



Drinking water

Drinking water filtration unit - Rethabile Primary School



Problem Statement

This project is a donation from Watericon, through Takats'Eau to Triple P, who have chosen Rethabile Primary School as the recipient of a water treatment plant to treat borehole water to drinking water standards. The donation also includes delivery, installation and commissioning and training of onsite personnel as well as approximately 2 years' worth of consumables.

Rethabile Primary School in Hammanskraal has no online water connection from the municipality. The municipality delivers 10 000L per week to be used as potable water, washing water and for ablution facilities for over 1000 students and staff. This is insufficient to support all the schools water use needs. Onsite, there is a borehole, which is not in use for potable water due to the following contaminants: Chloride, Nitrate, Manganese and bacterial contaminants. The outbreak of Cholera in the area's municipal water supply was also a major concern.

Solution

Assuming no significant TSS or turbidity, the solution provided will treat 1.5m³/h of feed water. The process proposed to treat this water is a filtration system, comprising of an AFM filter, carbon filter, maddox filter, followed by a nitrate removal filter, and finally disinfection.



Concentrate losses

- Backwash Water produced should be approximately 2% of the total water fed to the plant, so approximately 0.3m³/day. This water will be used to water the garden.



Performance Target

- Target water flow is 1.5m³/h for approximately 8 hours per day. The target water quality is as per SANS241 drinking water standards.



Process

- Feed pump -> Sand Filter-> Maddox Filter-> Carbon Filter-> Nitrate removal resin filter-> Klorman Disinfectant



Innovation

- Supply, installation and operation of the plant with a team of operators and training of onsite personell