

# Premier Water Case Study: Residential Iron Filtration System in Deephaven, MN

October 2009

Deephaven, MN is a city that is well known for having poor water quality. Private well owners consistently battle with high levels of iron, hydrogen sulfide, water hardness, and even arsenic.

We first serviced our clients in 2007 by replacing an old softener with a new high efficiency Hague WaterMax softener. This system improved water pressure and used 70% less salt than their old Fleck water softener.

The existing 10" x 47" iron filter was in bad shape, and had been partially disabled by other sub contractors over the years. At the homeowner's request, we re-built the head and added a new air relief valve to try and get this system to "limp along".

By October, 2009 the old iron filter was failing again. The rust stains and rotten egg smell were starting to take it's toll on the plumbing, water softener AND the homeowner. They were ready for a real iron system:

*"We just COULD NOT get the iron and odor filtered out of the water for a constant, clean water supply. We wanted water that was always clean, odor-free and soft. We wanted a solution that would work."*



**Old System**

## Why the Previous Iron Filter System Failed:

- Inadequate Iron and Hydrogen sulfide capacity
- Iron and Hydrogen Sulfide were not completely oxidized
- Undersized filter vessel did not support the water flow rates of this family
- Iron-clogged plumbing reduced the filter's backwash ability (clean itself)
- Frequent power outages constantly disrupted the filter's settings

The old ¾" copper was replaced with new 1" copper for less restriction and improved backwashing (cleaning) ability. A 13"x54" dedicated aeration tank was used to pre-treat the water and oxidize the iron and hydrogen sulfide for better filtration. A 13"x54" vessel using vertical depth filtration replaced the small 10" filter to meet the needs of this family's heavy water use.

A special distributor was also used to reduce waste water by 30% over the old system. A digital controller runs the system and holds all settings up to 2 ½ years during power loss to combat the frequent power outages here.

The new system completely eliminated the rust stains and odor problems, the softener now works more efficiently, and waste water was reduced. The results speak for themselves:

Water Quality BEFORE	Water Quality AFTER
Hardness: 30gpg Total Iron: 6ppm	Hardness: 0gpg Total Iron: 0ppm

5gpg is the average national hardness  
0.3ppm iron is the limit before staining begins



**New System**

*"My freshly washed clothes now smell like a clean fresh load of laundry. Brushing my teeth is no longer a gross experience with smelly water."*

*Your staff worked very hard to solve our water issues, and truly care about customer satisfaction."*



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