



Lake Henry Estates
684 Dyson Road
Haines City, Florida 33844
Tel: (863) 421-0940
Fax: (863) 421-0971
www.lakehenryestates.com

TO: LHE RESIDENTS,

This information is about the formation of occasional "dark water" in Florida Water.

All Florida water contains various amounts of sulfur, manganese, dissolved calcium (limestone) and other trace elements.

This letter is an attempt to explain a portion of the science behind the elements in water and what conditions to expect from those elements. We have also enclosed articles about Florida water from several sources along with one of our water LHE inspection reports required by Polk County Health Department.

Following is what happens in the water system and the problems that residents sometimes cause for themselves;

LHE water like all Florida water has Sulfur, Manganese and Calcium (dissolved limestone) in it.

#1) Calcium (limestone); causes hardness in the water but it is nowhere near the higher levels in the water in the northern tier of the United States. Necessary or not, northern residents when coming to Florida think they need a softener and that is the cause of some other problems (addressed later).

#2) Sulfur; reacts by electrolysis with the Magnesium Anode in a water heater. This causes two events, the first is the formation of hydrogen sulfide (the rotten egg smell). It also causes the anode in the tank to corrode and form a black oxide. This oxide, at times "sloughs off" causing a bit of dark water to be present in the tank (it takes time for it to settle out but is not harmful). If you happen to be using the hot water when the sloughing happens you may get darkened water for a few minutes. The tanks are designed to do this and it is a natural occurrence. If the anode was not in the tank the interior of the tank would corrode and leak after a few years of service.

#3) Manganese is allowed in the water at .05 parts per million by the Polk County Health Department. LHE water has .01 parts per million which is way below the allowable amount (20% of total).

Manganese is a natural element occurring in water as manganese bicarbonate ions. It can not be seen when it is in water solution but because of human habits it sometimes "comes out" of solution when oxidized as manganese dioxide (the darkness in water).

Chlorine helps keep the manganese in solution but it is not 100% effective at doing so. We are required by Polk County Health Department to have .5 parts per million of chlorine present in the water when it is delivered to a house meter. The communities responsibility ends at the meter. We presently keep a solution of 3.2 parts per million at the well head (in the white holding tank by hole #4 on the golf course) in order to have at least the .5 ppm at the other end of our system (Sweetwater Way by the lake). The last several tests were between .7 ppm & 1.2 ppm at the lake front homes so there is enough chlorine to hold most of the manganese in solution in the water.

When the chlorine that has been added **dissipates** out of the water the manganese is more prone to oxidization and it **precipitates** out of the water solution as manganese dioxide causing the dark water (as mentioned above). Chlorine is dissipating and being used up in a water solution all of the time. It is why you put chlorinated water in a bowl and leave it standing over night before you put it in a gold fish tank - the chlorine will vanish in just that short time and it is why we have 3.2ppm in the LHE storage tank and end up with .7ppm at the far end of the piping system.

If water in the houses piping sits too long, the chlorine will be used up (dissipate) and the manganese will precipitate out of solution causing dark water. It clears as soon as fresh water is introduced. This happens often in seldom used faucets (like a second bathroom). It does not happen as fast as letting water sit in an open bowl (gold fish) but it does happen.

Water sitting in a homes piping with the manganese precipitating out of solution can build up a coating on the interior of the piping system. If this is a constant event over years the coating can build up and then, on occasion when the coating breaks off (sloughing), a short burst of dark water will be seen coming from the faucets. If you think about it, water is sitting in your house piping system 24 hours day waiting to be used for just those few minutes you are in the shower, washing the dishes or flushing the toilet. *(We have 15 to 20 year old houses here in LHE. What were the water use habits of the previous owner? Is there build up over the years from their water use habits?)*

That leaves us with the soft water units and other add-on apparatus. Water flows through these units very slowly and sits in these units just as much as in your piping - too long at times. This often gives the manganese time to precipitate out of solution inside the unit. Once it builds up enough, the resident will get a spat of dark water on occasion as the manganese occasionally dislodges. This is true with water heaters too. When showering, a person uses only about 6 to 8 gallons of hot water. That means in a 40 gallon water heater only 17.5% of fresh water is being added and that is often not enough to keep the manganese in solution in the older water therefore it can build up on the interior of the tank walls and occasionally slough off – again causing dark water for a few minutes.

None of this is harmful – just annoying.

A note on the Service mains (piping); Cities and private systems seldom have this build up because chlorine has just been introduced to the system, the pipes are large (8" in LHE) and water is always flowing (someone within the city is always using water 24 hours a day in the home and sprinkler systems) and, in addition, here in Lake Henry Estates we are fortunate to have a plastic water mains so there is no adverse reaction between the pipe and any elements.

We hope this helps to clear up some of your questions!

Lake Henry Board of Directors

Note; Some of the residents here in LHE have installed “whole house” carbon filters (charcoal filters). These will remove the chlorine, sulfur and up to .1 ppm of manganese if it is a good quality filter. However these filters will not correct any existing problems (existing build up in your house system) but they certainly help any further buildup of manganese.

If this is an option you choose you have to remember to change the filters per the manufactures recommendations.