



"COOLABAH WATER The Water Professors"

An overview of Iron related bacteria in bores.

The phenomenon that is called IRON BACTERIA is actually bacteria feeding off soluble iron and manganese creating a slime over the inside of pipes. THIS also mixes with CALCIUM which is naturally occurring in most bore supplies.

The calcium turns to a crystal as normal and this combination of CALCIUM – IRON – BACTERIA produces a thick red sediment which causes multi-impeller pump discs to block up with the residue.

This is particularly prone to occur in submersible bore-hole pumps and also the inside walls of delivery pipes and usually seriously affects water delivery performance or stops the flow completely.

Bacteria

The bacteria contamination cannot be killed outright in the bore but needs to be kept under control. The bacteria contamination is a high factor in the overall problem, but the bacteria alone does not cause it.

Iron

The iron that feeds the bacteria cannot be removed from the aquifer but can be controlled in the bore and bacteria just loves feeding off iron.

Calcium

Calcium is also a major part of the issue. Its natural ability to turn to a solid, or to a crystal very quickly is as much of the problem as the other two, bacteria and iron.

Calcium forms a crystal, then mixes with the iron and the bacteria, making a brown sludge which forms inside pump impellers and pipes and the problems start.

If you were to remove this brown sludge from a bore pump or pipe and analyze this you can expect the percentage of calcium in the sludge to be as high as 80% plus.



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Removing Bacteria Only

If the bacteria contamination in bore water is disinfected or removed where iron bacteria is present, then the brown residue would become quite hard and dry scale.

Leave the bacteria active and this same residue that causes so much heartache will remain quite soft and the higher the bacteria contamination, the sloppier the brown sediment.

Iron accelerates bacteria growth

The iron feeds the bacteria and accelerates its growth. The iron cannot be removed from the aquifer but it can be turned to a solid before it feeds the bacteria and the bacteria can be using Envirobore as shown in this [video](#) and [Brochure](#)

Treatment is needed

We need two systems in place for dealing with bacteria, iron and calcium where it affects bore pumps. Bacteria can only be removed by a poison or disinfectant. Iron cannot be filtered out and can only be removed by oxidation.

This can be treated down the borehole, where the problem starts. The bore water will lose its clarity and become slightly or heavily brown, as it turns to a solid. This cloudy water is quite harmless for such purposes as stock water or irrigation.

Air cannot be introduced into the piping system to oxidize the iron because it will cause cavitation in the pump and damage the impeller(s). The best and most successful method is to dose with Envirobore

Will chlorine succeed.

No as is pH dependent and will shorten the pump life and is harmful to pump seals.



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Acid treatment

Not recommended as acid will harm pump seals and shorten pump life.

Alternatively, if the iron content cannot suitably removed by

pumping to a storage tank for aeration or other tank treatment form, through a special media in a pressure vessel, through an iron removal water softener, or into a dam for aeration

Chlorine must be turned over regularly as it is unstable and it will lose its potency.

Calcium problem

This needs to be treated also. If you were to remove the iron and bacteria successfully, you could be left with white scale down the pipe-work and other plumbing and this is not desirable.

Magnetic water treatment

We use magnetic water treatment in a very powerful form called the Bore-water

Reactor. Its task is to break up the calcium build-up after the bore pump. It does this by preventing the calcium from crystallizing out as a solid. This is achieved by inducting a DC voltage charge off the permanent magnetic material that is the heart of the unit.

This forces the calcium to remain fully soluble and not deposit, and it will reverse the existing calcium build-up.

To make this all happen, we combine magnetics and Envirobore.

This can become a very necessary and permanent treatment to keep the pump alive as a cost-effective measure.



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The Bore-water Reactor has ongoing value for bore users and is an excellent investment as it has no ongoing operating or maintenance costs.

This treatment is applied at the bore-head and will treat all the water coming out as well as the re-circulated treated water.