

Ultrafiltration Plant Provides Potable Water

Small Groundwater Site Requires Metals Removal System

West of Scotland Water (WoSW) awarded a contract, under competitive tender, for its first ultrafiltration plant to PCI-Water. The treatment works, being built for Carradale, near Cambeltown, Kintyre, was designed by PCI-Water, using hydraulics vertically mounted ultrafiltration membranes. This is the first installation in the United Kingdom using a hydraulics-based UltraBar system.

Located on croft land, the water treatment plant operated for 18 hours per day, treating 270m³ daily and serving a population of 750–1,000 in the Carradale area. Currently under commissioning test, the plant manufacture and installation was completed within 32 weeks. The

contract covers the project's full mechanical and electrical requirements, installation of four borehole pumps and a rising main at the site, typical of many new small groundwater sites, which need

borehole pumping to supply the works. Metals are present in the raw water supply as a result of the local geology. Drinking water must comply with regulated limits above which the incidence of metals present is not acceptable. Where levels are too high, they must be reduced to the

regulated limits, achieved on this site by a novel metals removal stage at the head of the works. The PCI-Water design uses duty and standby contact tanks containing calcium carbonate. Dosing the

chlorinated water, which helps reduce membrane fouling and hence cleaning requirements.

"We are pleased to have the opportunity

The PCI-Water system, which uses sodium hypochlorite as the chlorination medium for oxidation, consequently provides extra residual chlorine for disinfection in the water supply.

raw water with sodium hypochlorite removes the unwanted soluble metals, through oxidation. This precipitates and the insoluble metals in the water adhere to the high pH surfaces of the calcium carbonate media. The resultant fouling is cleared using a backwash facility. Conventional metals removal systems operate using pressure filters with catalytic media. These are more expensive to install and operate. However, the PCI-Water system, which uses sodium hypochlorite as the chlorination media for oxidation, consequently provides extra residual chlorine for disinfection in the water supply thus removing a process stage and reducing opex costs. The ultrafiltration unit also is run on

to provide and install our first ultrafiltration plant for WoSW," commented Mike Hughes, sales manager of PCI-water. "Our approach to disinfection, metals removal and process control shows that we can compete well in the small ultrafiltration plant market."

About the Contributor

PCI-Water is a water and wastewater treatment company that provides innovative solutions to the municipal sector including small systems. For more than 30 years, PCI-Water has designed and built membrane filtration systems for the production of potable water.

For more information on this subject, write in 1013 on the reader service card.



Location: West of Scotland Water, Carradale, near Cambeltown, Kintyre.

Problem: New small groundwater site contains metals that must be reduced to meet regulated limits.

Solution: PCI-Water's hydraulics-based UltraBar system.

Results: Potable water that meets regulated limits, membrane fouling is reduced as well as maintenance costs.