

Quarry Applications

Product – Quadbeam Technologies S20 Immersion Suspended Solids Sensor & T30 turbidity meter.

One of the largest rock quarries in New Zealand had a problem with the recycled waste water for their aggregate and sand washing plant.

The original Coagulant dosing system was set up without any measurements, it always had a problem with the correct dosing to cope with the varying levels of solids in the recycled water.

This took a considerable amount of operator's time trying to adjust it manually and invariably it was either overdosed which is expensive in chemical costs, or it was under-dosed and as a result dirty water was consistently being fed back to the sand washing plant.



S20-IMM

The dirty recycled water is initially fed into two cyclone separators that take out all the larger particles which then go back into the aggregate. The water, now containing fines, was measured using a magnetic flow meter to give an electrical signal that is proportional to flow. A Quadbeam S20 suspended solids sensor was installed in a vertical section of pipe to continuously measure the suspended solids in the recycle water. Both flow and suspended solids measurements were sent to a PLC which calculates the mass flow of solids and adjusts the dosing pump for the correct level of chemical addition.

After flocculation the solids are allowed to settle out in three large cone clarifiers. The now clean recycled water is sent back once more to the plant.

After the initial set up and commissioning trials the plant now produces consistently clear recycled water and has run for over two years with minimal maintenance. The sensor was recently removed and shows no sign of abrasion. The amount of polymer usage has dropped significantly and now that it is automated the level of operator input is minimal providing a good payback on investment in the system.

Since then the customer has also purchased a T30 sensor and transmitter to monitor the storm water outflow from the plant as this has to be monitored for the local authority.

