

Gravity Tales

Roche Mining (MT) sets new benchmark

Roche Mining (MT) recently secured a \$25 million contract for the supply of equipment and services for the Kenmare Resources' Moma mineral sands project in Mozambique.

Mr Glen Zille, General Manager of Roche Mining (MT) said the supply contract represents a new benchmark for Roche (MT); being the largest and most complex contract the company has embarked on.

The supply contract incorporates:

- Process and project engineering (re) design of the Moma Wet Concentrator Plant (WCP) and Mineral Separation Plant (MSP).
- Refurbishment of the full range of existing Roche (MT) proprietary equipment under the "MD, Reading, and Kelsey" brand name mineral separation equipment for re-use in the Moma Plants.
- Supply of new equipment including a number of **Reading** electromagnetic and rare-earth magnetic separators and **Carrara** electrostatic separators.
- Supply of on-site services for equipment installation supervision, training, ramp-up and commissioning.
- A performance guarantee.

"This project follows a 6 year relationship between Kenmare Resources and Roche (MT), first having been involved in process



Robert Logan (right), CEO of Roche Mining, signs record contract on behalf of their mineral technologies arm, Roche Mining (MT) with representatives from Multiplex and Bateman.

flowsheet development using the mineral separation equipment the company acquired from BHP's defunct Beenup operation in Western Australia," said Mr Zille.

"Since then, Roche (MT) has worked on developing subsequent process engineering flowsheets and obtained significant improvements by using the recently-developed new generation of **Carrara** High Tension electrostatic separators," he said.

The flowsheet revisions bring significantly greater separation efficiencies, operational improvements and cost benefits by incorporating the state-of-the-art **Carrara** electrostatic machines in the Rutile and Zircon dry separation circuits.

(Cont. Pg 2)

Iluka and Roche Mining develop the Douglas Project

Iluka Resources has appointed Australia's diversified mining contractor, Roche Mining, to design, construct and commission their new flagship operation in the Murray Basin and supply the technology package and the bulk of the processing equipment to the project.

Glen Zille, General Manager of Roche's Mineral Technologies division, Roche Mining (MT), said the Douglas Project, incorporating a Mining Unit Plant (MUP), Wet Concentrating Plant (WCP), Mineral Separation Plant (MSP) and associated infrastructure will be the first major mineral sands project to be developed specifically to process mineral sands in the Murray Basin and will produce Zircon, Rutile, Leucoxene and Tin products for world markets.

Roche (MT) has been working on the detailed design of the project facilities from their offices in Carrara and Brisbane in Queensland since January 2004. Good progress is being made on design for each of the three plants, with construction proceeding to schedule under the direction of Roche Mining (JR).

The MUP and WCP will operate on the Bondi Main and Bondi East ore bodies located between Horsham and Hamilton in southern Victoria. The MSP will be located in Hamilton.

"Roche (MT) has received the order for the majority of the processing equipment for both the Wet Concentrator Plant (WCP) and the Mineral Separation Plant (MSP). The proprietary Roche (MT) equipment required in this process include 386 **MD** Spiral Separators, (216 triple-start Model MG6.3 and 170 twin-start HG10S), 12 **Reading**

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Introducing our Guide Dog Puppy

The Roche Mining (MT) Social Club is sponsoring a Guide Dog Puppy.

If successful in his training, Jackson (named by competition-winner Thomas Mueller) will become a working dog at around 18 months of age.

Jackson will be visiting the Carrara office in October to meet everyone.



(Cont. Pg 1)

Roche Mining (MT) sets new benchmark

The *Carrara* electrostatic separators now represent a flagship product from Roche Mining (MT)'s world-leading mineral separation equipment range.

As designers of the original Beenup plants, Roche (MT) is well-placed to provide the re-design and engineering of both the Wet Concentrator Plant (WCP) and Mineral Separation Plant (MSP) for Moma.

"The existing WCP separation equipment (2300 Roche *MD* spiral separators) has been retained for the 3000t/h WCP; however, design changes will be needed to accommodate the different ore body characteristics and operating conditions that will be experienced on site," said Mr Zille.

"Similarly, with a significantly different heavy mineral suite, and the need to produce a range of ilmenite products and two Rutile

and two Zircon products, the MSP (rated at 120t/h) will also require design changes from the Beenup MSP," he said.

Due to reach full production in late 2006, the Moma project will be a significant source of world-class heavy mineral products.

The complementary supply of worlds' best practice plant design and on-site services, together with the refurbishment of existing equipment supplemented by state-of-the-art *Carrara* electrostatic separators and *Reading* rare-earth magnetic separators, backed by the reputation and performance guarantees offered by Roche (MT), will ensure the success of the Moma project.

The Roche supply is a sub-contract to MBJV, being a joint venture between Multiplex, Australia and Bateman, South Africa.

(Cont. Pg 1)

Iluka and Roche Mining develop the Douglas Project

Induced Roll Magnetic Separators (IRMS), 3 *Reading* Wet High Intensity Magnetic Separators (WHIMS), 40 two-stage and 7 three-stage *Carrara* MK6 High Tension Roll Separators, 11 *Carrara* Electrostatic Separators and 22 *Holman* Wet Shaking Tables," said Mr Zille.

"The Douglas Project will be the first major installation of our newly developed *Carrara* Separator anywhere in the world and the first major installation of Holman Tables following the formation of the global alliance between Roche (MT) and Holman-Wilfley," he said.

Following plant construction, Roche (MT) will undertake the commissioning of the processing plant and training of operations personnel.

"Additionally, Roche have provided a Process Guarantee to cover the performance of all processing facilities at the Douglas Project," said Mr Zille.

"The Douglas Project demonstrates the real value to be gained in project delivery and costs from a close working relationship between an operating group such as Iluka and an integrated supplier of processing equipment, testwork, design and construction services such as Roche. Roche has the skills and experience necessary to achieve a successful outcome for the Douglas operation," he said.

USA showcases latest coal spiral development

Roche Mining (MT)'s LD7RC spiral received much acclaim at the Coal Prep 2004 Conference and Exhibition held in Lexington, Kentucky earlier this year.

Bill Weldon, Roche Mining (MT)'s Business Development Manager – USA, said we have received favourable industry comments, pleased with our new product offering, a viable alternative to our competitors.

"This 2½ day conference is always eagerly anticipated and well attended, attracting all the major suppliers to the US coal industry and usually all of the senior coal process engineers," said Bill.

"In addition to US process technologists, there is always a sprinkling of Australians who make the journey just to see what the US is up to," he said.

RC stands for Rougher Cleaner and, as this name suggests, the design incorporates two spiral stages in one assembly.

"This is achieved by utilising our patented slide splitter to remove high ash material from the trough at the end of turn three and implementing another patented system for



arresting the flow and thoroughly mixing it before it re-enters the second 4 turn stage," said Bill.

"What is achieved by LD7RC through the two stage process, is a reduction in the overall entrained ash material in the final clean coal product. The result is a clean coal with ash content closer to theoretical values as determined by washability analysis. Separation efficiency for the circuit can be enhanced by recirculating the second stage middlings back to raw feed," he said.

The net effect from using the LD7RC with secondary middling recirculation is a spiral circuit that is more robust in its ability to smooth out the detrimental effects of feed fluctuations in tonnes/hour and volume, and will operate at higher organic efficiency when measured across all parameters.



The first of the spirals packed and ready for delivery.

Roche Mining (MT)'s innovative designs float the Ibis Plant

In April this year the Consolidated Rutile Limited (CRL) Ibis mine dredge pond was flooded to allow a new floating thickener associated with the upgrade of the plant to successfully dock with the existing concentrator and complete a major mine enhancement project.

Noel Nugent, Engineering Manager of Roche Mining (MT) explained that over a number of years exploration drilling of the Ibis mine on Stradbroke Island had exposed the potential for a large dredging operation and in 2002, Roche (MT) was contracted to undertake engineering design to upgrade the floating concentrator, tailings disposal system and to incorporate a floating thickener which would allow the ore to be processed from the low grade and high clay content of the sand.

"The major issue to be addressed in the process design was the need to



accommodate a high density tailings slurry containing a high level of slimes.

"Detail Design was carried out in close liaison with CRL Engineering and Operations personnel and involved innovative engineering process design in many areas of the upgrade of the existing plant," said Noel. "In particular the concept of a thickener floating in a pond is unique to the mineral sands industry."

"The upgraded operation utilised as much of the existing plant and infrastructure as practical in conjunction with CRL's specific design, metallurgical, materials handling and process information to minimise plant modification," he said.

Roche Mining (JR) was contracted to undertake the construction project which included concentrator modifications at the Ibis plant and manufacture of the floating tailings thickener on a purpose-built site adjacent to the Ibis mine path.

"The Ibis operation will encounter different mining conditions when it moves to the new Enterprise Mining operation although designs anticipate these variations," said Noel.

End of an era

After 38 years of dedicated service to Roche Mining (MT), Ian Terrill retired in July 2004.

Ian first joined Roche Mining (MT) (then known as Mineral Deposits Limited) in the 1970's as Chief Metallurgist, originally being given the brief to take MD into new markets. At that time the company was primarily focussed on the Mineral Sands Industry both as a mining company and as an emerging supplier of specific technology and equipment. Ian became a driving force, soon achieving new in-roads using our Metallurgical Laboratory to prove the application of our products in Iron Ore and Base Metals.

Ian assumed many challenges during his time with Roche (MT), including opening the Mineral Deposits office in the USA and undertaking extensive travel to become the face of MD in many other parts of the world.

When asked of his greatest accomplishments Ian has said that developing the business in India, complete with an infrastructure based on local staff he mentored and trained, is the achievement of which he is most proud.

Ian has always been a "hands on" person, preferring to be directly involved in activities and drawn to mineral sands operations where he constantly sought to create improvements and productivity gains.

"Ian has contributed significantly to the success of this Company over the last 3 decades and Roche greatly values and respects Ian's contributions and the passionate way in which he committed himself throughout the years," said Glen Zille, Roche Mining (MT)'s General Manager.

We all wish Ian well in his retirement.



Ian was presented with a memento which was designed and produced by our own very talented Russell Trueman and Brian Ballard.

Warming up for Boardroom Blitz

Roche Mining (MT)'s award winning band, Trash Screen, rocked Brisbane's Queen Street Mall in August in preparation for the "Boardroom Blitz" in October.

The event was a teaser for the Queensland Cerebral Palsy Association's annual corporate fundraiser, which calls for Queensland organisations to enter a battle of the bands-style competition.

Last year Trash Screen took out two of the event's categories, Best Overall Performance and Best Rock Moves, and no doubt this year they'll put on an even better show.



The band members, Kees Payens, Dale Henderson, Mark Palmer, Bill Ferguson, Tom Lawson and Bruce Johnston (pictured), are all employees of Roche Mining (MT).

Roche Mining (MT) opens in Brazil

Roche Mining (MT) is poised to become the Brazil market leader for mineral separation equipment and technical support when it establishes its own corporate identity centred on Belo Horizonte this month, said Mr Bill Weldon, Roche Mining (MT) Business Development Manager (Americas).

Furthering earlier initiatives Roche (MT) and local agent K&KTM to meet market demands for local purchasing and shorter delivery requirements, an assembly facility was established in Belo Horizonte in 2002. The resultant steadily increasing market share has seen Roche (MT) come to offer the premier technology package in minerals processing services.

“Our focus on Brazil as a strategically important market is confirmed with this latest development and will continue the drive to provide our clients with even better product supply, service and technical support,” said Mr Weldon.

While some bold steps have been taken in this territory over the past few years to capitalise on the expanding development of this country’s mining sector including liberalising trade in the mid 1990’s, the high import taxes and duties which protect local suppliers remain the main hurdles to bring cost competitive equipment and services into this very dynamic and expanding economy.

Roche (MT) has made significant in-roads into the Iron Ore treatment market with significant achievements including:

- The CVRD Agua Limpo mine (previously Samitri Mine) has placed orders for equipment in excess of US\$1.5million since 1996 with orders since May 2002 being assembled by K&KTM.
- MBR has purchased two packages valued in excess of US\$400,000 from Roche (MT) since 1999, the first delivered from Australia and the second from Brazilian assembly.
- AVG Mining purchased a turnkey plant from K&KTM in 2003 with the value of Roche (MT) equipment in excess of AUD 360,000.



Mucio Lima brings his qualifications as a Mining Engineer and his experience in the mineral processing industry to Roche Mining (MT) Brazil.

- The CVRD Conceicao and Caue mines have purchased several banks of the model HG11 and its predecessor the HG7 for sales in excess of AUD 400,000.
- Business from the Mineracao Tabocao Mine at Pitinga business has been recovered after 6 years of intense servicing effort. The first package of spirals was ordered in April 2004 at a value of AUD 126,000 and further orders are expected.

To expand on this growth Mucio Lima has been engaged as Roche Mining (MT)’s Marketing and Product Manager (Brazil) working under guidance from the USA Office. Mucio is a qualified Mining Engineer and developed his skills in mineral processing while working with the CSN, a 14mt/a iron ore mine in Minas Gerais, Brazil.

Mr Weldon said, “Mucio worked with K&KTM during the past two years gaining an understanding of our products, their applications and how to assemble many of the spirals models to exacting standards. He speaks and reads Portuguese, English and German. With his enthusiasm and ability to market to his countrymen, Mucio is a valuable member, heading up the new team in Brazil.”

Roche MT wins Canadian contract

Roche Mining (MT) recently won a contract to replace 336 spirals for the Iron Ore Company of Canada (IOCC).

Currently 65% of the 5500 spiral-starts at the IOCC Carol Lake plant are Roche (MT)’s WW6E spirals. Expected future orders in 2005 will bring the number of WW6E spirals to 86% of the total.

Peter Barker, Marketing Manager of Roche Mining (MT) USA, said over a number of years, Roche MT has been involved in upgrading the IOCC’s Carol Lake Concentrator, one of the largest producers of iron ore concentrates in North America. They operate a 3 mill circuit, each with 3 stages of spirals followed by magnetic separation and further downstream process upgrading.

“In 1995/96, all existing spirals in the Mill 12 circuit were replaced with WW6E wash water spirals. This was preceded in 1994/95 by a new hematite spiral plant also with the WW6E’s,” said Mr Barker.

“In 2002, Roche (MT) personnel, together with IOCC technical staff, carried out further investigative work on the spiral circuits which led to additional plans to replace all of the old spirals in Mill 13 circuit with WW6E spirals,” he said.

The upgrade programme is planned to go ahead with the current order for the replacement of two lines each consisting of 72 - 7 turn and 96 - 5 turn WW6E’s. Replacement of the remaining six lines is expected to follow in 2005.

