

Case Study RBC Wintamarra

ABCO Water Systems was awarded the contract to provide water solutions from its rental fleet for a temporary 600-person accommodation village at an iron ore mine.

The mine is located in the mountainous Hamersley Range region of East Pilbara, north-west of Newman in Western Australia.

ABCO Water Systems designed and installed a Rotating Biological Contactor (RBC) plant to treat wastewater. This included storage tanks, a sub-pump station, main pump station, treated effluent storage and disposal by spray irrigation. The RBC system is quiet, requires minimal maintenance and is extremely energy efficient.

The wastewater treatment plant is located 100 metres from the camp perimeter. At the start of the plant, 2 x 50m³ poly tanks balance the flow over a 24 hour period into Primary Tanks 1 and 2, each being 1 x 32m³ poly tanks. The delivery from the Balance Tanks is 146 l/minute. These tanks remove the inorganic matter and solids from the influent.

The discharge from Primary Tank 2 is directed to the RBCs by gravity. An allowance for poly aluminium chloride (PAC) was introduced to aid the reduction of TP to meet licence requirements. The RBCs operate 24 hours per day reducing the BOD, TSS and TN to compliant levels. The discharge from the RBCs is direct to the lamella flow clarifiers.

The overflow from the clarifiers is directed to the irrigation tank via a break tank and pump. The underflow is delivered back to Primary Tank 2 for RAS and storage until sufficient volume is accumulated requiring permanent disposal. The pump is to operate at 1-2 minutes per hour.

All treated effluent delivered to the irrigation tank (consisting of 2 x 50m³ poly tanks) are sterilised using liquid chlorine. This is applied through an automated dosing system connected with a small recirculation pump. This maintains a correct dose rate at all times prior to disposal by spray irrigation. Immediately after the irrigation pump, a water meter acts as a totaliser meter to record all flows through the treatment plant and discharge to the effluent disposal.

Discharge from the irrigation tank is via an auto backwash filter at a rate of 580 l/minute with disposal by spray irrigation over a 6 hour period per day. This is controlled on a timed basis with override via a float within the irrigation tank. The spray area is contained within a fenced disposal area (by others) complete with signage. The spray field is 250m x 280m and located at some 300m from the WWTP.



