

## Press release

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### **Rio Tinto chief executive unveils vision for 'mine of the future'**

**18 January 2008**

Key building blocks for automated mine-to-port iron ore operations are being commissioned by Rio Tinto. These include:

- Mine operations in the Pilbara to be controlled 1,300 kilometres away at a new centre in Perth;
- Driverless trains to carry iron ore on most of the 1,200 km of track;
- Driverless 'intelligent' truck fleet; and
- Remote control 'intelligent' drills

Tom Albanese, Rio Tinto chief executive, unveiled his vision of the 'mine of the future' in Perth today as part of Rio Tinto's drive to maintain its position as Australia's leading iron ore producer. The Group aims to be the leader in integrated and automated mining and transport in the Pilbara iron ore region, leading to greater efficiency, lower production costs and more attractive working conditions that will help Rio Tinto to recruit and retain staff in the highly competitive labour market.

Major components of the 'mine of the future' are being commissioned in Rio Tinto Iron Ore operations in 2008 and 2009 including establishing a Remote Operations Centre (ROC) in Perth to manage operations in the Pilbara mines hundreds of kilometres away. This allows operators overseeing Rio Tinto Iron Ore mines and process plant facilities to be physically located in Perth, Western Australia.

Remote control 'intelligent' trains, drills and trucks will be operational within Rio Tinto Iron Ore during 2008. Humans will no longer need to be hands on as all this equipment will be 'autonomous' – able to make decisions on what to do based on their environment and interaction with other machines. Operators will oversee the equipment from the ROC.

Tom Albanese said, "Rio Tinto is changing the face of mining. We have at least a three year start on the rest of the industry, which has focused on discrete technologies rather than modernising the whole mine-to-port operation. We're aiming to be the global leaders in fully integrated, automated operations. It will allow for more efficient operations and directly confront the escalating costs associated with basing employees at remote sites, giving us a competitive advantage as an employer along the way."

#### **Remote Operations Centre**

A Remote Operations Centre (ROC) will be built for Rio Tinto near Perth's domestic airport. When completed in 2009, the ROC will house at least 320 employees who will work with Pilbara-based colleagues to oversee, operate and optimise the use of key assets and processes, including all mines, processing plants, the rail network, ports and power plants. Operational planning and scheduling functions will also be based in the ROC.

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ROC-based management would oversee pit and plant control, as well as manage the most effective use of power distribution and support activity such as maintenance planning. Remote operation of RTIO mines and plant in the Pilbara has already been successfully trialled.

The centre will feature an operational control room, office block and supporting infrastructure, and allow for potential significant expansions beyond its initial scale.

#### **Driverless trains**

Studies are being finalised on the application of Autonomous Train Operations technology in a heavy haul capacity and are expected to lead to significant efficiency benefits. Mainline trials conducted with the Western Australia Office of Rail Safety have progressed well and a decision on the next stage of the project is expected in mid-2008. Automated rail management is the first major operation scheduled to be run from the Remote Operations Centre.

#### **'Intelligent' driverless trucks**

Rio Tinto will introduce into the Pilbara the industry-leading Komatsu Autonomous Haulage System, which will allow for a fleet of 320 tonne off-highway trucks to be operated without drivers. The system will be commissioned before the end of 2008 and is expected to be more widely deployed in new and existing Rio Tinto Iron Ore operations by 2010.

#### **Remote control 'intelligent' drills**

Rio Tinto is already using bespoke autonomous drill technology in the Pilbara to support the 'mine of the future' strategy.

#### **A pathway to fully automated mine-to-port operations**

Rio Tinto began work on defining building blocks for the 'mine of the future' over a decade ago and key components required for an integrated mine-to-port operating system are being assembled and tested by Rio Tinto Iron Ore.

A number of key technologies have been introduced on a staged basis, beginning in 2006 with the development of autonomous drilling rigs for the Pilbara. In early 2007, Rio Tinto established and funded on a long term basis the *Rio Tinto Centre for Mine Automation* in partnership with The University of Sydney. Under this partnership Rio Tinto has secured exclusive access to world renowned robotics experts dedicated to addressing Rio Tinto's 'mine of the future' opportunities.

This year Rio Tinto Iron Ore will start running extensive trials at dedicated mine test site. Trials will combine the world leading Komatsu Autonomous Driverless Haulage System with a range of other advanced remote control and autonomous technologies in order to provide an industrial scale proving ground and template. Experience gained by the business will allow for further deployments in the Pilbara in 2010 and will also have application at other Rio Tinto mining operations.

The 'mine of the future' programme will provide opportunities for technology driven performance improvements to support Rio Tinto Iron Ore's announced plans to take annual global iron ore production beyond 600 million tonnes.

## About Rio Tinto

Rio Tinto is a leading international mining group headquartered in the UK, combining Rio Tinto plc, a London listed company, and Rio Tinto Limited, which is listed on the Australian Securities Exchange.

Rio Tinto's business is finding, mining, and processing mineral resources. Major products are aluminium, copper, diamonds, energy (coal and uranium), gold, industrial minerals (borax, titanium dioxide, salt, talc) and iron ore. Activities span the world but are strongly represented in Australia and North America with significant businesses in South America, Asia, Europe and southern Africa.

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