

# Welcome

to the City of  
Inver Grove Heights



Inver Grove  
Heights

## Inver Grove Heights Water Treatment Process Significantly Improves the Overall Quality

Component	Before Treatment	After Treatment
Iron	0.3 ppm	Less than 0.1 ppm
Manganese	0.25 ppm	0.02 ppm
Chlorine	N/A	0.9-1.0 ppm Leaving Plant FREE
Fluoride	0.3 ppm	0.9-1.2 ppm

## Water Treatment Process

**Raw Water Metering and Chemical Addition:** Raw well water entering the facility is metered and injected with chlorine to oxidize iron in the water and convert it to a filterable solid. After pre-chlorination, manganese sulfate is injected to effect removal of radium and alpha emitters. Potassium permanganate is then added at the raw water flow splitter box to assist iron oxidation and to oxidize manganese, converting it to a filterable solid form.

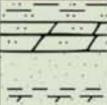
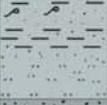
**Filtration:** The chemically-treated water flows out of the splitter box to eight filter cells furnished with silica sand filter media. The filter media is coated with manganous oxides to remove any unoxidized iron or manganese. The media effectively filters all solids from the water.

**Disinfection:** Following filtration, the water is disinfected by a second injection of chlorine as it flows to the Plant's 1.0 million gallon clearwell. Inside the clearwell, the chlorinated water passes through a maze of chambers which promotes effective mixing and detention, ensuring complete disinfection.

**High Service Pumps:** Treated water is pumped from the clearwell to the distribution system by six high service pumps. Two of the pumps convey water to the City's Asher pressure zone, while the other four pump to the nearby reservoir which acts as a large water tower for the City's South Grove pressure zone. The pressure in the Asher, South Grove, and Northside zones is controlled by the water elevation in the storage towers.

# WHERE DOES OUR DRINKING WATER COME FROM?

*Ground water supplies 99 percent of total domestic, municipal, and industrial water used in Dakota County.*

GEOLOGIC FORMATION	GENERAL LITHOLOGY	PRESENCE & USE OF WATER
<b>Quaternary deposits</b> Surface deposits of sand and gravel; erodes easily		May contain water used for domestic, commercial, and irrigation purposes  Easily contaminated
<b>Decorah Shale</b> Clay-like shale with thin fossil-bearing limestone		Helps to protect underlying aquifers from contamination
<b>Platteville and Glenwood Formations</b> Fossil-bearing limestone and sandy shale		Supplies very limited amounts of water to northern Dakota County
<b>St. Peter Sandstone</b> Poorly cemented, granular sandstone		Supplies limited amounts of water to Dakota County  Easily contaminated in central and southern portions of the County
<b>Prairie du Chien Formation</b> Limestone		Supplies water for domestic use
<b>Jordan Sandstone</b> Poorly cemented, granular sandstone		Primary source for municipal, industrial and high capacity irrigation wells
<b>St. Lawrence-Funnel City Formation</b> Shaley sandstone or siltstone		Produces small amounts of water in eastern Dakota County
<b>Wonewoc Sandstone Formation</b> Silty to coarse-grained sandstone		Produces water to supplement flow in some high capacity industrial wells
<b>Eau Claire Formation</b> Siltstone, fine sandstone, and shale		Does not contain water
<b>Mt. Simon-Hinkley Formation</b> Fine to coarse-grained sandstone		The deepest high-yielding aquifer in Dakota County  Protected for future use with a restriction on new well drilling

## DAKOTA COUNTY GROUND WATER AND GEOLOGY



# Invisible Water Leaks

## May Cause Your Money to Go Down the Drain

### WHAT TO LOOK FOR

Inver Grove Heights Utilities Division personnel have compiled a list of checks residents can make to determine if they may have a water leak in their home. Plumbing fixtures can leak water amounting to 10's of thousands of gallons in a three month billing period. By following the steps below to detect invisible leaks, you may be able to prevent the unwanted arrival of a large utility bill.

If you have a leak that results in an unusually high bill for the winter quarter, it will affect your sewer charges for the remainder of the year. The City will work to remedy these situations on a case by case basis once all leaks have been repaired.

The Utilities Division will provide leak detection assistance and consumption monitoring for any resident free of charge. If you feel you may have a leak and cannot find the source contact the Utility Division at 651-450-4309 to schedule an appointment.

### CHECK YOUR METER

Turn off all water sources in your home to perform this test. Locate your water meter. It will be inside your home where your water service enters from outside – usually near the furnace and hot water heater.

There you will also find your main water shut-off valve, which you will need if you ever want to stop the flow of water into your home. Once you've located your meter, look at the face. The meter has a small red diamond or star called the low flow indicator. If all water sources are turned off and the low flow indicator is still moving you probably have a leak.



### WHERE'S THE LEAK?

**Running Toilets** – A common problem, these leaks oftentimes can be heard. To be sure remove the tank lid – since water should only run for a short time after a flush, seeing running water without a flush means you have found your leak. Another problem with toilets is the loss of a seal on the tank flapper valve. To diagnose this problem, turn off water to the toilet. If in a few minutes the water has drained from the tank, you have a leak. Another way to check for this leak is to put a few drops of food coloring in the tank. If colored water starts to seep into the bowl without a flush, the flapper valve is not sealing.

**Water Softeners** – Your water softener might be another source of an invisible leak. Since the softener usually discharges directly to a drain pipe, it's difficult to monitor how much water is being consumed. The softener can malfunction during the regeneration cycle, causing water to continuously run to the sewer system, most softeners have a by-pass valve that can stop this flow until repairs can be made. An increase in salt consumption also is an indicator that the softener may be malfunctioning.

**Dripping Faucets** – Although it might not seem like much, a drip every few seconds can add up to over **350 gallons** in a quarterly billing period. A leaky faucet can usually be easily fixed by replacing a seal in the fixture.

**Other Water Sources** – Things like lawn sprinklers, pools, hot tubs, washing machines, and dishwashers may also be the source of water leaks. Usually leaks from these sources will be visible and result in pooling water somewhere in your home or yard. The same generally is true of a leaking pipe, you will see water running or pooling somewhere on your property.

### WATER USE BREAKDOWN

Use	Gallons Per Capita Per Day
SHOWERS .....	11.6
CLOTHES WASHERS.....	15.0
DISHWASHERS .....	1.0
TOILETS .....	18.5
BATHS.....	1.2
LEAKS .....	9.5
FAUCETS.....	10.9
OTHER DOMESTIC USES....	1.6

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## INVER GROVE HEIGHTS WATER UTILITY INFORMATION

Only a portion of the population is on city water. In 2015, city residents consumed nearly 1 billion gallons of water. Listed below is some of the infrastructure that makes up the water distribution system.

- 1,608 fire hydrants
- 7,057 water meters
- 3 water towers and 2 reservoirs containing 11 million gallons
- 4,368 valves
- 160 miles of watermain lines from 6 to 30 inches in diameter

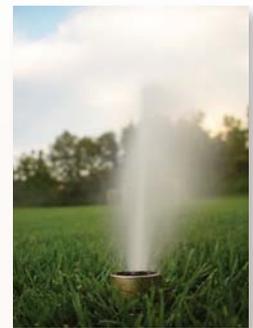
## WATER CONSERVATION TIPS:

- ◆ Water early in the morning—between 4 a.m. and 10 a.m. is best. Avoid watering late in the evening to help prevent turfgrass diseases. Do not water during restricted periods.
- ◆ Rule of thumb for lawn watering — 1" to 1.5" of water per week, including rainfall. Keep intervals between watering as long as possible to encourage deeper root growth.
- ◆ Leave grass longer during hot weather (2.5" to 3.5"). This will promote deep root growth, shade the growth crowns, and help protect them during windy periods.
- ◆ Place rain barrels beneath your downspouts. The rain-water can be used for outdoor plants and trees or to wash your car.
- ◆ Repair dripping faucets and leaky toilets. Dripping faucets can waste up to 2,000 gallons of water each year. Leaking toilets can waste as much as 200 gallons per day.
- ◆ Position your sprinklers so water lands on the lawn or garden, not on paved areas. Also, avoid watering on windy days.
- ◆ When watering the lawn, do it long enough for the moisture to soak down to the roots where it will do the most good. A light sprinkling can evaporate quickly and tends to encourage shallow root systems. Put an empty tuna can on your lawn—when it's full, you've watered about the right amount.
- ◆ Replacing an 18 liter per flush toilet with an ultra-low volume (ULV) 6 liter flush model represents a 70% savings in water flushed and will cut indoor water use by about 30%.

## Inver Grove Heights Irrigation Policy

**Odd/Even:** Residents who have an address that ends in an even number; 2, 4, 6 etc. are asked to water their lawn on even numbered days. Residents whose address ends in an odd number; 1, 3, 5 etc. are asked to water their lawn on odd numbered days. This will balance the demand on the City water system during hot, dry periods. The balanced water use will allow the Utility Division to maintain safe operating levels in water towers and reservoirs in case a fire or another emergency occurred during one of these periods.

**Time of Day:** Residents are asked to avoid lawn watering between the hours of 12:00 noon and 5:00 p.m. on all days. This will prevent the waste of water during the warmest hours of the day when up to 30% of sprinkling water is lost due to evaporation. It will also give the Utility Division a 5 hour period every day to help restore adequate levels in the City water towers and reservoirs.



# Compliance with National Primary Drinking Water Regulations

The sources of drinking water (both tap 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 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 can also come from gas stations, urban stormwater runoff, and septic systems.
- **Radioactive contaminants**, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (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.

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 Environmental Protection Agency's Safe Drinking Water Hotline at 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 about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium\* are available from the Safe Drinking Water Hotline at 1-800-426-4791.

*\*Cryptosporidium is a living thing (organism) that lives in, or on, another organism (a parasite). It can infect your bowels (intestines) and cause cryptosporidiosis. The largest outbreaks of cryptosporidiosis have occurred when drinking water becomes contaminated with sewage or manure.*

## Fluoride...

Fluoride is added to Inver Grove Heights water at levels mandated by legislation. Fluoridated water has been proven to reduce tooth decay, especially in children. Fluoride levels are monitored on a daily basis to ensure the proper amounts are being added.

The City of Inver Grove Heights, the Minnesota Department of Health, and independent laboratories are regularly testing your drinking water to guarantee the safety of the community.



## Frequently Asked Questions

### What is the hardness of Inver Grove Heights water?

The level is 20-22 grains or 370 parts per million hardness.

### Do we need to install a water softener in our home?

The hardness level of 20-22 grains is relatively high, therefore, the majority of homes and businesses in the community find it desirable to soften water through privately owned softeners or a softening service.

### What is causing the low pressure in my home?

Normally, low pressure is caused by a malfunctioning water softener. This can be confirmed by checking the pressure at an unsoftened inside or outside tap, or by putting the water softener on by-pass (see your owner's manual). If the pressure returns to normal, your softener may need repair. The average pressure in the city distribution system is approximately 75 pounds per square inch.

### Why is there sand in the water?

The sudden onset of particles which resemble sand are most often the result of a water softener malfunction. These particles collect in faucet screens, washer intake hose screens, and toilet tanks. Please check your owner's manual or maintenance company for assistance.

### Where should my sump pump drain hose discharge?

Outside. Sump pumps to collect ground water are not allowed to discharge into the sanitary sewer system. Hoses must be routed to drain to the outside of the home and not into a laundry tub or floor drain.



## Source of Water

The water provided to customers may meet drinking water standards, but the Minnesota Department of Health has also made a determination as to how vulnerable the source of water may be to future contamination incidents. If you wish to obtain the entire source water assessment regarding your drinking water, please call 651-201-4700 or 1-800-818-9318 (and press 5) during normal business hours. Also, you can view it online at: [www.health.state.mn.us/divs/eh/water/swp/swa](http://www.health.state.mn.us/divs/eh/water/swp/swa).

Call 651-450-4309 if you have questions about the City of Inver Grove Heights drinking water or would like information about opportunities for public participation in decisions that may affect the quality of the water.



## Key to Abbreviations

**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.

**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.

**MRDL**—Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water without causing an unacceptable possibility of adverse health effects.

**MRDLG**—Maximum Residual Disinfectant Level Goal: The level of drinking water disinfectant below which there is no known or expected risk to health.

**AL**—Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirement which a water system must follow.

**90th Percentile Level**—This is the value obtained after disregarding 10 percent of the samples taken that had the highest levels. (For example, in a situation in which 10 samples were taken, the 90th percentile level is determined by disregarding the highest result, which represents 10 percent of the samples.) Note: In situations in which only 5 samples are taken, the average of the two with the highest levels is taken to determine the 90th percentile level.

**pCi/l**—PicoCuries per liter (a measure of radioactivity).

**ppm**—Parts per million, which can also be expressed as milligrams per liter (mg/l).

**ppb**—Parts per billion, which can also be expressed as micrograms per liter (ug/l).

**N/A**—Not Applicable (does not apply).

# Results of Monitoring

No contaminants were detected at levels that violated federal drinking water standards. However, some contaminants were detected in trace amounts that were below legal limits. The table that follows shows the contaminants that were detected in trace amounts last year. (Some contaminants are sampled less frequently than once a year; as a result, not all contaminants were sampled for in 2015. If any of these contaminants were detected the last time they were sampled for, they are included in the table along with the date that the detection occurred.)

Contaminant (units)	MCLG	MCL	Level Found		Typical Source of Contaminant
			Range (2015)	Average/Result*	
Alpha Emitters (pCi/l)	0	15.4	N/A	12.03	Erosion of natural deposits.
Barium (ppm) (04/09/2014)	2	2	N/A	.24	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Combined Radium (pCi/l)	0	5.4	N/A	4.8	Erosion of natural deposits.
Fluoride (ppm)	4	4	.74-.97	1.02	State of Minnesota requires all municipal water systems to add fluoride to the drinking water to promote strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories.
Haloacetic Acids (HAA5) (ppb)	0	60	3.8-4.5	4.5	By-product of drinking water disinfection.
Nitrate (as Nitrogen) (ppm)	10.4	10.4	N/A	.1	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
TTHM (Total trihalomethanes) (ppb)	0	80	14.2-16	16	By-product of drinking water disinfection.

\*This is the value used to determine compliance with federal standards. It sometimes is the highest value detected and sometimes is an average of all the detected values. If it is an average, it may contain sampling results from the previous year.

Contaminant (units)	MRDLG	MRDL	****	*****	Typical Source of Contaminant
Chlorine (ppm)	4	4	.4-.8	.62	Water additive used to control microbes.

\*\*\*\*Highest and Lowest Monthly Average

\*\*\*\*\*Highest Quarterly Average

Contaminant (units)	MCLG	AL	90% Level	# sites over AL	Typical Source of Contaminant
Copper (ppm) (07/24/2013)	1.3	1.3	.1	0 out of 30	Corrosion of household plumbing systems; Erosion of natural deposits.
Lead (ppb) (07/24/2013)	0	15	3.9	0 out of 30	Corrosion of household plumbing systems; Erosion of natural deposits.

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. The City of Inver Grove Heights 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 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 or at <http://www.epa.gov/safewater/lead>.

Monitoring may have been done for additional contaminants that do not have MCLs established for them and are not required to be monitored under the Safe Drinking Water Act. Results may be available by calling 651-201-4700 or 1-800-818-9318 during normal business hours.

Monitoring for unregulated contaminants as required by U.S. Environmental Protection Agency rules (40 CFR 141.40) was conducted in 2015. Results of the unregulated contaminant monitoring are available upon request from Cindy Swanson, Minnesota Department of Health, at 651-201-4656.

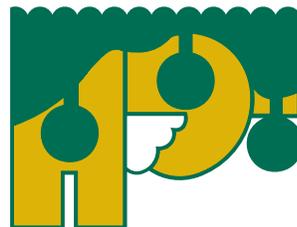


## 2015 Water Quality Report

City of Inver Grove Heights

651-450-4309

The City of Inver Grove Heights is issuing the results of monitoring done on its drinking water for the period from January 1 to December 31, 2015. The purpose of this report is to advance consumers' understanding of drinking water and heighten awareness of the need to protect precious water resources.



UTILITIES

8168 Barbara Avenue  
Inver Grove Heights, MN 55077

2015 WATER QUALITY REPORT

ECRWSS  
POSTAL CUSTOMER

