



PROCESS INSTRUMENTATION

# Copper mine chooses Siemens **for critical flow monitoring**

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## Background

A copper mine in the southwest United States has multiple processes that require process instrumentation for flow monitoring. One example involves measuring the flow of an acidic solution from the ponds where the pregnant leach solution (PLS) is being monitored.

PLS is acidic, metal-laden water generated from stockpile leaching and heap leaching. It is used in the solvent extraction and electrowinning (SX/EW) process. SX/EW is a two-stage metallurgy process that first extracts and upgrades copper ions from low-grade leach solutions into a solvent containing a chemical that selectively reacts with the copper in the solvent. The copper is extracted from the solvent with a strong aqueous (sulfuric) acid, which then deposits pure copper onto cathodes using an electrolytic procedure called electrowinning.

## Challenge

This particular application involves measuring the flow of sulfuric acid through a fiberglass pipe. Because strong acids are used in the process, the copper mine had chosen not to consider inline ultrasonic flow meters, instead preferring an instrument that could be mounted outside the pipe. They tried several clamp-on ultrasonic flow meters, but most were unable to achieve the required level of flow measurement accuracy. Only one clamp-on meter had proven accurate enough, but the cost was extremely high and the meter required a high degree of ongoing maintenance due to repositioning from outside process influences such as wind, snow, and pipe expansion and contraction.

## Solution

The local Siemens representative presented the Siemens clamp-on ultrasonic flow meter line to the copper mine, and they requested an on-site demonstration. The representative applied the SITRANS FS290 portable clamp-on meter to an 8" steel pipeline coming off the pond where the competition had previously attempted to get readings. The instrument provided legitimate flow readings that were consistent with the pump ratings.



Siemens SITRANS FS290 portable clamp-on flow meter



SITRANS FS230 clamp-on ultrasonic flow meter

This demonstration proved that the Siemens solution would provide the customer with the accurate and reliable flow measurements they needed, and at a lower cost. The customer was convinced, and they have since purchased six permanent clamp-on flow meters.

## About the SITRANS FS290

The SITRANS FS290 portable clamp-on ultrasonic flow meter is a battery- or mains-powered system, making it the perfect tool for monitoring volumetric flow in pipes that may be too remote for typical measurement systems, as well as for flow testing and evaluation. The FS290 system contains a transmitter and non-intrusive flow transducers that are quickly and easily installed on the outside of a pipe without any process interruptions or plant downtime.



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