



Application

Illawarra Coal is a member of the BHP Billiton Group, one of the world's largest mining companies. Based in the Illawarra region of NSW, it operates three high-volume longwall mines at West Cliff, Dendrobrium and Appin. Established in 1962, the Appin Mine yields high quality hard coking coal, which is used by the Australian steel making industry and other industries here and abroad.

BHP Billiton Receives Environmental Award

Problem

Illawarra Coal at Appin West operates sensitive mining equipment that relies on a constant supply of good quality fresh water. To conserve water, Illawarra Coal has water management systems in place to recycle and reuse 2.5 megalitres (ML) of water daily, which is used for dust suppression and cooling in underground operations. In addition, Illawarra Coal was using around 1ML/day of fresh water from mains supplies. To improve the sustainable development of its operations and reduce their carbon footprint on the local environment, Worth Recycling along with Pall Corporation worked together to develop a facility to minimize Illawarra's consumption of mains supplies, as well as decrease the salinity of water discharges from mine operations into the local creek and river systems.

Worth Recycling Pty Ltd is a wholly Australian-owned Company that originally commenced operations in the transport and recycling industries in 1976. Since this time, Worth has grown to be an industry leader in water and wastewater treatment processing technologies, as well as waste oil and sludge recycling and disposal systems. Worth Recycling and BHP have been working together on sustainable environmental improvements for more than 30 years.

Illawarra Coal - Appin West Water Recycling Plant





Solution

Working closely with Illawarra Coal's team of engineers, Worth Recycling with Pall Australia designed and built a desalination water filtration plant at the Appin West mine site. Worth Recycling are contracted to the site to operate and maintain the facility. The Appin West mine water filtration plant is the first of its kind to be built for the Australian mining industry.

The plant works by using a range of technologies, such as microfiltration, weak acid cation resin and reverse osmosis to desalinate low-level saline waste water which is pumped from underground workings. It is capable of processing 2.5 megaliters (ML) of water every day – equivalent to two Olympic-size swimming pools. The plant is equipped with a host of online chemical analysis testing systems to monitor the performance of the facility.

Results

The water filtration plant saves Illawarra Coal on average 660,000 liters of fresh water every day – approximately 241 megaliters (ML) per year. In its first year of operation, the water saving earned Illawarra Coal the ***Largest Reduction Award*** in Sydney Water's ***Every Drop Counts Business Programme Awards***.

