



LESEDI
DRILLING & MINING
CONTRACTING COMPANY

COMPANY PROFILE

LESEDI DRILLING AND MINING CONTRACTING COMPANY

What do we do?

Lesedi Drilling and Mining Contracting Company, which was founded in 2002 provides underground exploration diamond-drilling services to South African mining houses. The company extracts core samples underground that mine geologists use to determine reef location and ore quality. The mines base their development planning on these samples, which in turn, determines the mine's economic viability. In addition, the company drills holes ahead of the mine works to ensure that high-pressure gas and water is not present and going to invade the workings once operations get into this new virgin ground. It is important to understand that our service offering is very focused on *UNDERGROUND* mining operations.



Rock core samples in a tray as presented to client's geologist



A days worth of samples waiting processing by the geologist

What kind of technology is deployed to provide this service?

Pneumatic Drills. (Air drills)

These drills are powered by compressed air from the mines installed capacity underground. The drills represent technology that is very common in the South African underground drilling industry. Unfortunately air drill design has not progressed significantly since the Second World War. Pneumatic feed screw drill technology has huge limitations when it comes to safety and productivity. The drill has no ability to be automated so the drilling team is always working in close proximity to the rotating rod string and in constant danger of rods descending from a hole in an uncontrolled way. The machine has only one penetration speed so it is generally not possible to really increase the rate of penetration. Without any rod handling capability finger injuries are common. Lesedi continues to operate these types of drills because they are cheap to maintain and the mines have compressed air on demand. Hydraulic technology relies on an electrical connection underground and this is relatively more expensive than compressed air as cable theft is very common and skilled electrician's hard to find and expensive.

The daily production expected from this type of drill is around 4m per shift and the drill has a maximum productive range of 175m drilling AXT size (48mm).



Drilling an underground vertical hole with an air drill

Hydraulic Drills

Drilling with a machine powered by an electro-hydraulic power pack is more productive as the machine does not suffer from vagaries like low air pressure from poorly connected compressed air pipes. The machine is more automated and thus safer to operate. It is more expensive to operate however, as it contains hydraulic

componentry priced in US dollars and requires hydraulic fitters and electricians to maintain and move it.

The daily production from a 22 or 45Kw hydraulic drill is around 9m per shift and has a range of around 250m AXT size. The larger LM 90Kw drills drill to over 1 000m at 15m per shift. These longer holes are called “LIB” holes. This stands for Long Inclined Borehole.



A Lesedi Drilling “Mamba” Hydraulic Core drill



A Mamba 22Kw hydraulic drill underground at AngloGold Ashanti's Moab Khotsong Mine

Drilling

Lesedi uses a drilling method known as **continuous coring** for **mining exploration**. In this method the core produced by the cutting action of the bit goes straight into the rod string. Water is pumped down to the bit on the outside of the rod string and returns to the drill via the inside of the rods. The water pressure from the return water is enough to push the core to the top of the rod string where it is retrieved by the driller. Continuous coring results in much higher levels of productivity as there is no down-time when core is retrieved from the core barrel. It is important to note that continuous coring works very well in relatively homogeneous rock formations such as those found in the South African gold and platinum mines. It is not necessarily successful as a technique in badly fractured and faulted ground.

Where does Lesedi operate?

Lesedi Drilling began operations in early 2003 at Anglo Platinum's Rustenburg's mines and Harmony Gold's Free State mining operations. It has grown steadily over the last 12 years and now provides underground drilling services to AngloGold Ashanti (Harmony) and Village Main Reef Orkney, the Two Rivers Mine operated by African Rainbow Minerals and Petra Diamonds operations in the Northern Cape at Koffiefontein, Finsch and Kimberley. Lesedi operates 140 machines across these

contracts. Our pricing and product offering strategy is to offer value to our clients. A safe, reliable service at a good price is the Lesedi approach. The company also prides itself on using innovative machines and systems in order to improve productivity and the safety of our people.

Productivity Projects at Lesedi Drilling

1. **The “ATK” project.** This project, which has been in a test phase for two years, is currently being rolled out at Kopanang Mine and Moab Khotsong Mine in Orkney, Anglo Platinum in Rustenburg, Two Rivers and Marula Mine in Steelpoort. An ATK rod is a kilogram lighter than the current AQ rod as it has a thinner wall. The thinner rods also mean that the diamond bit cuts less rock per metre of core drilled and this results in faster production of the core sample.
2. **Pelletized Diamond Bits** This project involves the production of diamond bits that have diamonds in geometrically precise arrays. This results in less wastage of diamonds used in manufacturing the bit and also results in greater cutting speeds and less energy used in drilling.
3. **Planned maintenance.** This obvious strategy is not that obvious to the majority of underground diamond drilling companies. A drill, which has an unplanned breakdown, has to be replaced and this can take a minimum of a week in a large South African gold mine. That means losing a quarter of a month's revenue from a drill and this amounts to R20 000. Lesedi have put in place software that attempts to predict when a drill will fail. The plan is to withdraw the drill before this failure occurs and to replace at the workshops all parts likely to fail. The drill is then redeployed back to the mine. There are challenges in doing this however.
 - (i) The software assumes that the underground supervision is greasing and oiling the machines as required in the safe work procedures and the people transporting the equipment are exercising due care and attention when handling the drill.
 - (ii) The quality of the spare parts must be predictable. Early failure as a result of sub standard part manufacturing will render the process academic. Supplier selection and part endurance specification is vital.
 - (iii) The relative life span of each sub component is very important. (One wouldn't put in a reconditioned engine in a motorcar every time the tyres are changed.) The question of how often will a feedscrew need to be replaced relative to the bearings in the drive chain, relative to the vanes in the air motor, relative to the feednut needs to be accurately answered. Changing everything when the earliest failing part occurs may be a strategy but the point is this

analytical work needs to be done before actually implementing the strategy.

4. **The Cobra Drill.** This machine is an “air over hydraulic drill” which needs to replace the old feedscrew technology. The Cobra power pack has been engineered to be as small as possible so that the machine can fit in an underground cubby. It has already been shown by manufacturing the **Adder** machine that the drill aspect of the technology is much safer and more productive than the old feedscrew technology.
5. **Dry Drilling.** Drilling dry would enable Kimberlite drilling to progress with far fewer problems than drilling with water. Water is used in the drilling process to cool down the diamond drill bit. This very water destroys the Kimberlite being drilled and that causes the hole to collapse, trapping in some cases, millions of Rands worth of rods and tools in the hole. With this in mind, a drill has been set up on surface where experimental holes are being drilled dry with a view to determining the impact of elevated temperatures on drill bit performance. Compressed air is being used to cool the bit and evacuate the chips and dust from the hole. The compressed air has to be dried otherwise even this small amount of water will interact with the Kimberlite and produce a cement like product which causes major in hole problems. Special chemicals are being tested.

MANAGEMENT TEAM

Board of Directors of Lesedi Drilling & Mining Contracting Company			
Gordon Hogan Executive Director	Salome Malema Executive Director	George Matlabe Executive Director	Anthony Nocton-Smith Non-Executive Director
Gender: Male Citizenship: South African Race: White	Gender: Female Citizenship: South African Race: African	Gender: Male Citizenship: South African Race: African	Gender: Male Citizenship: South African Race: White

Lesedi Drilling is :-

- 1) 50% Black Managed and Controlled, and
- 2) 25% Black Woman Managed.

The people within the company are a product of our history. The company was founded on contracts won in the gold mining industry in the Free State and Rustenburg in 2002.

Director & Group Chief Executive Officer - Gordon Hogan

The company is led by the Chairman Gordon Hogan. Gordon is a mining engineer who has had a long career with the Boart Longyear group, which is a leading international exploration drilling and mining contractor and manufacturer of mining equipment. Gordon founded Lesedi Drilling in 2002.

Director & Chief Executive Officer- Salome Malema

Salome Malema joined Lesedi Drilling in 2011 as Human Capital Management Director. She holds a Bachelor of Commerce in Information Systems and Business Management from UNISA and Financial Accounting certificate from Harvard Univ (online). She brings a wealth of experience in Human Resource Management, Strategy Development and Market Research to name a few. Her exposure spans beyond the borders of South Africa. She is driven by Innovation, Technology and Empowerment.

Director: Human Capital - George Matlabe

George has spent most of his career in the exploration drilling industry at Boart Longyear. He worked his way up to the position of training manager and in 2010 joined Lesedi Drilling. George was appointed Human Capital director in 2013.

Non-Executive Director - Tony Nocton Smith

Tony Nocton Smith has a post-graduate degree in geology and business administration and has spent 15 years of his career in the investment community in Johannesburg, administering large pension funds. Tony was a founding director of Lesedi Drilling and retired in March 2016

Health and Safety Manager - Gerhard Victor

Gerhard began his mining career in the South African gold mines as a learner official in 1982. He advanced through the various production positions in the mines, working for both AngloGold and Goldfields and obtained his Safety Officer Certificate before joining Lesedi Drilling in 2010. Gerhard was appointed as the Lesedi Drilling Health and Safety director in 2015

Operations Manager - Dolf De Noon

Dolf has spent his entire career in the exploration industry. Dolf joined Boart Longyear in the early 1980's and worked his way up from a machine operator position to an area manager. He joined Lesedi Drilling in 2006 in the Rustenburg operations and was appointed a director in 2013.

Financial Manager – Desiree Smith

Desiree has many years of experience working in the accounts department, she studied Accounting & Bookkeeping through Damelin Business College & completed a Diploma in Logistics & Supply Chain Management at Unisa.

Desiree worked for the Altron Group at both Bytes Document Solutions & Bytes Systems Integration for 10 years before joining our Lesedi Drilling head office accounts department in 2012 where she was later appointed as Financial Manager in 2019.

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SHAREHOLDERS & BEE

BLACK ECONOMIC EMPOWERMENT

Lesedi Drilling started out as a black Empowered organisation in 2002 but as has happened countless times in the mining industry, the original black shareholders sold their shares forcing the company to find new BEE partners. It was decided in 2012 that the most deserving partners that Lesedi Drilling could find were the people who were employed by the company. Our employees trust was created and at the time of its creation 95% of the employees were black. This percentage black shareholding is guaranteed in the Trust document no matter what level white employee's makeup of the total number of employees in the future.

Salome Malema is a black South African female who serves as the CEO of Lesedi Drilling.

The current shareholders of the company are:

Shareholder	No of shares	Type of shareholder	% Holding
Employees Share Trust	837	95% Black South African Males	41.42%
Salome Malema	229	Black female	11.33%
Gordon Hogan	504	White Male	24.94%
Anthony Nocton Smith	451	White Male	22.32%
TOTALS	2021		100%

Whilst Lesedi Drilling has a number of disabled employees they are represented in the Employees Trust.

The Board of Directors of Lesedi Drilling

Shareholder	ID/ Number	Company	Gender	Race	Position
George Matlabe	730104 5504 086		Male	Black	Executive Director
Salome Mokhobo Malema	770328 0440 084		Female	Black	Executive Director
Gordon Robert Hogan	591005 5816 081		Male	White	Executive Director
Anthony Julian Nocton-Smith	560311 5034 080		Male	White	Non-Executive Director

Remarks:

- 50% of management of Lesedi's Top Structure, the board is HDI and 25% is Black Female.
- The position of CEO in Lesedi Drilling is held by Black Female (first black female in SA to head a Diamond Drilling company)

Senior Management Structure:

Employee Name	Position	Gender	Race
Marius Porter	Manager	Male	White
Carel Minnie	Manager	Male	White
Johan Roets	Manager	Male	White

Thabo Mogane	Foreman	Male	Black
Jase Mokete	Foreman	Male	Black
Vincent Dikana	Foreman	Male	Black
Laudrick Pako	Foreman	Male	Black
Gerhardus Victor	Safety and Training Manager	Male	White
Recksson Matlhabane	Safety Officer	Male	Black
George Matlabe	HR Director	Male	Black

Remarks:

- We have 6 Black Senior people in the company
- 60% of our senior management is Black

CURRENT CONTRACTS

Free State

Lesedi Drilling is the biggest underground drilling services provider in the Free State, where it holds the contract for diamond drilling operations on Harmony's Freegold operations, which include the Masimong, Tshepong, Bambanani, Joel, Phakisa, Unisel mine. Seventy drills are used on these contracts.



North West Province

Lesedi Drilling is an important service provider to Anglo Platinum's Rustenburg (Sibanye Stillwater

today) operations. Drills are deployed at the Boschfontein, Townlands (Khuseleka), Thembelani, Bathopele, Turffontein (Siphumelele) and Union Section Mines. Twenty-five pneumatic and two Mamba Hydraulic drills are deployed on these contracts.

Lesedi Drilling has been providing drilling services to AngloGold Ashanti's (now owned by Harmony) operations since March 2006. Currently, 80 pneumatic drills and crews and 7 hydraulic drills and crews are deployed at Moab Khotsong and Kopanang (owned by Heaven Sent) mines in the Vaal River complex near Orkney.

Steelpoort Valley

Lesedi is proud to be a services provider to the African Rainbow Minerals Two Rivers Mine, almost from its inception. The mine uses three of Lesedi Drilling's conventional feedscrew machines as well as new generation Mamba hydraulic drills.

Gauteng Province

Lesedi Drilling was awarded a contract for drilling services to Harmony Gold's Randfontein Estates in May 2006.

Limpopo Province

In 2007 Lesedi Drilling was awarded the exploration drilling contract for Palabora Mining Company's second lift project.

Northern Cape

Lesedi Drilling drill for the Petra Diamonds group namely Finsch, Kimberly and Koffiefontein Mines.