

Instrowest was established in 2006 to provide quality instrument and electrical contracting services to the mining and mineral processing industries, with a strong focus upon safety. Instrowest can provide a comprehensive installation, maintenance, calibration, and repair service to all sites within Western Australia. Instrowest can also help in solving any instrument or control related problem that you may be facing.

At Instrowest we are committed to providing reliable, high quality sales and service while maintaining respect, integrity and trust to our clients and those within our organisation. We aim to provide this service by understanding our client's needs, wants and constraints while finding a solution that is fit for purpose.

At Instrowest we will always maintain an innovative approach that sets us apart from others; if a traditional method is not suitable or ineffective, we will endeavor to find an alternative or innovative approach to achieve our client's goals.

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## BHP Billiton - Compressed Air Mass Flow Measurement

In mid-2010, Instrowest was approached by BHP Billiton's Nickel West to assist them with the compressed air measurement from their compressor house onsite. This consisted of a pitot tube DP flow transmitter on one line and an orifice plate DP flow transmitter on another.

Upon investigation, we found that one DP transmitter had failed and that neither instrument had pitot tube or orifice plate data available. We also found that static pressure and temperature were not being measured or included in any flow calculations. As no data for the flow elements was available, we were unable to guarantee the accuracy of the instruments.

Instrowest reported on our findings and suggested that the best step forward was to replace what was fitted with new elements and instruments. BHP Billiton agreed with this and told us that the measurement was critical not only for attributing cost to different departments, but also if they could shut down one of their four compressors, they could realize a massive cost saving. With this in mind, Instrowest drafted a priced proposal for an upgrade to the system and proposed that we install a temperature and pressure compensated mass flow measurement system.



Once the capital was approved, Instrowest set about ordering the equipment which consisted of two Yokogawa Verabar flow elements (averaging pitot tubes) with EJX110A DP transmitters, a Yokogawa EJX530A Gauge Pressure Transmitter for system pressure and two PT100 RTD's and thermo wells with Yokogawa YTA70 "Puck" style temperature transmitters.

Instrowest had to liaise with site to plan the work in with a full plant and mine shutdown. This was because the whole site is fed from this one compressor house. In late November 2011, Instrowest attended site to install all the instrumentation and commission the installation. Due to the thorough planning, the installation went smoothly and was completed on time and on budget.

## Results

Once the new instrumentation was commissioned, site was surprised to find out what their actual air usage was and the areas in which they used it. Previous to this instrumentation, common thought was that the mine was using more air than the process plant, although that assumption was proved to be inaccurate. This also allowed accurate distribution of costs associated with compressed air generation and maintenance.

With the mass flow instrumentation in place, site engineers can now accurately measure the results of their projects to improve air efficiency. They are also able to detect major process changes due to leaks from line rupture within the mine and can then shut the line off, hopefully before the loss of air effects the process plant.



This project is a prime example of how the use of appropriate instrumentation can provide tangible data to enable your site to save on costs. With this in mind the question should be asked, **"How Much Are Your Instruments Costing You?"**



If you would like Instrowest to assist you with any instrumentation queries or problems please contact us.

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