

Fuelling the future

Paul Nelson of OPW Fuel Management Systems tells how its fuel control and measurement systems have been used at Peace River Coal's Trend mine in Canada

The Trend Mine in Tumbler Ridge produces up to 1.8Mt/y of coal

The British Columbia town of Tumbler Ridge, located in the far northeastern corner of the province on the eastern slopes of the Rocky Mountains, about 1,100km from Vancouver and 640km from Edmonton, may have an idyllic name, but this is not reflected in the town's climate.

Indeed, 'extreme' does seem to do an injustice to describing the weather that Tumbler Ridge's 3,300 residents must deal with – constant strong winds and savage snowstorms with temperatures that can reach -40°C. But while Tumbler Ridge will never boast a strong tourism market, it does have something that makes it a preferred destination in the coal-mining industry – vast reserves of metallurgical coal that can be used for coking steel.

Tumbler Ridge was founded in the early 1980s by Peace River Coal, which is headquartered in Vancouver, as a leaping-off point for entry into the Peace River coalfield, which extends for 400km through northeastern British Columbia. In the past 30 years, the Peace River coalfield has produced more than 181.4Mt of metallurgical coal.

Since 2005, most of the mining operations in the area have centred around the Trend mine, which is situated 25km south of Tumbler Ridge on the side of a mountain and produces up to 1.8Mt/y of coal.

CHALLENGES

Operating a coal mine in such a remote region with an inhospitable climate does not come without challenges. All of the trucks, bulldozers and crushers employed at the mine have two things in common: firstly, they must be able to operate reliably in the extreme weather conditions; and secondly, they consume huge amounts of diesel fuel. In fact, one mining truck can have a fuel tank as large as 3,785L. The amount of diesel fuel needed to keep Peace River's Trend mine operating is mind-boggling.

"Fuel is absolutely critical for them; without it they can't operate," explains Terry Hayman, a senior technician with PD McLaren in Burnaby, British Columbia, which manufactures, distributes and services petroleum-handling products and services, including fuel pumps and dispensers, electronic



hardware and software, and liquid-metering and storage systems.

He continues: "Those mine trucks will use 63L/h of fuel – just idling. The mine goes through in excess of 100,000L of fuel every single day, and can consume 36 million litres of diesel fuel in a year."

Keeping such a large fuelling operation adequately supplied requires tanker trucks to come to the mine throughout the day, where they keep the site's trio of 45,000L above-ground storage tanks (ASTs) loaded. Until recently, however, Peace River was doing nothing more sophisticated to track that fuel than testing the tanks to check fuel levels.

"I had been pushing for four years to get something more sophisticated," says Jim Cardno, former purchasing manager for Peace River Coal and the Trend mine. "Management was manually dipping the tanks, which was archaic."

"They had nothing to do any kind of auditing," adds Mr Hayman. "It was like, 'Okay, we received 100,000L of fuel, but where did it go?' They used to turn a switch on that would start one of the ASTs and if the register didn't turn, they'd say it was empty, then move on to the next one."

With this system, not only did Peace River have just a vague idea of its fuel consumption, but it was playing with regulatory fire. In 2009, the Canadian government mandated that companies that receive fuel must comply with all environmental regulations, as well as being able to document where every litre

of fuel went. At any time, the government could demand an audit of the mine's fuel usage and if Peace River could not satisfactorily relate how the fuel had been used, the company could be sanctioned.

A NEW TRACK

Realising that the fuel-tracking system at the mine had become outdated and unreliable, Mr Cardno went in search of a better alternative in 2011. That led him to Mr Hayman and PD McLaren, which recommended an integrated fuel-management system package from OPW Fueling Components.

The recommended solution consisted of the Site Sentinel iSite Automatic Tank Gauging System, along with the FSC3000 Fuel Site Controller, C/OPT Fuel Island Terminal (FIT) and Phoenix Plus fuel management software package from an OPW subsidiary, OPW Fuel Management Systems.

iSite is a versatile tank-monitoring system, with the ability to provide real-time information to end-users. It can be accessed from anywhere in the world via Internet connection. The heart of the system is the VSmart Module, which transmits the data from the probes in the ASTs with the iSite to deliver real-time tank-level measurements.

The FSC3000 stores transaction data, driver and vehicle records, and is integrated directly into the C/OPT FIT, which allows 24-hour fuelling. The Phoenix Plus software provides centralised control over the fuelling

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operation and features backup and restore functions, terminal emulation, on-demand or automatic transaction polling, and reporting capabilities.

The OPW-FMS system, which was installed in September 2011, allows Peace River Coal to track not only the amount of fuel its equipment is using, but also the fuel that might be used by the contractors who are working on site.

"Peace River is operating the mine with its equipment, but it also employs a large contractor base, who have all of their equipment burning fuel," explains Mr Cardno.

"It supplies fuel to the contractors because you can't have multiple fuel tanks all over the site for the different contractors. In the past, keeping track of what they used was a nightmare, but keeping track of fuel usage with this system is a dream. It knows what each piece of equipment has used, so there

are no questions, no disagreements."

As with the trucks and other heavy equipment in use at the mine, reliability is paramount for the new fuel-management system. To help protect it from the elements, PD McLaren constructed a phone booth-type structure around the C/OPT pedestal.

"It's working like a charm. Even in those extreme conditions, the system has been running

flawlessly," says Mr Hayman. "The iSite console and the FSC3000 are in a trailer that's run off a generator, and we set up the wireless link with two static IPs – one for the iSite and one for the FSC3000 – so that the card file can be manipulated from the maintenance

centre with emails going to the command centre in Vancouver and to the individual suppliers. Now they have checks and balances on the tankers when they come in to deliver the fuel."

The SiteSentinel iSite automatic tank-gauging system



The mine goes through more than 100,000L of diesel fuel every day, and can consume 36 million litres in a year

Peace River Coal is extremely pleased with the OPW-FMS system and its effect on fuel management at the Trend mine operation, says Mr Cardno.

"As far as the system goes, it's very, very good," he adds. "It's just a world apart from what it was before. The system can even tell you how many kilometres per gallon the truck is getting, so if they're idling you can know for how long and how much fuel is being used. We really tested the market before undertaking this project and the OPW-FMS system that Terry and PD McLaren recommended was the best system, by far." ♥

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