FibreWrap™, process flow metering solution, monitors flow distribution of water, slurries and froth concentrate at a copper processing plant

Client location: Chile

Challenge

The mining operator was experiencing challenges monitoring the flow distribution of water, slurry and froth concentrate with traditional magnetic flowmeters in the flotation cells circuit.

Solution

Deploy Silixa's non-intrusive, fibre optic sensing-based flow metering solution. The sensing element, a continuous length of optical sensing fibre, was installed across the rougher bank of flotation cells.

Results

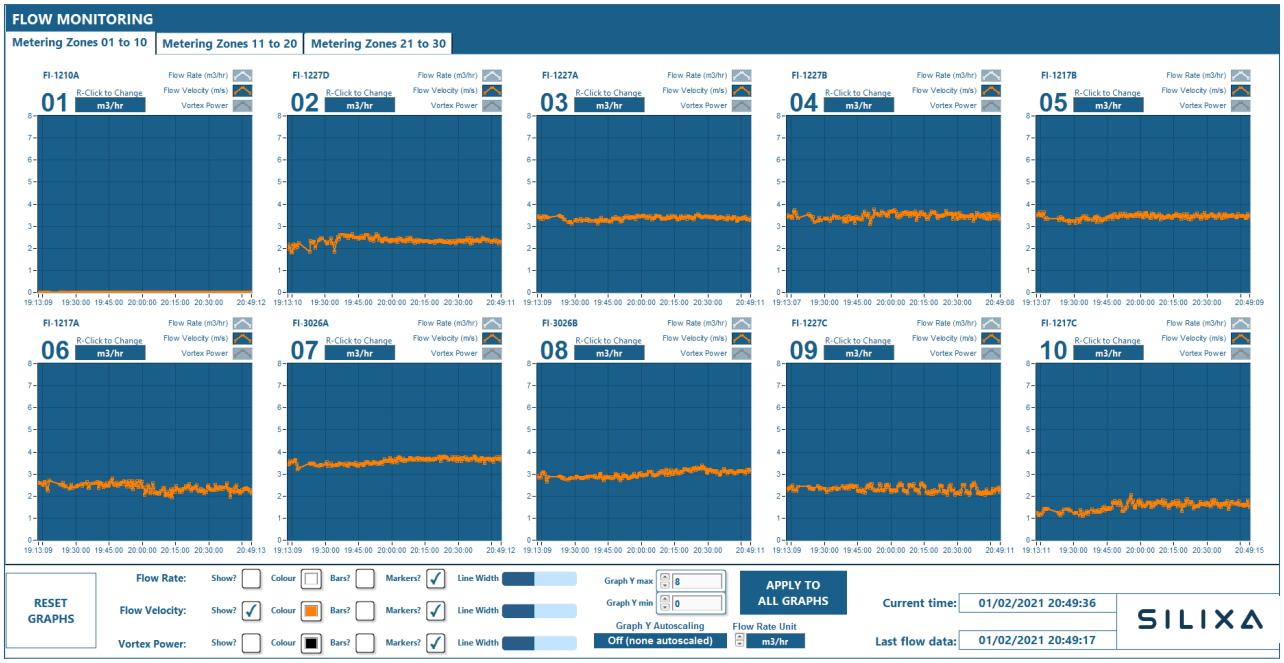
FiberWrap gave immediate insight into liquid, slurry, and froth flows. The implementation of the solution had positive implications on both coarse particle recovery, as well as additives and peak air control strategies in flotation metallurgy.

Background Information

Flotation process control can be used to maintain and optimise production set points, achieve robustness against ore grade variability, and minimise the use of process water. Control methods such as mass pull control theoretically rely on the presence of flow sensors throughout the plant; however, practical considerations dictate that the metering of flows in flotation banks is often limited to main feeds, concentrate from sumps, final tailings, and central air measurements. Camera sensing has been developed to enable cell-by-cell production estimation, but camera applications are often restricted to particular production conditions that may be difficult to achieve on a day-to-day basis. In recent years, Silixa has developed a unique solution with several successful field installations that has key advantages over the traditional flow metering tools.

Value creation to client

A permanent installation for a non-intrusive fibre optic flow sensing method was at a flotation plant. It was demonstrated that the system has the ability to measure different types of flows encountered within a flotation processing plant. The system performs equally well for a range of pipe sizes and pipe orientations. Because the sensing system is straightforward to retrofit in brownfield environments, and requires only low-cost, non-intrusive optical fibre to enable sensing, metering solutions can be envisaged whereby this technology will measure the concentrate and tailings flow from all flotation cells even within a large plant. The technology is particularly attractive to systems that require multiple measurement points of large diameter pipes that have dirty or frothy fluids and are only partially filled.



Why FiberWrap?

» **Significant cost-savings:** Silixa's non-intrusive FiberWrap solution has the lowest CAPEX and OPEX in the industrial and mining flow metering markets. It can be easily installed to both brownfield and greenfield operations. The solution offers the best cost-per-measurement ratio for multiple non-intrusive measurements with only a single length of fibre optic cable at site

» **Improved sustainability:** Significantly reduced energy consumption and no power requirement on site at the flow measurement zones. Multiple measurements can be distributed across several kilometers.

» **Increased efficiency:** FiberWrap enables process automation hence increasing efficiency. It does so by acquiring data continuously, without interruption to operations at remote locations or inaccessible places where traditional flow monitoring technologies cannot be integrated due to many challenges, such as pipeline arrangement, size or technology. The solution can measure flow at multiple processes at the same time and it is able to detect and measure dirty and frothy fluids and flows even in partially filled large diameter pipes.

» **Increased safety:** Unmanned and remote operations contribute greatly to improved site safety.

Silixa Ltd
230, Centennial Park,
Elstree, Hertfordshire
WD6 3SN, UK
t: +44 (0) 20 8327 4210
f: +44 (0) 20 8953 4362

Silixa LLC
16203 Park Row,
Suite 185, Houston
TX 77084, USA
t: +1 832 772 3333
f: +1 832 772 3530

Silixa LLC
3102 W Broadway St,
Suite A, Missoula,
MT 59808, USA
t: +1 406 204 7298
f: +1 406 204 7499

silixa.com