



# Townsville Sustainability Report 2006



## SCOPE OF THIS REPORT

This report details the health, safety, environment and community performance of Xstrata's Townsville operations from 1 January 2006 to 31 December 2006.

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





## Chief Operating Officer's message

Xstrata's approach to sustainable development is at the core of all our decision-making.

We aim to operate efficiently, provide a safe, healthy workplace with development opportunities, use resources efficiently, contribute to the conservation of the natural environment, and operate harmoniously with local communities and key stakeholders.

Our Townsville operations are an important part of Xstrata's north Queensland operations. They also make a valuable contribution to the economy and social wellbeing of the communities in which they operate. This sustainability report sets out their sustainability performances in the key areas of health, safety, environment and community.

Across our north Queensland businesses our sustainability highlights for 2006 included a 61% improvement in the lost time injury frequency rate, 59% improvement in the disabling injury frequency rate and 10% improvement in the total recordable injury frequency rate, significant environmental performance improvements, particularly in stormwater capture and control, and an increase in our commitment to the Xstrata Community Partnership Program North Queensland to a total value of \$5.87 million.

Our ability to achieve our goals at Xstrata relies largely on the performance of our employees. I congratulate our teams of dedicated employees who continually strive to improve, implement leading practices, who are open to constructive feedback about their performance, and who are committed to sustainable development.

We will continue to progress towards industry leadership in health, safety, environment and community initiatives and partnerships and I look forward to presenting these outcomes to you in future sustainability reports.

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

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



## General Managers' message

Our sustainability performance in the key areas of health, safety, environment and community has continued to be a major focus of our Townsville operations in 2006.

We are pleased to present this sustainability report which outlines the initiatives, improvements and results of our teams' efforts towards making our operations successful and sustainable.

We are proud to report an improvement in our health and safety performance compared to 2005, though we know there is more work to be done as we continue to strive for zero harm. We are equally proud of the environmental programs we have put in place which will ensure the environmental sustainability of our operations. Community engagement is a vital part of our operations and we have continued to consult and engage with our key stakeholders and foster and expand our community partnerships.

The sustainability and operational highlights of our Townsville operations in 2006 included:

- a 62% improvement in the disabling injury frequency rate for the port operations (including Logistics);
- positive HSEC audit results for the port operations;
- significant progress in occupational health and safety risk identification, emergency preparedness, annual planning and internal auditing;
- a renewed focus on the use of PASS to improve our health and safety performance;
- 92% employee participation in a periodic health assessment, with those people identified as at risk assisted with health management programs;
- conversion of the anode furnace from naphtha fuel to coal seam gas – all our process areas are now run on coal seam gas which has reduced our carbon dioxide equivalence per gigajoule of energy consumed by 25%;

- implementation of groundwater remediation plans for the copper refinery and port operations including a sulphur contamination remediation project at the bulk handling facility;
- completion of the copper refinery stormwater environmental management plan;
- commenced involvement with environmental working group for port users which will help address dust, noise and contamination issues; and
- completion of the copper refinery site completion plan.

Without the tireless efforts of our dedicated team of employees we could not have achieved these results and we wish to express our gratitude to them. The coming year presents many more challenges as we strive towards industry leadership in health, safety, environment and community. We look forward to presenting our results once again next year.

**Karen Read**

*General Manager, Finance & Commercial*

**Tomas Martinez**

*General Manager, Administration & Services*

**Terry O'Neill**

*General Manager, Metallurgical Operations*



## Our approach to sustainable development

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

### XSTRATA COPPER'S DEFINITION OF PURPOSE

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

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

#### Strategic objectives

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

#### Values

Our decisions and actions will demonstrate the following values:

- honesty;
- dependability; and
- respect.

### Our global perspective

Xstrata is a global diversified mining group, listed on the London and Zürich Stock Exchanges, with its headquarters in Zug, Switzerland. Xstrata's businesses maintain a meaningful position in seven major international commodity markets: copper, coking coal, thermal coal, ferrochrome, nickel, vanadium and zinc, with recycling facilities, additional exposures to gold, cobalt, lead and silver and a suite of global technology products, many of which are industry leaders. The Group's operations and projects span 18 countries: Argentina, Australia, Brazil, Canada, Chile, Colombia, the Dominican Republic, Germany, New Caledonia, Norway, Papua New Guinea, Peru, the Philippines, South Africa, Spain, Tanzania, the USA and the UK. Xstrata employs approximately 43,000 people, including contractors.

### ENDURING VALUE – A FRAMEWORK FOR SUSTAINABLE DEVELOPMENT

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

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

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



## Contributing to our economy

The Townsville community reaps significant benefits from our employment opportunities, local business support, contributions to government taxes and charges and financial support for community projects.

Copper Refineries Pty Ltd (CRL), ISA PROCESS technology group and Townsville Port Operation, continue to be an important part of Xstrata's north Queensland operations.

Xstrata contributes to the economy through:

- employment for over 4,600 people, including 165 people at CRL, 16 in Xstrata Technology, and 22 at the Townsville Port Operation;
- an annual wages bill of more than \$339, including \$12.7 million in Townsville, most of which is spent in north Queensland;
- apprenticeship and youth training opportunities of almost \$7 million, with six apprentices and five vacation students employed at CRL;
- \$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 \$1.8 million, directed to community partnerships, donations, sponsorships and community programs;
- \$145 million in rail, power and water charges; and
- \$67.2 million paid to governments in taxes and charges.

### OUR PRODUCTION

Copper Refineries Pty Ltd refines Mount Isa produced anodes (99.7% pure copper) to copper cathode for domestic and international sales as ISA brand 99.995% pure copper. In 2006 the refinery produced 208,617 tonnes of saleable copper cathode.

The ISA PROCESS technology group (part of Xstrata Technology) is located at the Townsville copper refinery. More than 1.4 million stainless steel cathode plates have been manufactured and exported to the world since the technology was developed at the Townsville refinery in the mid 1970s. The business recorded \$85 million in technology and equipment sales in 2006.

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

#### ■ Production facts

Copper Refineries Pty Ltd	
2006 production	208,617 tonnes of copper cathode
Townsville Port	
2006 production	994,500 tonnes concentrate and 810,300 tonnes fertiliser



## Caring for our people

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

### HEALTH AND SAFETY

Our goal of zero harm at our Townsville operations is of primary importance and we are continually striving to improve our safety performance. We work hard to achieve safety excellence through strong leadership, implementation of behavioural-based programs, and compliance with the Xstrata 17 HSEC Standards.

In 2006, we focused on further developing our occupational health and safety management system in line with the Xstrata HSEC Standards and policies and relevant international standards. While there is still some work to be done, significant progress has been made in the areas of risk identification, emergency preparedness, annual planning, and internal auditing.

### Overcoming challenges

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, CRL did not achieve its TRIFR target of 15, recording a result of 20.5. CRL also did not achieve its DIFR target of 10, recording a result of 17.6. While these results were disappointing, our total disabling injuries have dropped in three years from 10 in 2004, to seven in 2005 and six in 2006. Five of the six disabling injuries during 2006 were recorded in the first six months of the year. Contributing factors were primarily behavioural based. This became our focus in the second half of 2006, and to improve these results we implemented the positive attitude safety system (PASS) and reinforced the importance of undertaking regular workplace observations. These two safety improvement initiatives will continue to be our focus in 2007.

« (Previous page) Ron Thompson, Refinery Shift Co-ordinator.

## HEALTH AND SAFETY PERFORMANCE

2006 Targets	Performance
<b>CRL (excluding ISA PROCESS)</b>	
Zero fatalities	✓ (0)
TRIFR < 15	✗ (20.5)
DIFR < 10	✗ (17.57)
Complete PASS implementation.	✓ All workgroups have daily PASS meetings
Develop HAZOPS for circulation and anode casting activities	→ HAZOP conducted for anode casting activities (gas conversion)
Broaden the range and number of people involved in workplace observations	→ Training package developed
Improve incident investigation quality and train people in techniques	✓ Several sessions of TapRoot training organised in 2006 and used on level 3 investigations
Develop bow-tie risk assessments for top ten risks	→ Assessments commenced
<b>Townsville Port</b>	
Zero fatalities	✓ (0)
Achieve targeted training requirements	→ Roster change during 2006 , required an increase in personnel
Improve ergonomics of the shiploader cabin 1	✓ New shiploader cabin installed
Achieve a HSEC audit score > 70	✓ HSEC audit score 72

2007 Targets
Zero fatalities
TRIFR < 15
DIFR < 10
Develop HAZOP study for tankhouse circulation
Complete workplace observations roll out
Complete bow-tie risk assessments for top ten risks
Implement gap audit findings to further align with AS 4801
Complete implementation of periodic health assessments
Zero LTIs
Compliance with safety training > 90%
Implement the actions from the HSEC 2006 audit
TRIFR < 8
DIFR < 2

✓ Achieved    ✗ Not achieved    → Action continues into 2006



Allan McFayden, Refinery Machinery Equipment Operator.

Our port operation recorded a single lost time injury (LTI), while the ISA PROCESS technology group recorded no LTIs for the year.

While not meeting our statistical targets, our safety performance improved on 2005 and our statistical frequency rates continued to trend downwards. We achieved this improvement through:

- continued implementation of PASS;
- improved risk assessment and identification; and
- improved incident investigation and implementation of corrective actions.

### Auditing HSEC performance

In 2006, Townsville Port Operations underwent audits of their HSEC systems and compliance against the 17 Xstrata HSEC Standards. No significant reportable issues were identified by the audits. The port operation achieved its target of greater than 70% compliance with a result of 72%. These audits identified strengths, as well as areas for improvement.



Trades Assistant Maintenance, Steve Jensen, undertaking maintenance on the refinery crane.

Strengths and achievements included:

- strong field implementation of the HSEC system;
- a strong safety training system;
- well developed incident management systems; and
- good implementation of health and fit-for-work processes.

Opportunities for improvement included:

- documentation of the community management system; and
- annual HSEC strategy development.

Our focus for 2007 is to implement the findings in a structured manner to further improve our compliance with the 17 Xstrata HSEC Standards.

## Occupational health and wellbeing

We continued our bi-monthly health promotions throughout 2006, which were well received by our workforce. Topics included protecting your hearing, working in hot conditions and maintaining your personal protective equipment. We will continue these promotions in 2007 and also link in with various Queensland Health promotions such as Diabetes Week, Asthma Awareness and Healthy Heart.

### ■ Periodic health assessments

In 2006, 92% of our employees participated in a periodic health assessment. These assessments identified five employees who were at medium risk. As a result, two employees participated in a health management program and were re-rated as low risk, two were signed off as acceptable risk and the fifth person is participating in a health management program. By June 2007 we aim to have the process completed, meaning all employees will have had a comprehensive health assessment within the last four years.

## SAFETY

### Positive attitude safety system (PASS)

PASS is a communication tool developed to improve the flow of safety information through the workforce and to encourage safety improvement at the frontline. PASS has evolved to the extent that work crews now take responsibility for managing safety issues that are raised. The system has produced a faster response to safety concerns by the leadership group, a positive atmosphere where safety issues can be raised and communicated, and a focus on our safety performance and incident investigation at our monthly HSEC meetings.

The next focus for PASS is to continually monitor and improve the quality of the PASS meetings and ensure the participation from all levels within the organisation.

### Incident investigation processes

During 2006, several TapRoot investigation training sessions were held for CRL and Isa Process personnel. This methodology of incident investigation, combined with our standard investigation process, has been applied to several investigations to determine the root causes and corrective actions to prevent future occurrences. The focus for 2007 is to continue to improve the quality of our incident investigations and the quality of corrective actions.

## Caring for our people



Tyson Thomas and Mark Edgerton review the computer program for the Kunz crane.



Howard Drinkwater, Advanced Mechanical Trades Person.

### Crisis management

In 2006, CRL and the port operation developed site response and recovery manuals that provide a process for management of crisis situations. Initial crisis management training sessions were delivered by external consultants for key CRL and port operation personnel and a follow-up exercise is scheduled for 2007, which will involve a full rehearsal using the tools and procedures outlined in the manual.

### Safety Innovation Awards

The second year of our innovation award program attracted a wide range of entries for innovative solutions to health and safety issues. Some of these included:

- **Preventing Kunz crane end hooks opening:** Mark Edgerton's winning innovation involved changing the crane computer logic to ensure that the end hooks could only open in a controlled manner. The modification significantly reduces the potential for cathodes and anodes to fall, which has positive impacts for safety and production.
- **Shiploader gimble chute replacement (port operations):** the shiploading maintenance team reduced the risks associated with removing and replacing the steel gimble chute and intermediate section by replacing it with a single, high density, polyethelene chute lined with polystone easyslide. The lightweight gimble chute can now be removed and replaced by just one person.
- **Purpose-built wagon shunter:** Contracts Officer Allan Green developed a simple solution to the problem of moving one or several railway wagons on site, with the purpose-built Zagro wagon shunter. The wagon shunter can shunt a maximum of 1,173 tonnes using a 4.5 tonne-capacity forklift. The Zagro eliminates the need to have a loader on site.

## MANAGING OUR HUMAN RESOURCES

### Developing skills

Ensuring our people are competent in their roles is vital to improving production efficiencies and quality and safety at our Townsville operations. In 2006, we implemented several training and development initiatives to help achieve our training targets.

The copper refinery is working closely with the Mining Industry Skills Centre to develop a heavy industry generic induction, similar in context to existing generic mining inductions. The new induction is principally aimed at contractors, who perform work at a number of sites, and will reduce the number of inductions they need to attend. Implementation is anticipated in the first half of 2007.

During the copper smelter shutdown in Mount Isa in 2006, we took advantage of the reduced production requirement to conduct several days of training programs. These covered risk assessment, permit systems, manual handling and isolation and lockout. We also conducted refresher training to ensure our employees remain skilled and current in their roles.

Following the conversion of our Townsville operation to coal seam gas in early 2006, we collaborated with the Barrier Institute of TAFE to deliver eight modules in gas safety management to all maintenance employees. The modules included gas safety, combustion, burner management systems and fault finding burner systems.

The leadership group and potential leaders at Townsville operations completed the Xstrata Leadership Program during the year. Four modules – role of the supervisor, coaching and performance management, planning and delegating, and communications for leaders – were attended by 26 employees. Xstrata recognises that effective leadership is critical for business success. The Leadership Development Program aims to identify, enhance and develop the qualities required to achieve effective leadership within the organisation, with the added benefit for each participant of gaining professional development that can be used in all areas of work and life.



## case study

### SHIPLOADER GIMBLE CHUTE REPLACEMENT

Proactive risk and hazard management strategies are part of a continuous improvement program at Xstrata's Townsville Port Operation. One of the outcomes is the ongoing development of safety innovations. One of these innovations during 2006 was the relatively simple idea of replacing a heavy piece of equipment on the shiploader – the gimble chute – with a lightweight alternative.

Maintenance Coordinator, Jeff McManus, said the maintenance crews were faced with safety hazards whenever they needed to access and remove the steel gimble chute to allow cleaning to take place.

"The chute requires cleaning around three to four times a month," he said. "It is an awkward job and usually requires two people from our maintenance crew. We thought that if we could make the chute lighter, perhaps out of plastic, then we could remove it a lot more easily."

Following discussions with an existing supplier, a new lightweight high density polyethylene chute lined with polystone easyslide was manufactured and installed.

Jeff said the lightweight substitute enabled one person to remove and replace the chute safely and quickly – making it popular with the maintenance crew.

The innovation has eliminated hazards associated with climbing on top of the boom head chute to attach a lever hoist to the davit arm and fall arrest lanyard to an anchor point, and manual handling issues related to pushing the old steel chute out of the way while suspended from the davit arm.

CRL Safety Advisor, Ian de Satge, said the innovation was one of several entered in the 2006 Xstrata Innovation Awards.

"It's prompted people to think about what other heavy parts in our operations might be replaced with lighter weight alternatives," he said.

### Improving training compliance

We continued reviewing and updating training plans to ensure training needs are current and relevant for all employees. Training reports were also enhanced during the year to improve information delivery to supervisors and superintendents. Some departments did not achieve our 2006 training targets of 90%. Contributing factors included a change of roster and a high intake of new employees in 2006.

In 2007, we will review the training program to better align training requirements to specific job criteria with a view to improving overall training compliance, particularly safety training.



Michelle O'Kane, Training and Systems Advisor and Jenny Summers, Systems Administrator review training documentation.



## Caring for our environment

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. Xstrata is committed to achieving the highest level of environmental management at its Townsville operations.



Bob Griffin, Port Operations Coordinator, samples the pH of water at the Townsville Port.

### OVERCOMING CHALLENGES

Our main challenge for 2006 was to implement groundwater remediation plans at the copper refinery and port operation and to complete all targets outlined in CRL's stormwater management plan. We met both challenges and in 2007 our goal is to further develop our environmental management systems to align with international standards.

### ENVIRONMENTAL COMPLIANCE

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

In 2006, our Townsville Port Operation received an infringement notice and associated fine for a minor diesel spill into the Townsville Harbour. Once the source of the spill was identified our personnel quickly contained the situation and prevented further discharge occurring. The spill resulted from a failed component within the refuelling bowser and actions were subsequently implemented to prevent a future recurrence.

« Graham Williamson, Health Safety and Environment Advisor, surveying phyto remediation planting for the evaporation pond capping.

## ENVIRONMENTAL PERFORMANCE

2006 Targets	Performance	2007 Targets
<b>Townsville Copper Refinery</b>		
Implement audit findings to further align with ISO14001	✓ Gap analysis audit against ISO14001 conducted by accredited external source	
Implementation of groundwater management plan for Stuart Creek	✓ The plan was fully implemented within specified timeframes	
Implement Stormwater Environmental Management Plan (SEMP) and prepare completion report	✓ Plan fully implemented and completion report prepared	
Finalise site completion plan	✓ Plan completed	Further develop site completion plan
Complete and implement groundwater remediation plan	✓ Target was revised following further groundwater investigation and discussions with regulatory authority	
		Implement gap audit findings to further align with ISO14001
		Develop biodiversity management plan including pest management
		Zero level 3 incidents
<b>Townsville Port Operation</b>		
Complete remediation of sulphur contamination	✓ Project completed	
Review environmental monitoring systems	➔ Engineering plans developed for eastern yard improvement	
		Refurbish surface of eastern rail area and construct stormwater sump
		Investigate automation of the stormwater treatment system

✓ Achieved    ✗ Not achieved    ➔ Action continues into 2007

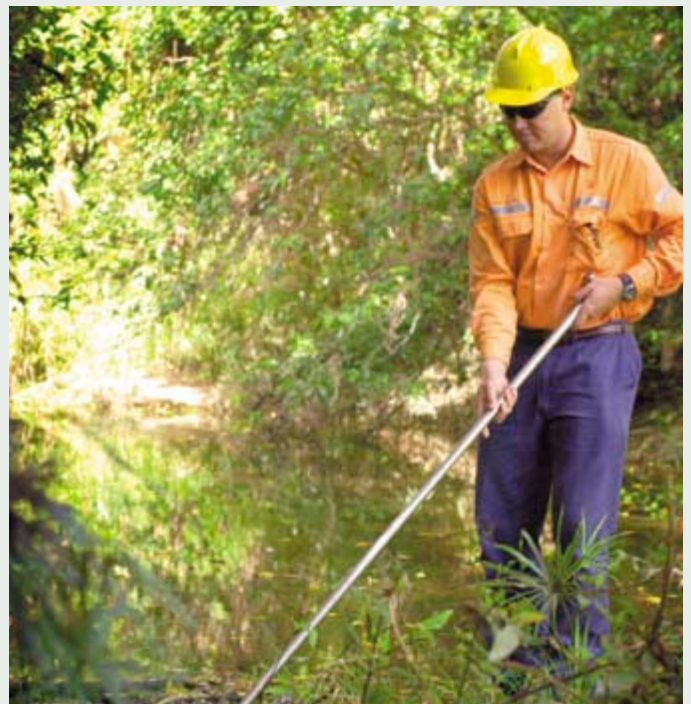
## Waste management

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

### ■ Waste Disposal Townsville operations (weight in tonnes)

	CRL	Port
Waste to landfill	123.2	7.8
Waste recycled (scrap steel)	102	10.8
Regulated waste offsite	4,692	1,137

The majority of the regulated waste for CRL is spent electrolyte which is transported to Mount Isa. The majority of the regulated waste for the port operation is contaminated soil from sulphur dump remediation activities. This soil was disposed of in the approved regulated waste tailings dam at Xstrata's Mount Isa operations.



Paul Taylor, Health, Safety and Environment Superintendent samples water at a creek adjacent to the Townsville Copper Refinery.

# Caring for our environment



The solid waste storage shed at CRL ensures full containment of wastes through protecting and excluding stored material from the rain and wind.

## Energy and greenhouse

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

As part of Xstrata North Queensland, the Townsville operations are now participants in the Greenhouse Challenge Plus program and have commenced reporting their annual greenhouse gas emissions.

Our copper refinery achieved significant energy and cost savings following an assessment trial for the energy efficiency opportunities program. Our site was one of four companies that conducted this trial assessment. We intend to make the identification and implementation of energy saving initiatives part of our normal business practices. In 2006, CRL consumed 85,036 megawatt hours of electricity, 226,595 gigajoules of natural gas and 33,417 litres of fuel oil.

## Air quality

At our port operation we focused on ensuring the integrity of the concentrate storage shed and moisture control of the concentrate products in an effort to further reduce the potential for dust emissions.

## Water Use

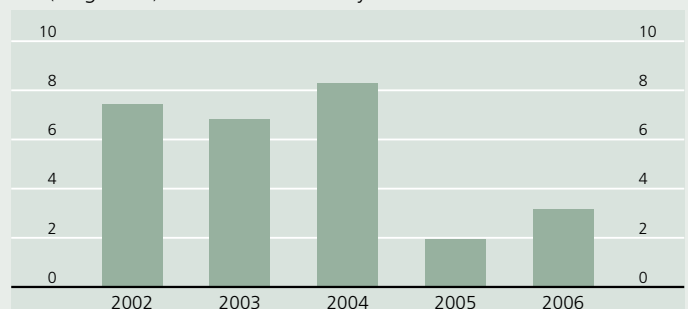
In 2006, the Townsville port operation maintained a reduced level of potable water consumption similar to that achieved in 2005 using 3.15 megalitres.

## Managing stormwater

CRL has been operating under a stormwater environmental management program that was issued by the Environmental Protection Agency in 2003. The program required Xstrata to undertake several actions by the end of 2006, all of which were expected to make significant long-term improvements to the stormwater quality at CRL. These projects have now been completed and included; the construction of a solids waste storage and handling facility, the remediation of historical contamination in the site drainage system, the construction of a covered storage area for copper slag wastes, the construction of an anode unloading area with a stormwater treatment system, the refurbishment of significant areas of the electrolyte purification process area, and the review and upgrade of stormwater management and monitoring procedures.

## Potable Water Consumption

ML (megalitres) – Xstrata Port Facility Townsville



## case study



### GROUNDWATER REMEDIATION SUCCEEDING

Trees, bores and clay caps are playing a role in tackling historical groundwater contamination issues at Xstrata's Townsville copper refinery. Three projects were implemented in 2006 based on the groundwater remediation action plan developed in 2005. The projects were carried out in conjunction with the Queensland Environmental Protection Agency and a third party reviewer.

Townsville Health, Safety and Environment Superintendent, Paul Taylor, said the most significant project involved the design and installation of an engineered clay cap to cover the historical evaporation ponds.

"The main aim of the cap is to prevent rainfall penetrating the evaporation ponds and to stop further leaching of contaminants through to the groundwater zone," he said. "The cap consists of compacted clay layers, a loosely compacted layer, and a topsoil and vegetation layer. We completed the cap late 2006 and we will assess the integrity of the ponds on an annual basis."

Another remediation project involved the installation of two groundwater extraction bores using specially selected air-driven pumps to cope with the low water levels. Paul said the bores were designed to remove the marginally contaminated water, while also reducing the potential for migration of the contamination zone. The water is pumped to an irrigation dam.

"We will monitor the groundwater bores monthly and the project will be reassessed in five years' time to determine whether continued pumping is required. This will largely be dependent on the level of rainfall we receive."

The third project involved planting 700 trees down the slope from the bores. The trees, mainly melaleucas, were specially selected for their ability to tolerate the conditions in the soil and groundwater interface and for their ability to extract contaminants from the soil.

"We planted the trees mid year and many are already over one metre in height," Paul said. "We will assess the trees on an annual basis to check their health and vigour to ensure they continue their job of extracting contaminants."

### Sulphur remediation

In 2005, Xstrata completed investigations into groundwater contamination issues at the Port Bulk Handling Facility. A significant finding of these investigations was that the historical handling of elemental sulphur at the facility had resulted in acidification of groundwater immediately beneath the facility. In 2006, Xstrata

completed full remediation of the historical sulphur dump which involved the excavation of significant volumes of contaminated soils and the subsequent relaying of hardstand areas and bitumen asphalt. This project was proactively implemented by Xstrata and it is anticipated that groundwater monitoring will show significantly improved groundwater quality.



## Caring for our community

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. The Xstrata Community Partnership Program North Queensland is fundamental to our commitment to engaging with local communities and fostering opportunities to ensure their wellbeing.

### **XSTRATA COMMUNITY PARTNERSHIP PROGRAM NORTH QUEENSLAND**

The Xstrata Community Partnership Program North Queensland was launched in December 2004. In 2006, \$152,000 was injected into program initiatives in the Townsville community. The Community Partnership Program, acknowledged as making a difference in the area, will provide further funding of \$177,500 to support partnerships in 2007.

The program provides support within six key areas in response to the needs and issues of our community and in keeping with Xstrata's Corporate Social Involvement Policy and guidelines.

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

The program is also complemented by individual site donations. Strict guidelines mean that donations are made to groups rather than to individuals to support the whole community. New project initiatives in 2006 included:

#### ■ **Solar power**

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

« Delta Dog, Adonis, and his handler, Alison Brennan visit Emma Keyes in the children's ward, Townsville Hospital.

## SOCIAL RESPONSIBILITY PERFORMANCE

2006 Targets	Performance	2007 Targets
<b>Townsville Operations</b>		
Publish site sustainability report	✓	Publish site sustainability report
Continue to expand the benefits of the Xstrata Community Partnership Program in north Queensland	✓	
Build on 2005 success with additional initiatives and ongoing transparency of donations	✓	Build on 2006 success with additional initiatives and ongoing transparency of donations
		Complete community attitude survey in Townsville

✓ Achieved    ✗ Not achieved    → Action continues into 2007

### ■ Overview of some of the ongoing Townsville initiatives during 2006

Project	Partner	Description	Funding and timeframe	Status/update
<b>Education</b>				
EnergySMART schools initiative	Oonoonba State School, Townsville State High School	Improving student understanding of energy smart initiatives	\$23,500 each year from 2005 to 2007	Wind turbine and solar pyramid installed at Townsville State High School which is powering a classroom
<b>Social and community</b>				
Drama and self development for young people	Lifeline North Queensland	Developing personal growth and enhancing self esteem, decision making and social skills in young people	\$95,000 from 2005 to 2007	16 students participated in 2006 giving 5 public performances of their production Edumication
Mount Isa to Townsville Cycle Race	Townsville Cycle Club	Funding support to stage this 900km cycle race	\$10,000 in 2005 and 2007	Competing teams chose to donate their prize money to their chosen charity
<b>Health</b>				
Emergency health equipment	Townsville Hospital Foundation	Funding of emergency life support equipment for Townsville Hospital and Queensland Rescue helicopter	\$49,500 from 2005 to 2007	In 2006 funding was used to purchase an Oxylog 3000 ventilator
Pet Therapy Dogs	Delta Society Australia <i>Townsville Pet Partners Program</i>	Funding to recruit, train and accredit dogs and handlers to visit aged care facilities, hospitals and mental health units	\$15,000 from 2005 to 2007	Twenty-four Pet Partner teams are currently visiting aged care homes in Townsville
<b>Arts and culture</b>				
Live theatre	Tropic Sun Theatre Company	Support for the annual Shakespearean production	\$30,000 from 2005 to 2007	The 2006 performance of Romeo and Juliet completed a successful season

### ■ Healthy living

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

### ■ Encouraging children

In conjunction with the Perc Tucker Regional Gallery, Xstrata supported a major exhibition specifically for children, designed to provide art education in our regional community. The exhibition focused on the interests of children and addressed key learning areas of the Queensland curriculum through interactive learning experiences. Xstrata has undertaken to provide \$21,000 over three years from 2006 to 2009. The Xstrata Exquisite House Children's Exhibition was a resounding success with gallery attendances of 13,225 which included 27 school groups.

# Caring for our community



## EDUCATING THROUGH ART

Cultivating children's long-term interest in art galleries and exhibitions is very much about engaging with them at their level and providing interactive opportunities. That is precisely what the Perc Tucker Regional Gallery at Townsville achieved in 2006 with its Exquisite House Xstrata Children's Exhibition.

The exhibition, which attracted more than 13,000 visitors during its eight week run, focused on children's interests and at the same time

provided key learning areas related to the educational curriculum.

Gallery Director Frances Thomson said the days of children being seen but not heard in art galleries were long gone.

"Traditionally, galleries were very much 'don't touch and be quiet'," she said. "Today it's all about engaging with the children in meaningful activities at their level. The Xstrata Exquisite House Children's Exhibition enabled children to interact with various art objects and relate to the exhibition."

The core of the exhibition revolved around Darwin-based sculptor Tobias Richardson's extraordinary installation of aeroplane, boat and house sculptures based on artwork he produced as a child. This was complemented by a range of other exhibitions including ceramics and interactive sculptures. Children were encouraged to discover the creative dimension to the domestic environment as they participated in an exhibition featuring a series of interactive rooms. Activities included building, counting, reading, drawing and writing poetry. At the closing event several children recited verse acknowledging Xstrata's involvement in the exhibition.

Xstrata is providing \$21,000 to the gallery from 2006 to 2009 for children's art exhibitions and activities.

Frances said business sponsorship and partnerships were vital if the gallery was to continue targeting and cultivating children as an audience.

"We are fortunate that our objectives match with Xstrata's commitment to community partnerships in education, arts and culture," she said.

## DONATIONS AND SPONSORSHIPS

In addition to the Xstrata Community Partnership Program North Queensland, Xstrata spent more than \$478,000 on sponsorships, donations and other community support initiatives in 2006 in the communities in which it operates. Expenditure in Townsville totalled \$22,895.

### Community support initiatives included:

- goods donations to the Masonic Village Fete, Oonoonba and Stuart state school fetes, Koolkuna Community Kindergarten and Pre-School fete and Port of Townsville charity golf day;
- Mission to Seafarers Association;
- Salvation Army Red Shield Appeal;
- Queensland Ambulance Service;
- corporate support for Foodbank Townsville;
- participation in National Tree Day, Clean up Australia Day, and the Cartridges 4 Planet Ark initiative.

Our community minded employees took part in a series of gold coin donation morning teas in 2006, raising funds for the following charities:

- RSPCA
- Foodbank Townsville
- Children's Medical Research Institute
- Cerebral Palsy League of Queensland
- K-Mart Wishing Tree – gifts distributed by the Salvation Army

## COMMUNITY ENGAGEMENT AND CONSULTATION

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

Some of the methods used for disseminating this information in 2006 were:

- the production and circulation of six newsletters, with 500 copies distributed bi-monthly to employees, key stakeholders, Community Partnership Program partners, business people, politicians and interested parties in Townsville;
- the quarterly 'Well @ Work' healthy lifestyle newsletter, distributed to employees; and
- our fortnightly internal newsletter, 'The Refinery Word', circulated to all areas of the copper refinery.

A number of tours of the Townsville site were conducted during 2006. Participants included students from 11 local schools, teachers participating in the Linking Engineers with Scientists and Teachers program, retired professional and business people, personnel from other mining companies, potential purchasers and users of the ISA PROCESS™ permanent cathode technology, and representatives from the Australian Student Mineral Ventures.

## Valuing feedback

A successful community perception survey was conducted in 2005. Feedback received allowed us to determine where best we could contribute to the community to address the issues raised. Xstrata will conduct a follow-up community attitude survey in Townsville in 2007 which will allow us to determine where our efforts have been successful and identify areas where additional action may be needed.

## Handling complaints and enquiries

The Townsville Port Operation and Copper Refineries Pty Ltd received no complaints regarding their operations in 2006.

# 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.

## **CO<sub>2</sub>-e**

Carbon Dioxide Equivalence.

## **DI – Disabling Injury**

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

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

Disabling injury frequency rate = DI x 1,000,000/hours worked.

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

Disabling injury severity rate = (LTI days lost + RWI days lost) x 1,000,000/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 x 1,000,000/hours worked.

## **ML**

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

## **µg/dl**

Micrograms per decilitre.

## **µg/m<sup>2</sup>/day**

Micrograms per square metre per day.

## **NOHSEC**

National Occupational Health and Safety Commission.

## **Particulate emissions**

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

## **PAS**

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

## **PASS**

Positive Attitude Safety System.

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

Particulate matter less than 10 microns in size.

## **Raw water**

Untreated water extracted from groundwater, dams or rivers.

## **Recycled water**

Recycled water is water:

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

## **Rehabilitation**

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

## **RWI – Restricted Work Injury**

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

## **Social Involvement Plan**

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

## **Tailings and tailings dams**

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

## **TRI – Total Recordable Injuries**

A measure that includes:

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

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

Total recordable injury frequency rate = (LTI + RWI + MTI) x 1,000,000/hours worked.



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