



(Incorporated in the Republic of South Africa) / Registration No. 2011/008265/06  
 JSE share code: MDI / ISIN: ZAE 0001711948 / ("Master Drilling" or "the Company")



## THE DRILLING SERVICES INDUSTRY

### A SUPPLEMENTAL DOCUMENT TO THE INTEGRATED REPORT 2012

#### INDUSTRY

*The following information is intended as a general summary and has been extracted from publicly available documents and reliable sources, including third party or industry or general publications.*

#### Overview of Drilling Services Industry

The drilling services industry is a contract industry which provides third-party drilling services to mining industry participants and customers in various other fields. Drilling services are employed by mining companies throughout all phases of a project's lifecycle, including:

- (i) exploration, resource evaluation and feasibility studies;
- (ii) capital project and development; and
- (iii) production.

During a project's exploration phase, drilling services companies are employed to extract rock chip and/or core samples to determine the presence, size, continuity and grade of a mineral deposit. Successful exploration projects that progress to underground capital project and production stages depend on specialised drilling services for establishment and expansion of ore passes and ventilation shafts. Additionally, mining companies utilise exploration stage drilling service providers for on-going geotechnical work, including critical information on rock mechanics and ore grade control.

Mineral Drilling Industry Process Diagram



Mineral exploration and other mining companies typically rely on third-party providers for drilling services due to the highly specialised nature of the work. Drilling equipment is technically complex and requires trained operators to perform the necessary tasks in a safe, timely and cost-effective manner. Additionally, a mining company's requirement for drilling services fluctuates considerably over the course of a project's lifecycle. By working for numerous mining companies across different geographies, outsourced drilling services providers are able to maintain high equipment utilisation rates and peak staffing levels, thereby operating more efficiently than in-house programmes.

Demand for drilling services is primarily driven by growth in the exploration, capital projects and production activities of the global mining industry. Drilling services are widely utilised by major, mid-tier and junior mining companies alike. In addition to the mining industry, civil engineering and environmental industry participants often rely on drilling services providers to evaluate underground rock conditions and to develop water wells, sewer systems and other infrastructure projects.

### **Key Drivers of Demand for Drilling Services**

Demand for drilling services is influenced by a range of factors, including the demand for commodities, metal prices, access to capital, exploration for new mineral deposits, development of mining projects and expansion of producing mines. The types of drilling services required by mining companies vary considerably throughout the distinct phases of a project's development. Additionally, the consistency, intensity and reliability of demand for drilling services are greatly influenced by a project's stage of advancement.

Commodity price increases provide an incentive for junior mining companies to engage in greenfield exploration. The global demand for exploration drilling services, therefore, is highly correlated with movements in commodity prices. In contrast, capital projects and production stage projects generally require consistent, on-going drilling services for the construction of requisite underground infrastructure including ventilation shafts and ore passes, as well as for the provision of further geotechnical information related to the ore body. These contracts therefore run over a mine's productive life and the intensity of drilling work is directly correlated with a mine's rate of production.

### ***Commodities demand and prices***

Demand for mineral drilling services is ultimately linked to the fundamental supply and demand dynamics in the mining industry. Commodity supply deficits inevitably result in price increases, thereby incentivising mining companies to engage in mine expansion, project development and mineral exploration. Over the past ten years, urbanisation and industrialisation on an unprecedented scale has resulted in rapid economic growth in major emerging markets, including Brazil, Russia, India and China (collectively referred to as "BRIC" economies) and new emerging giants such as Indonesia, South Africa, Turkey, Nigeria and Pakistan. This economic growth has been accompanied by a similarly unprecedented increase in commodities demand, particularly for metals critical to the construction, infrastructure and energy sectors such as iron ore, coal, copper, zinc and uranium.

The International Monetary Fund (IMF) estimates that global economic growth (measured by Gross Domestic Product or GDP) will average 3.5% and 4.1% in 2012 and 2013 respectively. Advanced Economies (as classified by the IMF) including the United States, United Kingdom, European Union and Japan are expected to experience a period of economic stagnation, with

growth rates of 1.4% and 2.0% over this period. However, commodity-intensive economic growth in key emerging markets is expected to remain robust. GDP growth in the Emerging and Developed Economies (as classified by the IMF) including the BRIC economies is forecast to average 5.7% and 6.0% in 2012 and 2013 respectively.

Continued industrialisation and economic growth in emerging market economies will provide the fundamental basis for future expansion in demand for drilling services.

### ***Mineral exploration***

The exploration stage of mining is primarily focused on the discovery of new mineral deposits and often involves deployment of drilling crews and equipment to remote unexplored areas. Exploration drilling methods include rotary drilling, reverse circulation drilling and diamond core drilling. The principal purpose of these drilling services is to return rock chip and/or core samples to determine the presence, size, composition, continuity and grade of a prospective mineral deposit.

Metals Economics Group (MEG), an independent mining consultancy and data provider, estimates non-ferrous exploration expenditures by global mining industry participants on the basis of an annual survey of over 3,500 companies. The survey includes companies which spend over \$100,000 per annum on exploration for precious metals, base metals, diamonds, uranium, PGMs or other industrial minerals.

MEG estimates that this analysis covers approximately 95% of global non-ferrous exploration spending. Data from the MEG survey is used to evaluate historical trends in exploration expenditure by the mining industry. This data reveals that a rapid rise in metals prices starting in 2002 resulted in record growth in global exploration spending over a period of six years, peaking at \$14.4 billion in 2008. The global financial crisis of 2008, however, caused steep declines in metals prices resulting in a \$6 billion decrease in exploration expenditure in 2009. Since the market bottom, metals prices have rebounded appreciably, leading to a rapid recovery in global exploration expenditure in 2010 and 2011. In 2011, MEG reported global non-ferrous exploration spending of \$ 18.2 billion, an increase of approximately 50% from 2010.

### **Estimated Global Non-Ferrous Exploration Spending, 1993 – 2011**

Junior mining companies comprise the largest portion of global demand for exploration drilling, followed closely by major mining companies. MEG estimates that junior mining companies have collectively accounted for nearly \$40 billion of exploration spending since 1997. Junior miners are often pre-production companies which do not produce meaningful operating cash flows and therefore rely on capital markets to fund their activities. As a result, demand for exploration drilling services is highly influenced by changes in commodity prices and capital market activity.

### **Cumulative Global Exploration Spending by Company Type, 1997 – 2011**

In 2011, global non-ferrous exploration expenditure was relatively evenly distributed across geographical regions, led by Latin America (25%) and Canada (18%). Gold is the dominant target commodity for exploration drilling globally, comprising over 50% of total exploration expenditure in 2011. Base metals, including copper, zinc and lead, comprised an additional 32% of spending.

## **Global Non-Ferrous Exploration Spending by Region and Target Commodity, 2011**

MEG estimates total non-ferrous exploration spending in Africa at \$2.4 billion in 2011. Relative to global averages, exploration spending in Africa is more focused on gold, diamonds and PGMs than on base metals and industrial minerals. Geographically, over 50% of African non-ferrous exploration spending is focused in South Africa, DRC, Burkina Faso, Ghana and Zambia.

## **African Non-Ferrous Exploration Spending by Country and Target Commodity, 2011**

### ***Mine development and production***

Mine development is a capital-intensive activity, the costs of which are off-set against successive years of cash flows generated over the course of a mine's productive life. Due to the large up-front costs associated with project development, mining companies strive to maintain the highest utilisation and production rates possible. As a result, demand for drilling services for development and production-stage projects tends to be relatively independent of short-term swings in commodity prices. This is demonstrated by the fact that, despite the global financial crisis of 2008 and its considerable impact on both commodity prices and capital markets activity, total capital expenditures by global mining companies did not decline significantly in subsequent years.

## **Total Capital Expenditures by Global Metals and Mining Companies, 2002 – 2011**

Capital expenditures are used as a proxy for development activity in the mining sector and, by extension, can be viewed as an indicator of demand for mineral drilling services. Drilling services are necessary for development and production-stage projects to establish ore passes and ventilation shafts and to provide on-going geotechnical information for production planning and grade control.

Major mining companies are generally well-capitalised and continue to invest in project development throughout periods of commodity and equity price weakness. Global diversified miners, including BHP Billiton Limited, Vale S.A., Rio Tinto Limited, Xstrata Plc and Anglo American Plc, historically comprise between 15 to 20% of global mining capital expenditures.

## **Top 10 Global Metals and Mining Companies by Capital Expenditures in 2011 (Calendar Year)**

These companies benefit from steady cash flows, large balance sheets and diversification across commodities and operating geographies. Demand for drilling services from major mining companies, therefore, tends to be consistent and reliable relative to demand from smaller junior miners.

### **Competitive Environment**

The global mineral drilling services industry is highly fragmented and is characterised by a small number of major international firms, a group of mid-tier regional players and a large number of privately-owned local firms. Major international mineral drilling companies include Boart Longyear Limited, Layne Christensen Company and Major Drilling Group International Incorporated. Mid-tier operators include Foraco International, Capital Drilling Limited, Geotec Drilling Services Limited, Orbit Garant Drilling Incorporated, Ausdrill Limited, Energold Drilling Corporation and Geodrill Limited. Small, privately-owned drilling services companies are often important players in local markets, but do not have a significant presence on a regional or global scale.

In addition to dedicated drilling services companies, several major engineering companies provide drilling services as a component of a larger integrated service offering which may also involve construction, infrastructure management and contract mining. These firms include Murray & Roberts Holdings Limited, Leighton Holdings Limited, Redpath Mining Corporation, Basil Read Holdings Limited and Aveng Grinaker-LTA.

Drilling services providers compete on the basis of a variety of factors, including price, efficiency, accuracy, safety, reliability and experience. Drilling contracts are typically awarded following a competitive tender process. Although price is an important consideration in this process, it is typically not the determining factor in a mining company's selection of a drilling services provider. In particular, advanced projects and actively producing mines often require specialised drilling services, such as raise-bore drilling, which are critical to the mine's development and comprise a relatively small portion of the mining company's costs.

In such scenarios, a drilling company's demonstrated ability to provide a technically specialised service in a consistent, reliable and timely manner is the most important consideration in winning new contracts.

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