09/04/2018

Fairview Service Centre

Report on water treatment for car wash.

Attention Mr Jannie Dippenaar / Adrian Estcourt / Pierre Massyn

Mr Dippenaar invested in a 6-meter pit to capture ground water, he had the water analysed and obtained quotations for treatment. As we know each other, he asked for my opinion and suggested that he does not want daily, or as little as possible, inputs in the operation of the plant.

I am not a chemist but have many years of experience in the engineering game with water treatment. Unlike when I was younger and overdesigned, I now select the simplest systems.

I would appreciate it if Adrian and Pierre, the suppliers of the equipment, kindly evaluate my following comments, as I wish to provide Mr Dippenaar with the best service, under the present conditions.

With the TDS at 4890 mg/l, the obvious solution would be RO. Apart from the high capital/ maintenance cost and daily required input, the fact that only 40% of the feed water, from the pit, will be processed and 60% will go to waste, rules out RO as not enough water will be available from the pit for their daily requirement.

One company quoted for a filter and a softener. With my knowledge a softener is not the answer as changing the calcium's and magnesium's to sodium's to prevent scaling up, is not the requirement and still does not reduce the TDS and in fact the softener will reduce the pH while we wish to increase the pH to an alkaline number.

My thinking was to protect the cars in terms of suspended solids, corrosion, and the workers against bacteria.

The water from the pit settles in a yellowish colour and the backwash from the filter has the same colour, the bacteria are high and there is even E. coli in the water. These conditions are not common to underground water and one wonders if there is not sewerage seeping into the pit.

I selected a good filter, a calcium unit to increase the pH from acid to alkaline, an ozone unit to kill the bacteria and a PTH Water softener.

On commissioning we found that the precipitation of the chemicals on the cars, when it dries in the sun becomes very tacky and hard to remove. I removed the calcite unit and found that the spots on the cars are smaller and easily washed off. Adrian must try and

work this one out with his experts. It could be a characteristic of the calcium or the addition to the TDS. As the PTH unit increased the pH from 6.7 to 7.6 the calcite unit is therefore not necessary.

The TDS from the original analyses has increased from 4890 mg/l to 10400mg/l at the time of commissioning, after the filter and reduced a bit to 9800 after the PTH. The precipitation is therefore more than twice that of the original water.

The PTH stands up to its claims by reducing the pH, preventing scale forming and corrosion in the high-pressure pump and on the cars. The way it structures the water molecules, encourage the precipitation but in a soft unaggressive outcome. Even though some water treatment suppliers question the effectiveness of the units, as I also did many years ago, until I tested them on cooling towers, boilers and heat exchangers over a period of a year. I can since testify that these claims are not valid, and that the PTH supplier's claims are valid. If not, they would not be in business any more. Kindly visit the PTH website http://www.softwaterzim.com and read the testimonials.

Mr Dippenaar is concerned that the water will damage the protective layer in or on the cars paint. The precipitation is not of great concern to me. It would have been better if we could remove all or most of the TDS but if the water on the car is dried off immediately and not left in the sun to dry, all sediment is removed. The precipitation from municipal water contains the same basic components as the water from the pit, however the TDS in the pit water is much higher than that of municipal water. In fact, I believe that the municipal water could be more harmful to the car than the water from the PTH. Municipal water contains chlorine and Cape Town water is corrosive in terms of the Langelier index.

If bird droppings containing acid and high chloride water from the sea does not damage the protective layer, then what is wrong with PTH water?

All the still unknown structures of water remain an interesting subject.

Adrian and Pierre please assist as soon as possible to get Mr Dippenaar's carwash in operation.

Jan Malan