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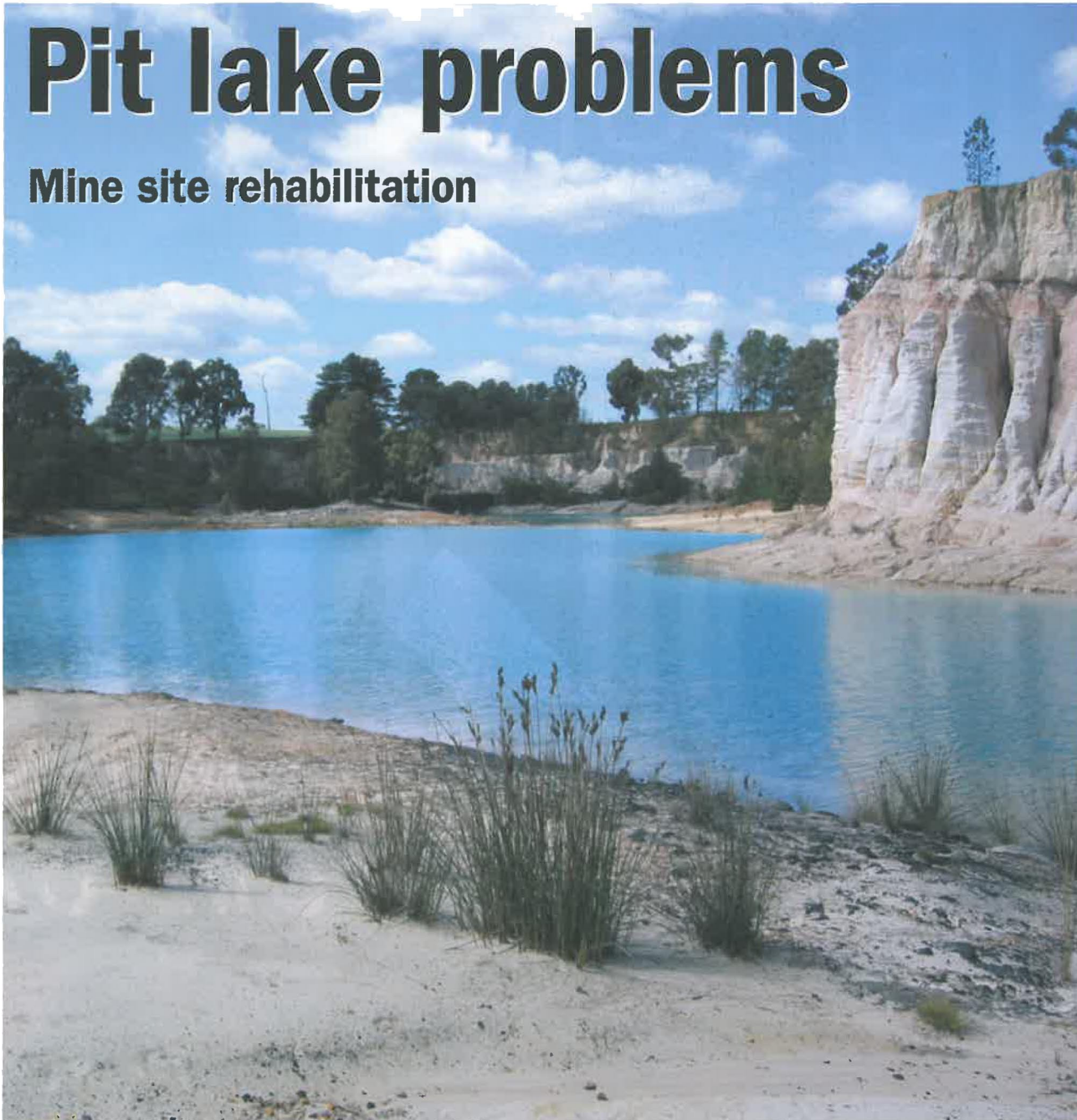
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Harder, better, safer

Roll over protection systems are making a greater impact on site, Cole Latimer reports.

The safety cycle is one that continually moves forward.

Moving in line with it is critical, especially on a mine site where the potential for injury is high.

And one area that is paramount on site is vehicle safety, because if you can't get there safely you may not get there.

Adding to this safer push on site, Minecorp has developed a bolt on tailored range of internal safety cell roll over protection systems (ROPS) for light vehicles with side curtain airbag systems.

Speaking to Minecorp founder and director Mark Lacey, he told *Australian Mining* that this development is a major step forward in light vehicle safety, and particularly good timing.

Most roll over protection systems are custom designed and fitted either internally or externally to standard mine ready light vehicles such as Toyota Landcruisers post production.

Up until this purpose designed technology was introduced, internal roll over protection systems were not available for light vehicles with side curtain airbags.

Instead, bulky external



The internal roll over protection system previously obstructed the deployment of side airbags.

systems or ones that obstructed the side curtain airbags from fully deploying were all that was available.

These side curtain airbags are designed to protect the driver and passengers from coming out of their seats and their ribs from being broken in an accident while also providing lumbar and thoracic vertebrae support, but it does not stop the roof from crushing in if the car rolls over.

“Previously, the roll cage would interfere with the side curtain airbags deploying, so people would not install ROPS over the airbags as they were misled by their vehicles NCAP safety rating into thinking that the car is much safer than it is” Lacey told *Australian Mining*.

“But when vehicles pass the NCAP five star rating system there is no requirement to make the roof strong

and protect against crush, so if a car rolls over twice or more there is a good chance someone will die.

“Increasing the roof strength is critical for light mine site vehicles.”

Recently Toyota released side curtain airbags in all of its Prado 200 Series Landcruisers and Hilux models to protect the occupants, and while these have been considered effective in reducing passenger deaths by close to a third, the air bags systems pose serious challenges for manufacturers of roll over protection systems.

Due to the placement of the side curtain airbags within the vehicle, it has not been possible to fit a roll over protection system without compromising the deployment of the airbags, essentially rendering the vehicle unsafe for use in high risk environments such as a mine site.

So as more light vehicles entered the mine site with side curtain air bags installed as a standard feature, Minecorp saw a serious issue that was not being addressed.

“We had to invest heavily in CNC and it took time to effectively bring together ROPS

and the side curtain airbags without one impeding the other,” Lacey said.

Prior to Minecorp's development “people kept trying to do it the old way and there was no one who was globally manufacturing any consistent internal system,” he said.

The roll over protection had to not only protect the enclosed cabin space during accidents, but also had to allow for full and proper airbag systems deployment through the car.

To overcome this glaring issue, Minecorp developed the Safety Cell ROPS, which are computer drawn and CNC bent, and offer a versatility that has not existed before.

“It was difficult enough to install an internal ROPS with these airbags, which required a whole new level of engineering, but a real problem faced is convincing people that the roll over protection systems are necessary in these light vehicles.

“Rollovers account for up to 34% of all fatalities involving four wheel drives in Australia alone,” he said.

“On top of this, studies confirm a direct correlation between roof crush and occupant injury.”

He said that to date, there are very few instances of cars rolling over multiple times and the passengers walking away unharmed.

“So why people are still seeing the installation of safety equipment, such as ROPS, as a nuisance and something that is undertaken only to avoid litigation is a mystery,” Lacey told *Australian Mining*.

“We've seen instances where plastic pipes and exhaust pipes wrapped in substantial padding are used as a gate pass for ROPS safety checks.

“But with a new national code of practice set to go live in July this year, there will now be a much tougher stance on the quality and manufacturing process of roll over protection systems,” he said.



NCAP safety ratings don't take into account roof strength in the case of a vehicle roll over.