your pipes overnight. If no one is using water during the day, do the same thing in the evening.
- Always use cold tap water for cooking, drinking and preparing baby formula or foods. Hot water dissolves metals faster.
- Do not cook with or drink water from the hot water tap.
- At the day's end, fill a jug with drinking water for later use.
- Have an electrician check your wiring. Corrosion within your plumbing may be greater when grounding wires from your home's electrical system are attached.
- Consider having your child's blood tested for lead.

## What is being done to control lead in the drinking water?

Madden Estates is concerned about lead in your drinking water. **Madden Estates treats your water to make it less corrosive, thereby reducing the leaching of lead into drinking water. Starting in 2013, Madden Estates installed a water softener and acid neutralizer to control (increase) the pH and buffering capacity of the water.** Although most homes have very low levels of lead in their drinking water, some homes may still have lead levels above the EPA Action Level of 15 parts per billion (ppb).

**November 2016 sampling event, it was discovered that the media to make the water less corrosive had been depleted. The PWS will continue to monitor the water usage and pressure, and make adjustments as necessary, as usual – but going forward will be developing a treatment system maintenance protocol which will outline the steps necessary to ensure this depletion does not happen again. This protocol will include, at a minimum, monitoring and communicating the level of the media in the treatment tanks as well as the brine levels.**

To monitor lead levels, Madden Estates tests tap water in homes that are most likely to have lead. These homes are usually older homes that may have lead service lines or lead solder, and they must be tested after water has been sitting overnight. The EPA rule requires that 90% of these worst case samples must have lead levels below the Action Level of 15 ppb.

| Lead & Copper | Last Date Collected | 90 <sup>th</sup> Percentile | Action Level (AL) | MCLG | # of sites sampled | # of sites above Action Level | Exceeds Action Level | Possible Sources of Contamination   |
|---------------|---------------------|-----------------------------|-------------------|------|--------------------|-------------------------------|----------------------|---|
| Lead (ppb)    | 11-3-2016           | 19                          | 15                | 0    | 5                  | 2                             | Y                    | Corrosion of household plumbing; erosion of natural deposits                                    |
| Copper (ppm)  | 11-3-2016           | 0.56                        | 1.3               | 1.3  | 5                  | 0                             | N                    | Corrosion of household plumbing; erosion of natural deposits; leaching from wood preservatives. |

## What about treatment devices?

Be careful if you're thinking about buying a home water treatment device for lead removal. While there are units listed by the National Sanitation Foundation (NSF) as effective at removing lead, Massachusetts law requires that they be approved by the Board of State Examiners and Gasfitters and installed by a licensed plumber. Once in place, these units must be maintained. And, the only way to ensure they're still getting the lead out is to have your water tested from time to time.

New faucets meeting the NSF/ANSI 61 standard will have NSF 61/9 stamped on the new faucet's cardboard box, but these faucets may still contain lead. Some faucet manufacturers produce plastic or new low-lead brass faucets that have virtually zero lead, but you will have to check with the manufacturer. New faucets meeting the NSF/ANSI 372 and NSF/ANSI 61 standards have been installed throughout the PWS.

Your best defense against lead in drinking water is knowledge. Learn as much as you can about the pipes leading to your house and the plumbing that runs to your faucets. Then, if necessary, routinely flush out water that may contain lead. It's simple to do and your good health, as well as your family's, may depend on it.

## Where can you get more information?

For more information on reducing lead exposure around your home/building and the health effects of lead, visit the EPA's website at <http://www2.epa.gov/lead>; the MassDEP's website at <http://mass.gov/eea/agencies/massdep/water/drinking/is-there-lead-in-my-tap-water.html>; or contact your local board of health.

**MassDEP has available a list of laboratories certified by the state of Massachusetts to test for lead in tap water. See the MassDEP website at: <http://www.mass.gov/eea/agencies/massdep/water/drinking/certified-laboratories.html>**

**Contacts:**

MassDEP Drinking Water Program  
One Winter Street  
Boston, MA 02108  
(617) 292-5770

**For general information on lead poisoning in children, contact:**

Test your child for lead: Contact your local health department or your local health care provider to find out how you can get your child tested. A blood lead level test is the only way to know if your child is being exposed to lead. For more information, contact DPH at <http://www.mass.gov/eohhs/gov/departments/dph/programs/environmentalhealth/exposure-topics/lead/> or at 1-800-532-9571.

Massachusetts Department of Public Health  
Childhood Lead Poisoning Prevention Program  
305 South Street  
Jamaica Plain, MA 02130  
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This report was prepared by McClure Engineering, Inc.

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

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