Case Study
Isisford Water Drinking System
October 2018

Replace Existing Sand Filter and Media

Flow Rate 5-6 litres/second

Meet Australian Drinking Water Guidelines

Install and Commission

Longreach Regional Council required an upgrade of the Isisford town water drinking system.

The old system was a standard sand filter using sand media where both the filter vessel and sand media needed replacement. The vessel had reached end of life and the media had also completed its service.

Solari recommended that a different system be used, incorporating the OV AFM filters with filtration to 0.45 microns. This system is seen at the right, with twin process lines in place for 100% redundancy at all levels of the filtration system.

AFM (Activated Filter Media) was chosen as the media of choice for these reasons:

Cryptosporidium and other bacteria control
Solids removal down to sub-micron level
30-80% better performance than sand
AFM should never need to be changed
Life cycle benefits, both water and energy, generally capital return less than 24 months
100% environmentally sustainable

The system incorporates a Spin Klin to remove solids to 100 microns prior to any water entering the filter vessels. Whilst the filters can manage up to 200-micron sized particles with no problems, it was deemed best to provide some precleaning and then use the filters more as a polishing filter.

The water source is either from the Barcoo River or from a Council dam. Either can have high turbidity dependent on environmental conditions.

1300 349 750
info@solariwater.com.au

Upon leaving the Spin Klins, water is then pumped into the OV AFM filter. On this site only one vessel is required at any one time, with the vessels sharing duty upon backwash. (On some sites multiple vessels would be filtering at once, dependent on flow rate to be filtered).

Upon leaving the filters, water is then chlorinated with chlorination occurring within a ZPM. Chlorination rates are reduced with chemical and environmental cost savings

A ZPM is a Zeta Potential Mixer. This unit is placed in line and is one of the cheapest filtration units available anywhere.

It increases oxidation potential by up to 100mv, thereby initiating disinfection without chemicals

Includes an entry point for flocculation, coagulation and chlorination chemicals, and improves the result by at least 30% (less chemical needed).

Creates ultrafine (nanobubbles) for improved water quality

Independent water tests were completed by a NATA lab to determine if the filtered water meets the ADWG requirements. Several tests were conducted, and the supplied water is well within the guidelines. Copies of tests can be provided if required by contacting Solari Water and asking for Isisford water tests.

Some comments on turbidity as a guide for bacteria when using the OV AFM filter:

There is a greater move afoot to use turbidity as the reason to issue boil alerts in drinking water and/or test for bacteria. Boil alerts can be issued at 1NTU and tests for crypto at 3 NTU.

The OV AFM unit filters to 0.45 micron at 92% regardless of the NTU reading, with tests proving no bacteria from e-coli to crypto and others are present. The product can be used with comfort that the results will provide excellent drinking water regardless of the source

WHY NOT ANOTHER SAND FILTER?

There are several reasons why a new sand filter was not chosen. The AFM media is a superior media that does not biofoul, and consistently will outperform sand. It does not degrade like sand and there is no reason to remain with sand media.

When budgets were created to determine the best option, there was economic benefit to Council to replace with the OV AFM filters when compared with AFM full costs for a standard sand media vessel.

Further, it is not possible to filter to 0.45 microns using a standard sand filter vessel and do this with low energy usage. Whereas the OV AFM filtration system does achieve this level of filtration with little energy.

Plus, the amount of backwash water lost is considerably less than with sand. The OV AFM filters require between 2-5 minutes only on backwash, dependent on solids loading to be removed

All up this is a vastly better system at a good price.

1300 349 750
info@solariwater.com.au