

Xstrata Zinc North Queensland Sustainability Report 2006



SCOPE OF THIS REPORT

This report details the health, safety, environment and community performance of Xstrata's zinc-lead operations in north Queensland from 1 January 2006 to 31 December 2006. This includes the HSEC performance of the zinc-lead-silver operations at Mount Isa Mines, Black Star open cut, George Fisher mine, the Bowen Coke Works and 75% of the Lady Loretta zinc-lead deposit.

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

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





Chief Executive's message

2006 was a significant year in the growth of Xstrata Zinc as we became one of the world's largest producers of zinc. Following Xstrata's acquisition of Falconbridge in August, Xstrata's zinc and lead operations and development projects are located in six countries – Australia, Canada, Germany, Peru, Spain and the United Kingdom.

In north Queensland these operations comprise the Mount Isa, George Fisher underground and Black Star open cut zinc-lead mines and processing operations, the Bowen Coke Works and 75% of the Lady Loretta zinc-lead deposit. In Australia we also operate the McArthur River open pit zinc-lead mine, processing and port operations in the Northern Territory and 50% of the Lennard Shelf underground zinc-lead mine and processing operations in Western Australia.

This is the first year we have produced a divisional sustainability report for Xstrata Zinc in north Queensland.

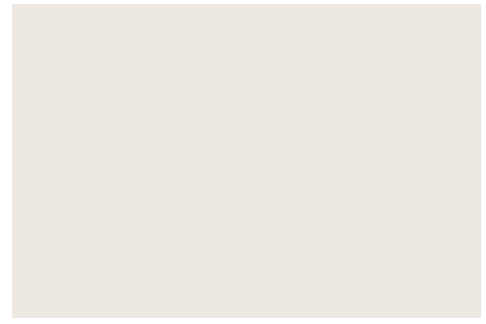
The report reflects the growing emphasis we place on sustainable development and summarises our performance in this area during 2006. Last year we took significant steps to address the continuing challenges and opportunities we faced in our north Queensland businesses in the areas of safety and health, environment and community. Looking forward, 2007 will be a year during which we place even further emphasis on these aspects of our business as we undertake further expansions of our operations in Mount Isa.

The report is also in line with our commitment to improve communications with our key stakeholders of our performance and progress in these areas.

Xstrata Zinc is committed to the Xstrata plc HSEC Policy and Standards which have been developed around the International Council on Mining and Metals (ICMM) principles of sustainable development and global leading practice management systems.

I trust you find this report informative and that it allows you to evaluate our continuing commitment to achieving sustainable growth in our north Queensland zinc business.

Santiago Zaldumbide
Chief Executive Xstrata Zinc
Executive Director Xstrata



General Managers' message

Xstrata Zinc's strategy for sustainability in north Queensland resulted in a successful year for our George Fisher mine, Black Star Open Cut, Metallurgical Operations and Bowen Coke Works.

We are very pleased to share these results with you in our first Xstrata North Queensland Zinc Sustainability Report.

In 2006 our business improved its long-term viability by increasing ore reserves at George Fisher mine from 39.1 million tonnes to 44.8 million tonnes and at Black Star Open Cut from 26.9 million tonnes to 32.3 million tonnes. Our concentrator throughput increased from five million tonnes to 6.5 million tonnes and fully utilised our newly commissioned zinc filter plant and the existing lead smelter.

In expanding the business we created an additional 350 onsite, full-time jobs during the year, with many more positions created within the local community to support our operation. Xstrata Zinc also spent AUD\$196 million in capital projects in north Queensland.

This report details our economic contribution, our commitment to improvements in health, safety and the environment, and our partnerships with the local community. With support from our workforce, local community and other stakeholders we are proud to provide statistics and case studies from our operation.

Our sustainability and operational highlights for 2006 include:

- a strong improvement in the disabling injury severity rate due to emphasis on risk management and our commitment to effective rehabilitation;
- drilling conducted to investigate the open pit mining potential at George Fisher mine for the Handle Bar Hill Project, with feasibility work to continue in 2007;
- commissioning of the new crushing facility, conveyor system, milling circuit and flotation circuit in the zinc-lead concentrator and subsequent improved throughput from more efficient processes;
- installation and commissioning of a new furnace cooling water system in the lead smelter which has significantly reduced emissions and commencement of a feasibility project for the lead ISASMELT;
- programs to ensure a skilled workforce including a AUD\$2.1 million five-year partnership established with Ballarat University, and an ongoing graduate scheme, vacation program, skills centre apprenticeships, adult apprenticeships and local scholarships;
- being jointly awarded the Queensland Metalliferous Training Company of the Year award with Xstrata Copper;
- completion of the new zinc filter plant and the subsequent substantial dust and noise emission reduction; and
- improvements to contractor health, safety, environment and community (HSEC) systems with our service and supply partners which will enhance our HSEC performance.

- re-launched our community partnership program in Bowen
- negotiation of an enterprise bargaining agreement with our workforce in Bowen to bring them in line with other Xstrata north Queensland operations;
- completion of a study into emission capture technologies for the coke works by an external engineering group;
- a 3% increase in coke production compared to 2005 and recording our first breeze and nut coke sales to the Mount Isa Copper Smelter, and the first metallurgical coke sale to Xstrata's Brunswick Smelter in Canada;
- rolling out the PASS system and bringing Bowen Coke Works into line with other Xstrata north Queensland operations; and
- upgrading of the weather station to enable real time wind speed and direct data to be monitored in Bowen and dust generating activities to be curtailed during unfavourable weather conditions, thus minimising the impact on the local community.

Xstrata Zinc north Queensland is well positioned to continue its leadership role in sustainable development. We have an exciting future ahead of us, and we look forward to presenting future results on our continuing improvements in the key areas of health, safety, environment and community.

Our sustainability reports are designed to share our progress with you and we welcome any feedback. Please email your comments to nqsustainability@xstratazinc.com.au or write to us at Xstrata Zinc, PMB 6, Mount Isa, Queensland, 4825.

Kevin Hendry
General Manager Zinc-lead Operations
Xstrata Zinc North Queensland
(above left)

Fred White
General Manager Lead Smelting Operations
Xstrata Zinc North Queensland
(above right)



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 ZINC'S DEFINITION OF PURPOSE

We will maximise value for shareholders by successfully growing and managing an industry-leading portfolio of zinc-lead 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 Zinc 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 Zinc 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 ZINC SUSTAINABILITY POLICIES

Xstrata is committed to achieving sustainable growth and shareholder value across all its operations. At Xstrata Zinc, 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 Zinc is committed to providing a meaningful contribution to the north Queensland communities in which it operates. We generate employment opportunities, support local businesses, fund community projects and contribute to government taxes and charges and, in doing so, bring substantial benefits to Mount Isa, Bowen and surrounding communities.

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

- employment of over 4,600 people, including contractors and including more than 1,000 people in the zinc-lead operations;
- an annual wages bill in excess of \$339 million, including \$287.3 million for Mount Isa Mines and Bowen Coke Works, 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 purchasing goods and services within Queensland;
- \$4.1 million paid in annual rates to local councils;
- annual contributions of more than \$1.8 million, directed to community partnerships, donations, sponsorships and community programs;
- \$145 in rail, power and water charges; and
- \$67.2 million paid to governments in taxes and charges.

OUR PRODUCTION

Zinc-lead-silver ore is sourced from the Black Star open-cut mine at Mount Isa and the George Fisher mine complex, located 20 kilometres from the city. Through its acquisition of Falconbridge Ltd in August 2006, Xstrata now holds a 75% interest in the Lady Loretta zinc-lead-silver mineralisation deposit about 140 kilometres north-west of Mount Isa. It has measured and indicated resources of 12.6 million tonnes grading 17% zinc and 5.9% lead.

The zinc-lead-silver ore from George Fisher is mined, crushed and hauled to the surface, then transported via an off-highway haulage road for processing, together with ore from the Black Star open-cut mine, at the Mount Isa Mines processing facility. Zinc concentrate, containing about 51% zinc, is railed to Townsville for delivery to the Sun Metals Zinc Refinery, and for shipment to overseas customers.

Mount Isa Mines uses state-of-the-art mining and processing technology to produce and treat more than 4.5 million tonnes of zinc-lead ore from its world class underground and open-cut ore bodies each year.

The Mount Isa Mines complex includes crushing plants, mills, a concentrator, a lead smelter and a zinc filter plant. These operations contribute to the process of separating waste rock from the ore and then removing impurities. These plants use technology developed in Mount Isa that has revolutionised metals processing, such as the Isa Mills for the fine grinding of ores and Jameson Cells for maximum ore recovery during flotation.

Lead concentrate contains between 50% and 60% lead and about one kilogram of silver per tonne. After processing, the metal is cast into four tonne blocks, each containing about 3,984 kilograms of lead and about 10 kilograms of silver. These blocks are railed to Townsville for shipment to Xstrata Zinc's lead-silver refinery in the United Kingdom.

Xstrata Zinc continued to invest in the future of Mount Isa in 2006 with diamond drilling programs investigating the expansion of Black Star open-cut mine, as well as the open pit mining potential of George Fisher mine. Pre-feasibility investigations, design and drilling will continue in 2007.

Other significant projects during 2006 included expansion and upgrade of the zinc-lead concentrator, which involved the innovative use of second-hand equipment sourced from the George Fisher mine and overseas, increasing existing throughput capacity of the concentrator by more than 30%.

The new zinc filter plant and adjacent zinc concentrate loadout and storage facility were also commissioned, providing a more environmentally-friendly method of loading concentrate into rail wagons than was used previously.

Bowen Coke Works produces coke for smelting purposes. In 2006, it processed 76,500 tonnes of coal from Xstrata's Collinsville coal mine. It produced 42,900 tonnes of metallurgical coke and 8,500 tonnes of nut coke, including 6,000 tonnes of crushed coke for Boyne Smelter Limited. An additional parcel of 6,188 tonnes of metallurgical coke was exported to Xstrata's Bathurst Zinc lead smelter in Canada.

Production Facts

Zinc-lead-silver Stream	
2006 production	209,900 tonnes of zinc in concentrate 118,300 tonnes of lead in lead bullion 6,270 ounces of silver in crude lead
Mines	4.7 million tonnes of ore per annum mined from George Fisher underground mine and Black Star open-cut
Plants	1 concentrator – 6.5 million tonnes per annum capacity; 1 lead smelter; 1 zinc filter plant
Bowen Coke Works	
2006 production	42,900 tonnes of metallurgical coke 8,500 tonnes of nut coke



Caring for our people

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

KEY CHALLENGES DURING 2006

The main challenges at our Mount Isa operations in 2006 were to address the key issues identified through the Xstrata health, safety, environment and community (HSEC) audit in mid-2005. These were audit, risk and change management; contractor management; document control; and communication and engagement.

Bowen Coke underwent the HSEC audit in 2006 and achieved a score of 74%. No significant reportable issues were identified by the audit. Opportunities identified for improvement included documentation of the community management system and annual HSEC strategy development. These findings will be implemented in a structured manner to further improve compliance in 2007.

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 and Bowen. In 2006, comprehensive reviews of monitoring programs for dusts, noise, asbestos fibre, 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.

Xstrata Zinc contributed more than \$140,000 towards Mount Isa Mines' \$350,000 investment on occupational hygiene sampling and analysis in 2006.

HEALTH AND SAFETY PERFORMANCE

2006 Targets	Performance	2007 Targets
Mount Isa zinc-lead operations and Bowen Coke Works		
Zero fatalities	✓ (0)	Zero fatalities
LTIFR of < 3 combined mining and metallurgical operations	✗ (3.3)	LTIFR zinc/lead operations < 2
TRIFR of < 15 combined mining and metallurgical operations	✗ (22)	TRIFR zinc/lead operations < 12
DISR < 160 combined mining and metallurgical operations	✓ (123)	DISR zinc/lead operations < 150
		Commence the five-year Xstrata Zinc Institute of Minerals Industry Education partnership with University of Ballarat

✓ Achieved
 ✗ Not achieved
 → Action continues into 2007

■ 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.

■ 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.

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
Lead in blood	10,737

■ Health assessment and management

Before joining Xstrata Zinc 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. 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.



A front-end loader prepares to load zinc concentrate into rail wagons inside the new zinc concentrate storage shed and loadout facility at Mount Isa. The facility was built during 2006 to reduce the amount of zinc concentrate that escapes into the environment during loading.

PERFORMING SAFELY

■ Our safety performance

Safety performance is tracked using the following measures – total recordable injury frequency rate (TRIFR), lost time injury frequency rate (LTIFR) and disabling injury frequency rate (DIFR), which record the number of injuries per million hours worked. TRIFR includes all injuries except first aid treatments. In 2006, the zinc-lead operations adopted use of the total recordable injury frequency rate (TRIFR) rather than the DIFR. This change occurred to align the Mount Isa Zinc reporting to the Xstrata reporting requirement.

Xstrata's zinc-lead operations did not achieve their LTIFR and TRIFR targets in 2006. Twenty-seven medical treatments were included in the TRIFR which significantly added to the total number of injuries recorded, as opposed to the restricted work injuries and lost time injuries which were used in 2005. However, in achieving our 2006 disabling injury severity rate (DISR) target we were successful in reducing the average time that a person is restricted or unable to attend work. This was due to our efforts in risk management and rehabilitation. Medical treatment injuries were the focus of reporting in 2006 as the operations adopted the TRIFR as the lower injury severity indicator.

By fully implementing the TRIFR indicator through the measurement of medical treatments and the decrease in restricted work injuries, we achieved a total recordable injury frequency rate of 22. This represents a 30% improvement from 2005.

■ Audit, risk and change management

During 2006, a number of high-level risk studies were undertaken to identify HSEC and business risks that would be associated with capital works and changes to operating practices. Key personnel within the organisation received higher level risk training through the University of Queensland's Minerals Industry Safety and Health Centre. Audits completed included the property conservation audit and the operators' safety and health audit to assess compliance to the *Mining and Quarrying Safety and Health Act*.

■ Contractor management

In 2006, the Mount Isa safety team introduced the contractors' HSEC audit program to complement the Xstrata audit strategy. The aim of the contractor audit is to assist all Xstrata Zinc contractors in the development of their organisation's safety management system to comply with Xstrata Zinc's minimum standard.

A series of Xstrata HSEC introductory workshops were held for contractors who work for the Xstrata Zinc Mount Isa departments. To assist contractors further we held a workshop on the mapping of the Xstrata HSEC system to Australian and international standards and developing systems' writing skills. A contractors' HSEC web site was established which has proven very successful.

The contractor response to the audit process has been positive and an increase in contractor safety awareness and performance has been reported by Xstrata Zinc contract owners. The overall objective of the program is to have the Mount Isa Xstrata Zinc departments and their contractors working towards health, safety, environment and community excellence.



George Fisher mine employees attend a PASS meeting prior to starting their shift.



Indigenous children from the Yallambee Community participate in Queensland Health's Lead in Blood testing program in Mount Isa.

Document control

Document control and archival systems for the zinc operations were developed in 2006 to ensure retention of the information relating to health, safety, environment and community. A significant amount of work was completed with all departments understanding the system requirements and working towards controlled documents which will be loaded on to the new intranet environment in 2007.

Communication and engagement

The positive attitude safety system (PASS) implementation was completed in 2006 at the Mount Isa and Bowen Coke operations. PASS is a global communications tool developed to improve the flow of safety information throughout the workforce and to encourage safety improvement at the frontline. Employees, contractors and visitors all participate in daily PASS meetings where the performance of the previous shift is rated. This allows poor performance and safety improvements to be discussed in an open way that ensures our workforce understands more about working safely. The performance of all participating groups is discussed with the most senior person on site each day and, if required, feedback and assistance is provided to ensure issues are resolved in a timely manner.

Lead management

Elevated lead in blood is a matter that Xstrata takes seriously. This is evident in the strict protocols in place to reduce risks of workers' exposure to lead in the workplace. At our Mount Isa operations, biological and workplace monitoring is conducted in accordance with the National Occupational Health and Safety Commission (NOHSC) standard and recognised international occupational hygiene monitoring standards.

Xstrata sets its medical removal limit below this standard of 50 micrograms per decilitre ($\mu\text{g}/\text{dL}$). Employees with blood-lead concentration levels of 40 $\mu\text{g}/\text{dL}$ or greater must be removed from

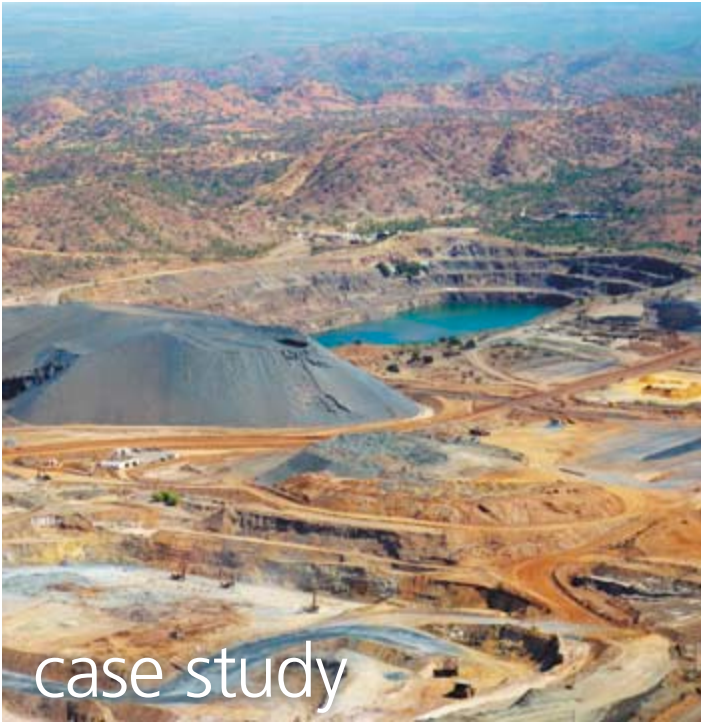
the workplace until concentrations are below 30 $\mu\text{g}/\text{dL}$. In the lead smelter, the limit is 45 $\mu\text{g}/\text{dL}$ or greater. Pregnant employees should not have a blood-lead concentration that exceeds the national standard of 10 $\mu\text{g}/\text{dL}$.

During 2006, improvements were made to ventilation in the lead smelter, as well as process changes in the zinc-lead concentrator to reduce the handling of dry material. Tighter standards for lead in blood levels have been promoted with Xstrata Zinc striving to maintain the low lead in blood level of its workforce. Education for new employees on lead and the measures to take to prevent lead exposure in the home have been in place for many years, with reminder sessions conducted regularly for our entire workforce.

We also continued our free venipuncture program to take blood samples from Mount Isa residents to test for lead levels in the blood. The test is available on request from the Queensland Medical Laboratories located in the town centre and funded by Xstrata. The results of the blood-lead test are confidential and forwarded to a general practitioner nominated by the community member being tested.

To ensure the smelters operate within accepted regulatory limits, airborne emissions are monitored through our 15 monitoring stations located in the community. Each Mount Isa resident lives no more than 1,200 metres from one of these monitoring stations.

In 2006, Queensland Health commenced a study of the lead in blood levels of Mount Isa children aged between one and four years in response to concerns raised in the media. To ensure a representative review is conducted, Queensland Health has a target of 400 children to be tested which represents one quarter of the children of this age group in Mount Isa. The testing is free and Xstrata Zinc is fully supportive of this survey. We 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 residents of the city.



case study

BLACK STAR OPEN-CUT VOID MANAGEMENT

A leading practice void management process has been developed and implemented at the re-opened Black Star mine to ensure the safety of its workforce.

The historic Black Star ore bodies were previously exploited using a mining technique known as glory holing. This involved large underground stopping areas being broken through to the surface. These ore bodies and other parallel ore bodies continued to be mined at the lead mine until its closure in late 2005.

Mining, geology and metallurgical modelling showed that it was technically possible to re-start surface mining at Black Star. However, environmental and risk management studies into reactivating and expanding Black Star as an open-cut mine identified that mining through 80 years of underground excavations posed significant potential risks to workers and nearby infrastructure due to the underground voids. Community consultation also reflected these concerns. If Black Star was to re-open, the challenge was to develop a void management

process that would ensure the safety of Xstrata's workforce and the surrounding community infrastructure.

Fortunately, Mount Isa Mines maintained a comprehensive model of its underground workings, including the Black Star operation. As some areas had been recently mined, workers who had been involved were able to pass on first hand knowledge of how the area had been mined. This greatly assisted in the development of the Black Star void management model.

Communication is a key focus of the void management process. Machine operators are thoroughly briefed in the formation of voids and the risks they pose to the workforce and machinery. Daily void plans are made available to the operation's workforce and each oncoming crew receives a void update by a member of the void management team. This re-familiarises operators with changes that have occurred in the pit while they were on their days off. The positive attitude safety system (PASS) is used to capture safety issues at daily meetings, and a series of specific questions are posed to the crew with respect to the voids and the people who will be working near them.

Void management is included in the Black Star induction, shift change-over meetings, daily production meeting, and short and long-term schedules. A comprehensive three dimensional database of the previously mined areas is continuously updated via daily pit inspections and specific probe drilling.

The use of cutting edge technology has been pivotal to the success of the void management system. Critical equipment is fitted with a high-precision GPS guidance system that shows void mark-outs, relative to the machine position. A radar system is also used to detect ground movement above a stope (a large underground void created when ore is removed from below), while a cavity auto laser scaling survey instrument is available to measure the geometry inside the chosen stope. The information from this technology is quickly and accurately delivered to the workforce to ensure they can make risk-based assessments of mining operations in and around the void areas.

Black Star Technical Services Manager, Jeff Moncrieff, said the system had managed the high risks associated with working around voids very well.

"The feedback we receive from our employees is that they are very comfortable with the void management process," he said. "They appreciate the level of communication and are very forthcoming with feedback. Operators will stop what they are doing if they feel that something warrants investigation, and this approach is reinforcing our emphasis on safety."

■ 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.



One of Mount Isa Mines' mine rescue teams performs a patient packaging exercise during the 2006 Mine Rescue Challenge.



Ashley Smith, third year electrical apprentice at George Fisher mine tests a control fuse on a distribution control box.



Dennis Major, first year apprentice diesel fitter, dismantles a differential at the Xstrata Skills Centre.

MANAGING OUR HUMAN RESOURCES

The key to the ongoing success and sustainability of our business is the commitment and capability of our employees. The Xstrata North Queensland Operations Human Resources Strategy, and accompanying initiatives, supports this requirement through the development of individual capabilities and organisational culture. In the year ending December 2006, Xstrata Zinc north Queensland operations provided jobs for over 1,000 people and employed an additional 190 contractors from the previous year, primarily to work on the zinc-lead concentrate upgrade project.

Developing vocational skills

Xstrata Zinc 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, lead involvement in the Queensland Academy of Minerals and Energy, and school-based apprenticeships. In 2006, we awarded 16 bursaries worth \$1,000 each to high-performing secondary school students involved in this program. A further 20 bursaries will be awarded in 2007. In 2006, our first school-based apprentice (electrical) commenced at Bowen Coke Works.

■ Fostering apprentices

Xstrata's north Queensland operations spend close to \$7 million per 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 coming into the business, our projected apprentice numbers will exceed 250 in 2007. Our apprenticeship program provides real employment and

skills opportunities for people living in the region and targets more than eight key trades. In addition to new apprentices, Xstrata north Queensland offers up to 10 adult apprenticeships each year to current employees wishing to move into a vocational career path. In 2006, our first adult apprentice fitter commenced at Bowen Coke Works.

■ 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 Zinc 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. Xstrata Zinc scholarships provide \$24,000 to the student over three years and also guarantee vacation work with an Xstrata operation during this time. In 2007, we will expand 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. The students worked in an Xstrata business unit and experienced life in a remote or regional Queensland community. The program provides excellent salaries and assistance with accommodation and transportation. We also employed 70 university graduates in permanent jobs across regional and remote Queensland in 2006. Two safety and training graduates commenced employment at our operations in 2006 to ensure the long-term availability of skilled safety and training professionals in the business. The two-year program will ensure that the required skills and knowledge of the health, safety and training systems will be supported by a sound understanding of the mining, concentrating and smelting processes within the zinc operations.

University of Ballarat students on a field trip in Mount Isa.



case study

STRENGTHENING INDUSTRY AND STUDENT LINKS

Xstrata Zinc strengthened its partnership with universities in 2006 when it signed a Memorandum of Understanding with the University of Ballarat and announced funding of \$2.1 million to establish the Xstrata Zinc Institute of Minerals Industry Education at the university's campus in Victoria.

Commencing in 2007, the five-year funding program will assist the university with its range of minerals industry education programs, including re-establishment of a metallurgy degree.

Chief Executive Xstrata Zinc and Executive Director Xstrata plc, Santiago Zaldumbide, confirmed this initiative would positively address the skills shortage facing the Australian resources industry.

"The uniqueness of this partnership is that the alliance aims to strengthen the links between industry and students studying earth sciences, enabling a total minerals industry education package to be offered that will help address the skills shortage facing the Australian resources industry," Mr Zaldumbide said.

Xstrata Zinc's agreement with the University of Ballarat will directly help address the skills shortage by increasing the number of graduates from the University through our investment in specialised minerals education.

"In addition, the partnership will allow metallurgy, mining, geology, civil engineering and mechanical engineering undergraduates to participate in the Xstrata Zinc Scholarship Program," he said.

The Partnership will also fund the development of a post graduate minerals education in honours, masters and PhD programs, and will offer a metallurgical plant operator trainee program. The partnership means Xstrata Zinc will operate a range of training courses and student field visits at Mount Isa, provide scholarships, and support community education in western Victorian schools.

Professor Wayne Robinson, Deputy Vice-Chancellor (Academic & Research) said that a number of the university's geology and mining graduates had recently gone on to successful careers at Xstrata Zinc, so there was now a firm bond and relationship between the two organisations.

Likewise, Professor Steve Hall, Head of the School of Science and Engineering, in which the courses are located, said "We now look forward to resuming our metallurgy degree in full and reaffirming the University's international reputation for geology and mining research excellence".



case study

INTRODUCTION OF INNOVATIVE MOBILE KIDNEY LOOP FILTERING MACHINES

In 2006, George Fisher mine workers developed the mobile kidney loop filtering machines – an innovation that has significantly improved the safety of our people, through improved work practices, and delivered greater environmental benefits.

According to Xstrata Zinc's Manager of Health, Safety and Training, Brendan Callaghan, the focus of the Kidney Loop innovation is to reduce the need for manual tasks within the mine.

"The kidney loop filters connect directly to a truck, lubricants are pumped out of the truck through the filters and then back into the truck," he said. "The filtering machines are usually left in place for six to eight hours to ensure that the lubricants are cleaned effectively."

The Kidney Loop has dramatically reduced our need for repetitive carrying and lifting of loads, drum by drum, to the trucks to refill oil; frequent climbing of stairs with heavy loads; working in awkward and static postures while underneath trucks to drain oil; and has doubled the life of engine oil and in turn halved the required number of oil changes required on the fleet.

"This innovation is directly linked to Xstrata Zinc's goal of achieving 'zero harm' to our people," said Brendan.

In addition to the safety aspects of the Kidney Loops, they also deliver major environmental performance benefits to George Fisher mine through the elimination of oil wastage. There is less spillage as a result of flow-controlled nozzles and they have eliminated the need to pour oil directly from drums. Mobile kidney loop filtering machines are being used on a daily basis to filter lubricants while heavy equipment is being serviced. The filters within these units are able to trap any grit larger than two microns. To make a comparison, the diameter of human hair is around 80 microns. The importance of removing this grit extends the life of lubricants which reduces oil consumption, and reduces wear and tear on machinery.

George Fisher Mine is currently using the machines to filter transmission, axle and hydraulic oils. Results have indicated that the life of engine oil can be doubled by using the kidney loop filters. In terms of production for the George Fisher Mine, the mobile kidney loop filtering machines ensure longer life of equipment due to the clean oil; a cleaner workshop due to reduced oil drum spillages; and longer periods between machinery rebuilds.



Caring for our environment

Xstrata Zinc 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.



A water trucks sprays the haul roads around the Black Star Open Cut mine at Mount Isa to reduce airborne dust.

OUR CHALLENGES

Xstrata Zinc's key environmental challenges in north Queensland are to:

- maximise water consumption efficiency to conserve resources and allow for expansion of operational activities;
- maximise energy efficiencies to conserve resources and allow for expansion of operational activities;
- plan for effective progressive rehabilitation;
- minimise emissions to air from Mount Isa smelters and dust from surface operations;
- manage stormwater runoff;
- minimise waste generation and maximise materials recycling;
- manage impacts on the surrounding environment in conjunction with continual growth;
- promote a proactive environmental culture; 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.

« A loader prepares to load zinc concentrate into rail wagons inside Xstrata's new Zinc Filter Plant and loadout facility. The facility, commissioned during 2006, prevents loss of product during loading due to weather conditions, providing a more environmentally-friendly method than was previously used.

ENVIRONMENTAL PERFORMANCE

2006 Targets	Performance	2007 Targets
North Queensland Zinc Operations		
Establish Greenhouse Challenge Agreement	✓ Greenhouse Challenge Agreement established	Revise greenhouse agreement to include the Xstrata Power Station
Mount Isa Mines		
Complete community health and perceptions study	→ Held over until Queensland Health completes lead in blood study	Complete community health and perceptions study
Implement EMS compliant to ISO14001	→ EMS compliant pending external audit	Complete external EMS audit to demonstrate compliance with ISO14001
Implement Lawlex Compliance Management System	→ Database development completed	Implement Lawlex Compliance Management System into operations
Develop George Fisher Operations surface water catchment model	→ 70% complete for George Fisher Operations	Complete George Fisher Operations surface water catchment model
Install stormwater collection and recycling system at George Fisher mine	→ Pump equipment purchased	Finalise installation of stormwater collection and recycling system at George Fisher mine
Establish field trials for final capping of waste rock dumps	→ Cover systems model complete	Establish field trials for final capping of waste rock dumps
		Develop an environmental awareness handbook
		Complete 'whole of emissions' study to differentiate between natural forms of lead and those derived from smelting operations in the environment and assess potential health risk
		Review and refine National Pollutant Inventory (NPI) data collection processes and estimations techniques
		Establish Xstrata smelter project team
Bowen Coke Works		
Finalise site completion plan	→ Full cost estimated plan not yet complete	Finalise site completion plan
Investigate options for reducing emissions from the oven battery	✓ Preliminary investigation completed	
		Develop ongoing mangrove health monitoring program
		Develop improvements to the ambient dust monitoring program

✓ Achieved ✗ Not achieved → Action continues into 2007

ENVIRONMENTAL COMPLIANCE

Our operations at Mount Isa were subject to a joint Environmental Protection Agency and Department of Mines and Energy compliance audit in October 2006. 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 five minor non-compliances identified. These non-compliances will all be addressed in early 2007.

Bowen Coke reported externally against the Bowen Coke Action Plan which requires various actions to be implemented. In 2007, the challenge is to implement a more rigorous compliance tracking system. No non-compliances were reported at Bowen Coke.

Lady Loretta deposit

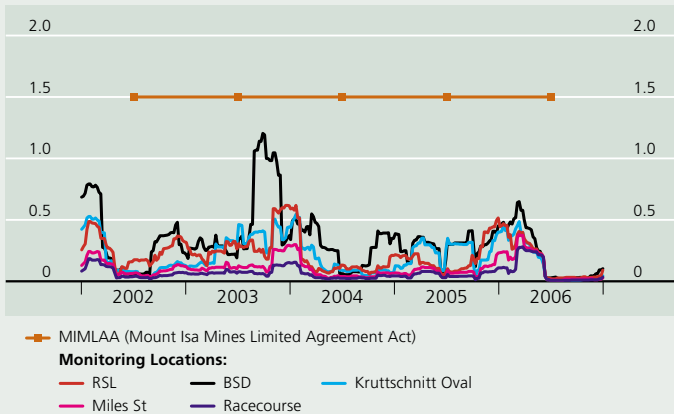
During 2006, environmental monitoring including quarterly water sampling was completed on the Lady Loretta deposit, now under Xstrata ownership following the acquisition of Falconbridge Ltd. In 2007, this work will continue and a new three-year plan of operations will be issued to the regional government authority. No significant environmental or safety events occurred on site during the year. At Lady Loretta the pre-feasibility study and mineral resource statements were updated according to the Code for Reporting of Mineral Resources and Ore Reserves (JORC Code) 2004. A technical report, compliant with Canadian Rule NI 43-101 and respecting JORC Code (2004), is due to be issued in early 2007.



Xstrata Zinc employee, Matt Ashkar, takes a sample of production off-gases from the lead smelter stack.

Ambient lead-in-air concentrations for monitored sites*

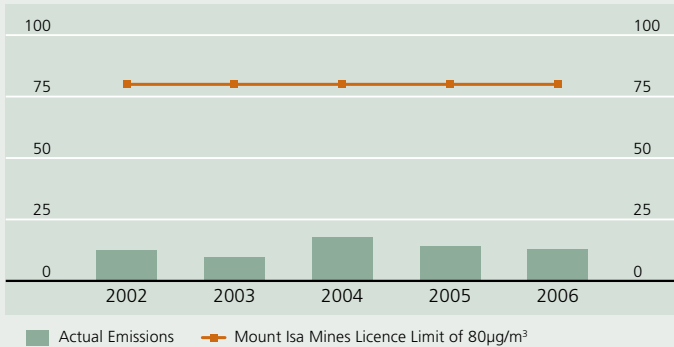
$\mu\text{g}/\text{m}^3$ Lead – 90 day average measured in the Mount Isa community



The 'ambient lead in air concentration', as monitored by the high volume samplers across Mount Isa, remained well within regulatory requirements with low levels measured from May 2006 to October 2006. The lower levels can be partially attributed to predominant easterly winds during winter and spring.

Annual average ground level sulphur dioxide concentrations*

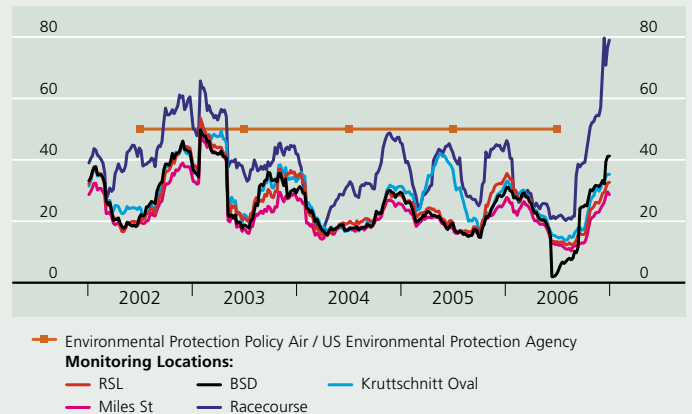
$\mu\text{g}/\text{m}^3$ SO_2 – measured in the Mount Isa community



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 PM_{10} (dust-in-air) concentrations for monitored sites*

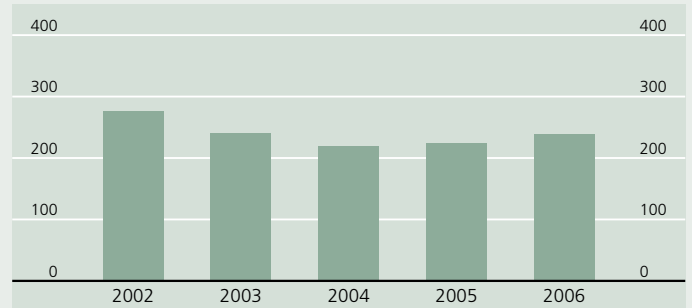
$\mu\text{g}/\text{m}^3$ PM_{10} – 90 day average measured in the Mount Isa community



The ambient 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.

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).

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

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 Zinc in collaboration with Xstrata Copper 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.



Location of Mount Isa Mines' 17 environmental monitors in the Mount Isa community. TEOMs are real time dust concentration monitors.



Marc Katona, Instrument Technician, conducts an instrument maintenance check on one of the 10 sulphur dioxide monitors located in the Mount Isa community.

Emissions to air

The lead smelter has achieved a reduction of 23,279 tonnes per annum in sulphur dioxide emissions since 2000, representing a 17% decrease in emissions. During 2006, a new more efficient furnace cooling water system was installed to replace the previous one, which was interfering with the furnace operation. The new cooling water system will allow improved process control. Improvements to the quality of feeds for the lead smelter also further reduced emission levels, with the improved coke quality from Bowen Coke's operations during 2006 leading to improvements in the furnace performance and smelting reactions.

Dust generation is controlled primarily by regular watering of unsealed roads and by keeping vehicle traffic volumes and speeds to a minimum. Use of dust suppressant additives is now incorporated within Black Star open-cut, and George Fisher surface and underground operations.

Managing surface and groundwater

At Mount Isa Mines Zinc Operations there were two discharges of stormwater and process water off-lease during 2006; both of which occurred during high rainfall events. There was also a small primary treated sewage effluent discharge off-lease.

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

- installation of overflow pipelines from the vulcaniser pit to the lead smelter super pit, greatly reducing the potential for off-lease discharges at this off-site overflow point;
- Black Star open-cut drainage improvements aimed at minimising ponding and capturing as much water as possible for reuse; and
- Purchase of pumping equipment for capture and recycling of stormwater at George Fisher mine.

In-depth groundwater studies are being undertaken at both the Black Star open-cut mine and the proposed George Fisher open-cut site. The first phase of each study will address groundwater influences during the life of the mine, including interaction with the surrounding groundwater environment. The second phase of the study will address final void hydrology for mine completion.



Mount Isa skyline. The Mount Isa community and the mine sit side by side. The mine is closely integrated into the day-to-day life of the community.

■ Freshwater use

In 2006, zinc operations at Mount Isa Mines incorporated freshwater use into the Itron Enterprise Edition (IEE) energy management system. IEE enables operational areas to monitor real-time consumption of resources, including water on-line. The system will also enable plant managers and superintendents to view resource use costs, allowing an improved understanding of machinery efficiency and their day-to-day costs and encouraging a proactive approach to limited resource management.

Throughout 2006, an assessment of the entire water system throughout zinc operations at Mount Isa Mines was completed. All meters were identified, and a plan developed for meter replacement and installation in 2007.

Bowen Coke Works recorded a reduced potable water consumption of 63.13 megalitres against its 2005 consumption of 93.16 megalitres. This improvement can be attributed to improved reporting over actual usage.

Potable Water Consumption

ML (megalitres) – Bowen Coke Works



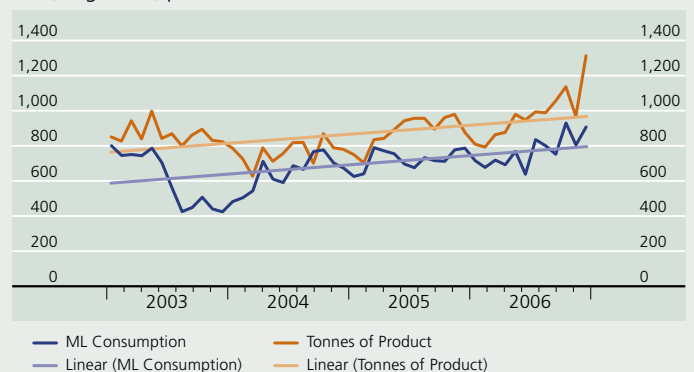
Energy and greenhouse

In 2006, Xstrata north Queensland joined Greenhouse Challenge Plus, a partnership between industry and the Australian Government, to manage and where practicable abate the production of greenhouse gases. During 2007, key performance indicators using the Itron Enterprise Edition (IEE) energy management system will be established for reporting to the Australian Greenhouse Office.

Energy consumption monitoring has been incorporated into the IEE energy management system to enable review and management of data and energy costs by energy users within the operations on a frequent basis. The Energy Breakthrough project achieved significant reductions in the demand and consumption of energy at Mount Isa Mines' operations. The initiatives focused on resource wastes, and energy consumption reductions were achieved through improved maintenance and operating practices. Energy use per tonne of product has reduced by approximately 7% since the first quarter of 2003. Compressed air consumption, which has a direct relationship with energy, was reduced by 23% since the beginning of 2005. In 2006, Bowen Coke Works consumed 598,867 kilowatt hours of electricity.

Relationship between water consumption and production*

ML (megalitres) per Month vs Tonnes – Mount Isa Mines



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



The kidney-loop filtering machine, an initiative to reduce wear and tear on equipment and consumption of lubricants.

Managing waste

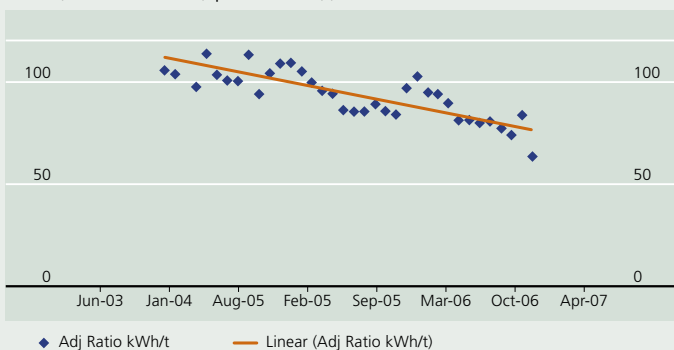
The George Fisher mine introduced mobile kidney loop filtering machines to its surface workshop to filter lubricants while heavy equipment is being serviced. This initiative is part of a program to improve storage and handling of lubricants at the mine. The kidney loop filters are capable of trapping any grit larger than two microns. Removing the grit extends the life of lubricants which reduces consumption, reduces wear and tear on machinery, and results in minimising the amount of wastage.

Zinc Operations generated 6,058 tonnes of waste in 2006. This waste was sent to the Mount Isa Mines landfill or for scrap metal recycling which totalled 926 tonnes in 2006. Mount Isa Mines also retrieved about 19 tonnes of paper and cardboard for recycling and, after joining the 'Cartridges 4 Planet Ark' toner cartridge recycling program during the year, collected more than 70 kilograms per month of toner cartridges that would have otherwise gone to the landfill.

Xstrata Zinc supported the Mount Isa Mines and Mount Isa City Council hazardous household waste amnesty as part of the Clean Up Australia Day activities, and will continue its support into 2007.

Energy use per tonne of product*

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



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

Air quality

At Bowen Coke, the weather station has been upgraded and now provides real-time wind speed and direction data that allows the operation to curtail dust generating activities during unfavourable weather conditions. In 2006, operations were halted for a total of 125 hours (the equivalent of around 14 operational days) due to unfavourable wind conditions.

Safe mine completion and rehabilitation

During 2006 engineers across Mount Isa Mines compiled more than 6,000 structural drawings and photos of all the major facilities to support the development of detailed demolition estimates. When completed these will be used to refine mine completion liability estimates allowing for accurate completion planning and financial reporting.

Modelling of Moisture Store and Release Cover Systems for planning completion of the Black Star Open Cut waste rock dumps was undertaken in 2006. Cover System trials will be set up in 2007. In conjunction, Xstrata Zinc is a major sponsor of a research project being coordinated by the Australian Centre for Minerals Extension and Research on *Designing Effective Store-Release Covers for the Long-Term Containment of Mine Waste – the Role of Vegetation*. Additional trials will be developed as part of this research project. Successful cover systems developed for the Black Star Open Cut waste rock dumps can then be adopted across the rest of Mount Isa Mines to complete other final mine landforms.

Biodiversity

A Biodiversity Strategy and Operational Guideline was developed as part of our progress towards the Xstrata HSEC Biodiversity and Land Management Standard. This standard requires Xstrata Zinc 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.

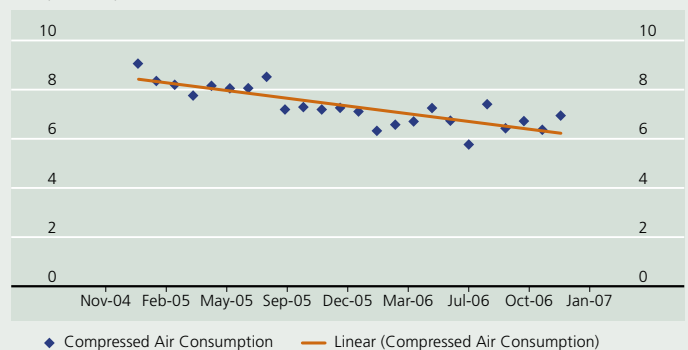
Our biodiversity commitments are:

- 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.

Compressed air consumption*

m³ (million) – Mount Isa Mines



Caring for our environment



CULTURAL HERITAGE SURVEY REVEALS INDIGENOUS ARTEFACTS

A cultural heritage assessment of the southern end of the George Fisher mine in 2006 brought three Xstrata environmental advisers and 11 Kalkadoon Land Council members together for three days to search

the 220 hectare site for indigenous artefacts. The survey uncovered more than 20 artefacts including stone axes, stone knives and spear heads.

Mount Isa Mines Environmental Advisor, Julie Boyer, said whenever Xstrata started a new drilling program in the region, a cultural heritage survey was first completed for each of the drill sites. Legislation requires that a drill site be relocated if the heritage value of any items found will be impacted at the proposed site.

"As we uncovered artefacts we used GPS to record their coordinates and photographed each item," she said. "All artefacts were removed, in line with an agreement between the Kalkadoon Land Council and Mount Isa Mines, and are now displayed in the Mount Isa City Council's office."

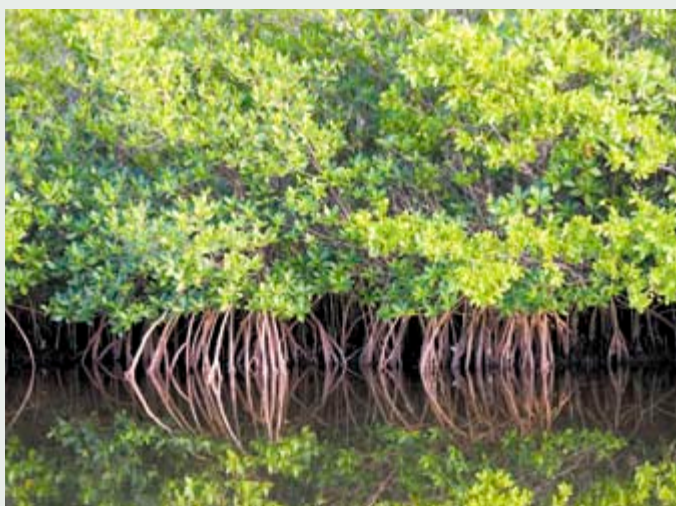
While on site, the Kalkadoon Land Council members, which included three elders, identified local bush tucker and medicinal plants, including bush orange, grape, cucumber and banana, and shared this knowledge with the Xstrata team.

Kalkadoon cultural heritage assessor, Judy Sam, said she was satisfied with how the cultural heritage surveys were conducted.

"We are happy with the way Kalkadoon and Xstrata are working with each other," she said. "The survey process works well."

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.



Doughty Creek mangroves.

■ Mangrove health study

In late 2006, Xstrata commissioned external consultants to conduct a mangrove health study within the Doughty Creek system which adjoins the Bowen Coke operation. The study was undertaken to determine if the long-term operation of Bowen Coke was or is significantly impacting the integrity of the Doughty Creek system. The study looked at mangrove leaf cover, mangrove diversity, biota within the Doughty Creek sediments, the presence of marine mud fauna and water quality. The study also examined a mangrove creek community south of Bowen and another mangrove community in the creek systems leading to the Bowen harbour. While no results have been received at this stage, preliminary indications are that the Doughty Creek mangrove community is in good health. These types of studies will be undertaken regularly to ensure that changes in mangrove health, whether they are natural or human-induced changes, can be identified and understood.

Cultural heritage

In 2006, the zinc-lead operations conducted a cultural heritage assessment on 220 hectares at George Fisher mine for the widespread drilling program being undertaken for the proposed mine development.

The mine's environmental advisers spent three days with 11 indigenous representatives from the Kalkadoon Land Council walking the ridges and open country of the Handle Bar Hill area. Numerous artefacts were found across the region including stone axes, stone knives, and spear heads. While on site, the Kalkadoon Land Council members, including three elders taught Mount Isa Mines environmental advisers about some of the local bush tucker and medicinal plants. These included the bush orange, grape, cucumber and banana.



Caring for our community

We believe that the wellbeing of our employees, their families and the communities in which we operate is crucial to maintaining our social licence to operate.

At Xstrata we work in partnership with our local communities to have a positive impact on quality of life and contribute to the development of sustainable communities, avoiding long-term dependency on our operations, upholding human rights and respecting cultural considerations and heritage.

We are committed to funding educational, environmental, social, community, health, arts and cultural initiatives in line with Xstrata's corporate social involvement policy.

XSTRATA COMMUNITY PARTNERSHIP PROGRAM

As part of its commitment to corporate social responsibility, Xstrata created the Xstrata Community Partnership Program North Queensland 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's initiatives focus on the following areas:

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

The community partnership program is delivering real improvements to the communities where Xstrata's employees and their families live and work, and the community has responded positively. 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.

**Xstrata Community
Partnership Program
North Queensland**



Caring for our community

« Students of Townview State School at work in the multimedia centre established with funding from the XCPPNQ.

SOCIAL RESPONSIBILITY PERFORMANCE

2006 Targets	Performance	2007 Targets
All zinc operations in north Queensland		
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
Continue implementation of initiatives arising from the 2005 community attitude survey	✓	
		Conduct follow-up community attitude surveys in Mount Isa and Bowen
		Develop an indigenous relations strategy
		Develop cultural awareness training for Xstrata staff
		Assess effectiveness of completed XCPPNQ partnerships
		Hold a community information session in Bowen

✓ Achieved ✗ Not achieved → Action continues into 2007

New partnerships

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

Education

■ Artists-in-residence

The Xstrata Community Partnership Program North Queensland provided \$30,000 in 2006 to Barkly Highway State School for two artists-in-residence programs. The school, known for its innovative



Mullers Lagoon at Bowen. A bridge over the lagoon will be constructed using funds provided by the Xstrata Community Partnership Program North Queensland.

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. The visual artists-in-residence program culminated in the creation of two large murals by all the students in the program. Xstrata will continue to fund the programs in 2007 and 2008, having committed additional funding of \$40,000.

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

■ 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.

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

Project	Partner	Description	Funding and timeframe	Status/update
Enterprise and job creation				
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
Education				
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
Air-conditioned classrooms	Queens Beach State School P&C	Xstrata contributed \$10,000 in 2006 to provide air-conditioned classrooms	\$30,000 from 2005 to 2007	Air-conditioning installed
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 environmental message which were then sold
Social and community				
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 implemented with clients of 40 households

Arts and culture

■ Raw Metal Dance Company

The community was 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.

Environment

■ Bridging the divide

Xstrata provided \$18,000 for the construction of a bridge as part of the Mullers Lagoon Dreamtime and Early Settlers Walk and interpretative facilities. This will allow for the circumnavigation of the lagoon. Additional funding of \$20,000 over 2007 and 2008 will enable further beautification of the area.

Enterprise and job creation

Xstrata Zinc aims 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.

Apprentices and trainees

In 2006 we took on 72 new apprentices, awarded 22 scholarships to students studying degrees in key skill shortage areas, employed more than 100 students for vacation work experience, employed 70 permanent graduate employees and awarded 16 bursaries to high school students. We will continue our commitment to these programs by expanding them further in 2007.

Caring for our community

Project	Partner	Description	Funding and timeframe	Status/update
Life-saving projects				
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
Health				
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
Boosting hospital equipment	Bowen Hospital	Donation for 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 completed in 2006
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
Arts and culture				
Arts and cultural enrichment with live performances	Queensland Arts Council	Each year the Queensland Arts Council brings a production on tour to Mount Isa and Cloncurry	\$225,000 from 2005 to 2007	Two productions have visited Mount Isa, providing entertainment and workshops for aspiring actors, dancers and musicians



Podiatrist, Courtney Thomas, performs a diabetes foot check on a patient at the Mount Isa Diabetes Centre, a partnership between Queensland Health and the Xstrata Community Partnership Program North Queensland.

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. These initiatives included:

- sponsorship of Mount Isa Rotary Rodeo;
- major sponsorship of Outback at Isa tourist attraction;
- donations to welfare, health care, education, sporting, cultural, environmental, Indigenous and arts projects in Mount Isa and Bowen;
- major sponsorship of the Mount Isa Mining Expo; and
- funding of indigenous training program in Mount Isa which prepares local indigenous people for full-time positions at the mine.



Xstrata contributed \$30,000 towards the construction of a Helipad at the Bowen Hospital to assist in the emergency retrieval of patients from the Bowen community and surrounding areas.

COMMUNITY ENGAGEMENT AND COMMUNICATION

Engaging with our local communities is critical to our understanding of relevant regional issues. Sharing clear, open and honest information on our activities is also equally important to maintaining our social licence to operate. During 2006, we communicated with employees, contractors, stakeholders, local organisations, community members, visitors and other interested parties using the following methods:

- three community information sessions in Mount Isa to share information on Xstrata's operations and allow questions from community members;
- an 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 within the community of Mount Isa Mines' 'Mine to Market' newsletter;
- monthly contributions to an industry and innovation liftout in the local newspaper to keep members of the community informed about our operations;
- representation on many local committees and membership of community development organisations;
- regular contact and follow up with partners in the XCPPNQ;
- attending many local and regional events;
- conducting regular surface tours of the mining operations in conjunction with community tourism organisations;
- visiting local schools to explain mining processes to students studying mining units in science
- anniversary dinners for long-term employees celebrating 20, 30, 40 and 50 years of service;
- the production and bi-monthly distribution of six newsletters to employees, key stakeholders, Community Partnership Program partners, business people, politicians and interested parties in Bowen;
- the quarterly 'Well @ Work' healthy lifestyle newsletter, distributed to employees; and
- completing and distributing the 2005 Xstrata north Queensland site sustainability reports throughout the communities in which we operate.

Caring for our community



MEDICAL EMERGENCY TRAINING IMPROVEMENTS

The use of SimMan and SimBaby medical simulator mannequins at James Cook University's Mount Isa Centre for Rural and Remote Health (MICRRH) is vastly improving the level of medical emergency training for health professionals in the region.

More than 200 multi-disciplinary health professionals have been trained by MICRRH using the remote computer-controlled mannequins since they were purchased using funding from the Xstrata Community Partnership Program North Queensland. The medical mannequins are used in the centre's skills laboratory, a facility run by Dr Louis Peachey the Medical Educator at MICRRH. This facility was established to train doctors and health workers from Queensland Health, university students, and staff from the Royal Flying Doctor Service base in procedural emergency medicine.

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 such as the long-term future of the mines in Mount Isa. Xstrata will conduct a community attitude survey in Mount Isa and Bowen and a follow-up community perceptions survey in Mount Isa in 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.

MICRRH Director, Dr Dennis Pashen, said the mannequins allowed health workers to practise responding to emergency situations, thereby providing a higher level of safety.

"Not unlike the airline industry which uses simulators to train its pilots, we are using the medical mannequins to expose individual health professionals, as well as entire multi-disciplinary medical teams, to a wide range of emergency medical scenarios," he said.

"If you have been trained through various scenarios, and you are used to responding to particular emergency situations, it facilitates the rapidity and appropriateness of your response."

A range of scenarios can be programmed on the computer-controlled mannequins such as acute respiratory distress, sudden coronary arrest, loss of blood and unconsciousness. Among other things, the trainer can control the blood pressure, the pulse rate, the breathing and the responses of the patient. There is even a built-in microphone so trainees can ask questions of the mannequin and receive a response via the computer in the next room.

Dr Pashen said the mannequins were greatly appreciated by young medical interns who were keen to test themselves in emergency situations.

"Patient assessment, defibrillation, intravenous cannulae insertions, chest drains, tracheotomies – these can all be done in simulation," he said. "When the medical residents were evaluated at their exit interviews in 2006, they gave five stars to the simulation program that we've been running."

Dr Pashen said the simulators were very much a part of the recruitment and retention strategy for young doctors and medical students in the region.

"When they see the extent of our resources, such as the simulator mannequins, they are attracted to working here," he said. "Our medical students are absolutely overjoyed with the mannequins, as James Cook University at Townsville doesn't even have these yet. A lot of other places are very envious that we've got the SimMan and SimBaby and that we use it so regularly. It's a wonderful resource."

Without funding from Xstrata, Dr Pashen said there would have been a long delay, possibly several years, in obtaining the simulator mannequins.

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 lead smelter was shut down for a total downtime of 200 hours to control sulphur dioxide levels in Mount Isa.

The Bowen Coke Works received no community complains during 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/m²/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.

PM₁₀

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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