



**MINING INDUSTRY  
OCCUPATIONAL  
SAFETY & HEALTH**



**MINERALS COUNCIL  
SOUTH AFRICA**

# NETS WITH BOLTS IMPALA CASE STUDY



## DESCRIPTION OF RISK ADDRESSED

The falls of ground incidents between July 2023 and January 2025 in Figure 1 indicate that 94% of falls of ground occurred within 0 to 5 metres from face, this shows that the risk of falls of ground is extremely high in the immediate vicinity of the face. The falls of ground incidents occurring 5 to 15 meters from the face and more than 15 meters from face each have a percentage of 3%. The data shows that 94% of falls of ground are in the immediate vicinity of the face; there is still a 6% chance of other falls of ground in the wider areas of the mine. Therefore, effective risk management strategies are crucial in reducing the incidence of falls of ground, which pose significant safety hazards to mine workers.

## MINING COMPANY

Impala Platinum

## COMMODITY

Platinum

## OPERATION

16 Shaft

## HEALTH AND SAFETY SUCCESS STORY

Nets contained rock that dislodged from the hanging wall

## NUMBER OF EMPLOYEES AFFECTED BY SUCCESS STORY

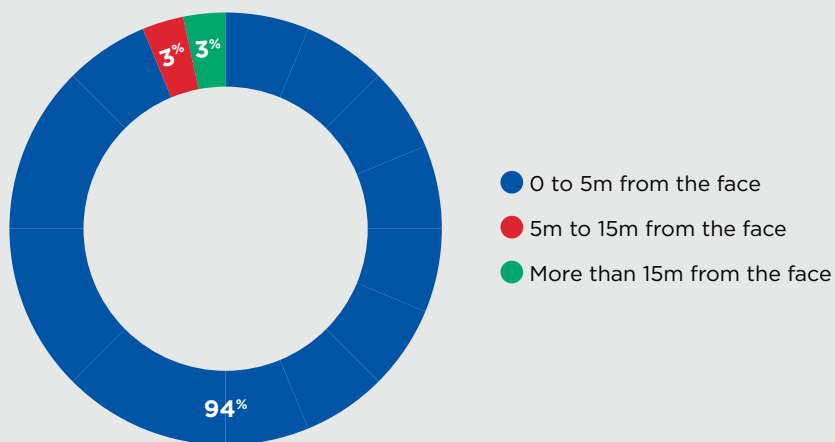
One employee was directly affected

## STAKEHOLDERS AFFECTED

- Mine Management
- Rock Engineers
- Safety Officers
- Miners
- Underground Supervisors
- Mineworkers Exposed to Rockfall Hazards



## LOCATION OF FALL OF GROUND INCIDENT (July 2023 to January 2025)

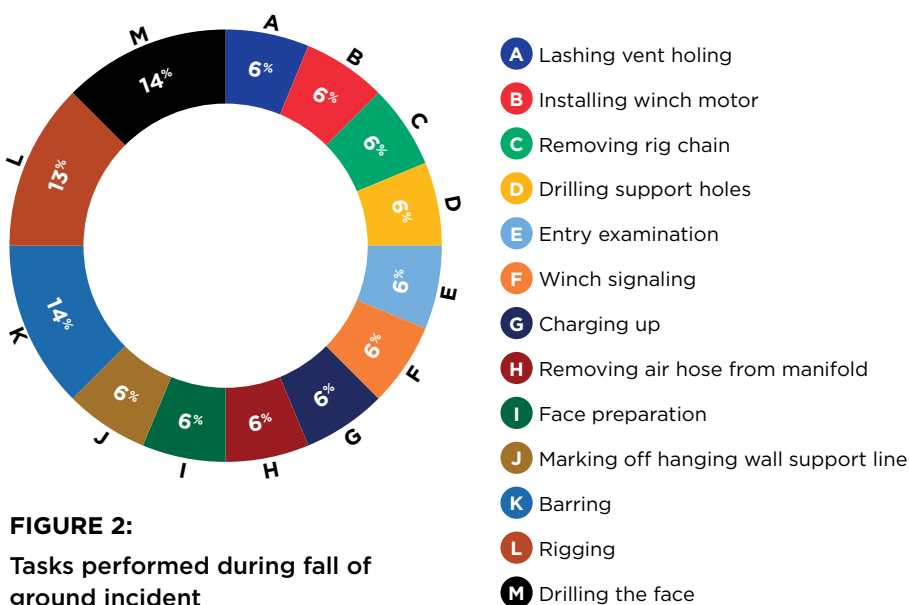


**FIGURE 1:**  
Location of falls of ground

Figure 2 indicates the tasks being performed during fall of ground (FoG) incidents from July 2023 to January 2025. Barring had the highest percentage of FoG incidents, and a significant number of incidents occurred during drilling and rigging. These tasks involve direct interaction with the rock, highlighting the need for safety measures and monitoring.



## TASK PERFORMED DURING FALL OF GROUND INCIDENT (July 2023 to January 2025)



**FIGURE 2:**  
Tasks performed during fall of ground incident

Data on Impala Platinum's fall of ground (FoG) incidents and safety initiatives from 2004 to 2024 are presented in Figure 3.





# ROCK ENGINEERING SAFETY INITIATIVES (2004 to 2024)



**FIGURE 3: Fall of ground incident data and safety initiatives between 2004 and 2024**

### FALL OF GROUND INCIDENTS:

- High levels of FoG incidents occurred between 2004 and 2008, with peaks in 2005 and 2008, indicating significant safety challenges.
- Between 2009 and 2012, there is a gradual decrease in incidents, suggesting improvements in safety practices.
- Fluctuations in incidents between 2013 and 2018, with notable peaks in 2015 and 2017, suggesting periods of increased risk or reporting.
- Between 2019 and 2024, there is a notable downward trend, indicating effective safety strategies and reduced incident rates.

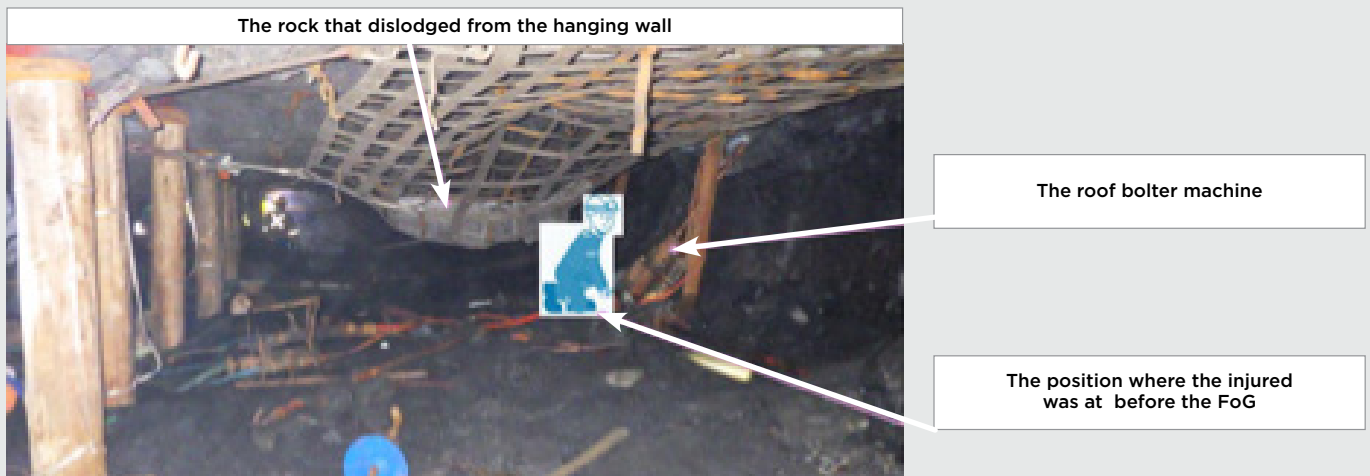
### SAFETY INITIATIVES:

- Early initiatives from 2004 to 2010 focused on improving support standards and introducing new bolting and netting practices.
- Impala adopted safety nets in 2012, and full scale roll out across the operations was achieved in 2014.
- Recent Initiatives from 2016 emphasise on UG2 support improvements, resin bolting, and sidewall support. The TARP (Trigger Action Response Plan) was also adopted to enhance proactive safety measures. Impala 16 Shaft started the permanent work face areal mesh trial in June 2024.

Overall, the graph demonstrates Impala's commitment to reducing fall of ground incidents through continuous improvement in safety practices and adoption of leading practices and innovative technologies. The downward trend in incidents over the years highlights the positive impact of these safety initiatives.

### INCIDENT DESCRIPTION

On 24 June 2024 at about 10h00 in the morning, the scrapper winch Operator was busy changing the steel jumper on a roof bolter machine when a rock dislodged from the hanging wall of the 23C 20 13S panel and struck his helmet, whilst the rock was being arrested by the rockstop safety net. The operator sustained contusion to the head.



**FIGURE 4:** Image indicating the accident scene

### LEARNINGS FROM THE INCIDENT

The incident highlights the critical importance of effective communication between shifts, thorough safety examinations before beginning work, strict compliance with safety protocols regarding drilling, and ensuring the proper installation of S-hooks to maintain the integrity and effectiveness of safety nets.

1. Whenever temporary support is not removed at the end shift, the day shift miner must communicate to night shift crew not to enter the face area.
2. At the start of next day shift, early entry examination must be conducted to declare the workplace safe. The temporary support will have to be reinstalled immediately after the workplace is declared safe.
3. No drilling must be allowed onto an area that was not examined and made safe.
4. S-hooks must be attached to safety net strands to minimise elongation or sagging of the safety net when it arrests the fall of ground.

### BENEFITS AND IMPROVEMENTS REPORTED BY AFFECTED STAKEHOLDERS

- An improvement in worker safety, with nets acting as a barrier against falls of ground and mitigating the severity of injuries that may occur.
- Workers feel safer and more secure, leading to better morale and productivity.

### CONCLUSION

The adoption of nets with bolting in mining operations offers several significant benefits. Firstly, it enhances safety by providing protection from rockfalls, which can prevent injuries and fatalities. The nets, when installed with bolts, act as a barrier to protect workers from falls of ground, particularly in high-risk areas like stope faces. Moreover, the use of nets with bolting can lead to improved productivity. By reducing the likelihood of rockfalls, there are fewer unscheduled stoppages, which means less downtime for clearing fallen rocks and fewer injuries to workers.

Additionally, the implementation of nets with bolting is relatively cost-effective. The nets are reusable and, if handled properly, can last for several months. The main costs involve purchasing the nets and some additional hooks, but these are minimal compared to the potential savings from preventing injuries and fatalities. The practice also requires minimal additional equipment, as existing support structures can be adapted to accommodate the nets.