About McArthur River Mine

McArthur River Mining Pty Ltd (MRM) is wholly owned by Glencore and is the operator of the McArthur River zinc mine in the Northern Territory, Australia. MRM is located in the remote Roper Gulf region in the Gulf of Carpentaria approximately 900 kilometres southeast of Darwin. Our mine site is approximately 65 kilometres south-west of the township of Borroloola.

**2016 PRODUCTION**
- Zinc in concentrates: 200,200 tonnes
- Lead in concentrates: 42,100 tonnes
- Silver in concentrates: 1,409,000 ounces

**MINING METHOD**
- Open pit mine using conventional drilling, blasting, loading and haulage methods

**PROCESSING**
- Conventional crushing/grinding and flotation process producing zinc-lead concentrates

**TRANSPORT**
- Trucked to Bing Bong loading facility, transferred to barge, then offshore loading onto ships within a designated Offshore Transfer Zone

**EXPORT MARKETS**
- Europe, Japan, China, North America

**ZINC AND LEAD PRODUCTS**
Zinc and lead metals from MRM play an important role in modern society.

Lead is predominantly used in lead-acid batteries, which power our everyday industrial and consumer products. They also provide important emergency power supply for hospitals and mobile phone networks.

Zinc is primarily used to protect steel from rusting by coating it using a process called galvanizing. This in turn forms the building blocks of our products, homes and cities.
MRM at a Glance

Our top priorities are the health and safety of our workforce, the long term sustainability of our operation, and making a positive contribution to the community and the Northern Territory.

Indigenous Employment

17% of total workforce

Direct employment in 2016

762 people

Investment

$2b over the last five years between 2012–16

Community Benefits Trust

$12.6m over 78 projects (contribution of $1.25m per annum from MRM)
Introduction

McArthur River Mine has lodged a Draft Environmental Impact Statement with the Northern Territory Government for the long-term management of its waste rock.

Like many mining operations, only a portion of the material mined at MRM is ore suitable for processing into metal. The left over material is waste rock, or overburden, and includes topsoil, clay and other rock types. Different rock types can react differently when exposed to air and water.

In 2014, we changed the way we classify waste rock and there is now less clean rock to use as covers for the overburden emplacement facilities. This means that most waste will now be stored in one location, at the North Overburden Emplacement Facility. The redesign of this facility and the associated environmental approvals process are known as the Overburden Management Project.
Overburden Management Project

PROJECT BACKGROUND

MRM undertook comprehensive technical studies to improve our understanding of the waste rock geochemistry and the best approach to its long term management.

The Northern Territory Government requested that MRM complete an Environmental Impact Statement (EIS) to assess the future design of the Norther Overburden Emplacement Facility (NOEF). The Terms of Reference for the EIS were released on 23 September 2014.

REGULATORY ASSESSMENT PROCESS

The EIS describes the project, its potential environmental impacts and proposed environmental management measures.

The EIS assessment process is designed to ensure that potential environmental impacts and potential risks are identified and addressed as part of the early stage planning and design of a project and in accordance with the broader principles of sustainable development.

Our EIS has been prepared in accordance with the Northern Territory Environmental Assessment Act (EA Act) and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). The Project will be reviewed and assessed via the accredited assessment process agreed between the Northern Territory Government and the Commonwealth Government.

COMMUNITY CONSULTATION

Glencore is transparent and open about our operations at MRM and is committed to engaging with the Northern Territory government, the local community of Borroloola and other key stakeholders to provide information about our operations and future plans.

We have consulted widely with a range of stakeholders in relation to the proposed project. We have spoken or met with almost 400 people about the project through site visits, face to face meetings, regular Community Reference Group meetings and community meetings in Borroloola which are open to the general public.

Stakeholder consultation has covered topics such as cultural heritage, economy and jobs, management of waste rock, air quality, water quality, bush tucker, fish, cattle and closure planning.

MRM is located in an area of importance to Aboriginal people. The Gurdanji people traditionally use the lands within which the Project is located. The Gurdanji Custodians of sacred sites on the mine have given their support for the proposed changes to managing waste rock, taking into consideration impacts on cultural heritage management.

We will continue to consult on the proposed Project elements and closure planning with residents of the Gulf Region, Traditional Owners and custodians from the four local language groups, including the Garawa and Mara people who are representative of Borroloola and its surrounding area, the Yanyuwa people and Northern Territory-based government and non-government agencies.

The majority of those consulted support the Project and recognise the potential benefits for employment and economic growth.
Project Overview

The detailed technical studies undertaken by MRM have informed the future plans for the NOEF but have also allowed us to put forward a refined approach to ongoing environmental management and closure planning.

As part of the EIS, we are outlining our detailed plans for what happens when mining and processing finish 30 years from now.

Over the past 20 months we have consulted with a broad range of stakeholders including local Borroloola community residents, Traditional Owners, government regulators and other industry stakeholders about how we close the mine site and consider what infrastructure could be left for the community to use.

The Project comprises four main stages:

STAGE 1: CONTINUED MINING OPERATIONS (2018–2037)
- Open cut mining continues
- Redesign of Northern Overburden Emplacement Facility (NOEF) to store waste rock and better manage geochemistry
- Minimise footprint of NOEF by increasing height to 140 metres to improve waste and water management methods
- Waste rock placed in open cut mine void in final years of mining
- Rehabilitation of NOEF will commence well before mining ceases

STAGE 2: TAILINGS STORAGE FACILITY RE-PROCESSING (2038–2047)
- Tailings are reprocessed through the concentrator after mining finishes
- Tailings from reprocessing are placed in the open cut void overlaying waste rock
- Tailings storage location rehabilitated after tailings removal
- Ongoing monitoring and maintenance

STAGE 3: DECOMMISSIONING AND REHABILITATION (2048–2072)
- Open cut mine void progressively filled with water over several wet seasons to create mine pit lake
- Ongoing monitoring and maintenance

STAGE 4: ONGOING MONITORING AND MAINTENANCE (FROM 2073)
- Open upstream and downstream sections of the mine levee wall to enable water to flow through original path of the McArthur River subject to water monitoring performance
- Rehabilitated areas are self-sustaining
- Monitoring and maintenance continue
Key Project areas

There are three main areas for consideration in planning for the eventual closure of MRM, they include the tailings storage facility, the waste rock management and the open cut mine void.

TAILINGS STORAGE FACILITY
At the end of mining, we propose to reprocess tailings through the mill to recover some of the remaining metals and then place the tailings into the open cut on top of the operational waste rock. This process will take about 10 years. After the removal of the tailings, the Tailings Storage Facility can be completely removed and rehabilitated.

WASTE ROCK PILE
It is proposed to develop the NOEF to a height of 140 metres. This option requires less clearing of land, fewer dams to catch water runoff and less clay to cap the final waste rock pile landform than the alternative options. During the last six years of mining, the operational waste rock will remain in the open cut, so rehabilitation of the NOEF can commence.

OPEN CUT MINE VOID
At the end of mining, the open cut will be about 420 metres deep, 1.95 kilometres long and 1.55 kilometres wide. Waste rock and tailings will fill part of the mine void, the rest will be filled with water to a depth of around 175 metres creating a mine pit lake. This type of mine pit lake is a successful method used in rehabilitation and closure of open cut mines around the world.

The mine pit lake water quality will be monitored over many years. Only when the water quality is right, we will consider opening the levee walls to allow the McArthur River to backfill into the mine pit lake during flood. Once this happens, the McArthur River can flow through both courses. It is projected to follow the channel most of the time but also through the mine pit lake during times of flood.
Project Benefits

The Project will provide several positive socio-economic outcomes for the Gulf Region communities as well as the Northern Territory and Australian economies.

- **Increased scope and frequency of environmental monitoring** including additional monitoring to understand the full impact of the ongoing Project (water quality, air quality and geochemistry).
- **Opportunities for local youth employment** in the region over the four stages of the Project.
- **Extended mine life of MRM until 2037** will provide increased job stability for the existing workforce at MRM. This is significant for Northern Territory employment rates given 54% of MRM personnel live in the Territory.
- **Extension of the MRM Community Benefits Trust (CBT)** MRM contributes $1.25 million annually for investment by the Trust which to date has supported 78 projects since 2007.
- **Opportunities for local and regional businesses** to engage with MRM as part of the local procurement program which will continue to underpin operations throughout the proposed Project’s life.

- **Increased opportunities for Traditional Owners** and Indigenous leaders to be involved in the site rehabilitation processes associated with the Project and also in the cultural heritage management activities.

- **Direct economic contribution** over the life of the Project
  - $1.1 billion corporate tax (Commonwealth Government)
  - $517 million in royalties (Northern Territory Government)
  - $117 million in payroll taxes (Northern Territory Government)
  - $177 million in local expenditure from local mine workers
  - 1,053 Total workforce requirement
Assessment Time Line

Northern Territory Environmental Impact Assessment Process

Pursuant to the NT Environmental Assessment Act and Environmental Assessment Administrative Procedures

**PROPOSED ACTION**
- Notice of Intent
  - Is the environmental impact significant?
  - Further information may be required by NTEPA

**ASSESSMENT COMPLETE***

**ASSESSMENT APPROACH**

**EIS**
- NTEPA notifies proponent and Environment Minister; Environment Minister notifies responsible Minister
- Draft Terms of Reference developed and advertised for public and government review for 14 days
- Final Terms of Reference prepared and issued by NTEPA within 14 days
- Proponent prepares and submits draft EIS (timeframe under proponent’s control)
- Public and government review for a minimum of 28 days
- Comments provided to proponent
- Proponent prepares and submits Supplement to EIS (timeframe under proponent’s control)
- Supplement circulated for government review and comment within 14 days
- Assessment report is prepared for NTEPA within 35 days of receiving supplement
- NTEPA provides Assessment Report to the Australian Minister for the Environment for decision under the EPBC Act if the NTEPA undertook the assessment on behalf of the Australian Government

**CURRENT STATUS**
- Further information may be required by NTEPA

**KEY**
- EA Act: Environment Assessment Act
- EIS: Environment Impact Statement
- EPBC Act: Environment Protection and Biodiversity Conservation Act 1999
- NTEPA: Northern Territory Environment Protection Authority
- PER: Public Environmental Report

*The decision in accordance with the EAAP is subject to clause 14A and 15 of the EAAP.
MRM’s History

The ‘Here’s Your Chance’ deposit was discovered in 1955 and underwent intensive drilling in the 1960s to better define the extent of this significant deposit. The deposit was not commercially mined for 40 years as scientists searched for a way to liberate the very fine ore from the rock.

In 1977 the first feasibility studies commenced and a pilot plant and temporary camp were constructed at the site. At the time, the high capital costs of building the mine made the project unviable.

MIM Holdings formed a joint venture in 1992–1993 with Japanese consortium ANT Minerals comprising Nippon, Mitsui and Marubeni to develop the resource. McArthur River Mining Pty Ltd was formed to operate the mine on behalf of the joint venture partners.

In 1995 commercial underground mine operations and a processing plant began however by 2001, the 100 kilometres of underground shafts/channels were becoming uneconomical. Feasibility studies were commissioned to investigate options including an open cut mine development.

In 2003 MIM Holdings Limited, was acquired by Xstrata plc. Xstrata subsequently acquired ANT Minerals’ share in the operation in 2005 to assume full ownership of MRM. Following a review by Xstrata Zinc, it was decided the operation would continue as an open cut mining operation.

In 2006, MRM transitioned to an open pit operation, increasing annual ore production and significantly extending the life of the mine. The project also necessitated the diversion of the McArthur River.

In 2013 approval was given for the Phase 3 Development Project to increase production capacity to five million tonnes per annum and further extended the mine life to 2037.

In mid-2013, Glencore acquired Xstrata plc and assumed ownership and operation of the McArthur River Mine.
For further information, including supporting publications and a copy of the full Overburden Management Project – Environmental Impact Study visit:
www.mcarthurrivermine.com.au