

Case Study  
**Mining**

## Going for the gold: Phoenix Contact wireless helps gold mine reduce energy and labor costs

### Summary

- The Golden Sunlight gold mine in Whitehall, Montana, has a series of wells that control the aquifer level
- Monitoring these wells was expensive and time-consuming
- The mine designed a new monitoring system that incorporated a variable frequency drive (VFD), level transducer and Phoenix Contact Trusted Wireless data radios
- This system makes it easy to maintain a constant level in the wells, while also reducing energy and labor costs

### Customer Profile

The Golden Sunlight gold mine is located in Whitehall, Montana. The property lies on the eastern flank of a fault-bounded mountain range known as Bull Mountain. Mining is by conventional open-pit methods.



The Golden Sunlight gold mine in Whitehall, Montana, borders Bull Mountain.

### Challenge

Fifty-four well sites at the Golden Sunlight control the aquifer level around its tail's impoundment. Because of the difficult terrain and remote nature of the wells, traditional monitoring systems could not be used. Therefore, the pumps and mechanical flow meters at the well sites turned on every 90 minutes to control the aquifer level, whether it was necessary or not. If there was no water, they would turn off. This constant cycling used a lot of unnecessary power. In addition, employees needed to monitor the system 24-7. This was very inefficient and labor-intensive.

## Solution

Martin Johnson, an electrician at the mine, worked with Phoenix Contact to design an automated SCADA system monitoring the pumps and flow meters so that they would not turn on needlessly. The system incorporated a VFD, a level transducer, Phoenix Contact Data Radios (RAD-ISM-900-DATA-BD Bus Radio, RAD-IN+OUT-2D-1A-1 I/O Module, MINI-PS-100-240AC/24DC/1 Power Supply and RAD-ISM-900-ANT-OMNI-O-N Antenna).

In addition to monitoring pumps and flow meters, the new SCADA system is also used to transmit alarms in containment areas. With the wireless SCADA system installed, there is no longer a need to cycle all of the pumps every 90 minutes. The pumps now operate in conjunction with the transducer level and all critical data can be archived in the data historian.



**Phoenix Contact Trusted Wireless data radios monitor and report on the mine's pumps and flow meters.**



**Because of the difficult terrain and remote nature of the wells, traditional monitoring systems could not be used.**

## Results

The mine can now maintain a constant level in the wells, record the gallons per minute and get information on total flows for the water system. Pump problems or flow meter malfunctions can be spotted immediately, without manual monitoring. Because all important information is sent to the data historian, it is easy to keep the system running properly.

By using VFD and level transducers, the mine reduced the power consumption with a more efficient system of controls. According to Johnson, the system paid for itself through the energy savings it provided. He said the system's improved performance is a large benefit, and that the company's reporting system is now more accurate.

