



# Case Study

How Gold Fields' South Deep gold mine embraced digitization to improve its safety culture, and achieved ISO 45001 certification in record time

**ISO▲METRIX**  
Good Business

A full-page background image with a blue tint. It shows a worker in a yellow high-visibility safety suit, blue hard hat, and safety glasses. The worker is leaning over a large, dark, cylindrical industrial component, possibly part of a conveyor system or a large storage tank, and is holding a yellow hose or pipe. The setting appears to be an underground mine with concrete walls and structural beams visible in the background.

*“Any mine that wants to forge ahead needs a digital platform to manage their EHS operations. Our current solutions weren’t cutting it, so we looked at the market and made a decision to implement EHS software that fully met our requirements.”*

Jacques Erasmus  
South Deep Head of Safety

# Quick facts: Gold Fields South Deep gold mine

**Operations located:**

Witwatersrand Basin, South Africa

**Listed:**

Gold Fields Group listed on Johannesburg Stock Exchange (JSE) and  
New York Stock Exchange (NYSE)

**Industry:**

Mining

**Number of employees at****South Deep mine:**

4 500

**IsoMetrix software solutions****implemented at South Deep mine:**

Environment, Health and Safety (EHS)

Gold Fields is a mid-tier globally diversified gold producer with nine operating mines across four regions, including South Deep Mine located in South Africa. South Deep consists of two separate shaft systems – Twin Shafts and South Shaft – which are fully integrated. The mine employs approximately 4 500 employees and contractors, and has been built to extract one of the largest known gold deposits in the world, a mineral reserve of 32,8 million ounces – roughly equivalent to almost 100 000 gold bullion bars!



**GOLD FIELDS**

# The background

South Deep recognizes the potential impact its mining activities can have on the sustainable development of its people, its communities, and the environment within which it operates.

Sustainable development is an integral part of the company and how it operates its business, and the company's ultimate objective is to ensure that the mine undertakes its activities in a manner that is safe, responsible, ethical, and profitable.

With Environment, Health and Safety (EHS) metrics comprising a key component of Environmental, Social and Governance (ESG), the management of health and safety is of the utmost importance to the Deep South mine. Prior to implementing IsoMetrix software however, this aspect of its operations was not up to its desired standards.



# Goals and desired outcomes of the project

South Deep gold mine recognized that its way of managing health and safety was outdated and inadequate. Manually managing spreadsheets for example, posed many problems including difficulty with analysis, standardizing data throughout the company, and unsuitability in terms of formatting for reporting purposes. It required a lot of resources to manage, was time-consuming and inefficient, and was ultimately deemed to be unsustainable.

South Deep thus desired an integrated system for environment, health, and safety – a digital system that would be able to centralize all EHS information, and provide

the company's management and leadership team with the information which they needed to gain rapid insights into the mine's health and safety information, as well as save time compiling the necessary reports.

South Deep sought a software company with established international operations, and after some consideration, implemented IsoMetrix's Environment, Health and Safety (EHS) solutions.

# Challenges and solutions


## Challenge No.1

Being one of the world's premier gold mines, South Deep needs to conduct its operations efficiently and do a lot of EHS reporting to a very high standard, as it rolls up to its Gold Fields parent company. The South Deep mine's management team was simply not able to conduct its reporting to the required (and desired) standard using existing software and spreadsheets to manage its EHS operations. Gathering the data required for reporting was time-consuming due to it being siloed within the organization, and the data itself was regularly incomplete and/or inaccurate.

## Solution

Subsequent to implementing IsoMetrix's EHS software, South Deep is now able to easily and intuitively extract the information required to formulate customized reports. As all information is centralized and standardized within the secure IsoMetrix system, as well as fully transparent and auditable, the South Deep management team now reports to the board with surety and confidence, knowing that its information is accurate, relevant, and complete, with no missing gaps.





*“Thanks to IsoMetrix’s system, South Deep was able to migrate from adhering to OHSAS 18001 to meeting the new international standard for occupational health and safety management, ISO 45001, within 5 months. ISO 45001 is a stringent measure and meeting it requires a company to be proactive – a business cannot adhere to it using pieces of paper and an unreliable system. Using IsoMetrix allows us meet the ISO 45001 standard with confidence.”*

Jacques Erasmus  
South Deep Head of Safety



# Challenges and solutions

## Challenge No.2

There was a degree of confusion over health and safety responsibilities. Often there was incomplete or missing paperwork, which did not link to actual risks experienced within the workplace, and furthermore, health and safety-related information was not being communicated effectively, was not properly understood, and/or was not suitably implemented. This frequently led to inaction, due to no one taking the appropriate responsibility.

## Solution

The ability to assign accountability and responsibility to health and safety actions ensures that a company can show clear evidence of addressing any issues in this regard. The Central Action Manager functionality within IsoMetrix software oversees this crucial operational aspect, and enables organizations to direct and manage all EHS-related actions.

The South Deep management team find the Action Manager functionality within the IsoMetrix software to be of great benefit. Not only can they view relevant information via the system, but they can also put actions in place to rectify mistakes or incidents, as well as drive operations which follow-through on executing their EHS strategy.

Employees at South Deep receive constant reminders and notifications regarding what needs to happen next from a procedural perspective, and dedicated escalation procedures ensure that the chain of accountability remains intact and traceable throughout the entire process.



# Challenges and solutions

## Challenge No.3

South Deep experienced widespread and routine violations of safety protocols and procedures, with insufficient oversight of contractors being a contributing factor in this regard. In addition, managers were often unaware of employee concerns regarding health and safety and/or were not responding appropriately.

## Solution

A major plus point of the IsoMetrix cited by South Deep's management is the dashboards component nested within the system. The ability to roll up all centralized system information into a set of intuitive and easy-to-use dashboards relevant to the management team is of significant benefit to them.

Various managers and heads of department can now easily see the exact EHS metrics they're looking for, and have accurate and timely oversight of both contractor activities and employee concerns regarding health and safety. All decision-makers see the same info, at same time, in same format –

which means that everyone is on the same page, and ensures a consistent and predictable basis for company decision-making.

IsoMetrix's software also contains a central repository for safety procedures, providing a handy reference for mine employees. A built-in training register tracks the status of staff training and helps South Deep to be proactive when it comes to managing its EHS leading indicators.

“I’ve configured IsoMetrix’s software to really suit us, and it now sets a high bar in terms of its capabilities and how it meets our needs.”

Hendrik Coetser

South Deep IsoMetrix System Administrator



# Additional IsoMetrix software benefits experienced by South Deep

## System ease of use

One would usually expect software as powerful as IsoMetrix's to be complex to use. That's not the case however. In contrast, Jacques, Hendrik, and their South Deep colleagues remark how uncomplicated and intuitive the software is, which allows new users to learn it quickly and enables them to rapidly become productive users of the EHS system.

## An IsoMetrix support team that is switched on and ready to assist

Jacques, Hendrik, and their colleagues are very satisfied with the level of support offered by IsoMetrix with regards to its supplied EHS software. They find the IsoMetrix team to be helpful, and appreciate the fact that they respond quickly to queries, are knowledgeable, and are consistently able to help without requiring much corresponding time or effort from South Deep's side.

# Selected outcomes from implementing IsoMetrix software

The South Deep mine has experienced various positive outcomes associated with the implementation of IsoMetrix's Environment, Health and Safety (EHS) software.

These include:

- A systematic approach is now used to manage health and safety.
- Employees more fully understand the risk and control measures associated with their work.
- Contractors adhere to the same standards throughout.
- Appropriate documentation is available which is current, organized, and relevant.
- People better understand their roles, and the roles of others regarding health and safety.
- Performance is both measurable and measured. There now exists the ability to check that controls are working and that standards are being implemented, and to learn from mistakes after things go wrong.



# Summary

As one of the world's premier gold producers, Gold Fields and its renowned South Deep mining operation could not afford to employ outdated and ineffective health and safety systems. The company thus went in search of a suitable digital EHS solution, and found what it was looking for in IsoMetrix's award-winning software.

Having transformed its approach to health and safety, the mine is now reaping the rewards of applying a digital-first approach to its EHS operations. A culture of continuous improvement sees South Deep optimistically looking towards the future, and ensuring that its high standards for health and safety continue for many years to come.



# About IsoMetrix

IsoMetrix is one of the world's leading developers of software solutions for integrated risk management. With over 25 years' experience IsoMetrix provides award winning compliance and risk management solutions for professionals in Environmental, Health, Safety and Sustainability.

IsoMetrix believes that proper management of governance, risk and compliance provides powerful and wide-reaching benefits. It is good for our planet, and the people and communities we work and live with. It also leads to more profitable and resilient businesses. In helping our customers to do good, we also help them do well.

With offices in the USA, Canada, UK, Australia and South Africa, we are well-positioned to provide international companies with support across the globe.



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If you have any questions about IsoMetrix or our solutions,  
please contact the sales team at [info@isometrix.com](mailto:info@isometrix.com)

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Our solutions include: Bowtie Analysis • Carbon Footprint Management • Compliance Management  
Environmental Sustainability Monitoring • Environment, Health and Safety (EHS)  
Environmental, Social and Governance (ESG) • Integrated Risk and Control Management (IRM)  
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Social Engagement Management (SEM) • Socio-Economic Development (SED)

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