



## Xstrata Copper North Queensland Division Sustainability Report 2006



## SCOPE OF THIS REPORT

This report details the health, safety, environment and community (HSEC) performance of Xstrata Copper's north Queensland operations from 1 January 2006 to 31 December 2006. This includes the HSEC performance of the copper operations at Mount Isa Mines, Ernest Henry mine, the Townsville copper refinery and Townsville Port Operation.

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For a comprehensive review of Xstrata's HSEC performance at its north Queensland operations please also refer to the following reports:

- Xstrata Mount Isa Mines Limited Sustainability Report 2006;
- Xstrata Copper Ernest Henry Mining Sustainability Report 2006;
- Xstrata Townsville Sustainability Report 2006; and
- Xstrata Zinc North Queensland Sustainability Report 2006.





## Chief Executive's message

In 2006, Xstrata Copper became the industry's fourth largest copper producer with operations spanning five countries and an annual managed production of over one million tonnes.

This landmark year in our growth was the result of two major acquisitions. These comprised the Tintaya copper operations in southern Peru from BHP Billiton in June and then Falconbridge's global copper assets through Xstrata plc's acquisition of Falconbridge in August. These acquisitions doubled the size of our copper business and were a further demonstration of our determination to rapidly grow as a major part of the dynamic Xstrata Group.

Xstrata Copper now has significant ore mining and processing operations in Australia, Chile, Peru, Argentina and Canada as well as substantial shareholding in two major joint venture copper operations – Collahuasi in Chile and Antamina in Peru. We also now have an impressive project pipeline with projects in various stages of evaluation and development in South America and the Asia Pacific region. In addition, we have acquired a recycling business with plants in Canada, the United States and Asia.

As part of this extraordinary growth last year we established three new divisions, Xstrata Tintaya, Xstrata Copper Canada and Xstrata Copper North Chile, and directed significant effort toward integrating our new assets by commencing the alignment of key systems and management practices across the organisation. We have now grown into an organisation of more than 13,000 people, and as the business grows we remain steadfast in our commitment to our strategic objectives in the areas of health and safety, environment, community and our people, namely:

- injury free, safe work environments for our people;
- demonstrated leadership in environmental performance;
- a reputation for social responsibility; and
- realisation of the full potential of our people.

Each of our five operating divisions has produced a comprehensive sustainability report for 2006 which provides performance information and describes how our people are working towards achieving these strategic objectives. The reports also give the divisional management an opportunity to demonstrate how our convictions about health and safety, environmental and social responsibility translate into the way we do business every day.

### Improving our safety and environmental performance

A strong management and organisational focus on health and safety during 2006 helped Xstrata Copper to continue its leadership role in the Xstrata Group with further significant improvements in safety performance. Zero workplace fatalities were recorded in 2006, and the lost time injury frequency rates (LTIFR) improved by an impressive 48% over the 2005 figures for the pre-existing Xstrata copper operations, to a figure of 1.3 injuries per million hours worked. The total recordable injury frequency rate (TRIFR) also improved, by 22% over the previous year, to 10.1 per million hours worked. However, safety management is relentless by nature and we must therefore continue to pursue further initiatives to improve safety performances, particularly in our newly acquired assets where safety standards and practices are being rapidly lifted to higher levels by our management teams.

As a result of maturing environmental systems and performance, Xstrata Copper revised its environmental strategic objective last year to reflect our goal to become an industry leader in environmental performance.

Examples of this leadership include the copper smelter at Kidd Metallurgical Site, Ontario Canada, where the capture of sulphur dioxide emissions exceeds 99%. In north Queensland, the Mount Isa copper smelter is improving its capture of sulphur dioxide emissions from 80 to 95% following a comprehensive emission reduction program that will continue during 2007.

Stormwater and groundwater management remained a priority for the Xstrata Copper divisions in 2006. In north Queensland, Mount Isa Mines and the Townsville Copper Refinery completed a series of stormwater improvements to mitigate discharge incidents associated with high rainfalls during the wet season.

At Alumbrera in Argentina, a unique 'store and release' capping system for waste rock dumps and tailing storage facilities has been successfully trialled to maintain water quality for downstream users. At Tintaya in southern Peru, water from tailing dams is being recycled and used to irrigate local vegetable farms and to provide water for cattle.

Further improvements to our environmental performance are expected following the implementation of a common Environmental Management System across the expanded copper business unit.



## Chief Executive's message continued ...

### **Extending our commitment to Corporate Social Involvement (CSI) and community engagement**

Xstrata plc sets aside 1% of its pre-tax profits to fund Corporate Social Involvement (CSI) programs. Xstrata Copper has again shown a strong commitment in this area during 2006.

Last year, Xstrata's three commodity businesses operating in Queensland, Australia – copper, coal and zinc – launched the Xstrata Community Partnership Program Queensland, a three year, AUD\$2.93 million program in the areas of health, social and community development, and education. This State-wide initiative is a natural extension of the highly successful north Queensland program which commenced in 2005. Both programs have achieved some exciting community outcomes and have served to strengthen Xstrata's brand and reputation amongst our stakeholders, including our employees, communities and governments. New initiatives will commence in these programs in 2007 bringing the combined value of both programs to over AUD\$10 million to support Queensland communities.

In Argentina, Minera Alumbrera committed more than US\$6 million in a major new initiative in 2006 over three years for a series of health and education related projects in the Tucumán and Catamarca areas. The first project, the remodelling of two wards at Padilla Hospital, was completed in December last year. The upgrade involved major infrastructure works, including electricity, water, sewage, ventilation, interior fit-out, and landscaping. Similar works commenced at the Tucumán Children's Hospital in June 2006 and are scheduled for completion in early 2007. And in December the construction of a new technical school commenced in Belén in Catamarca, which is scheduled for completed in early 2008. These infrastructure projects are being managed in addition to the ongoing comprehensive community programs with communities in the areas surrounding Alumbrera.

Following our acquisition of the Tintaya operations in Peru, Xstrata Copper confirmed the company's commitment to the pre-existing community programs that had been established with communities

surrounding the operation, and has subsequently extended community programs and engagement processes to reflect an inclusive management style.

Following two years of extensive community consultation, the Las Bambas project in southern Peru published its Social Involvement Program for 2006–2008. Las Bambas has committed US\$1 million per year towards initiatives focused on improving nutrition, health, education and income generation in local communities. These include a major irrigation and cattle management program, improvements to local school infrastructure, and the introduction of a guinea pig breeding program, hydroponic pasture farms, and development of the local crafts industry.

The Las Bambas project illustrates how Xstrata Copper manages community impacts prior to the start of its operations. It is intended that similar approaches will be developed at Xstrata Copper's newly acquired operating divisions and projects as we seek to align our approach to community engagement and support.

### **Commitment to standards and excellent performance**

Xstrata Copper is committed to the International Council on Mining and Metals (ICMM's) principles for sustainable development. We are passionate about the pursuit of excellence in health, safety, environmental and socially responsible performance. I hope that this particular sustainability report provides you with sufficient information to allow you to judge our progress against targets during 2006 and to understand our goals for the coming year.

**Charlie Sartain**  
*Chief Executive*  
Xstrata Copper



## Chief Operating Officer's message

Our sustainability performance across financial, health, safety, environmental and community criteria has been a key focus of our north Queensland operations in 2006.

The statistics in this sustainability report reinforce the significant role Mount Isa Mines, Ernest Henry mine and CRL Townsville Refinery have in Xstrata Copper's operations worldwide and the north Queensland economy and community. The report also illustrates our employees' passion for our operations and this is captured in the case studies featured throughout the report.

Without doubt 2006 was highlighted by many significant improvements in key areas of our north Queensland businesses. Our sustainability and operational highlights for 2006 include:

- 61% improvement in the lost time injury frequency rate, 59% improvement in the disabling injury frequency rate and 10% improvement in the total recordable injury frequency rate which we will continue to build on in 2007 to reach our goal of zero harm;
- Mount Isa Copper Operations received the prestigious Department of Mines and Energy's award for most improved safety and health performance for all mines and quarries in Queensland;
- Mount Isa Mines' Copper and Zinc operations voted 'Best Metalliferous Mine in Australia' for the second successive year;
- significant environmental performance improvements at all north Queensland sites, particularly in stormwater capture and controls from our mining lease areas;
- record tonnages mined, hoisted and processed from the Mount Isa Copper Operation team, including stage 1 completion of the Northern 3500 orebody development;
- outstanding determination and operational drive by the Ernest Henry team in dealing with the aftermath of two late season cyclones which severely restricted pit access and production;
- successful completion of the ISASMELT rebrick by our smelter team which will allow a further three years of continuous operation;
- significant progress on the smelter expansion projects including the successful second rotary holding furnace commissioning;
- CRL support of the smelter performance by processing all delivered anode in a unit cost-effective manner.

It is easy to focus on the frontline production teams, but without the tireless efforts of all our support teams we would not have realised our achievements. I am very proud of the value that each team – Finance and Commercial; Engineering; Exploration; Human Resources; Supply; Administration and Services; Port and Logistics; Contracts; Safety; Community Relations; Environment; and Strategic Mine Planning – has added to the overall business outcome.

Our goals have come to fruition not only through successful partnerships with our employees, but also through partnerships with our local communities and other stakeholders. I am very grateful that they too share our passion.

I look forward to presenting future results of our commitment to sustainability in the coming years as we continually progress towards industry leadership in health, safety, environment and community initiatives and partnerships.

Our sustainability report is designed to share our progress with you and we welcome your feedback. Please email your comments to [nqsustainability@xstratacopper.com.au](mailto:nqsustainability@xstratacopper.com.au) or write to me at Xstrata Copper, PMB 6, Mount Isa, QLD, 4825.

**Steve de Kruijff**  
*Chief Operating Officer*  
Xstrata Copper North Queensland



## Our approach to sustainable development

For Xstrata, sustainability is about caring for the environment in all stages of mining and metal production; efficient and responsible use of resources, including energy, water and land; keeping our employees safe and healthy; improving services and facilities in communities where our employees and their families live; helping these communities to build the capacity to sustain themselves as vibrant, self-reliant centres; and providing our shareholders with a highly profitable return on their investment in our business over the long term.

### XSTRATA COPPER'S DEFINITION OF PURPOSE

**We will maximise value for shareholders by successfully growing and managing an industry-leading portfolio of copper assets that deliver superior returns.**

**We will achieve this in a safe, environmentally and socially responsible way, in open partnerships between our people and with communities, governments, and other stakeholders.**

#### Strategic objectives

- injury-free, safe work environments;
- recognised leadership in environmental performance;
- reputation for social responsibility;
- realisation of the full potential of our people;
- achievement of the full capacity of our physical assets;
- cost competitiveness through the cycles;
- value creation through dynamic growth and continuous improvement; and
- effective implementation of common key systems and strategies.

#### Values

Our decisions and actions will demonstrate the following values:

- honesty;
- dependability;
- respect;
- confidence;
- ingenuity;
- courage; and
- passion.

#### Our global perspective

Xstrata is a global diversified mining group, listed on the London and Zürich Stock Exchanges, with its headquarters in Zug, Switzerland. Xstrata's businesses maintain a meaningful position in seven major international commodity markets: copper, coking coal, thermal coal, ferrochrome, nickel, vanadium and zinc, with recycling facilities, additional exposures to gold, cobalt, lead and silver and a suite of global technology products, many of which are industry leaders. The Group's operations and projects span 18 countries: Argentina, Australia, Brazil, Canada, Chile, Colombia, the Dominican Republic,

Germany, New Caledonia, Norway, Papua New Guinea, Peru, the Philippines, South Africa, Spain, Tanzania, the USA and the UK. Xstrata employs approximately 43,000 people, including contractors.

### ENDURING VALUE – A FRAMEWORK FOR SUSTAINABLE DEVELOPMENT

Xstrata Copper is a signatory to *Enduring Value – the Australian Mineral Industry Framework for Sustainable Development*. This framework was developed and launched by the Minerals Council of Australia (MCA) in October 2004 to give practical effect to the International Council on Mining and Metals' (ICMM) sustainable development principles.

The key role of *Enduring Value* is to translate the principles of sustainable development into practices that ensure industry operates in a way that meets community expectations and maximises the long-term benefits to society by effectively managing Australia's natural resources.

As a signatory to *Enduring Value*, Xstrata Copper has obligations to include progressive implementation of the ICMM Principles, public reporting of site level performance at least annually and assessment of the systems used to manage key operational risks (using either internal or external assessment as appropriate).

### XSTRATA COPPER SUSTAINABILITY POLICIES

Xstrata is committed to achieving sustainable growth and shareholder value across all its operations. At Xstrata Copper, our HSEC policies provide a framework for our operations to address health, safety, environment and community initiatives in a sustainable way. Our Safety and Health Policy includes 10 principles that we apply as we strive to prevent injuries and achieve excellence in our safety performance. Our Environment Policy guides us in effectively implementing our environmental management systems which are aligned to Xstrata's business principles and management standards. Our Community Policy includes 12 principles that guide us to strive to achieve a reputation for social responsibility by contributing to the social, economic and institutional development of our local communities with the participation of stakeholders to improve the quality of life for all.

Our HSEC management systems enable us to work constructively with governments, local authorities, academia, community representatives, non-government organisations and other stakeholders. In doing so, Xstrata's policies are characterised by open and honest engagement with stakeholders through effective, transparent consultation and communication.



## Contributing to our economy

Xstrata Copper has demonstrated its commitment to maintaining the proud history of the mining and metals processing operations it has acquired and to providing an exciting future for the communities in which it operates.

The combined copper and zinc businesses contribute to the north Queensland economy through:

- employment of over 4,600 people, including contractors;
- an annual wages bill of more than \$339 million, most of which is spent in north Queensland;
- apprenticeship and youth training opportunities of almost \$7 million;
- \$256 million spent on purchasing regional goods and services;
- \$455 million spent on purchasing goods and services in Queensland;
- \$4.1 million paid in annual rates to local councils;
- annual contributions of \$1.8 million, directed to community partnerships, donations, sponsorships and community programs;
- \$145 million in rail, power and water charges; and
- \$67.2 million paid to governments in taxes and charges.

### OUR PRODUCTION

Xstrata Copper's North Queensland Division consists of:

- Mount Isa copper operations, metallurgical operations, and administration and services;
- Ernest Henry Mining, Cloncurry;
- Copper Refineries Pty Ltd (CRL), Townsville; and
- Townsville Port Operation.

#### ■ Mount Isa Mines

In 2006, Mount Isa Mines produced 6.2 million tonnes of ore, 194,100 tonnes of copper in concentrate and 213,000 tonnes of copper in anode, using state-of-the-art mining and processing technologies.

Major projects during 2006 included the rebrick shutdown where refractory linings within the ISASMELT vessel, rotary holding furnace No 1 and anode furnaces were replaced and modifications were made to allow completion of the second rotary holding furnace. This furnace was commissioned and came on line in September. Expansion of the copper smelter continued including the design construction of a slag and revert crushing and screening plant, two additional oxygen plants and a slag cleaning furnace. These projects will be completed during 2007, and will allow the operation to achieve an annualised production rate of 300,000 tonnes per annum of anode.

#### ■ Ernest Henry Mining

The Ernest Henry copper-gold deposit, located 38 kilometres north-east of Cloncurry, is the third largest copper ore body in Australia.

In 2006, 59.2 million tonnes of material was mined, producing 10.8 million tonnes of ore and 287,888 tonnes of copper in concentrate. In addition to copper, more than 100,000 ounces of gold was produced in 2006.

The Ernest Henry mine concentrator is a single line plant using contemporary equipment, designed to treat nine million tonnes of ore a year, which equates to treating nominally 1,200 tonnes per hour. Tailings are pumped to an engineered tailings storage facility for long-term containment. The concentrate is either transported by road to Mount Isa, where it is smelted and refined at Mount Isa Mines' copper refinery in Townsville, or exported through the Port of Townsville.

Copper head grades were 27% lower than 2005 in line with the mine plan developing through a 'halo' of lower grade ore. The harder ores associated with the lower copper grades resulted in a 10% decrease in ore milled and a 35% decrease in copper-in-concentrate production compared with 2005. Gold production was somewhat lower for similar reasons. The mine plan and operations also were impacted by two cyclones in the first half of 2006.

#### ■ Townsville operations

Xstrata's Copper Refineries Pty Ltd (CRL) and port operation in Townsville form a major part of the Group's north Queensland operations.

CRL refines Mount Isa-produced anodes (99.7% pure copper) to copper cathode for domestic and international sale as ISA brand 99.995% pure copper. In 2006, CRL produced 208,617 tonnes of saleable cathode.

The Townsville Port Operation handles mineral concentrates in and out of the port, and fertiliser out of the port. In 2006, the port operation shipped a total of 1,804,800 tonnes of product, comprising 994,500 tonnes of concentrate and 810,300 tonnes of fertiliser.

#### ■ Production facts

Copper	2006 production
Mount Isa	6.2 million tonnes per annum of ore mined 194,100 tonnes of copper in concentrate 213,000 tonnes of copper in anode
Ernest Henry	59.2 million tonnes of ore mined 83,965 tonnes of copper in concentrate 105,563 ounces of gold in concentrate
Townsville refinery	208,617 tonnes of copper cathode



# Caring for our people

The health and safety of our employees is critical to the business success of Xstrata Copper's North Queensland Division. We believe that all work-related incidents, illnesses and injuries are preventable.

## HEALTH AND SAFETY

We strive to achieve our goal of zero harm through health and safety leadership at all levels, effective health and safety systems, compliance with Xstrata's 17 HSEC Management Standards, and the introduction of behavioural-based programs.

In 2006, we began to progressively implement our updated and restructured occupational health and safety management system (OHSMS) which is now aligned with the Xstrata HSEC Standards and HSEC Policy, Australian Standards AS:4801, AS:4804 and AS:4360,

and the *Queensland Mining and Quarrying Safety and Health Act (1999)* and Regulations (2001). Our OHSMS was subjected to several external audits during 2006 with favourable results – identifying good practices in OHSMS across site and positive improvement opportunities. Training continued to be an area of major focus for our north Queensland operations during 2006 with many new workers continuing to enter the mining industry with little or no industry experience.

## Health

### ■ Occupational health

Exposure to occupational hygiene hazards is a key occupational health and safety challenge for our operations at Mount Isa, Ernest Henry and Townsville. In 2006, comprehensive reviews of monitoring programs for dusts, noise, asbestos fibre, arsenic in urine, radiation, lead and potable water were undertaken at Mount Isa Mines. A detailed potable water management procedure was developed which defines drawings, testing loops and schedules, exposure standards, internal controls and trigger levels for potable water where Mount Isa Mines exercises control over water quality.

Mount Isa Mines invested more than \$350,000 on occupational hygiene sampling and analysis in 2006.

### Occupational hygiene sampling and analysis (Mount Isa Mines)

Type of sample collected and analysed	Number
Potable water (microbiological and metals)	1,003
Noise	760
Airborne dust (inspirable, respirable, asbestos and static)	1,366
Arsenic in urine	280
Lead in blood	10,737

« Russell Hall and crew members at the Hardstand observe information for the day ahead at the daily mine production pass meeting.

## HEALTH AND SAFETY PERFORMANCE

2006 Targets	Performance
<b>North Queensland operations</b>	
Zero fatalities	✓ (0)
LTIFR < 2	✓ (1.5)
DIFR < 8	✓ (7.1)
TRIFR < 20	✓ (17)
<b>Mount Isa copper operations</b> (including mining, metallurgical, administration and services)	
Zero fatalities	✓ (0)
LTIFR < 2	✓ (0.8)
DIFR < 8	✓ (7.2)
TRIFR < 16	✗ (19)
<b>Ernest Henry Mining</b>	
Zero fatalities	✓ (0)
TRIFR < 9.9	✗ (11.1)
Train a greater percentage of the site team as PASS champions	✓ (20% to 35%)
Upgrade orientation and induction process	→
Train key Emergency Response Team (ERT) personnel as instructors in a number of emergency response disciplines	✓
<b>CRL</b> (including ISA PROCESS)	
Zero fatalities	✓ (0)
DIFR < 10	✗ (17.6)
TRIFR < 15	✗ (20.5)
Complete PASS implementation	✓ All workgroups have daily PASS meetings
Complete HAZOPs for circulation and anode casting activities	→ HAZOP conducted for anode casting activities (gas conversion)
Develop bow-tie risk assessments for top 10 risks	→ Assessments commenced
Broaden the range and number of people involved in workplace observations	→ Training package developed
Improve incident investigation quality and train people in techniques	✓ Several sessions of TapRoot training organised in 2006 and used on level 3 investigations
<b>Townsville Port</b>	
Zero fatalities	✓ (0)
Achieve targeted training requirements	→ Roster change during 2006, required an increase in personnel
Improve ergonomics of the shiploader cabin 1	✓ New shiploader cabin installed
Achieve a HSEC audit score > 70	✓ HSEC audit score 72

2007 Targets
Zero fatalities
LTIFR < 1
DIFR < 4
TRIFR < 13
Zero fatalities
LTIFR < 1
DIFR < 4
TRIFR < 13
Zero fatalities
TRIFR < 12
Achieve self-sufficiency in PASS
Upgrade orientation and induction process
Align emergency response systems with Xstrata NQ Emergency Management Framework
Zero fatalities
DIFR < 10
TRIFR < 15
Complete HAZOPs for circulation and anode casting activities
Complete bow-tie risk assessments for top 10 risks
Complete workplace observations roll out
Improve incident investigation quality and train people in techniques
Implement gap audit findings to further align with AS 4801
Complete implementation of periodic health assessments
Develop HAZOP study for tankhouse circulation
Zero LTIs
Compliance with safety training > 90%
Implement the actions from the HSEC 2006 audit
TRIFR < 8
DIFR < 2

✓ Achieved    ✗ Not achieved    → Action continues into 2007



Ernest Henry Mine's Senior Environmental Advisor, Mick Hawkins, undergoes a periodic health assessment with one of the full-time Registered Nurses at the mine.

## ■ Monitoring Programs

### ■ Potable Water

Water samples are taken of the potable (drinking) water lines across the lease to ensure water provided to workers adheres to the Australian Drinking Water Guidelines. A range of chemical, physical and biological tests are performed on the samples including metals, chlorine, bacteria, pH and turbidity. Sampling is scheduled at regular intervals for all areas of the lease to maintain this water quality.

### ■ Noise

Employees participate in personal sampling in each of the operating areas to provide representative samples of exposure to noise. In conjunction with this, static sampling is also performed to identify problem areas. All results are used to help in the review and implementation of noise reduction strategies which include hearing protection requirements, maintenance schedules, sound proofing options, influencing plant and equipment selection, and design meeting 'buy quiet' principles.

### ■ Airborne Dust

Employees participate in routine personal inspirable and respirable dust in each of the operating areas to provide representative samples of exposure. Inspirable dust samples measure dust particles and the level of other contaminants in the dust, such as lead, arsenic, copper, thallium and cadmium. Personal respirable dust monitoring, which includes monitoring for respirable quartz (silica), measures a sub-set of the overall inspirable dust, these are the smaller particles which can be inhaled deeper in the respiratory tract. Static dust sampling is provided on request in conjunction with inspirable and respirable personal sampling to assist in the determination of dust hazards.

### ■ Arsenic-in-Urine

All workers in the Copper Smelter are required to provide a urine sample every four months to monitor exposure to arsenic. The Arsenic-in-Urine test is used to measure arsenic and metabolites of arsenic giving a broader indication of both recent and preceding exposure.

### ■ Lead in blood

All workers on the Mount Isa Mines lease are required to have venous lead in blood tests at frequencies which are determined by the area they work in, their previous result, gender and reproductive capacity. This form of biological sampling provides an accurate measure of a worker's exposure to lead. In 2006 there were four instances of people exceeding the national medical removal limit. In the five-year period from 1998–2002, there were 32 reported instances of National Occupational Health and Safety Commission (NOHSC) elevations. At the end of 2006, we have achieved a 66% improvement with only 11 reported instances of NOHSC elevations in the current five-year period from 2003–2007.

In response to concerns raised in the media about whether children's blood lead levels were being monitored closely enough, Queensland Health commenced a targeted campaign in September 2006, supported by Xstrata, to test the blood lead levels of 400 Mount Isa children aged one to four, to obtain a statistically relevant sample. Xstrata will continue to work with Queensland Health and the Environmental Protection Agency following the release of the study results in 2007 to ensure the good health and wellbeing of the local community.

### ■ Health assessment and management

Before joining Xstrata Copper all employees complete a comprehensive health assessment. These are undertaken at least every four years during employment, depending on the nature of the role undertaken, the age and general health of the employee, and the presence of pre-existing conditions. Health assessments are also conducted when employees leave the business. In 2006, 92% of our Townsville Port Operation employees participated in periodic health assessments. The assessments identified five employees who were at medium risk. As a result, two employees participated in a health management program and were re-rated as low risk, two were signed off as acceptable risk and the fifth person is participating in a health management program.



Peter Kirk, medic for the Ernest Henry Mine Emergency Response Team, descends the headframe at the Hard Times Mine as part of a rescue exercise during the 2006 Mine Rescue Challenge.

On site health management was boosted at Ernest Henry mine with the appointment of two full-time injury management coordinators and a clinical nurse, all of whom are registered nurses. Physiotherapists also visited site two days a week to provide treatment for our workforce. In addition, the health team was supported by new equipment in the clinic to allow a more rapid diagnosis and treatment of injuries and illnesses.

We continued to run education and awareness programs to encourage employees and their families to maintain healthy lifestyles, optimise long-term working life and income-generating capacity and reduce short-term absences from work due to sickness.

## ■ Soft tissue injuries

The *Over a Period of Time (OPT)* Study continued at Mount Isa Mines during the year, providing insight into the characteristics and management of latent onset soft tissue injuries. The study involved the review of 100 medical records, 69 semi-structured, one-on-one interviews and direct workplace observation of the identified higher risk roles. It has provided qualitative and quantitative evidence bases for future practice. The results of the OPT initiative provide an opportunity to combine proactive and ergonomic intervention strategies with current injury management approaches.

## Safety

### ■ Improving safety

Our Positive Attitude Safety System (PASS), a communication tool designed to improve the flow of safety information and encourage safety improvement, was fully implemented across our north Queensland operations in 2006 with positive results including increased hazard reporting, improved safety communication, and prompt resolution of safety issues. The number of PASS champions and facilitators was increased to assist us achieve our 2007 target of 10% of our workforce trained as PASS champions, to ensure the momentum of safety education and practice is maintained.

### ■ Our safety performance

Safety performance is tracked using several measures – total recordable injury frequency rate (TRIFR), lost time injury frequency rate (LTIFR), disabling injury severity rate (DISR) and disabling injury frequency rate (DIFR), which record the number of injuries per million hours worked. TRIFR measures all injuries except first aid cases and includes the impact of significant injuries on employees who may be able to perform alternative duties, but not their normal function, and who would not be captured by indicators based on lost time injuries alone.

In 2006, we achieved our north Queensland TRIFR target of 20 or less, recording a rate of 17.

Xstrata's north Queensland Copper Operations achieved significant improvements in safety performance in 2006, achieving all of their safety targets. The operations achieved a 61% improvement in LTIFR, a 59% improvement in DIFR, and 10% improvement in TRIFR. Overall, since 2003, significant improvements against all these measures have been achieved and in 2006, and the Mount Isa Copper Operations mining division was recognised with the Department of Natural Resources and Water's High Achievement Award for Improving Mine Safety and Health Performance.

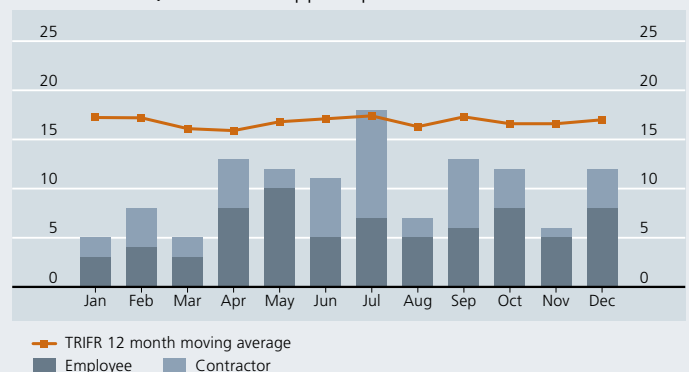
Ernest Henry's safety performance improved in several key areas. This year the disabling injury frequency rate decreased from 10.5 at the start of the year to 3.7, with the number of disabling injuries reducing from 17 in 2005 to six in 2006. The DISR rate reduced from 794 to 188 – a 76% improvement which shows the importance of preventing injuries, as well as early incident reporting to ensure the provision of the best treatment available. The TRIFR fell slightly from 12.4 to 11.1.

In 2006, CRL did not achieve its DIFR target of 10, recording a result of 17.6. CRL also did not achieve its TRIFR target of 15, recording a result of 20.5. While these results are disappointing, our total disabling injuries have dropped from 10 in 2004, to seven in 2005, and six in 2006. Five of the six disabling injuries for 2006 were recorded in the first six months of the year. Our Townsville Port Operation recorded a single lost time injury (LTI), while the ISA PROCESS technology group recorded no LTIs for the year.

No fatalities were recorded at our north Queensland operations in 2006.

### Total recordable injury performance

Xstrata north Queensland Copper Operations – 2006



Xstrata North Queensland Copper Operations achieved significant improvements in safety performance in 2006, achieving all of their safety targets.



Peter Smith fits the gimble chute, an innovation from the Townsville Port employees.

### ■ Response and recovery

To ensure we are prepared to respond to a range of operational challenges, we implemented the North Queensland Response and Recovery Plan and its supporting documents across the business. A comprehensive training framework was established to provide the mines rescue team – made up of employees from the underground and surface operations – with fire fighting, search and rescue techniques, vertical height rescue, hydraulic tools, air bag recovery and advanced first aid. We completed mapping the assessment packages used by the mines rescue team to the National Competency Standard, and team members will achieve a Certificate III in Response and Rescue competencies on completion of their training.

Mount Isa Mines hosted the Queensland Mine Rescue Challenge at the Hard Times Mine in 2006. We provided equipment to help create difficult and realistic scenarios and our team achieved a commendable second place in the competition.

### ■ Award winning innovations

Our site-based Innovation Awards continued in 2006, resulting in a range of outstanding practical solutions to safety, health and operational issues across our north Queensland operations.

The 2006 award recipients included:

#### Mount Isa copper operations

- **Ore bin live tonnage calculator:** Geoff Gray, a production electrical supervisor, had found it difficult to measure the contents of the underground bins. He tried ultrasonic level sensors and radar but was unable to obtain useful readings. Working closely with one

of our electrical engineering vacation students, Geoff developed an innovative solution that measures the amount of ore flowing into and out of the bin and calculates the difference – the amount of ore remaining in the bin. The system self-calibrates, resetting itself automatically to zero. This innovation will lead to better control of the ore flow by the operators, which will mean safer and more consistent hoisting.

- **N3500 database:** Eamonn and Tammy Dare from Mine Coordination developed the N3500 database innovation as a more effective and efficient way of storing and retrieving geological information from core and underground mapping data. The database has been invaluable in auditing ground conditions over time, and provides a visual record of rock type and structure encountered during development of the new N3500 mining block. This has led to a better understanding of geological structure and direct application in the design of new mine openings, resulting in an overall safer and more robust development plan.

#### Townsville operations

- **Preventing Kunz crane end hooks opening:** Mark Edgerton's winning innovation involved changing the crane computer logic to ensure that the end hooks could only open in a controlled manner. The modification significantly reduces the potential for cathodes and anodes to fall, which has positive impacts for safety and production.
- **Shiploader gimble chute replacement (port operation):** The shiploading maintenance team reduced the risks associated with removing and replacing the steel gimble chute and intermediate section by replacing it with a single, high density, polyethylene chute lined with polystyrene easyslide. The lightweight gimble chute can now be removed and replaced by just one person.



The goanna bar jig, an innovation from Ernest Henry mine to prevent manual handling of heavy dozer blade protectors.



Students from the University of Queensland School of Metallurgy sample copper concentrate at Mount Isa Mines. Over 100 university students were employed across Xstrata's north Queensland operations in 2006 as part of Xstrata's vacation work experience program.

- **Purpose-built wagon shunter:** Contracts Officer, Allan Green, developed a simple solution to the problem of moving one or several railway wagons on site, with the purpose-built Zagro wagon shunter. The wagon shunter can shunt a maximum of 1,173 tonnes using a 4.5 tonne-capacity forklift. The Zagro eliminates the need to have a loader on site.

#### Ernest Henry operations

- **Side (Goanna) Bar Lifting Jig:** Contract boilermaker, Greg Doolan, from the heavy maintenance crew developed a lifting jig to prevent manual handling of heavy dozer blade protectors.
- **Boom Arch Hose Work Platform:** Greg Doolan was also responsible for a second award-winning innovation which cost less than \$500 to develop – a drop-down platform on Caterpillar excavators to eliminate working at heights.
- **Oil Filter Cutting/Stripping Bench:** A mine maintenance crew developed a purpose-built bench for cutting and stripping oil filters. The bench enables the filter to be held in place while the maintenance fitter cuts it open for inspection, preventing oil spills which are a safety and environmental hazard.

## MANAGING OUR HUMAN RESOURCES

The commitment and capability of our employees is key to the ongoing success and sustainability of Xstrata north Queensland operations. Our human resources strategy, and accompanying initiatives, support this requirement through the development of individual capabilities and organisational culture.

In the year ending December 2006, Xstrata north Queensland operations provided jobs for over 4,600 people.

### Developing vocational skills

Xstrata North Queensland works closely with key stakeholders in the community to provide real and meaningful vocational career pathways for individuals in careers that reflect the needs of our business. Our vocational skills development program aligns a number of key initiatives:

#### ■ Training opportunities for school students

Our close involvement with secondary schools in the region introduces senior students to opportunities within the mining sector and provides on-the-job training which contributes directly to a recognised qualification (Certificate III or trade). These initiatives include a structured work experience and readiness program, traineeships, school-based apprenticeships, and lead involvement in the Queensland Academy of Minerals and Energy. In 2006, we awarded \$1,000 bursaries to 16 high-performing secondary school students involved in this program. A further 20 bursaries will be awarded in 2007.



Adult Apprentice Diesel Fitter, Adam Briskey, and Diesel Fitter, Justin Preece, change brake calipers on a Caterpillar dump truck at the rebuild workshop at Mount Isa Mines. As part of our apprentice program, Xstrata encourages employees to consider a trade career and has an annual intake of adult apprentices from our existing workforce.

### ■ Fostering apprentices

Xstrata's north Queensland operations spend close to \$7 million a year on apprentice salaries, running the largest apprenticeship program in north-west Queensland. With 72 apprentices recruited into the business in 2006, and a further 74 commencing in 2007, our projected apprentice numbers will exceed 250. Our apprenticeship program focuses on providing real employment and skills opportunities for people living in the region and currently targets more than eight key trades. In addition to new apprentices, Xstrata North Queensland offers up to 10 adult apprenticeships each year to existing employees who want to move into a vocational career path.

### ■ Skills Centre

The opening of the Xstrata Skills Centre in early 2006 demonstrated Xstrata's commitment to training. The centre, located in Mount Isa and staffed by 10 training professionals, incorporates a series of training rooms as well as metal fabrication, fitting, electrical and diesel workshops that provide state-of-the-art training facilities to the apprentices. Sixty-six apprentices completed their first year training at the centre.

### ■ Developing professional skills

The ongoing development of technical and leadership skills is critical, not only for our ongoing success but for the sustainability of our industry. In 2006, Xstrata north Queensland increased the number of scholarships it supports from 12 to 22. The scholarship program provides support to students studying degrees in key skill shortage areas, including geology, mining engineering, mechanical and electrical engineering, and metallurgy. The scholarship provides \$24,000 to the student over three years and also guarantees vacation work with an Xstrata operation during this time. In 2007, Xstrata north Queensland will increase this program to more than 30 students with a contribution of \$720,000 over three years.

In 2006, Xstrata North Queensland employed more than 100 university students in our vacation work experience program. Students worked in an Xstrata business unit and experienced life in a remote or regional Queensland community. The program provides excellent salaries as well as assistance with accommodation and transportation. We employed 70 permanent graduates across regional and remote Queensland in 2006.

### ■ Building leadership

More than 500 people were involved in our leadership development program (LDP) in 2006. The LDP aims to articulate the role of a leader within the business and provide the required skills. Designed and delivered internally, it focuses on the real needs of the business and its leaders. Modules include leadership, coaching for performance, planning and communication.



## case study

### SKILLS CENTRE FIRST YEAR SUCCESS

Sixty-six first year apprentices kick started their careers by attending the new Xstrata Skills Centre. In 2006, forty per cent of the first year apprentices were over 21 years of age, including a 42-year-old apprentice – our oldest. This highlights the renewed interest in apprenticeships and the continuing high demand for tradespeople in the mining industry.

The centre is part of Xstrata north Queensland's strategy to attract, develop and retain the best people we can for the long-term sustainability of our business.

Staffed by 10 training professionals, the custom-built training facility is providing high quality vocational and trade-based training. It incorporates a series of lecture facilities as well as metal fabrication, fitting, electrical and diesel workshops that provide state-of-the-art training facilities to the apprentices.

One of the advantages of the Skills Centre is that it enables apprentices to commence with Xstrata from day one, making them feel they are part of the company. Another advantage is that the

apprentices learn good safety practices while working in an authentic mining environment.

Skills Centre Superintendent, Dick Kostowski, said feedback from the field regarding the quality of first year apprentices had been very positive.

"Our operations people are telling us that our apprentices have the knowledge to be a value-add to the business," he said. "The time they spend refining their basic skills in the Skills Centre is reflected in their ability to perform when they move out to the field."

Skills Centre Electrical Team Leader, Kerry Brisbane, said the first apprentices through the Skills Centre were confident and skilled out in the field.

"Supervisors have commented not only on the apprentices' skill levels but on their high level of safety awareness," she said. "We have ensured that they have received a solid grounding in skills, and this combined with two years' TAFE theory makes them immediately valuable in the field."



# Caring for our environment

We believe that superior environmental performance results in increased efficiency, lower risk and higher overall performance of our operations and is critical in maintaining our licence to operate.

Xstrata Copper is committed to the highest standards of environmental management and performance. We limit the environmental impacts of our operations through the efficient use of natural resources and the reduction of input materials and waste, and through contributing to the conservation of biodiversity. As the business expands these sustainable practices are reflected in process efficiencies. The overall total of natural resources required and wastes generated have reduced as a proportion of the amount of product that is made available to the world markets.

## CHALLENGES

Key environmental challenges in Xstrata's north Queensland Copper Division are to:

- minimise fresh water use and maximise process water reuse;
- manage stormwater run-off;
- maximise energy efficiency to conserve resources and allow for operational expansion;
- plan for Ernest Henry mine completion, including development of sustainable caps for its tailings dam and waste rock dumps;
- plan for effective progressive rehabilitation;
- minimise emissions to air from Mount Isa smelters and dust from surface operations;
- minimise waste generation and maximise materials recycling;
- manage impacts on surrounding environments in conjunction with continual growth; and

- manage issues associated with lead in the environment in conjunction with the Queensland Environmental Protection Agency, Queensland Health, Department of Mines and Energy, Mount Isa City Council and the Mount Isa community.

## ENVIRONMENTAL COMPLIANCE

All Xstrata Copper north Queensland sites have established environmental plans, management systems and procedures. ISO 14001 compliant environmental management systems for each site are reviewed and improved using feedback from the Xstrata HSEC Assurance Programme, specialist and legislative audits and other internal and external environmental performance benchmarking activities.

In 2006, CRL reported externally against the stormwater environmental management program and the groundwater remediation action plan. A non-compliance was reported for CRL when targets for the quantity of water quality sampling were not achieved during a set period. Additional staff have since been trained to perform the task. This was recorded as a Category 3 significant environmental incident.

Our Townsville Port Operation received an infringement notice and associated fine for a minor diesel spill, which was recorded as a Category 3 environmental incidents into the Townsville Harbour. Once the source of the spill was identified, our personnel quickly contained the situation and prevented further discharge occurring. The spill resulted from a failed component within the refuelling bowser and actions were subsequently implemented to prevent a future recurrence.





Environmental Advisor, Paul Taylor, samples water from a local creek near Xstrata's Townsville refinery.

## ENVIRONMENTAL COMPLIANCE (CONTINUED)

Ernest Henry Mining recorded two Category 3 environmental incidents during 2006. Both incidents involved concentrate spills from road trains transporting copper concentrate from the mine to the Mount Isa copper smelter. Around 18 tonnes of concentrate was spilled on the side of the highway in the first incident, while 22 tonnes of concentrate was spilled in the dry river bed of the Corella River in the second. A soil survey was completed after both incidents which confirmed all copper concentrate was recovered. No major non-compliances were identified for Ernest Henry Mining during 2006.

In 2006, Mount Isa Mines was subject to a joint Environmental Protection Agency and Department of Mines and Energy compliance audit. Operations were assessed against the two environmental authorities held under the *Environmental Protection Act 1994* and against the Mining Plan 2005–2010 under the *Mount Isa Mines Limited Agreement Act 1985*. The results were very positive with only one minor non-compliance identified for copper. This was an administrative non-compliance associated with a missing permit from our land disturbance register. This non-compliance has been addressed.

During 2006, a mine plan variation was submitted to and accepted by the Department of Mines and Energy for the construction and operation of the Rowles Reserve Process Water Dam. The dam was built to replace the No 4 head tanks used for storing water reclaimed from tailings that is then reused in the copper concentrator. The original tanks were decommissioned to allow for expansion of the Black Star open-cut.

A second mine plan variation was submitted to the Department of Mines and Energy in 2006 for the proposed Xstrata Power Station, Mount Isa Mines' environmental licence was amended with conditions specific to the power station attached to allow for its operation.

## ■ National Pollutant Inventory

Mount Isa Mines reported to the National Pollutant Inventory (NPI) for the Australian financial year 2005 – 2006 as per Federal Government requirements. Increases in emissions reported are directly related to increases in production rates. The NPI provides data on total emissions and identifies potential hazards associated with listed substances. Offsite impacts on human health and the environment are not addressed by the NPI. Emissions that fall within metres of a source on-site, are captured in the figures for total emissions and as such are not an indication of offsite environment and community exposure. Many additional factors must be considered to determine off-site impacts.

A review to refine data collection and emission estimation techniques will be completed during 2007.

## ■ Whole of emissions study

In 2006, discussions with regulatory authorities commenced to implement a program to assess potential risks associated with historical contamination in areas adjacent to the Mount Isa Mines operation. Previous remedial works were completed in 1991.

Xstrata Copper in collaboration with Xstrata Zinc have initiated a 'whole of emissions' study titled '*Land, Water, Air emissions study into Human and Ecological Risk*' by a world class toxicologist. The study will focus on differentiating between natural forms of lead and those derived from smelting operations in the Mount Isa community and assess the risk to human and ecological health. The study will be completed in a consultative process with the Queensland Environmental Protection Agency, Queensland Health, Department of Mines and Energy and the Mount Isa City Council. Information generated by the study will be provided to those regulatory authorities as part of their overall initiative in assessing lead risk in Mount Isa. Results of the study will also be communicated to the community.

## Water management

Effective water management and conservation is critical to the long-term viability of Xstrata's north Queensland operations. Our operations have taken an integrated approach to water management aiming to minimise discharge off-site and maximise capture and reuse of water.

## ■ Freshwater use

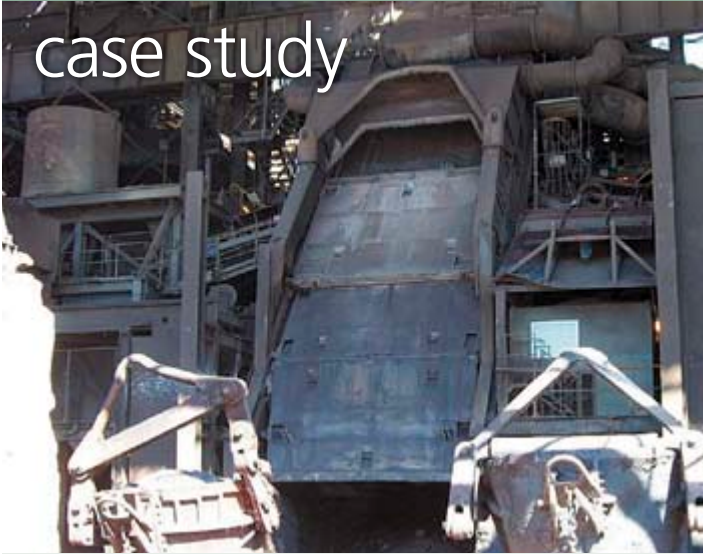
Potable water consumption for our north Queensland operations totalled 345.3 megalitres, comprising 225.20 megalitres at Mount Isa, 116.95 megalitres at Townsville copper refinery and 3.15 megalitres at the port operation.

During the year, Xstrata Mount Isa Mines purchased Itron Enterprise Edition (IEE) energy management system. IEE enables operational areas to monitor real-time consumption of resources including electricity, compressed air and water on-line. The system will also enable plant managers and superintendents to view resource use costs, allowing an improved understanding of their day-to-day costs and encouraging a proactive approach to limited resource management.

Throughout 2006, an assessment of the entire water system at Mount Isa Mines was completed. All meters were identified, and a plan developed for meter replacement and installation in 2007. All water use rates and costs will be accessible electronically through the IEE system.

Throughout 2005 and 2006, there was a very strong relationship between water consumption and tonnes produced and processed. As production has increased, water use has increased at a similar rate. In 2007, our focus will be on water consumption reduction.

## case study



« New fabricated cover on the Converter Secondary Ventilation Hood significantly reducing the air infiltration.

installed above the converters consisting of water-cooled panels that cool the hot gases leaving the converter before being sent to the acid plant. Cooling the converter gas helps to control the total volume and increases the capture rate of SO<sub>2</sub> at the acid plant.

During the copper smelter shutdown the ISASMELT, Rotary Holding Furnace and anode furnaces were re-bricked, the hygiene ventilation duct system between the smelter and acid plant were repaired and improved, and new water cooled panels were installed on the No 4 converter. The hygiene ventilation system improvements included the redesign of the doors and covers on the converter secondary ventilation, to improve the flow of SO<sub>2</sub> process gases and reduce the crane aisle emissions level. Reducing the ingress of air has helped keep the SO<sub>2</sub> concentration higher in the delivery of gas to the acid plant and captured greater levels of SO<sub>2</sub>.

A converter hood replacement program is well underway and expected to be complete by the end of 2007. These hoods will make a significant contribution to capturing fugitive emissions.

Administrative controls, including improved communication between the Southern Cross Fertiliser acid plant and copper smelter operators and management, have played an important part in the SO<sub>2</sub> capture program. Improved shutdown coordination and planning between the copper smelter and acid plant is maximising the capture of sulphur dioxide by the acid plant. The introduction of a nine-hour converter schedule is improving synchronisation between the converters and other activities within the smelter.

The long-term goal of the copper smelter's emissions reduction program is 95% capture of SO<sub>2</sub>. If the successes to date are any indication, Mount Isa Mines is well on its way to achieving that goal.

## EMISSIONS REDUCTION SUCCEEDING

Fewer fugitive emissions and significant gains in the sulphur dioxide (SO<sub>2</sub>) gas capture rate at the Mount Isa Copper Smelter are demonstrating that its emissions reduction program is proving successful. Capture rates of SO<sub>2</sub> measured towards the end of 2006 were regularly exceeding 85% and once all converter hoods are operational, the SO<sub>2</sub> capture rate will exceed 90%.

During the converting process, molten matte with 60% copper is oxidised to produce blister copper, slag and sulphur dioxide. The converter gases contain 6% to 8% sulphur dioxide and are further processed to produce sulphuric acid. A gas capture system has been

## ■ Surface and groundwater

At Mount Isa Mines there were 10 discharges of stormwater and process water off-lease during 2006; all of which occurred during high rainfall events during the wet season. In 2006, ownership and responsibility for managing the surface water overflow points off-lease was transferred to operational areas. This resulted in demonstrated ownership and an increase in capital and infrastructure committed to stormwater management.

Stormwater modelling of the Death Adder Gully catchment was undertaken during 2006. An external consultant reviewed the Death Adder Gully catchment and existing stormwater control infrastructure. The system was modelled against 117 years of rainfall data and recommendations for improved surface water management reported. Recommendations from the report are undergoing an engineering options review to assess feasibility.

A series of stormwater improvements were completed during 2006. Expansion and improvement works included:

- increased volume and pump-back capacity at tailings seepage pond No 8 with an improved design to segregate clean stormwater;
- extension of railway pond capacity from 500 cubic metres (m<sup>3</sup>) to 1,500m<sup>3</sup> and increasing pump-back capacity to 40L/s; and
- upgrades to the copper smelter slag pond and alterations to ensure diversion of stormwater runoff to holding pond.

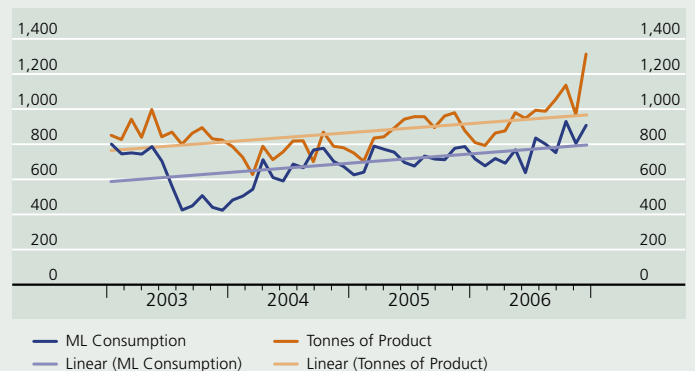
In 2006, Xstrata's Townsville Copper Refinery implemented the groundwater remediation action plan (RAP) developed during 2005. The plan was developed with approval from the Queensland

Environmental Protection Agency and under the guidance of a third party auditor. The plan required the implementation of three separate projects to tackle historical groundwater contamination associated with historical evaporation ponds at the Townsville site.

Ernest Henry Mining continued to pump groundwater from a series of dewatering bores around its pit. Groundwater water levels and quality are measured at 75 bores surrounding the mine. We commenced a review of our groundwater drawdown model to refine the current drawdown predictions. This review will focus on both the groundwater drawdown during the dewatering phase and also groundwater recharge after mining activities are completed.

## Relationship between water consumption and production\*

ML (megalitres) per Month vs Tonnes

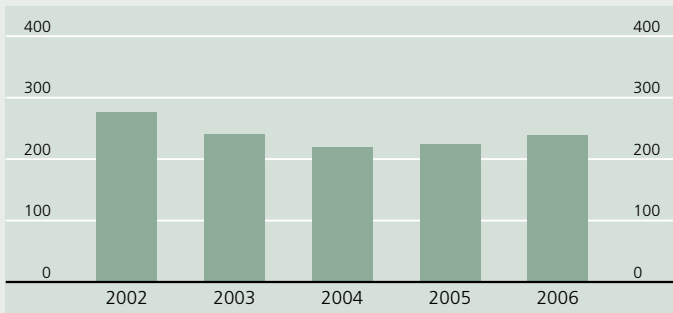


\* Graphs reported as a combined initiative between Xstrata Copper and Xstrata Zinc.

# Caring for our environment

## Annual sulphur dioxide emissions for Mount Isa\*

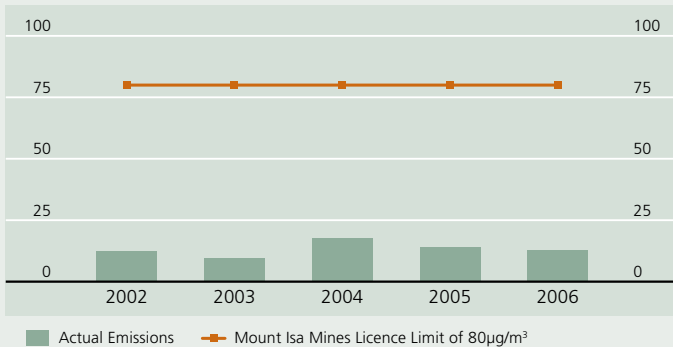
Tonnes ('000s) – Mount Isa Mines operations



While emissions have been reduced through the emissions reduction program, increased production of copper anode has seen a resultant increase in total emissions since 2005 as reported in the National Pollutant Inventory (NPI).

## Annual average ground sulphur dioxide concentration\*

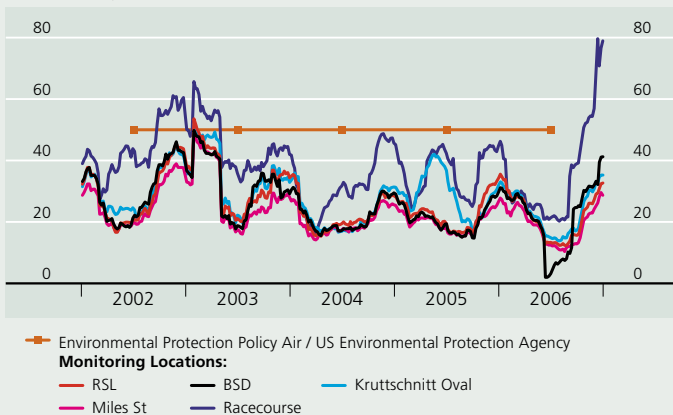
$\mu\text{g}/\text{m}^3$   $\text{SO}_2$  – measured in the Mount Isa community



In 2006, our total annual sulphur dioxide emissions fell to  $13 \mu\text{g}/\text{m}^3$  compared with  $14 \mu\text{g}/\text{m}^3$  in 2005, and the annual average ground level sulphur dioxide concentrations in the Mount Isa community remained well within the licence limit.

## Ambient $\text{PM}_{10}$ (dust-in-air) concentrations for monitored sites\*

$\mu\text{g}/\text{m}^3$   $\text{PM}_{10}$  – 90 day average measured in the Mount Isa community



The ambient  $\text{PM}_{10}$  graph shows that the racecourse monitor exceeded the Environmental Protection Policy (Air) Queensland standard. This was due to construction works taking place at the racecourse which will become Mount Isa's new rodeo ground in 2007.

\* Graphs reported as a combined initiative between Xstrata Copper and Xstrata Zinc.

## Surface and groundwater (continued)

Groundwater quality surveys were also undertaken on our neighbouring properties to confirm that water quality had remained unchanged since development of Ernest Henry mine.

## Water recycling

Overall our north Queensland operations increased their total recycling and reuse of water from 3,118.37 megalitres in 2005 to 3,255.16 megalitres in 2006.

Ernest Henry mine continued to dewater the pit from a series of dewatering bores and in pit pumps. This water was reused both in the mine as a dust suppressant and in the concentrator as a raw water supply. This water use reduces the amount of water required from Lake Julius.

At Ernest Henry mine modifications to the tailings thickener produced significant improvements in water management in the concentrator, allowing higher densities to be achieved. This has allowed more water to be recycled through the concentrator and an improved beaching angle on the tailings dam.

At Ernest Henry the mine construction dam was de-silted and the capacity increased in 2006. This will allow us to be more efficient in capturing water dewatered from the pit for utilisation in the concentrator.

At Mount Isa, opportunities for recycling process water will be defined as part of the implementation of the IEE real-time monitoring system for reducing fresh water use during 2007 and through the development of the Mount Isa Mines life-of-mine tailings strategy.

Water collected in tailings seepage ponds and stormwater collection dams on site continue to be recycled into the process water circuit.

As part of normal process efficiency refinements at CRL water is managed as valuable resource.

## Air quality and emissions

Emissions monitoring, control and impact reduction are a major aspect of environmental management at Xstrata's north Queensland operations. Our primary air emission is sulphur dioxide from our metallurgical operations.

At Mount Isa Mines we have a comprehensive sulphur dioxide and dust monitoring network to measure and manage the impact of emissions on the community.

There are 10 sulphur dioxide real-time monitoring stations located in the community to ensure that the smelters operate within accepted regulatory limits. Every resident of Mount Isa lives no more than 1,200 metres from one of these sulphur dioxide analysers.

Mount Isa Mines' total annual sulphur dioxide emissions fell from 14 micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ) in 2005 to  $13 \mu\text{g}/\text{m}^3$  in 2006, and the annual average ground-level sulphur dioxide concentrations in the Mount Isa community remained well within the licence limit.

The copper smelter has achieved a 400,982 tonne per annum decrease in emissions since 2000. Xstrata Copper is targeting an increase from 80% to 95% capture of sulphur dioxide ( $\text{SO}_2$ ) emissions from the Mount Isa copper smelter against the baseline established in 2000.

In 2006, our emission reduction program included commencement of progressive hood installations to the four copper smelter converters, and pressure balances to identify leaks in ducting and ventilation system. These efforts have contributed significantly to reducing fugitive



Electronics Technician, Marc Katona, conducts an instrument maintenance check of the sulphur dioxide monitors located in the Mount Isa community.

emission releases and SO<sub>2</sub> emitted to the atmosphere. The program has produced improved coordination between the acid plant and copper smelter, as well as enhanced process control and acid plant efficiency.

At our Townsville Port Operation in 2006 we focused on ensuring the integrity of the concentrate storage shed and moisture control of the concentrate products to minimise dust generation.

### Energy and greenhouse

In 2006, Xstrata north Queensland joined Greenhouse Challenge Plus, a partnership between industry and the Australian Government, to manage and where practicable abate the greenhouse gas production.

Energy consumption monitoring has been incorporated in to the Itron Enterprise Edition (IEE) energy management system to enable energy users within the operations to review and manage data and energy costs on a frequent basis.

The Energy Breakthrough project, formed in 2005 by Mount Isa Mines to develop energy conservation initiatives, achieved significant reductions in the demand and consumption of energy at Mount Isa's operations. The initiatives, focused on wastage and energy consumption reductions, were achieved through improved maintenance and operating practices.

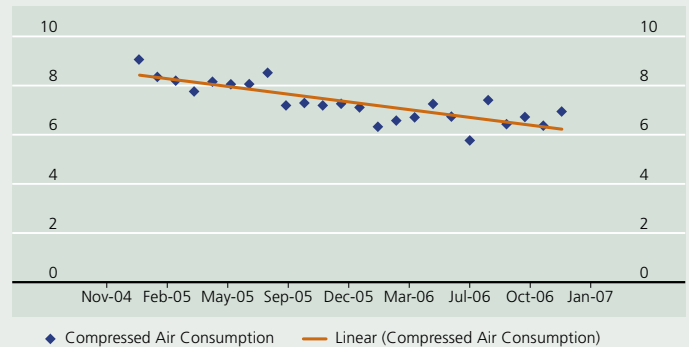
In 2006 we continued our focus on compressed air consumption, which is directly related to energy use, and this work has produced excellent results to date.

In 2006, the copper refinery completed the conversion of the anode furnace from naphtha fuel to coal seam gas, following the conversion of the steam generation boilers from fuel to coal seam gas in 2004. As a result, our process areas which run on coal seam gas have recorded a 25% reduction in the carbon dioxide equivalence.

Our copper refinery achieved significant energy and cost savings following an assessment trial for the energy efficiency opportunities program. Xstrata Copper was one of four companies that conducted this trial assessment. Identification and implementation of energy saving initiatives will continue to be part of our normal business practices.

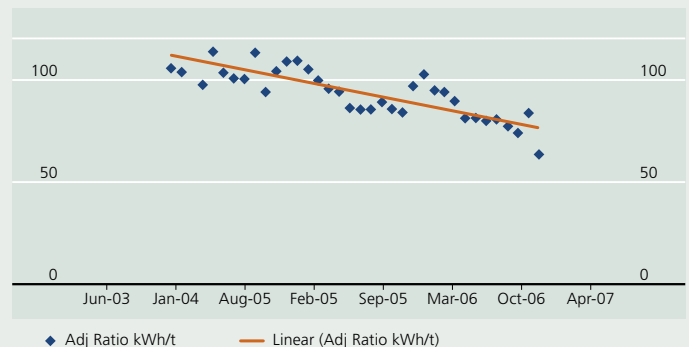
### Compressed air consumption\*

m<sup>3</sup> (million) – Mount Isa Mines



### Energy use per tonne of product\*

kWh (kilowatt hours) per Tonne (t) – Mount Isa Mines



\* Graphs reported as a combined initiative between Xstrata Copper and Xstrata Zinc.



Senior Environmental Engineer, Nick Learoyd, checks a fauna trap as part of a program to monitor biodiversity on the mine lease.

## Biodiversity

A biodiversity strategy and operational guideline has been developed as part of our progress towards the Xstrata HSEC Biodiversity and Land Management Standard; to develop and implement scientifically sound technologies and procedures for the effective management and conservation of biodiversity and rehabilitation of disturbed land to a planned post completion use.

Our biodiversity commitments are:

- responsible stewardship of land under our management;
- identification of biodiversity conservation opportunities; and
- involvement of the community and relevant stakeholders in the management of identified biodiversity issues.

The long history of mining operations at Mount Isa creates challenges for ensuring biodiversity values are appropriate for the operation. Following the Queensland Environmental Protection Agency regional ecosystem guidelines we have established the biodiversity status of the ecosystem types in the Mount Isa region and across our operations in Mining Lease 8058 (ML 8058).

In developing the Biodiversity Strategy, several areas of biodiversity significance were identified and classified as significant due to the Queensland Environmental Protection Agency biodiversity conservation status recommendations. The International Union for the Conservation of Nature and Natural Resources (IUCN) Red List also indicated species of biodiversity significance that occurred within and in surrounding areas of ML 8058. This included habitat for the 'near threatened' listed Carpentarian Grass Wren, located to the north of the lease. The strategy was designed to ensure areas of significance are managed appropriately. It has also identified opportunities to implement several initiatives for improved biodiversity management such as weed control, vegetation mapping and propagation.

We undertook many terrestrial fauna assessments in mine rehabilitation and other areas of significance. These surveys identified many species located on rehabilitated land on the north waste rock dump rehabilitation trial and at off-site reference sites. Comparative monitoring will continue to further develop revegetation approaches.

## Safe mine completion and rehabilitation

Our approach to rehabilitation and mine completion are governed by Xstrata's Biodiversity and Land Management Standard which requires all operations to progressively rehabilitate disturbed and contaminated land.

Mount Isa Mines completed demolition of the fluo solids roaster (FSR) in 2006 following strict internal procedures to minimise emissions to air, land and water and to carefully manage waste. More than 7,000 tonnes of scrap metal was recycled. Demolition of the copper concentrator crusher building also started and is expected to be completed in 2007. The Environment Department worked closely with the operational departments completing the works to mitigate environmental and community risks from dust, noise and stormwater runoff.

Engineers across the site compiled more than 6,000 structural drawings and photos of all major facilities at Mount Isa Mines to support the development of detailed demolition estimates. When completed these will be used to refine completion liability estimates allowing for accurate completion planning and financial reporting.

Ernest Henry Mining finalised a mine completion plan with cost estimates for all major rehabilitation activities. In 2006, we continued to refine costs for mine completion. This work included an assessment of demolition costs for all infrastructure at the mine and the village which allows us to more accurately budget for mine completion.

At Ernest Henry, modelling continued on various tailings dam capping designs. This modelling will be used to clarify the capping methodology to be used and the thickness of the cap. The two capping methodologies under consideration are a water shedding cap design and a moisture capture and release capping design. The major variables that will aid in the capping methodology decision are the availability of capping materials, capping material characteristics (particle size distribution), and the climate. The north-west corner of the south tailings dam has been identified as the preferred location for the trials. This area has been incorporated into the tailings design. Capping trials will be constructed during 2007.

During 2007, Ernest Henry Mining plan to rehabilitate 60 hectares of disturbed land in the south waste rock dump. This will involve placing a half metre of topsoil over the site and actively seeding native grasses and shrubs, with the aim of achieving self sustaining native grassland. The dominant species will be Mitchell and Flinders grass, similar to species directly adjacent to the mine site. This area will triple our level of rehabilitated land and demonstrate our commitment to progressively rehabilitate disturbed land wherever possible.

## Managing waste and tailings

Xstrata's Product Stewardship Standard requires that all operations eliminate, reduce, reuse, recycle or properly dispose of waste generated. In addition, our Biodiversity and Land Management Standard requires the progressive rehabilitation of disturbed land and effective management of waste generated to a planned post-completion land use.

The total waste management system established at Mount Isa Mines in 2005 continued to evolve, with a new waste management contract established in 2006. The contract is implemented through the entire



The Rowles Reserve Process Water Dam, built during 2006, is used to store water reclaimed from tailings dams that is then re-used in the copper concentration process.

site using the 'polluter pays' principle. Waste costs are distributed to departments based on the volume they produce, with the incentive that any money received through scrap steel recovery in their area is credited back to the owner of the area. Mount Isa Mines almost doubled scrap metal recycling in 2006, from an average of 110 tonnes per month to 180 tonnes per month, with a significant proportion resulting from the recovery of redundant copper cable by the underground operations. Total tonnes of scrap metal recycled was 1,678.70 tonnes compared with 947.91 tonnes in 2005.

Mount Isa Mines retrieved approximately 19 tonnes of paper and cardboard for recycling during 2006. After joining the 'Cartridges 4 Planet Ark' toner cartridge recycling program during the year, we diverted more than 70 kilograms per month of toner cartridges from the landfill.

Waste management plans for each of the Townsville operations were developed in 2006. The plans clearly define the waste types that are generated from each of our operations and detail the correct disposal methods and locations in accordance with the Queensland Waste Regulations. Both CRL and our port operation expanded their recycling programs to include glass, plastics, paper, cardboard and waste oil. Our port operation recycles extensive quantities of captured stormwater within the concentrate handling area. Potentially hazardous waste is handled within the newly constructed solids waste storage facility at CRL.

Since introducing a program in 2000 to extend vehicles' tyre life at Ernest Henry Mining, average tyre life has doubled. In 2006, average tyre life was 5,091 hours, compared to 2,300 hours in 2000. Ernest Henry has effectively reduced the generation of its waste tyres by 55% between 2000 and 2006. If the mine had continued to consume tyres at the same rate in 2006 as it had in 2000 it would have generated 663 waste tyres rather than the actual 299 waste tyres. Ernest Henry also increased the quantity of scrap metal it recycled from 717.39 tonnes in 2005 to 1,214.14 tonnes in 2006.

## ■ Tailings

At Ernest Henry we continued to manage tailings produced from our concentrator. During 2006, we raised the northern tailings dam six metres, increasing capacity to around 450,000 tonnes. A raise of both the northern and southern tailings dams is planned for 2007 which will provide an additional 450,000 tonnes of capacity

At Mount Isa a project manager role was established to develop a life-of-mine tailings management strategy in which water recycling opportunities mine completion are major considerations in defining designs.

There are no tailings facilities associated with our operations in Townsville.

## ■ Waste rock

In 2006, Ernest Henry Mining continued to characterise and selectively handle all waste rock in the pit to minimise the risk of acid mine drainage after the mine is completed. Waste rock that is likely to cause acid mine drainage is encapsulated within the centre of the waste rock dump, while benign competent waste rock is used on the outside surface of the waste rock dump. We are also continuing to stockpile benign competent waste rock to aid in the capping of the tailings dam and encapsulation of the waste rock dumps at mine completion.

During 2006, the remainder of the reactive black shale was removed from the Stage 7 pit. This material is clay encapsulated in specifically constructed cells with the aim of minimising any water flowing through the cell. This will reduce the risk of the shale oxidising and causing acid mine drainage.

We started using a laser survey tool, I-site 3D, to monitor the stability of the waste rock dumps and the tailings dam. This tool will accurately survey the waste rock dumps and tailings dams on an annual basis and identify movement in the walls, assisting us to demonstrate that the waste rock dumps and tailings dams are geotechnically stable and resistant to erosion.



## Caring for our community

Xstrata Copper believes that the wellbeing of our employees, their families and the communities in which we operate is crucial to maintaining our social licence to operate our business.

We acknowledge that enterprise and job creation is just one part of our success equation. The development of the Xstrata Community Partnership Program North Queensland is the cornerstone of our commitment to engaging with local communities and fostering opportunities to ensure their wellbeing.



Fifth and sixth year medical students undergo training on SimMan at the Mount Isa Centre for Rural and Remote Health.

### XSTRATA COMMUNITY PARTNERSHIP PROGRAM

In line with its commitment to corporate social responsibility, Xstrata created the Xstrata Community Partnership Program North Queensland (XCPPNQ) in 2004, reflecting the belief that local communities should benefit from our operations, both in the short and long term. The initial three-year program commenced in 2005 as a \$4 million program that supported 34 community initiatives in the north Queensland communities of Mount Isa, Cloncurry, Townsville and Bowen. The program has been further extended in 2006 and now supports more than 60 initiatives in north Queensland, with a total program value of \$5.87 million.

The program's initiatives focus on the following areas:

- enterprise and job creation;
- education;
- environment;
- social and community development;
- health; and
- arts and culture.

We seek to actively promote partnerships with the communities; training, welfare and education organisations; and state and local governments for the enhancement of our community.

« Students from Spinifex State College participate in the Pathways program, an initiative of the XCPPNQ.

## SOCIAL RESPONSIBILITY PERFORMANCE

2006 Targets	Performance	2007 Targets
<b>All copper operations in north Queensland</b>		
Achieve Xstrata Community Partnership Program North Queensland objectives and expand benefits	✓ Program extended to include over 60 partnerships across north Queensland	Continue to expand the benefits of the Xstrata Community Partnership Program North Queensland
Publish site sustainability reports	✓	Publish site sustainability reports
Continue implementation of initiatives arising from the 2005 community attitude survey	✓	
		Conduct follow-up community attitude surveys in Mount Isa, Cloncurry, Townsville and Bowen
		Develop an indigenous relations strategy
		Develop cultural awareness training for Xstrata staff
		Assess effectiveness of completed XCPPNQ partnerships

✓ Achieved    ✗ Not achieved    → Action continues into 2007

### New partnerships

In addition to the range of programs established in 2005, the Xstrata Community Partnership Program expanded further in 2006 with many new community partnerships. The following is a selection of our new programs:

#### Education

##### ■ Artists-in-residence

The Xstrata Community Partnership Program provided \$30,000 in 2006 to Barkly Highway State School for two artists-in-residence programs. The school, known for its innovative dance, drama and art curriculum, reaped the benefits of dance and visual artists-in-residence programs which introduced students to creative dance and visual arts, and provided professional development to teachers at Barkly, as well as other local schools.

#### Environment

##### ■ Solar power

Xstrata established a partnership with Ergon Energy in 2006 to install a solar power system into a community-based centre within the Townsville City Council's jurisdiction. Xstrata provided \$40,000 for this project which will power the site on 100% renewable energy for a period of three years. The partnership is in alignment with Xstrata's commitment to the efficient use of natural resources. Along with associated computer-based education software and hardware, the initiative is providing a portable solar education kit to further broaden educational opportunities on environmentally-friendly renewable energy for community groups and schools.

#### Social and community

##### ■ Rodeo arena

In partnership with the Mount Isa City Council and the federal and state governments, Xstrata is helping to establish a world-class major venue for staging rodeos and exhibitions in Mount Isa, the rodeo capital of Australia. In 2006, Xstrata contributed \$1 million towards the construction of a 2,000 square metre pavilion and rodeo area as part of the Buchanan Park Redevelopment Project. On completion, the park will be transformed into an outdoor venue capable of hosting the city's major events such as race meetings, the annual rodeo, show and campdraft. The 2007 Xstrata Mount Isa Rodeo will be the new venue's inaugural event.

#### Health

##### ■ Healthy living

In 2006, Xstrata partnered with the Townsville Aboriginal and Islander Health Services (TAIHS) on its education project, Tilley's Tracks, which is aimed at developing effective strategies for promoting healthy living among Townsville's indigenous children. Children attending the maternal and child health clinic can access a touch screen that provides fun learning activities on health topics appropriate to their age group. Xstrata will provide an additional \$20,000 in 2007 and 2008 to further this initiative.

##### ■ SimBaby extends medical training

Medical staff from the Royal Flying Doctor Service and Queensland Health are benefiting from the renewed partnership between Xstrata and James Cook University Mount Isa Centre for Rural and Remote Health. In 2006, Xstrata committed a further \$110,000 in funding over three years to the James Cook University Mount Isa Centre for Rural and Remote Health for the purchase of an infant-size artificial simulator, known as SimBaby, which can be remotely computer-controlled to simulate various emergency medical scenarios. The purchase was prompted by the initial success of the SimMan adult-size medical mannequin, purchased with previous Xstrata funding. Since the partnership's inception in 2005, more than 200 medical staff from Queensland Health and the Royal Flying Doctor Service have been trained on the mannequins.

##### ■ Consolidated health service

In 2006, Xstrata partnered with the Cloncurry Hospital to support its transition to a Queensland Health Multi-Purpose Health Service (MPHS). Xstrata contributed \$10,000 towards the project which will deliver a one-stop-shop for acute, chronic and aged care hospital services, as well as referral centre for dental, physiotherapy and occupational therapy.



# Caring for our community

■ A selection of Xstrata's north Queensland Community Partnership Program initiatives in 2006 are listed on the next three pages.

Project	Partner	Description	Funding and timeframe	Status/update
<b>Mount Isa: Enterprise and job creation</b>				
Centacare indigenous employment and training	Centacare Employment Mount Isa	Further develop Indigenous Employment Initiative to identify and exploit employment opportunities for Indigenous job seekers in the North-West Minerals Province	\$150,000 from 2005 to 2007	Appointed a full-time Indigenous Support Officer. Developed an industry-specific (mining) training program. Around 50 trainees completed program and many have found employment in mining industry
Arilla Indigenous Women's Paper Mill	Arilla Paper	Ongoing workshops to train local Indigenous women to develop high quality paper products	\$45,000 from 2005 to 2007	Equipment purchased enabling pulp production to be doubled
<b>Mount Isa: Education</b>				
Multimedia Learning Development Centre	Townview State School	A new multimedia centre to educate students and teachers in technology and IT skills	\$160,000 from 2005 to 2007	Centre established with 20 new computers and associated equipment purchased and permanent computer technician employed
Youth Pathways Program and multimedia initiative	Spinifex State College	Alternative school curriculum for at-risk school students; new digital multimedia centre for senior students	\$250,000 from 2005 to 2007	47 students enrolled in program; multimedia studio established, software purchased and teacher training provided
<b>Mount Isa: Social and community</b>				
Youth program for children in care	Centacare Mount Isa	Four youth group play therapy programs a year to assist children in care and who are victims of abuse	\$60,000 from 2005 to 2007	30 children have benefited from these programs
Mount Isa home skills support development project	Mount Isa Community Development Association	Education and training in basic life skills for disadvantaged people living in community housing	\$110,000 from 2005 to 2007	Needs analysis completed; training modules developed and implement with clients of 40 households
<b>Mount Isa: Life-saving projects</b>				
SimMan and SimBaby	James Cook University; Mount Isa Centre for Rural and Remote Health	Artificial simulators (medical mannequins) to improve training of health professionals in advanced procedural and emergency situations	SimMan \$135,000 from 2005 to 2007; SimBaby \$110,000 from 2006 to 2008	More than 200 medical staff trained on the mannequins. Training sessions video taped for assessment
Mount Isa Teaching Medical Centre	Mount Isa City Council; Mount Isa District Health Service; Mount Isa Centre for Rural and Remote Health; North and West Queensland Primary Health Care	Establish a teaching medical centre to increase the number of full-time equivalent general practitioners from 3.5 to 9.5; decrease patient numbers at the accident and emergency section of the Mount Isa Hospital	\$350,000 from 2006 to 2008	The Teaching Medical Centre is still in its establishment phase
<b>Mount Isa: Health</b>				
Diabetes Centre	Queensland Health	A centre to provide consistent, modern diabetes management, including a diabetes educator for outlying Indigenous communities	\$150,000 from 2005 to 2007	Centre established in Mount Isa; treated and advised more than 1,700 patients; diabetes educator presents workshops for health workers in indigenous communities and provides information sessions for community groups
Enhance RFDS capabilities	Royal Flying Doctor Service (RFDS)	Provide funding for RFDS to purchase medical equipment	\$45,000 from 2005 to 2007	Oxylog 3000 portable ventilator purchased; latest technology satellite phone and tracking system installed to rescue and retrieval aircraft
<b>Mount Isa: Arts and culture</b>				
Arts and cultural enrichment to Mount Isa and Cloncurry	Queensland Arts Council	Each year the Queensland Arts Council brings a with live performances production on tour	\$225,000 from 2005 to 2007	Two productions have visited Mount Isa, providing entertainment and workshops for aspiring actors, dancers and musicians



Classical music students from Mount Isa were given the opportunity to perform with internationally renowned didgeridoo player, William Barton, as part of Xstrata's partnership with the Australian Festival of Chamber Music.



Damara Saunders, local Cloncurry school student, receives training in film production from Tim Jarvis during filming of the short film 'The Curry'.

Project	Partner	Description	Funding and timeframe	Status/update
<b>Ernest Henry Mining: Enterprise and job creation</b>				
Promoting Cloncurry tourism	Cloncurry Shire Council; Cloncurry Historical Society; Queensland Sport and Recreation; the Outback Queensland Tourism Authority; and the North Queensland Area Consultative Committee	Two Xstrata employees represented Cloncurry/Mount Isa at the Sydney Caravan and Camping Expo where they promoted the Overlander's Way	\$150,000 from 2005 to 2007	More than 1,400 people visited the Overlander's Way where they received tourist information
Cloncurry Tourism Development Plan	Cloncurry Shire Council; Main Roads; and Road Tek	Established destination signage along the tourist drive between Cloncurry and Mount Isa, known as Fossickers Way	\$35,000 (ongoing 2007)	Signage designed, constructed and placed at historic, geographical and recreational places of interest
<b>Ernest Henry Mining: Social and community</b>				
Indigenous youth worker	Police Citizens Youth Club; Mitakoodi Aboriginal Housing Cooperative	Provided funding for an indigenous youth worker	\$75,000 from 2005 to 2007	Youth Centre open and regularly attended. Youth crime statistics declining.
PCYC equipment purchases	Police Citizens Youth Club	Provided funding for equipment purchases such as disco equipment	\$30,000	Equipment to run regular blue light discos, and boxing equipment purchased.
Cloncurry Skate Park	Lions Club of Cloncurry; Cloncurry Shire Council; local Queensland Police Service	Provided funding for construction of skateboarding park for youth	\$20,000 in 2005	Skate park constructed During 2006, and opening in early 2007
<b>Ernest Henry Mining: Arts and culture</b>				
Live theatre production in Cloncurry and Mount Isa	Queensland Arts Council	Brought live theatre productions of 'Wallflowering' and 'Urban Wonderland' to Cloncurry	\$225,000 from 2005 to 2007	Two theatre productions have been brought to Cloncurry and another is planned for 2007
Ernest Henry Cloncurry Arts Council Art Show	Cloncurry Arts Council	Provided funding to support the staging of the art show	\$5,000	150 people attended the art show
The Curry	Job Futures; Cloncurry State School; St Joseph's School; QPIX	Supported production of a short film by school students, including film production training.	\$2,500 and two digital video cameras	The short film was completed and well received at its premiere; the film will be part of the Australian Film Commission's Big Screen Tour of north-west Queensland; students have received high level training in film production

## Caring for our community



Xstrata Copper has contributed to the support of Childcare Services in Cloncurry from 2005. Pictured is Ernest Henry Mine's Community Relations Officer, Nicole King, with Ethan and Jenna MacNamara.



An exhibit from the Xstrata Exquisite House Children's Exhibition, an interactive art exhibition for children at the Perc Tucker Regional Gallery in Townsville.

Project	Partner	Description	Funding and timeframe	Status/update
<b>Townsville operations: Education</b>				
EnergySMART schools initiative	Oonoomba State School, Townsville State High School	Improving student understanding of energy smart initiatives	\$23,500 each year from 2005 to 2007	Wind turbine and solar pyramid installed at Townsville State High School which is powering a classroom
Saying no to plastic	Bowen State School	Discouraging the use of plastic bags by promoting design and sale of reusable calico bags	\$4,500 over 3 years from 2005 to 2007	Each year students have produced screen printed bags with an environmental message which were then sold
<b>Townsville operations: Social and community</b>				
Drama and self development for young people	Lifeline North Queensland	Developing personal growth and enhancing self esteem, decision making and social skills in young people	\$95,000 from 2005 to 2007	16 students participated in 2006 giving 5 public performances of their production Education
Mount Isa to Townsville Cycle Race	Townsville Cycle Club	Funding support to stage this 900kms road race	\$10,000 in 2005 and 2007	Competing teams chose to donate their prize money to their chosen charity
<b>Townsville operations: Health</b>				
Emergency health equipment	Townsville Hospital Foundation	Funding of emergency life support equipment for Townsville Hospital and Queensland Rescue helicopter	\$49,500 from 2005 to 2007	In 2006 funding was used to purchase an Oxylog 3000 ventilator
Boosting hospital equipment	Bowen Hospital	Purchase of additional electrically adjustable beds	\$36,000 from 2005 to 2007	Four beds purchased to date
Assisting emergency retrieval	Bowen Hospital	Contribution to the construction of a helipad at Bowen Hospital	\$30,000 from 2005 to 2007	Construction almost complete in 2006
Pet Therapy Dogs	Delta Society Australia – Townsville Pet Partners Program	Funding to recruit, train and accredit dogs and handlers to visit aged care facilities, hospitals and mental health units	\$15,000 from 2005 to 2007	Currently 24 Pet Partner teams visiting in Townsville
<b>Townsville operations: Arts and culture</b>				
Live theatre sponsorship	Tropic Sun Theatre Company	Support of the annual Shakespearean production	\$30,000 from 2005 to 2007	The 2006 performance of Romeo and Juliet completed a successful season

## Arts and culture

### ■ Raw Metal

The Mount Isa and Cloncurry communities were entertained and aspiring dancers and percussionists were treated to a series of remarkable workshops when the Raw Metal Dance Company and master drummer Grant Collins visited Mount Isa during 2006. The dance company members are leading exponents of rap, tap, break dance, funk and hip hop. The visit was made possible by Xstrata's partnership with the Queensland Arts Council. Xstrata has committed \$225,000 for projects in 2005 to 2007 and an additional \$255,000 to extend the partnership through to 2009.

### ■ Sound of chamber music

Music students and lovers of music benefited from a partnership between Xstrata and the Australian Festival of Chamber Music in 2006. Xstrata's sponsorship supported a five-day Australian Festival of Chamber Music Xstrata Copper Outback Tour. The orchestra performed across the Mount Isa region, including the Ernest Henry mine, and held classical music master classes for music students. The Australian Festival of Chamber Music will return to the region in 2007 and 2008 as a result of Xstrata's three year, \$30,000 commitment.

## Enterprise and job creation

We aim to create a fair and supportive workplace, to foster the skills of current and future employees, and to address the skills shortage in the region through a range of initiatives. Our apprenticeship program, school-based workplace training, graduate recruitment and development, vacation employment, and scholarship programs are vital for building a stable workforce that will grow in line with Xstrata's long-term sustainable business strategies.

### ■ Supporting apprentices, trainees and students

Xstrata north Queensland operations spend close to \$7 million a year on apprentice salaries, running the largest apprenticeship program in north-west Queensland. At Mount Isa Mines we recruited 72 new apprentices into the business in 2006, and a further 74 will join us in 2007, taking our projected apprentice numbers to more than 250 in 2007.

In 2006, Xstrata North Queensland increased our scholarship commitment from 12 scholarship holders to 22. The scholarship program is designed to provide support to students studying degrees in the key skill shortage areas of geology, mining engineering, mechanical and electrical engineering and metallurgy. An Xstrata scholarship provides \$24,000 in financial support to the student over three years and also guarantees vacation work with an Xstrata operation during this time.

The opening of the Xstrata skills centre in 2006 gave our apprentices a head start into their future by increasing their trade skills and knowledge, enabling them to be a 'value add' into the business in 2007. This program of skills enhancement will continue in 2007.

Xstrata North Queensland employed 70 permanent graduate employees and more than 100 university students in its vacation work experience program in 2006.

Our close involvement with secondary schools in the region introduces senior students to opportunities within the mining sector and provides on-the-job training which contributes directly to a recognised qualification (Certificate III or trade). These initiatives include a structured work experience and readiness program, traineeships, school-based apprenticeships, lead involvement in the Queensland Academy of Minerals and Energy, and school-based apprenticeships.

In 2006, we awarded 16 bursaries worth \$1000 each to high performing secondary students involved in this program at Spinifex State and Good Shepherd Catholic Colleges. A further 20 bursaries will be awarded in 2007.

## DONATIONS AND SPONSORSHIPS

In addition to the Xstrata Community Partnership Program in north Queensland, Xstrata spent more than \$478,000 in 2006 on sponsorships, donations and other community support initiatives.

In Mount Isa, major sponsorship was provided to the Mount Isa Rotary Rodeo, the Outback at Isa tourist attraction and the Mount Isa Mining Expo.

In Cloncurry, Xstrata was a major sponsor of the Cloncurry Merry Muster, Cloncurry Stockman's Challenge, Cloncurry and District Agricultural Show, and Cloncurry Arts Council.

A wide range of arts, community and education events and initiatives were supported in Townsville.

## COMMUNITY ENGAGEMENT AND COMMUNICATION

As an integral part of the local community, we like to keep abreast of relevant regional issues and to share clear, open and honest information on Xstrata's activities in north Queensland with employees, contractors, stakeholders, local organisations, community members, visitors and other interested parties.

In 2006, we used a range of methods to communicate this information, including:

- three community information sessions in Mount Isa and one in Cloncurry to share information on Xstrata's operations and allow questions from community members;
- a dedicated information session for key local stakeholders regarding Xstrata's proposal to build a 30 megawatt gas-fired power station during 2007;
- increased content and circulation of the 'Mine to Market' newsletter within the community and monthly contributions to an industry and innovation lift-out in the Mount Isa newspaper to keep community members informed about our operations;
- through representation on many local community organisations and membership of community development organisations;
- regular contact and follow up with partners in the Xstrata Community Partnership Program North Queensland;
- attendance at many local and regional events;
- regular surface tours of the mining operations in conjunction with community tourism organisations;
- visits to local schools to explain mining processes to students studying science mining units;
- anniversary dinners for long-term employees celebrating 20, 30, 40 and 50 years of service; and
- distribution of 2005 site sustainability reports throughout the north Queensland communities in which we operate.

# Caring for our community



« Children from the Yallambee Community celebrate a birthday at the Brilla Brilla Community Centre.

In mid 2006, Xstrata provided a donation to the Brilla Brilla Community Centre to enable repairs to be undertaken. This subsequently allowed Centacare Mount Isa's Communities for Children project team to move into the centre and recommence the daily playgroup activities for Yallambee children.

Project Manager of Communities for Children, Maryann Devine, said Xstrata's donation had proven indispensable, restoring the venue for the community workers to operate from and bringing the much missed playgroup back to the children of Yallambee.

"Having the Brilla Brilla centre operational again has opened up a world of opportunities for the Yallambee community," Maryann said. "Not only has it enabled the playgroup to reopen, but has also provided a venue for Aboriginal health workers to conduct visits and given the Yallambee community ready access to Centacare's community workers."

Communities for Children, in partnership with Healy State School, has also recently commenced a project aimed at getting children living in the Yallambee community to attend school on a regular basis. The children will attend Brilla Brilla Community Centre for breakfast, dress for school and collect a lunch provided by the centre, before being collected by the school's bus and taken to school for the day. After classes have finished, the school bus will return the children to the centre where afternoon tea and homework supervision will be provided.

Maryann said the flow-on effect of Xstrata's donation had been tremendous.

"Prior to the centre being repaired, the Yallambee children found it difficult to get to and from school, as there was no facility for this program to be operated from," she said.

## MAKING A DIFFERENCE

Yallambee Aboriginal Community, located in Mount Isa, contains 10 houses provided by the Department of Housing for eligible members of the local Aboriginal community.

The number of families living at Yallambee on a regular basis ranges from 10 to 20, many of whom have young children.

A small community centre, Brilla Brilla (meaning small children), operated at Yallambee until mid 2005 when vandals broke in through a skylight, causing extensive damage to the ceiling and lighting.

## Valuing feedback

Following our successful community perception survey in 2005, we developed an action plan for implementation in 2006 to address issues of concern expressed by the community with a renewed focus on youth issues and recreation in Cloncurry, employment opportunities in Townsville, and the long-term future of the mines in Mount Isa.

Xstrata will conduct a community attitude survey in Cloncurry, Mount Isa and Townsville, and a follow-up community perceptions survey in Mount Isa during 2007 which will allow us to determine where our efforts have been successful and to identify emerging areas where additional action may be needed.

## Handling complaints and enquiries

Mount Isa Mines operates a 24-hour community information telephone line from its Air Quality Control (AQC) centre to manage complaints and enquiries, and to provide feedback to callers. The centre has 15 monitoring stations throughout the city that monitor ambient sulphur dioxide levels in the air. These in turn direct operations at Mount Isa Mines' smelters and Southern Cross Fertiliser's acid plant.

In 2006, complaints received by Mount Isa Mines fell by 40%.

All complaints are handled by members of the Community Relations team and complainants are responded to promptly. Most commonly, Mount Isa complaints are associated with sulphur dioxide emissions and callers are advised of current Air Quality Control (AQC) Centre status. As a result of wind blowing over the city, the copper smelter was shut down for a total downtime of 657.6 hours to control sulphur dioxide levels in Mount Isa.

Ernest Henry Mining and the Townsville operations received no complaints regarding their operations in 2006.

Mount Isa community complaints		
No.	Description	Action taken
39	Sulphur dioxide levels in the community	Complainants advised of AQC status and any action being taken
1	Vibration causing cracking of house foundations	Investigation into noise and vibration data from previous years

# Glossary

## **AQC – Air Quality Control centre**

The centre monitors sulphur dioxide emissions and weather conditions and directs the operations of the Mount Isa Mines smelters to control sulphur dioxide concentrations within license limits.

## **Biodiversity**

An abbreviation of “biological diversity” that means the variability among living organisms from all sources, including land based and aquatic ecosystems of which they are a part. These include diversity within species, and of ecosystems.

## **Completion Plan**

A formal document detailing a costed conceptual outline of how the operation will be completed, taking into account the options available to deal with prevailing social and environmental issues.

## **DI – Disabling Injury**

Calculated as lost time injuries plus restricted work injuries (LTI + RWI).

## **DIFR – Disabling Injury Frequency Rate**

Disabling injury frequency rate =  $DI \times 1,000,000/\text{hours worked}$ .

## **DISR – Disabling Injury Severity Rate**

Disabling injury severity rate =  $(LTI \text{ days lost} + RWI \text{ days lost}) \times 1,000,000/\text{hours worked}$

## **EMS**

Environmental Management Systems.

## **EPA**

Environmental Protection Agency.

## **EPP air goal**

Maximum levels for air quality indicators to be progressively achieved as part of achieving overall Environmental Protection Policy objectives.

## **Fatality**

A death resulting from an occupational injury or disease/illness and identified within the reporting period.

## **Gj**

Gigajoules (a thousand million joules).

## **Greenhouse gas**

Any gas that absorbs infra-red radiation in the atmosphere, causing the warming of the earth's atmosphere.

## **HSEC**

Health, safety, environment and community.

## **IEE**

Itron Enterprise Edition.

## **ISO**

International Standardisation Organisation.

## **ISO14001**

The International Standardisation Organisation's standard for environmental management systems.

## **LTI – Lost Time Injury**

An occupational injury or disease that results in days away from work on any rostered shift subsequent to that on which the injury occurred. A fatality is also recorded as an LTI.

## **LTIFR – Lost Time Injury Frequency Rate**

Lost time injury frequency Rate =  $LTI \times 1,000,000/\text{hours worked}$ .

## **ML**

Megalitres (1 megalitre = 1,000,000 litres or 1,000 kilolitres).

## **µg/dl**

Micrograms per decilitre.

## **µg/m<sup>2</sup>/day**

Micrograms per square metre per day.

## **NOHSEC**

National Occupational Health and Safety Commission.

## **Particulate emissions**

Controlled discharges from stacks containing microscopic solids in the form of dust or smoke.

## **PAS**

The Panel Assessment Study into the impact of sulphur dioxide emissions from the Mount Isa Mines smelters – established by Mount Isa Mines in cooperation with the Queensland EPA in 1997.

## **PASS**

Positive Attitude Safety System.

## **PM<sub>10</sub>**

Particulate matter less than 10 microns in size.

## **Raw water**

Untreated water extracted from groundwater, dams or rivers.

## **Recycled water**

Recycled water is water:

- that has been used at least once in a process within the operation or at another operation; and
- that would otherwise be part of a waste stream; and
- if not re-used, would require the input of raw water.

## **Rehabilitation**

In this report, rehabilitation is defined as disturbed areas that have been prepared for rehabilitation and seeded.

## **RWI – Restricted Work Injury**

An occupational injury or disease that results in a person being physically or mentally unable to perform all or any part of his/her normal assignment during any rostered shift subsequent to that on which the event occurred.

## **Social Involvement Plan**

A plan produced by each Xstrata commodity business to set out engagement with local communities detailing the range of initiatives to be undertaken and the resources, financial and otherwise, dedicated to this area of the business.

## **Tailings and tailings dams**

The fine fraction of waste rock remaining after the mining and on-site processing of mineral resources. This consists of finely ground particles and traces of process reagents and chemical residues. Tailings are piped into engineered impoundments known as tailings dams, which are developed, operated, monitored and maintained to prevent seepage and water contamination both during and after mining operations.

## **TRI – Total Recordable Injuries**

A measure that includes:

- lost time injuries (including fatalities);
- restricted work injuries (RWI); and
- medical treatment injuries (MTI).

## **TRIFR – Total Recordable Injury Frequency Rate**

Total recordable injury frequency rate =  $(LTI + RWI + MTI) \times 1,000,000/\text{hours worked}$ .



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