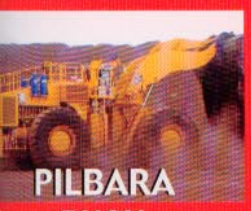
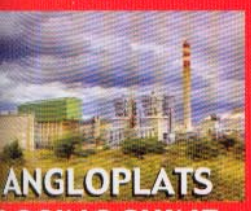


PILBARA PUSH



ANGLOPLATS LOSING SHINE

DRIVING DOWN HAULAGE COSTS

AUSTRALIA'S

MINING MONTHLY

October 2005

www.miningmonthly.com

DYNAMITE DEAL

Orica-Dyno tie-up dissected

$9.90

ISSN 0725-91131

Print Post Approved
PP643831/00007

Ultra-class trucks arrive in central Queensland ... Caterpillar 797B at Goonyella-Riverside.

continued frompage 84

8% ramps might be able to slash its fuel use from 360 litres/hr to 45 litres/hr.

"If the ratio of diesel to electricity cost continues to increase and electricity costs remain static or decrease in real terms with improved infrastructure and supply chain arrangements, more operations (than one or two in Australia) may implement trolley-assist," Caruso said.

As with Australia, the North American mining industry has not embraced trolley-assist as yet. Liebherr's Dion Domaschenz said flexibility of the trolley installation was a major hurdle, along with the disparity between electricity and fuel costs in some countries, and even regions. "The difference between the electricity cost and fuel cost in the US is not as great as that in South Africa where trolley-assist is used currently," he said.

"Of course you have two modes of trolley: trolley only — when on the trolley line the engine does not contribute, and diesel boost — when on the trolley line the trolley provides a percentage of the power and the engine provides a percentage.

"Then you have different line voltages for DC drive, early AC drive and the new IGBT AC drive, so mixed fleets can cause problems as well as the height of the installed overhead line.

"Unless the difference between the fuel cost and electricity cost increases significantly, trolley is not for everyone." AMM

Training gaining

HIGH-COST capital equipment, including dump trucks, must be operated around the clock for mines to justify their investment in both the hardware and the personnel driving the vehicles. But mine owners face a dilemma when they have to train people up to operate trucks and other equipment as productively and safely as possible.

Do they pull a $3 million dump truck out of a production circuit for training, count the loads not hauled and multiply by the value of the minerals not processed? Or put a novice operator in a truck and risk his or her safety, excessive wear on tyres, engines and brakes, or complete destruction of the $3 million truck if the operator doesn't respond properly to a vehicle fire?

With current supply shortages and/or delivery delays affecting the availability of tyres and equipment, decisions about diverting production equipment have been made for most operators, rather than by them. There is just no spare capacity.

Little wonder then that the realistic exposure to mine working conditions, vehicle features and emergency responses afforded by advanced equipment (AE) training simulators is being utilised by an increasing number of mine owners and contractors.

Immersive Technologies, a Perth-based company which leads the global market with its installed population of AE simulators, estimates more than 90% of the units are being used for haul truck training.

"We estimate that more than 6000 haul truck operators worldwide have been trained on the (Immersive) AE simulator," said the company's business development manager (Australia, Africa, Asia and Europe) Oye Obe.

"Available worldwide equipment data reflects a general tendency for mines to run proportionally smaller yet higher capacity fleets. Mines are requiring these high-cost machines to be utilised at near 100% production rates at all times.

"The ability to train operators outside of the production circuit and continue to re-train experienced operators, while ensuring the highest level of throughput is achieved with minimum reactive maintenance, are among the ways we have seen mines increase the return on their fleets."

Immersive has developed about 60 AE simulators using proprietary technology and information from major equipment manufacturers Caterpillar, Komatsu, Bucyrus, P&H Harnischfeger, and Terex. Its fixed-installation or mobile simulators realistically mimic the controls and operational functions of haul trucks, excavators, dozers, loaders, shovels and draglines. Immersive software is also used to accurately recreate client mine features, and site conditions such as rain, dust and fog.

Australia's biggest mining company and mining contractor is using Immersive AE simulators to train dump truck and other equipment operators.

According to Reuben Barber, training co-ordinator (simulator) for the BHP Billiton Mitsubishi Alliance (BMA) coal mines in Queensland's Bowen Basin, use of the AE simulator could reduce training time for a trainee truck operator by up to 50%.

Currently being used to train Caterpillar 793 dump truck operators at the Saraji mine, the unit is likely to be switched to Goonyella Riverside to assist with training of 797B ultra-class truck operators later this year.

"The simulator is seen as a definite positive in terms of training cost reduction, and future advances in technology may increase its benefits in honing the skills of the workforce," Barber said. He said the AE simulator allowed BHPB to assess operator skill levels and ensure an operator could respond correctly

continued page 89

Advanced equipment simulators ... safe and cost-effective way to train new and experienced equipment operators.

continued from page 86

and quickly to events that might otherwise cause engine, transmission, hydraulic component or tyre damage. It is also used to ensure operators and trainees could react properly to emergency situations such as engine and tyre fires, or loss of brakes.

Barber said operators learned correct transmission use and braking, and got a better understanding of how transmission and braking systems worked. They also learned to handle differing site conditions and operate machines properly. Scenarios could be used repeatedly to develop better operating practices.

"Human beings are habitual by nature and the simulator is most helpful in turning around inappropriate behaviours to those that enhance the longevity of the machine and lead to a decrease in machine and property damage, which has a direct positive result on the bottom line," Barber said.

"All this can be done in a learning environment without the pressures of production constraints and without affecting the fleet's production expectations.

"It is also very useful in assessing a new employee's possible skill level and suitability for the mining industry, and in this time of skills shortages is a very valid training and assessment tool."

Australia's single biggest mining contractor, and probably the country's largest earthmover, Thiess, says its investment in an AE simulator is a "proactive initiative to help address some of the issues associated with the skill shortages currently affecting the industry" and to ensure the company has a "safe and highly trained workforce".

Thiess Queensland/Northern Territory/Pacific mining manager, Michael Rosengren, said he saw the simulator as a particularly valuable training aid for inexperienced equipment operators. "We see benefits associated with providing a safe environment to train new employees who may not have had a lot of experience in the industry, as well as upskilling or maintaining skills within our existing workforce," he said.

The simulator would supplement existing operator training methods by reinforcing important emergency response skills, curbing bad operating habits, and teaching people to operate machines the way they were designed to be operated, thereby reducing plant damage and maintenance costs.

"From both a safety and commercial point of view it is important we have well trained operators driving high-value mobile capital equipment," Rosengren said.

The AE simulator's initial posting at a central Queensland mine led to a reduction in the number of equipment alarms generated after simulator training. Rosengren said the change was particularly evident in the area of engine over-speeding and high brake temperatures.

"The simulator is also useful as a formal assessment tool enabling us to improve our level of analysis and measure workforce patterns to help identify training requirements and minimise resultant equipment damage," he said.

Immersive's Obe said some equipment operators trained with the company's AE simulators in Africa and Asia had not driven a car before their first exposure to mining vehicles. Others had no prior mine exposure.

"The ability to train 24 hours a day in a safe environment, without hindrance to production, will continue to be a major driving factor in the mining industry's acceptance of, and demand for, the AE simulators," Obe said.