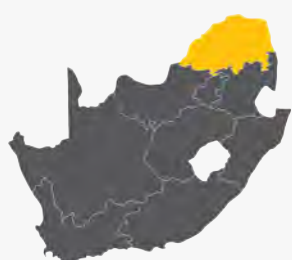




ADVANCING 3D SLAM LIDAR MAPPING AT DWARSRIVIER CHROME MINE



MINE/PROJECT LOCATION:
Dwarsrivier Chrome Mine in South Africa

ORE TYPE:
Chrome

CLIENT:
Emesent's Hovermap



BACKGROUND:

Dwarsrivier Chrome Mine, home to one of South Africa's largest chromium reserves, faced substantial challenges in acquiring accurate and timely spatial data. Traditional methods relied heavily on manual data collection, which was labor-intensive, slow, and often lacked the resolution needed for effective decision-making.

Key pain points included:

- Time-consuming underground surveys with total stations
 - Limited-resolution surface measurements using handheld GNSS devices
 - Inability to conduct frequent data captures due to manual processes
- These constraints limited operational agility and impacted productivity and safety.

SOLUTION:

Solution Implementation: Emesent Hovermap

To overcome these issues, Dwarsrivier partnered with Dwyka Mining Services to implement Emesent Hovermap, a versatile SLAM-based LiDAR scanner. Over three years, the mine introduced Hovermap in both handheld and backpack-mounted configurations, offering exceptional flexibility across diverse mining environments.

Deployment Strategy

- 7 Hovermap units deployed across surface and underground
- Trained local teams facilitated internal operational support
- Scans conducted regularly by multiple operators to validate measurement accuracy (up to 98% in stockpile assessments)

USE CASE APPLICATIONS:

Month-End Measurements

Hovermap provided reliable and high-resolution monthly data, ensuring accuracy in surface and underground reports. This enhanced management's understanding of operational status.

Dynamic Mine Planning

The real-time capabilities of Hovermap enabled responsive planning, allowing for adjustments based on fresh data—leading to more efficient resource allocation and process optimization.

Stockpile Management

Accurate volume assessments supported logistics and inventory control. By using dual independent scans, the team consistently achieved precise results essential for operational integrity.

Room & Pillar Design

Detailed scans informed safe and effective underground designs, improving pillar integrity and reducing risk.

Productivity Gains

Rapid data acquisition reduced downtime and allowed uninterrupted mining operations, directly contributing to increased output.

OPERATIONAL IMPACT:

Efficiency and Accuracy

Hovermap quickly became integral to the mine's workflows, significantly improving:

- Speed of data collection
- Surveying precision
- Frequency of site assessments

Ease of Use

Personnel highlighted the tool's intuitive design and ease of adoption, which minimized training requirements and empowered the internal team to manage operations independently.

CONCLUSION:

The integration of Emesent's Hovermap at Dwarsrivier Chrome Mine demonstrates how cutting-edge LiDAR solutions can transform traditional mining operations. With enhanced data quality, increased operational efficiency, and improved safety, the mine has set a benchmark in intelligent mining workflows through this successful technological adoption.

