

# McArthur River Mine Open Cut Project

## Environmental Impact Statement Supplement

December 2005



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A draft Environmental Impact Statement (EIS) has been prepared for the McArthur River Mine Open Cut Project.

The draft EIS was made available for public comment and review from 14 August 2005 to 21 October 2005. In response to the public review, fourteen written submissions were received. Copies of the submissions are provided in Appendix A. Submissions were received from the following:

- NT Environment Protection Agency (EPA)
- Department of Primary Industry Fisheries and Mines (DPIFM)
- Department of Natural Resources Environment and the Arts (DNRETA)
- Department of Health and Community Services (DHCS)
- Museum and Art Gallery of the Northern Territory (MAGNT)
- Amateur Fishermen's Association of the Northern Territory (AFANT)
- Environment Centre NT (ECNT)
- Department of Planning and Infrastructure (DPI)
- Department of Local Government, Housing and Sport (DHLGS)
- Department of Environment and Heritage (DEH)
- Department of Business, Economic and Regional Development (DBERD)
- Mabunji Aboriginal Resource Association (MARA)
- Northern Land Council (NLC)
- David Farlam

Some of the submissions received mentioned the same or similar issues. Over 150 different topics were raised and these have been listed in Table 1.1. The table shows which of these topics were commented on by each of the thirteen different respondents.

This EIS Supplement contains responses to all of the submissions received. It has been divided into sections corresponding to the relevant section of the draft EIS. This will facilitate reference back to the draft EIS to enable the responses to be read in context.

The number in parenthesis after the heading of each section indicates which respondent made a submission on that topic. The numbers relate to the respondent numbers given in the submission summary table (Table 1.1).

**Table 1.1  
Submitter/Issue Matrix**

Respondent	General Comments	1.7.2 Potential for Additional Information	2.1 Market Opportunities for Zinc	2.2 Project Need	2.3 Project Benefits	2.4.1 Xstrata's HSEC Policy	3.2 Management Systems	3.5.2 Concentrate Storage and Haulage	3.6.5 Dredging	4.1 Proposed Project	4.2.1 Overview - Mine	4.2.3 Test Pit Project	4.2.4 Pit Stability	4.2.5 Mining Activities	4.2.7 Industrial Facilities	4.3.2 Process Inputs	4.3.3 Process Outputs	4.4 Truck Transport	4.5 Bling Bong Port	4.6.3 Flood Protection Bund Construction	5.2 Accommodation	5.3 Water Supply	5.4 Sewerage	5.5 Roads	5.6 Airstrip	6.6 OEF Location	6.12 Final Void	6.14 No Project	7.2 Overburden Management Open Cut	7.2.1 Overburden Management Overview	7.2.2 Geochemical Nature of Overburden	7.2.3 Multi Element Nature of Overburden	7.2.4 Overburden Employment Facility	7.2.6 In-Pit Overburden Employment Facility		
1. EPA																																				
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13. Northern Land Council																																				
14. David Farlam																																				







### **Lead and Zinc in Concentrate (1)**

*EPA considers that the draft EIS is not clear on the significance of lead in the mining process. Clarify the relationship between lead and zinc in the concentrate and include information on the importance and uses of lead as an export product of the mine.*

The existing mine and the proposed open cut mine process the "Here's Your Chance" ore deposit which is characterised by extremely fine grained ore. The lead and zinc sulfide bearing ores are predominantly of a size less than two microns. The current metallurgical process using the latest available technology grinds to eight microns. Whilst this liberates non-ore bearing waste rock, it does not physically separate the zinc and lead bearing sulfide ores. Thus MRM can only produce a bulk concentrate which contains physically bound zinc and lead sulfides. With current technology, MRM is unable to produce separate zinc and lead concentrates.

Bulk concentrate (47% zinc and 10% lead) is the preferred feed for the Imperial Smelting Process (ISP) technique, which can simultaneously produce both zinc and lead metal products.

Lead is one of the most widely used metals. Over 60% of all lead produced is used in lead-acid batteries for the storage of energy. Other uses include lead foil, plumbing, solder, sound proofing, ammunition, addition to glass to block harmful radiation from television and computer screens, and as an ultraviolet ray protector in PVC plastics.

### **Economic Values of Tourism and Fishing (1)**

*EPA has asked that consideration be given to contrasting the economic values provided in the draft EIS with the potential costs to tourism and fishing industries in the region, particularly in the gulf, and to the natural values inherent in the less-disturbed environment in light of the potential impact resulting from an open cut mine in the 'middle' of sensitive river flowing to a sensitive mine environment.*

The Northern Territory Government took part in a nation-wide survey of recreational and indigenous fishing (2000-01 National Recreational and Indigenous Fishing Survey). The latest estimates from the survey (DBIRD, 2005) place spending on recreational fishing in the Northern Territory at \$26.7 million in 2000-01, down from the 1995 estimate of \$30 million. Total recreational fishing effort in the Territory was estimated at 1.9 million hours, with barramundi the most popular target species, accounting for 42% of all hours fished. The Amateur Fishermen's Association estimates that the McArthur River area accounts for considerably more of the Territory's recreational fishing effort than the 11% assessed in 2002.

It is recognised that recreational fishing is responsible for significant tourism in the Territory, including in the lower McArthur River. Access is through use of personal equipment or through charter companies. Inputs into amateur fishing trips are usually greater than the financial (market) value of the fish and seafood caught, but in compensation the fishermen receive additional recreational, social and cultural benefits that are difficult to quantify.

As discussed in Section 17.4.1 of the EIS, the proposed McArthur River Open Cut Mine will have an economic value in the Northern Territory of \$329 million annually.

As discussed in the EIS, the environmental safeguards to be implemented as part of the Open Cut Project have been designed to ensure there will be no significant detrimental downstream effects. No impacts on the recreational fishing industry in the lower McArthur River are expected. Consequently the potential costs to the tourism and fishing industries in the region as a result of the project are considered to be negligible.

### **Limestone Supply and Processing (13)**

*NLC has stated that limestone supply and processing which is a requirement of the EIS Guidelines has not been addressed.*

Limestone was a required raw material for zinc refinery proposed as part of the “2003 Project” as described in Section 1.4.3 of the draft EIS. The zinc refinery is not part of the open cut project which is the subject of this EIS and hence the limestone supply is no longer relevant.

### **1.7.2 Potential for Additional Development (2)**

*DPIFM has noted that additional environmental assessment may be required should future planning consider aspects such as;*

- *Significant mining and production increases,*
- *Progressing to refining zinc on site,*
- *Changes to power supply as a result of gas or other fuel alternatives.*

MRM has no current plans to undertake any of the actions listed by DPIFM. Should any of these aspects be considered in the future, MRM will apply to the Northern Territory Government for all necessary approvals which would be expected to include environmental assessment.

## 2.1 Market Opportunities for Zinc (12)

*MARA is concerned that promotion of the project as a ‘zinc mine’ is misleading to play down the potency of the heavy metals produced. MRM produces a bulk concentrate that is comprised of lead, silver and zinc.*

The McArthur River orebody is estimated to comprise total reserves of 43 million tonnes containing 11.9% zinc, 5.2% lead and 0.0053 % (53g/t) silver.

As previously explained (p 2-1), due to the fine grained nature of the deposit, the ore must be milled extremely finely (<10 microns) to free the valuable metals from the waste rock. Even at this fine grind size, MRM can produce only a bulk concentrate.

Zinc is by far the dominant metal in the orebody and the resulting bulk concentrate. Within this concentrate, the mineralised concentrate accounts for 57% of the volume. Of this, 47% is zinc, 10% is lead, and 0.013% is silver.

The mine is therefore quite different from other zinc, lead and silver mines where the orebody is able to be separated. For example, technology exists to separate the orebody mined at Mt Isa into both lead and zinc concentrates as well as silver, but this is not possible for MRM ore..

## 2.2 Project Need (7, 12)

*The draft EIS states that ‘The underground operation would require backfill paste after 2005 and this additional cost results in the mine becoming uneconomical as a bulk concentrate producer’. ECNT has asked why this problem with the viability of the existing operation was not discussed in the original 1992 Environmental Impact Statement.*

The previous owners, MIM Holdings Limited, completed the bankable feasibility study in August 1992 to present to its financiers for funding approval. In contrast to the studies undertaken prior to the bankable feasibility study, the recommendation to proceed was based on a small size underground mine producing an initial 1.2 Mtpa and expanding to 1.5 Mtpa by year 10.

The MRM deposit is divided into seven orebodies with No 2 orebody at the base and No 8 orebody at the top. The mining plan developed at that time was based on the need to selectively mine No 2 orebody and then No 4 lower and No 3 upper. This resulted in a proven reserve for mining of 18 Mt and a probable reserve of 5 Mt and an estimated project mine life of 18 years.

The feasibility study at that time did consider the requirement for backfill to ensure that ore could be extracted in a safe manner.

The most significant impact on the mine’s viability is that the long term revenue pricing assumptions for zinc have never been consistently achieved since approval for the project to proceed was taken back in 1992. The price for zinc is driven by the global market dynamics of supply and demand. The management of MRM has achieved all of the feasibility study’s key cost and production inputs that it has control of but has no influence on the world zinc prices.

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Xstrata is confident that moving to open cut will make the mine's operations more viable, as this will reduce operating costs and allows the mine to treat all of the ore bodies. The current model uses a more conservative zinc price than that used in the 1992 study.

***MARA claims that the following statement in the Executive Summary of the draft EIS is incorrect that 'Should the open cut not proceed, mining at McArthur River will cease...This will result in...detrimental socio-economic impacts in the region'. MARA considers that MRM's contribution to the Borroloola community has been negligible or nonexistent. MARA has stated that after 10 years of mine operation there have been no significant investments into the Borroloola community in the areas of health, education, employment, roads or infrastructure.***

Since mining began at MRM in 1995, the company's principal priority has been to develop a viable commercial operation. However in doing so, it has been aware of its ethical and legal obligations to the community neighbouring the mine and the Bing Bong port. MRM's commitment to building and maintaining community relationships has indeed been recognised through awards and presentations such as:

- the Northern Territory's Ministers' Recognition Award in Resource Development 2003 for Community Relations, Employment and Training initiatives for the Borroloola community.
- NT Parliamentary recognition for MRM's support for hearing impaired students in Borroloola in 2002.
- the NT Department of Mines and Energy Encouragement Award for Resource Development in the category of 'Community Relations' 2001.
- an invitation to present a paper at the 'Doing Business with Aboriginal Communities' Conference (ACI) in 2000 highlighting the issues of employment and training in the Gulf and Borroloola region.
- an invitation to speak at the Australian Medical Association NT Inc conference in 2000 in conjunction with the Borroloola School Principal.

To date, MRM's role within the community could be described as an active corporate citizen, a neighbour with a useful tool shed, a financial supporter, and a champion of issues. The contributions made have taken many forms in terms of:

- infrastructure provision;
- participation in community organisations and committees;
- representations to government and media in a position to make a difference on community issues;
- long-standing partnerships with education and health organisations; and
- sponsorship of community and individual activities.

MRM has also maintained an ongoing dialogue with a broad range of community and government organisations about operations at the mine.

The value of its investment in the community is difficult to define in absolute terms. From a direct financial perspective, sponsorships and support valued at approximately \$50,000 per year have been granted. This represents a total investment of around \$500,000 of benefits to the community over the ten year period.

In addition, MRM has donated the time, resources and leadership of its staff for which no financial value has been assigned. Examples include:

- donating a surplus examination table from the MRM medical room to the Borroloola doctors' surgery;
- providing an MRM tradesperson to scale the radio tower of the Mabunji Resource Centre to remove and replace a damaged aerial;
- providing an MRM electrician to inspect the electricity supply at the Borroloola school and making recommendations on its upgrading; and
- providing a crane to assist in the construction of extensions to the Borroloola retirement home.

Under the ownership of Xstrata Plc, MRM upholds business principles which recognise the importance of community social involvement. The objective is to make a positive, long term impact on the communities in which the company operates or has an influence. Under this policy, MRM is currently investigating the establishment of a community social involvement program targeting initiatives in the areas of:

- enterprise and job creation
- environment
- education
- social/community development
- health
- culture/art

Importantly however, even before Xstrata's acquisition by MRM's former owner, MIM Holdings, the mine was already investing money or time or providing contra support in these areas. The following summary of the key initiatives from just the past six years alone (1999 – 2005) shows MRM to be an active member and supporter of the Borroloola and Gulf region communities.

*Enterprise and Job Creation*

Supported Body	Nature Of Support
Borroloola Julalikari Job Place	Long standing support and utilization of services. Computer repairs.
Indigenous Mining and Enterprise Task	Member of the taskforce.

Supported Body	Nature Of Support
Force	Hosted a meeting in Borroloola in 2004 at Mabunji Resource Centre.
Student school holiday work placement program	Annual engagement of high school students for the program via Darwin Skills Development.
MAWA Aboriginal Corporation (Charter Vessel – Aburri)	Support for the development and implementation of an employment and training strategy. \$6,500 funding support for travel to meetings in Kununurra and Tennant Creek. Facilitated the establishment of the joint venture with P&O (Previously Burns Phillip)(50%), Indigenous Business Australia (18.3%) and MAWA (31.7%) for a long term service agreement with MRM to transport the mines bulk concentrates to sea-going vessels in the Gulf. Gross revenues earned for the share holders range between \$6M - \$7M per year in which MAWA has a 31.7% interest. Provision of capital equipment under favourable terms eg. 5 year loader hire contract.
Carpentaria Shipping Services	Facilitated the establishment of the joint venture with P&O (50%), Indigenous Business Australia (18.3%) and MAWA (31.7%) and support with a long term service supply contract to MRM. Provision of capital equipment under favourable terms eg 5 year loader hire contract.
Mabunji Resource Association Black Lip Edible Oyster Project	Sponsorship providing 14 return air fares to Darwin over three years (est. value \$12,000).
Eurest Catering	Aboriginal Employment Officer introduced to Borroloola with the objective of recruiting local people to be employed on site.
Borroloola Community Government Council	Contracted to erect a stock fence along the mining lease at Bing Bong Loading Facility. Repairs to concrete batching truck in exchange for batched concrete delivery for on site projects. Supported appointment of a Sport and Recreation Officer. Participation on the selection panel for the appointment of a new Council Clerk. Advised on disposal of waste oils.

### Environment

Supported Body	Nature Of Support
Mabunji Lianthawirriyarra Sea Ranger Unit	Sponsorship for 10 airfares to Darwin for training and meetings (est value \$6,000).

### Education

Supported Body	Nature Of Support
Minerals Council Education Committee	Membership of committee. Sponsorship of school visits in Borroloola.
MRM Annual Science Award in local	Sponsorship of annual award.

Supported Body	Nature Of Support
schools	
Student tertiary studies sponsorship	Scholarship funding eg. nursing study at Charles Darwin University.
School Based Apprenticeship	Program launched in 2004. To date, one student engaged in Light Vehicle Servicing Cert I.
Borroloola Community Education Centre	Memorandum of Cooperation entered. Member of School Council. Donation of microscopes. Participation on selection panel for senior secondary teacher. Involvement of students in MRM Aeordrome exercise. Inspection of school electricity support and upgrade recommendations. Recommendation of reputable suppliers. Development of a horticulture program and donation of green house. \$10,000 support for capital infrastructure program. Rental and delivery of portable toilets for soccer championships. Donation of three 'Out Land Our Future' education kits for teachers. Partnership which attracted a \$25,000 grant from the Australian Student Traineeship Foundation for a VET program. Judge of student art exhibition. \$5,000 donation for school excursion to Canberra. Support for 2 girls to travel to Brisbane with NT Softball squad. Sponsorship for a deaf student to attend a school in Darwin.
Robinson River School	Donation of microscopes. Donation of Minerals Council Science Kits

*Social/Community Development*

Supported Body	Nature Of Support
Borroloola Racing Association annual rodeo	Annual sponsorship
Borroloola Show Society	Annual sponsorship and in-kind support (eg providing large quantities of paper for production of programs). Provided wall panels and a carpenter for their installation.
King Ash Bay Annual Fishing competition	Annual sponsorship.
Borroloola Community Government Council	Support for Australia Day ceremonies.
Borroloola Youth Support Program	Board and committee memberships. Participation on selection panel for new Coordinator of the Juvenile Diversion Unit.
Gulf Regional Development Committee	Board and committee memberships. Participation in regional development planning meetings.
Road upgrade	Negotiation with the NT Government and local stakeholders regarding the upgrading of Mule Creek road to an all weather

Supported Body	Nature Of Support
	access road for recreational fishing and improved access to West Island and the Gulf. Ongoing maintenance of the road.
Two individuals from Borrooloola	Travel sponsorships to represent the NT at the National Girls' Soccer competition in Adelaide.
Borrooloola crèche	Assistance in setting two demountable buildings onto their footings.
Borrooloola Sport and Recreation Committee	Committee member.
Borrooloola Counter Disaster Committee	Committee membership.
Mabunji Aboriginal Resource Centre	Wiring and updating radio station including a new power board (est. value \$25,000). Technical support for replacement of radio antenna. MOU for promoting education and employment in Borrooloola community. Second hand vehicle donated to assist Mabunji Health Mental Health Work Program (est. value \$25,000). Professional development support for Mabunji renewable Energy Project including return air travel to Darwin for meetings and training (est value \$3,400). Financial support for interstate exhibitions, return air travel to Darwin for gallery openings etc (est value \$10,000). Financial support for Mabunji Chairman to attend Indigenous Mining Enterprise Task Force meetings and Australian Reconciliation Workshop in Darwin. \$500 donation to Mabunji Cultural Festival 2001. Donated several drums of A1 Jet Fuel and Avgas. Two work placements offered for Mabunji small engine mechanics.
Youth Wellbeing	Donation of t-shirts.
Bing Bong viewing platform	Engaged local photographer for a 'panorama' of the Gulf of Carpentaria for reproduction as an etched information panel.
Borrooloola Emergency Service Cyclone Debriefing program	Participation.
Borrooloola Cricket Club	Advise in procedures/club operations. Function sponsorship.
Borrooloola Police Constable	Sponsorship to represent Australia in a Police Rugby League test against New Zealand on the Gold Coast.
Borrooloola Regional Social Issues and Solutions Workshop	Donation and attendance.
Borrooloola Women's Softball Club	Coaching and rules advice. Umpiring. \$3,386 donation to cover uniforms for softball carnival.

*Health*

<b>Supported Body</b>	<b>Nature Of Support</b>
NT Health Hearing Audiologies and Screening	Sponsorship of a visit to Borroloola by Katherine NT Health personnel to screen students with hearing problems. Donated two bicycles to be used in a raffle as an incentive for school aged children to attend the screenings.
NT Health	Financial support offered for the employment package for a permanent GP to be recruited at Borroloola including periodic return air travel per annum to Darwin for training and professional development. Covered the cost of air travel for a temporary doctor over a two week period. Commitment of \$15,000 for the establishment of an x-ray facility. Ambulance repairs.
Borroloola Children and Baby program	Sponsorship support.
Borroloola Doctors' Surgery	Donated an examination table from MRM medical rooms. Letter of support to assist in efforts to establish the Malandari Community Health Service as the primary health care and education provider in Borroloola.
Gulf Health Services	Inaugural member of the Interim Health Steering Committee and subsequent Board and committee memberships.
NT Health – Strong Women Strong Babies Strong Culture program	Sponsorship support. Road freighted dry goods and air freighted food consumables.
Community Health Service	Donation of second hand vehicle.
Local family	Air transport to Darwin for a local student and a family member for a hearing aid fitting.
Living with Alcohol program	Sponsoring air travel of consultant to conduct a survey of the community.
Hearing Health Program	Loan of portable audio hearing testing machine.

*Culture/Art*

<b>Supported Body</b>	<b>Nature Of Support</b>
Eurest Caterers	Provision of a cake in the resemblance of the Aboriginal Flag for the celebration of National Aboriginal Week in Borroloola.
Waralungku Arts	Airfare to support a specialist consultant traveling to Borroloola to set up IT in the new Arts facility.
Three local artists	Financial sponsorship to support attendance at the opening of an exhibition of their art works at the Karen Brown Gallery in Darwin.
National Trust Museum project	Sponsored flights for a consultant to the project.
Historical commemoration project	Support offered for the establishment of a commemoration on the site of the old Borroloola Pub.
Warrulla Culture Festival	Cash donation
Australians for Reconciliation Workshop	Sponsorship support and attendance at workshop in Darwin.

Supported Body	Nature Of Support
Wandangula Outstation	Support for Wandangula dancers in preparation for Mornington Island Dance Festival.
Young Authors Awards	\$4,000 sponsorship for travel to Darwin for award recipients.

### *Infrastructure*

Under the *McArthur River Project Agreement Ratification Act 1992*, the roles and responsibilities for the provision of roads, airport and port facilities are clearly defined.

The Northern Territory government's responsibility is: "where necessary construct and maintain all the roads from the intersection of the access road from the HYC deposit with the Carpentaria Highway to the Mineral Lease on Bing Bong Pastoral Lease No 686". This is a public road.

The Act also allocates responsibility for the airport to the Northern Territory Government for which it charges MRM a fee to cover operating and maintenance costs.

MRM's responsibility was to construct the barge loading facility at Bing Bong which was done.

In addition, MRM has, in cooperation with Colinta Holdings, agreed to make available a road corridor to Mule Creek across the Mineral and Pastoral Leases. This provides the Traditional Owners living on the Sir Edward Pellew Islands and tourists with an all-weather access to the Mule Creek boat ramp and the waters of the south-west Gulf of Carpentaria. This road has been continually maintained by MRM including repairs following flood damage.

MRM has also undertaken to grade roads providing access to indigenous sites of cultural significance in support of Traditional Owners.

***MARA has claimed that there is a long list of broken promises from the negotiations for the existing mine operation, that are still clearly remembered by many Traditional Owners in this community.***

The issue of broken promises has been raised in meetings between MRM and community members as part of the consultation for the open cut development. Some of the issues raised are in relation to the undertakings made to the Traditional Owners at the time of the initial negotiations for the mine. These were documented within the original Environmental Impact Statement (May 1992). Others relate to undertakings which have been raised since.

For the purposes of this document, we have assessed performance against all of these undertakings. The report card on the delivery of promises is given in the following table.

Promise	EIS promise	Action	Delivery
Swimming pool for Borrooloola	No	MRM has been involved in discussions with the Borrooloola Community Government Council regarding the pool for some years.  In February 2005, MRM was informed by the Council that grant funding from the Australian Government was available but that there was a shortfall in the amount required. MRM immediately indicated its willingness to support the initiative and by August, had received confirmation from the Xstrata Executive Committee of a donation of \$600,000.  MRM has also committed to \$60,000 over three years for the pool's maintenance.	✓
Dialysis machine	No	MRM met with the Borrooloola Regional Development Facilitator in 2004 regarding the need for a Kidney Dialysis Machine.  The proposed Community Partnership Program developed by MRM notes an allocation of \$165,000 over three years to provide a building to house a dialysis unit and cover a carer's salary. The dialysis unit will be provided by NT Health.	Pending
Mine equipment available to community	Yes Item 3.3.2	The previous section addressing community investments details many occasions on which MRM has offered the resources of its team and equipment for the community's benefit.	✓
Purchase of white goods for the community	No	MRM has used its purchasing power in helping the local agent in the community to obtain best prices for white goods.	✓
Sponsorship of art exhibition of Gudanji, Yanyuwa and Binbinga artists in one capital city every 5 years	Yes Item 10.4	Exhibitions in Darwin and Sydney have been supported.  At present, an invitation to sponsor an exhibition in Melbourne is currently being considered.	✓
Continued dialogue on how concerns held by Aboriginal people over the decline in foraging lands might be addressed.	Yes Item 14.2.10	This was in relation to the area surrounding the barge loading facility. Rights of access to this land for traditional hunting was provided under legislation.	✓
Ongoing consultation with Aboriginal groups	Yes Item 14.2.2	Please see the response to Mabunji's comments given previously.	✓
Preference for local enterprises	Yes Item 2.1.1	This has been demonstrated by the local enterprise development support provided by MRM for the establishment of Carpentaria Shipping Services and engagement of various services through Mabunji Nursery, Borrooloola Community Government Council and Borrooloola Julalikari Job Place.	✓
Training programs	Yes Item 2.3.1	This was accomplished with the initial Small Business Training Program provided during construction of the mine and improved with the Cert II Entry to Mining Services Program.	✓
Establishment of a bulk diesel fuel depot	Yes Item 3.1.1	This did not proceed.	x

Promise	EIS promise	Action	Delivery
Provision of library services	Yes Item 3.2.1	MRM assists and supports the local library where possible	✓
Scholarships for secondary and tertiary students	Yes Item 3.3.1	A scholarship program has been operating for a number of years. There is currently one tertiary scholarship in place. A School Based Apprenticeship program for a secondary student was granted but terminated by the student.	✓
Employment of local Aboriginal people	Yes Item 9.2.2	Over the life of the mine, an average of 10% of mine staff have been local indigenous people.  This includes a total of 106 local Aboriginal people employed in the mine's Maintenance Service Team (MST) program – the entry level traineeship for mine employment.  In addition, 80 local Aboriginal people have been employed by Carpentaria Shipping Services related to the mine.	✓
Skills based training	Yes Item 9.3.1	Trainees in the MST program have the option to undertake an apprenticeship in trade skills relevant to a variety of industries.  The development of the Cert II Entry to Mine Services Program is also relevant to this promise.	✓

Based on this assessment, MRM's delivery on promises has been strong with all but one promise delivered and another pending funding approval.

### 2.3 Project Benefits (14)

*D Farlam has asked if the open cut project will last for 25 years as the underground mine was supposed to last for 25 years and it only lasted for 10 years. He considers that because of the mine's environmental impacts, MRM should be able to adequately demonstrate the viability of the mine.*

The project's viability is influenced by market demand and production costs. Xstrata's market analysis has indicated that the current world demand for zinc concentrate will continue to remain strong. Production costs for the open cut operation will improve by comparison to the cost of running the underground mine. Given this and the fact that the little change is required to the processing and transport facilities, Xstrata is confident that the proposed open cut operation will be viable.

All planning for the open cut project has been based on a 25 year mine life. However, should the mine life be reduced, MRM has developed a mine closure plan to ensure that there will be no long-term detrimental environmental impacts remaining post-closure.

#### 2.4.1 Xstrata's HSEC Policy (13)

*NLC has stated that the issues surrounding transparency and accountability to stakeholders need to be significantly improved. It suggests that a system similar to that applied to the Alligator Rivers Region would go a long way to creating public perception of Xstrata as a credible and responsible*

*environmental manager, and should be implemented prior to construction, or immediately upon commencement of construction of the proposed development.*

MRM is committed to a transparent and open approach through the community consultation phase of the project and during the ongoing construction and operational phases. To this end, MRM has initiated meetings with key groups in the local community with regards to discussing who should be on a local working party, what it should aim to achieve, and how it should run.

### 3.2 Management Systems (2)

*DPIFM has asked how will the proponent ensure that parallel activities in 2005/2006 of 1) HSCE systems upgrade and roll out and 2) Application of HSCE process to the open cut development activities are consistent?*

A detailed plan for the development of a HSE Management System will be developed by early January 2006. This will incorporate the existing Environment Management System (EMS) and previously developed Safety Management System into the one document which will be compliant with the Xstrata HSEC Standards, ISO14001 and AS4801. The plan for the development of a site wide HSE Management System will be progressed in 2006. Initial focus will be on risk management, document control and contractor management.

Risk assessments of the activities associated with the open cut project will be conducted in early 2006 (by February) which will follow the guidelines provided by Xstrata for the assessment of risk. This will form part of the site wide risk register which will be continually reviewed and updated as the project progresses.

All contractors and MRM personnel conducting activities for the open cut project will be required to comply with company HSE policies and procedures. Regular inspections of workplaces as part of the workplace inspection system will be implemented to ensure activities are conducted in compliance with the requirements of the HSE Management System.

### 3.5.2 Concentrate Haulage (1)

*EPA notes that the draft EIS indicates that fugitive dust is minimised by the material's moisture content of approximately 12%. Given that much of the concentrate is less than 38µm particle size and there is evidence that lead-contaminated dust is mobilised on the site, it has asked if this can be relied upon as an adequate dust control measure.*

Experience to date has shown that a moisture content of 12% is high enough to assist in the control of fugitive dust generation. However it is not the only measure relied upon to control dust from the loading and hauling of concentrate. Other measures applied include:

- All truck loading is undertaken within the enclosed concentrate storage shed;
- All trucks leaving the storage shed pass through a wheel wash
- Roads at the mine site are cleaned using a road sweeper; and
- The loads on the haul trucks are covered with a specially designed protective cover.

### 3.6.5 Dredging (4, 7, 12, 14)

*DHCS has noted that the dredge disposal area at Bing Bong Port was identified by Montgomery (1995) as a potential mosquito breeding site. Other disturbed areas were also highlighted as potential mosquito breeding sites by Montgomery (1995). DHCS has stated that these areas should be rectified (if not already) to prevent mosquito breeding.*

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As discussed in the draft EIS, dredged material will be relocated to two designated off-shore areas 100 m to the west of the channel. Disposing of spoil in the sea will not create any mosquito problems. This was seen as a favourable option by the Medical Entomology Branch in their response to the Draft EIS.

Should there be a need to dispose of dredged material on-shore in the future, the material will be placed in a way that ensures that there will be no ponding resulting in mosquito breeding.

***DHCS has noted that it is mentioned that potentially contaminated material in the swing basin area may be disposed of on land. If this is to occur, DHCS has stated that the dredged material should be stored in a manner that prevents the impoundment of water for periods greater than five consecutive days.***

As discussed in the draft EIS, there is a small amount of potentially contaminated material in the area of the swing basin. Land disposal is only one of the options being considered for this material. If this does occur, measures will be taken to ensure that any on-land disposal of dredged material does not lead to mosquito breeding. These measures could include the management of site runoff, runoff storage in designated areas only, elimination of any emergent and semi-aquatic vegetation from drainage areas, minimising the time that runoff is stored, and the use of larvicide controls. Any measures for mosquito control will be developed in consultation with the DHCS.

However it should be noted that current methods of rehabilitation require ponding on the surface of dredge spoil material to allow for leaching of salts through the profile. Thus there will be ponding as a result of this method of rehabilitation. However due to the nature of the material being quite coarse and permeable the water typically flows through the profile rapidly, reducing the time of ponding on the surface.

***ECNT has asked what are the likely impacts of further cyclones on the Bing Bong dredging program and will it need to be continued for the life of the operation?***

The current dredging program at Bing Bong which commenced in 2004, is the first maintenance dredging to be undertaken since the channel was first dredged in 1995. The need for ongoing maintenance dredging was identified in the project's initial EIS in 1992. The effect of cyclones is generally to deposit silt and sediment in the dredged channel. The rate at which future maintenance dredging will need to be undertaken will depend on the frequency of future cyclones.

***ECNT has asked what other areas are available for the relocation of sediments once the designated areas, 100 metres to the west of the channel, are full?***

The designated areas have sufficient capacity to accept the dredged material from the current maintenance dredging program. The current dredging program will continue until 2008. Based on the operation's past experience, future dredging will not be required until after 2015. At that time, a bathymetric survey will be undertaken to identify the locations of areas most suitable for spoil disposal.

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***MARA notes that dredging of the Bing Bong channel began in 2004 and will continue for the next 4 years. MARA are concerned that turbidity from dredging may affect some seagrass species which are extremely light sensitive and die under extended reduced light conditions.***

Investigations by Kenyon *et al* (1999) indicated that the seagrass distribution in 1996 within the Bing Bong lease area was ubiquitous, with up to six seagrass species covering most areas from the shallow intertidal through to deepwater sites. However a seagrass study in 2003 indicated that there had been significant changes to the distribution and community structure of seagrasses in the area, most likely as a result of the previous wet season's severe cyclone and storm events.

Dredging was undertaken in 2004 and the dredged sand material was placed in the designated western intertidal placement area. Plumes of turbid water generated by the placement of dredged material were generally limited in size (typically less than 100 m diameter, though occasionally in excess of 300 m diameter) often displaying movement in a westerly, longshore direction.

Because of this dredging, sites west of the placement area and beyond the lease boundary were investigated in a further seagrass survey undertaken in December 2004. This survey indicated that:

- Seagrass communities were absent within the shallow intertidal zone.
- Seagrass communities occurred within the designated western intertidal dredged material placement area, principally along the northern (deepest) margin of the placement area.
- There was evidence of continued seagrass recruitment and recovery at Bing Bong, following severe storms and cyclones of 2000 and 2001. Seven sites (consisting of six sites east of the navigation channel and one site west of the mineral lease area), which were previously bare substrate, were identified as having seagrass in December 2004.
- There was recolonisation of sub-tidal areas by the formerly widespread seagrass species *Syringodium isoetifolium*, which was completely absent from the study area in August 2003.

The studies undertaken to date indicate that seagrass is quite resistant and readily recolonises. Notwithstanding this, seagrass surveys at Bing Bong will continue on an annual basis and mitigation measures developed, if needed.

***D Farlam considers that the current practice of depositing dredged material off-shore is not sustainable as dredged material flows back into the water and that all dredged material should be deposited on-shore.***

Offshore disposal of material from the maintenance dredging program is the preferred method of disposal as monitoring has shown that it can be undertaken without any significant environmental impacts and that it avoids the management issues of runoff control and rehabilitation associated with on-shore disposal. Furthermore, off-shore disposal has not been shown to result in significant re-deposition of dredged material back into the dredged channel. The current dredging program at Bing Bong is the first maintenance dredging to be undertaken since the channel was first dredged in 1995. When this program is completed, future dredging is not expected until after 2015.