

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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Bitumen Level Measurement BGC Asphalt - Hazelmere operations

The Problem

Instrowest was contacted by a member of BGC Asphalt's compliance team to provide a solution for the monitoring of liquid bitumen stored in two new storage tanks measuring about 10 meters high.

Accurate level measurement was crucial, not only for inventory management but also because the storage vessels are loaded by a tanker truck, overloading the vessel may result in extremely hot bitumen spills, this would not only be messy but dangerous, creating a hazard for those involved.

Bitumen will offer harsh challenges to most level instrumentation, as the high temperature and sticky nature of the product will cause vapors and product build up on most contacting and non-contacting level sensors inside the vessel. In addition to this the bitumen tank was classed as a zone 2 hazardous area so the transmitter had to be rated for such an installation.

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The solution

Instrowest proposed the use of a Siemens LR200 6 GHz pulsed radar level transmitter, due to their proven success in similar bitumen and liquid environments. One of its many benefits is that it uses a 6 GHz radar frequency which means it has great performance even with slight product build-up. The transmitter would be mounted on the top of the storage vessel and the horn and process connections were selected to achieve optimum performance for the given application.

The LR200's unique design allows safe and simple programming online using the intrinsically safe handheld programmer without having to open the instrument's lid; this is great for performing maintenance activities without having to isolate the instrument when installed in hazardous areas.

As part of the project Instrowest also offered a Siemens RD200 display for each tank as a local indicator to be installed at ground level near the fill point, to allow the truck driver and field operations personnel to monitor in real time the levels in the tank.

Results

Once installed Instrowest came to site to commission the radars, using Siemens PDM software, our expert technician was able to fine tune the echo profile for each vessel, using the industry leading dynamic false echo suppression. Each Radar level transmitter was able to be customized to monitor each tanks level perfectly, large and small obstructions such as agitators and even small tank welds along the side of the vessel where able to be ignored by the process intelligence features built into the transmitter. This resulted in the true echo representative of the actual bitumen level to be reliably determined and output to the control system and field indicators for accurate and reliable level monitoring.



Fig 1: The two Siemens LR200's as installed on top of the Bitumen tanks.

Following the success of these level instruments Instrowest has been contracted to fit subsequent bitumen vessels with the same level solution.

Instrowest has also since this installation returned to site to set the level transmitters up for a volume measurement so that tanker deliveries can be reconciled. Initial tests conducted showed an accuracy of 0.76% when compared against the sites weigh bridge.

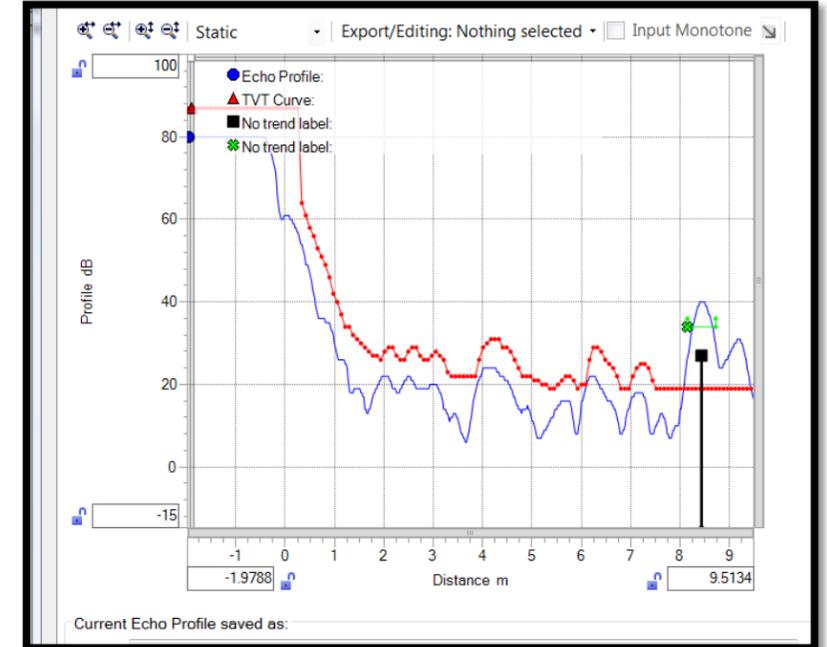


Fig 2: The echo profile of a near empty bitumen vessel.



Fig 3: Two Siemens RD200 Remote Display's in their own IP68 enclosures mounted at ground level for field operators and the truck driver loading the tanks.

If you would like Instrowest to assist with your instrumentation needs please contact us.

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