

Atlass

A New Paradigm for Aerial Surveying in the Mining Industry

Atlass is a new and growing name in aerial surveying in Australia. Started in 2007, Atlass (Aerial Topographic Laser Survey Systems) has found its niche in the mining industry. The company uses state of the art "LiDAR" technology to provide high resolution survey information in a quick turnaround. It currently has ongoing contracts with more than a dozen companies and is expanding.

We spoke to Atlass' Managing Director, Matt McCauley, about why he started the company and what makes their service so attractive to the mining industry.

Knowing the industry from the inside

In 2006, Matt McCauley was the Mining Manager for Anglocoal's Drayton Mine. He was experiencing first hand the effects of the skills shortage on the mining industry. "My surveyors simply weren't able to keep up with the demands of our engineers for accurate and timely topographic models. I started to investigate some alternative approaches."

The shortage of mining professionals was having a significant impact on mines all over Australia. Accurate and up to date survey information is essential for planning and forecasting. What was needed was regular surveys of the entire site to better target production and support and give engineers pit shell information that could be used for designs and forecasts. But how could this information be obtained in an accurate and timely manner?

At that time, the mining industry relied on contract surveyors. However, having personnel not familiar with the site, driving in and out of heavy equipment areas was not an appealing option. Existing aerial services were too expensive and the turn-around too slow. To Matt McCauley the solution was becoming increasingly clear - a high frequency laser mounted on an aerial platform.

He recalls "I had not even heard of LiDAR or ALS (aerial laser scanning) but after conducting a lot of research, I realised there were a range of technologies ideally suited to mining applications". Matt had been a pilot for some time and had always had an interest in technology. "For me, this was a pretty exciting discovery. I believed that here was an opportunity to provide aerial surveying, targeted to the mining industry, at a realistic price. I felt so sure about the business concept that I left Drayton and started Atlass."

Matt understood that convincing conservative mine surveyors to adopt the new technology would require a compelling argument. After all, he had been a conservative mine manager. But he knew what the industry needed and what he could deliver. He adopted three core principles:

1. Provide a service with accuracy as good or better than current services available to the industry;

2. Price lower than the current providers; and,
3. Turn around within 3 days for regular surveys - this was the real breakthrough. No-one else in the industry was providing whole of mine information as up to date as this.

The technology

The key to being able to meet these principles was in the technology. Further research and a trip to Germany allowed Matt to determine the combination of technology required:

- Full waveform LiDAR. This is a light detection and ranging technology capable of maintaining high accuracy in the steeply sloping and complex areas found in open cut mines. "It's similar to radar, but uses a pulsed light beam instead. As a result it's much more precise than radar, with the LiDAR laser and navigation system accurate to within a few centimeters. There is nothing else in aerial surveying in Australia's mining industry that comes close" Matt explains;
- Single engine fixed wing aircraft modified to support the survey equipment. This has allowed Atlass to keep its costs low while maintaining safety at low altitudes and low air speed where twin engine aircraft were statistically less safe and helicopters too expensive; and
- Automated batch processing to allow data processing to be kept within the tight timeframes

"We entered into an exclusive agreement with German LiDAR specialist Toposys, now owned by Trimble, and purchased a package of equipment and software. In August 2007, we conducted our first laser survey at the Drayton Mine in Hunter Valley."

The Atlass story so far

The results from the initial surveys were very positive. Accuracies of $\pm 100\text{mm}$ were being achieved and the company developed processing workflows and computing systems that allowed it to easily achieve its target turn-around. Demand for Atlass services however, was initially limited to

the smaller mines with tighter budgets and more innovative mine surveyors.

Atlass utilised this time to develop its systems and procedures. Matt brought a strong safety and systems focus from his time in the mining industry. The company's commitment to safe operation and their team's understanding of the safety drivers made dealing with the aviation regulator, CASA, a relatively straight forward process. "I am very proud that during our two years of operations we have had no significant safety incidents" Matt said.

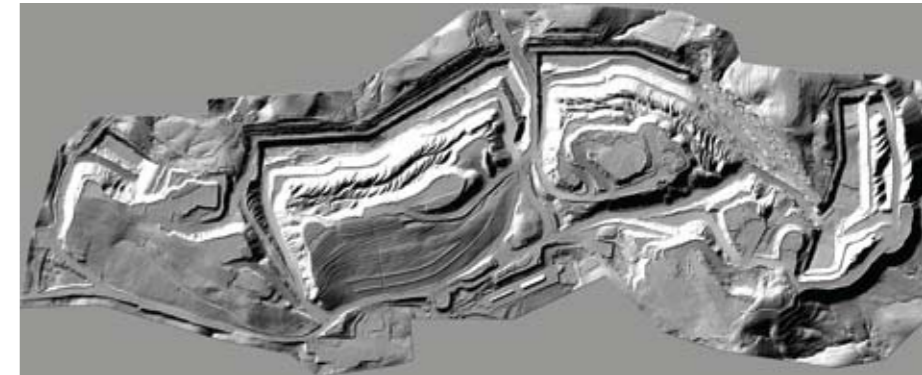
Atlass now conducts several surveys a week from the Torres Strait to Adelaide. Many of their mining clients choose to purchase a package of monthly surveys which includes stockpile volumes and ortho-rectified images of operating areas. The rapid turn-around allows the data to be used for mine planning and monthly reporting. "Getting accurate images and the data within 3 days of the survey is something that the mining industry has not had before" says Matt. "It is taking the guess work out of planning".

"It's the growing demand for our services that is the best measure of our success and the quality of our product" says Matt. Atlass recently purchased a second sensor system and now operates two aircraft, one of which is dedicated to the mining industry, greatly increasing their capacity. The company has also recruited specialist staff to allow it to offer a broader range of products, including environmental survey products.

"Our goal for 2010 is to improve our market position in the coal industry. We are constantly developing new processing workflows and as a result the quality and range of our products is always improving. I am particularly pleased with the quality we have achieved with our ortho-images"

The future

Matt has given more than a passing thought to how his business could operate in the west. "I don't have quite the depth of knowledge about the Western Australian Mining Industry that I have about the Coal Industry so there is bit of work to do. I can imagine Atlass operating a similar business successfully out of one of the mining centers in WA."



The immediate focus however is definitely the QLD and NSW coal industry. Atlass sees a bright future in this business. With new mines and new infrastructure planned there is plenty of scope for filling the spare capacity in the Atlass business.

