# 3Q 2017 OPERATIONS REVIEW

*MDL's primary asset is a 50% interest in the TiZir joint venture (**TiZir**), which owns the Grande Côte mineral sands operation (**GCO**) in Senegal, West Africa and the TiZir Titanium & Iron ilmenite upgrading facility (**TTI**) in Tyssedal, Norway. ERAMET of France is MDL's 50% joint venture partner in TiZir.*

## KEY POINTS

**GCO**

- Production consistency a key feature of 2017 performance
- Record quarterly production of finished products
- Fifth successive quarter of positive free cash flow

**TTI**

- Production ramp up continues to schedule
- 3Q 2017 production at 92.5% of expanded production capacity

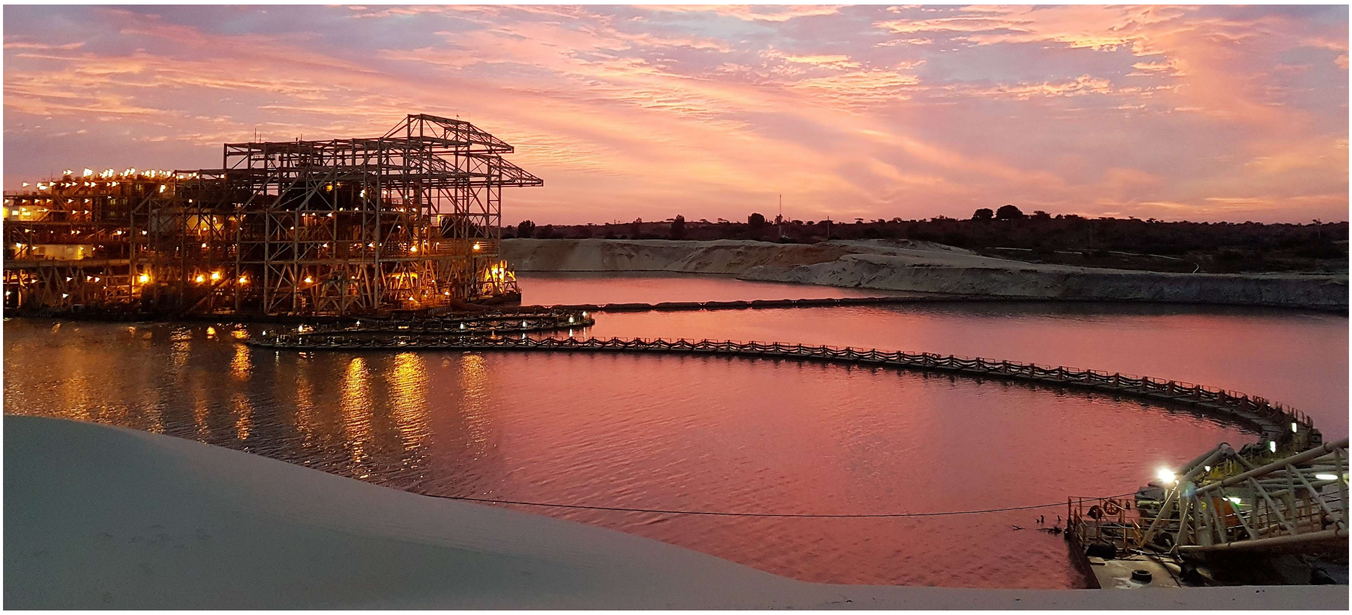
**Market**

- Good price increases achieved for TiZir's zircon

## GCO

GCO mining operations continued to deliver strong production results in 3Q 2017. Production of 196.4kt of heavy mineral concentrate (**HMC**) was achieved with consistent runtime of 81.5%. The lower average throughput rate (6,246tph) was the result of a strategy designed to maximise recoveries as the dredge progressed through sections of the ore body with higher grade zones.

Significantly, year-to-date availability of the mining operation has increased by 19% and throughput by 9% compared to the same period last year. These performance improvements are a direct result of ongoing optimisation initiatives at GCO.



*Grande Côte Operations, Senegal*

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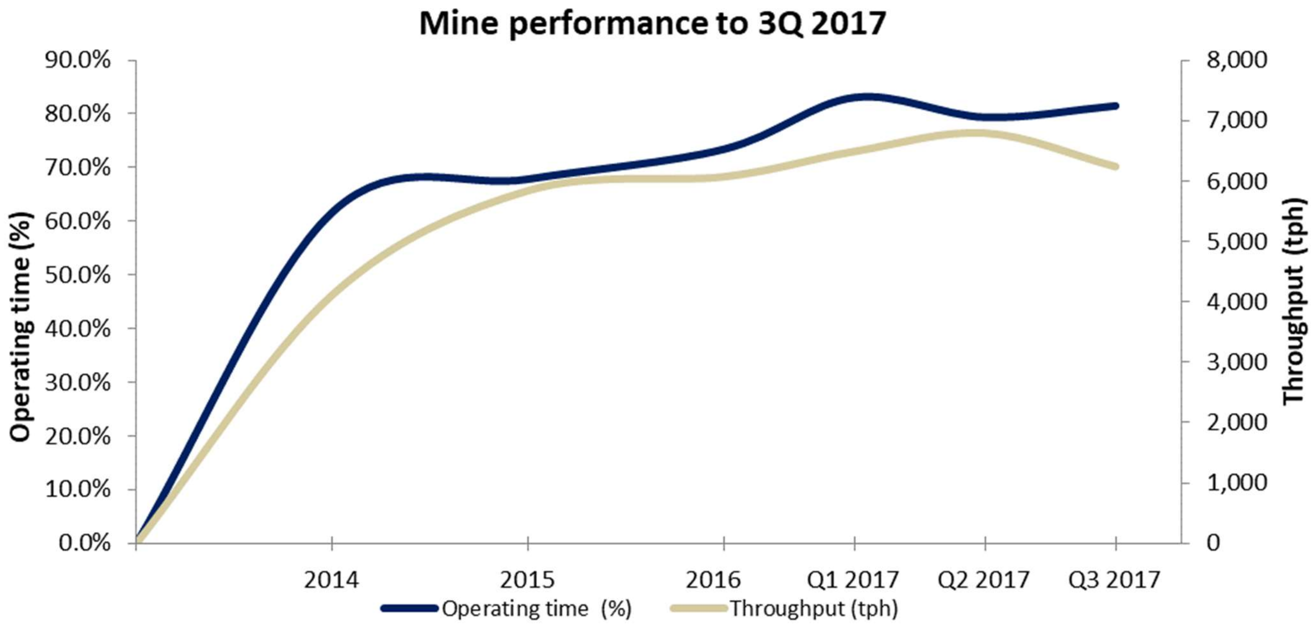
The graph below demonstrates the continued improvement and progression of the mining operation since commissioning in 2014:




*Note: Operating time and throughput for 2014, 2015 and 2016 represent annualised figures for each calendar year.*

The mineral separation plant (**MSP**) continues to operate with high availability resulting in record finished goods production (with the exception of medium grade zircon sands).

The mine and MSP's strong performance throughout 2017 is demonstrated by a 24% increase in ilmenite, 25% increase in zircon and 15% increase in rutile production during the nine months ended 30 September 2017 compared to the prior period.

## GCO production volumes

| **100% basis** | | 3Q 2016 | 4Q 2016 | 1Q 2017 | 2Q 2017 | **3Q 2017** | 9 mths 2016 | **9 mths 2017** |
|---|---|---|---|---|---|---|---|---|
| **Mining** | | | | | | | | |
| Ore mined | (kt) | 8,071 | 11,258 | 11,661 | 11,793 | **11,234** | 27,945 | **34,689** |
| HMC produced | (kt) | 140.0 | 194.1 | 140.5 | 204.2 | **196.4** | 419.6 | **541.0** |
| **Finished goods production** | | | | | | | | |
| Ilmenite | (t) | 96,503 | 119,882 | 99,400 | 126,030 | **140,713** | 296,467 | **366,143** |
| Zircon | (t) | 11,844 | 16,462 | 11,688 | 16,203 | **17,271** | 36,165 | **45,163** |
| Medium grade zircon sands | (t) | - | - | 7,179 | 2,927 | **5,235** | - | **15,341** |
| Rutile & leucoxene | (t) | 2,192 | 3,042 | 2,152 | 2,384 | **3,047** | 6,622 | **7,583** |

## GCO sales volumes

| **100% basis** | | 3Q 2016 | 4Q 2016 | 1Q 2017 | 2Q 2017 | **3Q 2017** | 9 mths 2016 | **9 mths 2017** |
|---|---|---|---|---|---|---|---|---|
| **Sales volume** | | | | | | | | |
| Ilmenite | (t) | 84,857 | 142,408 | 81,636 | 129,713 | **123,474** | 268,507 | **334,823** |
| Zircon | (t) | 14,721 | 15,961 | 13,030 | 13,722 | **16,331** | 37,139 | **43,082** |
| Medium grade zircon sands | (t) | - | - | 2,711 | 8,043 | **3,549** | - | **14,303** |
| Rutile & leucoxene | (t) | 2,620 | 2,159 | 2,588 | 3,208 | **2,398** | 6,660 | **8,194** |

GCO sales volumes were broadly consistent with 2Q 2017 and mirrored production volumes during 3Q 2017. Zircon sales of 16,331t represented a record quarterly sales volume.

In line with the increase in production, sales volumes for the nine months ended 30 September 2017 were significantly higher than the prior comparative period, with ilmenite sales increasing by 25%, zircon sales increasing by 16% and rutile & leucoxene sales increasing by 23%.

Largely because of improved pricing, GCO had a strong financial quarter generating a record quarterly cash flow performance.

During the quarter, GCO received awards for its community and social programs. The IEF of Tivaouane (a decentralised branch of the Senegalese Ministry of Education) and the town of Darou Khoudoss formally recognised GCO's contribution to educational infrastructure and funding. Further, the Department of Tivaoune awarded GCO a good citizen award in recognition of the company's overall contribution to community health & safety, clean water supply, education and other socio-economic areas.

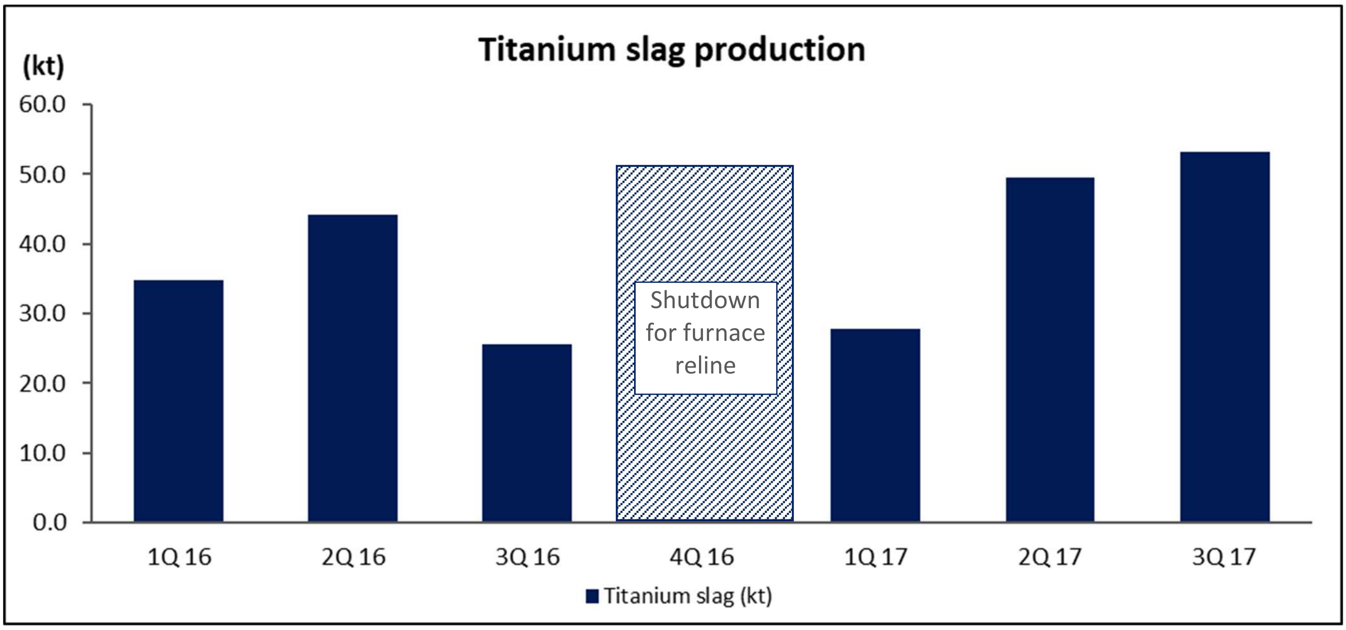
## TTI

Production at TTI continues to follow the plan for its ramp up to the expanded production rate of 230,000tpa. Titanium slag production for 3Q 2017 was 8% higher compared to 2Q 2017 at 53.2kt, whilst high-purity pig iron (**HPPI**) production was 7% higher at 21.6kt. Production of titanium slag in 3Q 2017 represented 92.5% of this target, with August and September production volumes representing the two highest titanium slag production months since the establishment of TiZir in 2011.

More importantly, the furnace continued to exceed expectations in terms of operating efficiency. In particular, heat losses were well below expectations, indicating that power is being transformed into energy for use in the production process more efficiently than anticipated. A major reason for this outcome is the copper roof technology developed and installed by TTI at the time of the conversion of the smelter from sulphate to chloride slag. In addition, the operation continues to use less key raw materials such as ilmenite and coal, further contributing to overall enhanced cost efficiencies. Above budget chloride slag yields continued due to crushing optimisation initiatives implemented in 2Q 2017.

Production for the nine months to 30 September 2017 was significantly above the prior corresponding period – 26% and 24% increase in titanium slag and HPPI respectively – due to the 2016 furnace shutdown.

The graph below illustrates the continued strong ramp up profile throughout 2017:




Shipments of both titanium slag and HPPI in 3Q 2017 were below production levels primarily due to shipment timing. As a result, however, it is expected that sales volumes for 4Q 2017 will be stronger. TTI's products continue to be well received by current and prospective customers.

Titanium slag sales volumes for the nine months ended 30 September 2017 were consistent with the prior comparative period, predominantly due to the timing of shipments and the impact of the furnace shutdown in 2016.

## TTI physical volumes

| 100% basis | | 3Q 2016 | 4Q 2016 | 1Q 2017 | 2Q 2017 | **3Q 2017** | 9 mths 2016 | **9 mths 2017** |
|---|---|---|---|---|---|---|---|---|
| **Titanium slag** | | | | | | | | |
| Produced | (kt) | 24.6 | - | 27.8 | 49.5 | **53.2** | 103.6 | **130.5** |
| Sold | (kt) | 36.5 | 3.9 | 11.5 | 47.1 | **39.0** | 96.6 | **97.7** |
| **High-purity pig iron** | | | | | | | | |
| Produced | (kt) | 10.6 | - | 11.2 | 20.1 | **21.6** | 42.6 | **53.0** |
| Sold | (kt) | 13.2 | 3.7 | 7.0 | 20.0 | **15.2** | 43.6 | **42.2** |

*Note: 4Q 2016 production performance was impacted by furnace repairs following an operational incident in August 2016.*

Cashflow performance continues to improve with the working capital build now completed at TTI.

*TiZir Titanium & Iron ilmenite upgrading facility, Tyssedal, Norway*

## MARKETS

Market conditions continued to strengthen throughout the quarter, with the outlook for zircon looking particularly strong.

**Titanium dioxide feedstocks:** Western pigment producers are currently reporting high utilisation rates, low inventories and improved profitability due to high demand and tight supply translating into continued good demand for TiZir's titanium feedstocks (produced by GCO and TTI).

**Zircon:** Positive sentiments in European and North American markets persisted through the summer holidays and price increases forecast at the end of 1H 2017 have materialised sooner than expected. Market indicators suggest that demand continues to exceed current supply and is expected to do so for the remainder of the year, placing further upward pressure on prices.

**High-purity pig iron:** Sales volumes of HPPI have remained consistent throughout the quarter, with the majority of volumes contracted for 4Q 2017. Despite some higher pricing realised in 3Q 2017, pig iron prices are currently facing some pressure from competing scrap and raw materials.

## TIZIR

As announced on 5 July 2017, TiZir successfully completed a new 9.5%, US$300 million senior secured bond issue with maturity scheduled in July 2022. The proceeds were primarily used to refinance the US$275 million senior secured bonds that matured in September 2017.

At 30 September 2017, external borrowings (excluding shareholder loans) by TiZir amounted to US$370.2 million, comprising the abovementioned US$300 million senior secured bonds (including accrued interest) and amounts drawn under TTI's and GCO's working capital facilities.

TiZir's cash and cash equivalents at 30 September 2017 were US$34.0 million, giving external net debt of US$336.2 million.

## OUTLOOK

Production consistency at GCO is expected to continue in the final quarter of the year. Further improvements in TTI's production performance are expected during 4Q 2017 in line with its planned ramp up to the expanded production target of 230,000tpa.

Core operational 4Q activities:

- advancement and completion of further mine optimisation initiatives at GCO to maintain and improve runtime, throughput and recovery of the wet concentrator plant; and
- the furnace at TTI is expected to operate at or above levels achieved in 3Q 2017, while shipment volumes are expected to be higher due to timing of shipments.

## MDL CORPORATE

At 30 September 2017:

- issued shares were 196,985,649
- unlisted unvested performance rights totalled 2,338,209
- cash was US$13.2 million (approx. A$16.9 million)
- zero debt

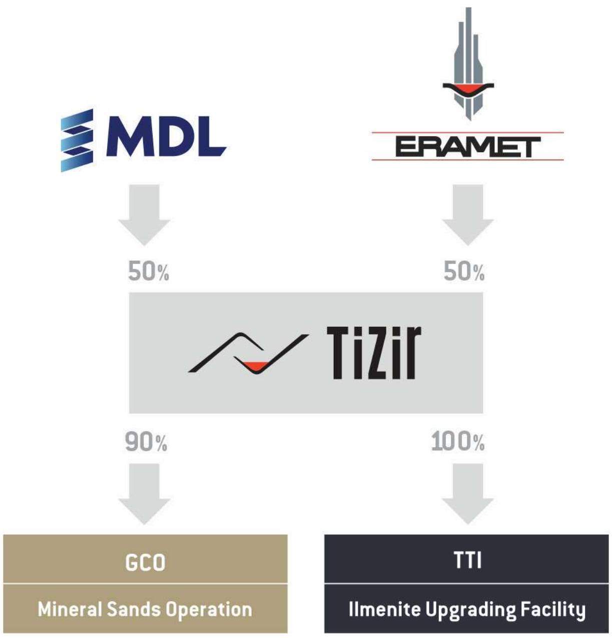
## ABOUT MDL

Mineral Deposits Limited (ASX: **MDL**) is an established, ASX-listed, integrated mining company with a 50% equity interest in TiZir Limited (**TiZir**) in partnership with ERAMET of France.

The TiZir joint venture comprises two integrated, operating assets – the Grande Côte mineral sands operation (**GCO**) in Senegal, West Africa and the TiZir Titanium & Iron ilmenite upgrading facility (**TTI**) in Tyssedal, Norway.

GCO is a large-scale, cost competitive mineral sands operation located in Senegal that is fully integrated from mine-to-ship, using owned or controlled infrastructure. GCO commenced mining activities in March 2014 and, over an expected mine life of at least 25 years, will primarily produce high quality zircon and ilmenite. A majority of GCO's ilmenite is sold to TTI. GCO also produces small amounts of rutile and leucoxene.

TTI upgrades GCO ilmenite to produce high quality titanium feedstocks, primarily sold to pigment producers, and a high-purity pig iron, a valuable co-product, which is sold to ductile iron foundries. TTI benefits from access to cheap and clean power, and excellent logistics, in particular, year-round shipping capacity and customer proximity.




## Forward looking statements

Certain information contained in this report, including any information on MDL's plans or future financial or operating performance and other statements that express management's expectations or estimates of future performance, constitute forward-looking statements.

Such statements are based on a number of estimates and assumptions that, while considered reasonable by management at the time, are subject to significant business, economic and competitive uncertainties. MDL cautions that such statements involve known and unknown risks, uncertainties and other factors that may cause the actual financial results, performance or achievements of MDL to be materially different from the Company's estimated future results, performance or achievements expressed or implied by those forward-looking statements. These factors include the inherent risks involved in mining and mineral processing operations, exploration and development of mineral properties, financing risks, changes in economic conditions, changes in the worldwide price of zircon, ilmenite and other key inputs, changes in the regulatory environment and other government actions, changes in mine plans and other factors, such as business and operational risk management, many of which are beyond the control of MDL.

Except as required by applicable regulations or by law, MDL does not undertake any obligation to publicly update, review or release any revisions to any forward-looking statements to reflect new information, future events or circumstances after the date of this report.

Nothing in this report should be construed as either an offer to sell or a solicitation to buy or sell MDL securities.

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