

ALLIANCE WITH CATERPILLAR AIMS TO IMPROVE HSEC ASPECTS OF EARTHMOVING EQUIPMENT WHILE REDUCING COSTS



Following the BHP Billiton merger in mid 2001, significant business opportunities were identified, one of which was to reduce the total cost of ownership of the earthmoving equipment (EME) fleet at our operations around the world. Following an intensive process that investigated all major international EME suppliers, Caterpillar was selected as the primary supplier to meet our needs for the global sourcing of earthmoving equipment and related parts and services. In early 2003, BHP Billiton and Caterpillar committed to an initial five-year strategic alliance, which aims not only to save costs but also to reduce HSEC risks associated with the operation of earthmoving equipment.

In developing a long-term alliance with Caterpillar and their dealers, our common aim is to work together to deliver increased value by reducing the total cost of ownership of our earthmoving equipment fleet through continuous improvement process projects. These will also lead to mechanical and operational enhancements that comply with the BHP Billiton Fatal Risk Control Protocols, decrease HSEC risks associated with the earthmoving equipment and help us achieve our goal of Zero Harm.

We aspire to deliver breakthrough HSEC performance and lower operating costs through more effective capital expenditure, improved parts pricing and product support. This will be achieved by utilising the resources of both alliance partners in a collaborative drive to facilitate achievement of our cost reduction, productivity and HSEC enhancement objectives.

HSEC and sustainable development benefits arising from the alliance

With the support of the Company's HSEC and asset management teams, focus areas were identified that enabled the implementation of projects and initiatives. These include:

- developing and evaluating vehicle collision avoidance systems, which generically include the use of closed circuit television cameras and radar detectors mounted on the equipment; in addition the use of radio frequency tagging of equipment using the haul roads is under review
- reducing and monitoring operator fatigue
- improving ergonomic issues such as whole body vibration, visibility, comfort and noise affecting both operators and those nearby
- improving the access systems on the machines, including the ability to maintain three-point contact and the development of powered access systems
- reducing fuel burn, lubricant consumption and engine emissions
- developing equipment lockout systems, improving fire prevention systems and improving operator visibility on the machines.

Specific enhancements to ensure compliance with the BHP Billiton Fatal Risk Control Protocols include:

- the use of tie-off points on the equipment for maintenance crews when working at height



► Caterpillar 797 truck operating at the Escondida copper mine, Chile

- provision of high intensity discharge lighting to improve visibility during hours of darkness
- improvement in access systems such as angled stairways and fenders over the wheels to reduce the risk of slippery surfaces
- heated rear-view mirrors in arctic conditions to prevent the build up of snow and ice
- the use of training simulators to develop operator skills without risking the health and safety of operators.

The use of three-point seat belts for additional operator restraint and neck support is also currently on trial.

These initiatives and others aim to reduce risk to the Company and our employees, and improve the environment, relative to earthmoving equipment, in which we work.

Project example – reducing whole body vibration

Working at our Goonyella Riverside open-cut coal mine in the Bowen Basin of central Queensland, Australia, a team comprising representatives from the mine, Caterpillar and Hastings Deering (a Caterpillar dealer) has commenced a pilot project – the D11R Whole Body Vibration Project – looking at reducing vibrations on a Caterpillar D11R track dozer.

An early outcome of this project is the trialling of two new semi-active suspension seats developed to reduce vertical vibrations experienced by the operator. These seats have been designed to vary their damping characteristics according to changing ground conditions. The team is also looking for other sources of vibration to reduce the total vibration exposure of the operator. Measured vibration levels on site have demonstrated some clear gains can be made.

Phil Kelliher, Caterpillar's Global Manager for the BHP Billiton Alliance, believes that the close working relationship formed through the alliance will benefit all participants. He says, 'The Whole Body Vibration project is a good example of cross-functional teamwork, empowered by the Operational Excellence process, delivering solutions to some of BHP Billiton's major EME challenges while at the same time helping Caterpillar and our dealers design and maintain a safer product offering'.