



McArthur River Mining  
Sustainability Report 2006



## SCOPE OF THIS REPORT

This report details the Health, Safety, Environment and Community (HSEC) performance of McArthur River Mining (MRM) from 1 January 2006 to 31 December 2006.

Please note all monetary values are expressed in Australian Dollars (AUD) unless otherwise stated.

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## General Manager's Message

2006 will be recognised within MRM's history as a watershed year.

It marked the end of underground mining which had been the basis of our operation since the mine commenced in 1995. It also drew a line in the sand between the early history of the mine and our commitment to its long-term future.

A three year environmental assessment process for a \$110 million development to convert MRM from underground to open pit operations concluded in 2006. The approval of this development by the Northern Territory Government and the consent of the Australian Government has enabled us, for the first time, to plan with clarity for an extended mine life of more than 20 years.

This has significant implications for our approach to sustainable development long-term. Our aim is to ensure the region influenced by MRM benefits from the presence of the mine.

In line with Xstrata's Health, Safety, Environment and Community (HSEC) policies, our priority areas within our sustainability plans are to:

- work in partnership with the Northern Territory Government and other government and community stakeholders to design and implement a visionary regional development plan for the area influenced by the mine;
- further the economic contribution by the mine within the Northern Territory and specifically, the local economy by supporting enterprise and employment growth;
- expand our environmental management program in accordance with our obligations for open pit mining and also community expectations for the highest standards of protection; and
- ensure MRM offers an attractive employment opportunity and work environment for staff and contractors with a focus on occupational health and safety, and career development.

These priorities are reflected in our performance in 2006 which included the following highlights:

- agreement with the Northern Territory Government to a Community Benefits Package in the order of \$32 million to formalise MRM's commitment to community development over the extended life of mine (see Case Study on page 24);
- an 18 percent increase in spending with Northern Territory-based suppliers rising from \$60 million in 2005 to \$71 million in 2006;
- completion of benchmark studies into fish and bird populations as part of the expanded environmental monitoring program;
- dramatic improvement by more than 50 percent across key health and safety measures; and
- formation of the MRM Community Reference Group to encourage active participation and provide a forum for ongoing consultation with local communities.

We welcome your feedback on this report. Please email your comments to [mrmprojenq@xstrata.com.au](mailto:mrmprojenq@xstrata.com.au) or write to me at McArthur River Mining, PO Box 36821, Winnellie NT 0821.

**Brian Hearne**  
*General Manager*  
*McArthur River Mining*



## Open pit development update

As reported in the McArthur River Mining Sustainability Report 2005, the conversion of the mine to open pit operations was critical to enabling production to continue. By April 2006, all underground mining operations ceased and production at the mine was supplied by the operations of a Test Pit which was developed in two stages with a total footprint of 12.8 hectares and a depth to 64 metres.

### Environmental assessment

After submitting a Draft Environmental Impact Study (EIS) and Supplementary EIS in 2005, MRM was required to submit a Public Environment Report (PER) responding to nine issues raised through the EIS process.

The PER took the design and planning for the proposed development to a greater level of detail and was submitted in July 2006. It modified the design of the planned river rechanneling in line with the recommendations of an independent adviser to the Northern Territory Government and provided substantial new information regarding the two waterways to be rechannelled (McArthur River and Barney Creek), technical studies and the community benefits of the development.

Significantly, the Northern Territory Environment Protection Agency's (NTEPA) response to the PER (*Assessment Report 54, September 2006*) concluded the river rechanneling would be safe in all weather conditions. This followed an earlier NTEPA finding (*Assessment Report 51, February 2006*) stating there was no scientific evidence to date of impact from the mine in the estuarine reaches of the river or in the Gulf of Carpentaria.

Further to the PER, MRM was required to prepare the Mine Management Plan (MMP) for the first year of action under the development to demonstrate that all remaining questions raised by the NTEPA had been effectively addressed within this operational plan.

As a result, the Northern Territory Government approved the open pit development in October 2006 subject to six conditions. These were in relation to a \$55.5 million security bond, a vegetation management plan, river rechanneling demonstration, contaminant management, a mine-funded independent environmental monitoring program and a Heads of Agreement for a \$32 million Community Benefits Package. The Australian Government consented to the development under the *Environment Protection and Biodiversity Conservation Act 1999*.

### Development program

Modifications to the rechanneling design as well as increases in operational costs for labour and resources have increased the estimated cost of the development from \$66 million to \$110 million.

Under the approved MMP, the expansion of the existing test pit operations forms the first stage of open pit mining in order to maintain current production levels while work on the full open pit development is completed. The two-year development program commenced in November 2006.

During 2007, the program will involve:

- rechanneling Barney Creek including initiation of the rehabilitation plan;
- excavating sections of the new McArthur River channel to provide rock for battering other civil works;
- extending mine levee walls to the south of the mine near the McArthur River;
- moving the tailings storage facility away from Surprise Creek including rehabilitating the tailings cells nearest to the creek;
- preparatory work for the North Overburden Emplacement Facility including a bridge over Barney Creek for a haul road; and
- implementing the expanded environmental monitoring program.



Aerial view of MRM mine site and open pit development plan



## 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.

### 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 and Elements, 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).

Further details about *Enduring Value* are available at [www.minerals.org.au/enduringvalue](http://www.minerals.org.au/enduringvalue).

### McArthur River Mining

MRM is a zinc-lead mine located 900 kilometres south-east of Darwin. The orebody is one of the largest known deposits of zinc and lead in the world. Historically, MRM has contributed significantly to the Northern Territory through an estimated \$350 million annually in economic benefits and an average (pre 2006) workforce of 350. It has also been an active participant in the Borroloola community.

MRM defines the local region within which it operates and influences as being bounded by the communities of Robinson River in the east, Sir Edward Pellew Islands in the north, Limmen Bight River in the west and Balbirini Station in the south. This is a wide and diverse area with a population estimated at around 1,400, 75 percent of whom are Indigenous, and with the township of Borroloola at its heart. The mine lies 100 kilometres inland from the Gulf of Carpentaria and the Bing Bong loading facility and 60 kilometres from Borroloola.

### Strategy for sustainable growth

Xstrata's approach to sustainable development is embedded within MRM's strategy to achieve sustainable growth which creates

shareholder value at each stage of our corporate development. To ensure our strategy is successful in the long-term and that our growth is sustainable, we seek to:

- operate efficiently and profitably by maximising revenue, minimising costs and investing to achieve long-term growth and value creation;
- operate a safe, healthy and non-discriminatory workplace with progressive development opportunities;
- ensure a sustainable environment and operate in harmony with local communities, governments and other stakeholders through using resources efficiently and contributing to the conservation of the natural environment;
- operate ethically, legally, transparently and responsibly, as the stewards of our shareholders' assets and in line with our Business Principles; and
- ensure access to new resources, an ongoing licence to operate and protection of Xstrata's investment value long-term by managing our operations to the highest environmental standards and by working with our stakeholders to provide mutual, lasting, social and economic benefits.

### HSEC review

During 2006 a combined Health, Safety, Environment and Community (HSEC) management system was developed at MRM. This project was undertaken to ensure employees are provided with the necessary guidelines for working safely and productively at the mine in addition to providing knowledge on environmental management and community relations.

The development of the HSEC management system review provided a detailed overview of how the current procedures work, identifying a wide range of good practices already in place, along with a number of recommendations for the development of new procedures and policies, to help improve the management of HSEC issues associated with the mining operations.

Some of the recommendations included:

- development of an annual plan for HSEC;
- reviewing the process for identifying and managing major hazards; and
- reviewing the hygiene monitoring program using risk based assessments.

The new HSEC systems will be integrated during 2007.



## Contributing to our economy

As one of the three largest mines in the Northern Territory, MRM has a significant role in the region's economic development particularly in regard to supporting local industry and business which supply the competitive, reliable and sustainable operations.

### Key Challenges

The economic challenges facing MRM are:

- maintaining required rates of production throughout the two year open pit development program;
- reliably supplying bulk concentrate to meet rising demand particularly in China; and
- competitive provision of all goods and services to a remote mine site.

### Mining and processing

The open pit development has approval to mine a total of 43 million tonnes. The mine is a leading producer of a mixed zinc-lead sulphide (or bulk concentrate) and refined zinc products which are exported worldwide to refineries using the Imperial Smelter Process. The major markets for MRM bulk concentrate are Poland, Romania, Japan and China.

The ore grade generated is 11.3 percent zinc, 4.3 percent lead, 53g/t silver. A flotation process is used on site to produce the bulk concentrate which is, on average, 46 percent zinc.

In 2006, MRM generated:

- 1.8 million tonnes of ore;
- 136,000 tonnes of zinc in concentrate;

- 30,000 tonnes of lead in concentrate; and
- 300,000dmt of bulk concentrate.

Contractors Hampton Transport Services completed 1,700 round trips taking the bulk concentrate from the mine to the Bing Bong loading facility and Carpentaria Shipping Services (CSS) loaded 24 ships with the 340,000wmt of product.

With this activity, CSS celebrated the transfer of the four millionth tonne of concentrate by the 'Aburri' barge since their operations began in 1995.

### Northern Territory procurement

MRM has increased the value of Northern Territory supply contracts by 18 percent rising from \$60 million in 2005 to \$71 million in 2006, with the number of suppliers remaining at 415.

Significantly, 21 of these suppliers, representing \$6.2 million of the spending, are located within the Borroloola region. The most significant of these is CSS, a joint venture involving P&O Shipping Services and local indigenous business enterprise, the Mawurli and Wirriwangkuma Aboriginal Association. CSS is contracted to transport MRM bulk concentrate from the Bing Bong loading facility to ships at sea.

In line with Xstrata's HSEC policies, MRM uses local businesses where they are technically capable and commercially competitive. MRM has committed that 100 percent of the \$110 million open pit development

« The M.V. Aburri at the Bing Bong loading facility.

## ECONOMIC PERFORMANCE

2006 Targets	Performance	2007 Targets
Process 1.8mt of ore	✓	Process 1.8mt of ore
Produce 360,000wmt of bulk concentrate	✗ 340,000wmt achieved	Produce 305,000wmt of bulk concentrate
Increase procurement spending within the Northern Territory by 15 percent	✓ 18 percent achieved	Increase procurement spending within the Northern Territory by 15 percent

✓ Achieved    ✗ Not achieved    → Action continues into 2007

cost will be spent with Australian suppliers contributing to the strong economic value anticipated from the project. Of this, 31 percent (\$34 million) is planned to be invested with Territory-based suppliers. This includes \$4.5 million for labour hire as well as transport, fuel, plant hire, spare parts, food and consumables, and engineering services.

### Economic contribution

An economic impact study conducted for the MRM EIS estimates the mine has generated \$3.5 billion worth of economic benefits to the Northern Territory between 1995 and 2005 through direct and indirect employment and investment, taxes and charges, operating costs, income generation and value-adding.

In 2006, this contribution included:

- direct employment for 590 people including contractors, compared to 340 people in 2005;
- an annual wages bill of over \$11.6 million;
- \$4 million paid to Governments in taxes and charges, including payroll and group tax;
- \$17.8 million spent on electricity and utilities under commercial contracts with the Northern Territory Power and Water Authority;
- \$14,000 paid in annual office rental to the Borroloola Community Council; and
- \$127,000 in sponsorships/donations.

The open pit development is expected to generate benefits valued at \$329 million per annum for the Northern Territory economy and \$523 million per annum for the Australian economy. This includes 570 direct and indirect jobs nationally through the construction of the development and 1,700 direct and indirect national jobs in its operation.

### Royalties

Royalty arrangements for the mining operation are dictated by the *McArthur River Project Agreement Ratification Act 1993* as well as the Mineral Royalty Act. The arrangements are calculated based on a formula which takes into consideration revenue, operating costs, capital deductions, exploration expenses and other deductions approved by the Northern Territory Treasurer.

Payment of royalties is largely dependent on global commodity prices and the recovery of costs of both the mine's establishment and the open pit development. Once these costs are recovered then royalty payments are made to the Northern Territory Government.

Northern Territory Treasury audited MRM's financial results for 2006 and determined that royalties were not due. MRM has subsequently made its first royalty payment to the Northern Territory Government in July 2007. The payment of \$13.06 million represents 50 percent of the total royalty payment for the 2007 calendar year.



## EXTRAMAN

Extraman is a Northern Territory-based recruitment company specialising in supplying highly skilled people to the mining, engineering, construction, marine and heavy manufacturing industries.

Extraman is an MRM preferred supplier, filling approximately 80 percent of the positions made available by the open pit development. During

« As the preferred recruitment company for MRM, Extraman has supplied highly skilled people for positions across the operation.

2006, the company placed a total of 103 personnel on site with both MRM directly and with major MRM contractors.

This included plant operators, diesel fitters, store persons, service persons, process technicians, electricians, bus drivers, carpenters, deck hands and site administrators. At least 80 percent of the employees were Northern Territory residents, with the remainder coming from Queensland.

Extraman has the flexibility to provide experienced people from the Northern Territory who are available to start work at short notice in response to the needs of the MRM open pit development.

Based on an association of nearly five years, Extraman has credited a key component of its success in the Northern Territory as being a direct result of the level of commitment given by MRM to its local suppliers. This ongoing commitment has allowed Extraman to grow its business in the Northern Territory and employ more permanent staff within its own operation.

Extraman believes MRM to be "the most proactive company in the Northern Territory when it comes to open and transparent communication with its local suppliers."



# 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.

Within a highly competitive job market, MRM seeks to attract and retain high calibre staff and places a particular focus on career development.

## HEALTH AND SAFETY

### Key challenges

The key health and safety challenges facing MRM are:

- minimising exposure to occupational hygiene hazards such as noise, dust and lead;
- working in hot climatic conditions;
- management of contractors; and
- management of risks associated with the change of mining method to open pit.

### Safety performance

MRM recorded a dramatic improvement in safety performance in 2006 as tracked using three measures: Total Recordable Injury Frequency Rate (TRIFR), Lost Time Injury Frequency Rate (LTIFR) and Disabling Injury Severity Rate (DISR).

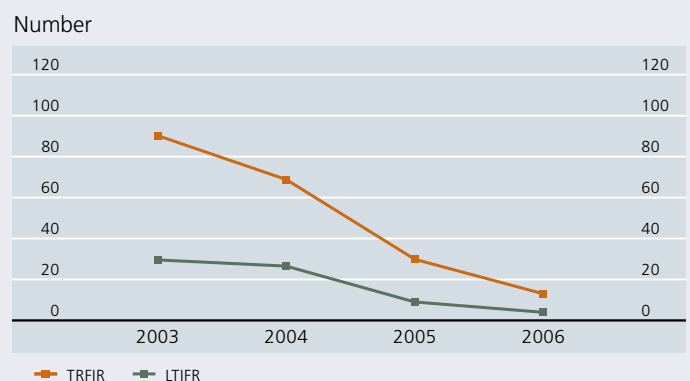
MRM reported a TRIFR of 13.1 which is less than half the 2005 rate of 26.9 (see Graph 1). LTIFR similarly reduced from 9.0 in 2005 to 4.4 in

2006 (see Graph 1). Although the LTIFR is slightly above target of 4.0, it still represents a reduction of more than 50 percent on the 2005 result.

There were no fatalities recorded.

There was a dramatic decline in the DISR from 5281 in 2005 to 486 in 2006 (see Graph 2), due to the change from underground operations to open cut and the introduction of new safety and injury management initiatives.

**Graph 1. MRM Safety Performance 2003–2006 (TRIFR & LTIFR)**



◀ From left to right: Steve Drawwater instructs Anthony Robertson and Grant Gibson on mine rescue techniques.

## HEALTH AND SAFETY PERFORMANCE

2006 Targets	Performance
<b>Health and Safety</b>	
Zero fatalities	✓
LTIFR < 4.0	✗ 4.4
TRIFR < 16	✓ 13.1
DISR < 4,700	✓ 486
<b>Training and Development</b>	
Maintain current skills base	→
Increase apprenticeships by 50 percent	✓ 8 apprentices
Complete site-wide training needs analysis	✓
Secure 10 trainees under the MST program	✓ 13 trainees accepted
10% improvement in training and development performance assessed through HSEC audit	✓ 13% achieved

2007 Targets
Zero fatalities
LTIFR < 2.0
TRIFR < 9.0
DISR < 1,300
Maintain current skills base
Increase apprenticeships from 8 to 11 apprentices
Continue to review and implement programs to improve safety performance
Secure 10 trainees under the MST program
Introduce a heavy machinery simulator and commence operator training

✓ Achieved    ✗ Not achieved    → Action continues into 2007

### Monitoring and safety programs

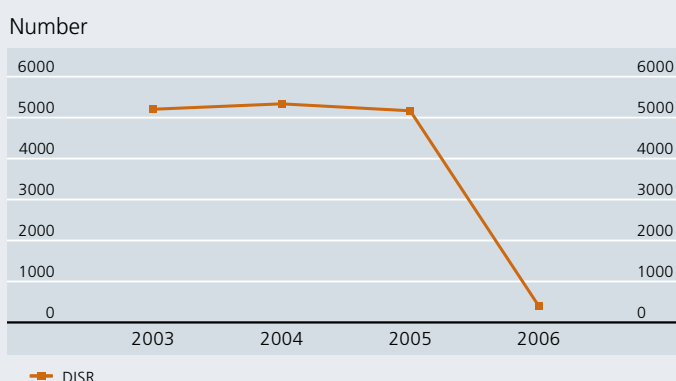
The improved safety performance was a result of a number of safety programs implemented in 2005 and 2006. These initiatives led to more effective injury management practices, a diligent approach to continual workplace risk assessments, and a greater level of employee skill in working safely and productively.

The programs included:

- implementing a hygiene and health monitoring program including noise, dust and hydration;
- updating the emergency response plans;
- developing a comprehensive site-wide training system;
- implementing a workplace safety observation system;
- reviewing and updating the injury management system; and
- undertaking a professional development program for supervisors to improve their skills in managing safety performance.

In addition, a review of improvements made to the safety management procedures resulted in extra people being employed to help independently manage mining department safety and training responsibilities.

**Graph 2. MRM Safety Performance 2003–2006 (DISR)**



### Blood lead monitoring

Elevated levels of lead in blood is a matter taken seriously by Xstrata. Strict protocols are in place to reduce employees' risk of exposure to lead in the workplace.

These protocols include mandatory showering on completion of shift and work clothes being laundered by the company rather than at home (a Clean In Clean Out policy), mandatory washing before meal breaks and no smoking policies.

Employees who work in areas where there is a risk of lead exposure, such as the concentrator and the mine, undertake regular blood screens to monitor the levels of lead in their blood.

MRM uses the National Standard for the Control of Inorganic Lead at Work (NOHSC:1012) and the National Code of Practice for the Control and Safe Use of Inorganic Lead at Work (NOHSC:2015) as a guide for the control of blood lead levels in all our employees.



Paramedic Bob Fabian takes blood samples from MST trainee, Marshall Wallace.



MRM's Mines Rescue Team prepares for a mock aerial rescue.

As an additional safety measure, Xstrata sets its medical removal limit below the prescribed 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  $30\mu\text{g}/\text{dL}$ . Pregnant employees should not have a blood-lead concentration that exceeds the national standard of  $10\mu\text{g}/\text{dL}$ .

In 2006, MRM completed 2,102 blood tests with no instances of employees exceeding the site imposed or national medical removal limits.

## TRAINING AND DEVELOPMENT

### Key challenges

The key human resources challenges facing MRM are:

- attracting and retaining appropriately skilled staff to the region;
- providing more in-house training to retain our current employees;
- diversifying our skills-base through cross-training employees across key facets of our operation; and
- operating with both a large base of contractors and staff within an integrated culture and values system.

### Employment

The employee profile at MRM shifted in 2006 due to the use of a contract workforce for the open pit mining operations. By the end of the year, MRM was operating with 141 employees and 449 contractors employed on the civil works and technical aspects of the open pit development.

With the transition of the main source of ore extraction from predominantly underground to open pit there was a major shift from an existing, relatively stable workforce of underground employees with a small number of mining contractors, to the closure of the underground operation and the integration of large numbers of mining and civil contractors.

As reported in 2005, around 5 percent of underground staff were transitioned to jobs in other Xstrata mines in Australia, 15 percent were employed with the open pit contractor or transferred internally while redundancy packages including full entitlements, were provided for the remaining staff.

Contractors were engaged in all areas of mining operations, undertaking roles in administration, open pit civil works, infrastructure and metallurgy.

This change in the workforce required extensive planning focused on further development of existing safety and training systems. The planning process involved a team of key stakeholders who collaborated to develop new systems for safe work practices.



Paramedic Bob Fabian conducts a refresher CPR/EAR course for the Mines Rescue Team.

## Career development

During 2006, MRM invested an estimated \$450,000 in training and career development. Each employee underwent an average of 96 hours training over the 12 month period.

In a competitive job market, training and career development are recognised as critical strategies for retaining employees. Our aim is to ensure all employees are provided with the appropriate training and career pathways to build a future with MRM.

The training objectives at MRM focus on safety through task competence ensuring they comply with corporate guidelines detailed in the 17 Xstrata HSEC Standards.

MRM evaluates the needs of each employee, including trainees and apprentices, to match their skills and interests with positions within MRM. An ongoing program identifies additional training and development required to support long-term career pathways at MRM and beyond.

Training programs incorporate courses developed by MRM and nationally accredited training provided by numerous registered training organisations including the Northern Territory Chamber of Commerce. MRM ensures employees and contractors are provided with the specific training they require to both effectively perform their duties and support career development.

The highlights for 2006 included:

- developing and implementing the site safe training database;
- developing and implementing Pasidium, MRM's new document control database;
- successfully completing the June/July and December/January work experience programs for students originating from the Borroloola region and currently attending schools throughout the Northern Territory;
- formalising the system for provision of trial work placements for participants in the Certificate II Entry into Mining Indigenous employment program; and
- two of our Indigenous Certificate II Entry into Mining participants securing full time work with the principal mining contractor JJ McDonald & Sons Group (JMS) as trainee operators in the mining area by exhibiting personal motivation and interest in mining activities.

As a result, MRM achieved a 13 percent improvement in its performance in training and development as assessed under the Xstrata HSEC audit in October 2006.

## Training audit

A critical input into the career development planning for employees is the result of a two-year, site-wide training needs analysis completed in 2006. This analysis brought together all training needs into an overarching plan coordinated with the business objectives of MRM. It has identified, prioritised and designed training as required for the roles of both employees and contractors.

This initiative was part of a continuous improvement cycle to review and refine the training management system throughout the operation.

The overarching training compliance requirements for MRM are contained in the Northern Territory Mining Management Act and Regulations, MRM Mine Management Plan and Xstrata HSEC Management Standards.

MRM aims to meet all legislative, corporate and company health safety, environment and community expectations through the provision of appropriate training to ensure all forms of risk are eliminated wherever possible.



MST team members Marshall Wallace and Graham Luxton attend a safety meeting.



MST trainee, Robert Raggett receives on-the-job training from MST supervisor John Gilmour.

### Training programs

#### ■ Contractor induction

A new induction program was developed for new staff and particularly contractors involved in civil earthworks and the river rechanneling. The main focus of the program is to ensure contractors uphold the high health, safety, environment and community standards expected of all Xstrata and MRM employees.

MRM recognises the importance of ensuring all those employed on site either directly or indirectly take responsibility for their actions and think about their implications for all stakeholders. Accordingly, the program concentrates on providing instruction in the controls and principles adopted by all on-site to ensure minimisation of environmental impact.

#### ■ Traineeship program

MRM has exceeded its target for traineeship places with 13 trainees accepted from across the broad local region; three more than the target of 10.

This brings the total number of local Indigenous people who have participated in the Maintenance Service Team (MST) traineeship program to 219 since mining commenced in 1995.

The MST program provides traineeships for unskilled workers with the aim of providing training necessary to qualify for progression into skilled positions. MST trainees are enrolled in the Certificate II Entry to Mining Services which complies with Australian Standards endorsed by the Mining Industry Training Advisory board.

The program provides an essential stepping stone allowing trainees to develop further skills, while performing valuable and gainful work maintaining the airport, buildings and supporting infrastructure within the camp and mine accommodation.

#### ■ Apprenticeship program

As at the end of 2006, there were eight apprentices employed at MRM, with two in their first year, and the others at various stages of their trade training. Six apprentices are employed in metallurgy (two electricians, two plant fitters and two boilermakers) and two in infrastructure (one plumber and one carpenter).

The apprenticeship program is considered a valuable method of attracting and retaining appropriately skilled staff to the region. The four-year apprenticeship earns the participant a Certificate III in the relevant trade and full time employment with MRM.

The theory and practical assessment components are completed at Charles Darwin University, Darwin with apprentices from the local region entitled to government funding to cover the cost of travel and accommodation.

## ■ Heavy machinery simulator

The shift to open pit mining requires a different range of heavy machinery skills to those previously needed on site. It is envisaged this is one area which may open new employment opportunities for local Indigenous trainees.

During 2006, MRM investigated the feasibility of purchasing and operating a heavy machinery simulator to help train new operators, as well as provide refresher and upgrade courses for existing operators.

As a result, a decision was made to introduce a simulator in 2007. This training tool has the potential to dramatically improve the performance of machinery operators, reduce operating and maintenance costs for the machinery and support local employment strategies.

## ■ WELL Program

MRM introduced the Workplace English Language and Literacy (WELL) Program in 2006 with the support of the Department of Education, Science and Training.

The WELL Program is designed to improve the literacy and numeracy levels of MRM employees with the aim of retaining employees, improving workplace safety, and encouraging career development.

Since the inception of the program, 11 participants have been assessed by the Darwin based WELL facilitator, Myriad Group Training, and as at the end of 2006 there were five participants continuing on the program. Of all the participants assessed, two were determined to not require WELL assistance while others have achieved significant benefits from either the testing or the program itself.

Two apprentices have been further assisted with a level of maths tutoring exceeding the basic numeracy component covered by WELL and have since attained competency in the first level of maths required for their trade. Assistance will continue until they are successful with their upper level maths.

Two other participants secured full time work with JMS on-site following the enhancement of their literacy and numeracy skills, in particular those related to workplace safety.

## ■ Cross cultural awareness

Cross Cultural Awareness Training is mandatory for all new employees entering the MRM workforce. The program highlights the significance MRM places on Indigenous culture and its policy that all aspects of Aboriginal culture are to be observed and respected.

## ■ Shared responsibility agreement

During 2006 MRM worked in partnership with the Australian Army under a Shared Responsibility Agreement (SRA) to provide training and employment opportunities for local people as part of a community housing project.

The army constructed four new houses in Borroloola in 12 weeks and in so doing, accepted 12 young local people to gain basic trade skills ranging from carpentry to welding.

Under the SRA, MRM guaranteed immediate employment for five of the 12 participants in September and another five were guaranteed employment within the Borroloola business community. MRM also had the option of drawing on the remaining participants as the first priority for placement in future employment opportunities at the mine.



Samantha Seib trains MRM local apprentice Bradley Payne in carpentry.

## GENERATING LOCAL CAREERS

In 2006, local Indigenous and non-Indigenous employees represented 12 percent of the workforce and were employed throughout the MRM operations in roles such as Maintenance Service Team (MST) trainees, plumbing, carpentry and boiler making apprentices, security officers, storemen, general hands, leading hands, supervisors, superintendents and administration management.

Supported by MRM's training and development programs, there are also a number of local employees in leadership positions.

At an age when most people are thinking about retiring Bill Miller is enjoying a second career with McArthur River Mining.

After 30 years working on roads with the Northern Territory's Department of Planning and Infrastructure, Bill, an Indigenous man originally from the Overland Telegraph Station, took up a role with MRM's MST some eight years ago.

Bill now plays a mentor role within the MST, guiding the next generation of local trainees through the program and into other roles. It's a job that not only gives Bill personal satisfaction, but has also generated a level of enjoyment and camaraderie many at MRM liken to 'family'.

Another example is Samantha Seib, who started at MRM as a trainee in 1997. Samantha completed a building and carpentry apprenticeship, and has also undergone further training in mobile equipment operation and supervision.

Samantha is now helping to guide a young local man undertaking his apprenticeship. She is participating in a career development program which could see her become a supervisor within the MST.



## Caring for our environment

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

As MRM progresses with the open pit development, action to protect the environment is being strengthened through expanded management and monitoring programs.

### Key challenges

The key environmental challenges for the MRM operations are:

- successfully establishing vegetation in the construction areas for the Barney Creek and McArthur River rechanneling;
- establishing the baseline environmental conditions (e.g. bird and fish surveys);
- implementing monitoring programs to assess the revegetation project;
- developing a Life of Mine Plan based on the recent approval of the open pit development; and
- developing rehabilitation plans for the Bing Bong dredge spoil stockpile.

### BASELINE STUDIES

Prior to the commencement of the open pit development, two additional baseline studies were required and conducted in 2006. These were fish monitoring within the McArthur River and a riparian bird survey in the area immediately surrounding the mine. The results of both these studies will establish benchmarks for the assessment of environmental impact by the open pit development and specifically, the river rechanneling through future monitoring programs.

In addition, the Mining Management Plan (MMP) approved in October 2006 committed MRM to undertaking a new migratory bird survey in the vicinity of Bing Bong loading facility.

### Fish monitoring

The basis of the fish monitoring program is to determine whether the types of fish found in the natural sections of the McArthur River are also ultimately present in the new rechannelled section. These include the freshwater sawfish. Background information has been obtained by sampling species at a number of sites along the river.

« Environmental Technician Kelly Whitehurst, Environmental Superintendent Jane Yelland, and JMS Environmental Officer Jonathan Cowie planting seedlings.

## ENVIRONMENTAL PERFORMANCE

2006 Targets	Performance	2007 Targets
<b>McArthur River Mining</b>		
Monitor ground and surface water to gauge success of geopolymer injection in tailings dam wall	✓ Electromagnetic survey completed in 2006	Continue to conduct electromagnetic survey and implement seepage recovery system
Implement HSEC management system	✓	Further improve the system as per recommendations made by the HSEC audit committee
Obtain approval to extend Test Pit Operations	✓ Approval granted in April 2006	
Successfully conclude environmental review process and obtain mine development approval	✓	
Establish internal nursery to support the open pit development	✓	
Establish a participatory monitoring program with the Borroloola community	➔ Action continues into 2007	Establish a participatory monitoring program with the Borroloola community
Improve systems to prevent soil transfer off site to avoid impact	✓	Install additional surface water monitoring sites following completion of the Barney Creek rechanneling
		Fulfil all environmental compliance requirements under the MMP
		Double the number of people employed in environmental management
		Conduct a migratory bird population study around the Bing Bong loading facility and the mouth of the McArthur River.

✓ Achieved    ✗ Not achieved    ➔ Action continues into 2007

The program included:

- monitoring fish populations in refuge pools and tidal reaches upstream and downstream of the river rechanneling each year late in the dry season;
- monitoring in seasonal pools each year early in the dry season while the water is still available;
- collecting fish, mussels or crustaceans to check for heavy metals; and
- checking for fish passage through the rechannelled section which might include tagging of key species such as the freshwater sawfish and barramundi, tracking migration patterns as well as sampling fish within the rechanneling and immediately upstream and downstream.

In 2006, two fish surveys were completed by independent qualified consultants during March (late wet season) and December (dry season). The surveys identified 50 species in the following areas surrounding the site:

- Djirimi Waterhole;
- Eight Mile Waterhole;
- Bessie Springs;
- Glyde River;
- Burketown Crossing; and
- King Ash Bay.

Fish were caught in gill netting, seine netting or through electrofishing. The fish were counted, identified, measured and released with the exception of those needed for tissue sampling or tagging. The monitoring program includes tagging fish (under a government permit system), to track where fish are travelling over time and provide information on migration patterns.



MRM is monitoring fish populations in the McArthur River as part of its expanded environmental monitoring and management programs.



MRM conducts surface water monitoring at several sites including Barney Creek.



The purple-crowned fairy-wren is one of the species being monitored through the riparian bird survey.

## Riparian Bird Survey

Two qualified ecologists conducted the riparian bird survey in November 2006. Data collected will be compared with other local sites undisturbed by mining activities. At the time of preparing this report, the results were being compiled and assessed.

The monitoring included:

- counting bird communities within 20 kilometres of the mine site and specifically both upstream and downstream of Barney Creek and McArthur River rechannelling using 25 x 2 hectare survey plots as the reference guide;
- baseline data on the presence of birds that are commonly found among the banks of tropical rivers, such as the purple-crowned fairy-wren, crimson finch, white-browed robin, restless flycatcher and yellow-tinted honeyeater; and
- specific studies on the purple-crowned fairy-wren and white-browed robin to check populations and make sure the restored vegetation around the rechannelling are a functioning habitat for these birds.

The riparian bird surveys will continue in the late wet/early dry and late dry/early wet seasons each year. Information collected will be compared against the benchmark data from the 2006 monitoring.

The survey results provide information on the species and habitat requirements of birds in the area which has been incorporated into the rehabilitation plan. Early results have highlighted the importance of the cane grass that is dominant in this area and which is the primary habitat of the purple-crowned fairy-wren. As a result, this fauna species has been included as a key rehabilitation species for both Barney Creek and McArthur River rechannelling areas.

## Migratory Bird Survey

In 2007, a specific bird population study will be performed around the Bing Bong loading facility and the mouth of the McArthur River. This program comprises three phases:

1. Identify migratory birds in the area
2. Determine food sources for these migratory birds
3. Analyse the food these birds consume.

## ENVIRONMENTAL COMPLIANCE

The comprehensive range of environment management programs undertaken by MRM are designed to meet government regulations, evaluate the mine's performance, assist in improving environmental management strategies and identify any emerging or potential impacts.

Monitoring results are compared against baseline information from as early as 1992 and national guidelines for water sediment, dust, seawater, marine sediment and food guidelines set by the Australia and New Zealand Environment and Conservation Council (ANZECC).

## Surface water monitoring

The region's rainfall records indicated that 936.4 millimetres fell during the 2005/2006 wet season which is 18.3 percent higher than the average regional rainfall of 791.3 millimetres. This enabled increased water sampling as streams were flowing for a longer period of time.

Rainfall levels influence the natural surface water flows in Barney Creek, Surprise Creek and McArthur River in the vicinity of the mine. MRM's monitoring program checks water quality for any potential contaminants and sediment from the river banks.

Samples were taken weekly from nine upstream and downstream sites when the watercourses were flowing. In addition, two automatic monitoring stations on the McArthur River continuously take samples at one metre flow intervals. Another gauging station on the Glyde River takes samples monthly when water is flowing. The results of 2006 monitoring are summarised in Table 1.

Additional monitoring sites will be used in the 2007/2008 wet season along the Barney Creek rechannelling and when water is flowing. Sites will also be established on the completed sections of the McArthur River rechannelling.

**Table 1. Surface water monitoring results, 2006**

### McArthur River

- Average zinc and lead concentrations were below the ANZECC guidelines of 8µg/L and 3.4µg/L respectively.
- Mean copper concentrations were within ANZECC guidelines of 1.4µg/L. There were two recordings of copper being higher than this guideline in January 2006 but this was at both upstream and downstream sites suggesting the cause was other than mine-related.
- Cadmium levels were below the ANZECC guideline of 0.2µg/L.
- Sulphate, pH and electrical conductivity levels continued to fluctuate throughout the period in particular towards the end of the season as a result of reduced flow.

### Barney Creek

- Average zinc, lead, copper, cadmium and sulphates concentrations were within guideline limits.

### Surprise Creek

- Average zinc, lead, copper and cadmium concentrations at monitoring locations in Surprise Creek were within guideline levels.
- Sulphate levels at a downstream site continued to be higher than upstream. In addition to this the levels of magnesium and calcium were also elevated due to the influences from seepage from the Tailings Storage Facility.
- **Note:** Action taken in 2006 to increase monitoring and recovery bore numbers around the TSF and plans to rehabilitate the cells closest to Surprise Creek in 2007 are expected to reduce this impact.



Environment Technician Allan Doddrell, taking water and sediment samples.

## Stream sediment

MRM collects stream sediment at the surface water sampling sites to assess all possible types of impact by the mine on riverine ecosystems. As previously reported, the results of these tests are influenced by mine operations, weather conditions creating fugitive dust and the naturally occurring high levels of minerals in the environment. Analysis of Barney Creek and Surprise Creek is further complicated by the nature of these waterways which leaves them dry for more than 10 months of the year.

In 2006, the monitoring showed the quality of stream sediments generally reduces in the dry season. This is due to the higher concentrations of metals in the soil after water has evaporated.

Sediment sampled from the McArthur River showed that heavy metal levels remain below ANZECC guidelines with no significant differences between upstream and downstream sites.

In Barney Creek, sediments are heavily influenced by the geological characteristics of the creek. The 'Here's Your Chance' orebody outcrops in the creek and the high concentration of metal found in this rock is a source of heavy metal sediments in the stream. Natural weathering processes break down this rock which releases materials from the rock including heavy metals. This resulted in higher levels of metals in water samples.

Samples taken from Surprise Creek show differences between upstream and downstream results are more evident prior to the wet season. This suggests that metals collected at the downstream point are not derived from upstream sources. Average concentrations are still within the range recommended by the relevant ANZECC guidelines.

## Soil analysis

Soil sampling is conducted at dust monitoring locations on the mine site, around the tailings dam and outlying areas around the mining lease. This has found:

- mine site soils are higher than the ANZECC guideline level for zinc and lead. This was expected due to the presence of the mineralised materials being processed. The transportation of these soils is managed through various procedures on site including strict controls on equipment and vehicle movements out of the mine site which ensure all are cleaned appropriately prior to leaving the site;
- lead and zinc levels at the tailings storage facility were below average levels as defined by ANZECC guidelines; and
- regional lead and zinc levels from the outlying areas of the lease were also well below guideline levels.



Aerial view of the Bing Bong loading facility.

## Marine monitoring of sediment, seawater, seagrass and biota

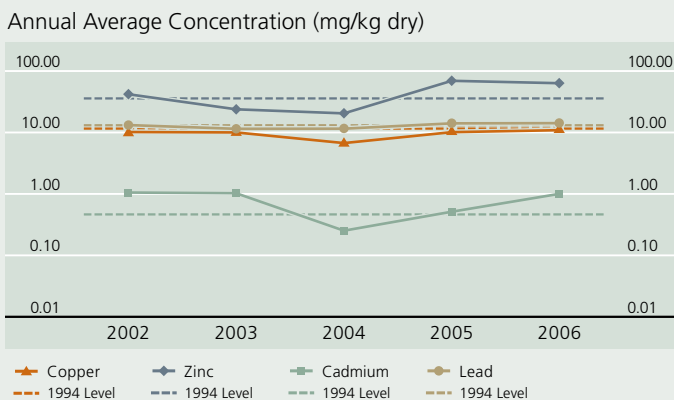
The annual marine monitoring program in and around Bing Bong loading facility and coastal areas was again conducted by Charles Darwin University. The results during 2006 were consistent with those from previous years and continue to demonstrate that the mine and its associated activities are not having a negative impact on the environment of the Gulf of Carpentaria.

MRM has six seawater monitoring locations including a control site at Bing Bong. These locations are within the swing basin, along the channel and one control site away from the operations.

Compliance with relevant ANZECC/ARMCANZ Fresh and Marine Water Quality Guidelines (2000) for 2006 is summarised as:

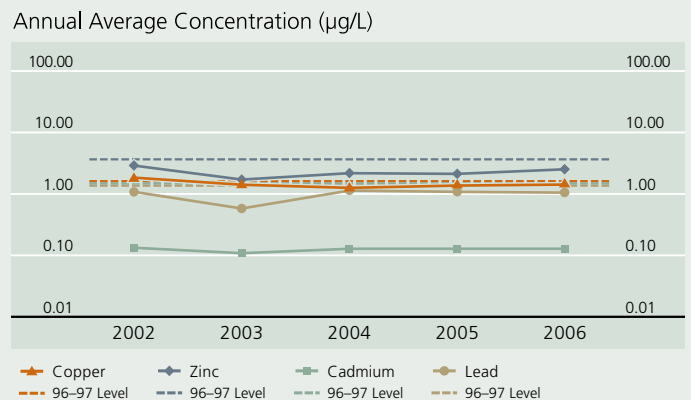
- levels of cadmium were below the guideline level;
- copper concentrations were above the guideline level at all sites which is common for Gulf waters and consistent with previous years; and
- lead and zinc levels were below the guideline level except one occasion in the Swing Basin which is, again, consistent with previous years.

**Graph 3. Comparison of heavy metals in sediments from offshore sites in the Bing Bong area 2002–2006 against 1994 baseline levels**



**Note:** Data from 2002–2005 has been restated due to improvements in data management systems.

**Graph 4. Comparison of heavy metals in unfiltered seawater (TSS normalized) from the Bing Bong area 2002–2006 against control site levels for 1996–1997**



**Note:** Data from 2002–2005 has been restated due to improvements in data management systems. MRM has ceased to report iron concentration in seawater as it is not related to the mine's operations.

## ■ Sediment

Additional sediment monitoring was conducted in 2006 at the Trans-shipment Zone and beaches east and west of the port facility.

The results for metals were below the ANZECC guideline levels. However, there has been a marginal increase in metal concentrations between the monitoring programs in 2003 and 2006.

Copper levels exceeded the guideline levels at each site on at least one occasion then dropped to below guideline level. This trend is also seen in some seawater concentrations of copper. Water and sediment quality in the Gulf region are known to have elevated levels of copper. This has been reported through studies by Charles Darwin University which conducts sampling programs at sites within the Gulf region. Copper levels at some testing sites have been naturally high as indicated by benchmark data from before mining operations commenced.

## ■ Seawater

All results for the analysis of seawater remained below the ANZECC water quality guidelines.

Lead isotope ratios in the seawater samples were the same as background seawater ratios and did not show any evidence of lead dispersed from the MRM ore concentrate.

Some copper levels in seawater showed a similar trend to the sediment samples.

## ■ Biota including oysters

Biota samples were not taken during 2006 due to issues associated with access to sites on the Sir Edward Pellew Islands. To establish a consistent series of results, it is vital that the samples be taken from identical sites annually and this is managed through GPS positioning technology. Samples will be collected as soon as possible although the timing differences in collection may not permit direct comparative analysis.

## ■ Seagrass

The annual seagrass survey was conducted in November 2006 to determine the distribution and density of seagrass around the channel and Bing Bong loading facility. The survey indicated that the diversity and density of seagrass has increased since the previous study in November 2005. Previous sampling has shown that metal levels in seagrass were within previous ranges, similar to levels in the same species in other parts of the south east Gulf region.

## BIODIVERSITY OFFSETS

Xstrata's corporate policy commits MRM to designing a biodiversity offset program that compensates for the potential impacts on the local, regional and global environment of mining operations.

MRM's commitment to biodiversity offsets was detailed within Section 21 of the Draft Environmental Impact Statement (EIS) submitted in August 2005. This section outlined the company's commitment to biodiversity offsets and identified five potential offset sites each having high conservation value.

The potential biodiversity offsets identified include:

- the Abner Range, a large, ovaloid-shaped plateau in the south western corner of the McArthur River Station and containing unusual sandstone karst formations;
- the Glyde River Gorge, which flows through a rugged series of sandstone gorges of the Bukalara Range;
- the Upper McArthur River, which is a riverine corridor and an important dispersal route for numerous fauna and aquatic species and is a primary habitat for birds such as the white-browed robin and purple-crowned fairy-wren (both near-threatened);
- the Caranbirini Conservation Reserve, a 1,200 hectare reserve within the McArthur River Station and is managed by the Parks and Wildlife Commission of the Northern Territory (PWCNT); and
- the Port McArthur Tidal Wetlands, an important wetland covering a large area of 119,000 hectares, about 21 percent of which is located within the McArthur River Station.

These options were identified after assessment of the existing conservation, pastoral, mining, tourism and Aboriginal data. Consideration was also given to their relevance as a 'like for like' offset – that is, their potential to offer compensation for the environmental effects of the open pit development.

The commencement of this assessment process was delayed until approval of the open pit development was granted. However, preliminary discussions have been held with the Northern Territory Department of Environment and Heritage and commitments made to progress the initiative in 2007. It is expected that among the outcomes of this consultation and assessment program will be agreement on targets in relation to biodiversity impact.

## TAILINGS STORAGE FACILITY MANAGEMENT

In 2006, MRM completed a program to increase the height of the walls around the tailings storage facility (TSF). A new storage cell was also built further away from Surprise Creek to ensure the dam can accommodate 1-in-500 year flood levels. Contracting firm JMS completed the work over 4.5 months and created jobs for 80 people during construction.

The cells nearest Surprise Creek will no longer be used. They will be rehabilitated in 2007 as part of the open pit development program. This will involve emptying the cell of water then grading, capping and revegetating the land.

In addition, following approval from the Northern Territory Department of Primary Industries Fisheries and Mines, MRM constructed 10 recovery bores and 13 groundwater monitoring bores around the TSF. These bores were developed on the northern and eastern walls of the dam.

The TSF and pipeline are regularly subjected to an extensive range of tests to check the content of the tailings, assess any incidence of seepage and to make sure the embankment wall, pipe and all infrastructure are in good working order.

Water levels in the dam are checked daily. Surface water and ground water are checked through the monitoring and recovery process. Water samples are taken from the sediment ponds to check water quality characteristics (as well as Surprise and Barney Creeks). The condition of the embankment is also inspected to check for seepage and erosion.



M.V. Aburri at the Bing Bong loading facility.

## MILLING OPERATIONS

### Energy efficiency

MRM is seeking to reduce its base-load electricity demand by 10 percent and is installing power factor correction equipment both to reduce costs and ensure energy is used as efficiently as possible.

In 2006, MRM conducted a pilot project to test Xstrata Technology's IsaMill products in the early stages of the milling process. This test indicated significant potential for improved performance and energy efficiency gains at a larger scale. As a result, in March 2007 Xstrata Zinc announced it would commission two full sized, M10,000 IsaMills in 2008. This innovative approach to milling efficiency at the primary grinding stage will be a world first.

The IsaMill technology has double the efficiency of conventional grinding methods and generates up to 10 percent higher yield. It will improve energy efficiency and enable additional production from existing power generation facilities.

Investigations were also conducted and are continuing into the potential for using solar systems and photovoltaics where feasible, for example using solar hot water systems wherever possible. Early indications are that solar systems could provide energy savings of between one to three percent.

### Water recycling

MRM continued to place a sharp focus on water efficiency as part of the milling operation.

Water recovery increased from 87 percent in 2005 to 95 percent in 2006 due to increased recovery from the TSF and other on-site water sources. This was partly due to the higher than average rainfall received during the year.

## MAJOR CONTRACTOR PERFORMANCE

### Hampton Transport Services

Hampton Transport Services reported two potential environmental incidents in 2006 but both were acted upon immediately and no environmental impact resulted.

One incident occurred when a road-train ran over a metal bar on the highway, puncturing the fuel tank and causing a diesel spill. The spill was cleaned up effectively and had no long-term environmental impact. The second incident occurred when a truck was bogged during the wet season while transporting concentrate to the Bing Bong loading facility. Correct procedures were followed and the truck was extricated resulting in no environmental impact.

Hampton Transport Services had zero recordable safety injuries in 2006.

### Carpentaria Shipping Services

During 2006, CSS upheld a high standard of operation and had no reportable environmental incidents and no recordable safety injuries.

## SYSTEMS DEVELOPMENT

### HSEC review

The Health Safety and Environment (HSE) Department developed an integrated HSEC Management System in 2006.

The new integrated system is based on the Xstrata HSEC Standards and incorporates the following areas:

- leadership, accountability and ethics;
- planning, resources, objectives and targets;
- competency and behaviour;
- communication and engagement;
- risk and change management;
- catastrophic hazards;
- legal compliance;
- document control;
- health and occupational hygiene;
- injury management;
- biodiversity and land management;
- contractors, suppliers and partners;
- community;
- project management;
- product stewardship;
- incident management;
- assessment and reporting; and
- emergencies, crises and business continuity.

The Health and Safety Section has also implemented a program which assesses safety behaviour in the workplace. The program involves observing personnel carrying out tasks to identify behaviours that require correction or to commend positive behaviours.

Site-wide procedures were also reviewed and updated. New Light Vehicle Standards were introduced, Injury Management Procedures were reviewed, and new procedures for working within the vicinity of power lines and for the use of hand tools were also introduced.



## Caring for our community

Xstrata sets aside a minimum of one percent of its global profit before tax each year to fund Corporate Social Involvement (CSI) programs, primarily to support initiatives that contribute to the prosperity and the sustainable development of the communities which host its operations, employees and their families.

In 2006, Xstrata set aside US\$49 million to support communities associated with its world-wide operations.

In Australia, Xstrata Community Partnership Programs in Queensland deliver over \$10 million in support to communities throughout the state. In the Northern Territory, MRM has committed to providing in the order of \$32 million to deliver economic and social benefits to the Borroloola region over the life of the mine (see Case Study on page 24).

The extension to the mine life by up to 21 years has been a catalyst for MRM's corporate social involvement program to broaden its focus to consider how MRM can, in partnership with government and other stakeholders, support the achievement of a regional development plan to deliver strong economic and social benefits to the broader community.

### Key challenges

The key community challenges for MRM operations are:

- effectively engaging with local communities, which consist of the Yanyuwa, Gurdanji, Mara and Garawa language groups, to assist them in their understanding of MRM operations, to understand the needs of these communities and to develop open, transparent, two way dialogue;
- improving Indigenous participation in MRM's operations through jobs, training and business opportunities;
- community capacity building to improve social services and facilities to address high unemployment and social disadvantage in the town of Borroloola;
- ensuring Indigenous sacred sites or sites of cultural significance are not affected by the mine; and
- increasing emphasis on programs with long-term beneficial impact on the development of the community.

# Caring for our community

« (Previous page) MRM is a principal sponsor of the Borroloola Rodeo.

## SOCIAL RESPONSIBILITY PERFORMANCE

2006 Targets	Performance	2007 Targets
<b>McArthur River Mining</b>		
Finalise the MRM Corporate Social Involvement program	✓	Complete the Xstrata MRM community benefits agreement with the NT government and develop inaugural Annual Plan
		Commit the first \$1.25 million for community development initiatives
Continue to form links with local job networking and education facilities to identify potential job applicants	→	Complete review to improve job-ready programs in the community
Develop the Community Relations Policy and Actions which embrace the spirit of corporate and community partnership, sustainable outcomes and key performance indicators	✓	
Additional resources and personnel to improve the MRM Community Relations Initiative	→	
Establish the MRM Community Reference Group (CRG)	✓	Continue to operate the MRM CRG as a forum for ongoing consultation with the community
		Ensure all certified sacred sites are protected

✓ Achieved    ✗ Not achieved    → Action continues into 2007

## COMMUNITY ENGAGEMENT

The framework for stakeholder engagement established in 2005 continued in 2006 and incorporated action within three strategy areas – information-giving, consultation and active participation. The specific initiatives under each strategy area are as follows:

### Information

- Fact sheets provided to all stakeholders regarding the Supplementary EIS, environmental monitoring, the PER process, and the formation of a community reference group.
- Ongoing management of the MRM website, ([www.mcarthurriver.com.au](http://www.mcarthurriver.com.au)) which provides access to environmental assessment documents and all publicly available information materials.
- Responding to hotline enquiries (via email and telephone) which attracted 34 phone calls by the end of the calendar year. Of these, half were regarding potential supply contracts for the open pit project and a third were regarding potential employment opportunities at the mine.
- Reintroduction of the community newsletter *MemoRanduM*, with three editions published between July and December 2006. The newsletter provided regular updates on the open pit approval progress and showcased MRM's involvement in the local community.

### Consultation

Consultation continued through a series of meetings with the Federal and Northern Territory governments, industry representatives, community organisations and members.

In addition, the community was invited to respond to the public review of the PER, providing a focussed opportunity for comment on the development proposal. Feedback received through these meetings and submissions was considered within the Northern Territory Government's Assessment Report on the PER and MRM's Mine Management Plan for October 2006 to October 2007.

### Active participation

The key initiative to provide a forum for participation and ongoing consultation with the local community was the formation in 2006 of the MRM Community Reference Group (MRM CRG).

The members of the group are a cross-section of Aboriginal and non-Aboriginal residents of the local area, local businesses, Council and Northern Territory Government who met five times during the year to discuss concerns or issues with the mine's operations and learn about the environmental assessment process.

The objectives of the MRM CRG are to:

- provide a regular, formal link between MRM and communities with an interest in its operations to ensure concerns and issues are heard and considered;
- provide a feedback forum which facilitates a two-way flow of information between MRM and the communities; and
- facilitate decision-making at MRM by ensuring community interests are taken into consideration.

As a direct outcome of the MRM CRG feedback, CRG and community members were invited to tour the site of a comparable river rechanneling in Morwell, Victoria. A group of nine locals visited this site in July 2006 to view first hand how a river rechanneling can be successfully developed.

In addition to these activities, MRM hosted more than 35 site tours for local residents, Traditional Owners, school principals and school groups in 2006.



MRM provided travel assistance for local students to visit the Australian Capital Territory.

## Outcomes

Through the stakeholder engagement program, a number of concerns about the conversion to an open pit mine were raised by various groups during the environmental approval process. These include the potential impacts of the river rechanneling on downstream marine life and freshwater fish migrating to upstream habitats, potential impacts of the loading facilities on migratory birds, tailings storage and management, community engagement, cultural heritage impacts, overburden storage and environmental monitoring.

Examples of the actions taken to respond to these concerns include:

- modifying the plans for the river rechanneling and open pit mine plan at an estimated cost of \$10 million to incorporate recommendations from the NT Government's independent expert;
- significantly increasing environmental monitoring programs;
- committing to an independent review of MRM's environmental monitoring program through a consultant to be appointed by the NT Government and funded by MRM and sharing these results with the local community;
- committing to establish a biodiversity offset program;
- continuing to engage with traditional owners on cultural heritage issues and concerns;
- providing information about the long-term testing of the overburden emplacement facility (OEF) which began in 2003 and modifying the design of the OEF to avoid disturbing a site of archaeological significance;
- reporting on the design, monthly monitoring and six lines of defence that ensure the integrity of the tailings storage facility;
- committing to a \$32 million community benefits package for the Borroloola region to be implemented over the extended life of mine; and
- fulfilling the requirement for a A\$55.5 million security bond.

The conversion to open pit has a good level of support amongst local communities including Traditional Owners resident in surrounding areas to the mine. Unfortunately, some groups and individuals remain opposed to the conversion. We will continue to engage with all stakeholders in two-way dialogue to ensure maximum transparency, to pro-actively seek community input and to continue to respond to issues and concerns raised.

## INFRASTRUCTURE DEVELOPMENT

In collaboration with the committees and local organisations, MRM undertook a program of initiatives in 2006 specifically focused on building infrastructure support to deliver short and long-term benefits to the community in the areas of health and recreation.

Through this program MRM has succeeded in improving, upgrading, restoring and providing infrastructure which in many cases may not otherwise have been made available.

These initiatives had an estimated value of \$1.06 million and included:

- supporting the establishment of a Dialysis Unit adjoining the Borroloola Health Clinic in partnership with Northern Territory Renal Services (\$90,000);
- upgrading the King Ash Bay Road, the key access point for this remote community and a critical transport link for both commercial and recreational/tourist fishermen (\$230,000);
- participating in the development of the Borroloola Swimming Pool as part of the Federal Government's Remote Pools Program to improve health outcomes within the community (\$600,000);
- improving hygiene facilities at the Borroloola Rodeo grounds to ensure the growing attendance at this focal annual event for the community could be safely and comfortably accommodated (\$50,000);
- upgrading the irrigation and amenities for sports fields in Robinson River (\$70,000); and
- upgrading of the bore at Borroloola to support year round use of the oval (\$26,000).

The nature of MRM's support included financial assistance, provision of materials, equipment and labour, and project management advice. Wherever possible, members of MRM's traineeship program (MST) performed the construction work as part of an effort to ensure they gained real work experience through meaningful projects.

Key benefits delivered through the 2006 program were:

- equity and convenience in receiving health care locally for a chronic disease with significant family impacts;
- improved amenities for all community members and particularly families, children and youth through upgraded facilities at sporting grounds leading also to improved health and social development outcomes; and
- accessibility and economic support for the King Ash Bay community as a burgeoning hub for the region's tourism industry.

In April 2007, MRM won the Community Relations category of the Northern Territory Minerals Council 2006 Resource Industry Awards for Excellence for its community initiatives.

# Caring for our community

**Table 2. Community-based sponsorships and donations, 2006**

Project	Nature of support
<b>Community development</b>	
Borroloola Community Government Council	■ Sponsorship of the 2006 Children's Christmas Party
Borroloola Show Committee	■ Financial assistance for the 2006 Borroloola Annual Show display and related competitions
The Northern Territory Young Achiever Regional and Rural Initiative Awards	■ Sponsorship and patronage of awards program
Yanyuwa people of the Sir Edward Pellew Islands	■ Provision of transport between the islands and the mainland for guests attending the ceremony celebrating the settlement of the land claim
<b>Arts and culture</b>	
Waralungku Aboriginal Art Centre	<ul style="list-style-type: none"> <li>■ Donation of materials and consumables for sewing and clothes making projects</li> <li>■ Financial support for local artist, Nancy McDinny to display her art at a Melbourne exhibition</li> <li>■ Ongoing promotion of the art centre to visiting industry partners and guests of the mine</li> <li>■ Purchase of selected artwork from Borroloola artists to support local fundraising</li> <li>■ Provision of generous wall space at the McArthur River aerodrome to display local and regional artwork</li> </ul>
Women's Law Ceremony	■ Provision of a vehicle for local Borroloola women to attend the important Women's Law Ceremonies at Kalkaringi, in June
National Aboriginal Day Observance Committee (NAIDOC)	■ Sponsorship of the annual cultural celebrations (Cairns)
Gulf Branch National Trust	■ Donation of a fire resistant filing cabinet for the museum to keep Trust records and important historical documents
Borroloola Show Committee	<ul style="list-style-type: none"> <li>■ Sponsorship of the Indigenous art competition and the annual craft competition</li> <li>■ MRM display at the show</li> </ul>
<b>Employment and training</b>	
Mabunji Aboriginal Resource Association Inc	■ Continued partnership for the provision of employment opportunities to Mabunji employees undertaking local skills training on building projects
Indigenous Mining and Enterprise Task Force	■ Sponsorship and attendance at quarterly meetings



MRM trainees show their families around the site.

## Cultural heritage management

MRM holds Authority Certificates referenced #C2004-007 to 023 that were issued by the Aboriginal Areas Protection Authority (AAPA). These certificates cover all operational mine areas. The AAPA has also issued authority certificates for all of the open pit development components in accordance with Section 22 of the *Northern Territory Aboriginal Sacred Sites Act 1989*.

The mine is situated on lands traditionally used by the Gurdanji people. Borroloola and its immediate surrounds have residents from a number of Aboriginal groups and include the Gurdanji, Garawa and Mara people. Not all of these groups are Traditional Owners of lands likely to be directly affected by MRM's operations, but they have historically been consulted about the mine as members of the local community.

MRM works in full consultation with Traditional Owner groups. During 2006, custodial elders from the Gurdanji group visited the mine site to inspect the location of all planned infrastructure and the river rechanneling and advised on the implications for cultural heritage.

As a result, the only modification required to the development was in the design of the Overburden Emplacement Facility (OEF). The shape of this facility has been altered to conserve a stone quarry site regarded as having archaeological significance. This site will be identified by a construction fence and appropriate signage to prevent disturbance.

Project	Nature of support
<b>Sport</b>	
Borroloola Region Youth Development Unit	■ Sponsorship for sport uniforms and travel to local sporting events
Malandari All Star Softball Team	■ Sponsorship for team uniforms for the 2006 season and travel to intercommunity softball carnivals
La-Faek Districts Soccer Club	■ Sponsorship for the team to participate in an inaugural Sister City Football Competition in Kupang Indonesia
King Ash Bay Fishing Club	■ Sponsorship for the 2006 Annual Fishing Competition
Satellite City BMX Club	■ Sponsorship for the 2006 Northern Territory BMX Titles
Patrick Ragget	■ Travel assistance for Patrick, the local NAB AFL Auskick National Competition winner, and his guardian, to attend the AFL grand final in Melbourne and play the Auskick grid game on centre stage at half time
<b>Education</b>	
School of the Air	■ Provision of travel assistance for local students to attend a school excursion to the Australian Capital Territory
Northern Territory Department of Employment Education and Training	■ Provision of scholarships for two local Indigenous residents studying nursing at university
Borroloola Community Education Centre	<ul style="list-style-type: none"> <li>■ Sponsorship of the annual Science Award Project for all primary and secondary school levels</li> <li>■ Developed the pilot rural vocational education and training program for at-risk youth in the community, in partnership with the Centre</li> <li>■ Sponsorship for ten young Borroloola residents to attend the Katherine Rural College for instruction on stockman skills</li> <li>■ Development of the school holiday employment program for local students through which Year 10 and 11 students completed paid work experience with MRM during the mid-term and end of year school break</li> <li>■ Sponsorship of the Special Kids Activity Day and provision of amusement park style Giant Fun Slide, Fun Factory and Jumping Castle</li> <li>■ Provision of travel assistance to enable staff to undertake professional development training in Darwin</li> </ul>
<b>Health</b>	
Borroloola Health Clinic	<ul style="list-style-type: none"> <li>■ Ongoing financial support and transport assistance for the Breast Screening Program for local woman</li> <li>■ Donation of a television and CD player to assist in the delivery of Woman's Health Programs</li> </ul>
Various health professionals and doctors visiting the region	■ Seats allocated and subsidised on flights between McArthur River and Darwin
Gulf Health Services Inc	■ Negotiated with the Northern Territory Department of Health and Community Services to lease the Gulf Health Houses and Clinic for the regional community health program

## Employment-ready programs

In order to identify potential job applicants from the Borroloola region, MRM has continued to form links with local job networking and education facilities.

An agreement has been reached with Mission Australia to provide local recruitment and pre-employment procedures, as well as ensure that applicants are job ready with adequate numeracy and literacy levels. If required, support will be provided to help applicants achieve the required standard before commencing work with MRM.

An agreement has also been formed with the Borroloola Community Education Centre to advertise places available in MRM's traineeship program and the Tertiary Scholarship program to any Year 12 students wishing to continue their education.



NT Minister for Mines, Chris Natt (far right) meets with MRM employees during a site visit.

## Caring for our community



### case study

(L-R) Minister for Regional Development, the Hon Kon Vatskalis, Mabunji Aboriginal Resource Association Chairperson, Frazer Baker, and MRM General Manager, Brian Hearne, celebrate the formation of the McArthur River Mine Community Benefits Trust.

### COMMUNITY BENEFITS PACKAGE

In 2006, MRM and the Northern Territory Government entered a Heads of Agreement for a \$32 million package of economic and social benefits to the Borroloola region over the life of the mine.

The McArthur River Mine Community Benefits Trust was formalised on 4 July 2007, and will fund local initiatives in the areas of enterprise and job creation, environment, arts, culture, health, education, social and community development. This includes MRM's commitment to increase indigenous workforce participation at the mine and local purchasing of goods and services.

The initiative is consistent with Xstrata's global Corporate Social Involvement Policy which supports communities associated with the group's operations and will fund the Trust. The Trust will allocate \$1.35 million per year for the first eight years, and \$1.25 million in each of the following years subject to regular reviews over the life of the

mine. A Board of nine directors – made up of community, government and MRM representatives - will be responsible for the allocation of funds and for delivering long-term community benefits.

MRM is pleased to be playing an important role in growing and sustaining the Northern Territory's economy and communities, and believes that helping to create a strong Borroloola community through the Trust is the greatest legacy it can leave. The open pit development, which has extended the mine's life for an estimated 21 years, has enabled MRM to expand its support for the region.

MRM now looks forward to working with the Northern Territory Government and the Borroloola community to establish the Trust, and to sharing the benefits of its continued growth with the community.

### COMMUNITY PARTNERSHIPS AND SUPPORT

MRM contributed more than \$110,000 to the local community via sponsorship and donations supporting the areas of community development, art and culture, sport, employment and training, education and health.

In addition, MRM's annual corporate golf day in September succeeded in raising more than \$17,000 for various Northern Territory charities. The annual event was held across two days at the Darwin Golf Club

and attracted 202 participants representing more than 60 local and interstate business suppliers. The charities which benefited from the fundraiser included Variety, the Palmerston Children's Christmas Party, Blue Light Appeal, Nightcliff Lions and the Northern Territory Fire and Rescue Service.

The full range of local sponsorships and donations is summarised in Table 2 (see pages 22–23).

# Glossary

## **AAPA**

The Aboriginal Areas Protection Authority is a statutory authority established under the Northern Territory Aboriginal Sacred Sites Act (Sacred Sites Act) to administer sacred site protection in the Northern Territory.

## **ANZECC**

Australia and New Zealand Environment and Conservation Council which establishes guidelines for fresh and marine water quality.

## **AUD – \$**

All amounts included in this document are reported in Australian dollars.

## **CSS**

Carpentaria Shipping Services was established in 1995 to provide shipping and logistic support services to McArthur River Mining. These services are centred around a purpose-built bulk carrier vessel, the Aburri, operating from the port of Bing Bong near the Sir Edward Pellew group of islands on the western side of the Gulf of Carpentaria.

## **DISR**

Disabling Injury Severity Rate.

## **DIFR**

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

## **dmt**

Dry metric tonnes.

## **EC**

Electrical conductivity.

## **EIS – Environmental Impact Statement**

The EIS is a document that assists the Northern Territory Government and the general public understand the effects of a development on the environment and decide whether the development should go ahead.

## **HSEC**

Health, safety, environment and community.

## **ICMM – International Council on Mining and Metals**

ICMM was formed in October 2001 to represent leading international mining and metals companies. The ICMM vision is to establish “a viable mining, minerals and metals industry that is widely recognised as essential for modern living and a key contributor to sustainable development”.

## **JMS – JJ McDonald and Sons Group**

JJ McDonald and Sons is a wholly owned, private company operating in all areas of civil engineering, construction and associated activities.

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

Lost time injury frequency rate = LTI x 1,000,000/hours worked.

## **MCA – Minerals Council of Australia**

The MCA represents Australia’s exploration, mining and minerals processing industry, nationally and internationally, in its contribution to sustainable development and society.

## **MMP – Mine Management Plan**

The MMP details the scope of works for all operations at MRM including the first stages of the \$110 million open pit development.

## **MRM – McArthur River Mining.**

MRM CRG – McArthur River Mining Community Reference Group.

In February 2006, MRM established a CRG which provides a forum for ongoing consultation with local communities.

## **MST – Maintenance Service Team**

The MST program provides traineeships for unskilled workers with participants gaining formal, recognised qualifications within the mining industry.

## **NT EPA – the Northern Territory Environment Protection Agency**

The Environment Protection Agency is responsible for the implementation of the environmental assessment process in the Northern Territory.

## **OEF – Overburden Emplacement Facility**

The OEF is the area where overburden is disposed as waste material.

## **PER – Public Environmental Report**

The PER process is governed by section 14A of the Environmental Assessment Administrative Procedures under the Environmental Assessment Act.

It is used when any proposal that is the subject of an Environmental Impact Study (EIS) is altered or modified. The PER is the document used to provide the Minister for Natural Resources, Environment and Heritage with the information needed to make a recommendation on whether the modified project should proceed.

## **Tailings and Tailings Storage Facility (TSF)**

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 or tailings storage facilities, which are developed, operated, monitored and maintained to prevent seepage and water contamination both during and after mining operations.

## **TRI – Total Recordable Injury**

A measure that includes:

- Lost time injuries (including fatalities)
- Restricted work injuries (RWI)
- Medical treatment injuries (MTI).

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

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

TRIFR measures all injuries except first aid cases and includes the impact of significant injuries on employees who may be able to perform alternative duties, but not their normal function, and who would not be captured by indicators based on lost time injuries alone.

## **WELL Program – Workplace English Language and Literacy Program**

The WELL Program is designed to improve the literacy and numeracy levels of MRM employees.

## **wmt**

Wet metric tonnes.



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