



GOLD FIELDS

Let's Talk

BRIEF TO THE PEOPLE OF SOUTH DEEP
WEEK OF 15 SEPTEMBER 2023

Underground drone leads to accurate and safe underground scanning, people with disabilities award, community family fun day, beware of bank scam

Benford Mokoatle
EVP: South Africa

Dear Colleagues,

Underground autonomous aerial drone, a first in South African mining

The 3rd priority theme of The Gold Fields Way is **WORKING SMARTER TOGETHER**, which means we aspire to be efficient, agile and tech-enabled. This requires us to focus on ways to increase productivity to a quality standard throughout our Mine's value chain. Adopting smart processes and technologies, supported by data and insights, enables us to work smarter together. One of the innovative ways we are doing this at South Deep is through the introduction of an autonomous underground drone to conduct safe and efficient underground scanning of Longhole stopes, open excavations, shafts and FOGs.

The importance of underground excavation scanning plays a vital role in volumetric calculations, data analysis, efficient safety decisions and backfill planning. For a long time, and as a result of restricted areas and safety precautions, the scanning of underground open excavations has been limited. This results in inconsistency in data analysis for middlings, reserves and unexpected holdings.

Features of the drone:



Pilotless

Real-time data enables aerial robots to fly without a pilot, identifying and avoiding obstacles intelligently



Beyond line of sight

Surveyors do not need to maintain sight or communication with the robot to map complete stopes



Critical spare

On-site spare unit meaning no downtime



No shadows

The drone flies into the stope, capturing areas that conventional cavity monitoring systems cannot, due to their fixed positions



Output

Georeferenced 3D point cloud in LAS/XYZ/PLY formats



Real-time

The autonomous drone captures and transmits data as it is flying to the ruggedised tablet, providing surveyors with immediate visualisation

The benefits of drone technology:

1 Safety

- Scans from a safe distance especially away from the bund wall
- Useful for rescue missions or recovery operations
- Inspections of abandoned areas
- Reduces the likelihood of people injuries

2 Quality resolution results - to other stakeholders

- Complete excavation scanning coverage without shadows
- Gives video output and static images which helps with blast quality reconciliations
- Helps with continuous monitoring of rock on the floor mainly on tonnage discrepancies
- Helps with the conditions of the roadways

3 Geological support

- Dilution determination of backfill and lava
- Reef contact verification and identification
- Geological structures and ground conditions visualisation and simulation

4 RME support

- Visualisation of back areas from LHS blasting activities
- Improve hydraulic radius design
- Visualise the behavior of the open LHS, especially on the effect of structures



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Safety



Integrity



Respect



Responsibility



Innovation



**Collaborative
Delivery**

#Stronger Together



Siyaphambili
We are going forward

Scans comparison - example

- **Red colour**

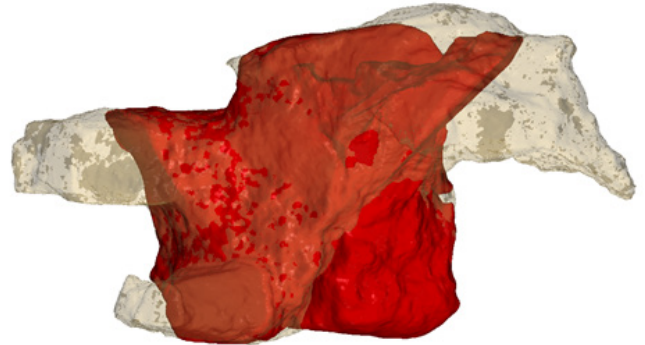
Scan using current methods

- **Beige colour**

Exyn aero scan which covers more coverage

One of our core values is **Innovation** which encompasses any idea or change that can drive the business forward. At South Deep, this means that we are able to change and support new ways of working.

Drone technology will enable us to work with data that is accurate, ensuring we work safely and productively and that our assets are optimised.



Some comments from the team

"The drone will help not only the surveyors but also other departments like Geology with analysis of their structures inside the stopes, and the Lithology and Resource department in their model depletion processes." **Winnie Ramanyimi (Senior Surveyor)**

"The drone will assist in accessing hazardous or hard-to-reach areas without putting human lives at risk. As technology continues to advance, the role of drones in mining is expected to expand further, revolutionising the industry and paving the way for safer, more efficient, and environmentally conscious mining practices." **Wilson Kobe (Senior Surveyor)**

"Innovation is one of our values: Drone technology is one of the innovative ways of improving our safety, efficiency, and collection of data without being exposed to open excavations. These will improve data quality and reporting of tonnages, geological structures, and underground deformations for effective reporting and delivery." **Frank Ndebe (Senior Surveyor)**

"I am delighted with this new journey for the Gold Fields team, it is of practical application to the mission culture campaign we strive for daily. South Deep is the first mine in South Africa to own an autonomous underground drone scanner and the fourth in Africa after DRC, Tanzania, and Botswana." **Mpho Masipa (Senior Surveyor)**

People With Disabilities Award



We are proud to announce that Gold Fields has been recognised as the Company with the Highest Disabled Persons Rate in the metals and mining industry for all JSE listed companies in 2022.

Through direct employment and our People With Disabilities (PWD) Learnership Programme, the company's ratio of PWDs was at 3.41% of our employees.

South Deep is particularly proud of its contribution in this regard especially given its partnership with the Signa Academy, a SETA-accredited PWD skills development and training programme. Candidates currently enrolled in the Signa initiative comprise 100% African youth with over 51% being African women. In supporting this programme we seek to confront misinformed stereotypes about PWDs.

Our programme is geared to afford these marginalised members of our society the opportunity to acquire skills through workplace orientation and immersive development, which should prepare them for entry into the mainstream economy and job markets. The supporting objective is to overcome prejudiced ways of thinking, exclusionary practices and the resulting barriers confronting PWDs.

While South Deep appreciates this recognition by the NCPD, we acknowledge that much effort is required to sustain our progress in our Diversity, Equality, Inclusion and Belonging drive, as the recently released findings of the Elizabeth Broderick and Respectful Workplace review revealed. We, therefore, call on all employees to continue supporting us in our endeavours to normalise our workplace by living our values and ensuring that South Deep reinforces its aspiration to become a beacon of pride for all stakeholders.



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Community family fun day to encourage extramural sports participation by children in primary schools

South Deep, in partnership with Rand West City Local Municipality, local primary schools, Department of Health, SAPS, NGOs, SAFA, and community stakeholders held a Community Family Day at Isiqalo Primary School, Bekkersdal on 9 September 2023. More than 500 community members attended the family day.

The purpose of the community family day was to relaunch sports participation (soccer and netball) in local primary schools as a tool to promote extra mural activities amongst the youth, social cohesion and to create awareness about various social ills as well as to motivate parents to be involved in their children's educational activities.



**A big
South Deep
thank you
to everyone
who attended.
Your continued
support is valued.**



Beware: Fraud Scam

There is a new scam involving your banking apps where scammers gain access to your app and change your beneficiary details (their bank account). The result is that you will make payments to the scammer believing it was one of your beneficiaries. The banks will NOT take liability for this mistake. As the payer – you are responsible to check and confirm the details.

Always remember to double-check the details of the person or company you are making a payment to before making the payment.



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