ANNUAL REPORT 2022/2023

Mine Health and Safety Inspectorate

mineral resources & energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

2030 NDP

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PREFACE

This document is a report by the Chief Inspector of Mines (CIOM) on health and safety at mines and the activities of the Mine Health and Safety Inspectorate (MHSI), compiled as required by Section 49(1)(j) of the Mine Health and Safety Act, 1996 (Act 29 of 1996), as amended (MHSA).

The MHSI, established in terms of the MHSA, has the responsibility to protect the health and safety of persons working at mines or those who are affected by mining activities.

The CIOM also has the responsibility of leading the tripartite structures formed in terms of the MHSA as the Chairperson of the Mine Health and Safety Council (MHSC) and the Mining Qualifications Authority (MQA).

The MHSC consists of representatives of the state, organised labour and employer organisations. The Council was established to advise the Minister of Mineral Resources and Energy on health and safety issues, and to promote a healthier and safer culture in the South African mining industry.

The MQA is the Sector Education and Training Authority (SETA) for the minerals and mining sector and is responsible for the education and training needs of the South African mining industry. The MQA was established under the Skills Development Act, 1998 (Act 97 of 1998).

The activities of the above-mentioned two bodies are intricately linked with those of the MHSI and their accounts are captured in their respective annual reports.

PART 1
GENERAL INFORMATION

1. GENERAL INFORMATION

1.1 Submission of the annual report to the executing authority

Mr S.G. Mantashe, MP

Minister of Mineral Resources and Energy

Republic of South Africa

Dear Minister

I am pleased to present the Annual Report of the Mine Health and Safety Inspectorate for the 2022-2023 period under review to you. This report is in accordance with the requirements of Section 49(1)(j) of the Mine Health and Safety Act, 1996 (Act 29 of 1996), as amended.

Yours sincerely

Mr D Msiza

Chief Inspector of Mines

Mine Health and Safety Inspectorate

1.2 Mission statement

The MHSI strives towards a safe and healthy mining industry. This is to be achieved by reducing mining-related deaths, injuries and occupational diseases through the formulation of national policy and legislation, the provision of advice and the application of systems that monitor and enforce compliance with the law in the South African mining sector.

1.3 Legislative mandate

The MHSI was established in terms of the MHSA for the purpose of executing the statutory mandate of the MHSI in safeguarding the health and safety of mine employees and communities affected by mining operations.

1.4 Executive summary

It is with great honour and pleasure that I present this report on the state of health and safety in the South African mining industry and the activities of the MHSI for the 2022-2023 financial year.

1.4.1 Staffing

The establishment of the Inspectorate provides for 283 posts of which 244 are currently filled and 39 posts are vacant. The demographics of the Inspectorate were as follows:

GENDER	AFRICAN	WHITE	ASIAN	COLOURED	TOTAL
Male	123	8	0	0	131
Female	101	5	0	7	113

1.4.2 Implemented training

During the period under review, a total of 32 MHSI officials attended technical and non-technical training courses as well as conferences. Two officials attended the Emerging Management Development Programme (EMDP) and the Advanced Management Development Programme (AMDP) respectively.

1.4.3 Training interventions

1.4.3.1 Assistant Inspector programme

The Department had six Assistant Inspectors at the commencement of the reporting period and none of these officials passed their respective Government Certificate of Competency (GCC) examinations during the reporting period.

1.4.3.2 Bursary scheme

There were no MHSI bursary holders during the reporting period.

1.4.4 Current health performance

1.4.4.1 Occupational health

The MHSA requires employers to submit statutory reports to the respective Principal Inspectors (PIs) detailing information of personal exposure monitoring for occupational hygiene stressors. The South African mining industry continues to face ongoing challenges regarding the exposure of employees to occupational health hazards that exceed the occupational exposure limits (OELs).

The number of employees exposed to airborne pollutants that exceeded the OELs decreased from a total of 20 675 employees (5.54% of the total workforce at risk) in 2021 to 14 414 (4.08% of the total workforce at risk) in 2022.

Nationally, there was a decrease in the percentage of employees exposed to noise levels exceeding 105 decibels A (dB(A)) from 0.51% in 2021 to 0.41% in 2022 and a decrease in the percentage of employees exposed to noise levels in category B with a percentage of 60.68% in 2021 to 58.14% in 2022.

A 2.89% decrease in the total number of employees at risk for thermal stress: heat was recorded from 274 862 in 2021 to 266 919 in 2022. The number of employees at risk of thermal stress: cold increased by 1.53% from a total number of employees at risk of 135 480 in 2021 to 137 548 in 2022. The South African mining industry continued to record a zero over-exposure to thermal stress: cold from 2013 to the current reporting period.

Statutory reporting by mines per stressor is as follows: a percentage decrease from 2021 to 2022 of 2.28% for airborne pollutants and 1.78% for heat stress. A percentage increase was observed for noise and cold stress with 2.04% and 4.48% respectively from 2021 to 2022.

During 2022, a slight decrease of 1.72% was noted in the submission of Annual Medical Reports (AMRs). However, the total number of employees covered in the AMRs decreased from 533 809 in 2021 to 522 598 in 2022. The analysis of medical surveillance rates per 10 000 employees has shown an increase in the initial and exit examinations conducted in 2022, while a decrease was noted in the periodic medical examinations when compared to 2021.

A 16.06% increase was noted in the total number of occupational diseases reported, from 1 924 cases in 2021 to 2 233 cases in 2022. The analysis of occupational diseases incidence rates per 10 000 employees showed an increase from a rate of 36 in 2021 to a rate of 40 in 2022. Statistics showed an overall decrease in the total number of occupational diseases reported from the gold sector during 2022, with a slight decrease noted in silicosis and noise-induced hearing loss (NIHL), while a slight increase was noted in the pulmonary tuberculosis (PTB) cases. The silicosis and NIHL cases reported from the platinum sector showed an increase in 2022, compared to 2021, while PTB cases have decreased slightly. During 2022, an increase was noted in PTB, NIHL and coal workers' pneumoconiosis (CWP) cases reported by the coal sector when compared to 2021.

The Medical Inspector received a total of 124 appeals for 2022 of which only 72 met the requirements to be classified and processed as Section 20 medical appeals. From the 72 qualifying medical appeals, 93% of the medical appeals received were finalised. During the period under review, the most common medical conditions associated with medical appeals were silicosis, hearing and visual impairments.

In terms of the appeal findings, 21% of appeal cases were found to be fit, 33% of appeal cases were found to be unfit and 46% could neither be declared fit nor unfit because it did not meet the requirements of Section 20 of the MHSA.

1.4.4.2 HIV and tuberculosis

Alignment between the work of the Department of Mineral Resources and Energy (DMRE) and the strategies of the Department of Health (DoH) in the spheres of Human Immunodeficiency Virus (HIV) and tuberculosis (TB) continues. During the period under review, the total compliance of the integrated HIV and TB policy showed a decrease from 93.7% in 2021 to 89.5% in 2022, while the total number of mines that submitted TB and HIV data has increased from 789 in 2021 to 816 in 2022.

Most of the mines only complied with having an integrated HIV and TB policy but neglected the other components of compliance, which are the implementation of the integrated TB and HIV programmes, having a budget for these

programmes and the monitoring and evaluation of these programmes. The platinum sector managed to achieve almost 100% in the overall compliance relating to HIV and TB policy, programmes, budget and monitoring which is commendable.

National TB screening has improved from 91.9% in 2021 to 92.7% in 2022 but the percentage screening in the platinum sector decreased from 93.7% in 2021 to 86.9% in 2022.

HIV counselling has significantly increased from 65.7% in 2021 to 74.4% in 2022 whilst HIV testing has markedly decreased from 72.8% in 2021 to 63.7% in 2022.

1.4.5 Current safety performance

1.4.5.1 Occupational safety

Working with mining companies and labour unions, the Department made significant strides in improving occupational safety for mineworkers. This led to the sustainable downward trend in occupational injuries and fatalities over the years. Regrettably, during 2020 and 2021 there was a deterioration in the safety performance, but this years' occupational safety statistics reflected the lowest fatalities ever recorded in the South African mining sector which is 49 fatalities.

There was an improvement of 34% in the number of fatalities recorded from 74 in 2021 to 49 in 2022 and a slight increase of 4% in the number of employees at work. The fatality frequency rate (FFR) improved from 0.08 in 2021 to 0.05 in 2022.

Most fatalities occurred in the North West: Rustenburg and Gauteng regions with 20 and 10 fatalities respectively, while the Limpopo and Mpumalanga regions recorded five fatalities each during the reporting period. The highest three fatality classification groups for 2022 were transportation and mining (T&M) at 19 fatalities, general-type accidents at 18 fatalities and falls of ground (FOGs) at six fatalities.

The total provisional number of injuries in 2022 was 2 065 compared to 2 141 in 2021. Although the overall injury frequency rate (IFR) improved by 7% during 2022 compared to 2021, five out of the 10 regions have regressed: KwaZulu-Natal by 6%, Mpumalanga by 26%, Northern Cape by 62%, North West: Klerksdorp by 2% and Western Cape by 45%. The overall IFR per commodity decreased by 7%, from 2.28 in 2021 to 2.12 in 2022.

The highest three injuries classified by casualty classification for 2022 were general at 1 193 injuries, T&M at 352 injuries and FOGs at 298 injuries. The regions that recorded the most injuries during 2022 were North West: Rustenburg with 981 injuries, Gauteng with 297 injuries and Mpumalanga with 214 injuries.

An increase of 4% in the number of employees at work in the South African mining industry was noted, from 426 331 in 2021 to 443 367 in 2022 despite a decrease in the number of employees at work of 14% at the manganese mines.

1.4.5.2 Disaster-type accidents

There were no reports of mine disasters or disaster-type accidents during the period under review. However, multi-fatal accidents involving more than one employee were reported from various mines across the industry.

1.4.6 Illegal mining

Illegal mining is a criminal activity that is fuelled by highly organised, dangerous, well-financed and complex local and international crime syndicates. It not only adversely affects the health and safety of mine employees and the surrounding communities, but it also has a negative impact on the economy of the country resulting in a significant loss of revenue for the state and the mining sector.

The Department continues to collaborate with law enforcement agencies, other departments and stakeholders to combat and eliminate illicit mining activities and the trade of precious metals and diamonds. Unfortunately, the modus operandi of illegal mining continuously changes as the Department and its relevant stakeholders implement measures to eradicate these illicit activities.

During the reporting period, as in the past, illegal mining operations resulted in a significant loss of life, mainly because of FOG accidents, underground fires and violent crimes, including murder, associated with rival gang activities. There are reports claiming that some of these illegal mining activities are conducted by current and former mineworkers, as well as people from neighbouring countries.

1.4.7 Women in Mining

During 2022, three women were fatally injured compared to two women in 2021. This translates to an increase of 50% affecting Women in Mining (WIM). Although the fatality of any mineworker is regrettable, irrespective of their gender, statistics proved that it is possible to report zero fatalities since no fatalities for WIM were reported in 2001, 2003, 2005, 2010 and 2015.

Regrettably, the number of injuries involving women increased from 166 injuries in 2021 to 199 injuries in 2022 and 74% of the reported injuries for WIM were mainly in the general classification linked to slipping and falling, material handling and being struck by object.

PART 2
PROGRAMME PERFORMANCE

2. PROGRAMME PERFORMANCE

2.1 Aim of the programme

The MHSI was established in terms of the MHSA and the aim of the programme is to carry out the constitutional mandate of the DMRE to protect the health and safety of persons working at mines and the people residing in nearby communities that are directly affected by mining activities. This is done by performing statutory inspections and audits, the enforcement of the MHSA and its regulations, as well as conducting investigations and inquiries at South African mines. The programme also administers the GCC for the mining sector.

It consists of two sub-programmes: Governance, Policy and Oversight, and Mine Health and Safety (Regions).

2.2 Purpose of the programme

To execute the statutory mandate of the DMRE to protect the health and safety of mine employees and people affected by mining activities.

2.3 Service delivery objectives and indicators

The MHSI's strategic plan and achievements during the 2022/2023 financial year are outlined in Table 2.3 below. This is an account of progress achieved for the period under review against the annual targets set for achieving the strategic objectives of the MHSI.

TABLE 2.3:

Progress achieved against annual targets

OUTPUT INDICATOR	TARGET AS PER THE ANNUAL PERFORMANCE PLAN (APP)	ACTUAL INPUT	REASON(S) FOR DEVIATION	CORRECTIVE MEASURES	COMMENTS
Percentage reduction in occupational fatalities compared to the previous year.	10%	**Achieved** A total of 47 fatalities were reported during the period under review when compared to 69 fatalities for the previous reporting period. **Calculation:** [(47 - 69) / 69] * 100 = -32%	The increased number of inspections and audits conducted in the fourth quarter of the reporting period contributed to the over-achievement.	Not applicable.	None.
Percentage reduction in occupational injuries compared to the previous year.	5%	**Not achieved** A total of 2 073 injuries were reported during the period under review when compared to 2 130 injuries for the previous reporting period. **Calculation:** [(2 073 - 2 130) / 2 130] * 100 = -3%	An increase in the number of injury accidents reported in the third and fourth quarters of the period under review contributed to the non-achievement.	Increase safety campaigns to create awareness and improve visible leadership to address matters concerning occupational injuries at mines.	None.
Percentage reduction in occupational diseases (including TB) compared to the previous year.	10%	**Not achieved** A total of 1 592 cases of occupational diseases were reported during the period under review when compared to 1 403 cases reported for the previous reporting period. **Calculation:** [(1 592 - 1 403) / 1 403] * 100 = 13%	More cases of occupational diseases were recorded than in the previous reporting period because of the upliftment of the Corona Virus Infection Disease 2019 (COVID-19) restrictions which resulted in more employees returning to work.	The mines are required to continually comply with the legislative requirements in terms of medical surveillance and the reporting of occupational diseases to the DMRE.	It is not for a meaningful comparison between the number of occupational disease cases reported during the current and previous reporting periods since the COVID-19 restrictions resulted in less employees at work at the mines.
Percentage of investigations completed (initiated vs completed).	80%	**Achieved** A total of 534 accident initiated investigations were completed during the current reporting period when compared to 516 accident initiated investigations for the previous reporting period. **Calculation:** (516 / 534) * 100 = 97%	The over-achievement is the result of stricter monitoring of file handling by Inspectors and ensuring that investigations are completed timeously.	Not applicable.	None.

OUTPUT INDICATOR	TARGET AS PER THE ANNUAL PERFORMANCE PLAN (APP)	ACTUAL INPUT	REASON(S) FOR DEVIATION	CORRECTIVE MEASURES	COMMENTS
Percentage of inquiries completed (initiated vs completed).	80%	**Achieved** A total of 47 accident initiated inquiries were completed during the current reporting period when compared to 49 inquiries for the previous reporting period. **Calculation:** (49 / 47) * 100 = 100%	More witnesses and legal representatives were available for the accident inquiries during the reporting period and some of the inquiries were carried over from the previous reporting period.	Not applicable.	None.
Number of qualitative inspections conducted (Cumulative including individual and group audits).	8 000	**Achieved** The cumulative inspections and audits conducted for the current reporting period were 9 115 exceeding the overall target with 1 115 inspections and audits.	More inspections and audits were conducted at regional level to improve the state of health and safety at the mines.	Not applicable.	None.
Number of MHSI Annual Reports submitted to Parliament.	1	**Achieved** One MHSI Annual Report was produced and submitted to Parliament as required. **Calculation** (1 / 1) * 100 = 100%	Not applicable.	Not applicable.	None.
Percentage of identified necessary Service Level Agreements (SLAs) entered to improve health and safety in mining.	100%	**Achieved** Entered one SLA with Mines Rescue Services (MRS). **Calculation** (1 / 1) * 100 = 100%	Not applicable.	Not applicable.	None.
Percentage adherence to prescribed timeframes for the CIOM's appeals.	100%	**Achieved** One appeal was received in the fourth quarter of the reporting period, and it was completed within the prescribed timeframe. **Calculation** (1 / 1) * 100 = 100%	Not applicable.	Not applicable.	None.
Percentage adherence to prescribed timeframes for medical appeals.	80%	**Achieved** Completed 54 medical appeals from the 58 appeals received during the current reporting period. **Calculation** (54 / 58) * 100 = 93%	More investigations were completed resulting in an over-achievement during the reporting period because the Occupational Medical Practitioners (OMPs) submitted medical reports within an acceptable timeframe.	Not applicable.	None.

OUTPUT INDICATOR	TARGET AS PER THE ANNUAL PERFORMANCE PLAN (APP)	ACTUAL INPUT	REASON(S) FOR DEVIATION	CORRECTIVE MEASURES	COMMENTS
Percentage adherence to the prescribed timeframes for the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) applications.	80%	**Achieved** Received 1 923 applications and completed 1 888 during the current reporting period. **Calculation** (1 888 / 1 923) * 100 = 98%	Since 100% of the employees at the DMRE returned to work, more applications were processed resulting in an over-achievement during the reporting period.	Not applicable.	None.
Percentage of the administration of the GCC examination policy.	100%	**Achieved** All five steps for the certificate of competency model have been implemented namely: 1. Set the papers. 2. Write the examination. 3. Mark the examination. 4. Moderate the results. 5. Release the results. **Calculation** (5 / 5) * 100 = 100%	Not applicable.	Not applicable.	None.

2.4 Service delivery improvement plan

TABLE 2.4:

Progress achieved against annual targets

KEY SERVICE	SERVICE BENEFICIARY	DESIRED STANDARDS		PROGRESS AS AT 31 MARCH 2023
Address health and safety risks in mining through: • The number of inspections and audits conducted. • The number of investigations conducted. • The number of inquiries completed. • The reduction in occupational fatalities.	Mining operations	Quantity	100% of planned inspections and audits as per capacity. 80% of planned investigations as per capacity. 80% of planned inquiries as per capacity. 10% of planned reduction in occupational fatalities.	114% of planned inspections and audits as per capacity. 97% of planned investigations as per capacity. 100% of planned investigations as per capacity. 32% of planned reduction in occupational fatalities.
		Quality	Implementation and compliance to standardised policies and procedures.	Achieved.
		Consultation	Quarterly consultation with mining operations.	Achieved.
		Open and transparent	Policies and procedures are public documents.	Achieved.
		Information	Information is shared monthly with mines.	Achieved.
		Value for money	Ensure the optimum utilisation of voted funds.	Achieved

PART 3

STATE OF OCCUPATIONAL HEALTH IN THE SOUTH AFRICAN MINING INDUSTRY

3. STATE OF OCCUPATIONAL HEALTH IN THE SOUTH AFRICAN MINING INDUSTRY

The South African mining industry continues to face ongoing challenges regarding the exposure of employees to occupational health hazards that exceed the OELs.

In 2021, a total of 20 675 employees were exposed to airborne pollutants that exceeded the OELs which accounted for approximately 5.54% of the total employees at risk. However, in 2022, the number of employees exposed decreased to 14 414, representing approximately 4.08% of the total employees at risk. The commodity sectors which contributed to employees exposed to airborne pollutants exceeding the OELs were gold, coal, other commodities and the diamond sector. The regions which contributed to employees exposed to airborne pollutants exceeding the OELs were the Free State, Mpumalanga, Gauteng, Eastern Cape, KwaZulu-Natal and North West: Klerksdorp.

Nationally, there was a decrease in the percentage of employees exposed to noise levels exceeding 105 dB(A) from 0.51% (1 829 employees) in 2021 to 0.41% (1 544 employees) in 2022. However, there was a national decrease in the percentage of employees exposed to noise levels in category B with a percentage of 60.68% in 2021 compared to 58.14% in 2022. The commodity sectors which contributed to noise levels exceeding 105 dB(A) were in the Platinum Group of Metals (PGM), gold and other mines, and regionally the North West: Rustenburg, Gauteng, Limpopo, KwaZulu-Natal and Northern Cape regions contributed to employee exposure to excessive noise levels.

Thermal stress: heat recorded a percentage decrease of 2.89% in the total number of employees at risk from 274 862 in 2021 to 266 919 in 2022. The number of employees at risk of thermal stress: cold increased by 1.53% from a total number of employees at risk of 135 480 in 2021 to 137 548 in 2022. The South African mining industry continued to record a zero over-exposure to thermal stress: cold from 2013 to the current reporting period.

Statutory reporting by mines per stressor for the reporting period is as follows: a percentage decrease of 2.28% for airborne pollutants and 1.78% for heat stress from 2021 to 2022 and a percentage increase of 2.04% for noise and 4.48% for cold stress was observed from 2021 to 2022.

During 2022, a slight decrease of 1.72% was noted in the submission of AMRs, from 931 in 2021 to 915 in 2022. The total number of employees covered in the AMRs increased by 3.52% from 533 809 in 2021 to 552 598 in 2022. The analysis of medical surveillance rates per 10 000 employees have shown an increase in the initial medical examinations and exit medical examinations conducted by mines during 2022, while a decrease was noted in the periodic medical examinations compared to 2021.

An increase of 16.06% has been noted in the total number of occupational diseases reported, from 1 924 cases in 2021 compared to 2 233 cases in 2022. The analysis of occupational disease rates per 10 000 employees showed an increased rate of 40 in 2022 compared to a rate of 36 in 2021. Statistics showed an overall decrease in the total number of occupational diseases reported from the gold sector during 2022 with a slight decrease noted in silicosis and NIHL cases, while a slight increase was noted in the PTB cases. Silicosis and NIHL cases reported from the platinum sector showed an increase in 2022, compared to 2021, while PTB cases have decreased slightly. During 2022, an increase was noted in PTB, NIHL and CWP cases reported from the coal sector compared to 2021.

The MHSA differs from the Occupational Health and Safety Act, 1993 (Act 85 of 1993) (OHSA) in that it offers an opportunity to mine employees to dispute the decision of the OMP, by lodging a medical appeal, if they are declared unfit for work. This is covered in Section 20 of the MHSA and the legally appointed Medical Inspector is responsible for the adjudication of Section 20 medical appeals. The Medical Inspector determines the fairness of the decision by the OMP and after gathering all the necessary information, a ruling will be made on the fitness status of the employees. Section 20 of the MHSA legally allows the Medical Inspector to vary; set aside or rescind, the decision of the OMP.

The Medical Inspector received a total of 124 appeals for 2022. Only 72 of these appeals met the requirements to be classified and processed as Section 20 medical appeals. From the 72 qualifying medical appeals, the Medical Inspector was able to finalise 67 medical appeals with a ruling indicating the fitness status of the employees concerned. For the period under review, 93% of the medical appeals received were finalised.

In 2021 there was a slight decrease in reporting on TB and HIV compliance in the South African mining industry from 93.7% to 89.5% in 2022 despite an increase in the number of mines that submitted the DMRE164 reporting forms. Most of the mines only complied with having an integrated HIV and TB policy but neglected the other three required components of compliance, which are the implementation of the integrated TB and HIV programmes, having a budget for these programmes and the monitoring and evaluation of these programmes.

Medium to small mines, that depend on the DoH for management services of TB and HIV struggle to get data to report to the DMRE.

3.1 Occupational hygiene

NOTE:

- In terms of Regulation 9.2(7) of the MHSA, the employer is required to submit statutory reports. These reports must be submitted to the PI within 60 days from the end of the relevant reporting period as indicated on each form. The reports should include information on the airborne pollutants, thermal stress and noise aspects of the occupational hygiene measurement system, which has been established and maintained in terms of Chapter 9.2(2) of the MHSA.
- The compliance requirements of mines are determined by the specific hazards that employees may encounter, as mentioned above.
- The number of reports submitted by each mine varies based on the identified hazards. Some mines submit reports covering Airborne pollutants, Noise and Thermal Stress per quarter, depending on the specific hazardous risk present at the mine.

TABLE 3.1:
Compliance reporting

REGION	AIRBORNE		PERCENTAGE CHANGE	NOISE		PERCENTAGE CHANGE	HEAT		PERCENTAGE CHANGE	COLD		PERCENTAGE CHANGE
	2021	2022		2021	2022		2021	2022		2021	2022	
Eastern Cape	41	27	-34.15	38	27	-28.95	35	25	-28.57	29	21	-27.59
Free State	41	40	-2.44	35	37	5.71	28	26	-7.14	13	18	38.46
Gauteng	113	116	2.65	111	113	1.80	96	55	-42.71	63	69	9.52
KwaZulu-Natal	53	55	3.77	52	53	1.92	46	51	10.87	36	39	8.33
Limpopo	77	66	-14.29	66	70	6.06	66	74	12.12	39	42	7.69
Mpumalanga	146	144	-1.37	147	145	-1.36	102	111	8.82	85	81	-4.71
North West: Klerksdorp	98	74	-24.49	65	55	-15.38	65	59	-9.23	59	47	-20.34
North West: Rustenburg	122	129	5.74	144	149	3.47	134	136	1.49	127	129	1.57
Northern Cape	80	96	20.00	77	92	19.48	60	70	16.67	49	58	18.37
Western Cape	64	69	7.81	50	60	20.00	44	57	29.55	36	56	55.56
TOTAL	**835**	**816**	**-2.28**	**785**	**801**	**2.04**	**676**	**664**	**-1.78**	**536**	**560**	**4.48**

From the data in Table 3.1, the percentage of airborne pollutant reports submitted by mines does not provide a complete picture regarding compliance with the MHSA. Factors such as the size of the region, the number of mines and the specific compliance requirements could have an influence on the data, and it depends on whether all the mines in each region submitted reports on the identified hazards.

From the data illustrated in Table 3.1, there was no improvement in the submission of airborne pollutant exposure measurement reports from the Eastern Cape, Free State, Limpopo, Mpumalanga and North West: Klerksdorp regions for 2022 compared to 2021. The Northern Cape, Western Cape, North West: Rustenburg and KwaZulu-Natal regions showed an improvement in the submission of reports.

Noise exposure measurement reports from the Eastern Cape, North West: Klerksdorp and Mpumalanga regions did not show any improvement in the reports submitted for 2022 compared to 2021 while an improvement in the reports submitted for the other regions was recorded in 2022.

There was no improvement in terms of the thermal stress (heat and cold stress) reports submitted from the Eastern Cape and North West: Klerksdorp regions for 2022 compared to 2021. On the heat stress reports, there was no improvement from the Free State and Gauteng regions, while for cold stress reports there was no improvement from the Mpumalanga region for 2022 compared to 2021.

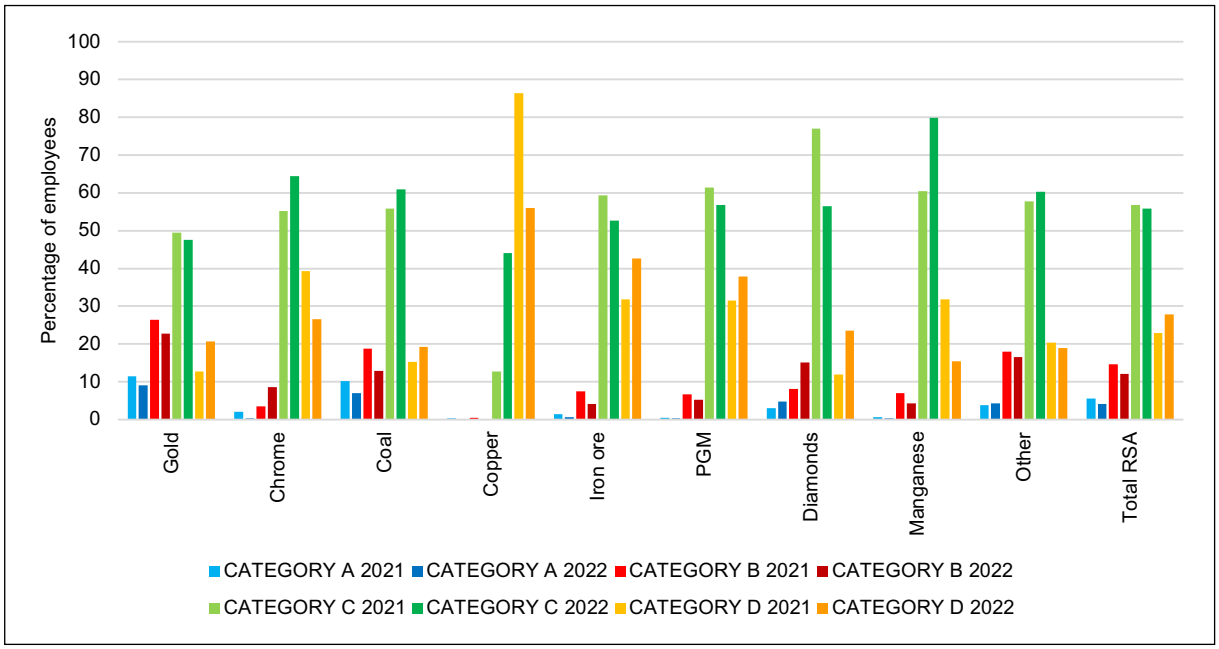
3.1.1 Airborne pollutant exposure

NOTE:

- The Guideline for the Compilation of a Mandatory Code of Practice (COP) for an Occupational Health Programme on Personal Exposure to Airborne Pollutants (2018) guides mines in the measuring, recording, and reporting of airborne pollutant exposures.
- A mine must conduct representative personal exposure monitoring in a Homogenous Exposure Group (HEG), whereby the personal exposure monitoring information is recorded in the prescribed format and submitted to the PI as mandated by Chapter 9.2(7) of the MHSA.
- The mines are required to categorize HEGs into three categories namely A, B, and C.
  - Category A includes individuals with a personal exposure level equal to or higher than the OEL.
  - Category B includes individuals with a personal exposure level higher than 50% but less than the OEL.
  - Category C includes individuals with a personal exposure level higher than 10% but less than 50% of the OEL.
- The classification into a category is based on the 90th percentile personal exposure value of specific pollutant concentrations with the understanding that pollutants do not have an additive effect.
- In cases where employees in an HEG are exposed to different pollutants that target and affect the same organ, the 90th percentile personal exposure value of the specific pollutant concentrations is considered or an Air Quality Index (AQI) is calculated, whichever is greater.
- The AQI is obtained by dividing the concentration of each pollutant targeting and affecting the same organ by its respective OEL. The results are then added together to obtain a value that can be compared with an OEL of one. An HEG can be categorised as:
  - Category A where the value of the mixture of exposures ≥ 1.
  - Category B where the value of the mixture of exposures ≥ 0.5 and <1.
  - Category C where the value of the mixture of exposures ≥ 0.1 and < 0.5.
- In gathering information to determine the annual exposure to airborne pollutants (including dust, fumes, aerosols, gases, fibres, vapours or mists), the percentage of employees exposed to each airborne pollutant is calculated for each category band per commodity. The percentage of employees is determined based on the total number of employees reported by the mines within HEG categories A, B and C. From the total number of employees exposed in categories A, B, and C, the proportion of employees falling into each category is calculated as a percentage of the total employees exposed to airborne pollutants.

FIGURE 3.1.1(a):

Percentage exposure to airborne pollutants per classification band A, B, C and D per commodity



Exposure category band:

A = Exposures ≥ the OEL or mixture of exposures ≥ 1

B = 50% of the OEL ≤ exposures < OEL or 0.5 ≤ mixtures of exposures < 1

C = 10% of the OEL ≤ exposures < 50% of the OEL or 0.1 ≤ mixtures of exposures < 0.5

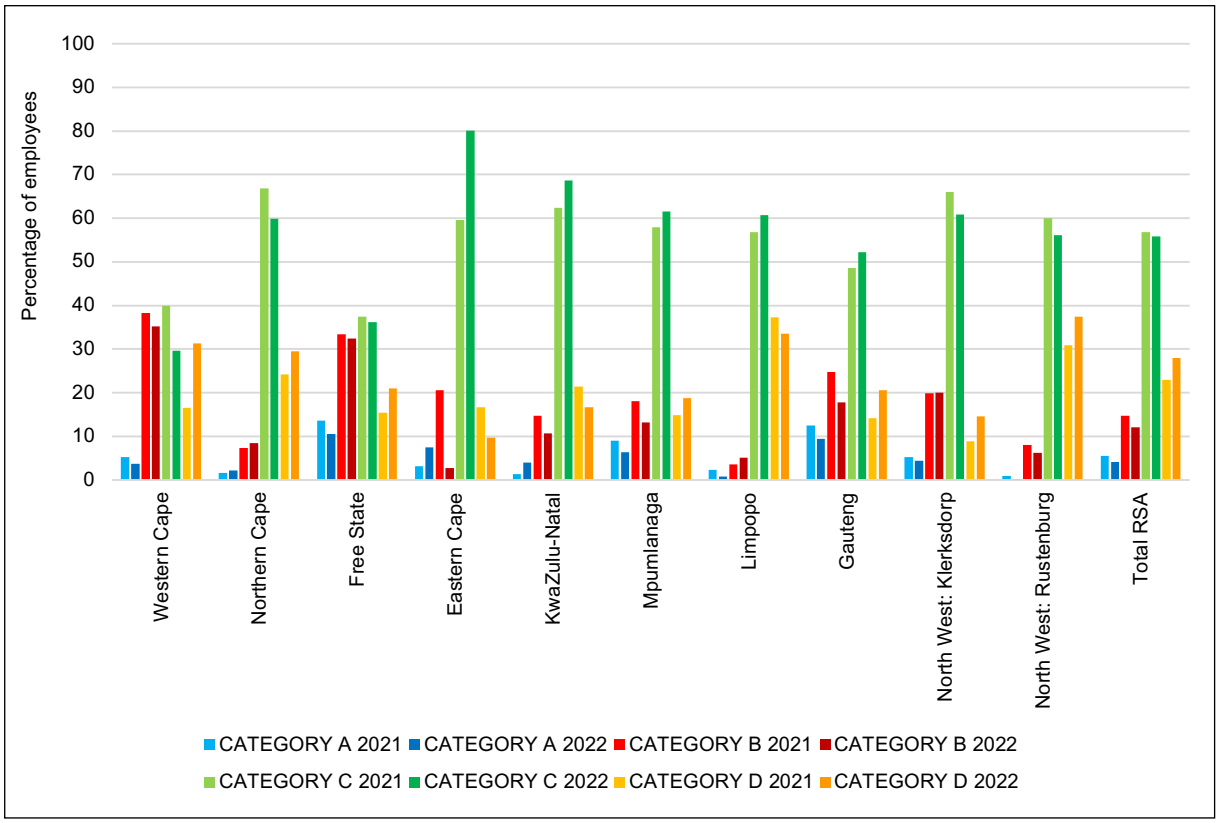
D = Exposures < 10% of the OEL or mixtures of exposures < 0.1

From the total of 353 142 employees at risk of being exposed to airborne pollutants, 14 414 (4.08%) employees were exposed to airborne pollutants which exceeded the OELs classifying it into category A. Whereas in 2021, a total of 373 084 employees were at risk, and 20 675 (5.54%) were exposed to airborne pollutants which exceeded the OELs. Figure 3.1.1(a) shows a decrease in the following commodities: gold from 11.40% in 2021 to 9.12% in 2022; chrome from 2.00% in 2021 to 0.39% in 2022; coal from 10.22% in 2021 to 7.00% in 2022; copper from 0.40% to 0.00%; iron ore from 1.46% in 2021 to 0.58% in 2022; PGM from 0.51% in 2021 to 0.27% in 2022 and manganese from 0.66% in 2021 to 0.35% in 2022.

Although there was a decrease in employee exposure to airborne pollutants which exceeded the OELs, the diamond sector increased from 3.06% in 2021 to 4.77% in 2022 and the other commodity sector from 3.87% in 2021 to 4.26% in 2022.

FIGURE 3.1.1(b):

Percentage exposure to airborne pollutants per classification band A, B, C and D per region



Exposure category band:

A = Exposures ≥ the OEL or mixture of exposures ≥ 1

B = 50% of the OEL ≤ exposures < OEL or 0.5 ≤ mixtures of exposures < 1

C = 10% of the OEL ≤ exposures < 50% of the OEL or 0.1 ≤ mixtures of exposures < 0.5

D = Exposures < 10% of the OEL or mixtures of exposures < 0.1

Figure 3.1.1(b) indicates a decrease in percentages of employees exposed to airborne pollutants which exceeded the OELs in the Western Cape from 5.18% in 2021 to 3.74% in 2022, the Free State from 13.61% in 2021 to 10.51% in 2022, Mpumalanga from 9.07% in 2021 to 6.40% in 2022, Limpopo from 2.28% in 2021 to 0.75% in 2022, Gauteng from 12.50% in 2021 to 9.41% in 2022, North West: Klerksdorp from 5.28% in 2021 to 4.45% in 2022 and North West: Rustenburg from 0.58% in 2021 to 0.28% in 2022.

The Northern Cape increased from 1.60% in 2021 to 2.16% in 2022, the Eastern Cape increased from 3.14% in 2021 to 7.47% in 2022 and KwaZulu-Natal increased from 1.35% in 2021 to 3.99% in 2022.

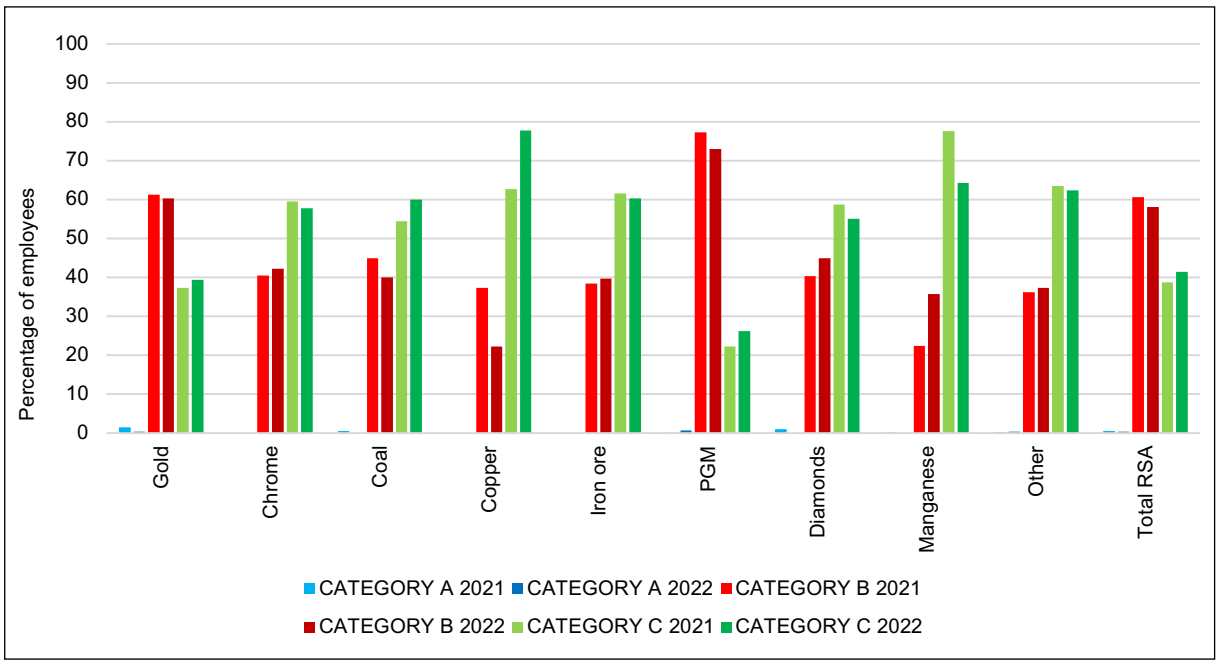
3.1.2 Noise exposure

NOTE:

- The OEL for noise is 85 dB(A) based on an eight-hour exposure shift.
- The Guideline for the Compilation of a Mandatory COP for an Occupational Health Programme for Noise was reviewed in 2022. However, the noise exposure measurements reported in this annual report were conducted and reported based on the requirements of the previous guideline.

FIGURE 3.1.2(a):

Percentage exposure to noise per classification band A, B and C per commodity



Exposure category band:

A = Exposures ≥ 105 dB $L_{Aeq, 8h}$

B = 85 dB $L_{Aeq, 8h}$ ≤ exposures < 105 dB $L_{Aeq, 8h}$

C = 82 dB $L_{Aeq, 8h}$ ≤ exposures < 85 dB $L_{Aeq, 8h}$

In 2022, 223 064 employees were exposed to noise levels classified into categories A and B when compared to 218 202 employees in 2021, thus resulting in a slight decrease in 2022 of 58.55% when compared to 60.12% in 2021.

For category A noise level exposures there was a decrease, whereby 0.41% of employees were exposed in 2022 when compared to 0.51% in 2021. Figure 3.1.2(a) shows this decrease in the following commodities: gold from 1.49% in 2021 to 0.33% in 2022, coal from 0.51% in 2021 to 0.00% in 2022, diamonds from 0.97% in 2021 to 0.00% in 2022 and manganese from 0.04% in 2021 to 0.00% in 2022.

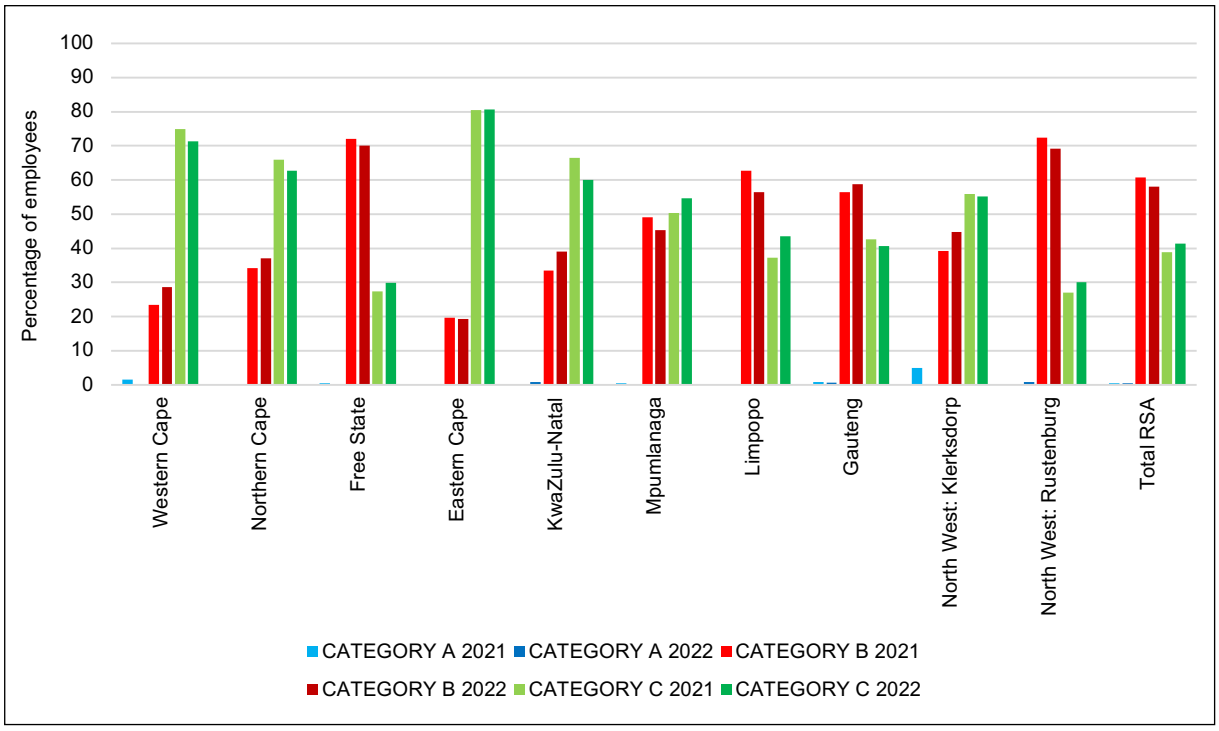
There was an increase in category A noise level exposures in the PGM and other mines sectors from 0.01% in 2021 to 0.76% in 2022 and from 0.22% in 2021 to 0.35% in 2022 respectively. The copper and iron ore sectors are commended for maintaining zero-employee noise exposure levels in category A from 2018 to 2022 while the chrome sector maintained zero-employee noise exposure levels in category A since 2020.

There was also a decrease in the percentage of employees exposed to noise levels in category B in 2021 with a percentage of 60.68% when compared to 58.14% in 2022. This decrease was noted in the following commodity sectors: gold from 61.21% in 2021 to 60.36% in 2022, coal from 44.98% in 2021 to 40.06% in 2022, copper from 37.34% in 2021 to 22.25% in 2022 and the PGM decreased from 77.30% in 2021 to 73.06% in 2022.

Although there was a national percentage decrease for employees exposed to noise levels in category B when comparing 2022 to 2021, the following commodity sectors had a percentage increase: chrome from 40.41% in 2021 to 42.21% in 2022, iron ore from 38.49% to 39.67% in 2022, diamond from 40.37% in 2021 to 44.95% in 2022, manganese from 22.43% in 2021 to 35.71% in 2022 and the other commodities sector from 36.28% to 37.32% in 2022.

FIGURE 3.1.2(b):

Percentage exposure to noise per classification band A, B and C per region



Exposure category band:
A = Exposures ≥ 105 dB $L_{Aeq, 8h}$
B = 85 dB $L_{Aeq, 8h}$ ≤ exposures < 105 dB $L_{Aeq, 8h}$
C = 82 dB $L_{Aeq, 8h}$ ≤ exposures < 85 dB $L_{Aeq, 8h}$

Figure 3.1.2(b) shows that there was a decrease in the percentage of employees exposed to noise levels in category A in the regions when comparing 2022 with 2021. This decrease was mainly noted in the following regions: the Western Cape from 1.55% in 2021 to 0.00% in 2022, the Free State from 0.56% in 2021 to 0.00% in 2022, Mpumalanga from 0.53% in 2021 to 0.00% in 2022, Gauteng from 0.92% in 2021 to 0.65 in 2022 and North West: Klerksdorp from 4.92% in 2021 to 0.00% in 2022.

An increase in the percentage of employees exposed to noise levels in category A was noted in the following regions: the Northern Cape from 0.00% in 2021 to 0.11% in 2022, KwaZulu-Natal from 0.00% in 2021 to 0.79% in 2022, Limpopo from 0.03% in 2021 to 0.14% in 2022 and North West: Rustenburg from 0.01% in 2021 to 0.81% in 2022. The Eastern Cape recorded zero noise levels exposure in category A from 2018 until 2022.

A decrease in the percentage of employees exposed to noise levels in category B is noted particularly in the following regions: the Free State from 72.02% in 2021 to 70.12% in 2022, the Eastern Cape from 19.58% in 2021 to 19.37% in 2022, Mpumalanga from 49.16% in 2021 to 45.37% in 2022, Limpopo from 62.80% in 2021 to 56.41% in 2022 and North West: Rustenburg from 72.45% in 2021 to 69.19% in 2022.

Though there is a decrease in the percentage of employees exposed to noise levels in category B, the following regions recorded an increase in 2022 when compared to 2021: the Western Cape from 23.45% in 2022 to 28.60% in 2022, the Northern Cape increased from 34.12% in 2021 to 37.15% in 2022, KwaZulu-Natal from 33.44% in 2021 to 39.10% in 2022, Gauteng from 56.48% in 2021 to 58.69% in 2022 and North West: Klerksdorp increased from 39.22% in 2021 to 44.73% in 2022.

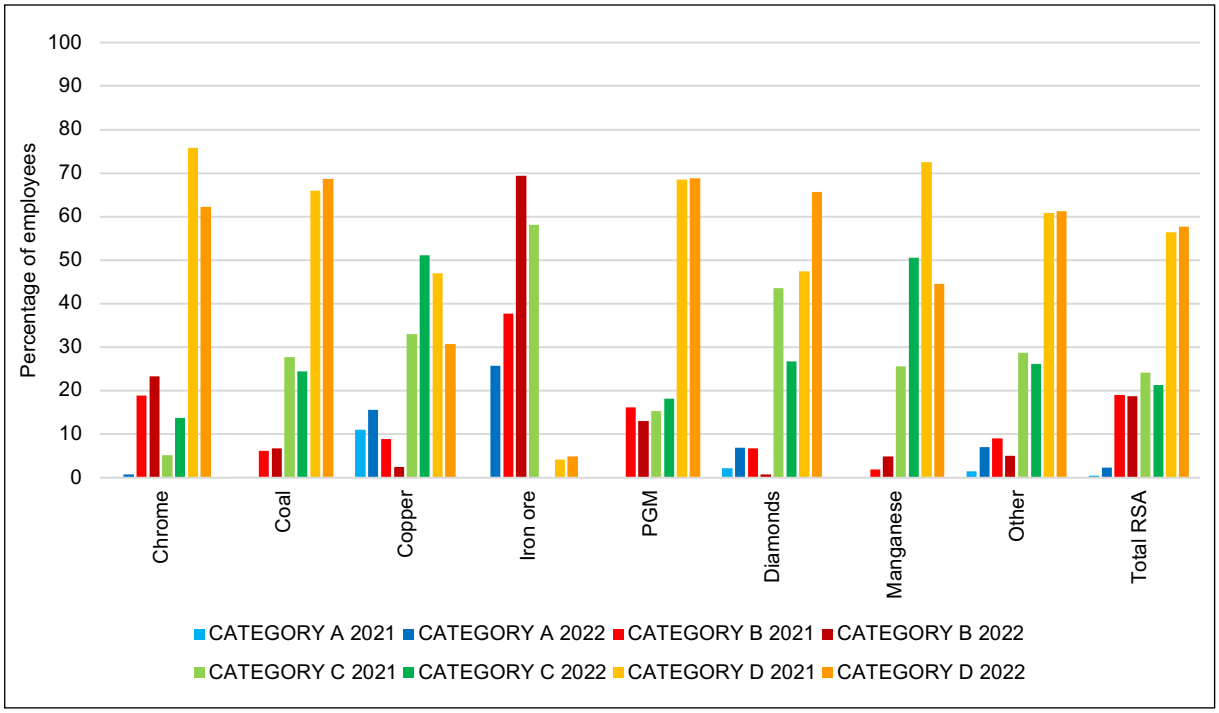
3.1.3 Thermal stress

NOTE:

- Monitoring is conducted on an annual cycle period in compliance with Regulation 9.2(7) of the MHSA. Accurate and meaningful results are to be representative of all full working shifts for that thermal environment, as obtained from monitoring.
- The employer must ensure that, in defining any thermal environment, the precautions listed below are heeded to:
  - Care should be exercised to detect trends where the thermal environment changes, especially from 'cool' to 'hot', or from 'hot' to 'abnormally hot'.
  - This is clearly indicated by regular monitoring, even if only on a random basis, and 'cool' environments should not be excluded, especially when marginal.
  - The specific protocol would be dictated by prevailing circumstances and therefore cannot be stipulated or prescribed.
- Seasonal changes could be crucial and relying on winter temperatures may lead to an underestimation of the risk, and vice versa, and the environmental monitoring should take this into account.
- Adequate and appropriate control measures should be provided during cold seasons and potable water should be made available to employees during very hot conditions.
- Similarly, to the noise exposure, the Guideline for the Compilation of a Mandatory COP for an Occupational Health Programme on Thermal Stress were reviewed and was issued in 2022. However, the thermal stress measurements reported in this report were conducted and reported based on the requirements of the previous guideline.
- Monitoring is conducted on an annual cycle period in compliance with Regulation 9.2(7) of the MHSA. Accurate and meaningful results are to be representative of all full working shifts for that thermal environment, as obtained from monitoring.

3.1.3.1 Heat stress

FIGURE 3.1.3.1(a):
Percentage exposure to thermal stress: heat per classification band A, B, C and D per commodity



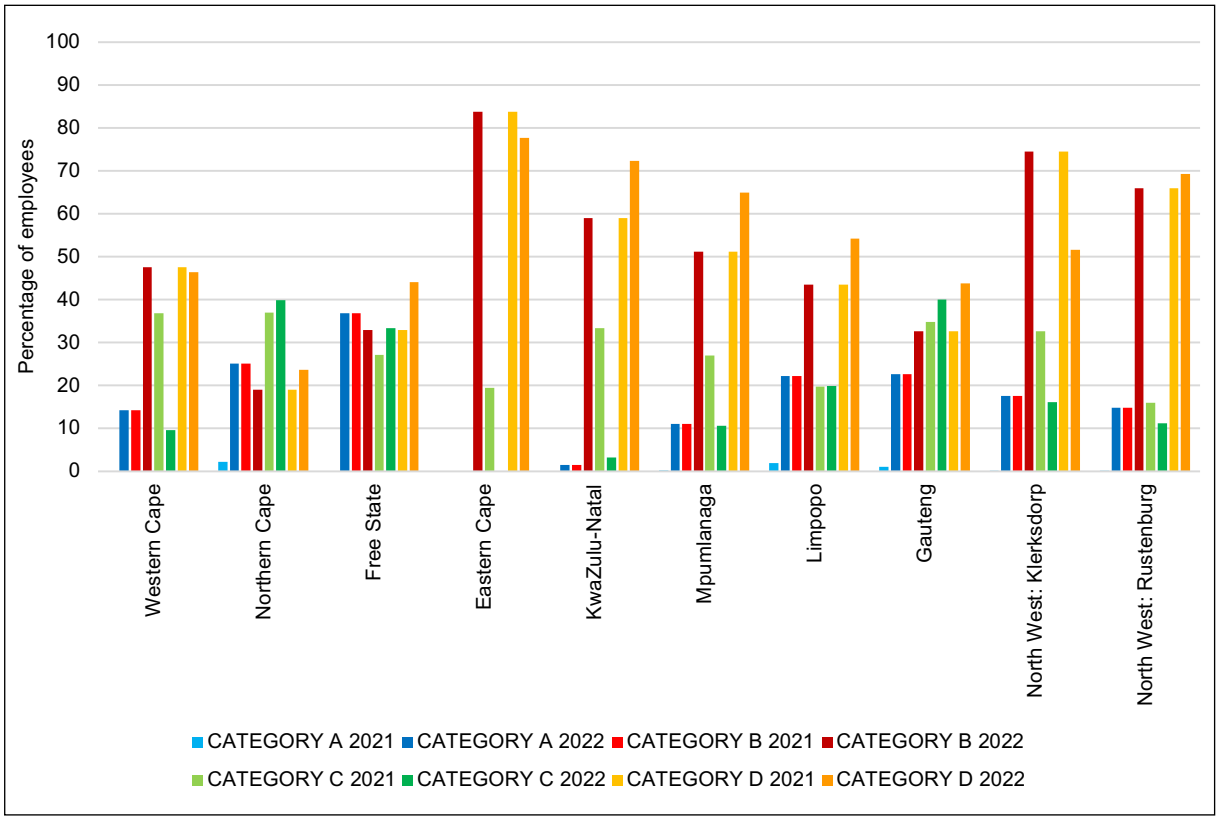
Heat stress exposure category band:
A = Wet bulb (WB) > 32.5°C or dry bulb (DB) > 37°C or globe temperature > 37°C
B = 29.0°C < WB ≤ 32.5°C and DB ≤ 37°C globe temperature as for DB
C = 27.5°C < WB ≤ 29.0°C and DB ≤ 37°C globe temperature as for DB
D = WB ≤ 27.5°C and DB ≤ 32.5°C globe temperature as for DB

There was an increase in the percentage of employees' over-exposure to heat stress environments with 2.34% in 2022 when compared to 0.51% in 2021. From Figure 3.1.3.1(a), the commodities that had the most notable changes in heat exposure are chrome from 0.21% in 2021 to 0.70% in 2022, copper from 11.10% in 2021 to 15.57% in 2022, iron-ore from 0.00% in 2021 to 25.74% in 2022, diamonds from 2.22% in 2021 to 6,93% in 2022 and the other commodities sector from 1.43% in 2021 to 7.04% in 2022.

A decrease in the percentage of employees' over-exposure to heat stress was noted in the gold sector from 0.49% in 2021 to 0.04% in 2022, the coal sector from 0.23% in 2021 to 0.18% in 2022 and the PGM sector from 0.06% in 2021 to 0.03% in 2022.

The manganese sector recorded zero employees' over-exposure to heat-stress environments from 2018 until 2022.

FIGURE 3.1.3.1(b):
Percentage exposure to thermal stress: heat per classification A, B, C and D band per region



Heat stress exposure category band:
A = WB > 32.5°C or DB > 37°C or globe temperature > 37°C
B = 29.0°C < WB ≤ 32.5°C and DB ≤ 37°C globe temperature as for DB
C = 27.5°C < WB ≤ 29.0°C and DB ≤ 37°C globe temperature as for DB
D = WB ≤ 27.5°C and DB ≤ 32.5°C globe temperature as for DB

As illustrated in Figure 3.1.3.1(b), an increase in the percentage of employees exposed to heat stress environments was recorded in the following regions: the Western Cape from 0.00% in 2021 to 5.20% in 2022, the Northern Cape from 2.29% in 2021 to 17.23% in 2022, KwaZulu-Natal from 0.00% in 2021 to 1.43% in 2022, Limpopo from 1.95% in 2021 to 3.47% in 2022, Gauteng from 1.06% in 2021 to 1.20% in 2022 and North West: Rustenburg from 0.09% in 2021 to 0.12% in 2022.

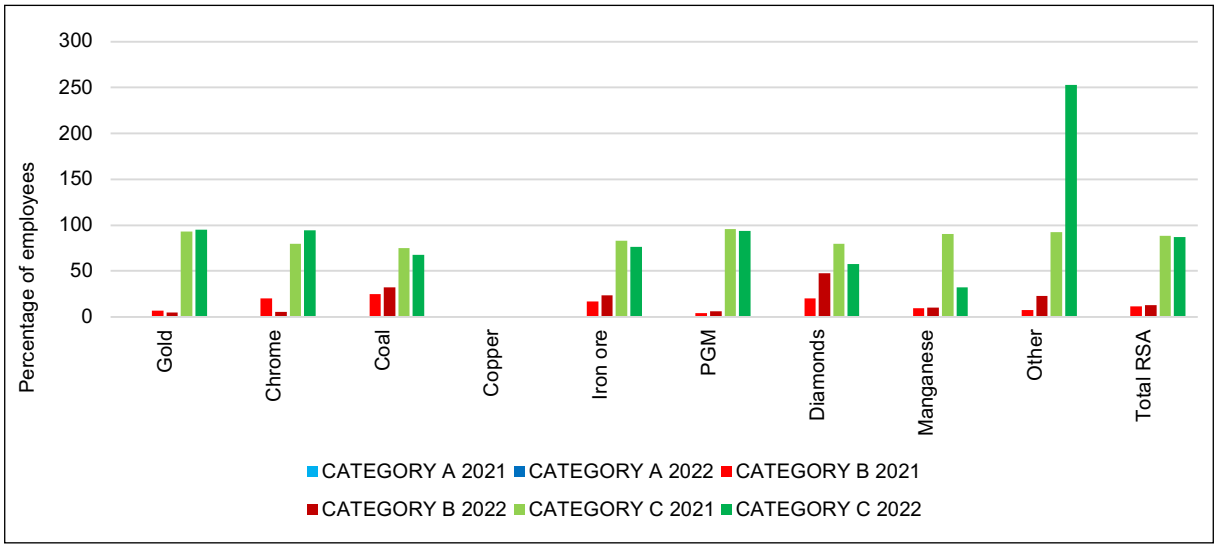
Though there was an increase in the percentage of employees exposed to heat stress environments in some regions a decrease was noted: Mpumalanga from 0.21% in 2021 to 0.17% in 2022, North West: Klerksdorp from 0.04% in 2021 to 0.00% in 2022.

The Free State region had zero over-exposure in 2021 and 2022 and the Eastern Cape region is commended for maintaining a zero over-exposure from 2018 until 2022.

3.1.3.2 Cold stress

FIGURE 3.1.3.2(a):

Percentage exposure to thermal stress: cold per classification band A, B and C per commodity



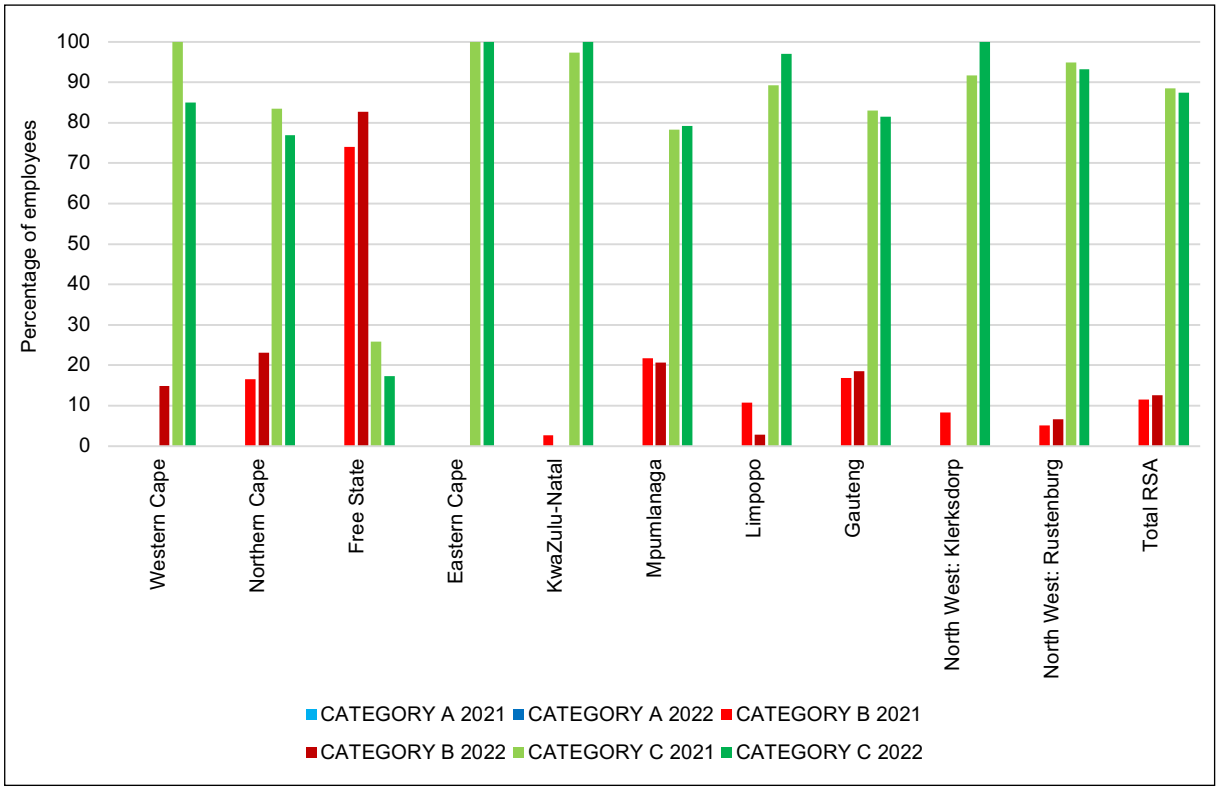
Cold stress exposure category band:
A = Temperature ≥ -30.0°C
B = 5.0°C ≤ Temperature < -30.0°C
C = Temperature > 5.0°C

Figure 3.1.3.2 (a) indicates that there was no exposure in category A for all the commodities for both reporting periods. However, for category B, there was an increase in the percentage of employees exposed from 11.47% in 2021 to 13.02% in 2022. This percentage increase for category B is noted in the following commodity sectors: coal from 24.88% in 2021 to 32.45% in 2022, iron ore from 17.09% in 2021 to 23.60% in 2022, PGM from 4.44% in 2021 to 6.37% in 2022, diamonds from 20.15% in 2021 to 47.82% in 2022, manganese from 9.52% in 2021 to 10.09% in 2022 and other commodities from 7.74% in 2021 to 22.91% in 2022.

A decrease in the percentage of employees exposed to cold stress environments in category B was noted in the gold sector from 7.02% in 2021 to 4.69% in 2022 and the chrome sector from 19.99% in 2021 to 5.78% in 2022.

FIGURE 3.1.3.2(b):

Percentage exposure to thermal stress: cold per classification band A, B and C per region



Cold stress exposure category band:
A = Temperature ≥ -30.0°C
B = 5.0°C ≤ Temperature < -30.0°C
C = Temperature > 5.0°C

There was no exposure in category A in all the regions as illustrated in Figure 3.1.3.2(b). However, there was an increase in the percentage of employees exposed in category B in 2022 when compared to 2021. This increase is noted in the following regions: the Western Cape from 0.00% in 2021 to 14.94% in 2022, the Northern Cape from 16.56% in 2021 to 23.10% in 2022, the Free State from 74.09% in 2021 to 82.73% in 2022, Gauteng from 16.94% to 18.56% in 2022 and North West: Rustenburg from 5.08% in 2021 to 6.72% in 2022.

Notwithstanding the increase in some regions in the percentage of employees exposed to cold stress environments in category B, a decrease was noted in the following regions: KwaZulu-Natal from 2.71% to 0.00%, Mpumalanga from 21.77% in 2021 to 20.73% in 2022, Limpopo from 10.75% in 2021 to 2.90% in 2022 and North West: Klerksdorp from 8.31% in 2021 to 0.00% in 2022. The Eastern Cape had 0.00% recorded in both 2021 and 2022.

3.1.4 General

It was noted that mines are submitting their quarterly reports after the deadline of 60 days following the end of the reporting period specified on the required forms. As a result of this, the MHSI organised regional and mine-specific level workshops to address the late submission of the reports, to encourage mines to submit late reports to the respective PIs and to provide clarity on the potential challenges experienced by the mines. Furthermore, the MHSI recommended administrative fines to ensure compliance with the requirements of the MHSA.

The Free State and Gauteng regions consistently had the highest airborne pollutant exposure percentages for both 2021 and 2022. The Eastern Cape and KwaZulu-Natal regions had significant increases in exposure percentages from 2021 to 2022 while North West: Rustenburg had the lowest exposure for both reporting periods with a further decrease in 2022. More effort is required in managing exposures at the source.

The percentage of employees exposed to noise levels in category A varied across regions for 2021 and 2022. The Western Cape had high noise exposure in 2021 but reported no exposure in 2022. A decrease in the percentage of employees exposed to noise levels in category A was noted in the Free State, Mpumalanga, Gauteng and North West: Klerksdorp, while an increase in the percentage of employees exposed in category A was noted in the Northern Cape, KwaZulu-Natal, Limpopo and North West: Rustenburg regions from 2021 to 2022.

The data shows varying degrees of heat exposure for the different commodities between 2021 and 2022. There was an increase in the percentage of employees exposed to the heat stress environments in the chrome, copper, iron ore, diamonds and other commodities during this reporting period. Meanwhile, commodities such as gold, coal, PGM and manganese had relatively low heat exposure percentages and exhibited minimal changes.

The analysis of the data showed varying degrees of cold exposure for different regions during the reporting period. There was an increase in the percentage of employees exposed to cold stress environments in category B in the Western Cape, Northern Cape, Free State, Gauteng and North West: Rustenburg.

The decrease in the percentage of employees exposed to cold stress environments in category B was noted in KwaZulu-Natal, Mpumalanga, Limpopo and North West: Klerksdorp. These findings suggest that some regions experienced significant changes in cold exposure levels, while other regions had relatively stable or slightly changing cold exposure conditions during the reporting period.

Key challenges are still observed when conducting focussed audits, particularly in addressing the following:

- The hazards at the source.
- Inadequate and continuous maintenance of control measures in place.
- Supervision.
- Employee engagement such as awareness of the identified risks and the adverse health impacts associated with it.

There is a need to strengthen control measures to manage employees' exposure to occupational and environmental hazards.

Ongoing MHSI initiatives are developed, revised, and implemented to assist the mining industry to mitigate occupational and environmental risks at mines. These initiatives include the verification of regional data on the quarterly reports submitted by mines to identify challenges and gaps, as well as organising result-based workshops to address the challenges identified. Furthermore, the MHSI conduct focused audits using approved tools and monthly inspections as well as reviewing and updating guidelines and reporting forms regularly.

The MHSI actively participates in health working groups, attending tripartite and mine-specific meetings, and presenting at different platforms on the various challenges relating to health and safety in mines. Legislatively, some of the initiatives currently underway include the development of a guideline for quality assurance in the implementation of occupational hygiene and environmental programmes. These initiatives collectively contribute to the ongoing efforts by the MHSI to manage identified hazards and improve the health and safety conditions in the South African mining industry.

3.2 Occupational medicine

During 2022, a decrease of 1.72% was noted in the submission of AMRs, from 931 in 2021 to 915 in 2022. The total number of employees covered in the AMRs increased by 3.52% from 533 809 in 2021 to 552 598 in 2022. The analysis of medical surveillance incidence rates per 10 000 employees showed an increase in the initial medical examinations and exit medical examinations conducted by mines during 2022, while a decrease was noted in the periodic medical examinations when compared to 2021.

An increase of 16.06% has been noted in the total number of occupational diseases reported, from 1 924 cases in 2021 to 2 233 cases in 2022. The analysis of occupational disease incidence rates per 10 000 employees showed an increased rate of 40 in 2022 when compared to a rate of 36 in 2021. Statistics showed an overall decrease in the total number of occupational diseases reported from the gold sector during 2022, noting a decrease in the number of silicosis and NIHL cases, while an increase was noted in the PTB cases. The silicosis and NIHL cases reported from the platinum sector showed an increase in 2022 compared to 2021, while the PTB cases have decreased. During 2022, an increase was noted in PTB, NIHL and CWP cases reported from the coal sector compared to 2021.

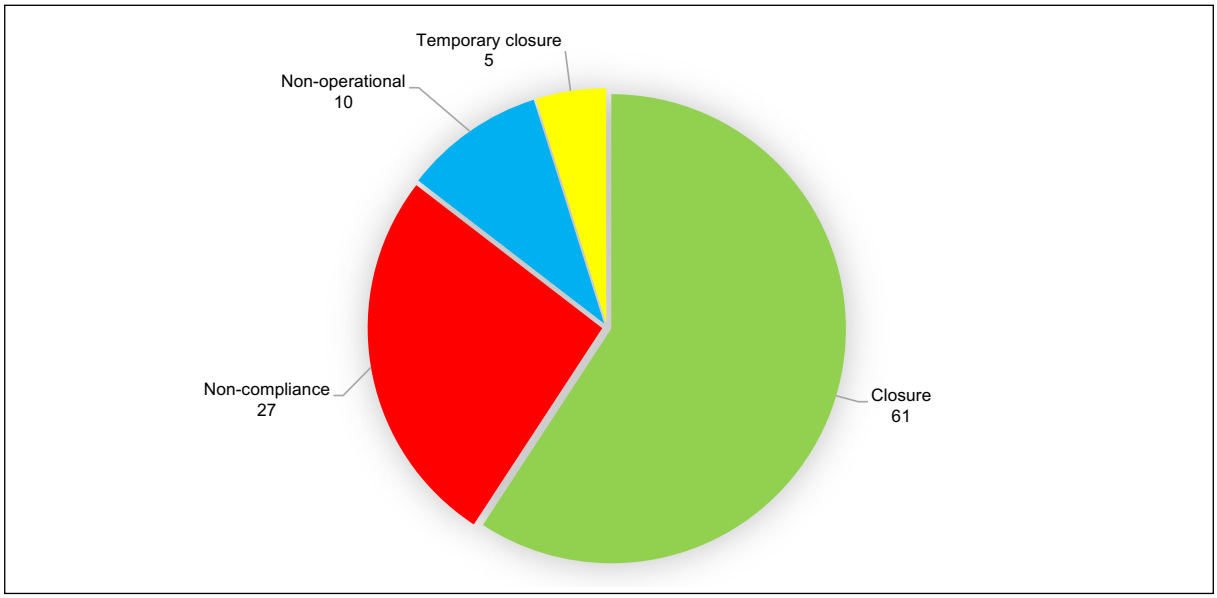
3.2.1 Annual Medical Reports

During 2022, mines submitted 915 AMRs, which is a decrease of 1.72% from 931 reports submitted in 2021. The AMRs submitted from the Limpopo, Mpumalanga, North West: Rustenburg and Western Cape regions showed an increase, while a decrease was noted in the AMRs submitted from the Eastern Cape, Gauteng, KwaZulu-Natal and North West: Klerksdorp regions. The reports submitted from the Free State region remained unchanged at 43 reports for both reporting years.

A total of 103 mines submitted AMRs for 2021 but did not submit reports for 2022. Various reasons for non-submission of AMRs are illustrated in Figure 3.2.1.

The submission of AMRs is mandatory and failure by employers to comply is a breach of the MHSA. The regions should enforce compliance with the legislative requirements and execute the necessary corrective measures to address non-compliance by mines regarding the submission of these statutory reports.

FIGURE 3.2.1:
Non-submission of AMRs



3.2.1.1 AMRs received per region and by commodity

TABLE 3.2.1.1:
AMRs received per region and by commodity for 2021 and 2022

	GOLD		PLATINUM		COAL		DIAMONDS		COPPER		CHROME		IRON ORE		MANGANESE		OTHER MINES		TOTAL		PERCENTAGE CHANGE
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	
Eastern Cape	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	57	**62**	**57**	**-8.1**
Free State	18	18	0	0	2	2	4	3	0	0	0	0	0	0	0	0	19	20	**43**	**43**	**0.0**
Gauteng	20	19	0	0	0	1	1	1	0	0	0	0	0	0	0	0	82	74	**103**	**95**	**-7.8**
KwaZulu-Natal	0	0	0	0	12	11	0	0	0	0	0	0	0	0	0	0	41	41	**53**	**52**	**-1.9**
Limpopo	1	3	12	11	4	4	2	2	1	1	14	16	0	1	0	0	47	47	**81**	**85**	**4.9**
Mpumalanga	7	7	2	2	117	128	0	0	0	0	0	0	0	0	1	1	25	24	**152**	**162**	**6.6**
Northern Cape	0	0	0	0	0	0	63	50	2	3	0	0	10	9	24	23	26	23	**125**	**108**	**-13.6**
North West Klerksdorp	17	11	0	0	0	0	81	62	0	0	0	0	0	0	0	1	23	22	**121**	**96**	**-20.7**
North West Rustenburg	0	0	68	70	0	0	1	1	0	0	20	25	2	1		0	26	28	**117**	**125**	**6.8**
Western Cape	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	73	91	**74**	**92**	**24.3**
TOTAL	**63**	**58**	**82**	**83**	**135**	**146**	**153**	**120**	**3**	**4**	**34**	**41**	**12**	**11**	**25**	**25**	**424**	**427**	**931**	**915**	**-1.7**

3.2.1.2 Total employees covered in AMRs

The total number of employees covered in the AMRs increased by 3.52% from 533 809 in 2021 to 552 598 in 2022. The total number of employees from the Gauteng, KwaZulu-Natal, Limpopo, Northern Cape, North West: Klerksdorp and North West: Rustenburg regions showed an increase while the total number of employees from the Eastern Cape, Free State, Mpumalanga and Western Cape regions have decreased.

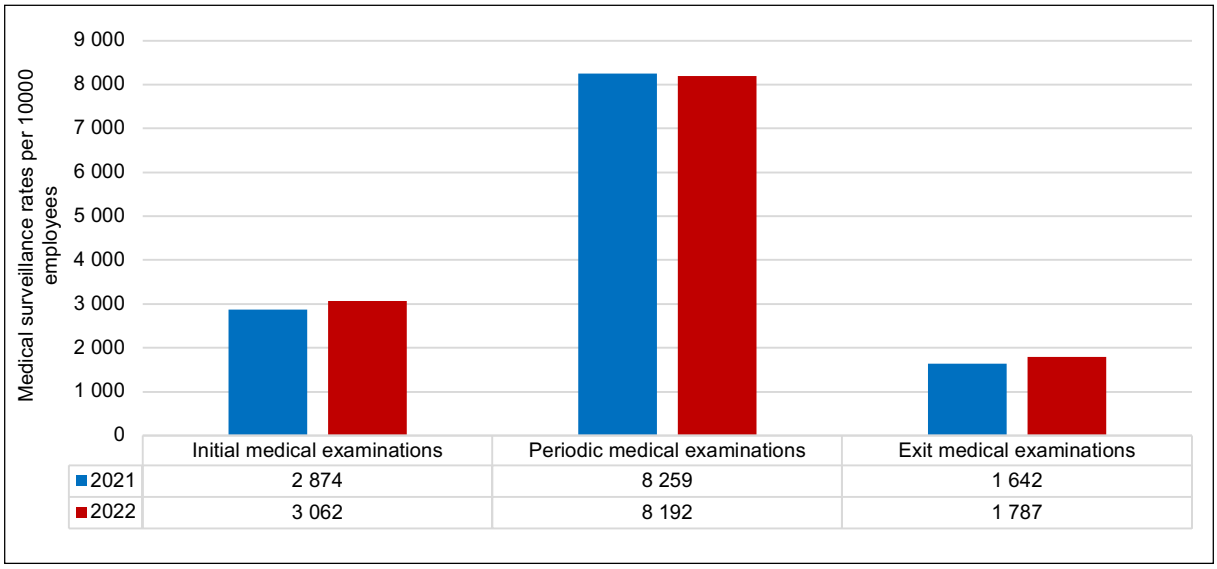
TABLE 3.2.1.2:
Total employees reported from AMRs per region for 2021 and 2022

	GOLD		PLATINUM		COAL		DIAMONDS		COPPER		CHROME		IRON ORE		MANGANESE		OTHER MINES		TOTAL		PERCENTAGE CHANGE
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	
Eastern Cape	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 686	1 573	**1 686**	**1 573**	-6.7
Free State	28 051	27 403	0	0	3 865	3 828	775	682	0	0	0	0	0	0	0	0	572	538	**33 263**	**32 451**	-2.4
Gauteng	50 067	50 979	0	0	0	93	1 722	1 788	0	0	0	0	0	0	0	0	5 193	4 843	**56 982**	**57 703**	1.3
KwaZulu-Natal	0	0	0	0	4 193	4 438	0	0	0	0	0	0	0	0	0	0	7 015	7 866	**11 208**	**12 304**	9.8
Limpopo	15	98	28 969	33 908	7 795	7 242	5 190	12 272	6 507	5 258	11 809	14 181	0	71	0	0	6 023	7 146	**66 308**	**80 176**	20.9
Mpumalanga	6 954	7 740	7 045	7 917	97 308	94 599	0	0	0	0	0	0	0	0	52	53	3 287	1 912	**114 646**	**112 221**	-2.1
Northern Cape	0	0	0	0	0	0	8 184	7 599	96	118	0	0	23 197	24 351	17 449	16 201	5 153	6 235	**54 079**	**54 504**	0.8
North West Klerksdorp	15 687	15 750	0	0	0	0	1 077	876	0	0	0	0	0	0	0	22	3 559	4 693	**20 323**	**21 341**	5.0
North West Rustenburg	0	0	146 163	149 148	0	0	148	192	0	0	15 600	18 022	590	245	0	0	4 670	5 644	**167 171**	**173 251**	3.6
Western Cape	0	0	0	0	0	0	111	133	0	0	0	0	0	0	0	0	8 032	6 941	**8 143**	**7 074**	-13.1
TOTAL	**100 774**	**101 970**	**182 177**	**190 973**	**113 161**	**110 200**	**17 207**	**23 542**	**6 603**	**5 376**	**27 409**	**32 203**	**23 787**	**24 667**	**17 501**	**16 276**	**45 190**	**47 391**	**533 809**	**552 598**	3.5

3.2.1.3 Medical surveillance conducted

The analysis of incidence rates per 10 000 employees showed an increase in the initial medical examinations and exit medical examinations conducted by mines during 2022 while a decrease was noted in the periodic medical examinations compared to 2021, as illustrated in Figure 3.2.1.3.

FIGURE 3.2.1.3:
Medical surveillance reported for 2021 and 2022



3.2.2 Occupational diseases reported in the AMRs

The occupational diseases reported by mines during 2022 increased by 16.06%, from 1 924 cases in 2021 to 2 233 cases in 2022.

The analysis of occupational disease incidence rates per 10 000 employees, as illustrated in Table 3.2.2.1.1(b), showed a slight increased rate of 40 in 2022 compared to a rate of 36 in 2021.The incidence rates of occupational diseases were noted as follows: four for silicosis which remained unchanged for both reporting years; 15 for PTB which remained unchanged for both reporting years; 16 for NIHL in 2022 compared to 15 in 2021; one for CWP in 2022 compared to zero in 2021 and three for other occupational diseases in 2022 compared to two in 2021.

3.2.2.1 Analysis of medical surveillance trends

3.2.2.1.1 Occupational disease trends by region

TABLE 3.2.2.1.1(a):

Total number of occupational diseases reported from AMRs per region for 2021 and 2022

	SILICOSIS		PTB		SILICO-TUBERCULOSIS (Sil+TB)		NIHL		CWP		ASBESTOSIS		OTHER		TOTAL		PERCENTAGE CHANGE
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	
Eastern Cape	0	0	1	3	0	0	0	2	0	0	0	0	0	0	**1**	**5**	**400.0**
Free State	78	116	160	167	1	15	102	101	2	3	0	0	33	34	**376**	**436**	**16.0**
Gauteng	68	56	102	122	6	3	168	205	0	0	0	0	17	18	**361**	**404**	**11.9**
KwaZulu-Natal	1	0	8	27	0	0	2	20	0	67	0	0	0	7	**11**	**121**	**1 000.0**
Limpopo	4	2	46	33	0	0	32	44	0	0	0	0	4	7	**86**	**86**	**0.0**
Mpumalanga	12	5	108	118	0	0	67	92	9	3	0	1	8	44	**204**	**263**	**28.9**
Northern Cape	0	5	10	17	0	0	5	12	0	0	0	0	0	6	**15**	**40**	**166.7**
North West: Klerksdorp	70	42	90	86	5	2	136	60	0	0	0	0	10	9	**311**	**199**	**-36.0**
North West: Rustenburg	7	22	267	265	0	0	240	339	0	0	1	1	19	35	**534**	**662**	**24.0**
Western Cape	0	0	1	1	0	0	24	16	0	0	0	0	0	0	**25**	**17**	**-32.0**
TOTAL	**240**	**248**	**793**	**839**	**12**	**20**	**776**	**891**	**11**	**73**	**1**	**2**	**91**	**160**	**1 924**	**2 233**	**16.1**

TABLE 3.2.2.1.1(b):

Occupational disease incidence rates per 10 000 employees from AMRs per region for 2021 and 2022

	SILICOSIS		PTB		Sil+TB		NIHL		CWP		ASBESTOSIS		OTHER		TOTAL	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Eastern Cape	0.0	0.0	5.9	19.1	0.0	0.0	0.0	12.7	0.0	0.0	0.0	0.0	0.0	0.0	**5.9**	**31.8**
Free State	23.4	35.7	48.1	51.5	0.3	4.6	30.7	31.1	0.6	0.9	0.0	0.0	9.9	10.5	**113.0**	**134.4**
Gauteng	11.9	9.7	17.9	21.1	1.1	0.5	29.5	35.5	0.0	0.0	0.0	0.0	3.0	3.1	**63.4**	**70.0**
KwaZulu-Natal	0.9	0.0	7.1	21.9	0.0	0.0	1.8	16.3	0.0	54.5	0.0	0.0	0.0	5.7	**9.8**	**98.3**
Limpopo	0.6	0.2	6.9	4.1	0.0	0.0	4.8	5.5	0.0	0.0	0.0	0.0	0.6	0.9	**13.0**	**10.7**
Mpumalanga	1.0	0.4	9.4	10,5	0.0	0.0	5.8	8.2	0.8	0.3	0.0	0.1	0.7	3.9	**17.8**	**23.4**
Northern Cape	0.0	0.9	1.8	3.1	0.0	0.0	0.9	2.2	0.0	0.0	0.0	0.0	0.0	1.1	**2.8**	**7.3**
North West: Klerksdorp	34.4	19.7	44.3	40.3	2.5	0.9	66.9	28.1	0.0	0.0	0.0	0.0	4.9	4.2	**153.0**	**93.2**
North West: Rustenburg	0.4	1.3	16.0	15.3	0.0	0.0	14.4	19.6	0.0	0.0	0.1	0.1	1.1	2.0	**31.9**	**38.2**
Western Cape	0.0	0.0	1.2	1.4	0.0	0.0	29.5	22.6	0.0	0.0	0.0	0.0	0.0	0.0	**30.7**	**24.0**
TOTAL	**4.5**	**4.5**	**14.9**	**15.2**	**0.2**	**0.4**	**14.5**	**16.1**	**0.2**	**1.3**	**0.0**	**0.0**	**1.7**	**2.9**	**36.0**	**40.4**

3.2.2.1.2 Occupational disease trends per commodity

TABLE 3.2.2.1.2(a):

Total number of occupational diseases reported from AMRs by commodity for 2021 and 2022

	SILICOSIS		PTB		Sil+TB		NIHL		CWP		ASBESTOSIS		OTHER		TOTAL		PERCENTAGE RATE CHANGE
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	
Gold	225	218	358	383	12	20	406	357	0	0	0	0	57	59	**1 058**	**1 037**	**-2.0**
Platinum	11	24	285	277	0	0	247	376	0	0	1	1	19	38	**563**	**716**	**27.2**
Coal	2	0	97	129	0	0	64	71	11	73	0	0	7	51	**181**	**324**	**79.0**
Diamond	0	0	3	6	0	0	0	7	0	0	0	0	2	2	**5**	**15**	**200.0**
Copper	0	0	3	2	0	0	2	7	0	0	0	0	0	0	**5**	**9**	**80.0**
Chrome	0	1	19	19	0	0	21	26	0	0	0	1	2	4	**42**	**51**	**21.4**
Iron ore	0	4	2	1	0	0	3	4	0	0	0	0	0	4	**5**	**13**	**160.0**
Manganese	0	0	5	7	0	0	1	2	0	0	0	0	0	1	**6**	**10**	**66.7**
All other	2	1	21	15	0	0	32	41	0	0	0	0	4	1	**59**	**58**	**-1.7**
TOTAL	**240**	**248**	**793**	**839**	**12**	**20**	**776**	**891**	**11**	**73**	**1**	**2**	**91**	**160**	**1 924**	**2 233**	**16.1**

TABLE 3.2.2.1.2(b):

Occupational disease incidence rates per 10 000 employees from AMRs by commodity for 2021 and 2022

	SILICOSIS		PTB		Sil+TB		NIHL		CWP		ASBESTOSIS		OTHER		TOTAL	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Gold	22.3	21.4	35.5	37.6	1.2	2.0	40.3	35.0	0.0	0.0	0.0	0.0	5.7	5.8	**105.0**	**101.7**
Platinum	0.6	1.3	15.6	14.5	0.0	0.0	13.6	19.7	0.0	0.0	0.1	0.1	1.0	2.0	**30.9**	**37.5**
Coal	0.2	0.0	8.6	11.7	0.0	0.0	5.7	6.4	1.0	6.6	0.0	0.0	0.6	4.6	**16.0**	**29.4**
Diamond	0.0	0.0	1.7	2.5	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	1.2	0.8	**2.9**	**6.4**
Copper	0.0	0.0	4.5	3.7	0.0	0.0	3.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0	**7.6**	**16.7**
Chrome	0.0	0.3	6.9	5.9	0.0	0.0	7.7	8.1	0.0	0.0	0.0	0.3	0.7	1.2	**15.3**	**15.8**
Iron ore	0.0	1.6	0.8	0.4	0.0	0.0	1.3	1.6	0.0	0.0	0.0	0.0	0.0	1.6	**2.1**	**5.3**
Manganese	0.0	0.0	2.9	4.3	0.0	0.0	0.6	1.2	0.0	0.0	0.0	0.0	0.0	0.6	**3.4**	**6.1**
All other	0.4	0.2	4.6	3.2	0.0	0.0	7.1	8.7	0.0	0.0	0.0	0.0	0.9	0.2	**13.1**	**12.2**
TOTAL	**4.5**	**4.5**	**14.9**	**15.2**	**0.2**	**0.4**	**14.5**	**16.1**	**0.2**	**1.3**	**0.0**	**0.0**	**1.7**	**2.9**	**36.0**	**40.4**

GOLD MINES

The gold sector reported 1 037 cases of occupational diseases during 2022 compared to 1 058 cases in 2021. The analysis of the occupational disease incidence rates per 10 000 employees showed a slight decrease from a rate of 105.0 in 2021 to a rate of 101.7 in 2022, as illustrated in Figure 3.2.2.1.2(a).

During 2022, the gold sector reported 59 cases of other occupational diseases compared to 57 cases in 2021. These cases include: 49 cases of chronic obstructive airway disease (COAD); one case of TB of the left ear; one case of occupational asthma; seven cases of sarcoidosis and one case of progressive massive fibrosis (PMF).

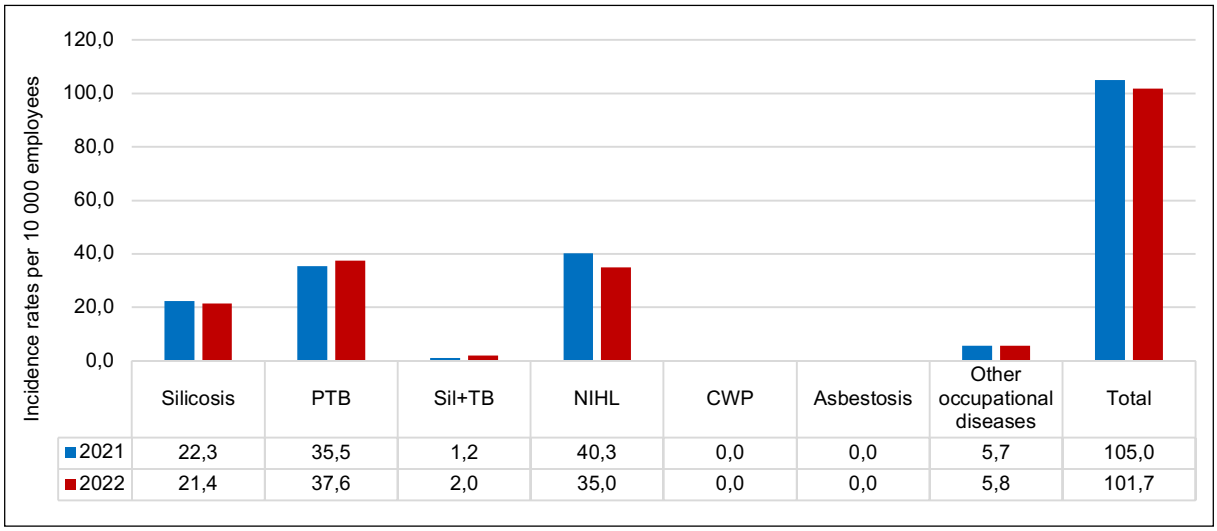
The gold sector implemented the following initiatives to reduce the incidence for occupational lung diseases (OLDs):

- Increase the detection of active TB case findings by using GeneXpert tests for the examination of the sputum and TB questionnaires.
- Administer an isoniazid preventive therapy (IPT) prophylaxis programme to immune-compromised employees with or without active TB.
- Adopt Mine Occupational Safety and Health (MOSH) In-Stope Atomizers in all panels.
- Additional dust suppression spray cars.
- Extend automated footwall spray systems.
- High pressure fogging systems at tips and ore passes.
- Water spray curtains in working places.
- Centralised blasting operations.
- Re-entry procedure after blasts.
- Fitment of diesel particulate filters to load haul dump (LHD) trucks.

The gold sector implemented the following initiatives to reduce the incidence of NIHL:

- Some mines are at 90% with the roll-out of noise clippers and personalised hearing protection devices (HPDs) to employees working underground or in areas with high noise levels.
- Refer suspected NIHL cases for a diagnostic audiogram for early identification and advise employers in this regard.
- Some mines have a *Buy Quiet* policy in place.
- Equip underground fans still exceeding noise levels of 107 decibels (dB) with additional silencers.
- Some mines used the Noise Screening Tool developed by the Minerals Council South Africa (MCSA) to identify high risk in terms of equipment noise.
- Audiologist-driven screening and diagnostic evaluations.
- Standard threshold shift (STS) screening and compliance

FIGURE 3.2.2.1.2(a):
Occupational disease incidence rates per 10 000 employees reported from AMRs by gold mines for 2021 and 2022



	Silicosis	PTB	Sil+TB	NIHL	CWP	Asbestosis	Other occupational diseases	Total
2021	22,3	35,5	1,2	40,3	0,0	0,0	5,7	105,0
2022	21,4	37,6	2,0	35,0	0,0	0,0	5,8	101,7

PLATINUM MINES

During 2022, the platinum sector reported 716 cases of occupational diseases compared to 563 cases in 2021. The analysis of the occupational disease incidence rates per 10 000 employees showed an increase from a rate of 30.9 in 2021 to a rate of 37.5 in 2022.

The platinum sector reported 38 cases of other occupational diseases including: 14 cases of COAD; 11 cases of musculoskeletal disorder (MSD); seven cases of occupational skin disease; three cases of extra pulmonary tuberculosis (EPTB); two cases of occupational asthma and one case of miliary TB.

The platinum sector implemented the following initiatives to reduce the incidence of OLDs:

- Risk-based medical surveillance programmes (initial, periodic and exit medical examinations) where screening includes cardio-respiratory examinations, history taking and medical examinations for early detection of OLDs.
- Engineering controls, administrative controls and the provision of respiratory protection.

The platinum sector implemented the following initiatives to reduce the incidence of NIHL:

- Hearing conservation programmes (HCPs) including training, counselling, awareness campaigns, procedures, supervision, demarcation of noise areas and signage.
- Linking occupational hygiene programmes to the system of medical surveillance.
- Pre-employment or initial medical examinations to establish the baseline audiometry, periodic six-monthly audiometry for employees exposed to noise above 105 dB and exit audiometry to conduct diagnostic audiograms and placing employees on intervention programmes.
- Engineering controls with the aim of silencing machinery emitting >107 dB.
- Identify noisy areas to reduce noise emissions by using less noisy machinery.
- Investigation of percentage loss of hearing (PLH) >5% and STS >25%.
- Monitor the 2024 industry milestones.
- Utilise proper HPDs.

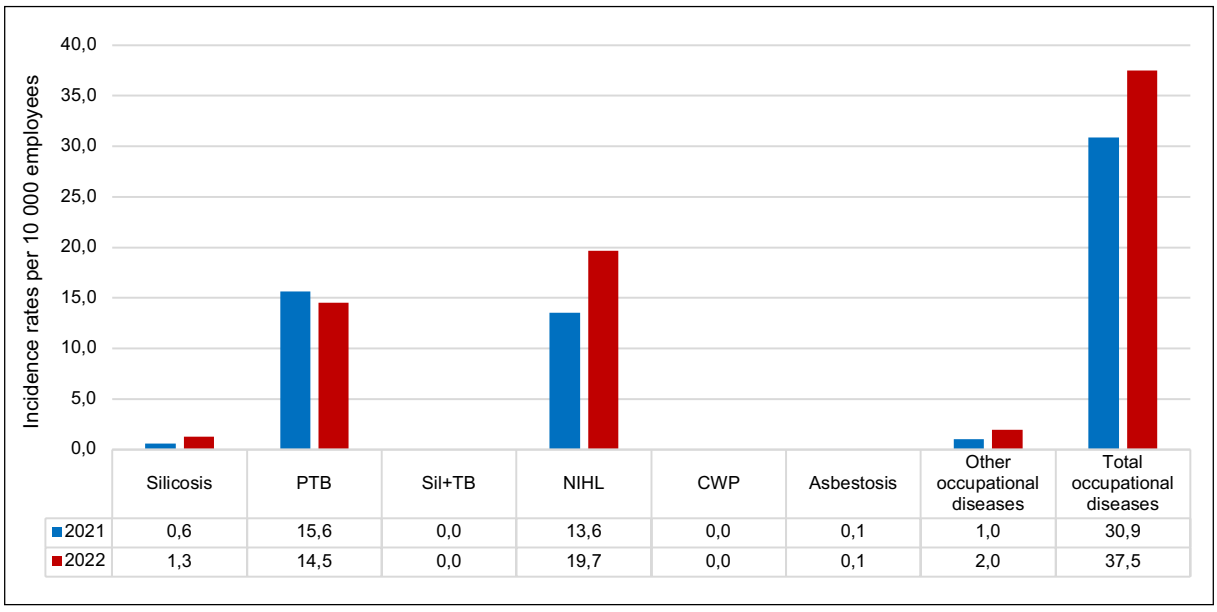
The platinum sector implemented the following initiatives to reduce the incidence of occupational skin disease:

- Health education and annual medicals for specific job specifications.
- Removal of the source of allergens or irritants, employee education and supplying proper personal protective equipment (PPE).
- Pre-employment and periodic medical examinations.
- Occupational health and hygiene programmes including risk assessments, monitoring, and measurements.

The platinum sector implemented the following initiatives to reduce the incidence of MSDs:

- Automation of some high-risk activities.
- Occupational health and hygiene programmes including risk assessments, monitoring and measurements.
- Baseline functional and physical work capacity evaluations.
- History taking and physical examinations at routine pre-employment or initial, and risk-based medical examinations.
- Investigation of MSD cases and the implementation of corrective measures to include the referral of affected employees for rehabilitation.
- Continuous education on lifting loads, good posture and taking care of the back.
- Provision of appropriate PPE.

FIGURE 3.2.2.1.2(b):
Occupational disease incidence rates per 10 000 employees reported from AMRs by platinum mines for 2021 and 2022



	Silicosis	PTB	Sil+TB	NIHL	CWP	Asbestosis	Other occupational diseases	Total occupational diseases
2021	0,6	15,6	0,0	13,6	0,0	0,1	1,0	30,9
2022	1,3	14,5	0,0	19,7	0,0	0,1	2,0	37,5

COAL MINES

The coal sector reported 324 cases of occupational diseases during 2022 compared to 181 cases in 2021. The analysis of the occupational disease incidence rates per 10 000 employees showed a significant increase from a rate of 16.0 in 2021 to a rate of 29.4 in 2022, as illustrated in Figure 3.2.2.1.2(c).

The coal sector reported 51 other occupational diseases, which included 28 cases of MSDs; 14 cases of COAD; seven cases of occupational asthma and two cases of bronchiectasis.

The coal sector implemented the following initiatives to reduce the incidence of OLDs:

- The application of dust suppression systems on conveyor belts and other identified high dust generating activities, and the chemical treatment of travelling ways.
- Vigilant screening including the previous occupational history of employees which might impact the respiratory organs due to the latency of OLDs.
- Communicating information on risk factors to employees to reduce the added effect of dust and smoking.
- Health promotion programmes including continuous TB awareness campaigns and contact tracing targeting, prevention or early diagnosis, successful treatment and reporting cases to relevant authorities.
- Include compulsory respiratory or TB questionnaires in medical surveillance.
- Provision of appropriate PPE.

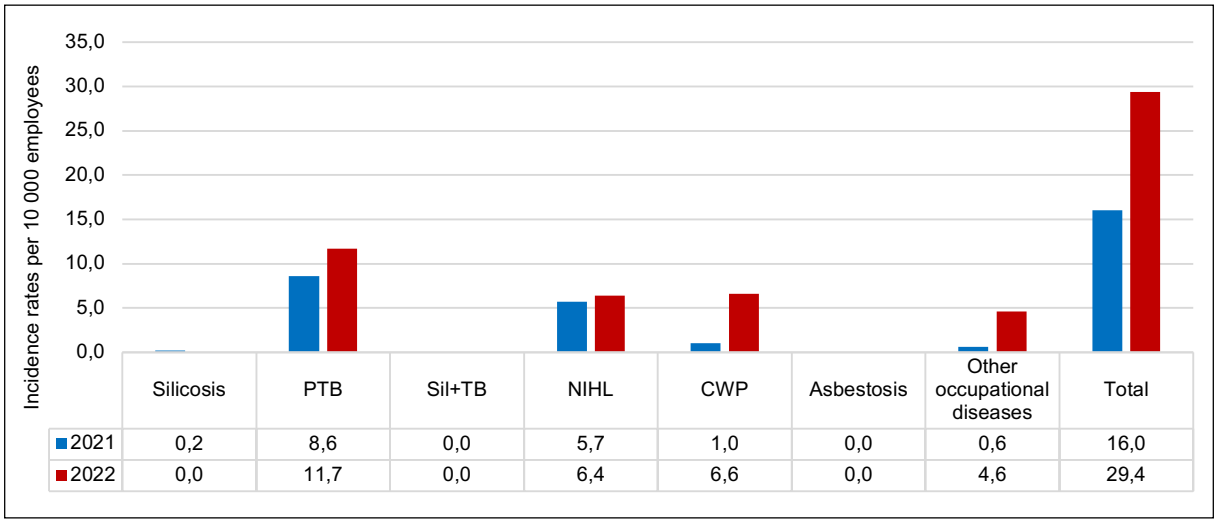
The coal sector implemented the following initiatives to reduce the incidence of NIHL:

- Routine noise exposure monitoring and investigating noise over-exposures.
- Linking noise measurements with medical surveillance for the scheduling of audiograms according to the noise levels.
- Monitoring of employees with a PLH shift of >5% from the baseline audiometry including the investigation of cases of STS and NIHL.
- Health promotion and education.
- Provision of HPDs as well as training and awareness on the use thereof.

The coal sector implemented the following initiatives to reduce the incidence of MSDs:

- Provision of mechanical means for the handling of heavy equipment and materials to minimise ergonomic stressors as guided by site walkthroughs and ergonomic survey findings.
- Ergonomic monitoring at various sections to limit vibration, vehicle and road maintenance plans.
- Education and training on ergonomics, manual handling training programme (including the lifting of heavy loads) and proper postural positioning strategies.
- Encourage the implementation of mini hazard identification and risk assessments (HIRAs) and the early reporting of MSDs.
- Use back ache questionnaires for the early detection of disorders and refer for Rehabilitation and Functional Assessments (RFAs).
- Health education during induction and examination of the musculoskeletal frame during medical surveillance.

FIGURE 3.2.2.1.2(c):
Occupational disease incidence rates per 10 000 employees reported from AMRs by coal mines for 2021 and 2022



	Silicosis	PTB	Sil+TB	NIHL	CWP	Asbestosis	Other occupational diseases	Total
2021	0,2	8,6	0,0	5,7	1,0	0,0	0,6	16,0
2022	0,0	11,7	0,0	6,4	6,6	0,0	4,6	29,4

DIAMOND MINES

During 2022, the diamond sector reported 15 cases of occupational diseases compared to five cases in 2021. The analysis of the occupational disease incidence rates per 10 000 employees showed an increase from a rate of 2.9 in 2021 to a rate of 6.4 in 2022, as illustrated in Figure 3.2.2.1.2(d).

The diamond sector reported two cases of other occupational diseases which included one case of occupational asthma and one case of MSD.

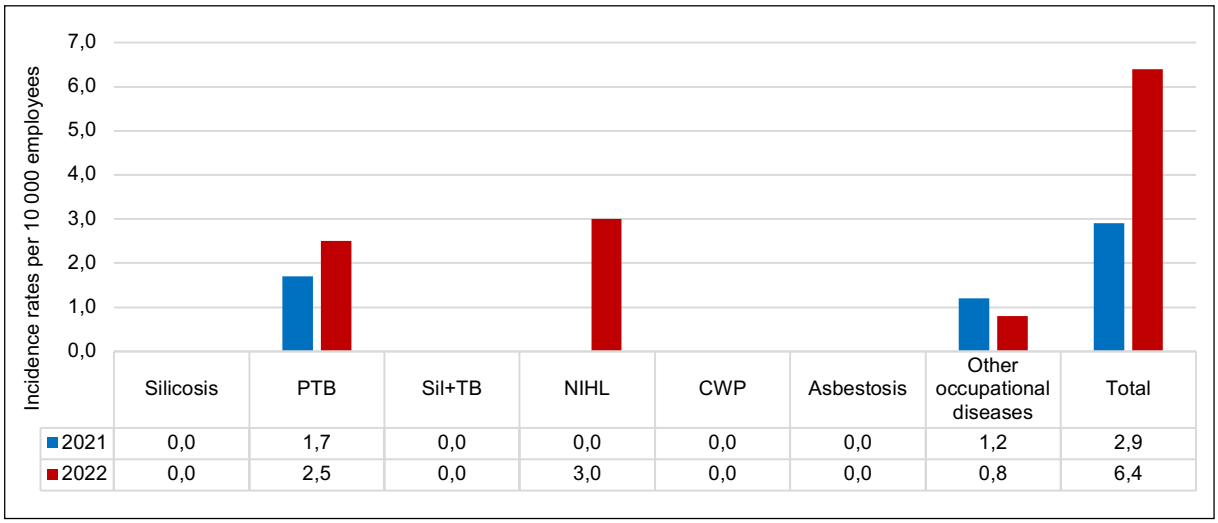
The diamond sector implemented the following initiatives to reduce the incidence of OLDs:

- Regular surveys of work areas where dust may be generated.
- Conducting public health campaigns and daily toolbox meetings to increase awareness and using media material and posters.
- Complete respiratory questionnaires with all medicals.
- Refer suspicious chest x-ray results through the radiologists' full report to investigate suspected cases (including referrals to health care providers).
- Training on proper PPE.

The diamond sector implemented the following initiatives to reduce the incidence of NIHL:

- Monitor noise and if the noise levels are of any concern, conduct health education and awareness campaigns.
- Hearing protection is obligatory in all areas with noise levels above 85 dB.
- Complete hearing surveillance questionnaires with all medicals.
- Counselling at the periodical medical examinations and issue hearing counselling letters for all shifts after hearing incidents.

FIGURE 3.2.2.1.2(d):
Occupational disease incidence rates per 10 000 employees reported from AMRs by diamond mines for 2021 and 2022



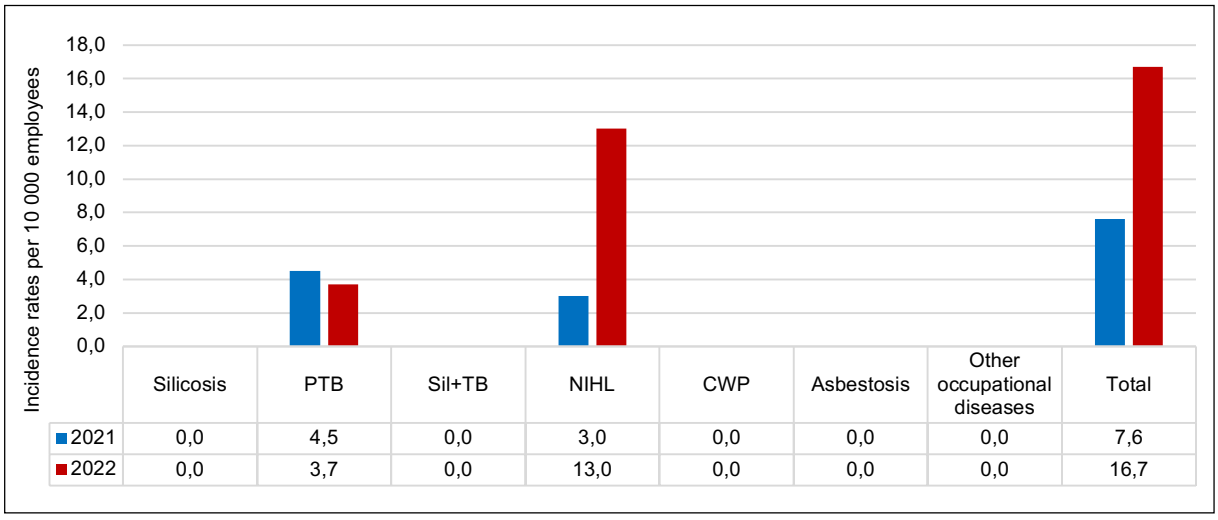
	Silicosis	PTB	Sil+TB	NIHL	CWP	Asbestosis	Other occupational diseases	Total
2021	0,0	1,7	0,0	0,0	0,0	0,0	1,2	2,9
2022	0,0	2,5	0,0	3,0	0,0	0,0	0,8	6,4

COPPER MINES

The copper sector reported nine cases of occupational diseases during 2022 compared to five cases in 2021. The analysis of the occupational disease incidence rates per 10 000 employees showed a significant increase from a rate of 7.6 in 2021 to a rate of 16.7 in 2022, as illustrated in Figure 3.2.2.1.2(e).

No other occupational diseases were reported by the copper sector for both reporting years.

FIGURE 3.2.2.1.2(e):
Occupational disease incidence rates per 10 000 employees reported from AMRs by copper mines for 2021 and 2022



	Silicosis	PTB	Sil+TB	NIHL	CWP	Asbestosis	Other occupational diseases	Total
2021	0,0	4,5	0,0	3,0	0,0	0,0	0,0	7,6
2022	0,0	3,7	0,0	13,0	0,0	0,0	0,0	16,7

CHROME MINES

During 2022, the chrome sector reported 51 occupational diseases, compared to 42 cases in 2021. The analysis of the occupational disease incidence rates per 10 000 employees showed a slight increase from a rate of 15.3 in 2021 to a rate of 15.8 in 2022, as illustrated in Figure 3.2.2.1.2(f).

The chrome sector reported four other occupational disease cases in 2022 compared to two cases in 2021. This included one case of anthracosis and three cases of EPTB.

The chrome sector implemented the following initiatives to reduce the incidence of OLDs:

- Haul road dust suppression and mobile machine air-conditioning.
- Occupational hygiene monitoring and putting controls in place.
- Issue employees that are responsible for drilling and blasting activities with filtering face piece 2 (FFP2) dust masks.
- Respiratory illness awareness posters and anti-smoking campaigns.

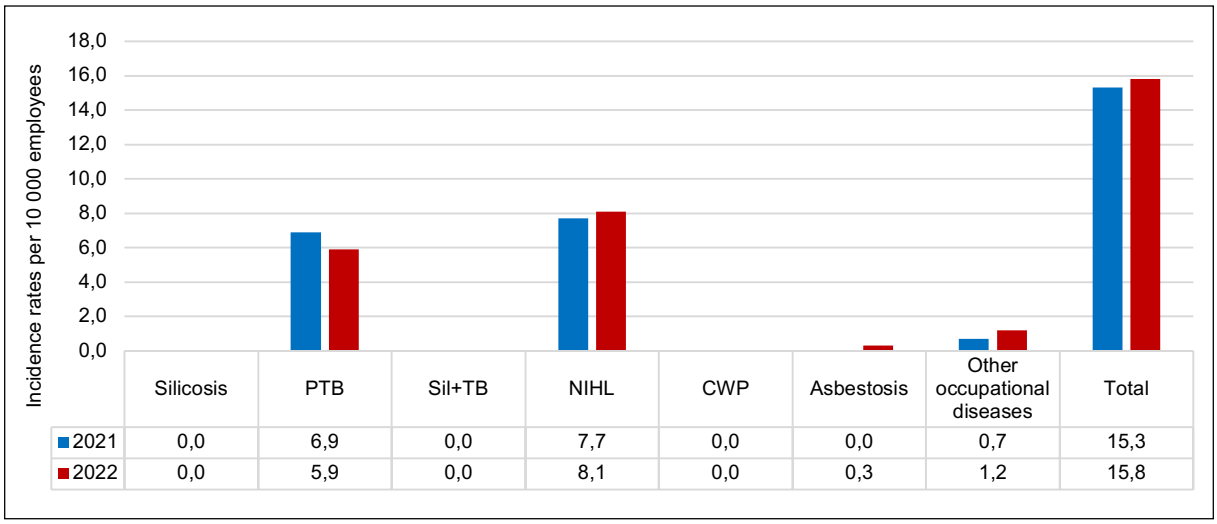
The chrome sector implemented the following initiatives to reduce the incidence of NIHL:

- Personal noise monitor for all HEGs and the demarcation of noise zones.
- Occupational hygiene surveys and annual audio evaluations.
- Six monthly audiometry for rock drill operators for early detection and investigation of shifts from baselines, as well as referral for diagnostic audiometry on any derangement.
- PPE induction and training.

The chrome sector implemented the following initiatives to reduce the incidence of MSDs:

- Display warning signs on how to handle heavy loads, adherence to task specific standard operating procedures (SOPs) and education on shift rotation.
- Complete musculoskeletal questionnaires for fitness to work programmes.

FIGURE 3.2.2.1.2(f):
Occupational disease incidence rates per 10 000 employees reported from AMRs by chrome mines for 2021 and 2022



	Silicosis	PTB	Sil+TB	NIHL	CWP	Asbestosis	Other occupational diseases	Total
2021	0,0	6,9	0,0	7,7	0,0	0,0	0,7	15,3
2022	0,0	5,9	0,0	8,1	0,0	0,3	1,2	15,8

IRON ORE MINES

The iron ore sector reported 13 cases of occupational diseases during 2022 compared to five cases in 2021. The analysis of the occupational disease incidence rates per 10 000 employees showed an increase from a rate of 2.1 in 2021 to a rate of 5.3 in 2022, as illustrated in Figure 3.2.2.1.2(g).

The iron ore sector reported four cases of other occupational diseases in 2022 compared to no cases in 2021. This included two cases of carpal tunnel syndrome and two cases of occupational asthma.

The iron ore sector implemented the following initiatives to reduce the incidence of OLD:

- Exposure monitoring programmes.
- Health education on TB screening through questionnaires during medical surveillance.
- The use of dust masks in designated areas as part of the respiratory protection programme.

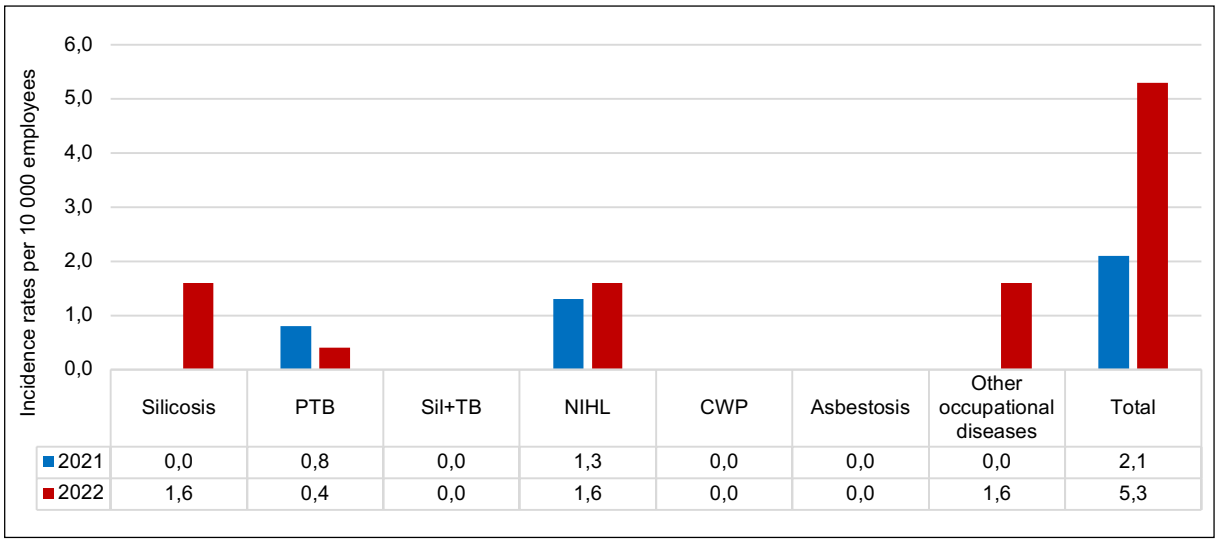
The iron ore sector implemented the following initiatives to reduce the incidence of NIHL:

- HCPs including exposure monitoring programmes and hearing loss awareness programmes.
- Medical surveillance, close monitoring and investigations of hearing loss at PLH shift ≥2.5%.
- The use of HPDs and double hearing protection in noise zones.

The iron ore sector implemented the following initiatives to reduce the incidence of MSDs:

- Ergonomic management including education on safe lifting and flowcharts to promote safe manual lifting of heavy loads.
- History taking, physical examinations for early diagnosis, treatment and reasonable accommodation of employees.

FIGURE 3.2.2.1.2(g):
Occupational disease incidence rates per 10 000 employees reported from AMRs by iron ore mines for 2021 and 2022



	Silicosis	PTB	Sil+TB	NIHL	CWP	Asbestosis	Other occupational diseases	Total
2021	0,0	0,8	0,0	1,3	0,0	0,0	0,0	2,1
2022	1,6	0,4	0,0	1,6	0,0	0,0	1,6	5,3

MANGANESE MINES

During 2022, the manganese sector reported 10 occupational disease cases compared to six cases in 2021. The analysis of the occupational disease incidence rates per 10 000 employees showed an increase from a rate of 3.4 in 2021 to a rate of 6.1 in 2022, as illustrated in Figure 3.2.2.1.2(h).

The manganese sector reported one case of EPTB in 2022 compared to no cases reported for other occupational disease in 2021.

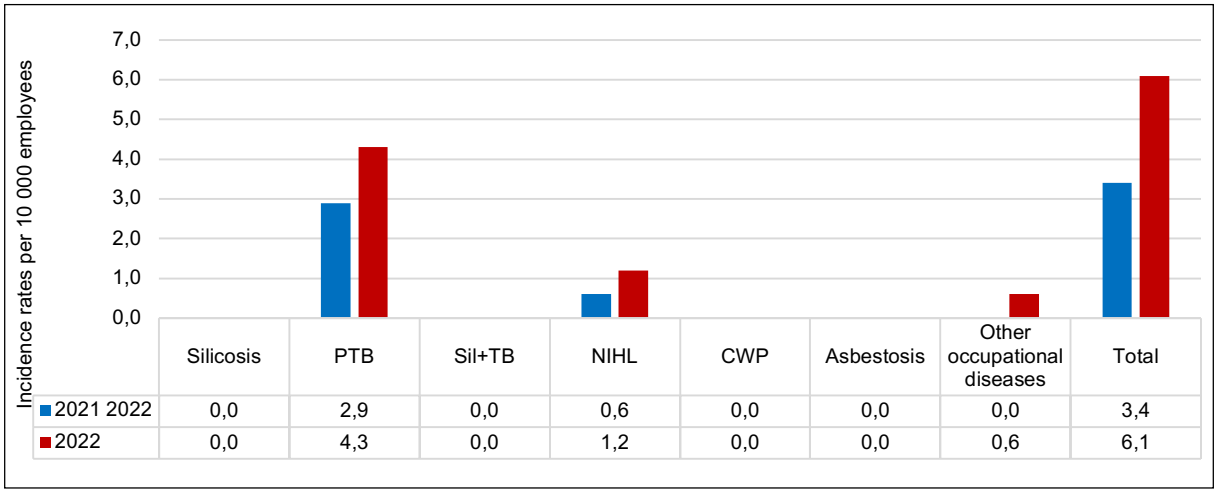
The manganese sector implemented the following initiatives to reduce the incidence of OLD:

- Continuous TB awareness during induction programmes.
- Monthly follow-ups regarding TB cases to monitor compliance to the National TB Management Guidelines.
- Promote referral or investigations of possible OLD.

The manganese sector implemented the following initiatives to reduce the incidence of NIHL:

- HCPs including annual audiometry (risk-based) measuring shifts from milestone-baselines and PLH shifts.
- Hearing loss awareness during induction programmes, clinical examinations and risk-based audiometry.
- Investigation of NIHL incidents with notification and specialist referral where applicable.

FIGURE 3.2.2.1.2(h):
Occupational disease incidence rates per 10 000 employees reported from AMRs by manganese mines for 2021 and 2022



	Silicosis	PTB	Sil+TB	NIHL	CWP	Asbestosis	Other occupational diseases	Total
2021 2022	0,0	2,9	0,0	0,6	0,0	0,0	0,0	3,4
2022	0,0	4,3	0,0	1,2	0,0	0,0	0,6	6,1

ALL OTHER MINES

The other mines sector reported 58 cases of occupational diseases during 2022 compared to 59 cases in 2021. The analysis of the occupational disease incidence rate per 10 000 employees showed a slight decrease from a rate of 13.1 in 2021 to a rate of 12.2 in 2022, as illustrated in Figure 3.2.2.1.2(i).

During 2022, the other mines sector reported one case of MSD compared to four cases in 2021.

The other mines implemented the following initiatives to reduce the incidence of OLD:

- Occupational hygiene monitoring programmes according to legal and milestone requirements.
- Ongoing employee education on workplace hazardous exposures.
- Continuous screening for PTB risk-based medical surveillance to identify early signs of respiratory-related diseases.
- Health incident investigation programmes to control and identify deviations in health or exposures.
- Employee education on the use and maintenance of PPE.

The other mines implemented the following initiatives to reduce the incidence of NIHL:

- Ongoing training and awareness sessions on the effects of occupational and non-occupational noise exposure.
- Adherence to the STS milestones, audiometry testing to ensure early detection and the prevention of further deterioration.
- Issuing of HPDs.

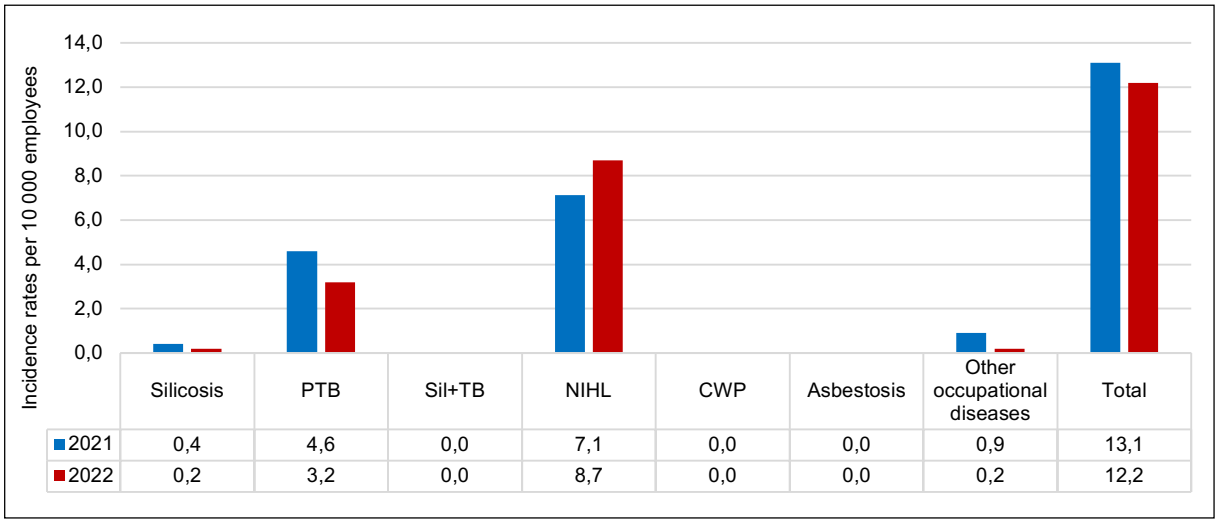
The other mines implemented the following initiatives to reduce the incidence of MSDs:

- Continuous improvement on engineering controls to eliminate ergonomic complications.
- Health education on musculoskeletal diseases and education on maintaining a good posture during the handling of loads.
- Conduct physical capacity assessments on high-risk cases such as obesity or high body mass index (BMI) counts.
- Ergonomic training as part of medical surveillance and investigation of cases identified

The other mines implemented the following initiatives to reduce the incidence of other occupational diseases:

- Risk management with the integration of hygiene surveillance outcomes and guidance, health risk assessments, monitoring and regular medical reviews.
- Monitoring silica allergy.
- Manage and monitor chronic conditions and non-communicable diseases (NCDs) as a basis for good occupational medicine practice and risk mitigation.
- Issuing PPE where required.

FIGURE 3.2.2.1.2(i):
Occupational disease incidence rates per 10 000 employees reported from AMRs by all other mines for 2021 and 2022



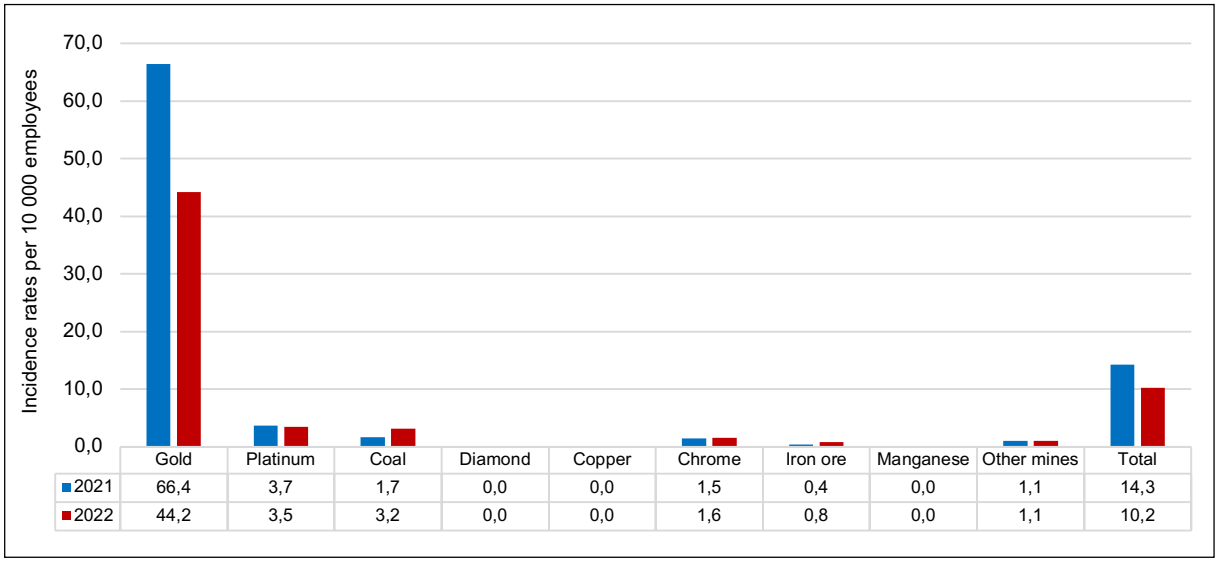
	Silicosis	PTB	Sil+TB	NIHL	CWP	Asbestosis	Other occupational diseases	Total
2021	0,4	4,6	0,0	7,1	0,0	0,0	0,9	13,1
2022	0,2	3,2	0,0	8,7	0,0	0,0	0,2	12,2

3.2.2.2 *Medical incapacity due to occupational and non-occupational diseases*

3.2.2.2.1 Medical incapacity due to occupational diseases

The analysis of medical incapacity due to occupational disease incidence rates showed a decrease from 14.3 per 10 000 employees in 2021 to 10.2 in 2022, as outlined in Figure 3.2.2.2.1.

FIGURE 3.2.2.2.1:
Cases of medical incapacity due to occupational disease incidence rates per 10 000 employees by commodity for 2021 and 2022

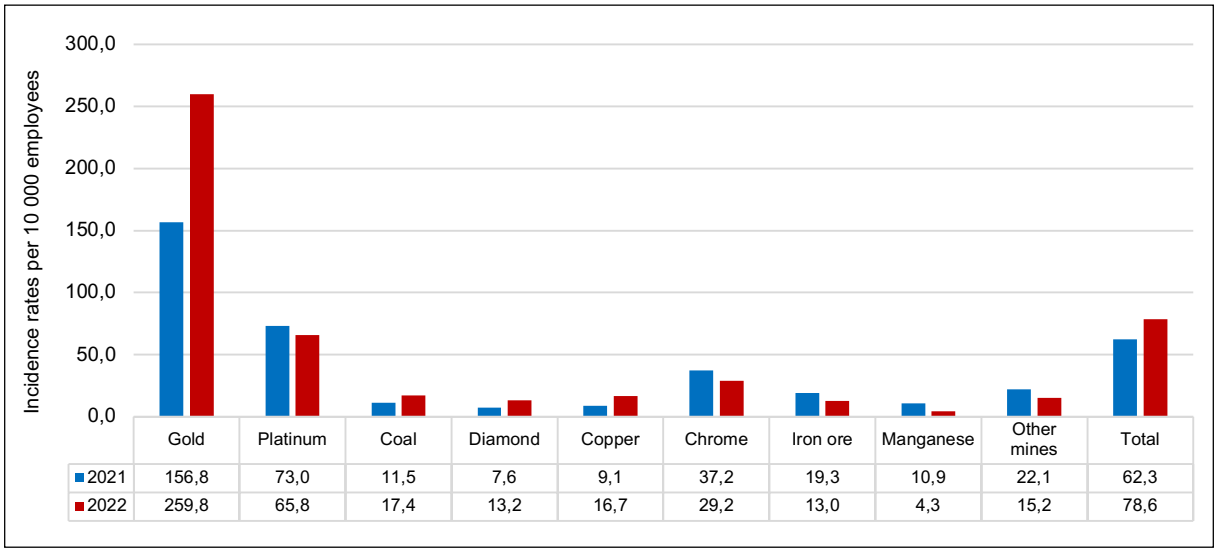


	Gold	Platinum	Coal	Diamond	Copper	Chrome	Iron ore	Manganese	Other mines	Total
2021	66,4	3,7	1,7	0,0	0,0	1,5	0,4	0,0	1,1	14,3
2022	44,2	3,5	3,2	0,0	0,0	1,6	0,8	0,0	1,1	10,2

3.2.2.2.2 Medical incapacity due to non-occupational diseases

The analysis of medical incapacity due to non-occupational disease incidence rates showed an increase from 62.3 per 10 000 employees in 2021 to 78.6 in 2022, as outlined in Figure 3.2.2.2.2.

FIGURE 3.2.2.2.2:
Cases of medical incapacity due to non-occupational disease incidence rates per 10 000 employees by commodity for 2021 and 2022

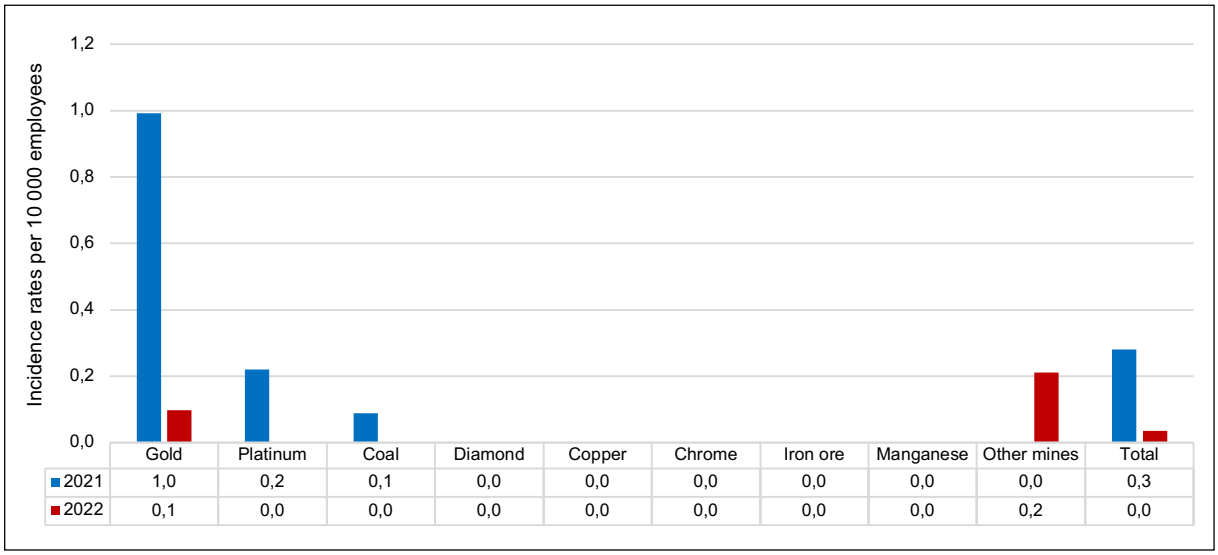


	Gold	Platinum	Coal	Diamond	Copper	Chrome	Iron ore	Manganese	Other mines	Total
2021	156,8	73,0	11,5	7,6	9,1	37,2	19,3	10,9	22,1	62,3
2022	259,8	65,8	17,4	13,2	16,7	29,2	13,0	4,3	15,2	78,6

3.2.2.3 Deaths due to work-related diseases

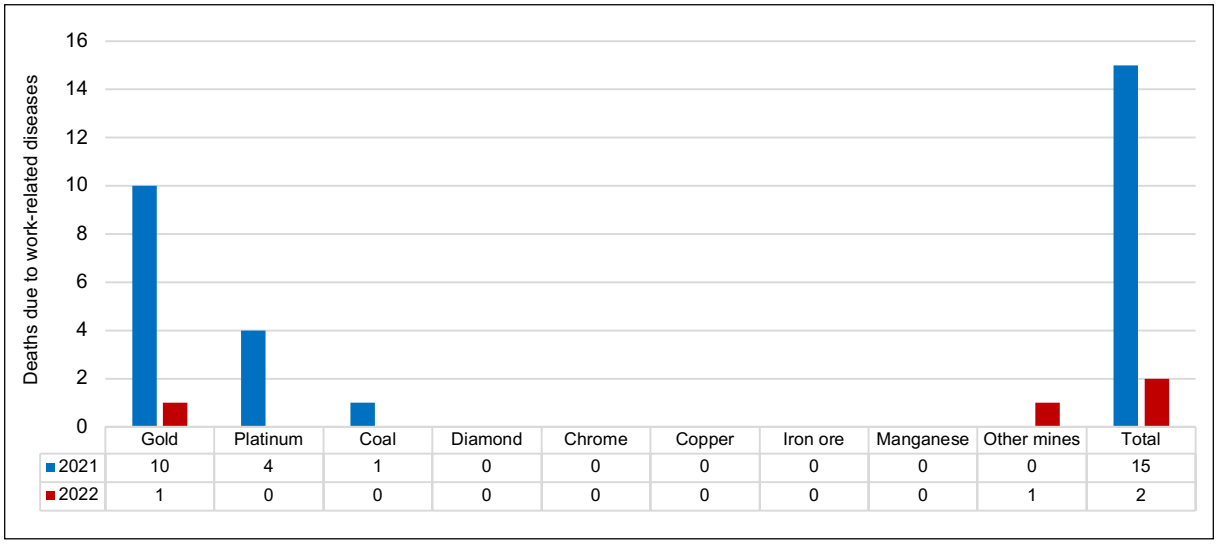
The analysis of deaths due to work-related disease incidence rate showed an insignificant change from 0.3 per 10 000 employees in 2021 to 0.0 in 2022, as illustrated in Figure 3.2.2.3(a).

FIGURE 3.2.2.3(a):
Deaths due to work-related disease incidence rates per 10 000 employees by commodity for 2021 and 2022



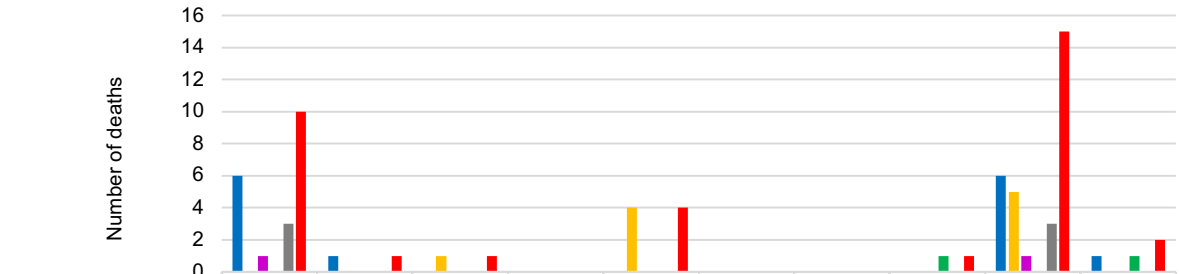
	Gold	Platinum	Coal	Diamond	Copper	Chrome	Iron ore	Manganese	Other mines	Total
2021	1,0	0,2	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,3
2022	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,2	0,0

FIGURE 3.2.2.3(b):
Total deaths due to work-related diseases by commodity for 2021 and 2022



	Gold	Platinum	Coal	Diamond	Chrome	Copper	Iron ore	Manganese	Other mines	Total
2021	10	4	1	0	0	0	0	0	0	15
2022	1	0	0	0	0	0	0	0	1	2

FIGURE 3.2.2.3(c):
Causes of deaths

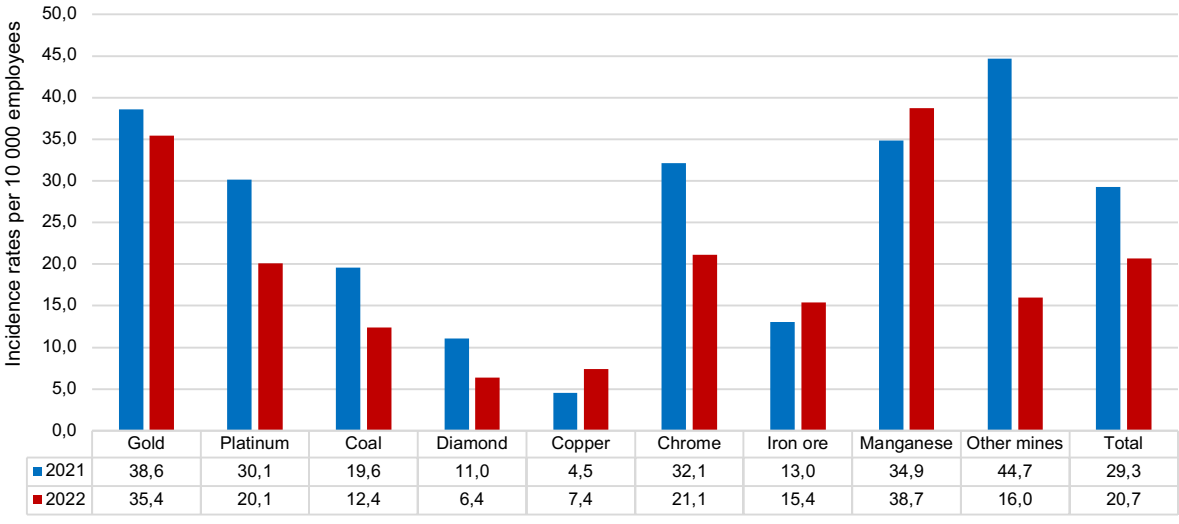


	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
	Gold		Coal		Platinum		Other mines		Total	
PTB	6	1	0	0	0	0	0	0	6	1
CRTB	0	0	1	0	4	0	0	0	5	0
MDR-TB	1	0	0	0	0	0	0	0	1	0
Myocardial infarction	0	0	0	0	0	0	0	1	0	1
TB	3	0	0	0	0	0	0	0	3	0
Total	10	1	1	0	4	0	0	1	15	2

3.2.2.4 Natural deaths

The analysis of natural deaths incidence rates showed a decrease from 29.3 per 10 000 employees in 2021 to 20.7 in 2022, as illustrated in Figure 3.2.2.4(a).

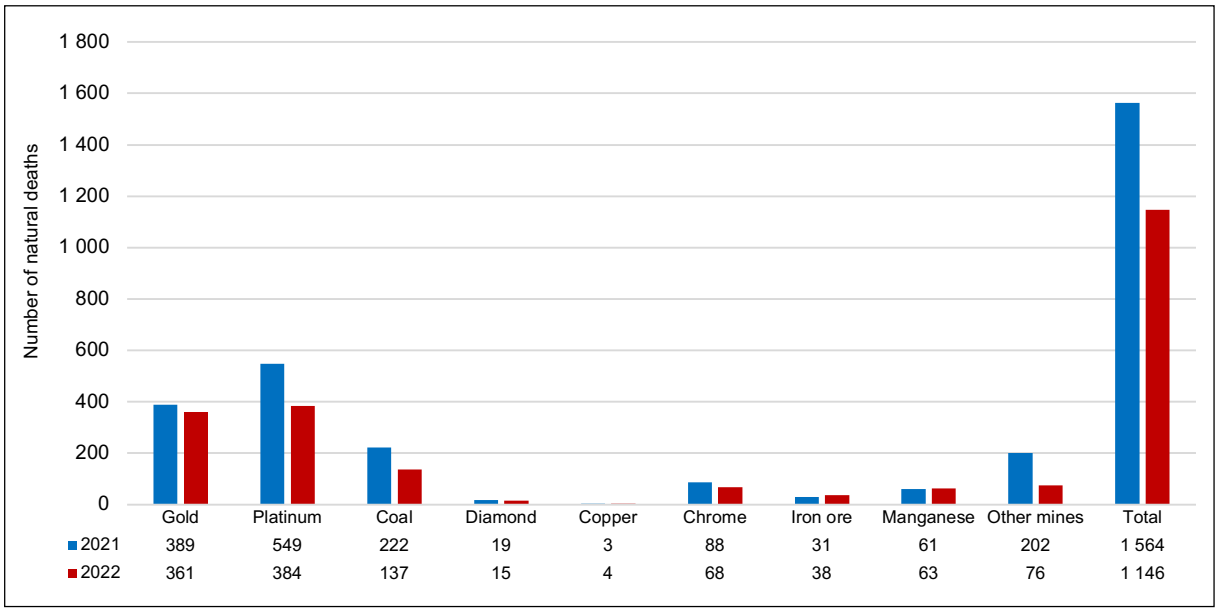
FIGURE 3.2.2.4(a):
Natural death incidence rates per 10 000 employees by commodity for 2021 and 2022



	Gold	Platinum	Coal	Diamond	Copper	Chrome	Iron ore	Manganese	Other mines	Total
2021	38,6	30,1	19,6	11,0	4,5	32,1	13,0	34,9	44,7	29,3
2022	35,4	20,1	12,4	6,4	7,4	21,1	15,4	38,7	16,0	20,7

A total of 1 146 natural deaths was reported by all mines during 2022, compared to 1 564 natural deaths in 2021.

FIGURE 3.2.2.4(b):
Total natural deaths by commodity for 2021 and 2022



3.3 Medical Inspector's report

The MHSA differs from the OHSA in that it provides an opportunity to mine employees to dispute the decision of the OMP by lodging a medical appeal if they are declared unfit for their occupations. This is covered in Section 20 of the MHSA and the legally appointed Medical Inspector is responsible for the adjudication of these medical appeals.

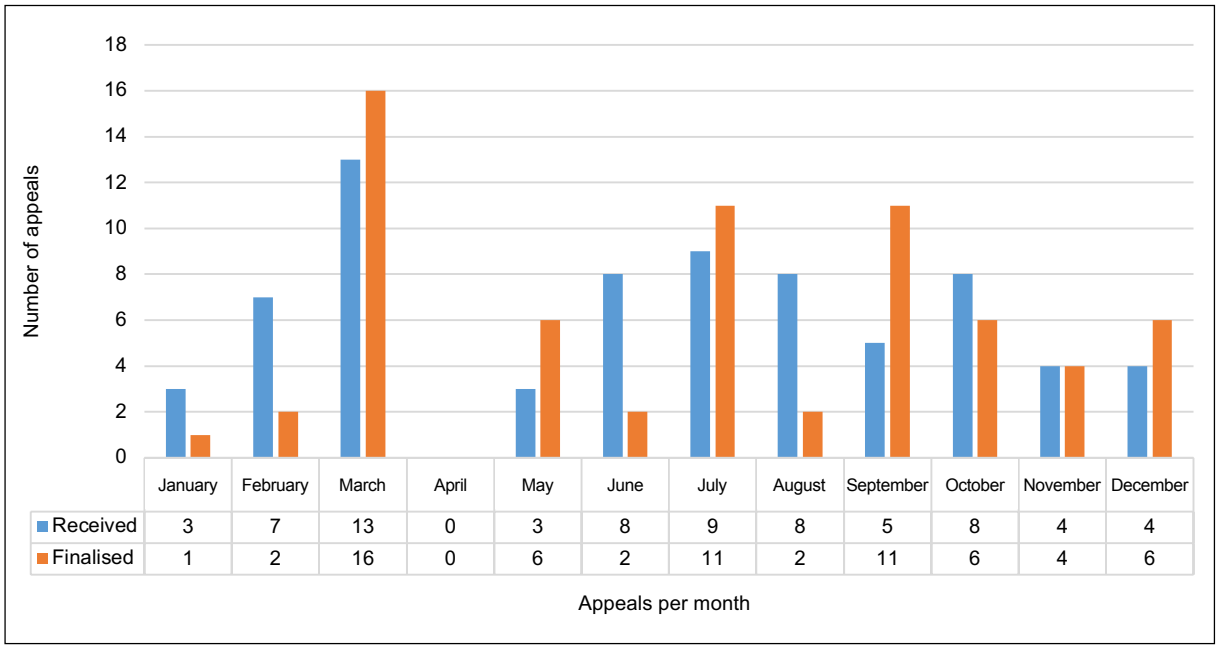
The Medical Inspector determines the fairness of the decision by the OMP and after gathering all the necessary information, a ruling will be made on the fitness status of the employees. Section 20 of the MHSA legally allows the Medical Inspector to vary; set aside or replace the decision of the OMP.

3.3.1 Medical appeals

The Medical Inspector received a total of 124 appeal documents in 2022. Only 72 of these received documents met the requirements to be classified and processed as a Section 20 medical appeal. From the 72 qualifying Section 20 medical appeals, the Medical Inspector was able to finalise 67 medical appeal reports with a ruling indicating the fitness status of the employees concerned. This means that for the period under review, 93% of the medical appeals received were finalised.

FIGURE 3.3.1:

Appeals received and finalised for 2022



	January	February	March	April	May	June	July	August	September	October	November	December
Received	3	7	13	0	3	8	9	8	5	8	4	4
Finalised	1	2	16	0	6	2	11	2	11	6	4	6

3.3.2 Appeals received per region

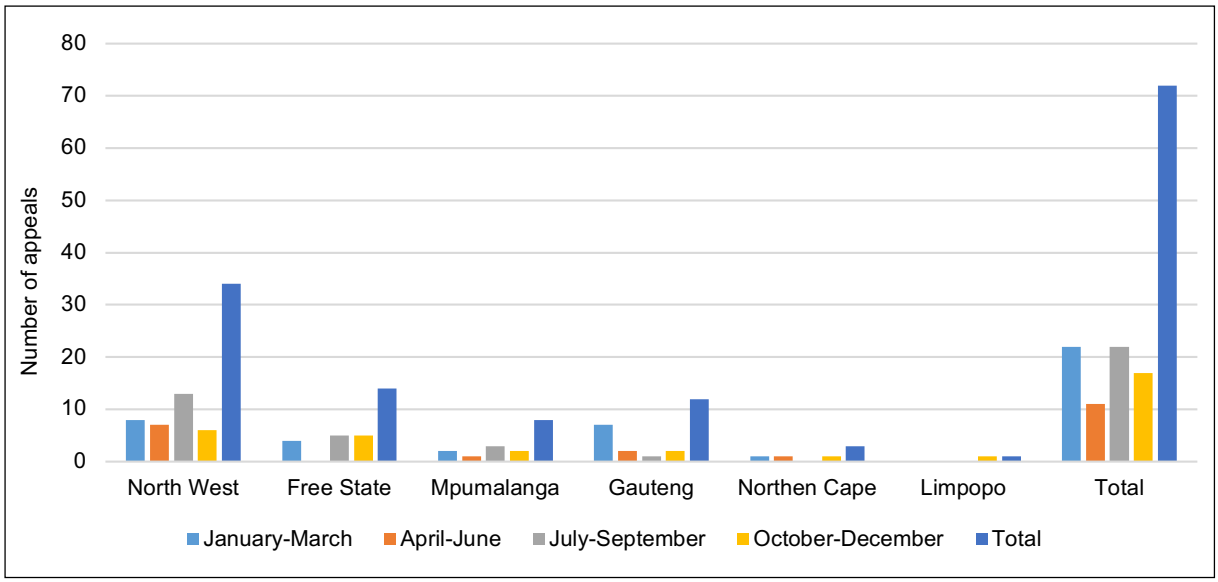
TABLE 3.3.2:

Number of appeals per region from January to December 2022

	NORTH WEST	FREE STATE	MPUMALANGA	GAUTENG	NORTHERN CAPE	LIMPOPO	TOTAL
January-March	8	4	2	7	1	0	22
April-June	7	0	1	2	1	0	11
July-September	13	5	3	1	0	0	22
October-December	6	5	2	2	1	1	17
TOTAL	34	14	8	12	3	1	72

FIGURE 3.3.2:

Number of appeals per region from January to December 2022



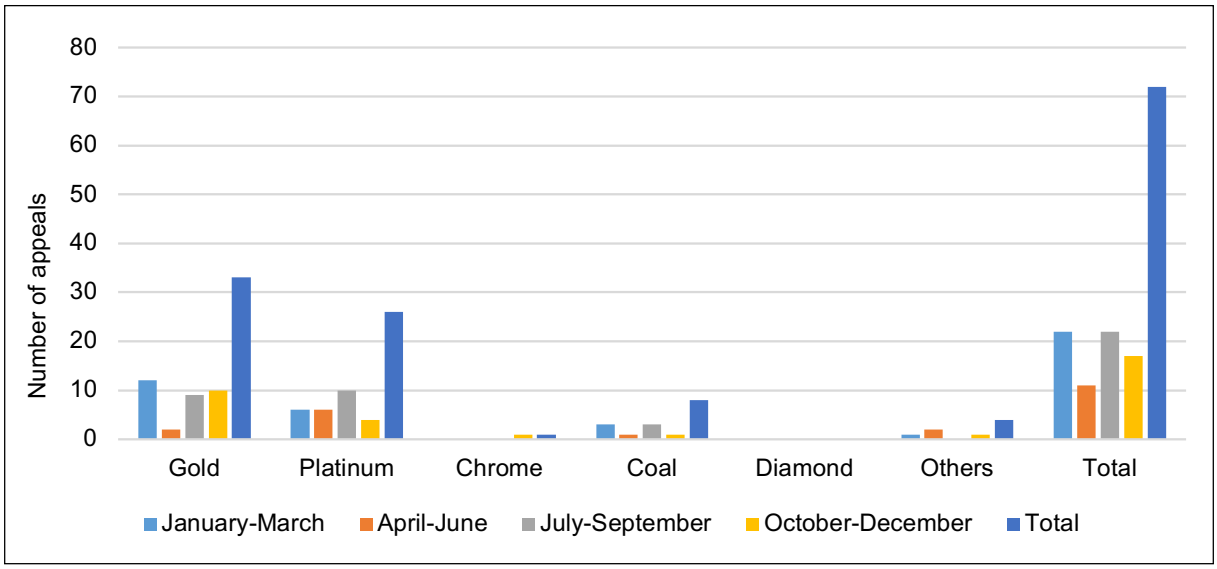
Of the 72 appeals handled, most of the appeal documents received were from the North West regions and the Free State region with 34 and 14 appeals respectively. During the reporting period, more appeals were received during the first and third quarters of 2022. No appeals were received from the coastal regions.

3.3.3 Appeals received per commodity

TABLE 3.3.3:
Appeals received per commodity

	GOLD	PLATINUM	CHROME	COAL	DIAMONDS	OTHER	TOTAL
January - March	12	6	0	3	0	1	**22**
April - June	2	6	0	1	0	2	**11**
July - September	9	10	0	3	0	0	**22**
October - December	10	4	1	1	0	1	**17**
TOTAL	**33**	**26**	**1**	**8**	**0**	**4**	**72**

FIGURE 3.3.3:
Appeals received per commodity



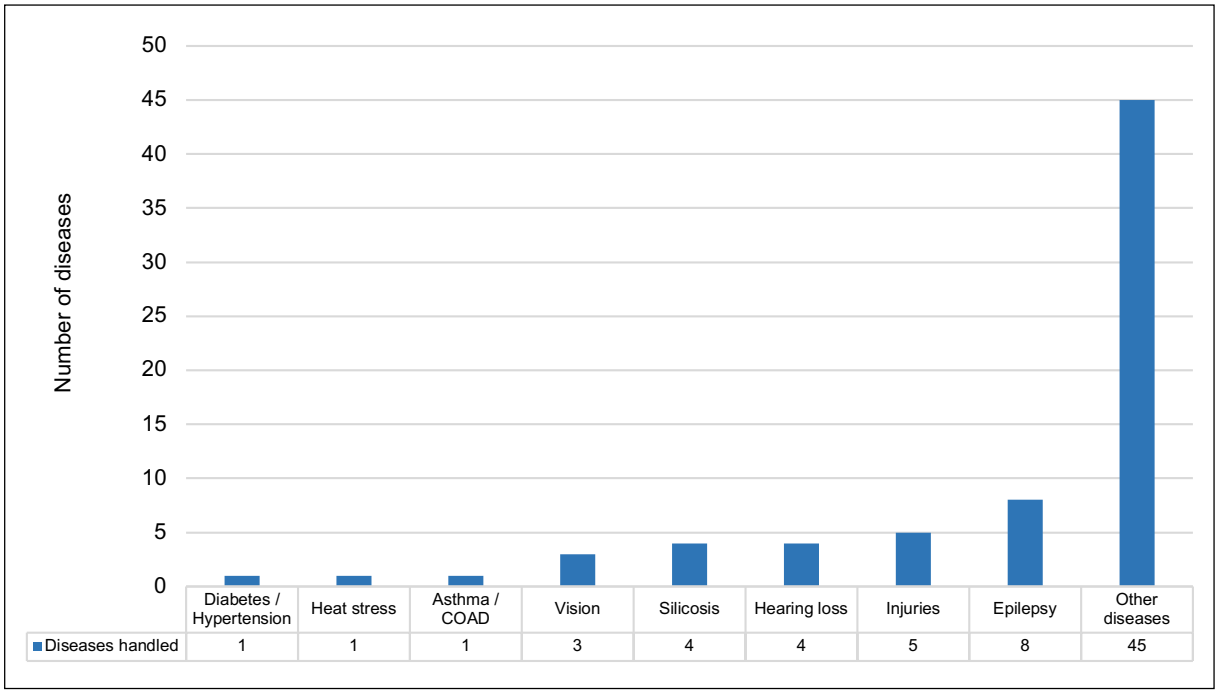
Most appeals emanated from the gold and platinum commodities. This corresponds with the North West and Free State regions which have many gold and platinum mines.

3.3.4 Diseases associated with appeals received

Medical appeals deal with different medical conditions of mine employees and once an appeal is lodged, it is important to determine the medical condition of the employee. For the current reporting period, the most common medical conditions dealt with were silicosis, hearing and visual impairments.

There was a spike in epilepsy cases during 2022. Various other diseases constituted more than half of the appeals dealt with and were related to different conditions such as musculoskeletal conditions, weight problems, carcinomas, cardiovascular conditions, psychiatric/psychological conditions and renal diseases.

FIGURE 3.3.4:
Diseases associated with appeals received for 2022

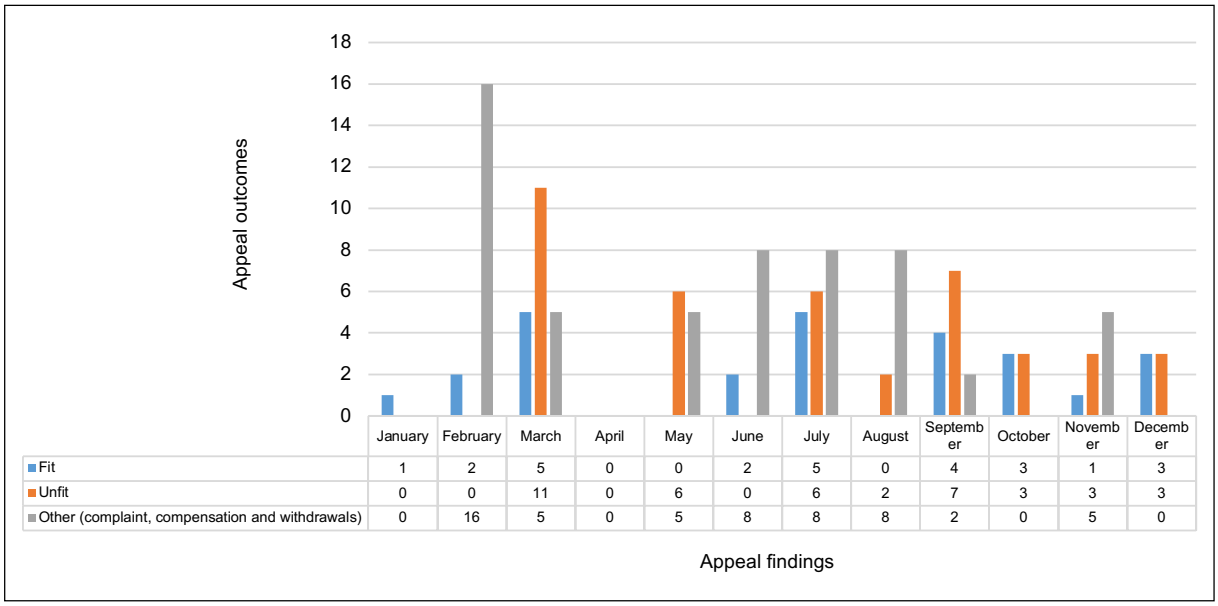


3.3.5 Appeal findings

In terms of Section 20 of the MHSA, the Medical Inspector has the right to vary; confirm or set aside the decision of the OMP. This means that the final ruling of the Medical Inspector can go either way, depending on the availability of the information presented.

Figure 3.3.5 below shows that employees could be found fit or unfit to perform their work. The appeals that did not meet the requirements of Section 20, was provided with alternative advice and solutions.

FIGURE 3.3.5:
Appeal findings for 2022



	January	February	March	April	May	June	July	August	September	October	November	December
Fit	1	2	5	0	0	2	5	0	4	3	1	3
Unfit	0	0	11	0	6	0	6	2	7	3	3	3
Other (complaint, compensation and withdrawals)	0	16	5	0	5	8	8	8	2	0	5	0

In terms of appeal findings for the 124 cases handled, 21% of appeal cases were found to be fit, 33% of appeal cases were found to be unfit and 46% could not be declared fit or unfit because it did not meet the requirements of Section 20 of the MHSA. These cases were handled differently and referred accordingly.

3.3.6 Challenges to the appeal process

Challenges pertaining to the Section 20 appeal process are bound to occur when there are different role-players that are involved. The final decision of the Medical Inspector relies on inputs from these role-players. When the required information are not submitted or the individuals are not available, it affects the turn-around time in completing the appeals within a reasonable timeframe.

The following are challenges identified amongst the different role-players and it should be noted that some of these challenges have remained constant over the years:

3.3.6.1 Employees

- Employees still appeal late although the number of late appeals have decreased.
- Employees are still appealing against the decision of the incapacity committee and not the decision of the OMP.
- Employees or their representatives use old forms for lodging appeals and therefore do not provide adequate information as required.
- Employees still use the appeal system to raise complaints regarding non-compliance to different Sections of the MHSA.

3.3.6.2 Employers (OMPs)

- Delays from OMPs in providing reports to substantiate their decisions in declaring employees unfit.
- OMPs do not have a holistic approach in making their decisions on the fitness status of the employee.
- OMPs are afraid to make decisions on the fitness status of employees and are faced with dual loyalty.

3.3.6.3 *Second opinion doctors*

- Inability of doctors to provide appointment dates.
- Doctors were not eager to write reports for appellants.
- Doctors were not eager to attend to non-emergency appeal cases.

3.3.6.4 *Section 20 of the MHSA*

- It is often read out of context and misinterpreted.
- Failure to recognise that there are only two reasons to lodge a Section 20 medical appeal in line with the MHSA.

3.4 Reporting on HIV and TB

3.4.1 Compliance for all mines

TABLE 3.4.1(a):
Compliance for all mines per commodity for 2022

MEASURE	GOLD	COAL	PLATINUM	DIAMONDS	OTHER COMMODITIES	TOTAL
	Number of mines					Total mines
	48	138	61	120	449	816
	Employees					Total employees
	93 960	103 695	179 046	17 450	104 614	498 765
Integrated HIV and TB policy	44	124	61	120	381	730
	91.7%	**89.9%**	**100.0%**	**100.0%**	**84.9%**	**89.5%**
Integrated HIV and TB programme	42	93	60	8	265	468
	87.5%	**67.4%**	**98.4%**	**6.7%**	**59.0%**	**57.4%**
HIV and TB programme budget	35	89	60	9	188	381
	72.9%	**64.5%**	**98.4%**	**7.5%**	**41.9%**	**46.7%**
Monitoring and evaluation system for TB and HIV programmes	42	94	60	10	267	473
	87.5%	**68.1%**	**98.4%**	**8.3%**	**59.5%**	**58.0%**

The total compliance of the integrated HIV and TB policy showed a decrease from 93.7% in 2021 to 89.5% in 2022, while the total number of mines that submitted TB and HIV data has increased from 789 in 2021 to 816 in 2022. There was no significant change on the HIV and TB programme budget as it has remained relatively unchanged at 46.7% for the third reporting year.

The platinum sector has performed very well during the current reporting period as this sector has managed to achieve almost 100% in the overall compliance relating to HIV and TB policy, programmes, budget and monitoring. The diamond sector, when compared to other sectors, was the worst performer and only did well with integrated TB and HIV policy.

TABLE 3.4.1(b):
HIV counselling and testing (HCT) services and TB programme data elements for all commodities for 2022

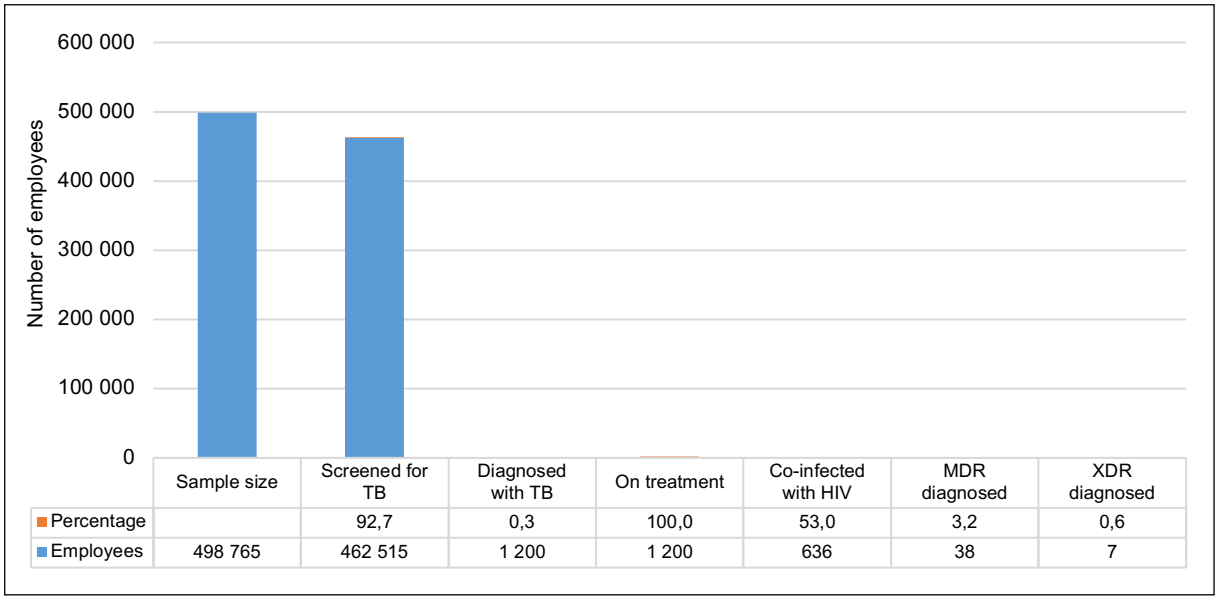
MEASURE	GOLD	COAL	PLATINUM	DIAMONDS	OTHER COMMODITIES	TOTAL
	Number of mines					Total mines
	48	138	61	120	449	816
	Employees					Total employees
	93 960	103 695	179 046	17 450	104 614	498 765
Counselled for HIV	83 849	75 467	128 999	14 317	65 599	371 231
	89.24%	**72.78%**	**72.05%**	**82.05%**	**62.71%**	**74.43%**
Tested for HIV	50 459	44 112	90 552	10 184	41 173	236 480
	53.70%	**42.54%**	**50.57%**	**58.36%**	**39.36%**	**64.20%**
HIV positive	1 776	1 188	7 591	182	895	11 632
	1.89%	**1.15%**	**4.24%**	**1.04%**	**0.86%**	**4.90%**
Co-infected with TB and HIV	330	71	172	4	59	636
	57.19%	**52.59%**	**50.59%**	**20.00%**	**46.09%**	**53.00%**
Living with HIV and on antiretrovirals (ARV)	15 330	7 642	24 099	678	5 666	53 415
Screened for TB	90 780	98 165	155 502	17 167	100 901	462 515
	96.62%	**94.67%**	**86.85%**	**98.38%**	**96.45%**	**92.73%**
Diagnosed with TB	577	135	340	20	128	1 200
	0.64%	**0.14%**	**0.22%**	**0.12%**	**0,13%**	**0.26%**
On TB treatment	577	135	340	20	128	1 200
	100.00%	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
Diagnosed with multidrug-resistant TB (MDR-TB)	18	1	13	0	6	38
	3.12%	**0.74%**	**3.82%**	**0.00%**	**4.69%**	**3.17%**
Diagnosed with extensively drug-resistant TB (XDR-TB)	1	1	5	0	0	7
	0,17%	**0.74%**	**1.47%**	**0.00%**	**0.00%**	**0.58%**

There was an overall increase in HIV counselling and TB screening compared to 2021 when considering the different commodities that have submitted TB and HIV data. This has subsequently resulted in an increase in employees diagnosed with TB and HIV.

The new targets for TB and HIV have been revised and changed by the World Health Organisation (WHO) from 90% to 95% achievement.

3.4.2 TB programme and TB/HIV co-infection for all mines

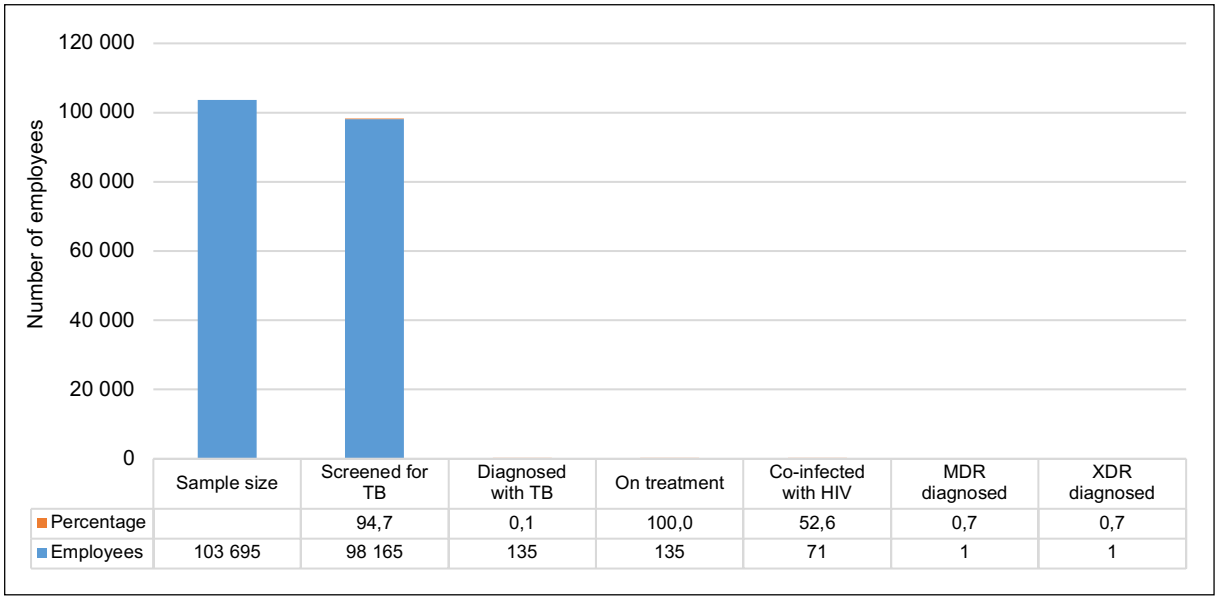
FIGURE 3.4.2(a):
TB programme and TB/HIV co-infection for all mines



	Sample size	Screened for TB	Diagnosed with TB	On treatment	Co-infected with HIV	MDR diagnosed	XDR diagnosed
Percentage		92,7	0,3	100,0	53,0	3,2	0,6
Employees	498 765	462 515	1 200	1 200	636	38	7

The national TB screening has improved from 91.9% in 2021 to 92.7% in 2022 and this steady improvement indicates that the mines have embarked on a TB recovery plan and are now reprioritising screening which was not done effectively during the COVID-19 pandemic.

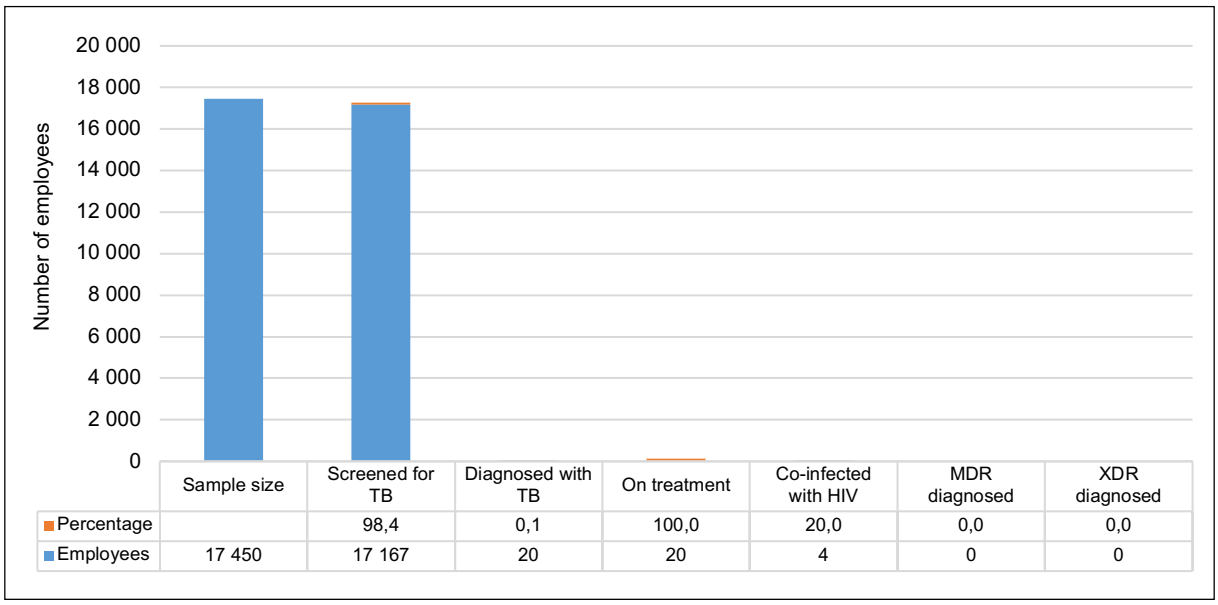
FIGURE 3.4.2(b):
Coal



	Sample size	Screened for TB	Diagnosed with TB	On treatment	Co-infected with HIV	MDR diagnosed	XDR diagnosed
Percentage		94,7	0,1	100,0	52,6	0,7	0,7
Employees	103 695	98 165	135	135	71	1	1

TB screening in the coal sector increased from 89.6% in 2021 to 94.7% in 2022. The latest improvement in the TB screening percentage is an improvement towards the new target of 95% achievement in a quest to end TB by 2030.

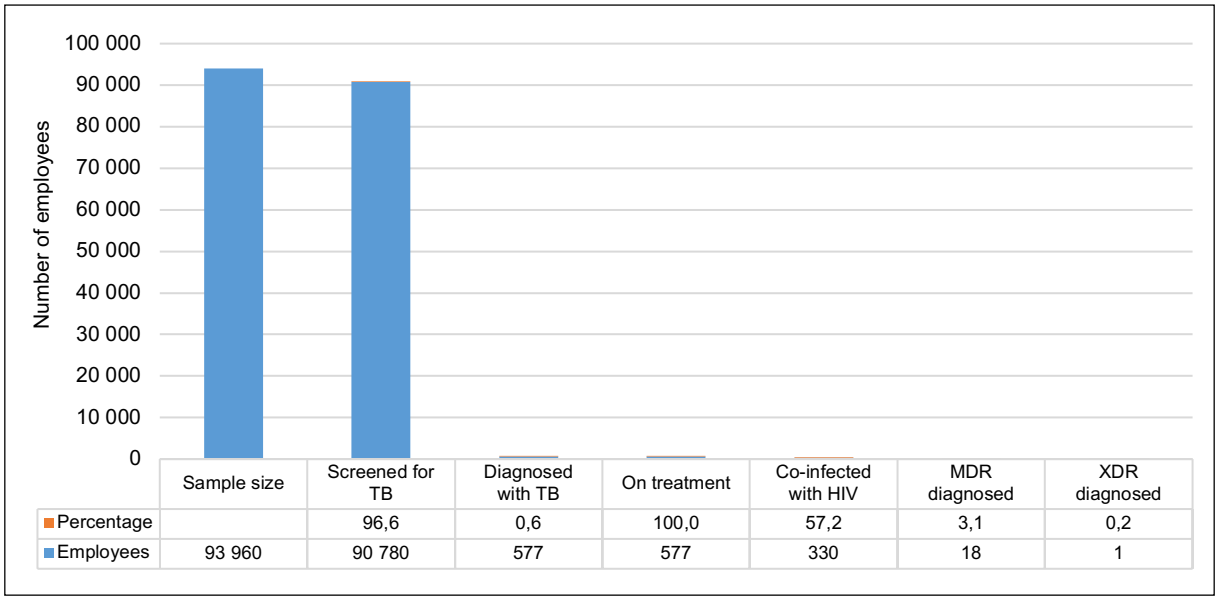
FIGURE 3.4.2(c):
Diamonds



	Sample size	Screened for TB	Diagnosed with TB	On treatment	Co-infected with HIV	MDR diagnosed	XDR diagnosed
Percentage		98,4	0,1	100,0	20,0	0,0	0,0
Employees	17 450	17 167	20	20	4	0	0

The diamond sector, despite performing poorly regarding compliance, has shown an increase in TB screening by 5.4% from 93% in 2021 to 98.40% in 2022. Employees diagnosed with TB decreased from 0.2% in 2021 to 0.1% in 2022. The co-infection rate also increased from 13% in 2021 to 20.0% in 2022.

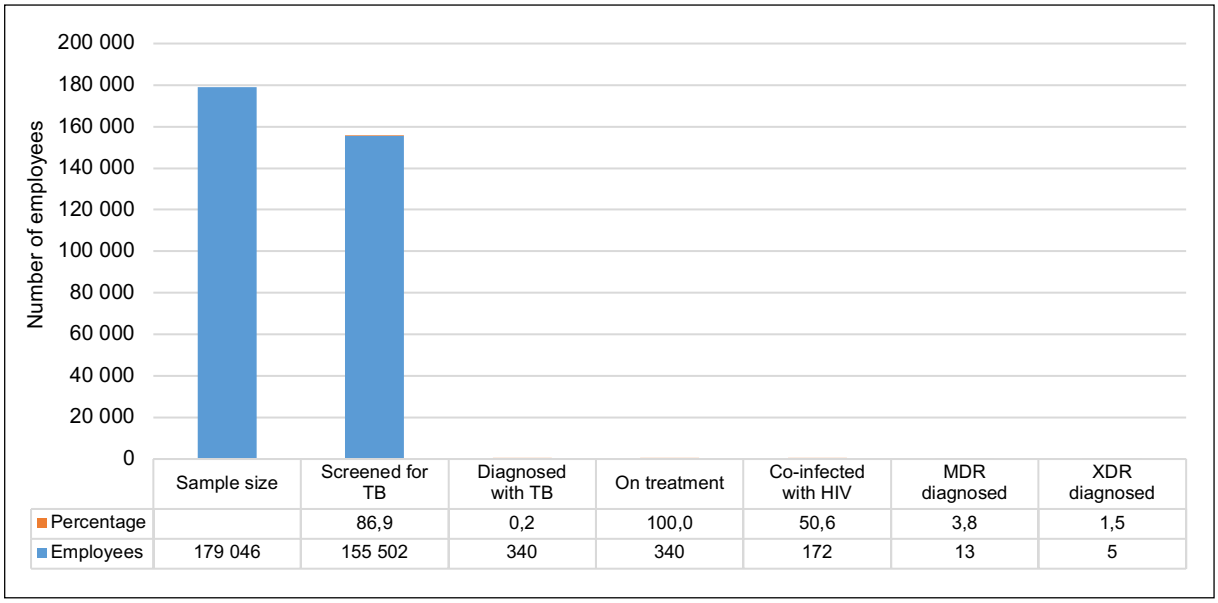
FIGURE 3.4.2(d):
Gold



	Sample size	Screened for TB	Diagnosed with TB	On treatment	Co-infected with HIV	MDR diagnosed	XDR diagnosed
Percentage		96,6	0,6	100,0	57,2	3,1	0,2
Employees	93 960	90 780	577	577	330	18	1

TB screening in the gold sector has slightly decreased from 97.5% in 2021 to 96.6% while the number of diagnosed TB cases remained unchanged at 0.6% in both 2021 and 2022. This steady trend is not surprising since there was no significant change regarding screening for TB in the past two years and the co-infection rate also remained constant for the same reason.

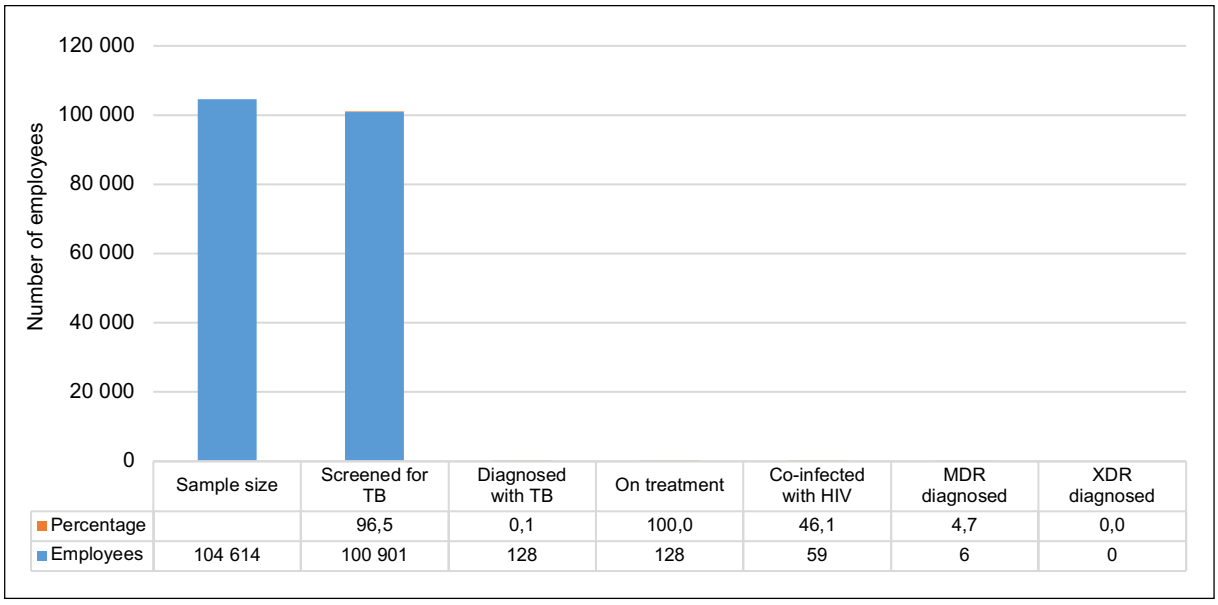
FIGURE 3.4.2(e):
Platinum



	Sample size	Screened for TB	Diagnosed with TB	On treatment	Co-infected with HIV	MDR diagnosed	XDR diagnosed
Percentage		86,9	0,2	100,0	50,6	3,8	1,5
Employees	179 046	155 502	340	340	172	13	5

The percentage for TB screening in the platinum sector has further decreased from 93.7% in 2021 to 86.9% in 2022. Employees diagnosed with TB remained constant at 0.2% for the past three reporting periods. There are pockets of excellence shown in some platinum mines which achieved 100% compliance, while others do not perform well, affecting the overall performance of the platinum industry. Generally platinum mines have done very well in terms of compliance, however the decrease in TB screening is of great concern.

FIGURE 3.4.2(f):
Other commodities

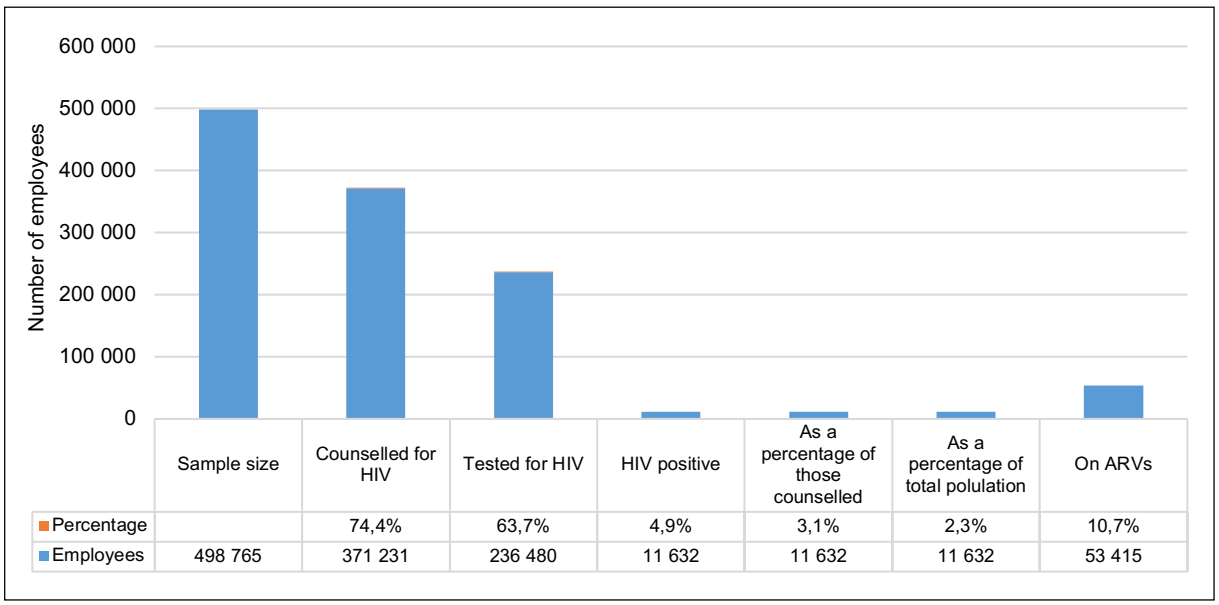


	Sample size	Screened for TB	Diagnosed with TB	On treatment	Co-infected with HIV	MDR diagnosed	XDR diagnosed
Percentage		96,5	0,1	100,0	46,1	4,7	0,0
Employees	104 614	100 901	128	128	59	6	0

Mines which consist of other commodities not mentioned above, have done relatively well in terms of TB screening at 96.5% for 2022. Most of these mines are small mining operations and this shows that these mines have taken heed of the advice given during workshops with the DMRE. The rate of employees diagnosed with TB remained the same at 0.1% for the past two reporting periods.

3.4.3 HIV counselling and testing services for all mines

FIGURE 3.4.3:
HCT services for all mines for 2022

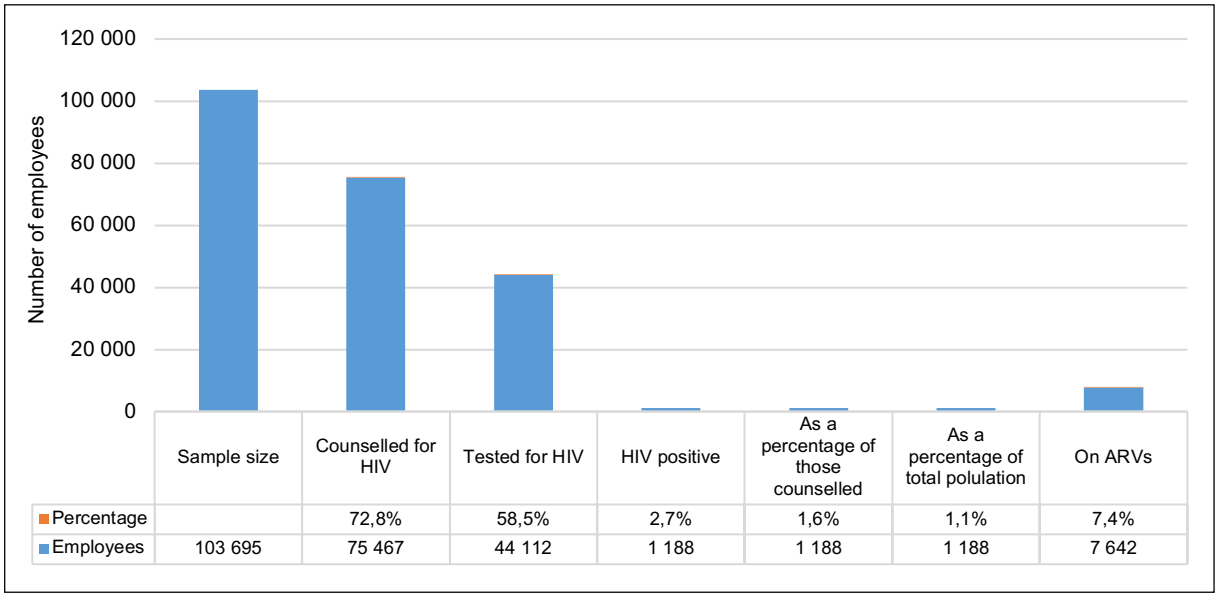


	Sample size	Counselled for HIV	Tested for HIV	HIV positive	As a percentage of those counselled	As a percentage of total polulation	On ARVs
Percentage		74,4%	63,7%	4,9%	3,1%	2,3%	10,7%
Employees	498 765	371 231	236 480	11 632	11 632	11 632	53 415

HIV counselling has significantly increased from 65.7% in 2021 to 74.4% in 2022 while HIV testing has markedly decreased from 72.8% in 2021 to 63.7%. The reality is that employees are still reluctant to test for HIV because of fear of the associated stigma or loss of employment should the results be positive. Also, those who have tested positive are unlikely to test again during campaigns.

3.4.4 HCT services per commodity

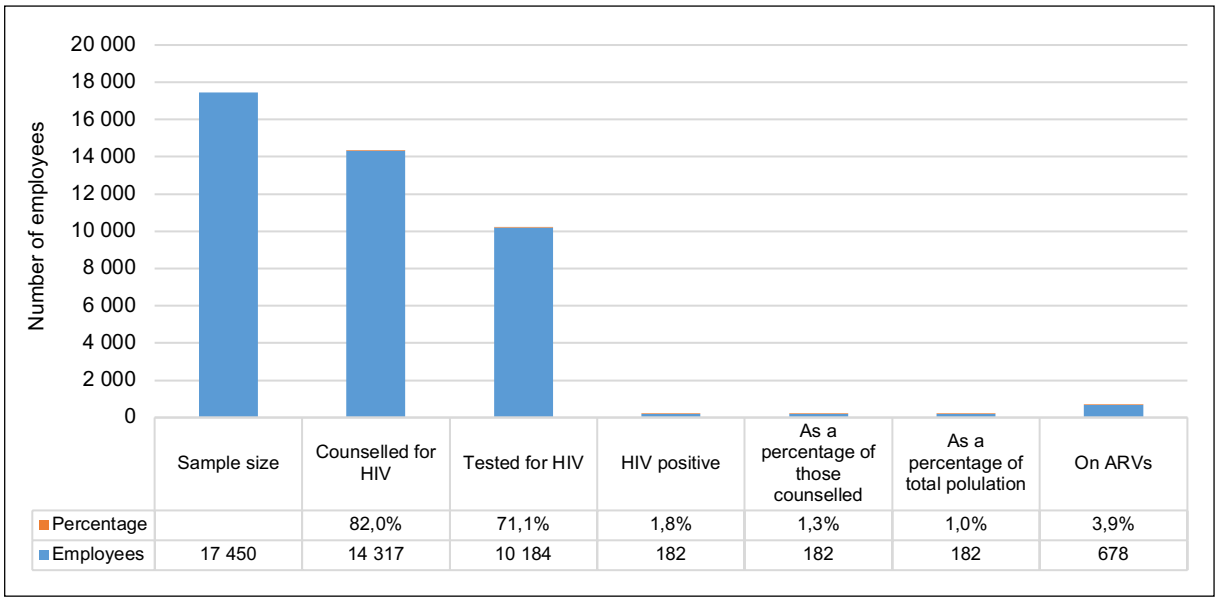
FIGURE 3.4.4(a):
Coal



	Sample size	Counselled for HIV	Tested for HIV	HIV positive	As a percentage of those counselled	As a percentage of total polulation	On ARVs
Percentage		72,8%	58,5%	2,7%	1,6%	1,1%	7,4%
Employees	103 695	75 467	44 112	1 188	1 188	1 188	7 642

HIV counselling in the coal sector has increased from 63.3% in 2021 to 72.8% in 2022, while HIV testing increased from 54.4% in 2021 to 58.5% in 2022. The rate of employees who tested positive for HIV has gradually decreased from 2.9% in 2021 to 2.7% in 2022. Even though counselling for HIV in the coal sector is still below acceptable targets, this improvement is encouraging.

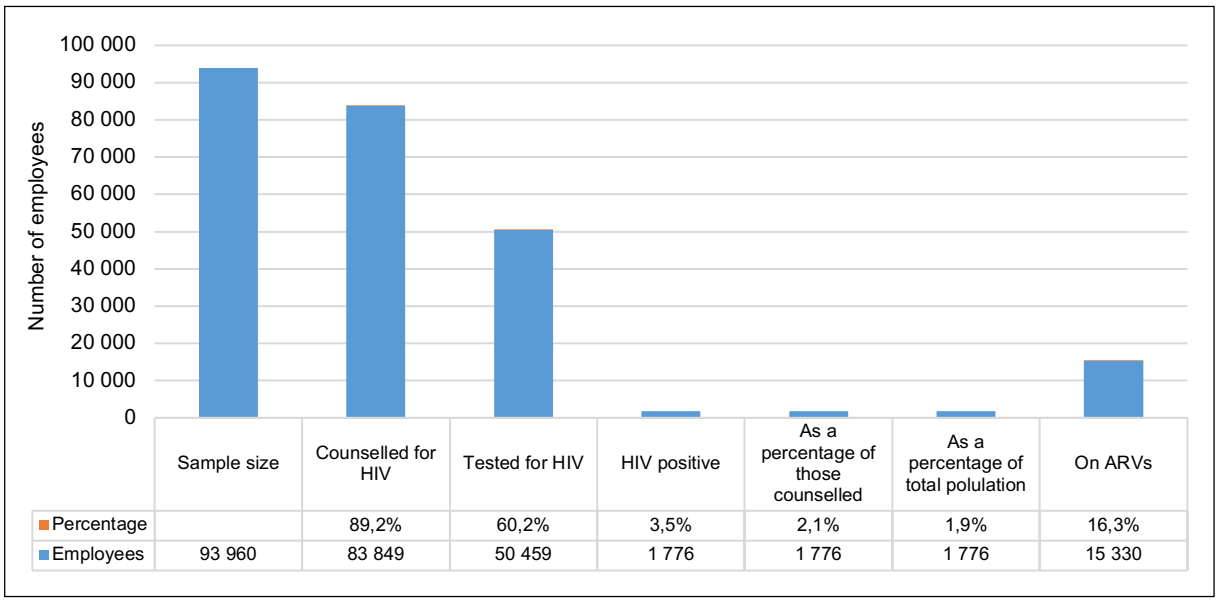
FIGURE 3.4.4(b):
Diamonds



	Sample size	Counselled for HIV	Tested for HIV	HIV positive	As a percentage of those counselled	As a percentage of total polulation	On ARVs
Percentage		82,0%	71,1%	1,8%	1,3%	1,0%	3,9%
Employees	17 450	14 317	10 184	182	182	182	678

Counselling for HIV in the diamond sector has increased significantly by 18.4% from 63.6% in 2021 to 82.0% in 2022. Employees who agreed to test for HIV also increased from 63.6% in 2021 to 71.1% in 2022. The increase could mean that the strategies which were put in place are finally yielding positive results.

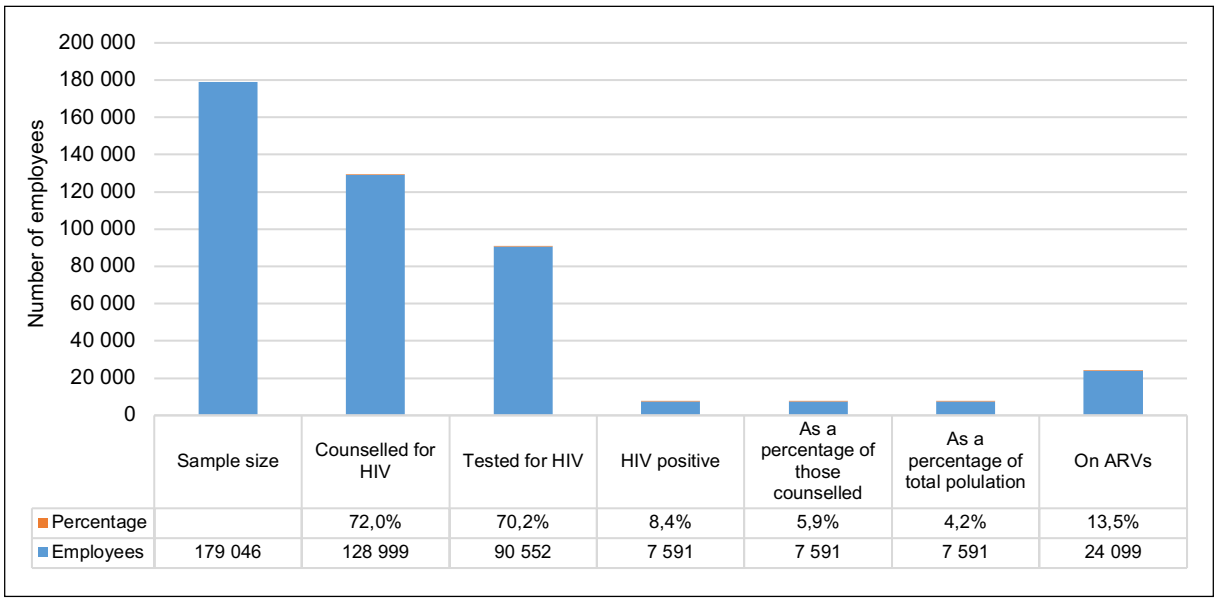
FIGURE 3.4.4(c):
Gold



	Sample size	Counselled for HIV	Tested for HIV	HIV positive	As a percentage of those counselled	As a percentage of total polulation	On ARVs
Percentage		89,2%	60,2%	3,5%	2,1%	1,9%	16,3%
Employees	93 960	83 849	50 459	1 776	1 776	1 776	15 330

The gold sector has markedly improved in terms of HIV counselling from 78.5% in 2021 to 89.2% in 2022. However, a sharp decrease in employees testing for HIV has been noted from 94.4% in 2021 to 60.2% in 2022. This could be because the employees who tested previously do not see a need to have their HIV status checked regularly. More education needs to be done on the importance of employees checking their HIV status frequently even if they tested negative.

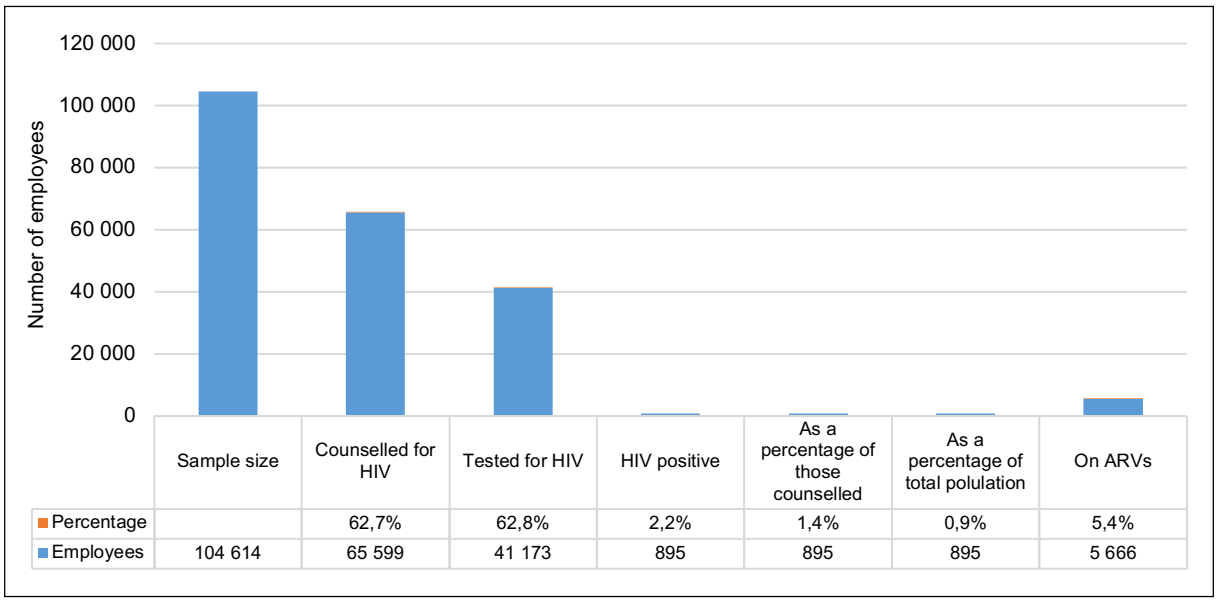
FIGURE 3.4.4(d):
Platinum



	Sample size	Counselled for HIV	Tested for HIV	HIV positive	As a percentage of those counselled	As a percentage of total polulation	On ARVs
Percentage		72,0%	70,2%	8,4%	5,9%	4,2%	13,5%
Employees	179 046	128 999	90 552	7 591	7 591	7 591	24 099

The platinum sector showed an increase from 69.4% in 2021 to 72% in 2022 in HIV counselling. There has been a decrease in testing rates from 77.4% in 2021 to 70.2% in 2022. The performance of the platinum sector has been fluctuating since 2019, with a downward trend in performance, however the data for 2022 has shown some improvement in their performance.

FIGURE 3.4.4(e):
Other commodities



	Sample size	Counselled for HIV	Tested for HIV	HIV positive	As a percentage of those counselled	As a percentage of total polulation	On ARVs
Percentage		62,7%	62,8%	2,2%	1,4%	0,9%	5,4%
Employees	104 614	65 599	41 173	895	895	895	5 666

Most of the smaller mines do not fall under the above four commodities and employs very few employees. These mines therefore do not have medical facilities and either refer employees to government clinics or outsource TB and HIV management to external service providers. In cases where employees are referred to government clinics, obtaining relevant data remains problematic if there is not a Memorandum of Understanding (MoU) in place.

Both HIV counselling and HIV testing showed an increase in 2022. This may indicate that some of the smaller mines have succeeded in obtaining data from government clinics for submission to the DMRE.

TABLE 3.4.4:

Trends of data elements for reporting years 2013 to 2022

DATA ELEMENTS	TOTAL LABOUR FORCE									
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	423 032	465 923	476 625	455 681	473 972	493 054	449 246	482 068	480 742	498 765
Counselled for HIV	**229 151** (54.2%)	**259 297** (55.7%)	**299 566** (62.9%)	**299 444** (65.7%)	**329 562** (69.5%)	**360 994** (73.2%)	**315 381** (70.2%)	**354 466** (73.5%)	**315 716** (65.7%)	**371 231** (74.4%)
Tested for HIV	**192 557** (84.0%)	**183 202** (70.7%)	**191 333** (63.9%)	**192 517** (64.3%)	**206 033** (62.5%)	**205 596** (57.0%)	**210 456** (66.7%)	**209 315** (59.1%)	**229 811** (72.8%)	**236 480** (63.7%)
HIV positive	**17 384** (9.0%)	**19 084** (10.4%)	**21 913** (11.5%)	**16 243** (8.4%)	**16 293** (7.9%)	**15 630** (7.6%)	**13 101** (6.2%)	**10 684** (5.1%)	**10 137** (4.4%)	**11 632** (4.9%)
Co-infected with TB and HIV	**2 905** (80.9%)	**2 820** (63.2%)	**3 063** (72.7%)	**2 359** (62.1%)	**1 719** (66.6%)	**1 441** (69.7%)	**895** (63.8%)	**699** (40.4%)	**568** (52.4%)	**636** (53.0%)
Living with HIV and on ARV	**28 887**	**24 740**	**27 272**	**38 804**	**39 308**	**42 002**	**12 858**	**85 418**	**51 656**	**53 415**
Screened for TB	**308 403** (72.9%)	**376 718** (80.8%)	**422 670** (88.7%)	**437 436** (96.0%)	**455 242** (96.0%)	**474 429** (96.2%)	**437 199** (97.3%)	**449 815** (93.3%)	**441 882** (91.9%)	**462 515** (92.7%)
Diagnosed with TB	**3 593** (1.2%)	**4 461** (1.2%)	**4 211** (1.0%)	**3 799** (0.9%)	**2 581** (0.6%)	**2 066** (0.4%)	**1 403** (0.3%)	**1 726** (0.4%)	**1 083** (0.2%)	**1 200** (0.3%)
On TB treatment	**3 483**	**3 999**	**4 367**	**3 687**	**2 414**	**1 899**	**1 729**	**1 676**	**1 084**	**1 200**
Diagnosed with MDR-TB	**149** (4.1%)	**190** (4.3%)	**112** (2.7%)	**123** (3.2%)	**114** (4.4%)	**71** (3.4%)	**86** (6.1%)	**46** (2.7%)	**28** (2.6%)	**38** (3.2%)
Diagnosed with XDR-TB	**11** (0.3%)	**18** (0.4%)	**14** (0.3%)	**13** (0.3%)	**12** (0.5%)	**8** (0.4%)	**8** (0.6%)	**11** (0.6%)	**2** (0.2%)	**7** (0.6%)

With the COVID-19 pandemic no longer labelled as a disaster, TB and HIV programmes are now being embarked on and this has resulted in some improvement in HIV counselling and TB screening at the mines. The increased TB screening resulted in more employees diagnosed with TB and receiving treatment earlier than later. TB and HIV recovery programmes at different mines commenced nationally to ensure that TB and HIV are managed appropriately to achieve the End TB strategy.

PART 4

STATE OF SAFETY IN THE SOUTH AFRICAN MINING INDUSTRY

4. STATE OF SAFETY IN THE SOUTH AFRICAN MINING INDUSTRY

4.1 Accident statistics

Although there was an improvement in the number of fatalities recorded in the South African mining industry, the industry is still plagued by challenges of injuries and fatalities resulting from mining activities. An improvement of 34% was recorded in the number of fatalities, from 74 in 2021 to 49 in 2022. The South African mining tripartite stakeholders - comprising of Government, which regulates the mining sector, as well as the employers and the employees in the mining industry continue to work towards an enviable state of zero harm. The number of injuries recorded shows a slight improvement of 4% from 2 141 recorded in 2021 to a provisional figure of 2 065 recorded in 2022.

4.1.1 The number of employees at work in the South African mining industry

Statistics shows that there was an increase of 4% in the number of employees at work in the South African mining industry, from 426 331 in 2021 to 443 367 in 2022. Table 4.1.1 shows a decrease of 14% in the manganese mines while a general increase is shown across all other commodities.

TABLE 4.1.1:
Number of employees at work: 2021 compared with 2022

	2021	2022*	PERCENTAGE CHANGE
TOTAL	**426 331**	**443 367**	**4**
Gold	87 329	87 478	0
Platinum	146 522	157 782	8
Coal	85 794	86 070	0
Diamonds	12 619	14 657	16
Copper	6 065	7 142	18
Chrome	19 077	20 379	7
Iron ore	21 273	23 122	9
Manganese	14 564	12 513	-14
Other mines	33 088	34 224	3

* *Provisional*

4.2 Analysis of accident rate trends

4.2.1 Fatality and injury frequency rates per million hours worked

The fatality and injury frequency rates per million hours worked is a number calculated using a rounded-off figure conversion factor of 2 200, as the mines do not report the actual hours worked.

The assumption is that each person works for an average of 48.9 weeks in a calendar year, discounting weekends, public holidays and annual leave days. The Basic Conditions of Employment Act, 1997 (Act 75 of 1997), requires a person to work not more than 45 hours a week. Therefore, the conversion factor is rounded off to 2 200 hours per person per year.

The rate is annualised. Therefore, for a full year, it is as follows:

$$\text{Fatality/injury rate} = \left\{ \frac{\text{Number of fatalities/injuries for a calendar year}}{\text{Number of persons at work} \times 2\,200} \right\} \times 10^6 \text{ hours}$$

4.2.2 FFR per region

In terms of Section 47(2) of the MHSA, the Minister of Mineral Resources and Energy has, by notice in the Government Gazette, established regions in South Africa for the purpose of administering this Act. Table 4.2.2 indicates the number of fatalities reported to each of the regions of the MHSI, as well as the FFR during 2021 and 2022. There was an improvement of 34% in the number of fatalities reported to the regions year-on-year and a slight increase of 4% in the number of employees at work. The FFR improved from 0.08 in 2021 to 0.05 in 2022.

TABLE 4.2.2:
FFR per region

	2021			2022*			PERCENTAGE CHANGE
	Fatalities	At work	FFR	Fatalities	At work	FFR	
ALL MINES	**74**	**426 331**	**0.08**	**49**	**443 367**	**0.05**	**-36**
Eastern Cape	0	1 550	0	0	1 367	0	0
Free State	10	28 533	0.16	3	26 519	0.05	-68
Gauteng	16	51 109	0.14	10	52 602	0.09	-39
KwaZulu-Natal	1	10 733	0.04	1	11 774	0.04	0
Limpopo	6	50 649	0.05	5	59 123	0.04	-29
Mpumalanga	10	88 065	0.05	5	88 290	0.03	-50
Northern Cape	6	44 796	0.06	2	45 495	0.02	-67
North West: Klerksdorp	4	14 664	0.12	2	15 507	0.06	-53
North West: Rustenburg	20	131 296	0.07	20	137 570	0.07	0
Western Cape	1	4 936	0.09	1	5 120	0.09	0

* *Provisional data*

4.2.3 IFR per region

Although the overall IFR improved by 7% during 2022 compared to 2021, five out of 10 regions have regressed: KwaZulu-Natal by 6%, Mpumalanga by 26%, Northern Cape by 62%, North West: Klerksdorp by 2% and Western Cape by 45%. The total provisional number of injuries in 2022 was 2 065, compared to 2 141 in 2021. Table 4.2.3 indicates the injuries reported in each region and the IFR for 2021 and 2022.

TABLE 4.2.3:
IFR per region

	2021			2022*			PERCENTAGE CHANGE
	Injuries	At work	IFR	Injuries	At work	IFR	
ALL MINES	**2 141**	**426 331**	**2.28**	**2 065**	**443 367**	**2.12**	**-7**
Eastern Cape	3	1 550	0.88	2	1 367	0.67	-24
Free State	214	28 533	3.41	176	26 519	3.02	-12
Gauteng	430	51 109	3.82	297	52 602	2.57	-33
KwaZulu-Natal	19	10 733	0.80	22	11 774	0.85	6
Limpopo	132	50 649	1.18	149	59 123	1.15	-3
Mpumalanga	169	88 065	0.87	214	88 290	1.10	26
Northern Cape	54	44 796	0.55	89	45 495	0.89	62
North West: Klerksdorp	117	14 664	3.63	126	15 507	3.69	2
North West: Rustenburg	997	131 296	3.45	981	137 570	3.24	-6
Western Cape	6	4 963	0.55	9	5 120	0.80	45

* *Provisional data*

4.2.4 FFR per commodity

The FFR per commodity for the mining industry improved by 36%, from 0.08 in 2021 to 0.05 in 2022, while the number of employees at work shows an increase of 4% in 2022, compared to 2021. The decrease in the number of fatalities of 34% between 2021 and 2022 contributed to the decrease in the FFR.

Table 4.2.4 below shows the FFR per commodity for 2021 and 2022. The FFR for diamond and chrome mines increased by of 100% and 25% respectively, while all the other mines show a decrease. The diamond and chrome mines show increases in the number of employees of 16% and 7% respectively between 2021 and 2022.

TABLE 4.2.4:
FFR per commodity

	2021			2022*			PERCENTAGE CHANGE
	Fatalities	At work	FFR	Fatalities	At work	FFR	
ALL MINES	**74**	**426 331**	**0.08**	**49**	**443 367**	**0.05**	**-36**
Gold	30	87 329	0.16	15	87 478	0.08	-50
Platinum	21	146 522	0.07	18	157 782	0.05	-20
Coal	10	85 974	0.05	6	86 070	0.03	-40
Diamonds	0	12 619	0	2	14 657	0.06	100
Copper	3	6 065	0.22	1	7 142	0.06	-72
Chrome	3	19 077	0.07	4	20 379	0.09	25
Iron ore	1	21 273	0.02	0	23 122	0	-100
Manganese	2	14 564	0.06	0	12 513	0	-100
Other mines	4	33 088	0.05	3	34 224	0.04	-27

* *Provisional data*

4.2.5 IFR per commodity

The overall IFR per commodity decreased by 7%, from 2.28 in 2021 to 2.12 in 2022. Table 4.2.5 shows that the IFR for the diamonds, copper, iron ore, manganese and all other mines increased by 3%, 87%, 207%, 36% and 42%, respectively, while the gold, platinum, coal and chrome show decreases of 23%, 6%, 8% and 10%, respectively.

TABLE 4.2.5:
IFR per commodity

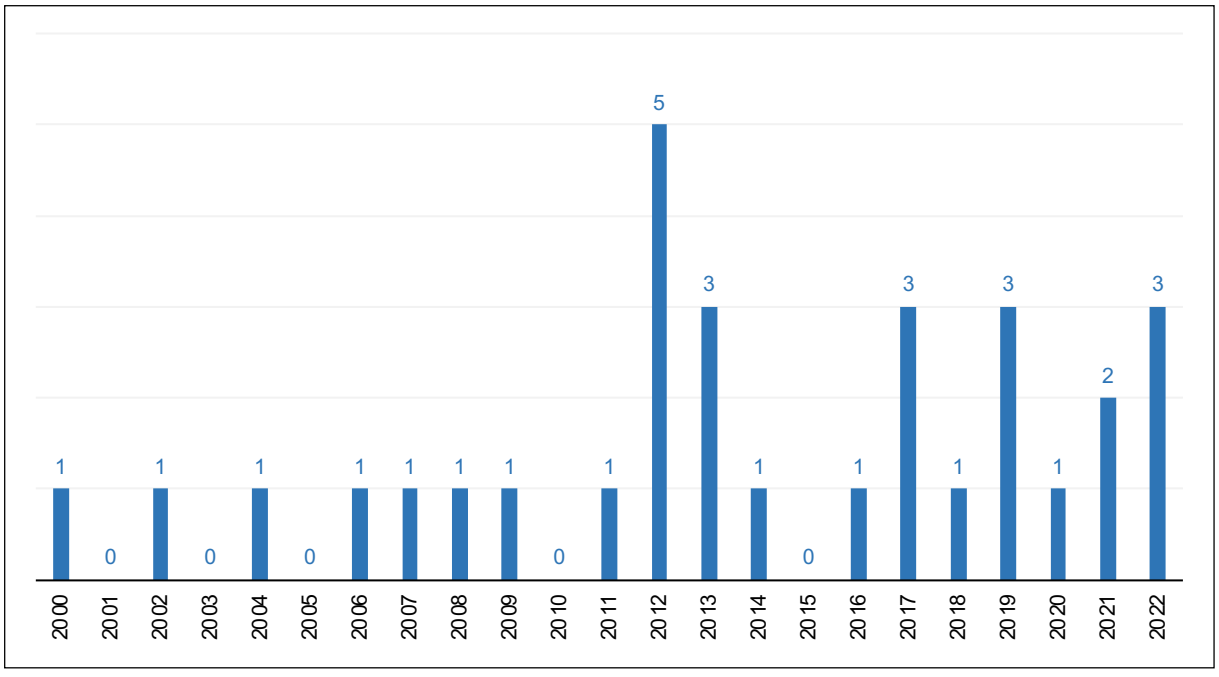
	2021			2022*			PERCENTAGE CHANGE
	Injuries	At work	IFR	Injuries	At work	IFR	
ALL MINES	**2 141**	**426 331**	**2.28**	**2 065**	**443 367**	**2.12**	**-7**
Gold	736	87 329	3.83	568	87 478	2.95	-23
Platinum	1 027	146 522	3.19	1 041	157 782	3.00	-6
Coal	170	85 974	0.90	157	86 070	0.83	-8
Diamonds	35	12 619	1.26	42	14 657	1.30	3
Copper	5	6 065	0.37	11	7 142	0.70	87
Chrome	76	19 077	1.81	73	20 379	1.63	-10
Iron ore	12	21 273	0.26	40	23 122	0.79	207
Manganese	18	14 564	0.56	21	12 513	0.76	36
Other Mines	76	33 088	1.04	112	34 224	1.49	42

* *Provisional data*

4.2.6 Fatalities for WIM

Three women were fatally injured in 2022 compared to two women in 2021. This translates to an increase of 50% in fatalities for WIM year-on-year. Although a fatality of any mineworker is regrettable, irrespective of gender, Figure 4.2.6 shows that since 2000, there were no fatalities for WIM reported for 2001, 2003, 2005, 2010 and 2015.

FIGURE 4.2.6:
Actual fatalities for WIM from 2000 to 2022



4.2.7 Injuries for WIM

There has been an increase in the number of injuries involving WIM. The injuries that were reported involving women were in the general classification (74%). These accidents were linked to slipping and falling, material handling and being struck by object.

FIGURE 4.2.7(a):
Number of injuries to WIM from 2001 to 2022

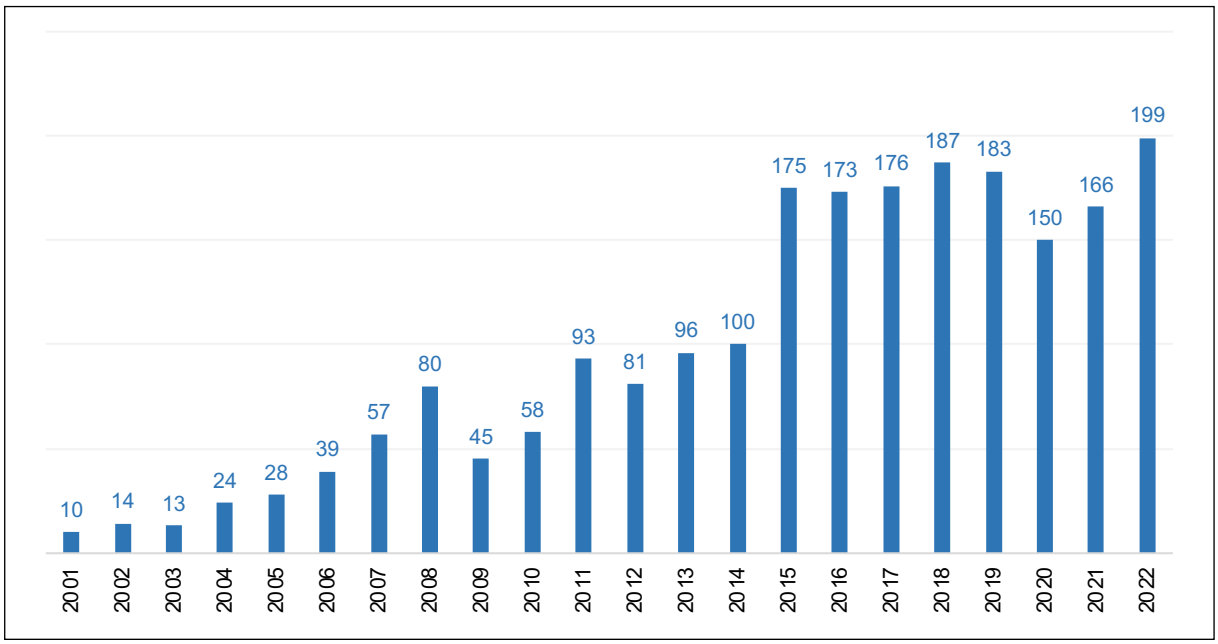
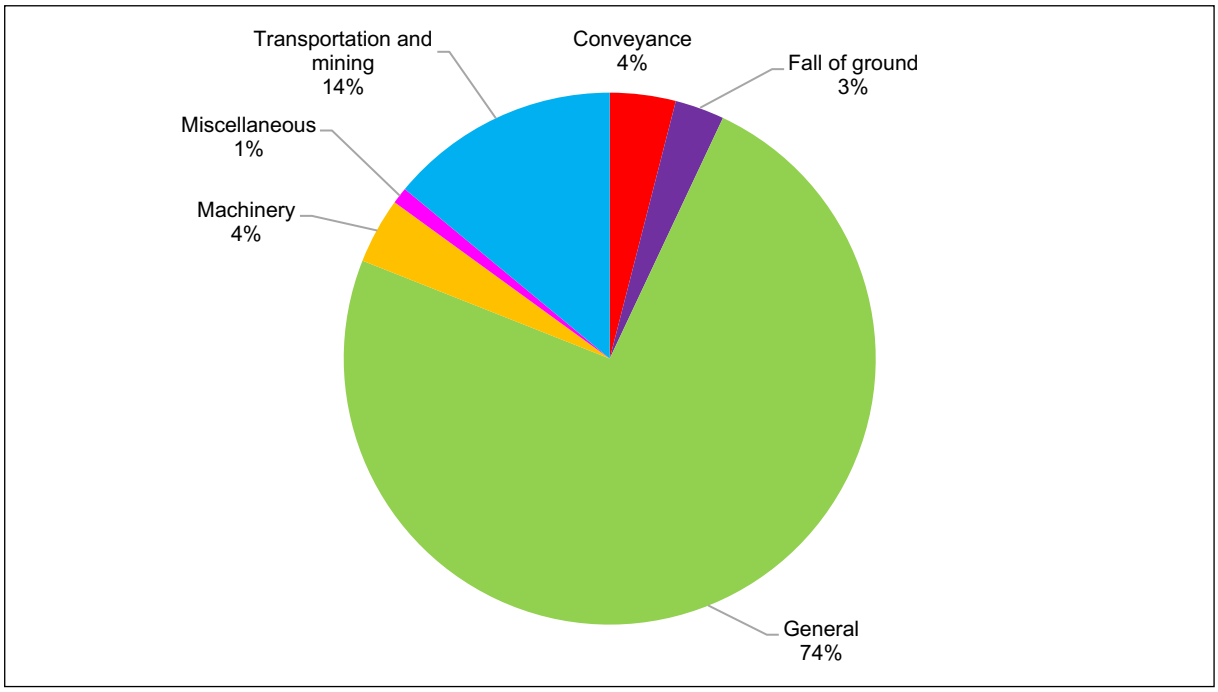


FIGURE 4.2.7(b):
Classification of injuries to WIM from 2003 to 2022



4.2.8 Fatalities classified by casualty classification

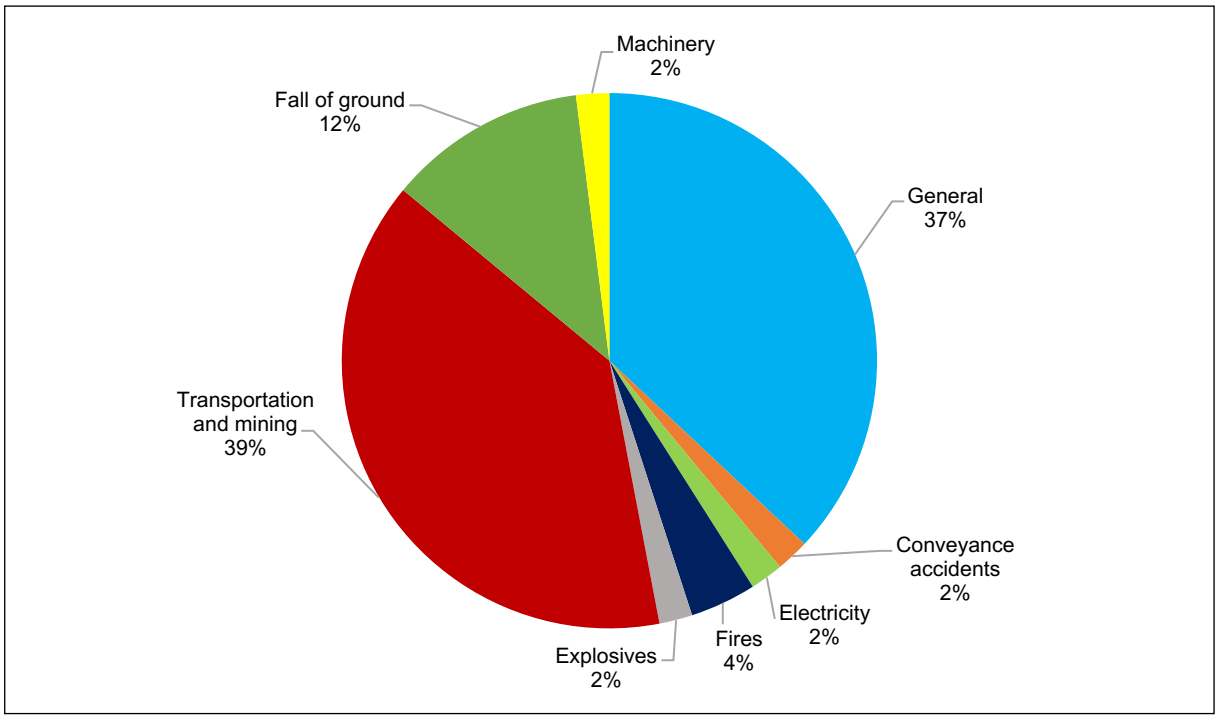
The 49 fatalities that were reported in 2022 are indicated in Table 4.2.8. The total number of fatality classification groups for 2022 did not follow the same trend as the preceding year notably FOG and machinery fatalities decreased to 73% and 83% respectively. Winch related fatalities increased by 67% from three in 2021 to five in 2022. Inundation/drowning fatalities increased by 500% from one in 2021 to six in 2022 while struck by object-manual handling fatalities increased by 700% from one in 2021 to eight in 2022.

TABLE 4.2.8:
Fatalities classified by casualty classification

	1 JANUARY TO 31 DECEMBER 2021	1 JANUARY TO 31 DECEMBER 2022*	PERCENTAGE CHANGE
FOG	**22**	**6**	**-73**
Rockburst	6	1	-83
Gravity	16	5	-69
MACHINERY	**6**	**1**	**-83**
Conveyor belts	4	0	-400
Other machinery [not included in trackless mobile machines (TMM)]	2	1	-50
T&M	**18**	**19**	**6**
Track-bound transport (TBT)	**6**	**6**	**0**
Locomotive	2	2	0
Locomotive drawn vehicle	3	2	-33
Coupling/uncoupling	0	1	100
Rocker arm shovel	0	1	100
Other transport	1	0	-100
Winches	**3**	**5**	**67**
Scraper winch installation	3	3	0
Double drum winch	0	2	200
TMM	**9**	**8**	**-11**
Coal mining machines	0	1	100
Mechanical loaders	1	2	100
Transporters	7	2	-71
Motor vehicles	0	1	100
T&M lifting machines	1	1	0
T&M mobile drilling machines	0	1	100
GENERAL	**14**	**18**	**29**
Fall of material/rolling rock	1	1	0
Manual handling of mineral	3	0	-300
Falling in/from	4	3	-25
Dust, gas and fumes	4	0	-100
Inundation/drowning	1	6	500
Struck by object - manual handling	1	8	700
CONVEYANCE ACCIDENTS	**0**	**1**	**100**
ELECTRICITY (NOT CAUSING FIRES)	**4**	**1**	**-75**
FIRES	**0**	**2**	**200**
EXPLOSIVES	**2**	**1**	**-50**
SUBSIDENCE OR CAVING	**1**	**0**	**-100**
HEAT SICKNESS	**3**	**0**	**-300**
MISCELLANEOUS	**4**	**0**	**-400**
TOTAL	**74**	**49**	**-34**

* *Provisional data*

FIGURE 4.2.8:
Fatalities classified by casualty classification



4.2.8.1 Analysis of fatalities by casualty classification

4.2.8.1.1 Breakdown of fatalities classified under T&M (39%)

There were 19 fatalities classified under T&M in 2022, compared to 18 in 2021. This translates to an increase of 12% year-on year. Fatalities reported in this classification were six rail-bound transport fatalities in 2022 compared to five in 2021; five winch related fatalities in 2022 compared to three in 2021 and eight TMM fatalities in 2022 compared to nine in 2021.

4.2.8.1.2 Breakdown of fatalities classified under general (37%)

There were 18 fatalities under general in 2022 compared to 14 in 2021. The general classification of accidents is detailed under 4.2.8.2 below.

4.2.8.1.3 Breakdown of fatalities classified under FOG (12%)

There were six fatalities classified under FOG in 2022, compared to 22 in 2021. The fatalities classified under FOG in 2022 included one that was seismic related and five that were gravity related.

4.2.8.1.4 Breakdown of fatalities classified under conveyance accidents (2%)

There was one fatality classified under conveyance accidents in 2022 compared to none in 2021.

4.2.8.1.5 Breakdown of fatalities classified under electricity (2%)

There was one fatality classified under electricity in 2022 compared to four in 2021.

4.2.8.1.6 Breakdown of fatalities classified under fires (4%)

There were two fatalities classified under fires in 2022 compared to none in 2021.

4.2.8.1.7 Breakdown of fatalities classified under explosives (2%)

There was one fatality classified under explosives in 2022 compared to two in 2021.

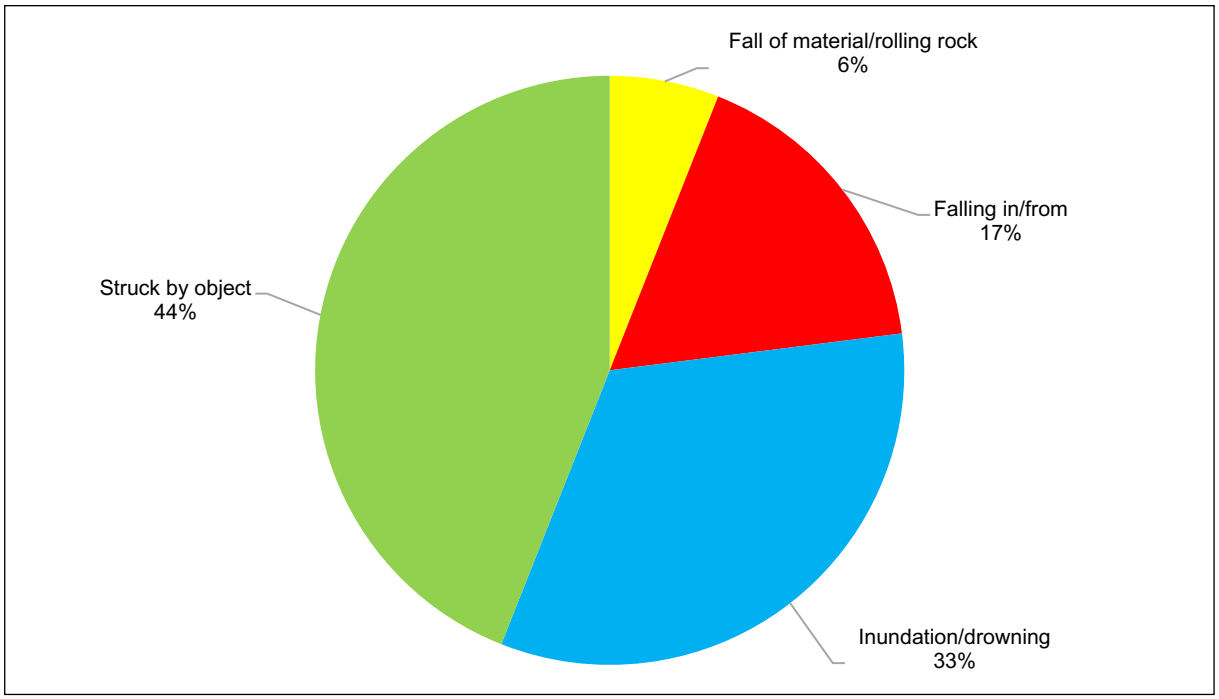
4.2.8.1.8 Breakdown of fatalities classified under machinery (2%)

There was one fatality classified under machinery in 2022 compared to six in 2021.

4.2.8.2 Analysis of accidents classified as general-type accidents

There were 18 fatalities classified under the classification general accidents in 2022, compared to 14 in 2021. One was sub-classified under rolling rock in both 2021 and 2022; three were sub-classified under falling in/from in 2022 compared to four in 2021; six were sub-classified as inundation/drowning in 2022 compared to one in 2021 and eight were sub-classified as being struck by an object in 2022 compared to one in 2021.

FIGURE 4.2.8.2:
Sub-classification of general type accidents



4.2.9 Injuries classified by casualty classification

The provisional total number of injuries recorded in 2022 shows a decrease of 4% from 2 141 recorded in 2021 to 2 065 recorded in 2022.

TABLE 4.2.9:
Injuries classified by casualty classification

	1 JANUARY TO 31 DECEMBER 2021	1 JANUARY TO 31 DECEMBER 2022*	PERCENTAGE CHANGE
FOG	**371**	**298**	**-20**
Rockburst	77	32	-58
Strainburst	32	25	-22
Gravity	262	241	-8
MACHINERY	**162**	**164**	**1**
Conveyor belts	33	46	39
Drives, Belts and chains	18	15	-17
Portable power tools	80	76	-5
Other machinery (not included in TMM)	31	27	-13
T&M	**323**	**352**	**9**
TBT	**121**	**139**	**15**
Locomotive	31	32	3
Locomotive drawn vehicle	18	24	33
Rerailing	9	16	78
Coupling/uncoupling	33	36	9
Rocker arm shovel	7	12	71
Personnel transport	8	8	0
Hand trammed	11	7	-36
Other transport (specify)	4	4	0
Winches	**96**	**101**	**5**
Scraper winch installation	68	59	-13
Single drum winch	10	6	-40
Double drum winch	12	26	117
Mono-rope/rail	6	10	67
TMM	**106**	**112**	**6**
Tractor/Trailer	7	5	-29
Coal mining machines	4	1	-75
Mechanical loaders	7	15	114
Transporters	31	23	-26
Motor vehicles	13	16	23
T&M lifting machines	13	13	0
T&M mobile drilling machines	23	32	39
Other transport and mining equipment	8	7	-13

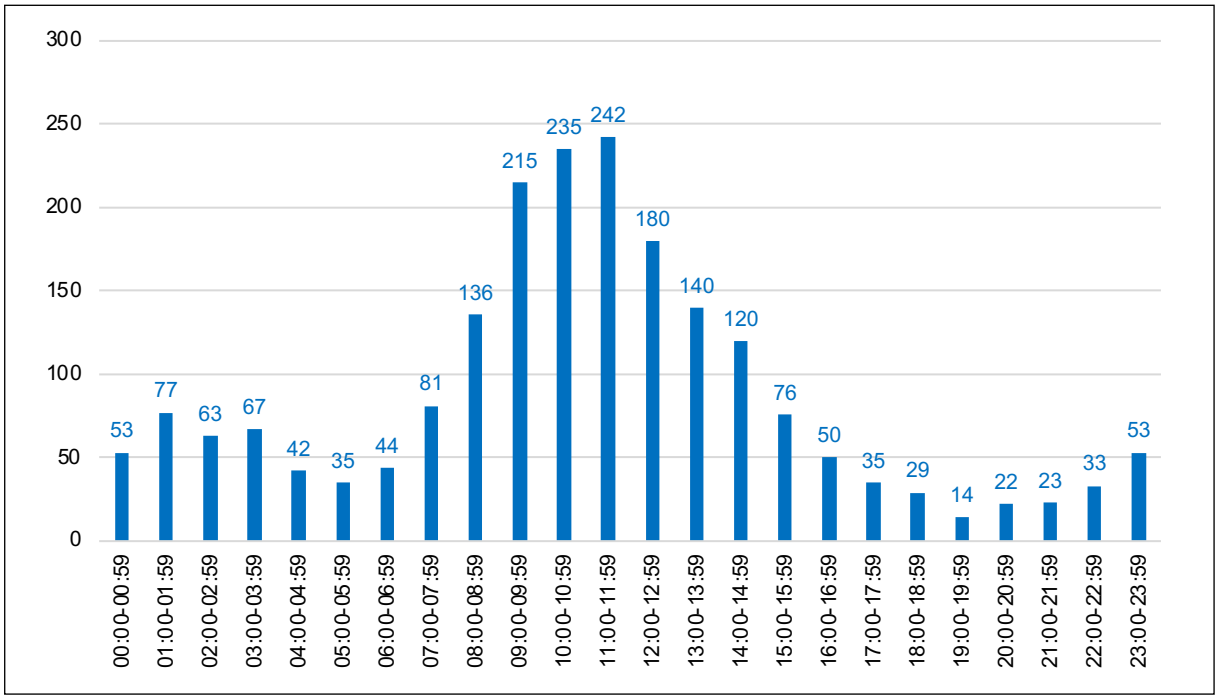
	1 JANUARY TO 31 DECEMBER 2021	1 JANUARY TO 31 DECEMBER 2022*	PERCENTAGE CHANGE
GENERAL	**1 186**	**1 193**	**1**
Fall of material/rolling rock	146	156	7
Manual handling of material	275	292	6
Manual handling of mineral	53	44	-17
Falling in/from	37	38	3
Slipping and falling	428	409	-4
Burning and scalding	36	44	22
Splinters	33	27	-18
Dust, gas and fumes	26	35	35
Inundation/drowning	1	4	300
Struck by ventilation door	16	8	-50
Struck by object - manual handling	135	136	1
CONVEYANCE ACCIDENTS	**39**	**22**	**-44**
ELECTRICITY (NOT CAUSING FIRES)	**13**	**17**	**31**
FIRES	**3**	**6**	**100**
EXPLOSIVES	**1**	**2**	**100**
SUBSIDENCE OR CAVING	**1**	**0**	**-100**
OCCUPATIONAL DISEASES (NON DIVING)	**0**	**1**	**100**
HEAT SICKNESS	**30**	**3**	**-90**
MISCELLANEOUS	**12**	**7**	**-42**
TOTAL	**2 141**	**2 065**	**-4**

* *Provisional data*

4.2.10 Accidents classified by time of occurrence

Statistics show that accidents in 2022, when classified by time of occurrence, mainly took place between 08:00 and 14:00. This period is during the day shift when there are more employees at work. Most underground workers start the morning shift at 06:00, and the number of accidents peak at mid-shift between 09:00 and 11:00.

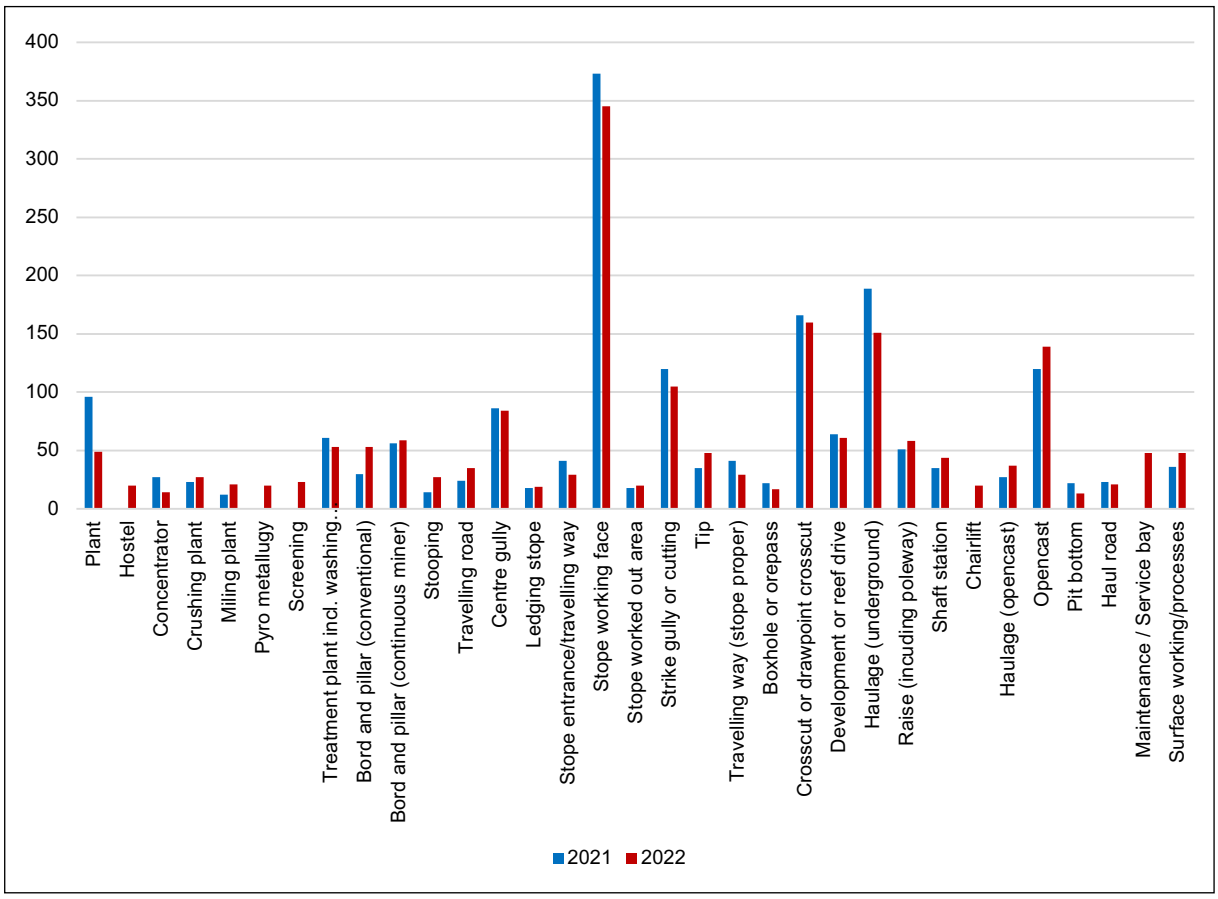
FIGURE 4.2.10:
Accidents classified by time of occurrence



4.2.11 Accidents classified by location

Statistics show that most accidents in 2022 occurred at the stope working face, the haulage, the crosscut or draw point, the strike gully or cutting, and opencast. These are areas with a considerable concentration of employees working towards the set production targets.

FIGURE 4.2.11:
Accidents classified by location



4.3 Enforcement

4.3.1 Section 54 instructions dealing with dangerous conditions

TABLE 4.3.1(a):
Section 54 notices, transgressions and instructions issued and identified

SECTION 54 NOTICES, TRANSGRESSIONS AND INSTRUCTIONS	
Number of notices issued	765
Number of transgressions identified	4 938
Number of instructions issued	3 210

TABLE 4.3.1(b):
Section 54 transgressions identified

NO	SECTION 54 TRANSGRESSION CATEGORIES	SECTION 54 TRANSGRESSIONS IDENTIFIED
1	TMM	565
2	Supervision	559
3	Risk assessment	466
4	FOG	274
5	Mining practices / SOPs	271
6	Conveyor belts	252
7	Winches	237
8	Emergency preparedness	212
9	Safe declaration	190
10	Substandard support	172
11	Training	156
12	Ventilation	152
13	COPs	133
14	Legal appointments	130
15	Rail-bound equipment (RBE)	126
16	Explosives	112
17	Machinery	105
18	Electricity	82
19	Housekeeping / barring / barricade / fencing	67
20	Airborne pollutants	59
21	Traffic management	59
22	Lifting equipment	49
23	Shafts / winders	48
24	Blasting	39
25	Medical surveillance / COVID-19 COP	35
26	Drilling / rigging	32
27	Road condition / haul roads / illumination / crosscuts	32
28	Statutory reporting / sub-standard reports	26
29	Exemptions / permissions / approvals / authorisation	25
30	Mud-rush / inundated	24
31	Occupational hygiene	21
32	Lamp room / refuge bay	20
33	Mining in close proximity to communities	20
34	PPE	19
35	Fires	13
36	Change house / washing facilities / eating facilities	13
37	Checklist	12
38	Communications	11
39	Safety devices	9
40	Waiting place	9
41	Work conditions	8
42	Proximity detection systems (PDS)	8
43	Mine inspection non-compliance	8
44	No access control / perimeter fence / mine boundaries	8
45	Noise	7
46	Tip area	7
47	Investigations	7

NO	SECTION 54 TRANSGRESSION CATEGORIES	SECTION 54 TRANSGRESSIONS IDENTIFIED
48	Mine permit / unauthorised access	6
49	Chairlifts	6
50	Water drain / pipes	5
51	Winding plant	5
52	Notices	3
53	Stability monitoring	3
54	Thermal stress monitoring	3
55	Substation	3
56	Health and safety	3
57	Alcohol testing	2
58	Dust	2
59	Guarding	1
60	Rehabilitation	1
61	Mine plans	1
62	Signage	1
63	Drinking water	1
64	100 meters mining	1
65	Fatigue management	1
66	Planned task observation	1
	TOTAL	**4 938**

4.3.2 Section 55 instructions to order compliance

TABLE 4.3.2(a):

Section 55 notices, transgressions and instructions issued and identified

SECTION 55 NOTICES, TRANSGRESSIONS AND INSTRUCTIONS	
Number of notices issued	825
Number of transgressions identified	2 386
Number of instructions issued	1 818

TABLE 4.3.2(b):

Section 55 transgressions identified

NO	SECTION 54 TRANSGRESSION CATEGORIES	SECTION 55 TRANSGRESSIONS IDENTIFIED
1	COPs	302
2	TMM	230
3	Risk assessment	281
4	Supervision	211
5	Emergency preparedness	136
6	Legal appointments	127
7	Electricity	99
8	FOG	92
9	Machinery / lifting equipment / winders	75
10	Occupational hygiene	69
11	Medical surveillance / COVID-19 COP	65
12	Conveyor belts / plants	64
13	Training	60
14	Safe declaration	60

NO	SECTION 54 TRANSGRESSION CATEGORIES	SECTION 55 TRANSGRESSIONS IDENTIFIED
15	SOPs	45
16	General / housekeeping / road conditions / barring / barricade / unsafe travelling route / haul road	39
17	Rail-bound transport (RBT)	36
18	Mining practices	34
19	Ventilation	33
20	Statutory reporting	31
21	Underground water	30
22	Dust	28
23	Explosives	27
24	Health and safety policy	22
25	PPE	20
26	Winches	18
27	Pre use checklist	18
28	Exemptions / permissions / approvals / authorisation	15
29	Road traffic management	15
30	Logbooks / registers / record keeping	13
31	Support designs	10
32	Mine plans	9
33	Noise	7
34	Shafts	6
35	Health and safety representatives / committee	6
36	Fatigue management	6
37	Investigation	6
38	Change house / laundry	6
39	HIRA	5
40	Working conditions	4
41	Self-contained self-rescuers (SCSR)	4
42	Guarding	3
43	Panels	3
44	Pan	3
45	No access control / perimeter fence / mine boundaries	2
46	Rail switches	2
47	Fires	1
48	Inspector instructions / powers	1
49	Lamp room / refuge bay	1
50	Budget	1
51	Underground water	1
52	Bund wall	1
53	Right for refusal to work in dangerous work places / areas	1
54	Communications	1
55	Tip area	1
	TOTAL	**2 386**

PART 5

STATE OF MINE SURVEYING IN THE SOUTH AFRICAN MINING INDUSTRY

5. STATE OF MINE SURVEYING IN THE SOUTH AFRICAN MINING INDUSTRY

5.1 Activities of the Mine Surveying Directorate

TABLE 5.1:
Completed tasks for the financial year as compared with the previous financial year

ACTIVITIES	PLANNED	ACTUAL	PERFORMANCE ANALYSIS
Mine surveying inspections (Underground and surface mines)	384	398	Inspections were planned with consideration to the budget provided.
Underground inspections (Control measurements)	192	199	Underground inspections were prioritised with the focus on causes of deaths in the mining industry which is mainly attributed to FOGs.
Permissions and exemptions	42	42	Applications that are received towards the end of the reporting period are carried over to the next reporting period.
Surface utilisation applications	293	321	Applications that are received towards the end of the reporting period are carried over to the next reporting period. Some of the applications lack information and the applicants are made aware so that it can be rectified for further processing.

5.2 Surveying matters

The Directorate: Mine Surveying continues to assist the regional offices of the DMRE to maintain surveying and mapping standards by monitoring compliance by the mines to the relevant MHSA regulations and ensuring that the departmental copies of all statutory mine plans are deposited annually at the regional offices. The Directorate comments and make recommendations regarding the safe utilisation of land for township development, especially on undermined land, and the processing of applications for permissions and exemptions from the provisions of the MHSA.

The Mine Surveying inspectors perform underground check measurements in restricted areas where surface structures require protection. The inspectors also check the measurements of underground workings to determine the accurate representation of such workings on the plans. During such underground visits, the inspectors check for escape route plans and if the refugee bays are life sustaining as prescribed in the regulations.

5.3 Special surveys

The Directorate is occasionally required to assist in surveying the extent of illegal surface mining activities and to quantify the volume of minerals removed. Inspectors are further requested to determine distances of mining operations from residential areas where complaints are lodged against mining operations. The accuracy of survey data and plans submitted by candidates undertaking the trial survey projects as part of their Mine Surveyors Certificate of Competency (MSCC) examinations are also checked and verified by the inspectors.

5.4 Section 55 instructions issued

A total of 17 Section 55 notices in terms of the MHSA were issued for the period under review for the following contraventions:

- No existing plans at the mine.
- No appointment of a competent person at the mine.
- Inaccurate plans.
- The erection of a surface structure over an undermined area without written permission.

5.5 Mapping services

The Sub-directorate Geographical Information System (GIS) and Mapping Service administers the archiving, retrieval and safe-keeping of the prescribed mine plans, departmental copies of these plans and survey records of mines that have closed.

It also provides clients with information of the undermining status of land for township development and other purposes, as well as making mine plans of closed-down mines available to mine owners or their representatives.

PART 6

TRAINING AND EXAMINATIONS

6. TRAINING AND EXAMINATIONS

6.1 Implemented training

During the reporting period, the MHSI developed the skills and knowledge base of its staff as follows:

- A total of 32 MHSI officials attended technical and non-technical training courses as well as conferences.
- Two managers out of the 32 MHSI officials attended the EMDP and the AMDP respectively.

6.2 Training interventions

6.2.1 Assistant inspector programme

- The Department had six Assistant Inspectors at the commencement of the reporting period.
- None of the six Assistant Inspectors passed their respective GCC examinations during the reporting period.

6.2.2 Bursary scheme

There were no MHSI bursary holders during the reporting period.

6.3 Examinations

6.3.1 Written candidates vs certificates issued per examination category

TABLE 6.3.1:
Number of candidates and certificates issued per examination category

TYPE OF CERTIFICATE	NUMBER OF CANDIDATES	CERTIFICATES ISSUED
Mine Engineer's (Electrical and Mechanical) Certificate	329	38
Mine Manager's Certificate	552	58
Mine Overseer's Certificate	305	90
Mine Surveyor's Certificate	363	9
Winding Engine Driver's Certificate	29	9
TOTAL	**1 578**	**204**

6.3.2 Written candidates vs certificates issued for the onsetter examinations

TABLE 6.3.2:

Board meetings, candidates and certificates issued for the onsetter examination category

REGION	EXAMINATION BOARDS	NUMBER OF CANDIDATES	CERTIFICATES ISSUED
Eastern Cape	0	0	0
Free State	8	33	29
Gauteng	3	13	4
KwaZulu-Natal	0	0	0
Limpopo	0	0	0
Mpumalanga	1	9	9
Northern Cape	6	0	0
North West: Klerksdorp	8	45	40
North West: Rustenburg	4	33	21
Western Cape	0	0	0

6.3.3 Written candidates vs certificates issued for the lampsman examinations

TABLE 6.3.3:

Board meetings, candidates and certificates issued for the lampsman examination category

REGION	EXAMINATION BOARDS	NUMBER OF CANDIDATES	CERTIFICATES ISSUED
Eastern Cape	0	0	0
Free State	9	14	14
Gauteng	3	4	4
KwaZulu-Natal	2	4	2
Limpopo	2	18	2
Mpumalanga	6	14	14
Northern Cape	6	9	0
North West: Klerksdorp	0	0	0
North West: Rustenburg	3	22	3
Western Cape	0	0	0

PART 7

ACTIVITIES OF THE INSPECTORATE

7. ACTIVITIES OF THE INSPECTORATE

7.1 Regional operations: Central and Coastal Regions

The Central and Coastal regional operations consist of the Gauteng and KwaZulu-Natal regions. There are approximately 164 operating mines collectively in these regions. The major commodities mined are gold, coal and industrial minerals. Numerous base minerals are also mined in these regions. The mining operation ranges from small, medium and large scale enterprises, operating both underground and on surface as well as numerous crushers, quarries and borrow pits.

Occupational health performance

The total number of occupational diseases reported from the AMRs by the Gauteng and KwaZulu-Natal regions increased from 338 cases in 2021 to 362 cases reported in 2022. The main occupational diseases reported in 2022 were NIHL, PTB and silicosis which were 172, 132 and 38 cases respectively.

It is regrettable to note that there was an increase in the total number of diseases reported by the Gauteng region year-on-year, from 324 to 350 cases. Gauteng region had the second highest number of reported occupational diseases accounting for approximately 22% of the total national occupational diseases reported by the mining sector.

A 24% improvement was noted in the reporting of silicosis cases in Gauteng whilst a 34% decrease was recorded in NIHL cases. PTB case reporting showed no improvement for the reporting period.

It should be noted that while the mines in the Gauteng region was emerging from the COVID-19 pandemic, occurrences of industrial action had a direct impact on the health management at the mines in Gauteng due to the prolonged stay aways. This resulted in the increase in the total reports on occupational diseases from the region.

The mines in the KwaZulu-Natal region are not fully capacitated with full-time OMPs and therefore these mines mostly employ professional practitioners on a part-time basis. During the reporting period, the region had an increase in NIHL cases.

Generally, over-exposure to airborne pollutants at mines in these regions continue to lead to diseases such as silicosis and CWP, amongst others, whilst over-exposure to high noise levels lead to the increase in NIHL cases.

Occupational safety performance

Regrettably, a total of 11 fatalities occurred in the Central and Coastal regional operations during the period under review compared to 16 fatalities during 2021. This represents an improvement of 31% year-on-year. A total of 318 mine injury accidents were reported in 2022 compared to 424 injury accidents during the previous reporting year which translates to a 25% year-on-year improvement.

In dealing with accidents that led to fatalities and injuries at mines, the Central and Coastal regional operations completed 69 accident investigations and 13 fatal inquiries. The outstanding fatal inquiries and investigations could not be completed mainly due to the non-availability of the legal representatives of the mines as well as organised

labour. The outstanding accident investigations and fatal inquiries will be prioritised in the next financial year. The following remedial steps and measures were taken by the regions to address health and safety at the mines:

- An increased number of inspections and audits at poor performing mines.
- The suspension of operations pending the implementation of any determined remedial steps.
- The suspension of the legal appointments of managers and supervisors in charge of working areas with poor health and safety conditions.
- Conducting meetings between mine management and the Inspectors in the respective regions on the strategies, steps and commitments by the mines to improve the poor state of health and safety.
- Increasing health and safety campaigns at mines with poor safety records.
- Collaboration through Regional Tripartite Forums (RTFs) to enhance concerted efforts in the eradication of mine deaths.

Enforcement

During the period under review, a total of 1 884 inspections and audits were conducted at the mines in the Central and Coastal regional operations. As part of the enforcement measures during the said inspections and audits, 67 Section 54, and 91 Section 55 notices were issued in terms of the MHSA.

The notices issued under Section 54 deal with dangerous conditions at mines. Section 54 empowers an inspector to give any instruction necessary to protect the health or safety of persons at the mine, including but not limited to an instruction that:

a. Operations at the mine or a part of the mine be halted.
b. The performance of any act or practice at the mine or a part of the mine be suspended or halted and may place conditions on the performance of that act or practice.

Those notices issued under Section 55 order compliance to the provisions of the MHSA which stipulates that if an inspector has reason to believe that an employer has failed to comply with any provision of the MHSA, the inspector may instruct that employer in writing to take any steps that the inspector:

a. Considers necessary to comply with the provision; and
b. Specifies in the instruction.

Strategies adopted for improving status-quo

Emerging from difficult working conditions imposed by the COVID-19 restrictions, the MHSI still believe that zero harm amongst mine workers is possible. The inspectors continue to work with all stakeholders to implement initiatives to protect the occupational health and safety (OHS) of mine workers as per the MHSA.

It is of great concern that there is continued reporting on fatalities due to occupational related accidents and diseases. Working with mining companies and labour unions, the DMRE made significant strides in improving the health and safety for mine employees resulting in a sustainable downward trend in occupational diseases, injuries and fatalities over the years.

Regrettably, 11 fatalities and 318 injuries to mine employees were reported while under the care of their respective employers. This is despite the provisions under the MHSA calling for every employer to provide and maintain a working environment that is safe and without risk to the health and safety of their employees.

The Central and Coastal regional operations will strive to improve visibility at the mines as a proactive measure to enforce compliance at the mines. Strategies will focus on increased inspections, audits and investigations with the aim of revealing system failures in terms of the MHSA and, where applicable, appropriate enforcement action will be taken if necessary.

Inspectors will continue to monitor compliance and ensure that all mines implement:

- Engineering controls to reduce exposure levels to air-borne pollutants.
- A Buy Quiet Policy to ensure that employees are not exposed to high levels of noise.
- The National HIV and TB strategies to achieve the Joint United Nations Programme on HIV/AIDS (UNAIDS) 90:90:90 targets, especially because it had the highest number of reported occupational disease cases.
- Effective strategies to ensure the elimination of employee over-exposure to health hazards and mine accidents that lead to injuries and fatalities.

The Inspectorate will continue to enforce legislation without fear or favour at mining operations within the region. Inspectors will focus on inspections, periodic inspections and audits as some of the challenges are seasonal i.e. veld fires during winter months, slime dam dust emissions during windy seasons and the capsizing of TMM during rainy periods.

Both regions will have to consider and implement ***ad hoc*** inspections during the weekends and holiday periods, due to the accident trends with occurrences happening during down time. The inspectors will endeavour to enhance employee participation and cooperation through their health and safety representatives, full-time health and safety committees including, but not limited to, bilateral engagements with the MHSI.

The regional operation continues to promote the participation of stakeholders in national events such as World TB, HIV and Acquired Immune Deficiency Syndrome (AIDS) day campaigns, 16 Days of Activism against Gender-based Violence as well as local health and safety day campaigns.

Joint collaborative efforts with the South African Police Service (SAPS) in the monitoring of the transportation, delivery and storing of explosives are done to eliminate the theft as well as misuse of explosives.

Mines are encouraged to participate and attend illegal mining forums to combat and eliminate any illegal activities, as well as promote the rehabilitation and restoration of historic mining remnant areas.

7.1.1 Gauteng

The Gauteng region has 110 active mines ranging from small, medium and large scale mines, operating both underground and on surface. These include the vast rehabilitation and reclamation operations that are mining the slime dumps and the waste rock dumps in the region.

Gold operations are spread over an area of more than 150 kilometres from the east to the west in the region – from the Nigel, Springs, Johannesburg, Krugersdorp and Westonaria areas to Carletonville, whilst 100 kilometres is surface outcrops along the main reef with ultra deep, deep, shallow and open cast mining operations.

Coal mining in the region is still in its infancy stage and is mostly subterrain and mineable from surface and underground although this is on a much smaller scale than that of the gold mining operations in the region. The coal reserves are situated on the eastern boundary of the province from the north to the south for approximately 140 kilometres in the areas of Bronkhorstspruit, Springs, Nigel, Heidelberg, Vereeniging and Vanderbijlpark.

Diamond deposits are more concentrated within the Cullinan and Rayton areas with the reserves in the kimberlite pipe, but there are also surface offshoots in the sand rich areas. Iron ore mining is found in the far north easterly corner of the region whilst sand and aggregate operations are scattered throughout the region.

There was a significant reduction in fatalities and injuries during the reporting period compared to the previous period, with a 28% and 22% improvement respectively. It is noted with serious concern that within the last two

years multiple fatalities where four or more employees have been fatally injured occurred during Sundays. The below list is a summary of the highest contributing factors to accidents in the region:

a. Machinery and transportation – 32%
b. FOGs – 29%
c. Slipping and falling – 15%

Although the occurrence of FOG accidents have improved, it is concerning to note that accidents because of slipping and falling have increased. The total reported injuries had a significant improvement during the reporting period.

There has been a slight increase in the reports on occupational diseases in the region, but it should also be noted that occurrences of industrial action had a direct impact on the health management at mines due to the prolonged stay aways.

During the reporting period there was a 24% improvement in the reporting of silicosis cases and a 34% decrease in the reporting of NIHL cases. PTB case reporting showed no improvement.

7.1.1.1 Topical issues and matters of interest

- Areas affected and damaged by illegal mining was converted into recreational facilities such as race tracks and off-road tracks.
- Along the outcrop areas, land development has been earmarked for the construction of solar farms after restoration and rehabilitation has been completed. These solar farms could easily be connected to the electricity grid since the powerline servitude are running parallel to outcrop.
- The Goldfields South Deep Khanyisa Solar Project, the first of such an operation within the region, will construct, commission and operate a photovoltaic (PV) solar plant. The R 715 million project is expected to be fully operational by August 2022. Once operational, this project will have the ability to generate 50 megawatt (MW) or 103 gigawatt hours (GWh) per annum and thus reducing the reliance on the national electricity grid. It will furthermore reduce the carbon footprint by approximately 110 000 tonnes of carbon dioxide (CO2) and have an energy cost saving of R 123 million (24%) per year.
- A potential site with favourable wind conditions was identified south of the Twin Shaft Complex for the establishment of the Goldfields South Deep Wind Farm. It is estimated that by 2035, this project would have installed about 10 wind turbines. It is assumed that each turbine will produce 4.5 MW of power, reducing the carbon emissions by approximately16 kilotons.
- The Harmony Mponeng Depth Extension Project envisages to mine the Ventersdorp Contact Reef (VCR) and Carbon Leader Reef (CLR) orebodies below the existing infrastructure to extend the life of mine (LOM) safely and productively and will serve to replace depleted reserves of the current mining operations.

  The CLR extends below the 120 level infrastructures of the Mponeng and Tau Tona mines. The VCR depth extension feasibility study comprises of the extension of a double decline system in an easterly direction at -7° to access two levels (129 and 132). The orebody on the eastern side will be extracted using a sequential grid mining method serviced by conventional track bound infrastructure which would later be converted to conventional track bound infrastructure.

  Access towards the western side is also being considered which contains high-grade accessing three levels (129, 132 and 135). The study is focussing on the extraction by targeting four levels within the highest-grade facies at lower mining volumes.
- Illegal mining activities continue to be a matter of serious concern at the gold mines in the region. Illegal miners compromise the health and safety standards by removing items installed for safety and health purposes.

7.1.1.2 *Inspections and audits*

CATEGORY	INSPECTIONS	AUDITS
Planned	960	40
Actual	1 200	45
Percentage compliance	125	113

7.1.1.3 *Total accidents reported*

Fatalities	10
> 14-day injuries	297

7.1.1.4 *Investigations and inquiries*

	INVESTIGATIONS	INQUIRIES	TOTAL
Initiated	66	8	74
Completed	66	13	79
Percentage completed	100	163	107

7.1.1.5 *Disaster-type accidents or incidents*

- Friday, 25 March 2022: At approximately 22:25, a team was busy conducting early entry examination when a seismic event with a magnitude of 1.6 on the Richter scale occurred that resulted in a FOG incident in the 105-40 travelling way. Four employees were injured in this incident.
- Saturday, 7 May 2022: At approximately 14:45, the engineering maintenance team was repairing a leak on a bend of a six inch service column inside, and towards, the 115 level Settlers Hot Water Dam No1 when an inrush of mud from the side wall of the dam occurred and inundated four employees. One employee was injured during the incident whilst another employee escaped unharmed. Another employee was injured whilst assisting with the rescue operation.
- Monday, 5 September 2022: A seismic event with a magnitude of 0.2 on the Richter scale occurred whilst employees were in the process of conducting a MOSH entry examination at the top escape gully. The incident resulted in injuring three employees.

7.1.1.6 *Statutory notices*

SECTION 54 NOTICES	SECTION 55 NOTICES
53	42

7.1.1.7 *Administrative fines*

No administrative fines were recommended by the PI.

7.1.1.8 *Land-use applications and complaints*

	RECEIVED	COMPLETED	PERCENTAGE
Township developments	5	5	100
Mining and prospecting rights	0	0	0
Closure certificates	15	15	100
Environmental management	22	22	100
Complaints	22	19	86

7.1.1.9 Strategies adopted for improving status-quo

- The region will continue to enforce legislation at the mining operations without fear or favour.
- Inspectors will continue to focus on inspections, periodic inspections and audits as some of the challenges within the region are seasonal such as veld fires during winter months, slime dam dust emissions during the windy season and the capsizing of TMM during rainy periods.
- The region is considering the implementation of ad hoc inspections during weekends and holiday periods based on the accident trends with occurrences during the down time.
- Improve employee participation and cooperation through their Health and Safety Representatives as well as Health and Safety Committees in bilateral engagements with the MHSI.
- Promote collaboration and participation through the Merafong and Ukhozi RTFs which are designed for underground and surface mines respectively, to discuss matters of common interest and sharing leading best practice amongst the mines.
- Continue to promote the participation of the mines in the region in national events such as World TB, HIV and AIDS-day and the 16 Days of Activism against Gender Based Violence as well as regional health and safety days and campaigns.
- Ensure joint collaborative efforts with the SAPS in monitoring the transportation, delivery and storage of explosives to mines and attempt to eliminate the theft and misuse of the explosives.
- Encourage mines to participate in and attend illegal mining forums to combat and eliminate illegal mining activities within the region.
- Promote the rehabilitation and restoration of historic mining remnants areas.

7.1.2 KwaZulu-Natal

The KwaZulu-Natal province is situated along the borders of Lesotho, Eswatini and Mozambique. Most mineral resources are found in rural areas in the region where rural communities and structured tribal authorities owns the land. Mining in these areas often gives rise to challenges ranging from corporate social responsibilities to health and safety.

The mineral resources consist mainly of sand and aggregates. Ilmenite, rutile and zircon are mined on a large scale for their titanium and zirconium contents from aeolian beach dunes in the northern parts of the province. The region is also rich in other minerals such as aluminium, anthracite, limestone, shale and calcitic marbles. The coal mined in the province is of high quality and is mined by both opencast and underground mining methods.

7.1.2.1 Topical issues and matters of interest

Since the mines in the KwaZulu-Natal region are surrounded by several host residential communities it presents challenges and these challenges must be incorporated when mining activities takes place. To a large extent, the mining activities are often interrupted either by the residents or environmental groups. This is making it difficult to carry on with sustainable mining in those affected areas. As a result, there is a substantial number of mining companies that are no longer fully operational due to the continued disruptions of mining activities.

Furthermore, the region has been experiencing challenges in terms of the retention of qualified mine managers and service providers due to financial constraints in the mining industry. Different managers and service providers are handling employee files and, in most cases, do not have a full record and profile of the health conditions of each mine employee.

These can also be associated with the concerning number of mining operations that have not been able to submit the annual statutory AMRs. Together with the challenges identified is the frequent change of subject experts such as the Rock Engineers that leave these operations withholding the reports prepared for the mines because of non-payment.

7.1.2.2 *Inspections and audits*

CATEGORY	INSPECTIONS	AUDITS
Planned	528	44
Actual	593	46
Percentage compliance	112	105

7.1.2.3 *Total accidents reported*

Fatalities	1
> 14 - day injuries	21
1 to 13-day reportable injuries	7

7.1.2.4 *Investigations and inquiries*

	INVESTIGATIONS	INQUIRIES	TOTAL
Initiated	3	0	3
Completed	3	0	3
Percentage completed	100	0	100

7.1.2.5 *Disaster-type accidents*

No disaster-type accidents were reported.

7.1.2.6 *Statutory notices*

SECTION 54 NOTICES	SECTION 55 NOTICES
14	49

7.1.2.7 *Administrative fines*

No administrative fines were recommended by the PI.

7.1.2.8 *Land-use applications and complaints*

	RECEIVED	COMPLETED	PERCENTAGE
Township developments	0	0	0
Mining and prospecting rights	56	56	100
Closure certificates	0	0	0
Environmental management	0	0	0
Complaints	9	1	11

7.1.2.9 *Strategies adopted for improving status-quo*

- The region approached the employers of affected mining operations to assist them in implementing strategies to ensure that the health and safety of employees is not affected.
- The health and safety performance has significantly improved from two fatalities reported in the previous reporting period to zero fatalities reported in the current reporting period.
- There was an improvement in the reporting of both occupational injuries and occupational health data of 34% and 18% year-on-year respectively. The improvement is a combined effort between all stakeholders to continually implement interventions to improve the health and safety environment at all operations in the region.

7.2 Regional operations: Central, Coastal and North-eastern Regions

The Regional Operations: Central, Coastal and North-eastern Regions consists of the Eastern Cape, Free State, Limpopo and Mpumalanga regions. The major commodities mined are coal, platinum, gold, copper and industrial minerals. Numerous base minerals are also mined and there are many crushers, quarries and borrow pits in these regions.

The total number of employees at work from these regions was approximately 175 000 during 2022, which is a 3.8% increase compared to 2021. This bodes well with the commodity price boom in 2022.

Occupational health performance

The noise exposure levels were reduced form 59% in 2021 to 54% in 2022 which implies a 5% reduction in exposure of employees in HEG A and B. This means that most employees are over-exposed to high noise levels which leads to NIHL. The Free State region recorded employees over-exposure levels for noise of 70% which is well above the national average of 59%.

Similarly, airborne pollutant exposure levels in HEG A and B were reduced form 25% in 2021 to 20% in 2022 which implies an equivalent to about 8 300 employees. The Free State region had the highest number of employees over-exposed to airborne pollutants of 43% when compared to the national average of 17%.

An increase of 18% in the number of occupational diseases reported were noted in these regions with 667 cases in 2021 compared to 790 cases in 2022. The main occupational diseases reported by mines were as follows: PTB with 315 cases in 2021 compared to 321 cases in 2022, NIHL with 201 cases in 2021 compared to 239 cases in 2022 and silicosis with 94 cases in 2021 compared to 123 cases in 2022. A significant increase in silico-tuberculosis cases reported in the Free State region were noted from one case in 2021 compared to 15 cases in 2022. PTB continued to be the highest reported occupational disease in these regions.

Mining companies must procure mine equipment that generates less noise and lower dust levels to improve their respective case findings in compliance with legislation. The noise and airborne pollutants exposure levels reported from the Free State region were above the national average and the mining companies in the region should put more preventative measures in place to reduce the exposure levels of employees.

Programmes should be implemented to ensure that employees diagnosed with TB, complete their treatment in line with the national TB strategy.

Occupational safety performance

During the reporting period, 14 fatalities were reported compared to 25 fatalities in 2021. This corresponds to a 44% decrease in fatalities year-on-year. The Eastern Cape region recorded zero fatalities for the past five reporting years and all the other regions in the regional operation recorded a decrease in the number of fatalities. The classifications that contributed to the fatalities recorded were T&M with 36% as well as FOG and general-type accidents at 21% each.

The number of injuries reported were 516 in 2021 compared to 539 in 2022. This corresponds to an increase of 4%. The major contributors were general-type accidents, T&M and FOG with 57%, 19% and 12% respectively. General accidents include manual handling of material, inundation/drowning and slipping and falling.

A total of 33 mines did not report any fatalities during the reporting period and these mines are true examples that zero harm can be achieved.

Topical issues and matters of interest

The MHSI continues to receive several complaints due to mines blasting close to communities and township developments. The complaints normally include damages to properties due to ground vibration, air blasting and dust. Mining companies are urged to use best practice blasting methods to ensure that it does not negatively affect the surrounding communities and have a system in place to process complaints from communities. The MHSI is in the process of drafting a guideline that will stipulate the limits for ground vibrations and air blasts taking local conditions into account.

The number of candidates who wrote the Legal Knowledge and Plant Engineering examinations in June and November 2022 were 69 and 79 respectively compared to 141 and 193 in 2021. The pass rate for the above two subjects was 29% and 24% and a total of 48 registered candidates did not write any of the subjects.

Strategies adopted for improving status-quo

The Central, Coastal and North-eastern regional operations will continue to embark on a zero tolerance to non-compliance through the implementation of the OHS Improvement Strategy Action Plan. This will be achieved through the following:

- Convene meetings with CEOs of mining companies, professional associations in the mining sector and labour leadership to ensure that health and safety strategies are implemented.
- Focussing on strategies to reduce noise levels as well as exposure levels to respirable crystalline silica by implementing effective engineering controls.
- Focussing on the mines with employees in the HEG A and B exposure groups ensuring that these mines develop engineering controls to reduce the occupational exposure levels of those employees. This will also lead to the withdrawal of employees who are over-exposed to noise and silica dust.
- The Free State region must embark on a project to reduce the exposure levels to both airborne pollutants and noise which are well above the national levels.
- Improve TB case findings and encourage as well as monitor employees to complete TB treatment courses.

Illegal mining

A methane explosion in an old ventilation shaft in Welkom in May 2023 led to the death of 31 illegal miners from Lesotho. The inter-connecting shafts have either been back filled or sealed which caused the recovery operation to be more difficult. The DMRE and MRS have been working together to determine a safe process to recover the missing illegal miners. The scourge of illegal mining has taken a lot of lives and the MHSI will continue to work with the law enforcement agencies to address the problem.

7.2.1. Eastern Cape

The Eastern Cape Region is situated in the southeastern part of South Africa, surrounded by the Western Cape, Northern Cape, Free State and KwaZulu-Natal provinces. It is the second largest of the nine provinces of South Africa in terms of area (approximately 169 580 km2) and fourth largest in terms of population. The province includes the former homelands of Transkei and Ciskei and has almost seven million people who speak mainly isiXhosa, Afrikaans and English.

There are approximately 400 registered mining operations in the Eastern Cape that employs more than 2 000 employees. Mining takes place in hard rock quarries, as well as at many gravel and clay quarries that provide the necessary materials for the construction industry. There continues to be much activity through the region in the repair and upgrading of roads with materials mined from many borrow pits in the region.

7.2.1.1 *Topical issues and matters of interest*

The underground coal mine located near Indwe continues to remain closed because of ownership issues. Renewed interest and prospecting for coal in the Molteno area and various other minerals in the Mt Ayliff area continued during the period under review.

7.2.1.2 *Inspections and audits*

CATEGORY	QUALITATIVE INSPECTIONS*
Planned	280
Actual	311
Percentage compliance	111

* *Including individual and group audits*

7.2.1.3 *Total accidents reported*

Fatalities	0
> 14-day injuries	2
1 to 13-day reportable injuries	9

7.2.1.4 *Investigations and inquiries*

	INVESTIGATIONS	INQUIRIES	TOTAL
Initiated	2	0	2
Completed	2	0	2
Percentage completed	100	0	100

7.2.1.5 *Disaster-type accidents*

No disaster-type accidents were reported.

7.2.1.6 *Statutory notices*

SECTION 54 NOTICES	SECTION 55 NOTICES
3	10

7.2.1.7 *Administrative fines*

No administrative fines were recommended by the PI.

7.2.1.8 *Land-use applications and complaints*

	RECEIVED	COMPLETED	PERCENTAGE
Township developments	9	9	100
Mining and prospecting rights	21	21	100
Closure certificates	5	5	100
Environmental management	48	48	100
Complaints	7	9	129

The two outstanding complaints received during the previous reporting period were also investigated and completed with the prescribed time frame of 30 days.

7.2.1.9 Strategies adopted for improving status-quo:

- Several community meetings were attended with the Mineral Regulation Branch of the DMRE to discuss issues related to mining, especially concerns relating to blasting operations. Investigations into community complaints relating to blasting operations mostly lead to the conclusion that the concerns are social and labour plan related.
- RTF virtual meetings were poorly attended, and employers have been encouraged to improve attendance.
- The post of an Occupational Medicine Inspector has been filled whereas both posts of Inspector of Mines: Mine Safety as well as Inspector of Mines: Mine Equipment Safety became vacant during the period under review. Several attempts to fill these posts have not been successful. Efforts to fill these posts are continuing.
- Following the promulgation of TMM regulations on 21 December 2022, a combined virtual/physical meeting was held to ensure a uniform understanding and the implementation of the requirements of the regulations.

7.2.2 Free State

Although gold is the major commodity mined in the Free State region, other commodities such as coal, diamonds, aggregates, bentonite and sand are also mined on a lesser scale. Major gold mining companies, such as Harmony Gold and Sibanye Stillwater are slowly diminishing. Mining takes place in the areas of Sasolburg, Welkom, Odendaalsrus, Virginia, Theunissen, Allanridge and Koffiefontein.

The total labour force in the region decreased to less than at 30 000 employees at 27 872. The gold sector in the Free State still accounts for two thirds of the labour force. Although underground operating shafts are in the majority, the region also has two coal mines (namely Seriti and Sasol Mooikraal), one diamond mine (namely Koffiefontein) and various small operations including sand works.

7.2.2.1 Topical issues and matters of interest

- A major concern in the region is the closure of mines. Two mines closed during the previous reporting period (2021/2022) and two other mines were put under care and maintenance. The regional mining resource is shrinking and there is no known new exploration taking place.
- Illegal mining activities have reduced drastically since old shafts were filled with rubble and slime therefore restricting ventilation in these shafts and thus preventing access to food for illegal miners underground.

7.2.2.2 Inspections and audits

CATEGORY	INSPECTIONS	AUDITS
Planned	768	44
Actual	945	45
Percentage compliance	123	102

7.2.2.3 Total accidents reported

Fatalities	3
> 14-day injuries	161
1 to 13-day reportable injuries	118

7.2.2.4 *Investigations and inquiries*

	INVESTIGATIONS	INQUIRIES	TOTAL
Initiated	114	3	117
Completed	114	4	118
Percentage completed	100	133	101

7.2.2.5 *Disaster-type accidents*

No disaster-type accidents were reported.

7.2.2.6 *Statutory notices*

SECTION 54 NOTICES	SECTION 55 NOTICES
42	56

7.2.2.7 *Administrative fines*

No administrative fines were recommended by the PI.

7.2.2.8 *Land-use applications and complaints*

	RECEIVED	COMPLETED	PERCENTAGE
Township developments	0	0	0
Mining and prospecting rights	38	38	100
Closure certificates	12	12	100
Environmental management	19	19	100
Complaints	18	18	100
Mining permits	31	31	100
Surface utilisation	51	51	100

7.2.2.9 *Strategies adopted for improving status-quo*

- Continue with focused inspections and audits on profiled high-risk mines.
- Continue with engagements with all stakeholders in RTF and sub-committee meetings.
- Enforcement of in-stope roof bolting and netting at mines.
- Enforcement of the use of winch covers for dust.
- Enforce and monitor the respective occupational hygiene and medicine programmes at mines through auditing and inspections.
- Participate in working groups to monitor and mitigate occupational diseases.
- Maintain partnerships with other government departments, trade unions and other key stakeholders.
- Focused audits and inspections on safety management systems and the implementation thereof.
- Quarterly workshops on health and safety with key stakeholders.
- Enforce instructions for the stoppages of unsafe practices and workplaces.

7.2.3 Limpopo

In the Limpopo region a wide variety of minerals are mined with coal, copper, chrome, diamonds and platinum being the main commodities. Numerous base minerals are also mined and there are many crushers and quarries in the region.

7.2.3.1 Topical issues and matters of interest

The region had a significant reduction in the number of fatalities whilst noting an increase in the number of reportable injuries. There was a significant increase in the number of occupational diseases reported during the reporting period.

7.2.3.2 Inspections and Audits

CATEGORY	INSPECTIONS	AUDITS
Planned	657	39
Actual	837	44
Percentage compliance	127	113

The frequency of inspections and audits is determined from the analysis of accident statistics at mines as well as the number of instructions issued over the reporting period. Inspections and audits were conducted focusing on measures to eliminate fatalities and injuries.

7.2.3.3 Total accidents reported

Fatalities	5
> 14-day injuries	148
1 to 13-day reportable injuries	278

It is encouraging to note that there was a decrease in the number of fatalities reported. Fatalities were reduced by 17% when compared to fatalities reported during the previous reporting period.

An 11% increase in the number of reportable accidents has been noted where 148 injuries were reported when compared to 133 injuries for the same period during the previous reporting period.

A total of 58 and 42 occupational diseases were reported during 2022 and 2020 respectively. PTB followed by NIHL continue to be the most common occupational diseases reported.

7.2.3.4 Investigations and Inquiries

	INVESTIGATIONS	INQUIRIES	TOTAL
Initiated	82	5	87
Completed	82	5	87
Percentage completed	100	100	100

Mines are encouraged to ensure that the South African Mines Reportable Accidents Statistical System (SAMRASS) forms are duly completed as required by the regulations.

7.2.3.5 Disaster-type accidents

No disaster-type accidents were reported.

7.2.3.6 Statutory Notices

SECTION 54 NOTICES	SECTION 55 NOTICES
71	24

A total of 71 Section 54 notices were issued, with 235 transgressions identified resulting in 256 instructions being issued. During the reporting period, 24 Section 55 notices were issued, with 58 transgressions identified resulting in 81 instructions being issued.

Section 54 and Section 55 instructions were issued on issues relating to:

a. Chairlifts.
b. Checklists.
c. Risk assessments.
d. Safe declaration.
e. FOGs / substandard support.
f. Drilling.
g. Explosives control.
h. TMM.
i. Conveyor belt installations.
j. COPs.
k. Standard procedures.
l. Medical surveillance.
m. Ventilation.
n. Illumination surveys.
o. Dust control.
p. PPE.

Most of the Section 54 instructions issued, resulted in parts of working places, activities or equipment being stopped. Mines would then put remedial measures in place and present an action plan to the PI.

7.2.3.7 Administrative fines

No administrative fines were recommended by the PI.

7.2.3.8 Land-use applications and complaints

	RECEIVED	COMPLETED	PERCENTAGE
Township developments	39	39	100
Mining and prospecting rights	205	205	100
Closure certificates	39	38	97
Environmental management	8	8	100
Complaints	7	7	100

An additional total of 139 mining permit applications were received and completed during the reporting period.

7.2.3.9 Strategies adopted for improving status-quo

- The regional strategy focuses on conducting purposeful inspections and audits to identify any failure and/or weaknesses in the health and safety systems at the mines. The region believes that the visibility of inspectors at the mines is a pro-active way to ensure compliance. Where non-compliance and substandard conditions are observed, appropriate enforcement actions are taken.
- Co-operation from mine employers, mine employees, communities affected by mining operations and the region are encouraged to ensure that there are effective and efficient ways and strategies in dealing with health and safety relating to mining operations.
- Encourage mines to continue with developing and implementing strategies and measures to manage occupational diseases. The region continues to support all efforts and initiatives to combat TB, HIV/ AIDS and COVID-19 through various interventions.

7.2.4 Mpumalanga

The Mpumalanga region is surrounded by the Gauteng, Kwazulu-Natal, Free State and Limpopo provinces as well as the neighbouring countries of Mozambique and Eswatini. A wide variety of minerals, with coal as the main commodity, are mined in the Mpumalanga region. There are also many brickworks, crushers and quarries in the region.

7.2.4.1 Topical issues and matters of interest

The region identified general-type accidents as a major contributor of reportable accidents. The mines also reported a high number of slip and fall accidents and accidents due to improper tool handling. Although a decrease in FOG and TMM accidents were recorded in 2022 it remains a great concern regarding safety at the mines in the region.

The region will focus on the prevention of FOGs related accidents and slope failures as well as transport in mining and machinery related accidents. This will be done through the enforcement of the new regulations and the implementation of COPs and directives.

Community complaints emanating from blasting operations near these communities due to mining activities are still a challenge. Mines are encouraged to follow procedures that are put in place to manage these community complaints.

The reporting of conveyor belt fires and general underground fires at underground coal mines is still a challenge and these mines are encouraged to ensure compliance with the relevant directives issued by the MHSI. Mines in the region are encouraged to revisit their respective risk assessments to determine the areas of high potential fire risk.

The region noted the ageing infrastructure for underground coal mines and hard rock mines. It is further noted that underground coal mines are running out of coal reserves and hence are mining remnants and opening sealed off areas. Mines are encouraged to ensure that mining operations continue in adherence to all health and safety standards and compliance with all relevant directives issued.

Although there was a decrease in the reporting of open cast illegal coal mining, the reporting of illegal mining in precious metals, diesel, scrap metal and copper is still a challenge. Mines in the region are encouraged to participate in all available structures to curb the increase of all forms of illegal mining and ensure that all mine employees are protected from all types of illegal mining activities.

It has been noted with concern that some mines do not have integrated TB and HIV/AIDS programmes and are encouraged to have such programmes in place. The on-site wellness programmes remain a challenge to the smaller mines, and it is advised that these mines use the local municipal clinics where possible. The region noted the high numbers in the reporting of occupational diseases such as PTB and CWP. Mines are encouraged to improve their current preventive measures in line with the 2024 MHSC occupational health milestones.

The mines are audited on the implementation of COPs and the region will endeavour to ensure that mines have strategies in place to curb the increasing number of reported cases of PTB and CWP amongst employees.

In terms of exposure to airborne pollutants and noise, there is still a sizeable number of employees who are exposed to airborne pollutants in the HEG A and HEG B categories and are investigated as per the requirements of the MHSA. Mines with over-exposures in this regard were inspected and the relevant instructions were issued.

Occupational hygiene workshops will continue to be held and the region is committed to collaborate with all relevant stakeholders to encourage the mines to implement strategies to reduce over-exposures to airborne pollutants in line with best practices available to the mining industry.

7.2.4.2 Inspections and audits

CATEGORY	INSPECTIONS	AUDITS
Planned	1 280	0
Actual	1 591	0
Percentage compliance	124	0

7.2.4.3 Total accidents reported

Fatalities	5
> 14-day injuries	234
1 to 13-day reportable injuries	30

7.2.4.4 Investigations and inquiries

	INVESTIGATIONS	INQUIRIES	TOTAL
Initiated	98	2	100
Completed	116	2	118
Percentage completed	118	100	118

7.2.4.5 Disaster-type accidents

No disaster-type accidents were reported.

7.2.4.6 Statutory notices

SECTION 54 NOTICES	SECTION 55 NOTICES
114	42

7.2.4.7 *Administrative fines*

Number of fines recommended by Inspector	1
Value of fines recommended by Inspector	R 400 000
Number of fines set aside by PI	0
Value of fines set aside by PI	R0.00
Number of fines imposed by PI	1
Value of fines imposed by PI	R400 000
Appeals	0
Value of fines paid	R0.00

7.2.4.8 *Land-use applications and complaints*

	RECEIVED	COMPLETED	PERCENTAGE
Township developments	4	4	100
Mining and prospecting rights	225	225	100
Closure certificates	2	2	100
Environmental management	0	0	0
Complaints	15	15	100

7.2.4.9 *Strategies adopted for improving status-quo*

- The region will increase visibility as a proactive measure to enforce compliance at the mines.
- Focused inspections, audits and investigations will be conducted to identify system failures in terms of mine health and mine safety and the appropriate actions will be taken if necessary to ensure compliance.
- Mines are encouraged to revisit their risk assessment and management procedures to ensure that the safety management strategies are aligned with the risk ratings.
- Mines are encouraged to share learnings from previous accidents/incidents to prevent re-occurrences.
- The adoption of leading best practices and technological advancement at the mines are key to achieve the goal of zero harm.

7.3 Regional operations: Western and Coastal Regions

The Chief Directorate: Western and Coastal regions consists of the Northern Cape, North-West: Klerksdorp, North-West: Rustenburg and Western Cape regions. The main commodities being mined are PGM, iron ore, diamonds, manganese, chrome, gold, granite, dimension stones, sand and aggregates. Various mining methods are employed in the above-mentioned regions such as conventional and mechanised underground mining, opencast mining, block caving, sub-level open-stoping and off-shore mining.

Occupational health performance

Several mineworkers were still over-exposed to various occupational hygiene stressors such as thermal stress, noise and airborne pollutants. Over-exposures to airborne pollutants have resulted in occupational lung-related diseases such as silicosis amongst mineworkers.

Prolonged over-exposure to high noise levels has resulted in cases of NIHL amongst mineworkers. A regression was noted in NIHL cases from 257 in 2022 to 304 in 2022.

The total number of occupational diseases reported in in the above-mentioned regions were 715 in 2022 compared to 644 in 2021, which sadly translated into a 11% regression in occupational diseases reported. The main occupational diseases reported by the Western and Coastal regions in 2021/2022 were PTB with 269 cases, silicosis with 53 cases and NIHL with 304 cases. There was a slight improvement in the reported silicosis cases from 65 in 2021 to 53 in 2022, which translates to 18% improvement.

The North-West: Rustenburg region reported a total of 537 occupational disease cases which amounts to 75% of the total occupational diseases reported in the Western and Coastal regions. This can be attributed to the large number of operating mines and high concentration of mineworkers in the Rustenburg area.

Occupational safety performance

The above-mentioned four regions regrettably reported a total of 23 fatalities in 2022, an improvement from 31 fatalities which were reported in 2021. The major contributor to the fatalities in the Western and Coastal regions is the North-West: Rustenburg, which reported 18 in 2022 however, an improvement compared to 21 fatalities reported in 2021.

A total of 1 193 injuries were reported in 2022 compared to 1 522 in 2021 which translates to a 21% year-on-year decrease in injuries during the reporting period. In dealing with the above-mentioned fatalities and injuries, the Western and Coastal region conducted 25 fatal inquiries and 149 accident investigations.

Enforcement

During the period under review, the Western and Coastal region has conducted a total of 2 656 inspections and 205 audits at mines in North-West: Rustenburg, North-West: Klerksdorp, Northern Cape and Western Cape regions. During these mine inspections and audits, a minimum of 469 Section 54 notices and 602 Section 55 notices were issued in terms of safeguarding the health and safety of mineworkers from dangerous conditions, occurrences and practices which posed danger or had potential to pose danger to their lives.

The notices issued under Section 54 of the MHSA deal with dangerous conditions at mines whilst those issued under Section 55 of the MHSA address non-compliance to the provisions of the MHSA.

Strategies adopted for improving status-quo

The following are some of the strategies which were adopted to improve health and safety performance at mines:

- Engagements with the Chief Executive Officers (CEOs) of mining companies regarding their respective health and safety improvement plans.
- MHSI Executive Committee (EXCO) engagement with PIs and Inspectors, to encourage the administering of the provisions of the MHSA without fear or favour.
- Filling vacancies as soon as possible to combat high staff turn-over.
- Withdrawal of legal appointments in suspected cases of dereliction of duty or gross negligence.
- Mines are encouraged to adopt leading health and safety practices and technologies.

7.3.1 Northern Cape

The Northern Cape province is the largest province in terms of landmass and covers a total area of 37 2889 km2, but it has a relatively small population when compared to the other provinces. The population is approximately 1 214 000 as of the mid-year census conducted in 2017.

Below is the list of the five districts of the province with the minerals that are mined in the respective areas:

1. Namakwa: zinc, copper, lead, diamonds and granite.
2. ZF Mgcawu: iron ore, manganese, diamonds, limestone and salt.
3. John Taolo Gaetsewe: manganese.
4. Frances Baard: diamonds and aggregates.
5. Pixley Ka Seme: diamonds, base metals (such as copper) and aggregates.

Minerals mined in the province are mostly outcrops and/or close to the surface and therefore surface operations are dominant. Open-cast operations mostly uses machines to haul waste and ore to the dumping site and plants respectively.

There are seven operational underground mines in the region, and these primarily uses the board and pillar, sub-level open caving and long hole open stope mining techniques. As with open-cast mining, the underground mines in the region use machinery to transport ore and waste, making these operations less dependent on manual labour compared to the gold and platinum industries.

7.3.1.1 Topical issues and matters of interest

The region recorded two fatalities during the reporting period where one fatality was machinery related and the other accident was the result of a FOG incident. Both these fatal accidents occurred at mines that had a good safety history, and in both cases, it was contract workers that were fatally injured.

Many mining operations in the region rely on service providers for critical activities and the management of contractors has many challenges such as the misalignment of health and safety measures. Mines frequently neglect contract workers and fail to ensure adherence to health and safety systems at the mine.

Opencast mining is widespread in the region, and many of these mines experience ground stability issues and harsh weather conditions, particularly heavy rainfalls. Implementing measures such as slope monitoring systems for the monitoring and anticipation of ground movements before it results in catastrophic disasters, and instituting arial support where required, is crucial. In underground mines, the region faces similar challenges due to unfavourable geology conditions and an old support regime that is mostly passive. The results in some FOG management systems in underground mines are ineffective and insufficient in preventing FOG incidents.

The region also has a substantial number of small-scale miners and diggers which are highly affected by the commodity prices volatility. These operations close when commodity prices are low and reopen when commodity prices are increasing. Most of these operations reopen abruptly neglecting the required systematic phase approach in opening the operations safely.

7.3.1.2 Inspections and audits

CATEGORY	INSPECTIONS	AUDITS
Planned	312	48
Actual	330	48
Percentage compliance	106	100

7.3.1.3 Total accidents reported

Fatalities	2
> 14-day injuries	83
1 to 13-day reportable injuries	0

7.3.1.4 Investigations and inquiries

	INVESTIGATIONS	INQUIRIES	TOTAL
Initiated	16	1	17
Completed	16	1	17
Percentage completed	100	100	100

7.3.1.5 Disaster-type accidents

No disaster-type accidents were reported.

7.3.1.6 Statutory notices

SECTION 54 NOTICES	SECTION 55 NOTICES
79	54

7.3.1.7 Administrative fines

No administrative fines were recommended by the PI.

7.3.1.8 Land-use applications and complaints

	RECEIVED	COMPLETED	PERCENTAGE
Surface utilisation	42	42	100
Mining and prospecting rights	225	225	100
Mining permits	33	33	100
Closure certificates	12	12	100
Complaints	18	18	100

7.3.1.9 Strategies adopted for improving status-quo

The main strategies adopted by the region is stakeholder participation and the recognition of those that continuously strive to ensure that mine workers in the region return to their families unharmed. The working relationship amongst stakeholders remains core to these strategies. RTF meetings continue to be held and is attended by mines in both the Calvinia/Springbok and the Kimberley/Kathu areas. The region will also continue with safety campaigns in line with the risk-based approach of the MHSI.

In addition to the above mentioned approaches, the regional office is persistently ensuring adherence to the MHSA to enhance the health and safety conditions at mines. This is achieved through the subsequent measures:

- Prepare a risk profile of the mines and classify each mine according to the level of risk, considering the quantity, frequency and severity of reported incidents, and not neglecting newly opened mines.
- Increase the frequency of inspections and audits at mines that have a history of poor health and safety performances.
- Investigate all serious accidents and dangerous occurrences timeously and the outcomes from the investigations are shared with the industry to prevent similar occurrences.

- Investigate occurrences of slope failures and mines are instructed to install real time slope monitoring devices.
- Instruct mines where sinkholes and cavities have been identified to develop and implement a system to pro-actively identify sinkholes and cavities.
- Enforce compliance in the appointment of engineers.
- Mines are instructed to investigate and present all the fire incidents to the PI.
- Issue Section 54 and Section 55 instructions as well as administrative fines where necessary and conduct follow-up inspections.
- Withdraw the legal appointments of mine managers without the required mining qualifications and experience.
- Monitor and enforce the directives and instructions issued by the CIOM.
- Instruct the mines in the region to install real time monitors on surface and underground to prevent being re-active on environmental exposures.
- Instruct mines to install effective dust control systems and ensure that those controls are properly maintained.
- Instruct mines to conduct investigations for every over-exposure at the mine.
- Mines are encouraged to adopt MOSH leading practices.
- Encourage mines to ensure that appropriate systems for the managing of contractors are established.
- Encourage surface mines to adopt a risk-based strategy to install arial support whenever it is required.
- Participate in the rock engineering workstream to guide and encourage the reporting of slope failures, and to accelerate the process of implementing a slope monitoring system.

7.3.2 North West: Klerksdorp

The North-West: Klerksdorp region is surrounded by the Free State, Gauteng and the Northern Cape provinces. Most of the mines in the region are surface diamond diggings in the areas of Wolmaransstad, Bloemhof, Schweizer-Reneke, Vryburg, Taung, Ottosdal and Christiana.

Gold is mined in labour intensive underground mines. Other minerals that are mined in the region include uranium, limestone, fluorspar, sand and clay which are commonly exploited with less labour-intensive surface operations.

7.3.2.1 Topical issues and matters of interest

- The Harmony South Uranium Gold Plant achieved 5 874 144 fatality free shifts (FFS) in 2022.
- The Harmony Moab Khotsong mine achieved 1 000 000 FFS in March 2023.
- Wonderstone Mine achieved 4 000 fatality free production shifts (FFPS) in October 2022.
- The gold plants, diamond mines and cement operations recorded zero fatalities in 2022.

7.3.2.2 Inspections and audits

CATEGORY	INSPECTIONS	AUDITS
Planned	576	44
Actual	720	44
Percentage compliance	125	100

7.3.2.3 Total accidents reported

Fatalities	2
> 14-day injuries	126
1 to 13-day reportable injuries	64

7.3.2.4 *Investigations and inquiries*

	INVESTIGATIONS	INQUIRIES	TOTAL
Initiated	71	5	76
Completed	71	4	75
Percentage completed	100	80	99

7.3.2.5 *Disaster-type accidents*

No disaster-type accidents were reported.

7.3.2.6 *Statutory notices*

SECTION 54 NOTICES	SECTION 55 NOTICES
88	172

7.3.2.7 *Administrative fines*

No administrative fines were recommended by the PI.

7.3.2.8 *Land-use applications and complaints*

	RECEIVED	COMPLETED	PERCENTAGE
Township developments	44	44	100
Mining and prospecting rights	27	27	100
Closure certificates	16	16	100
Environmental management	3	3	100
Complaints	13	13	100

7.3.2.9 *Strategies adopted for improving status-quo.*

- Mines are encouraged to deploy better communication systems such as a short message system (SMS) to raise awareness amongst employees regarding the conditions in the working places prior to them proceeding underground.
- Attend quality pre-planning meetings whereby by at least a level of a Section Manager will chair the meeting and the Rock Engineer from the mine is also in attendance.
- All recommendations made by the Rock Engineer of a particular mine should be acknowledged by at least the level of a Section Manager.
- Discourages the planning and mining of long face lengths of more than 30 metres to prohibit mine employees in taking short cuts when conducting entry examinations and with the installation of support as there will be limited face time.
- Hold immediate supervisors accountable.
- Supervisors conducting odd shifts, including mine management, are required to have a fixed schedule.
- Mines are encouraged to introduce capital projects to replace old and deteriorating infrastructure.
- Encourage the mines in the region to have proper planning and scheduling when conducting rail maintenance and repairs and have a dedicated, competent and reasonable number of crews.
- Ensure that each new installation of scrapper winches, up to a level of and Engineering Foreman and Shift Overseer, must declare the winch safe for operation which includes proper signalling devices and a scrapper path, as well as provide the auditing tool for continuous monitoring.
- Enforce water management systems in stopes.
- Encourage mines to adopt MOSH best practices regarding the safe use of waterjets.

- Give the small-scale mines in the region the opportunity to conduct issue-based risk assessment and encourage them to have a traffic management plan and procedures to mitigate the risks associated with TMM collisions.
- Profile the high-risk mines.
- Mines must adhere to the requirements of Section 11(5) of MHSA when conducting investigations.
- Enforce engineering controls for dust suppression/extraction systems.
- Encourage mines to establish second outlets and issue these mines with an appropriate instruction when it is not in place.
- Continue to emphasize the importance of conducting exit medical examinations during inspections and audits.
- Focus on conducting follow-ups where statutory inspections are issued.
- Encourage small scale mines to continue sending employees to the local health facilities for treatment of NCDs.

7.3.3 North West: Rustenburg

A wide variety of minerals are mined in the North West: Rustenburg region with PGM and chrome being the main commodities mined in the region. The mining industry in the region has labour-intensive underground mining operations as well as numerous slate and granite quarries in the Brits and Swartruggens areas. The Northwest: Rustenburg region accounts for most of the mine employees in the country.

There has been a significant decrease in reporting FOG fatalities as only one fatality because of a FOG accident was reported during the reporting period. A total of 18 fatalities were reported which included one WIM who was struck by a LHD truck at one of the operations.

NIHL contributes to most of the occupational diseases reported since these employees have been working in the mining industry for 20 years or more.

7.3.3.1 Topical issues and matters of interest

The incidents of illegal mining and copper theft continues to spread within the region, particularly in the Witrantjie area where the illegal mining of chrome is rife. The theft of copper continues to threaten the health and safety of mine workers in both active and non-active mines since the stealing of cables affects the operation of underground ventilation systems.

During the period under review the region experienced several protests because the members of the communities near mining areas are complaining about the lack of employment and business opportunities. This impacted negatively on the region as the communities see the MHSI as people who are unable to perform their jobs.

7.3.3.2 Inspections and audits

CATEGORY	INSPECTIONS	AUDITS
Planned	1 188	24
Actual	1 235	51
Percentage compliance	104	213

7.3.3.3 Total accidents reported

Fatalities	20
> 14-day injuries	975
1 to 13-day reportable injuries	286

7.3.3.4 *Investigations and inquiries*

	INVESTIGATIONS	INQUIRIES	TOTAL
Initiated	43	22	65
Completed	43	19	62
Percentage completed	100	86	95

7.3.3.5 *Disaster-type accidents*

No disaster-type accidents were reported.

7.3.3.6 *Statutory notices*

SECTION 54 NOTICES	SECTION 55 NOTICES
300	362

7.3.3.7 *Administrative fines*

Number of fines recommended by Inspector	5
Value of fines recommended by Inspector	0
Number of fines set aside by PI	4
Value of fines set aside by PI	0
Number of fines imposed by PI	1
Value of fines imposed by PI	R 500 000.00
Appeals	0
Value of fines paid	0

7.3.3.8 *Land-use applications and complaints*

	RECEIVED	COMPLETED	PERCENTAGE
Township developments	These are handled by the Directorate: Mineral Regulation of the North West: Klerksdorp Region		
Mining and prospecting rights			
Closure certificates			
Environmental management			
Complaints	212	187	88

7.3.3.9 *Strategies adopted for improving status-quo*

- Encourage the mines to change the current safety culture from reactive to a culture that is dependent on behaviour and systems by withdrawing legal appointments of incompetent supervisors.
- Conduct reviews to improve and adopt best practices in the industry.
- Perform follow-ups on group audits regarding transgressions identified at the mines.
- Attend presentations and follow-up meetings with the industry on instructions issued.
- Promote the adoption and implementation the National Strategic Plan 2022-2025 of the DoH.
- Monitor and enforce compliance to the Guidance Note on Medico-legal Investigations of Mine Deaths issued by the CIOM.
- Continue to improve relations with and co-operation between the state-entities such as the SAPS and forensic pathologists.

7.3.4 Western Cape

The Western Cape region is one of the bigger regions in South Africa. The mines are spread throughout the region, which requires the inspectors to travel far to do inspections, audits, investigations and inquires.

The minerals that are mined in the region include sand, diamonds, clay, lime, phosphate, aggregates, silica, gypsum, kaolin, salt, bentonite, ball clay, ilmenite and gas. Most mines in the region are small surface mines but there are several bigger mines, namely PetroSA, Namakwa Sands, Afrisam, Lafarge, Afrimat and PPC. TMM are used by almost all the mines in the region except for PetroSA which has an offshore platform and the offshore diamond industry that uses small diving boats and divers.

The brickworks in the area mine clay in the summer months when it is not raining. During the rainy months, some brickworks close due to the danger associated with the slippery roadways.

7.3.4.1 Topical issues and matters of interest

Steenkampskraal is a mine on the western side of the Western Cape where monazite and rare earth were mined using conventional mining methods. This mine is planning on re-opening towards the end of 2023 and the Western Cape region will then have an active underground mine.

Little has been happening at the PetroSA refinery where only a trickle of condensate is coming from its FA platform, but Total Exploration found a reserve of gas off Mossel Bay. If PetroSA and Total Exploration can reach an agreement, the refinery can be at full production by 2027.

7.3.4.2 Inspections and audits

Although the region had several vacancies in the first quarter of the reporting period, some vacancies have been filled. As a result of these vacancies the region could not complete all the planned audits for the reporting period.

CATEGORY	INSPECTIONS	AUDITS
Planned	348	96
Actual	371	62
Percentage compliance	107	65

7.3.4.3 Total accidents reported

One fatal accident and nine reportable injury accidents were recorded during the reporting period. Slip and fall accidents was the main cause of these injuries. Four accidents were reported where the injured persons returned before 14 days.

Fatalities	1
> 14-day injuries	9
1 to 13-day reportable injuries	4

7.3.4.4 Investigations and inquiries

	INVESTIGATIONS	INQUIRIES	TOTAL
Initiated	20	1	21
Completed	19	1	20
Percentage completed	95	100	95

7.3.4.5 Disaster-type accidents

No disaster-type accidents were reported.

7.3.4.6 Statutory notices

Two Section 54 notices were issued with four contraventions and five instructions issued whilst 14 Section 55 notices were issued with 31 contraventions and 40 instructions issued.

Most of the statutory notices were issued for:

- Electrical – overhead power line precautions.
- Electrical apparatus declared unsafe.
- Unsafe travelling route – stairway/handrailing required.
- Medical non-compliance – appointments and record keeping.
- TMM repairs required.
- Guarding of machinery required.
- Good housekeeping required.

SECTION 54 NOTICES	SECTION 55 NOTICES
2	14

7.3.4.7 Administrative fines

No administrative fines were recommended by the PI.

7.3.4.8 Land-use applications and complaints

	RECEIVED	COMPLETED	PERCENTAGE
Township developments	36	36	100
Mining and prospecting rights	17	17	100
Closure certificates	23	23	100
Environmental management	0	0	0
Complaints	3	3	100

7.3.4.9 Strategies adopted for improving status-quo

- RTF meetings will be held and should be attended by employers, employee representatives and inspectors.
- The inspectors are continuously motivated to guide and assist the mines in the region to improve the quality and effectiveness of their risk management, training and behaviour-based safety.
- The vacant posts in the region need to be filled.
- Outdated and non-functional equipment such as laptops and printers at the regional office needs to be replaced.

PART 8
ANNEXURES

8. ANNEXURES

8.1 Annexure A: Organogram of the Mine Health and Safety Inspectorate for the period ending 31 March 2023

8.2 Annexure B: Contact list for the period ending 31 March 2023

OFFICE OF THE CHIEF INSPECTOR OF MINES				
POSITION	**OFFICIAL**	**WORK TEL**	**E-MAIL**	**POSTAL ADDRESS**
Chief Inspector of Mines	**Mr D Msiza**	-	-	Private Bag X59 ARCADIA, 0007
Executive Assistant	Ms S Nzimande	012 444 3970	sithembile.nzimande@dmre.gov.za	
Personal Assistant	Ms P Rambau	012 444 3639	phumudzo.rambau@dmre.gov.za	
OCCUPATIONAL HEALTH CHIEF DIRECTORATE				
POSITION	**OFFICIAL**	**WORK TEL**	**E-MAIL**	**POSTAL ADDRESS**
Chief Director: Occupational Health	**Dr L Ndelu**	012 444 3667	lindiwe.ndelu@dmre.gov.za	Private Bag X59 ARCADIA, 0007
	Ms T Kungoane	012 444 3373	trevia.kungoane@dmre.gov.za	
Director: Occupational Hygiene	**Ms CT Kekana**	012 444 3650	constance.kekana@dmre.gov.za	
	Ms A Matjokane	012 444 3646	anesia.matjokane@dmre.gov.za	
Director: Occupational Medicine	**Ms D Mahlaba**	012 444 3349	duduzile.mahlaba@dmre.gov.za	
	Mr R Moshapo	012 444 3785	rudzani.moshapo@dmre.gov.za	
Medical Inspector	**Dr D Mokoboto**	012 444 3613	dipalesa.mokoboto@dmre.gov.za	
	Ms P Makhubela	012 444 3614	pertunia.makhubela@dmre.gov.za	
TECHNICAL SUPPORT CHIEF DIRECTORATE				
POSITION	**OFFICIAL**	**WORK TEL**	**E-MAIL**	**POSTAL ADDRESS**
Chief Director: Technical Support, Central and Coastal Regions	**Mr X Mbonambi**	012 444 3675	xolile.mbonambi@dmre.gov.za	Private Bag X59 ARCADIA, 0007
	Ms A Muller	012 444 3676	arista.muller@dmre.gov.za	
Director: Mine Safety	**Vacant**	-	-	
	Ms F Seema	012 444 3649	freda.seema@dmre.gov.za	
Director: Mine Surveying	**Mr N Mahwasane**	012 444 3097	ndivhudza.mahwasane@dmre.gov.za	
	Ms G Sekwati	012 444 3789	goitsemang.sekwati@dmre.gov.za	
CENTRAL AND COASTAL REGIONS				
POSITION	**OFFICIAL**	**WORK TEL**	**E-MAIL**	**POSTAL ADDRESS**
Chief Director: Technical Support, Central and Coastal Regions	**Mr X Mbonambi**	012 444 3675	xolile.mbonambi@dmre.gov.za	Private Bag X59 ARCADIA, 0007
	Ms A Muller	012 444 3676	arista.muller@dmre.gov.za	
Principal Inspector: Gauteng	**Mr M Madubane**	011 358 9776	max.madubane@dmre.gov.za	Private Bag X5 BRAAMFONTEIN, 2017
	Ms P Sokhulu		portia.sokhulu@dmre.gov.za	
Principal Inspector: KwaZulu-Natal	**Ms M Sebitloane**	031 335 9626	matshidiso.sebitloane@dmre.gov.za	Private Bag X54307 DURBAN, 4000
	Ms S Dlamini		sindy.dlamini@dmre.gov.za	

CENTRAL, COASTAL AND NORTH-EASTERN REGIONS				
POSITION	**OFFICIAL**	**WORK TEL**	**E-MAIL**	**POSTAL ADDRESS**
Deputy Chief Inspector of Mines: Central, Coastal and North-eastern Regions	**Mr M Zondi**	012 444 3668	mthokozisi.zondi@dmre.gov.za	Private Bag X59 ARCADIA, 0007
	Ms L Sekwati	012 444 3663	lindiwe.sekwati@dmre.gov.za	
Principal Inspector: Eastern Cape	**Mr T Doyle**	041 403 6640	terence.doyle@dmre.gov.za	Private Bag X6076 GQEBERHA, 6000
	Ms M Singh		megan.singh@dmre.gov.za	
Principal Inspector: Free State	**Mr P Nyaqcela**	057 391 1373	pule.nyaqcela@dmre.gov.za	Private Bag X33 WELKOM, 9460
	Ms P Mofokeng		puleng.mofokeng@dmre.gov.za	
Principal Inspector: Limpopo	**Mr S Jivhuho**	015 287 4705	solly.jivhuho@dmre.gov.za	Private Bag X9467 POLOKWANE, 0700
	Ms N Montana		nancy.montana@dmre.gov.za	
Principal Inspector: Mpumalanga	**Vacant**	013 653 0514	-	Private Bag X7279 EMALAHLENI, 1035
	Ms N Zulu		nontembeko.zulu@dmre.gov.za	
WESTERN AND COASTAL REGIONS CHIEF DIRECTORATE				
POSITION	**OFFICIAL**	**WORK TEL**	**E-MAIL**	**POSTAL ADDRESS**
Deputy Chief Inspector of Mines: Western and Coastal Regions	**Mr T Ngwenya**	012 444 3756	thabo.ngwenya@dmre.gov.za	Private Bag X59 ARCADIA, 0007
	Ms D Sekgobela	012 444 3547	daphney.sekgobela@dmre.gov.za	
Principal Inspector: Northern Cape	**Mr T Mateta**	053 807 1735	tumelo.mateta@dmre.gov.za	Private Bag X6093 KIMBERLEY, 8300
	Ms D Goliath		dorothy.goliath@dmre.gov.za	
Principal Inspector: North West: Klerksdorp	**Mr J Melembe**	018 487 4316	jose.melembe@dmre.gov.za	Private Bag A1 KLERKSDORP, 2570
	Ms E Mmota		elizabeth.mmota@dmre.gov.za	
Principal Inspector: North West: Rustenburg	**Mr M Mothiba**	014 594 9240	monageng.mothiba@dmre.gov.za	P O Box 150 TLHABANE, 0309
	Ms T Baloyi		tintswalo.baloyi@dmre.gov.za	
Principal Inspector: Western Cape	**Vacant**	021 427 1004	-	Private Bag X9 ROGGE BAY, 8012
	Ms N Ntlenzi		ntombikayise.ntlenzi@dmre.gov.za	
TRIPARTITE INSTITUTIONS				
POSITION	**OFFICIAL**	**WORK TEL**	**E-MAIL**	**POSTAL ADDRESS**
Mining Qualifications Authority Chief Executive Officer	**Dr T Mashongoane**	011 547 2600	Rochelle.m@mqa.org.za	Private Bag X118 MARSHALLTOWN, 2107
Mine Health and Safety Council General Manager	**Mr D Mamphita**	011 656 1797	Nwoods@mhsc.org.za	Private Bag X11 WENDYWOOD, 2144

8.3 Annexure C: Acronyms and abbreviations

A	**AIDS**	Acquired Immune Deficiency Syndrome
	AMDP	Advanced Management Development Programme
	AMR(s)	Annual Medical Report(s)
	APP	Annual Performance Plan
	AQI	Air quality index
	ARV	Antiretrovirals
B	**BMI**	Body mass index
C	**CEO(s)**	Chief Executive Officer(s)
	CIOM	Chief Inspector of Mines
	CLR	Carbon Leader Reef
	CO^2	Carbon dioxide
	COAD	Chronic obstructive airway disease
	COP(s)	Code(s) of Practice
	COVID-19	Corona Virus Infection Disease 2019
	CWP	Coal workers' pneumoconiosis
D	**dB**	Decibels
	DB	Dry bulb
	dB(A)	Decibels A
	DMRE	Department of Mineral Resources and Energy
	DoH	Department of Health
E	**EMDP**	Emerging Management Development Programme
	EPTB	Extra pulmonary tuberculosis
	EXCO	Executive Committee
F	**FFR(s)**	Fatality frequency rate(s)
	FFP2	Filtering face piece 2
	FFPS	Fatality free production shifts
	FFS	Fatality free shifts
	FOG(s)	Fall(s) of ground
G	**GCC**	Government Certificate of Competency
	GIS	Geographical Information System
	GWh	Gigawatt hours

H	**HCP(s)**	Hearing conservation programme(s)
	HCT	HIV counselling and testing
	HEG(s)	Homogenous exposure group(s)
	HIRA(s)	Hazard identification and risk assessment(s)
	HIV	Human Immunodeficiency Virus
	HPD(s)	Hearing protection device(s)
I	**IFR(s)**	Injury frequency rate(s)
	IPT	Isoniazid preventive therapy
L	**$L_{Aeq, 8h}$**	Equivalent continuous sound pressure level
	LHD	Load haul dump
	LOM	Life of mine
M	**MCSA**	Minerals Council South Africa
	MDR-TB	Multidrug-resistant TB
	MHSA	Mine Health and Safety Act, 1996 (Act 29 of 1996), as amended
	MHSC	Mine Health and Safety Council
	MHSI	Mine Health and Safety Inspectorate
	MOSH	Mine Occupational Safety and Health
	MoU	Memorandum of Understanding
	MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)
	MQA	Mining Qualifications Authority
	MRS	Mines Rescue Services
	MSCC	Mine Surveyors Certificate of Competency
	MSD(s)	Musculoskeletal disorder(s)
	MW	Megawatt
N	**NCD(s)**	Non-communicable disease(s)
	NIHL	Noise-induced hearing loss
O	**OEL(s)**	Occupational exposure limit(s)
	OHS	Occupational health and safety
	OHSA	Occupational Health and Safety Act, 1993 (Act 85 of 1993)
	OLD(s)	Occupational lung disease(s)
	OMP(s)	Occupational Medical Practitioner(s)

P	**PDS**	Proximity detection systems
	PGM	Platinum Group of Metals
	PI(s)	Principal Inspector(s) of Mines
	PLH	Percentage loss of hearing
	PMF	Progressive massive fibrosis
	PPE	Personal protective equipment
	PTB	Pulmonary tuberculosis
	PV	Photovoltaic
R	**RBE**	Rail-bound equipment
	RBT	Rail-bound transport
	RFA(s)	Rehabilitation and Functional Assessment(s)
	RTF(s)	Regional Tripartite Forum(s)
S	**SAMRASS**	South African Mines Reportable Accident Statistics System
	SAPS	South African Police Service
	SCSR	Self-contained self-rescuers
	Sil+TB	Silico-tuberculosis
	SMS	Short message system
	SOP(s)	Standard operating procedure(s)
	SETA	Sector Education and Training Authority
	SLA(s)	Service Level Agreement(s)
	STS	Standard threshold shift
T	**T&M**	Transportation and mining
	TB	Tuberculosis
	TBT	Track-bound transport
	TMM	Trackless mobile machines
U	**UNAIDS**	Joint United Nations Programme on HIV/AIDS
V	**VCR**	Ventersdorp Contact Reef
W	**WB**	Wet bulb
	WHO	World Health Organisation
	WIM	Women in Mining
X	**XDR-TB**	Extensively drug-resistant TB

NOTES

Mine Health and Safety Inspectorate
Department of Mineral Resources and Energy
Private Bag X59
ARCADIA
0007

Trevenna Campus
Building 2C
70 Meintjies Street
Sunnyside

Tel: +27 (0) 12 444 3000
Email: mhsi@dmre.gov.za

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