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Glencore awarded Redpath a life-of-mine contract for surface and underground operations for the Lady Loretta zinc mine in 2017.

A brand new fleet for Lady Loretta

MOUNT ISA, QUEENSLAND. Automation and equipment monitoring are helping Redpath Australia exceed expectations at Glencore's restarted Lady Loretta mine, one of the world's highest-grade zinc operations.

Text: Eric Gourley Photo: Adam Lach Published: 5 March 2019

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Glencore awarded Redpath Australia the Lady Loretta zinc mine contract in December 2017, encompassing the entire underground and surface operations and associated facilities management. Redpath's responsibilities range from crushing the ore it extracts and loading it onto road trains for haulage to Glencore's processing facility in Mount Isa, to managing the camp and keeping lawns manicured. Redpath also holds full statutory responsibility for the operation, a unique role for a contractor typically tasked with driving a decline or undertaking development and production. The broad scope intrigued John McKinstry, who came onboard as Redpath's operations manager for Lady Loretta. McKinstry has managed mines across Australia and North America during a 30-year career. "Operating a mine is an exciting proposition for Redpath," says McKinstry, the senior site executive at Lady Loretta. "A normal contractor scope is to put down a heading or undertake a specific task, but we have a much broader scope here. The infrastructure's already in place, so it's quite a different role for a contractor. Being a life-of-mine contract is unusual in itself. Most mines evolve as you develop and find more ore, but this orebody is very well-defined."

Redpath

The Redpath Group has provided full service mining solutions in more than 58 countries since its establishment in 1962. Redpath's services include underground construction, shaft sinking, raiseboring, mine contracting, raise mining, mine development, engineering and technical services and a variety of specialty services. The

Redpath recommissioned the mine within months of winning the contract, firing the first development round in March 2018. Production ramped up quickly and by July 2018 Redpath was meeting Glencore's production and development targets. Monthly production grew to 100,000 tonnes, with a full production capacity targeting 133,000 tonnes per month. The contract length enabled Redpath to invest in a brand new fleet for Lady

a variety of specialty services. The company has more than 7,700 employees worldwide and regional offices in Australia, Canada, Chile, Germany, Indonesia, Mongolia, South Africa, United States and Zambia.

Loretta. “We wanted to meet or exceed targets right from the start, so we brought in new, cutting edge technology to minimize operating costs and maximize productivity, knowing that we’ve got a good life to work the equipment over and amortize assets,” McKinstry says.

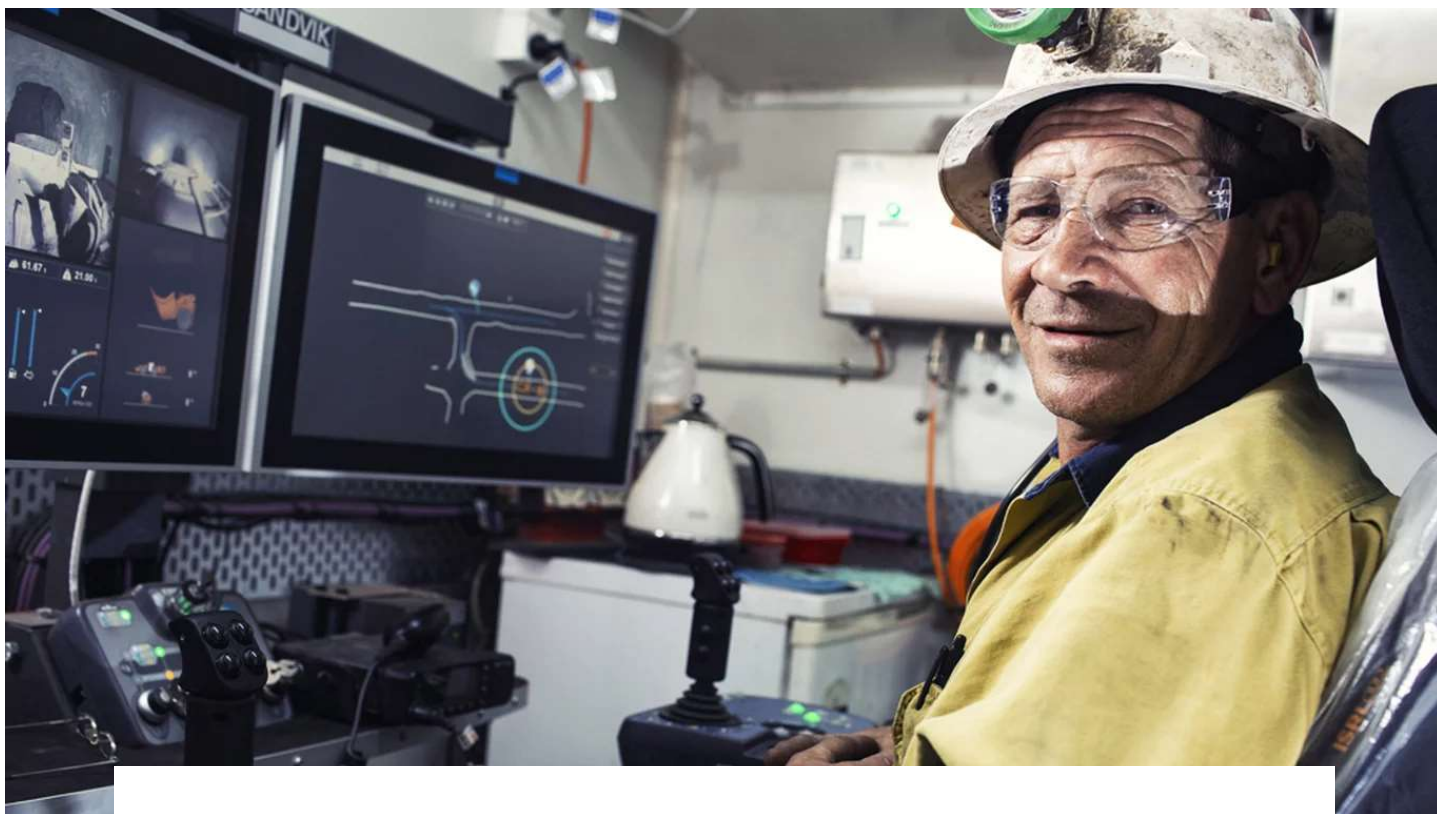
Two Sandvik DD421 jumbos with 10/16 split feeds have outperformed since commissioning. Redpath has consistently achieved 400 development metres per month using one Sandvik DD421, with the second serving as a backup and handling any rehabilitation work. “We’ve had an excellent run out of the jumbos since they’ve been here,” McKinstry says. “From day one, we’ve consistently exceeded expectations that we had.”

Ore is removed by a fleet of four Sandvik LH621 loaders. Two are operated conventionally for development, manual production and truck loading while the other two are equipped with AutoMine Lite for remote operation. “The 621 I think in a lot of people’s eyes at the moment is probably the loader to be using in the bigger operations,” McKinstry says. “It’s a big machine. It’s a very productive machine, very comfortable machine for operators, and then having the AutoMine on top of that just means it really sells itself in many ways.”

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Redpath’s motivation for implementing automated loading was simple: regain the productivity lost during each shift change. “There’s a long period of time from when a blast occurs to when you can re-enter the mine,” McKinstry says. “If we can operate those machines from the surface over shift change, we can pick up up to a couple of hours a day in productivity. The other thing about AutoMine is that it does the same thing time and time and time again without banging the walls. It really does just run the perfect line each time.” Redpath runs three levels at any one time, optimizing the loading process. From the comfort of a remote hut on a nearby level, operator Tony Rosvall trams ore to the stockpile with precision. He’s developed an appreciation for AutoMine’s mapping capability.




Operator Tony Rosvall values AutoMine's mapping capability along with the improved safety of operating the loader remotely.

"It can show you where you are in a stope," Rosvall says. "If you get out there and if there's a bit of dust around you can get half lost and you're sort of not sure where you are. With the AutoMine at least you can see where you are, you know where the walls are and you know your angle. You've got a level in there and you can go 'Oh, I'm about to tip over.' You can correct yourself, so that's good." The connectivity provided by a Wi-Fi network underground has not only enabled Redpath to implement the automated loading from the surface, the contractor can also monitor and manage its fleet in real time through My Sandvik Productivity, the cloud-based version of OptiMine Monitoring. OptiMine has been synonymous with equipment monitoring in the Australian mining industry since its first installation in 2014. My Sandvik Productivity mobile fleet monitoring allows Redpath to keep tabs on equipment condition online and act more quickly to remedy any issues that arise. The solution provides detailed, readily analyzed data. Each connected loader collects data onboard and uploads it when it comes within range of a Wi-Fi antenna. The data can be accessed from any computer or tablet.

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The condition monitoring helps Redpath's Lady Loretta maintenance manager Shane Timothy and his team improve their predictive maintenance planning. My Sandvik Productivity also identifies trending behaviours that can damage equipment or shorten component life, revealing training opportunities. "When it brings up log codes and faults and alarms, it actually tells you what that means," Timothy says. "So you can hover across your icons, for instance, where it says that there's a brake fault, and it would tell you that your operator is perhaps pressing the brake and accelerator pedal at the same time, which isn't something that we want them to be doing unless they're going at a very low ground speed."

McKinstry believes having better-informed operators who understand their equipment and its limitations will reduce downtime. "We hope that by giving operators the feedback that they'll change their behaviour in their operation of the machines," McKinstry says. "And if we can address it early, then I believe we're going to get better availability out of this equipment." Timothy sees vast potential in the equipment monitoring solution. "The opportunity to jump online and have a look and see exactly where that loader is or that piece of plant is at any one time, see how our operators are operating that equipment, see if they're operating that equipment effectively and efficiently, and being able to pick up those very minor improvements if something isn't going the way that it's meant to, and then being able to share that knowledge across our fleet, across our operators, it will drive improvements across this mine site," Timothy says. "It will help to keep our prices down and keep our productivity up."

Lady Loretta mine

The high-grade Lady Loretta zinc mine is located 110 kilometres northwest of Mount Isa. Production began in 2013 and the mine was placed on care and maintenance in 2015 before its restart in March 2018. Redpath operates the mine with a workforce of 227 people. With a nameplate annual ore capacity of 1.6 million tonnes, Lady Loretta can produce as many as 160,000 tonnes of zinc per year over its remaining six-year mine life.