



# 2014/15

## ANNUAL REPORT

MINE HEALTH AND SAFETY INSPECTORATE



**mineral resources**

Department:  
Mineral Resources  
REPUBLIC OF SOUTH AFRICA



# 2014/15 ANNUAL REPORT

MINE HEALTH AND SAFETY INSPECTORATE

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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, as amended, has the responsibility of protecting the health and safety of persons working at mines or those who are affected by mining activities.

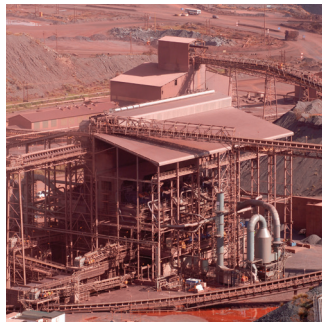
The CIOM also has the responsibility of leading the tripartite structures formed in terms of the MHSA as the Chairperson of the Mine Health and Safety Council (MHSC) and the Mining Qualifications Authority (MQA).

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

The MQA is an education and training authority for the minerals and mining sector and is responsible for the education and training needs of the mining industry.

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





All images are courtesy of the Chamber of Mines of South Africa (<http://www.chamberofmines.org.za>) and Media Club South Africa (<http://www.mediaclubsouthafrica.com>).

# GENERAL INFORMATION



# 1. GENERAL INFORMATION

## 1.1 SUBMISSION OF THE ANNUAL REPORT TO THE EXECUTING AUTHORITY

The Honourable Adv. Ngoako Ramatlhodi, MP  
Minister: Department of Mineral Resources  
Republic of South Africa

Dear Minister

I am pleased to present to you the annual report of the Mine Health and Safety Inspectorate for the 2014/15 reporting period. 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



**D Msiza**

**Chief Inspector of Mines  
Mine Health and Safety Inspectorate**



## 1.2 EXECUTIVE SUMMARY: CHIEF INSPECTOR OF MINES

### Introduction

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 2014/15 financial year.

### Staffing

The establishment of the MHSI provides for 310 funded posts, of which 254 are currently filled and 56 are vacant. Thirteen officials are carried additional to the approved establishment, bringing the total number of employees to 267. The demographics of the MHSI as on 31 March 2015 was as follows:

Gender	African	White	Asian	Coloured	Total
Male	107	43	0	1	151
Female	103	9	0	4	116

### Implemented training

During the 2014/15 reporting period, the MHSI developed the skills and knowledge base of its staff as follows:

- A total of 51 MHSI officials attended technical and non-technical training courses during the reporting period.
- Five managers attended and were found competent in the Executive Development Programme during the reporting period and graduated on 1 April 2015.

### Training interventions

#### Assistant Inspector Programme

Seven assistant inspectors with electrical or mechanical engineering tertiary qualifications were recruited to undergo inspector training at various regional offices. Two of these attained their Government Certificate of Competency (GCC) during the year under review and have been absorbed within the Department as qualified Inspectors of Mines (IOMs). There are currently four assistant inspectors remaining in the programme, who are at various stages of acquiring the appropriate GCC. One resigned from the programme.

#### Learner Inspector Programme

The Department has placed 50 learner inspectors at AngloGold Ashanti and Sibanye Gold for two years of mine experiential training. It is envisaged that these learners will be placed at the regional office once their training has been completed. The programme is a collaboration between the MHSI and the MQA.

Three of the abovementioned learner inspectors left the programme for various reasons. One learner was unfortunately found to be unfit for work underground, and an alternative arrangement was made for the finalisation of the programme above ground. The other two learners were fortunate to secure permanent employment at a mine before they could complete the programme, hence they were allowed to resign from the programme for better career prospects. The remaining 47 are still pursuing their mine experiential training in electrical engineering, mechanical engineering, mining engineering, mine surveying and occupational hygiene.

#### Bursary scheme

The MHSI has invested in 27 bursary holders. These bursary holders are funded by the MQA and are at various stages of completing their qualifications. These students are pursuing the following mining-related qualifications at different tertiary institutions:

- Electrical engineering (heavy current)
- Mechanical engineering
- Mining engineering
- Mine surveying

The bursary holder who was funded by the Department has completed her BTech degree and is being prepared to be placed in mine experiential training for two years.

### Current health and safety performance

#### Health

Mines are required to submit annual medical reports (AMRs) in terms of the provisions of the MHSA, as amended. These reports have revealed that the overall number of occupational diseases decreased by 3%, with the main diseases being silicosis and coal workers' pneumoconiosis (CWP).

The Department, in collaboration with stakeholders, will continue to implement measures to ensure that there is significant improvement, mainly in the gold and platinum sectors.

#### HIV/AIDS and TB

The mines have been reporting on Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) since 2013, following summit commitments that were endorsed by the principal stakeholders. The summit commitments were informed by a survey conducted by the Department on tuberculosis (TB) and HIV in the mining industry. Mines were then required to report cases using the departmental TB and HIV reporting form.

The following analysis is based on TB and HIV data received from mines for the period under review, whereby





457 mines (covering 448 096 employees) submitted reports, as opposed to 224 mines (covering 423 032 employees) in the previous year.

### Health and safety of women in mining

Through the MHSC, the Department has conducted research on security, health and safety matters involving women in mining. Based on the outcomes of this research, a guideline and awareness material will be developed to assist the industry in dealing with these matters.

### Mine safety

The safety track record in the South African mining industry remains a challenge for the Department, although there has been a downward trend and an improvement in the reported number of mine accidents year-on-year.

Despite this downward trend, one death is still one death too many. A total of 84 fatalities were reported in 2014, compared to 93 fatalities during the previous year, which translates to an improvement of approximately 10% year-on-year. The mining sector recorded the lowest fatalities ever during 2014.

Statistics show that accidents classified as general accidents resulting in fatalities are mainly due to exposure to harmful fumes, followed by fall of ground (FOG) and transportation-related accidents.

### Disaster-type accidents

No disaster-type accidents were reported during the year under review.

### Commemoration of former mine workers

The mining sector has for decades been the backbone of our economy and a major provider of employment in South Africa. The benefits of these contributions to development have often been shadowed by the industry's previous poor health and safety record.

Although there has been a significant improvement since the dawn of democracy, thousands of mineworkers have regrettably died and more than a million have been seriously injured as a result of accidents in the mining sector over the past century. It is estimated that many more lost their lives as a result of TB, silicosis and other poor health conditions at the mines.

In this regard, the Department and the MHSC intend to commemorate and honour the mineworkers who lost their lives during incidents in the mining sector.

One such initiative has been launched in the Evander area in Mpumalanga, where the National Union of Mineworkers (NUM) has brought to the Department's attention the gravesite of a thousand unknown mineworkers.

The names and origins of almost all the workers are unknown. They were merely identified by a number on a plate, with their working equipment (including helmets and gumboots) placed on top of their graves.



*Gravesite of former mine workers in Evander, Mpumalanga.*

The mineworkers were also shockingly buried at the doorstep of their hostels, and every day miners in the hostels had a view from the window of where they might sadly end up.



*Old hostel next to the gravesite of unknown mine workers in Evander, Mpumalanga.*

The Department and the stakeholders have initiated an investigation into the names of the workers and will ensure that a decent monument is erected for them.

### Mine Health and Safety Summit

The Mine Health and Safety Summit was held on 18 and 19 November 2014. During this summit, the stakeholders reaffirmed their commitment to achieving the vision of zero harm "working together for every worker to return from work unharmed every day". The stakeholders, under the spirit of tripartism, collectively agreed to work on the implementation of the action plan developed at the summit, in which target dates were set. This action plan addresses the main issues in the elimination of fatalities, injuries, occupational lung diseases, noise-induced hearing loss (NIHL), the prevention of TB, as well as HIV and AIDS infections, and the implementation of a culture of transformation.

At the summit, a Centre of Excellence was launched, which will be fully operational in April 2016

### Mine Health and Safety Act amendment

The review of the MHSA seeks to strengthen enforcement provisions, streamline administrative processes, reinforce offences and penalties, remove ambiguities in certain definitions, and express and harmonise the Act with other



laws, such as the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA).

The Mine Health and Safety Amendment Bill is currently being processed through National Economic Development and Labour Council (NEDLAC) processes.

## Monitoring compliance and enforcing legal provisions

In order to monitor and enforce compliance to health and safety measures at mines, group audits and inspections are conducted to ensure compliance with legal provisions. Group audits focus on the effectiveness of control measures that have been put in place to prevent rock falls, rock bursts and transport equipment accidents. Other audits evaluate mine management systems to prevent the exposure of employees to noise and dust (including silica dust), which could result in workers suffering from NIHL and silicosis. The mine management systems are also evaluated on their TB and HIV/AIDS programmes. Mine inspectors monitor compliance with the commitments of the Mining Charter to improve the living conditions of employees and the conversion of single-sex hostels into accommodation complexes. Research has determined that poor living conditions at mines exacerbate the occurrence of TB, HIV/AIDS and other health and safety concerns.

## Illegal mining

Illegal mining activities experienced in the closed, defunct and liquidated gold mines around Gauteng continue to be a major challenge for the Department, mining companies and local authorities. Other regions are also reporting a growth in the “illegal mining sector”, and rival gangs at both surface and underground operations are a major concern.

The Department will continue to collaborate with law enforcement agencies to combat illicit activities. Illegal mining forums have also been established in Gauteng, Mpumalanga, the Free State, the Northern Cape and the Eastern Cape, and continue to meet on a regular basis to implement strategies to combat illegal mining operations.

In this regard, progress has been made, including the sealing of open holes and shafts, mining outcrops, as well as arresting crime syndicates who are fuelling the illicit activities.

The Portfolio Committee on Mineral Resources also conducted oversight visits to the affected areas during the year to apprise themselves of the illegal mining situation in Gauteng.

## 1.3 MISSION STATEMENT

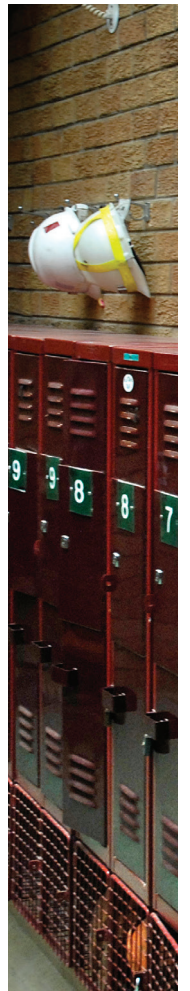
The MHSI strives towards a safe and healthy mining industry. This is to be achieved by reducing mining-related deaths, injuries and ill health through the formulation of national policy and legislation, the provision of advice, and the application of systems that monitor and enforce compliance with the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

## 1.4 LEGISLATIVE MANDATE

The MHSI was established in terms of the Mine Health and Safety Act, 1996 (Act 29 of 1996), as amended, 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.







All images are courtesy of the Chamber of Mines of South Africa (<http://www.chamberofmines.org.za>) and Media Club South Africa (<http://www.medioclubsouthafrica.com>).

# PROGRAMME PERFORMANCE



## 2. PROGRAMME PERFORMANCE

### Aim of the programme

The MHSI was established in terms of the MHSA, as amended. The aim of the programme is to carry out the Department of Mineral Resources' constitutional mandate of protecting the health and safety of persons working at mines and in nearby communities directly affected by mining activities. This is done through performing statutory inspections and audits, the enforcement of the MHSA and its regulations, as well as conducting investigations and inquiries into all occupational health and safety deaths and injuries at South African mines. The programme also administers GCCs for the mining sector. It consists of two sub-programmes: Governance and Policy Oversight, and Mine Health and Safety Regions.

### Purpose

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

### 2.1 SERVICE DELIVERY OBJECTIVES AND INDICATORS

The MHSI's strategic plan and achievements during the period under review are outlined in Table 2.1. This is an account of progress achieved in the period under review against the annual targets set for achieving the MHSI's strategic objectives.





TABLE 2.1: PROGRAMME 2: PROMOTION OF MINE HEALTH AND SAFETY

Strategic objective	Performance indicator	Actual achievement 2013/14	Planned target 2014/15	Actual achievement 2014/15	Deviation from planned target to actual achievement for 2014/15	Comment on deviations
Promote health and safety	Percentage reduction in occupational fatalities	16%	20%	26%	6% (above target)	A total of 71 fatalities were reported during 2014/15, compared to 96 during 2013/14. This achievement translates to an improvement of about 26%. <i>Calculation:</i> $((71 - 96) / 96) * 100 = 26\%$ <i>Verification source:</i> Summary of fatalities The reason for over-achievement was due to intensified monitoring and evaluation of the mines through enforcement measures and the engagement of stakeholders.
	Percentage reduction in occupational injuries	28%	20%	14%	6% (below target)	The number of mine injuries reported dropped by 14% against a target of a 20% reduction on mine injuries year-on-year. The reason for the partial achievement of this measure is because the information captured in the system is still provisional figures, which need to be cleaned up to remove duplications. <i>Calculation:</i> $((2\ 686 - 3\ 136) / 3\ 136) * 100 = -14\%$ improvement.
	Percentage reduction in occupational diseases (including TB)	N/A	10%	3%	7% (below target)	The reason for the partial achievement on this measure is due to the increased number of AMRs submitted. The number of AMR submissions by the mines increased from 761 in 2013 to 836 in 2014. <i>Calculation:</i> $((6\ 577 - 6\ 810) / 6\ 810) * 100 = -3\%$ .
	Percentage of investigations completed (initiated vs completed)	87%	80%	90%	10% (above target)	The majority of the regions managed to catch up on their backlogs, which were a result of the strike in the platinum belt. Initiated: 1 959 vs 1 766 completed <i>Calculation:</i> $(1\ 766 / 1\ 959) * 100 = 90\%$
	Percentage inquiries completed (initiated vs completed)	88%	80%	67%	13% (below target)	The reason for non-achievement was due to the strike action in the platinum belt, which made it difficult to get access to witnesses. This delayed the finalisation of the inquiries planned. Initiated: 89 vs 60 completed <i>Calculation:</i> $(60 / 89) * 100 = 67\%$



Strategic objective	Performance indicator	Actual achievement 2013/14	Planned target 2014/15	Actual achievement 2014/15	Deviation from planned target to actual achievement for 2014/15	Comment on deviations
	Number of inspections conducted (cumulative)	9 446	8 000	8 555	555 (above target)	The reason for over-achievement was due to the intensified monitoring and evaluation of mines by conducting inspections and the implementation of the relevant enforcement measures.
	Number of audits conducted (cumulative), individual audits included	473	396	523	127 (above target)	The reason for over-achievement was due to the intensified monitoring and evaluation of mines by conducting audits and implementing the relevant enforcement measures.
	Percentage adherence to the enforcement guideline	100%	100%	100%	0	
	Mine Health and Safety annual report	1	1	1	0	
	Legislative framework reviewed	100%	1	1	0	
	Number of tripartite workshops conducted	62	40	62	22 (above target)	The tripartite workshops have been increased to improve cooperation between stakeholders in identifying best practices on the mines, which would result in the improved health and safety of mineworkers.
	Percentage implementation of Certificate of Competency (COC) Model to improve pass rate	N/A	100%	100%	0	
Contribute to skills development						
Implement service level agreements (SLAs)	Percentage adherence to existing SLAs	100%	100%	100%	0	

Strategic objective	Performance indicator	Actual achievement 2013/14	Planned target 2014/15	Actual achievement 2014/15	Deviation from planned target to actual achievement for 2014/15	Comment on deviations
Develop and review internal processes	Percentage of identified internal processes developed, reviewed and implemented	100%	100%	100%	0	
	Percentage adherence to prescribed time frames for medical appeals	96%	80%	127%	47% (above target)	The reason for the over-achievement on this measure is because of the backlog from the previous year. The backlog has been dealt with.
Improve turnaround times	Percentage adherence to prescribed time frames for CIOM appeals	100%	100%	100%	0	
	Percentage adherence to prescribed time frames for MPRDA applications	96%	100%	103%	3% (above target)	The reason for the slight over-achievement on this measure is because of the backlog in the last month of the reporting period. The entire backlog has been dealt with.
	Percentage adherence to prescribed time frames for administrative tasks	100%	80%	88%	8% (above target)	The reason for the over-achievement was due to the processing of backlog administrative tasks in both the Survey Department and the North West: Rustenburg region. All these administrative tasks were still concluded within the prescribed time frames.



Strategic objective	Performance indicator	Actual achievement 2013/14	Planned target 2014/15	Actual achievement 2014/15	Deviation from planned target to actual achievement for 2014/15	Comment on deviations
<b>Promote corporate governance</b>	Percentage implementation of management action plans (internal audit)	33%	100%	100%	0	
	Percentage implementation of management action plans (external audit)	100%	100%	100%	0	
	Percentage adherence to Compliance Framework	100%	100%	100%	0	
	Percentage implementation of risk management plans	100%	100%	100%	0	

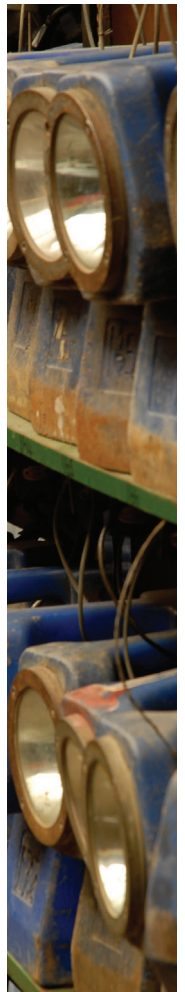
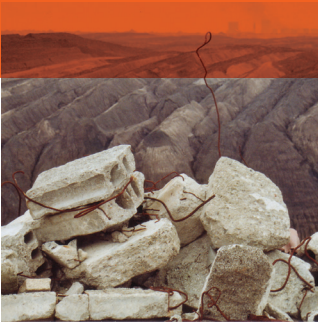
## 2.2 SERVICE DELIVERY IMPROVEMENT PLAN

TABLE 2.2: SERVICE DELIVERY IMPROVEMENT PLAN

Key service	Service beneficiary	Current standard (2014/15)		Desired standard (2013/15)		Progress as at 31 March 2015
Address health and safety risks in mining through:	Mining operations	Quantity				
• Number of audits conducted			• 100% of planned audits as per capacity		• 100% of planned audits as per capacity	• 132% of planned audits as per capacity
• Number of inspections conducted			• 100% of planned inspections as per capacity	Quantity	• 100% of planned inspections as per capacity	• 106% of planned inspections as per capacity
• Number of investigations conducted			• 80% of planned investigations as per capacity		• 80% of planned investigations as per capacity	• 90% of planned investigations as per capacity
• Number of inquiries completed			• 80% of planned inquiries as per capacity		• 80% of planned inquiries as per capacity	• 67% of planned inquiries as per capacity
		Quality	Implementation and compliance to standardised policies and procedures	Quality	Implementation and compliance to standardised policies and procedures	Achieved
		Consultation	Quarterly consultations with mining operations	Consultation	Monthly consultations with mining operations	Achieved
		Open and transparent	Policies and procedures are public documents.	Openness and transparency	Policies and procedures are public documents.	Achieved
		Information	Information is shared with the mines on a monthly basis.	Information	Information is shared with the mines on a monthly basis. An electronic management system would improve the availability of information.	Achieved
		Value for money	Ensure the optimal utilisation of voted funds.	Value for money	Ensure the optimal utilisation of voted funds.	Achieved







All images are courtesy of the Chamber of Mines of South Africa (<http://www.chamberofmines.org.za>) and Media Club South Africa (<http://www.medioclubsouthafrica.com>).

# STATE OF SAFETY AND HEALTH AT MINES



### 3. STATE OF SAFETY AND HEALTH AT MINES

#### 3.1 OCCUPATIONAL SAFETY

##### 3.1.1 Accident statistics

The accident statistics indicate that the safety track record remains a challenge for the South African mining industry. Although there has been a downward trend and improvement on the number of mine deaths year-on-year, one death remains one too many. A total of 84 fatalities were reported during 2014, compared to 93 during 2013. The number of mine injuries reported also dropped from 3 126 to 2 700 year-on-year.

The high numbers of injuries and fatalities reported by the mines are as a result of repeat accidents, hence an increased number of routine inspections and audits were conducted to address this challenge. The statistics also suggest that gold and platinum mines are the main contributors of accidents and the subsequent loss of life; hence more focus has been directed at these commodities going forward.

##### 3.1.1.1 The number of employees at work

There has been an overall decline in the total number of employees at work in the mining industry during the period under review when compared to the previous year. Table 3.1.1.1 shows a notable decrease in the following commodities: gold, platinum, coal and other mines. However, there was an increase in the following commodities: diamonds, copper, chrome, iron ore and manganese.

**TABLE 3.1.1.1: NUMBER OF EMPLOYEES AT WORK DURING 2013 AS OPPOSED TO 2014**

	2013	2014	Percentage change
<b>Total</b>	<b>493 227</b>	<b>447 724</b>	<b>-9.2</b>
Gold	122 202	111 072	-9.1
Platinum	173 047	142 522	-17.6
Coal	84 883	82 082	-3.3
Diamonds	13 405	15 701	17.1
Copper	3 115	3 154	1.3
Chrome	18 232	18 400	0.9
Iron ore	20 710	21 369	3.2
Manganese	9 747	9 914	1.7
Other mines	47 886	43 510	-9.1

##### 3.1.2 Analysis of accident rate trends

##### 3.1.2.1 Fatality and injury rates per million hours worked

The fatality and injury rate per million man 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 requires a person to not work in excess of 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:

Fatality/injury rate =

$$\left\{ \frac{\text{Number of fatalities/injuries for calendar year}}{(\text{Number of persons at work} \times 2\,200)} \right\} \times 10^6 \text{ hours}$$

##### 3.1.2.2 Fatality rates per region

Table 3.1.2.2 indicates the number of fatalities reported to each of the regions of the MHSI, as well as the fatality rates during 2013 and 2014.

Although there was reduction in the total number of fatalities reported year-on-year, the fatality rate remained the same at 0.09 for both 2013 and 2014. This is mainly attributed to the fact that there was a significant decrease in the number of people at work in 2014, compared to 2013.

The fatality rates for the Gauteng and Free State regions during 2014 remain a major concern, as they both surpass the fatality rate of all the regions combined. KwaZulu-Natal's fatality rate for 2014 improved when compared to the previous year, but remains equivalent to the fatality rate of all the regions combined.

All the other regions managed to improve their fatality rates year-on-year. In 2014, they all registered fatality rates that were at least below that of all the regions combined.



TABLE 3.1.2.2: FATALITY RATES PER REGION

	2013	Fatality rate	2014*	Fatality rate	Percentage change in rates
<b>All mines</b>	<b>93</b>	<b>0.09</b>	<b>84</b>	<b>0.09</b>	<b>0.0</b>
Western Cape	0	0.00	0	0.00	0.0
Northern Cape	2	0.02	1	0.01	-50
Free State	8	0.10	11	0.15	50
Eastern Cape	1	0.21	0	0.00	-100
KwaZulu-Natal	9	0.27	3	0.09	-67
Mpumalanga	11	0.06	9	0.05	-17
Limpopo	6	0.05	6	0.05	0.0
Gauteng	21	0.12	30	0.18	50
North West: Klerksdorp	5	0.11	3	0.08	-27
North West: Rustenburg	30	0.09	21	0.08	-11

\* provisional

### 3.1.2.3 Injury rates per region

The overall number of injuries reported by all the mines showed a slight improvement during the period under review when compared to the 2013. The actual figure reported for 2014 was 2 700 as opposed to a total of 3 126 injuries reported in 2013. Table 3.1.2.3 indicates the number of injuries reported to each region and the injury rates during 2013 and 2014. The injury rates for the North West: Klerksdorp, Free State, Gauteng and North West: Rustenburg regions for the period under review remain a major concern as they are above the injury rate of all the regions combined. All the regions' injury rates regressed when compared to the previous year, except for KwaZulu-Natal, North West: Klerksdorp and North West: Rustenburg.

TABLE 3.1.2.3: INJURY RATES PER REGION

	2013	Injury rate	2014*	Injury rate	Percentage change in rates
<b>All mines</b>	<b>3 126</b>	<b>2.88</b>	<b>2 700</b>	<b>2.74</b>	<b>-4.9</b>
Western Cape	6	0.42	11	0.84	100
Northern Cape	67	0.83	113	1.31	58
Free State	305	3.96	313	4.30	8.6
Eastern Cape	0	0.00	5	1.31	100
KwaZulu-Natal	44	1.30	25	0.77	-40.8
Mpumalanga	277	1.43	273	1.48	3.5
Limpopo	156	1.47	239	2.03	38
Gauteng	631	3.53	696	4.26	21
North West: Klerksdorp	319	7.16	261	6.64	-7
North West: Rustenburg	1 321	3.82	764	2.82	-26

\* provisional

### 3.1.2.4 Fatality rates per commodity

The fatality rates for gold and chrome mines remain a challenge for the entire mining industry. Table 3.1.2.4 shows that both these commodities had a fatality rate that was way above the fatality rate of all commodities combined during 2014.

The fatality rates for gold, coal, diamonds, chrome, iron ore and other mines regressed when compared to the fatality rates in 2013.

TABLE 3.1.2.4: FATALITY RATES PER COMMODITY

	2013	Fatality rate	2014	Fatality rate	Percentage change in rates
<b>All mines</b>	<b>93</b>	<b>0.09</b>	<b>84</b>	<b>0.09</b>	<b>0.0</b>
Gold	37	0.14	44	0.18	28.6
Platinum	27	0.07	16	0.05	-28.6
Coal	7	0.04	9	0.05	25.0





	2013	Fatality rate	2014	Fatality rate	Percentage change in rates
Diamonds	0	0.00	1	0.03	100
Copper	1	0.15	0	0.00	-100
Chrome	7	0.17	9	0.22	29.4
Iron ore	0	0.00	1	0.02	100
Manganese	0	0.00	0	0.00	0.0
Other	14	0.13	4	0.04	-69.2

\* provisional

### 3.1.2.5 Injuries rates per commodity

The injury rates for gold, copper and chrome mines remain a challenge for the entire mining industry. Table 3.1.2.5 shows that these commodities had an injury rate that was way above the injury rate of all commodities combined during 2014.

The fatality rates for gold, coal, diamonds, copper, chrome, manganese and other mines regressed when compared to 2013, except for the platinum and iron ore mines.

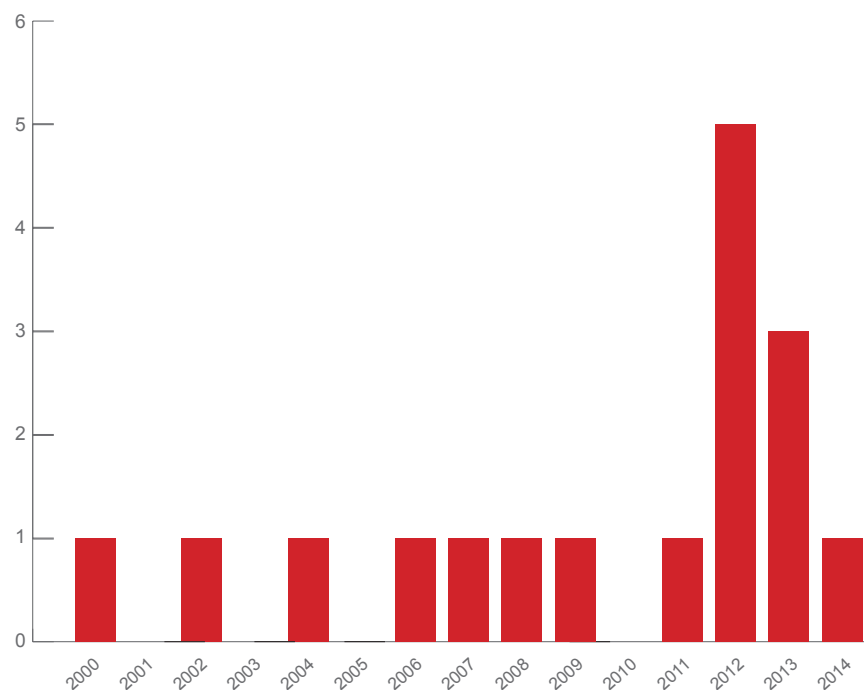
**TABLE 3.1.2.5: INJURY RATES PER COMMODITY**

	2013	Injury rate	2014*	Injury rate	Percentage change in rates
<b>All mines</b>	<b>3 126</b>	<b>2.88</b>	<b>2 700</b>	<b>2.7</b>	<b>-6.3</b>
Gold	1 252	4.66	1 243	5.1	9.4
Platinum	1 344	3.53	796	2.5	-29.1
Coal	263	1.41	267	1.5	6.4
Diamonds	19	0.64	42	1.2	88
Copper	15	2.19	56	8.1	270
Chrome	91	2.27	118	2.9	28
Iron ore	34	0.75	35	0.5	-33.3
Manganese	14	0.65	47	2.2	238
Other	94	0.89	96	1.0	12.4

\* provisional

### 3.1.2.6 Fatalities: Women in mining

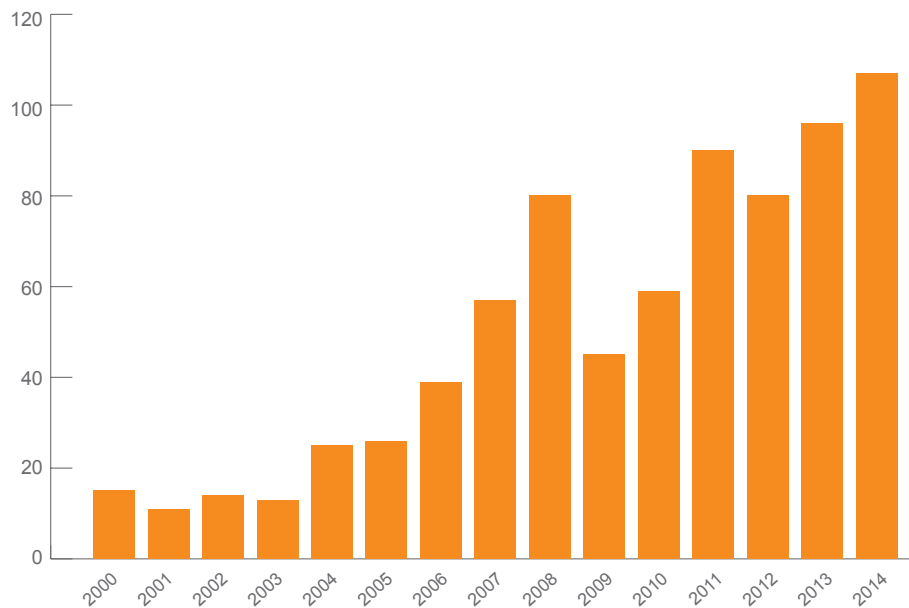
**FIGURE 3.1.2.6: FATALITIES: WOMEN IN MINING**



One female employee was fatally injured in 2014 as opposed to the three fatalities reported in 2013. This translates to a 67% decrease year-on-year.

### 3.1.2.7 Injuries: Women in mining

**FIGURE 3.1.2.7: INJURIES: WOMEN IN MINING**

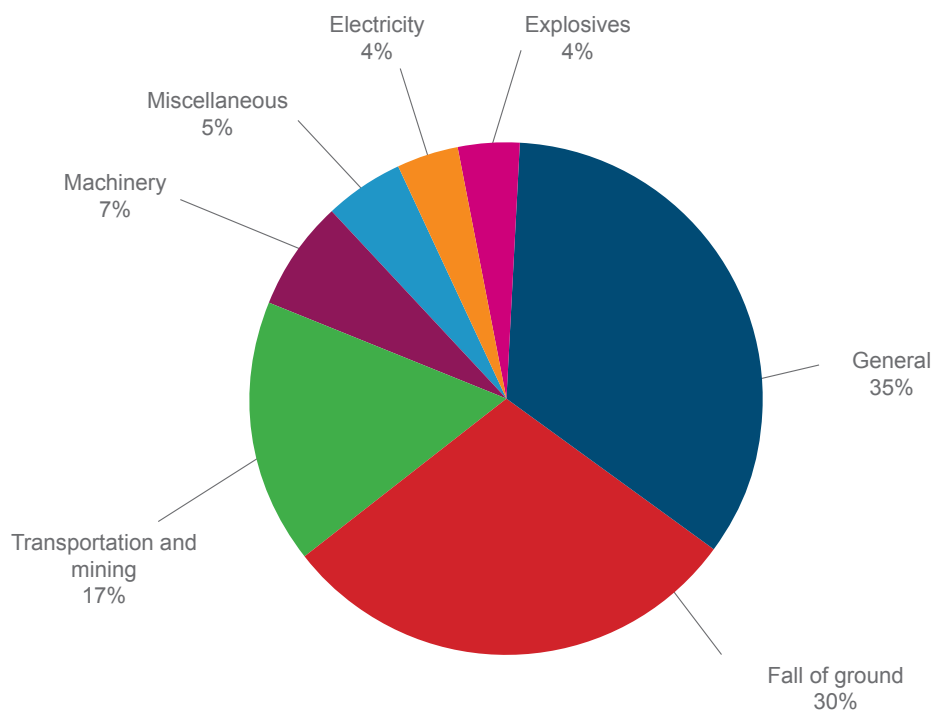


One hundred and seven female employees were injured in 2014, as opposed to 96 in 2013, which translates to an increase of 11%.

### 3.1.2.8 Fatalities classified by casualty classification

Eighty-four fatalities were recorded in 2014. Figure 3.1.2.8(a) and Figure 3.1.2.8(b), together with the summary below, give details of the class of accidents that caused fatalities in 2014. This detailed analysis of reported fatal accidents can assist employers at all mines to ensure that all work is performed safely and in accordance with precautionary measures laid down to prevent such class of accidents.

**FIGURE 3.1.2.8(a): FATALITIES CLASSIFIED BY CASUALTY CLASSIFICATION**



### General (35%)

This category of classifications accounted for most of the fatalities that were reported in 2014. This classification accounted for 17% of fatalities in 2013. This concerning increase is further broken down in paragraph 3.1.2.8.1 and Figure 3.1.2.8(b).

### Falls of ground (30%)

Twenty-five fatalities were reported due to falls of ground (FOGs) in 2014. Sixteen fatalities occurred in the gold mines, four in the platinum mines, three in other mines and two in the coal mines. This classification accounted for 35% of fatalities in 2013 (the highest number in that year). This downward trend affirms the tripartite collaboration efforts of the state, employers and organised labour.

### Transportation and mining (17%)

Fourteen fatalities were reported in this classification in 2014. Four were reported in the gold mines, five in the coal mines, two in the platinum mines and three in other mines. This classification accounted for 3% of fatalities in 2013. The concerning upward trend indicates an area that needs urgent attention by the tripartite stakeholders.

### Machinery accidents (7%)

Six fatalities were reported in this classification in 2014. Three fatalities were reported in the gold mines and three in the platinum mines. This classification accounted for 3% of fatalities in 2013. Although there is an upward trend, complacency should be guarded against at all times.

### Miscellaneous (5%)

The miscellaneous classification refers to accidents that cannot be classified under any classification listed above. Four fatalities were reported in this classification in 2014. Two fatalities were reported in the gold mines and two in the platinum mines. In the first incident, a mine overseer had complained of body cramps and was later discovered 20 m from the strike gully. In the other gold mining incident, a new employee got lost at knock-off time and was discovered four hours later at the upper

level centre gully. In the third incident (in a platinum mine), a winch operator who could not be accounted for during shaft clearance at knock-off time was found by the search team in front of the winch at his work station, between the winch drums and the winch barricade. The winch was still running and the operator was entangled in the winch rope. In the fourth incident, the mine employee was walking up the mine decline when he was fatally injured by a tyre that had become dislodged from a dump truck and rolled down the decline. This classification also accounted for 4% of fatalities in 2013. Although these types of fatalities are unpredictable, efforts should be made to avoid repeat incidents.

### Electricity (4%)

Three fatalities were reported in this classification in 2014. Two fatalities were reported in the platinum mines and one in the diamond mines. This classification accounted for 2% of fatalities in 2013. This is another area that indicates an upward trend and should be contained.

### Explosives (4%)

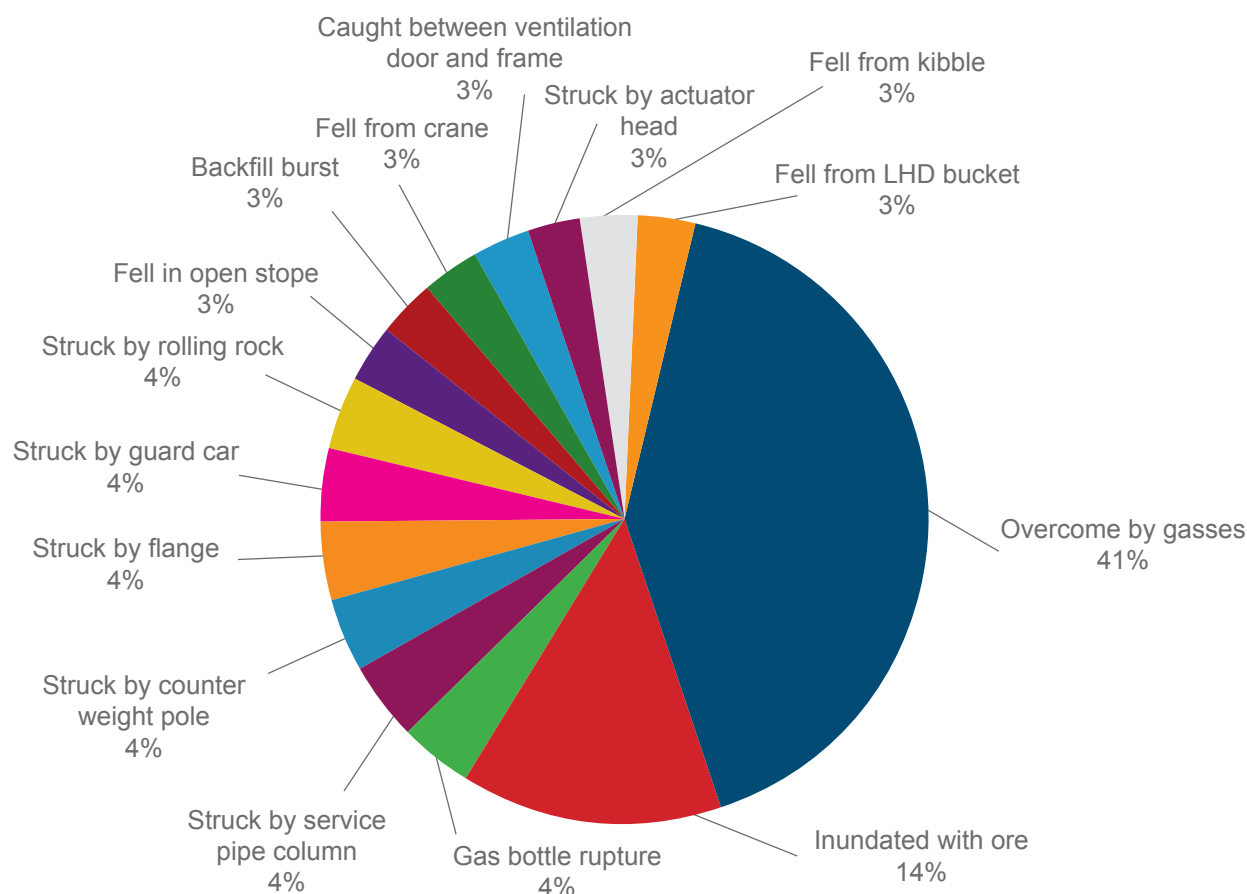
Three fatalities were reported in this classification in 2014. One was reported in the gold mines, one in the chrome mines and one in the coal mines. This classification accounted for 1% of fatalities in 2013. This is another area that indicates an upward trend and should be contained.

#### 3.1.2.8.1 Breakdown of fatalities classified as a general type of accidents

Twenty-eight fatalities were reported under this classification. They can be broken down into the following sub-categories: overcome by gases (12), inundated with ore (4), gas bottle rupture (1), struck by service pipe column (1), struck by guard car (1), struck by flange (1), struck by rolling rock (1), fell in open stope (1), backfill burst (1), fell from crane (1), caught between ventilation door and frame (1), struck by actuator head (1), fell from kibble (1) and fell from load haul dumper (LHD) bucket (1). Among other mitigation measures, behavioural refresher training, planned task observations and active supervision can assist in preventing such incidents in the future.



FIGURE 3.1.2.8(b): BREAKDOWN OF FATALITIES CLASSIFIED AS GENERAL



### 3.1.2.9 Injuries classified by casualty classification

TABLE 3.1.2.9: INJURIES CLASSIFIED BY CASUALTY CLASSIFICATION

	Injuries		
	1 January to 31 December 2013	1 January to 31 December 2014	Percentage change
<b>Fall of ground</b>	<b>537</b>	<b>413</b>	<b>-23</b>
Rockburst	101	67	-34
Strainburst	52	50	-4
Gravity	384	296	-23
<b>Machinery</b>	<b>217</b>	<b>210</b>	<b>-3</b>
Conveyor belts	41	55	34
Drives, belts, chains	22	25	14
Portable power tools	122	92	-25
Other	32	38	19
<b>Trackbound transport</b>	<b>228</b>	<b>178</b>	<b>-22</b>
Locomotive	40	39	-3
Locomotive-drawn vehicle	58	43	-26
Rerailing	22	14	-36
Coupling/uncoupling	52	42	-19



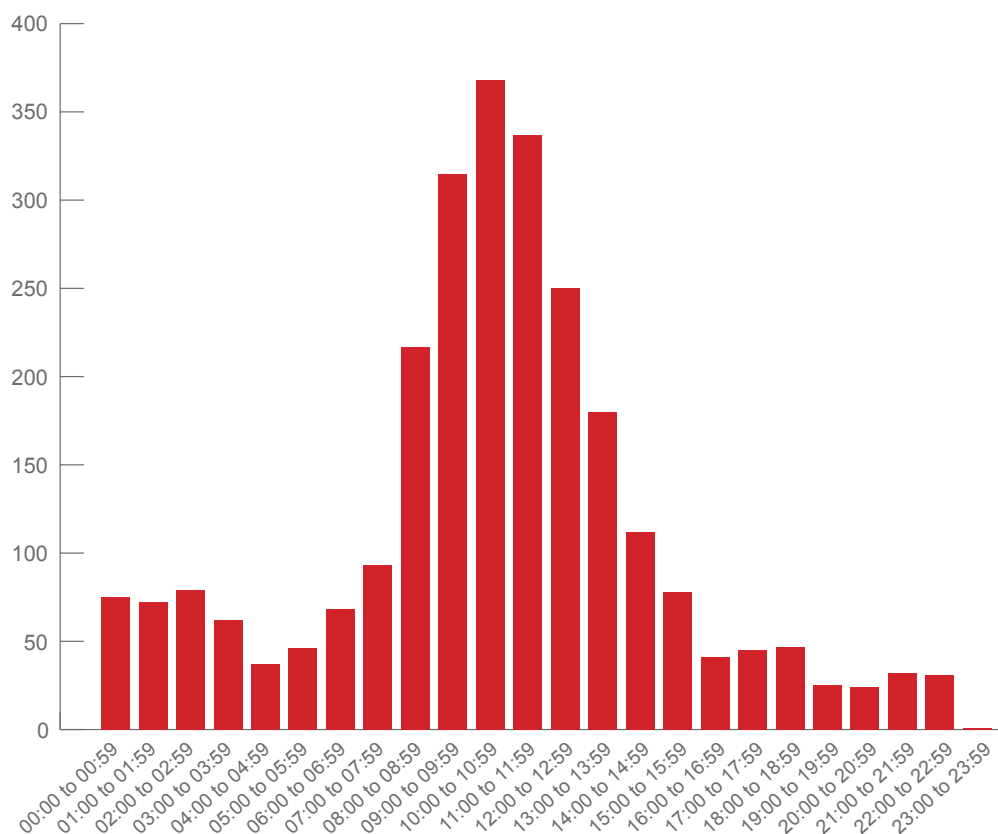
	Injuries		
	1 January to 31 December 2013	1 January to 31 December 2014	Percentage change
Rocker arm shovel	18	10	-44
Personal transport	12	8	-33
Endless rope	1	3	200
Hand trammed	16	8	-50
Other (transport)	9	11	22
<b>Winches</b>	<b>150</b>	<b>108</b>	<b>-28</b>
Scraper winch installation	104	83	-20
Single drum winch	25	11	-56
Double drum winch	15	7	-53
Mono rope/rail	6	7	17
<b>Trackless mobile machines</b>	<b>192</b>	<b>187</b>	<b>-3</b>
Mechanical loaders	19	23	21
Tractor/trailer	9	12	33
Coal-mining machines	4	1	-75
Transporters	51	51	0
Motor vehicles	29	16	-45
Transport and mining lifting machines	33	41	24
Transport and mining mobile drilling machines	36	33	-8
Other trackless mobile machines	11	10	-9
<b>General</b>	<b>1 645</b>	<b>1 396</b>	<b>-15</b>
Fall of material/rolling rock	362	232	-36
Manual handling of material	440	337	-23
Manual handling of mineral	56	54	-4
Falling in/from	43	46	7
Slipping and falling	418	365	-13
Burning and scalding	35	36	3
Splinters	25	32	28
Dust, gas and fumes	90	91	1
Inundation/drowning	2	6	200
Struck by ventilation door	23	24	4
Struck by any object manual handling	151	173	15
<b>Conveyance accidents (shaft/winders)</b>	<b>30</b>	<b>35</b>	<b>17</b>
<b>Electricity (not causing fires)</b>	<b>27</b>	<b>32</b>	<b>19</b>
<b>Fires</b>	<b>8</b>	<b>4</b>	<b>-50</b>
<b>Explosives</b>	<b>9</b>	<b>25</b>	<b>178</b>
<b>Subsidence/caving</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Heat sickness</b>	<b>4</b>	<b>10</b>	<b>150</b>
<b>Miscellaneous</b>	<b>79</b>	<b>102</b>	<b>29</b>
<b>Total</b>	<b>3 126</b>	<b>2 700</b>	<b>-14</b>

\* provisional



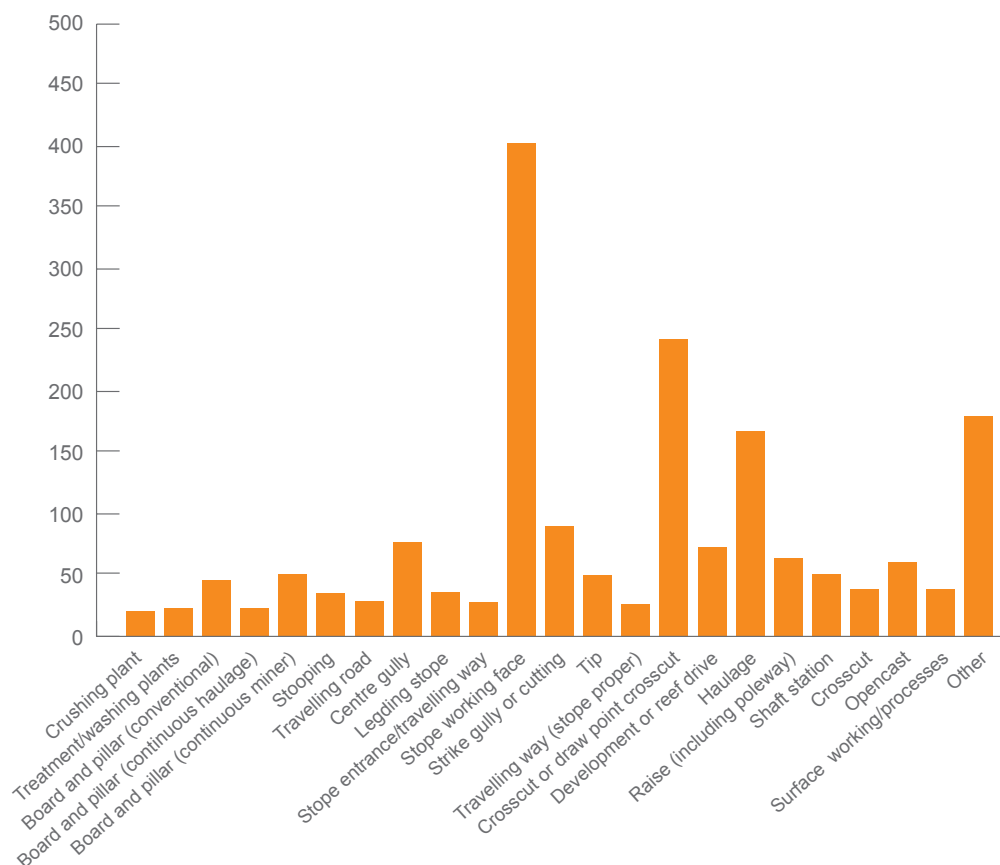
### 3.1.2.10 Accidents classified by time of occurrence

Accidents classified by time of occurrence reflect that most injuries occurred between 10:00 and 11:00.



### 3.1.2.11 Accidents classified by location

The graph below shows various locations at a mine where more than 20 injury accidents were reported during the period January to December 2014. The stope working face is where most accidents occurred.



### 3.1.3 Enforcement

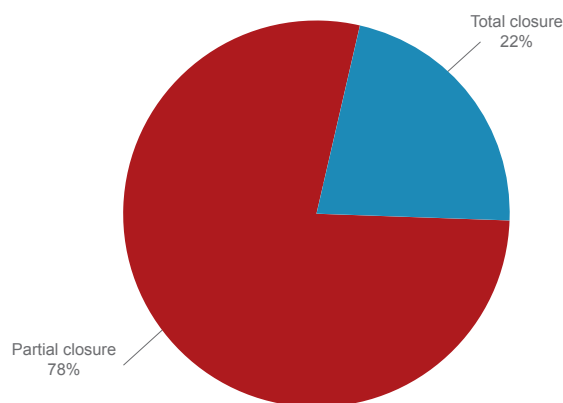
#### 3.1.3.1 Section 54 instructions

Section 54 instructions of the MHSA are issued if an IOM has a reason to believe that any occurrence, practice or condition at a mine endangers or may endanger the health and safety of any person at the mine. The inspector may give any instruction necessary to protect the health and safety of persons at that mine. An IOM's instruction may result in the following scenarios:

- Halt the operations at the mine or part of a mine.
- Halt any act or practice at the mine or part of a mine.

The employer must take steps as set out in the instruction to rectify the occurrence, practice or condition. Figure 3.1.3.1(a) depicts the percentage of Section 54 instructions resulting in total closure versus partial closure during the period January to December 2014.

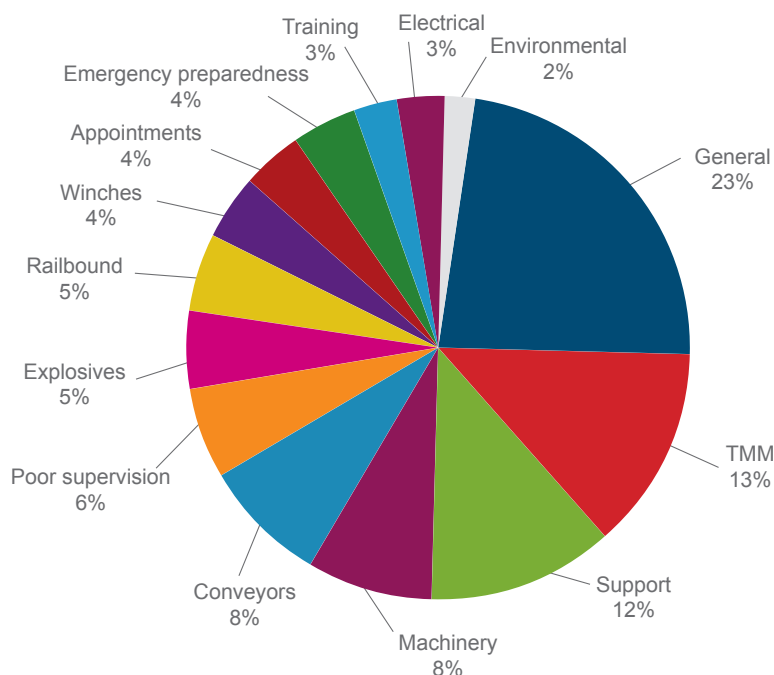
**FIGURE 3.1.3.1(a): SECTION 54 MINE STOPPAGES IN 2014**



During 2014, the total number of Section 54 instructions issued can be classified as follows: 22% were total stoppages of mines, and the remaining 78% were issued to halt specific parts of working places, or practices or conditions at a mine or part of a mine. Most of the total stoppages were for small, privately run mines, where there were no appointments, no medical files, no training for employees, no medical surveillance and no mandatory codes of practice.

The main areas that were covered by the instructions issued are shown in Figure 3.1.3.1(b). For 2014, general safety (23%) accounted for most of the instructions issued, followed by trackless mobile machines (TMM) (13%) and support (12%).

**FIGURE 3.1.3.1(b): SECTION 54 INSTRUCTIONS ISSUED IN 2014**



## General (23%)

This category of transgressions accounted for most of the Section 54 instructions issued in 2014. Some of the areas covered were as follows:

- Hand sorting employee was not provided with personal protective equipment (PPE)
- Poor maintenance and repairs carried out by electrician and boilermaker
- Main tips were found to be substandard
- Failure to ensure safety of employees when travelling on the conveyor
- Poor key control and failure to lock out
- Shothole was marked and drilled closer than 150 mm to a misfired hole or socket
- Inability to bar down due to steeply inclined and wet footwall
- Holing and sealing was not done as per mine standards
- An employee was found working without a safety harness

## Trackless mobile machines (13%)

Some of the areas covered in this category of transgressions were as follows:

- TMM operator was operating with “no-go” deviation for a period of a month – ineffective hooter
- The truck was stopped for not complying with the checklist at a coal mine
- The front end loader (FEL) at a small quarry had defects: park brake and hooter not working, reverse alarm not audible enough, starting ignition switch not working, operating without a licence
- TMM operator licences had expired
- There were no TMM pre-use checklists
- Safety belts were out of order
- The park brake was out of order
- There was no reverse hooter
- The hand brakes of two articulated dump trucks were out of order
- Substandard TMMs (worn-out tyres, transmission problems, substandard fire extinguishers, machines operated with “no go” checked on checklists)

## Support (12%)

Some of the areas covered in this category of transgressions were as follows:

- The face was found marked at an area where the net was not installed as per mine standard.
- Employees were found charging a face, while temporary support was missing.

- Hydrabолts were found to be 2.3 m from the face, instead of 0.5 m as per the mine standard.
- Substandard support conditions were observed.
- Roofbolts were excessively protruding, not tensioned, some with missing nuts and plates.
- Hydrabолts in the panel were more than 1.0 m apart on strike.
- Geological features were not demarcated as per mine standards and procedures.
- Up-dip holing was observed with an unsupported span of 4.4 m.
- Backfill installation activities were suspended after a backfill bag burst.
- Roofbolts in the haulage were protruding 0.4 m and were not reinstalled.

## 3.1.4 Mine surveying

### 3.1.4.1 Activities of the Directorate: Mine Surveying

The Directorate continues to monitor mine surveying standards and practices in order to promote a culture of safety and health at mines, give guidance on the safe utilisation of undermined land for surface development purposes, and render mapping and draughting services. The Directorate also promotes the mine surveying profession by giving talks at meetings of the Institute of Mine Surveyors of South Africa, and organising workshops aimed at attracting more young people to the profession.

### 3.1.4.2 Surveying matters

The Directorate works closely with the regional offices in maintaining surveying and mapping standards, monitoring compliance by mines to the relevant Mine Health and Safety Regulations, the administration of departmental copies of the statutory mine plans that the mines deposit at the regional offices, and regularly comment and make recommendations regarding the safe utilisation of land for township development. The Directorate also performs underground check measurements in restricted mining areas where surface structures require protection, and of underground workings to determine the accurate representation on plans of such workings. During underground visits, refuge bays are inspected to determine whether they comply with safety standards as set by the mine

The following table shows completed tasks for the year under review.





Activities	Planned	Completed	Performance analysis
Mine surveying inspections (underground and surface mines)	371	494	The inspectors had to increase the number of inspections during the course of the financial year so as to influence the culture of health and safety at the mines..
Underground inspections (control measurements)	226	237	The inspectors who were working under the supervision of a senior inspector started conducting inspections on their own, thereby increasing the number of inspections conducted.
	<b>Received</b>	<b>Completed</b>	
Permissions and exemptions	106	106	All the applications for permissions and exemptions from the provisions of Mine Health and Safety regulations that were received were processed.
<b>Surface utilisation applications</b>			
	<b>Received</b>	<b>Completed</b>	<b>Performance analysis</b>
	241	237	Four applications for surface utilisation were carried over to the next financial year as they were received towards the end of 2014/15.
<b>Mine Surveyors' Certificate of Competency (MSCC) examinations</b>			
	Number of candidates who sat for the examinations	600	A candidate is required to write and pass between three and eight papers, depending on his qualifications in order to obtain his MSCC. The majority of candidates opted not to sit for all the papers in one sitting, resulting in a low number of certificates issued

Applications for exemptions and permissions related to survey issues and surface utilisation requests are received from the regional offices for comments and recommendations.

### 3.1.4.3 Special surveys

The Directorate: Mine Surveying is constantly involved in the following practical surveying projects:

- Assisting in boundary disputes and the draughting of fatal accident plans
- Verifying the accuracy of survey data and plans submitted by candidates undertaking the trial survey project as part of their Mine Surveyor's Certificate of Competency examination
- Assisting principal inspectors in accurately determining the distance over which mining operations have been conducted within a horizontal distance of 100 m from structures that require protection from such mining operations

### 3.1.4.4 Mapping services

The Subdirectorate Geographic Information Systems (GIS) and Mapping Services administers the archiving, retrieval and safekeeping of prescribed mine plans and survey records of mines that have closed down. It also serves clients who require information on the undermining status of land for township development and other purposes. It makes the mine plans of closed-down mines available to mine owners or their representatives when required.

The Subdirectorate is in the process of replacing hard copy plans with electronic plans that will reduce the turnaround time for comments and recommendations on proposed township development.

### 3.1.5 Examinations

The following table depicts GCCs issued during the period under review.

The MHSI, in conjunction with the MQA, has conducted an investigation into the poor pass rates of all these examinations. The recommendations will be implemented, thereby improving the pass rates where applicable:



**TABLE 3.1.5: NUMBER OF CERTIFICATES ISSUED PER EXAMINATION CATEGORY**

Type of certificate	Certificates issued
Mine Engineers' Certificate (electrical and mechanical)	82
Mine Managers' Certificate	14
Mine Overseers' Certificate	109
Mine Surveyors' Certificate	11
Winding Engine Drivers' Certificate	35
<b>Total</b>	<b>251</b>

### 3.1.6 Human resource development

#### *Assistant Inspector Programme*

Seven assistant inspectors recruited with electrical/mechanical engineering tertiary qualifications were undergoing inspector training at various regional offices of the Department at the beginning of the financial year. Two of the seven attained their GCC during the period under review. They have been permanently absorbed within the Department as fully qualified IOMs. The other five are at various stages of acquiring the GCC. One of these has resigned from the Department.

#### *Learner Inspector Programme*

The Department placed 50 learner inspectors at AngloGold Ashanti and Sibanye Gold for two years of mine experiential training. These learners are unemployed graduates from previously disadvantaged communities and the programme is aimed at providing them with internship and experiential training in their field of study at the mines. Upon completion of the programme, they will be afforded the opportunity to fill vacancies in the MHSI. Their training is a result of collaboration between the MQA, which sponsors the training. Three of the 50 have resigned from the programme due to ill-health and better career prospects. The remaining 47 are still pursuing their mine experiential training.

They have been placed in the following disciplines:

• Electrical engineering (heavy current)	9
• Mechanical engineering	10
• Mine engineering	13
• Mine surveying	5
• Occupational hygiene	11

#### *Bursary Scheme*

The MHSI has invested in 27 bursary holders. These bursary holders are funded by the MQA and are at various stages of completing their qualifications. These students are pursuing the following mining-related qualifications at different tertiary institutions:

- Electrical engineering (heavy current)
- Mechanical engineering
- Mine engineering
- Mine surveying

One bursary holder was funded by the Department and completed her BTech degree during the period under review. She is being prepared to be placed in a two-year mine experiential training programme.

## 3.2 OCCUPATIONAL HEALTH

Compliance with statutory reporting has improved with regard to mines submitting occupational hygiene statutory returns and AMRs. The overall number of occupational hygiene reports submitted increased as follows: airborne pollutants by 17% (from 625 in 2013 to 732 in 2014), noise by 15% (from 524 in 2013 to 604 in 2014) and thermal stress heat by 26% (from 352 in 2013 to 443 in 2014). Thermal cold compliance reports have been reduced from 274 in 2013 to 260 in 2014. The number of AMRs submitted increased by 10% (from 761 to 836). Analysis of occupational diseases is based on the actual number of AMRs received. Statutory reporting on HIV and TB increased by 49.2% (from 233 mines in 2013, representing 423 032 employees, to 459 mines in 2014, representing 465 923 employees).

There has been an overall increase in overexposure in relation to airborne pollutants and thermal heat in the A-classification band. An improvement has been noted in noise exposure. The industry has strived to maintain zero exposure above the occupational exposure limit (OEL) under thermal cold stress.

The number of initial medical examinations conducted on employees for 2014 shows a decrease by 27 913, periodic medical examinations increased by 30 856, and exit medical examinations decreased by 14 548 compared to the previous year.

The actual total number of occupational diseases reported has decreased by 233 cases compared to the previous year. Nationally, the rate of silicosis cases decreased by 23% (from 248 to 189), pulmonary tuberculosis (PTB) cases increased by 9% (from 564 to 615), silico-tuberculosis (Sil+TB) cases decreased by 27% (from 26 to 19), NIHL increased by 5% (from 241 to 253), CWP cases decreased by 23% (from 22 to 17), asbestosis increased by 50% (from 10 to 15), and other diseases decreased by 6.4% (from 78 to 73).

The total number of occupational diseases reported by the gold mines decreased by 15% (from 4 035 in 2013 to 3 425 in 2014). The number of silicosis and PTB cases decreased by 28% and 11% respectively, and the NIHL



cases showed a decrease of 0.2% compared to the previous year.

In the platinum mines, there is an increase of 11% in the overall number of occupational diseases reported compared to the previous year. Silicosis cases decreased by 18%, while PTB cases increased by 19%. NIHL cases increased by 9% and the number of other diseases remained unchanged.

There is a decrease of 17% in the number of occupational diseases reported from coal mines compared to the previous year. NIHL cases decreased by 43%, while PTB cases showed an increase of 4%. Silicosis cases remained unchanged for both reporting years and asbestosis cases showed an increase of 17%.

In the diamond mines, the number of occupational diseases reported showed an increase of 76%. Silicosis decreased by 91%, while PTB cases showed an increase of about 183%. NIHL cases increased by 200% and other diseases increased by 71%.

The number of occupational diseases reported by all the mines increased by 55% compared to the previous year. Sil+TB decreased by 67%, while silicosis cases showed an increase of about 30%. PTB cases increased by 154% and NIHL cases increased by 23%. Asbestosis and other diseases increased by 150% and 21% respectively.

Section 20 appeals received and finalised for the period under review have increased by 11% and 10% respectively. More employees are now becoming aware of their right to appeal. Other diseases include HIV/AIDS-related diseases, psychiatric conditions, cardiovascular diseases, orthopedic problems, etc. This category has contributed to the majority of appeals handled, followed by TB, hearing loss and silicosis. Appeals related to TB and silicosis were mostly received from gold mines, particularly in the Free State.

One of the previous summit commitments requires the Department to generate an annual report on HIV and TB based on the DMR 164 form data from all the mines. More mines are starting to embrace this process of submitting data for HIV and TB.

*New industry targets and milestones as set in 2014*

#### Elimination of occupational lung diseases

- By December 2024, 95% of all exposure measurement results will be below the milestone level for respirable crystalline silica of 0.05 mg/m<sup>3</sup>. These results are individual readings and not average results.

- By December 2024, 95% of all exposure measurement results will be below the milestone level for platinum dust respirable particulate of 1.5 mg/m<sup>3</sup> (<5% crystalline silica). These results are individual readings and not average results.
- By December 2024, 95% of all exposure measurement results will be below the milestone level for coal dust respirable particulate of 1.5 mg/m<sup>3</sup> (<5% crystalline silica). These results are individual readings and not average results.
- Using present diagnostic techniques, no new cases of silicosis, pneumoconiosis or CWP will occur among previously unexposed individuals.

#### Elimination of NIHL

- Quieting of equipment:** By December 2024, the total operational or process noise emitted by any equipment must not exceed a milestone sound pressure level of 107 dB (A). The milestone of the sound pressure levels will be verified by initiatives under the Centre of Excellence and Mine Occupational Safety and Health (MOSH) and reviewed in 2016.
- For the individual:** By December 2016, no employee's standard threshold shift (STS) will exceed 25 dB from the baseline when averaged at 2 000, 3 000 and 4 000 Hz in one or both ears.

#### Reduction and prevention of TB, HIV and AIDS infections

By December 2024, the TB incidence rate should be at or below the national TB incident rate, and 100% of employees should be offered HIV counselling and testing (HCT) annually, with all eligible employees linked to an antiretroviral therapy (ART) programme as per the National Strategic Plan (NSP).

### 3.2.1 Occupational hygiene

Regulation 9.2.7 of the MHSA requires mines to submit statutory reports on personal exposure monitoring of occupational hygiene stressors. The analysis of occupational hygiene measurements is based on the reports submitted to the MHSI as indicated in Table 3.2.1(a).

The number of reports increased by 17% in airborne pollutants, 15% in noise and 26% in heat stress, whereas cold stress reports have reduced by 5%.



TABLE.3.2.1(a): COMPLIANCE REPORTING

Region	Heat		Airborne		Noise		Cold stress	
	2013	2014	2013	2014	2013	2014	2013	2014
Western Cape	39	51	51	63	48	56	29	11
Northern Cape	16	45	28	55	22	46	10	24
Free State	17	18	29	38	28	36	8	6
Eastern Cape	5	10	24	24	22	23	7	2
KwaZulu-Natal	32	41	70	68	53	63	27	11
Mpumalanga	69	57	141	129	122	95	75	54
Limpopo	25	37	48	62	41	55	14	19
Gauteng	63	55	86	85	73	57	34	41
North West: Klerksdorp	32	59	49	112	23	82	28	54
North West: Rustenburg	54	70	99	96	92	91	42	38
<b>Total</b>	<b>352</b>	<b>443</b>	<b>625</b>	<b>732</b>	<b>524</b>	<b>604</b>	<b>274</b>	<b>260</b>

\*provisional

### 3.2.1.1 Occupational hygiene measurements

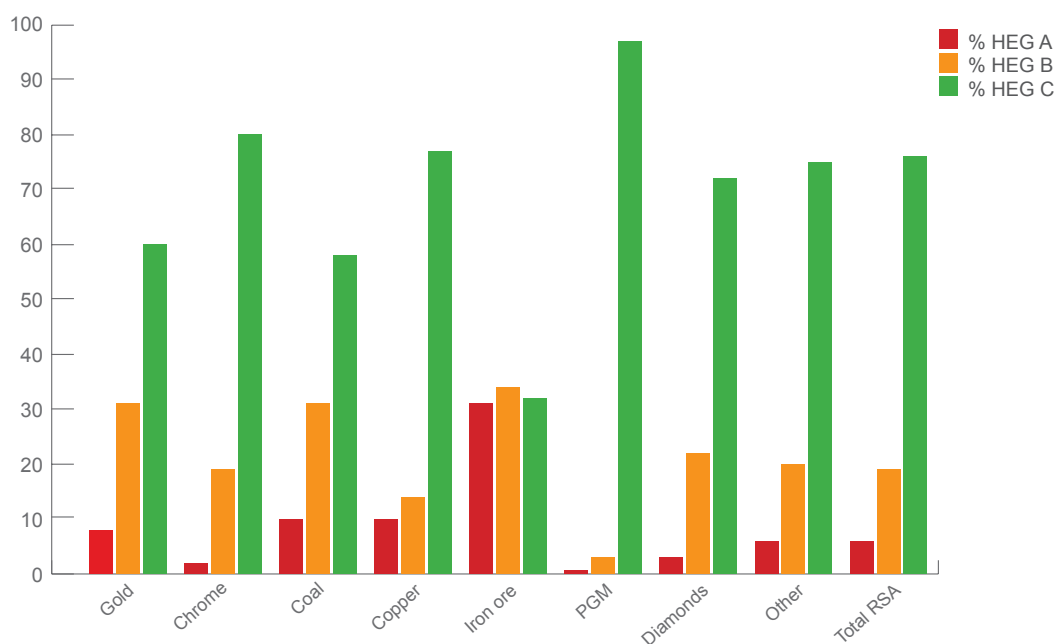
#### 3.2.1.1.1 Airborne pollutant exposures

The exposure classifications are based on the Air Quality Index (AQI) due to exposure to multiple pollutants in the mining environment.

The AQI of multiple pollutants is determined by dividing the dust concentration of each pollutant in the mixture by its OEL and adding the results. The sum should not be greater than a unit.

The percentage of exposures depicted in Figure 3.2.1.1.1(a) represents the percentage of exposures within a homogeneous exposure group (HEG) from which samples were collected, and does not reflect the total percentage of exposed employees in the mining industry.

FIGURE 3.2.1.1.1(a): PERCENTAGE EXPOSURE TO AIRBORNE POLLUTANTS PER CLASSIFICATION BAND PER COMMODITY IN 2014



Exposure classification bands

A = Exposures  $\geq$  the OEL or mixture of exposures  $\geq 1$

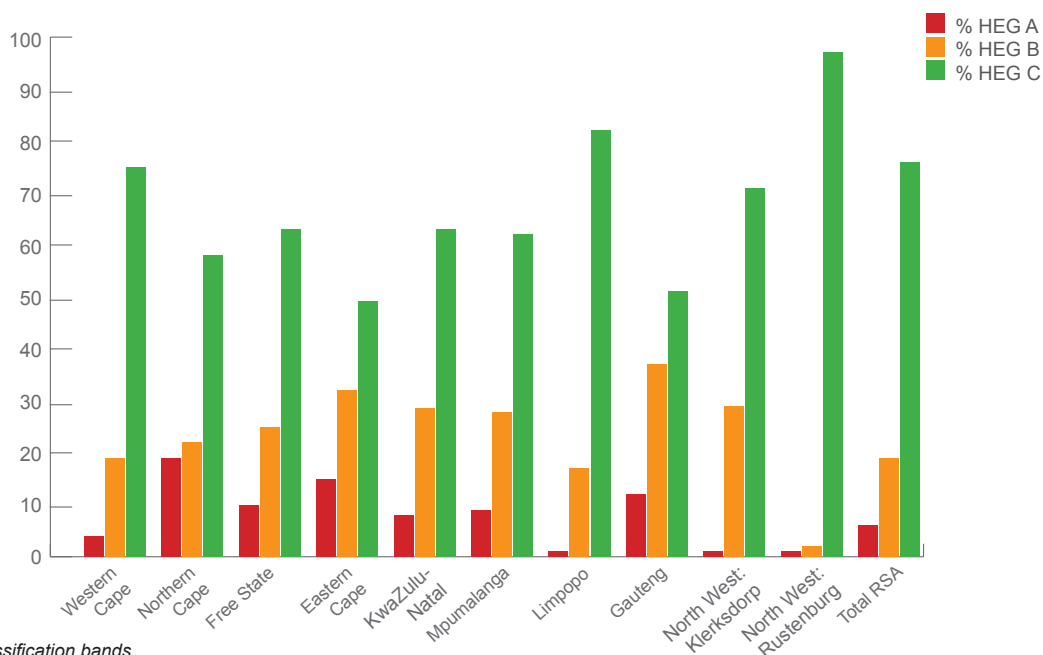
B = 50% of the OEL  $\leq$  exposures < OEL or 0.5  $\leq$  mixtures of exposures < 1

C = 10% of the OEL  $\leq$  exposures < 50% of the OEL or 0.1  $\leq$  mixtures of exposures < 0.5



There is an increase in overexposures above the OEL from 5.3% in 2013 to 5.65% in 2014. This increase is due to the contribution from the following commodities: gold (7.01% in 2013 to 9.07% in 2014), chrome (0.94% in 2013 to 1.10% in 2014), coal (10.42% in 2013 to 10.61% in 2014) and iron ore (5.44% in 2013 to 31.89% in 2014). There is marked improvement in overexposure in copper (17.40% in 2013 to 10.01% in 2014), followed by diamond (10.13% in 2013 to 3.80% in 2014) and other mines (7.13% in 2013 to 5.54% in 2014). The increase can be attributed to changes in sampling methodologies and, in some instances, failure of controls put in place, including their maintenance. There is a need to standardise sampling strategies across all mines. The mines should re-evaluate their strategies with regard to controls put in place and continuously monitor their effectiveness.

**FIGURE 3.2.1.1.1(b): PERCENTAGE EXPOSURE TO AIRBORNE POLLUTANTS PER CLASSIFICATION PER REGION 2014**



*Exposure classification bands*

*A = Exposures  $\geq$  the OEL or mixture of exposures  $\geq 1$*

*B = 50% of the OEL  $\leq$  exposures  $<$  OEL or 0.5  $\leq$  mixtures of exposures  $< 1$*

*C = 10% of the OEL  $\leq$  exposures  $<$  50% of the OEL or 0.1  $\leq$  mixtures of exposures  $< 0.5$*

An analysis per region shows an increase in exposure to airborne pollutants in the A-classification band from 5.3% in 2013 to 5.65% in 2014. The regions that have shown an increase are Northern Cape (11.84% in 2013 to 19.35% in 2014), Free State (7.86% in 2013 to 10.40% in 2014), Gauteng (8.56% in 2013 to 11.97% in 2014) and North West: Klerksdorp (0.67% in 2013 to 0.82% in 2014). However, Western Cape, Eastern Cape, KwaZulu-Natal, Mpumalanga and North West: Rustenburg show a decrease in overexposure in 2014 when compared to 2013, with Limpopo showing a significant improvement of 5.2% in 2013 to 0.91% in 2014. It is imperative that the mines put more focus on area monitoring and evaluate the effectiveness of controls that are put in place to eliminate airborne pollutants.

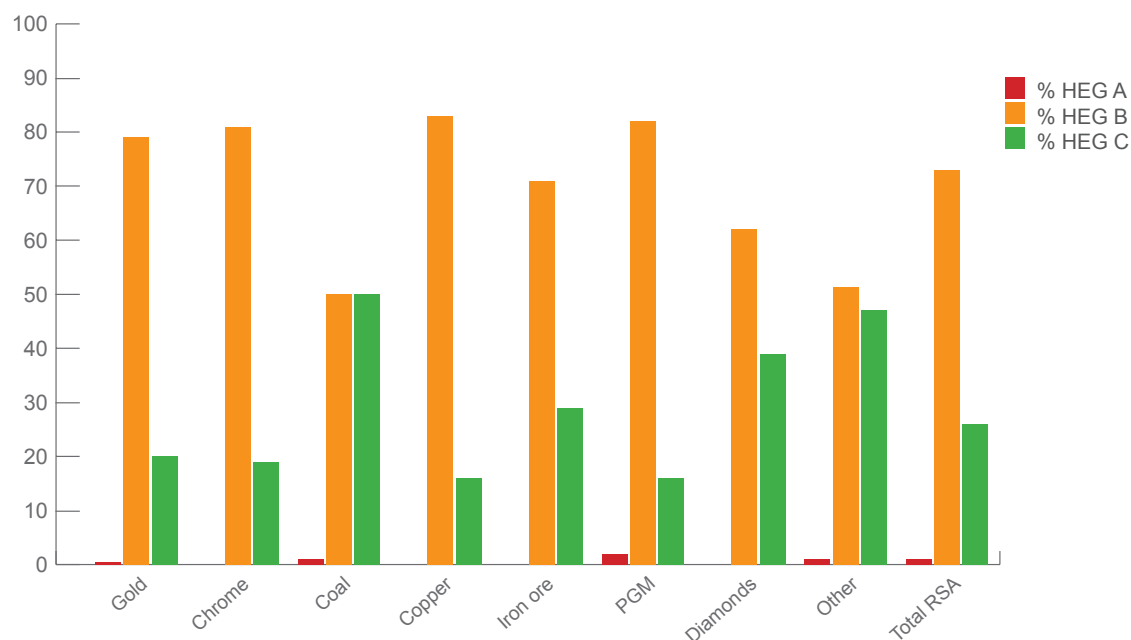
#### (a) Noise exposure

The OEL for noise is 85 dB (A) based on an eight-hour exposure shift.

1. No special precautions except monitoring are required for the C-classification band.
2. The implementation of the Hearing Conservation Programme is required for the A- and B-classification bands.
3. Persons in the A- and B-classification bands are overexposed.



**FIGURE 3.2.1.1.2(a): PERCENTAGE EXPOSURE TO NOISE PER EXPOSURE CLASSIFICATION BAND PER COMMODITY IN 2014**



Exposure classification band:

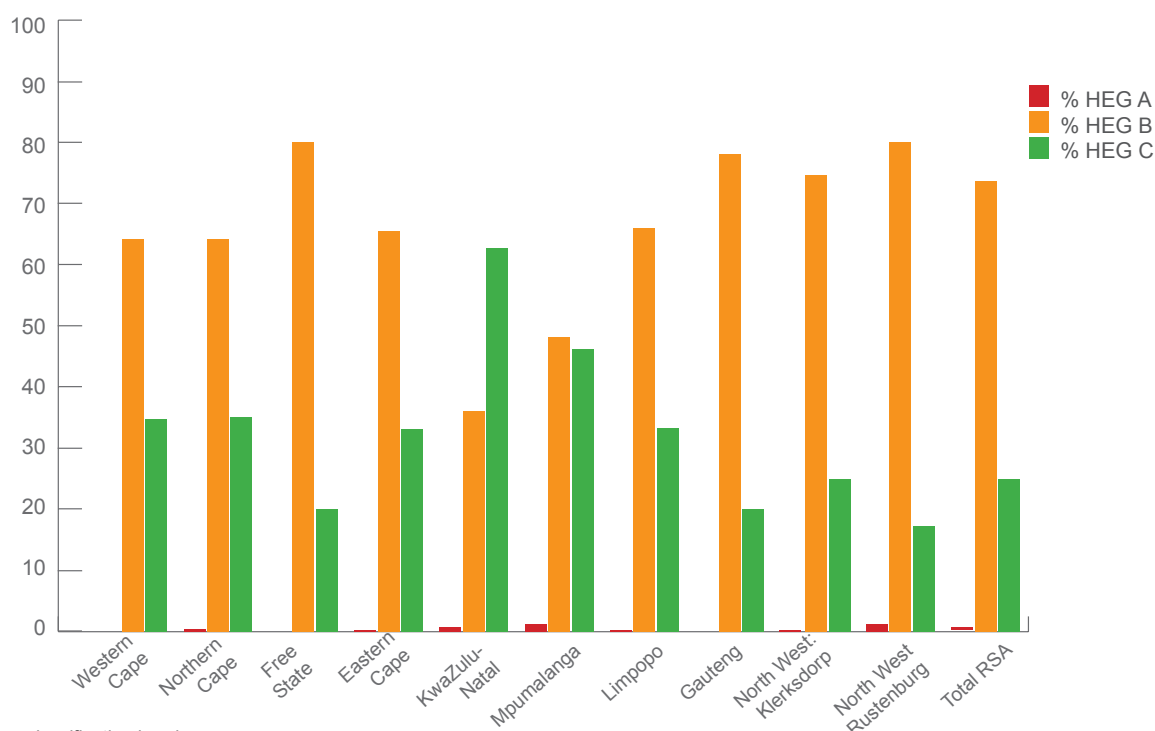
A = Exposures  $\geq 105 \text{ dB } L_{Aeq, 8h}$

B =  $85 \text{ dB } L_{Aeq, 8h} \leq \text{exposures} < 105 \text{ dB } L_{Aeq, 8h}$

C =  $82 \text{ dB } L_{Aeq, 8h} \leq \text{exposures} < 85 \text{ dB } L_{Aeq, 8h}$

When looking at the commodities, there is an overall improvement in the A-classification band of 1.92% in 2013 to 0.74% in 2014. This improvement is noticeable across all commodities, with copper showing the most significant improvement, where it had zero overexposures in 2014, as compared to 10.92% in 2013. Diamonds also had zero overexposures in 2014, as compared to 2.62% in 2013. Chrome and iron ore both maintained zero overexposures in the A-classification band in 2013 and 2014. The improvement indicated is due to collaborations through tripartite structures, encouragements and enforcement of the Hearing Conservation Programme, and the adoption of best practices.

**FIGURE 3.2.1.1.2(b): PERCENTAGE EXPOSURE TO NOISE PER EXPOSURE CLASSIFICATION BAND PER REGION IN 2014**



Exposure classification band:

A = Exposures  $\geq 105 \text{ dB } L_{Aeq, 8h}$

B =  $85 \text{ dB } L_{Aeq, 8h} \leq \text{exposures} < 105 \text{ dB } L_{Aeq, 8h}$

C =  $82 \text{ dB } L_{Aeq, 8h} \leq \text{exposures} < 85 \text{ dB } L_{Aeq, 8h}$





Overall, regional performance in the A-classification band improved by 1.92% in 2013 to 0.74% in 2014. Improvement has been noted in all the regions except Limpopo, which has a slight increase in the A-classification band (0.36% in 2013 to 0.42% in 2014). Free State had zero overexposures in 2014, as compared to 5.01% in 2013. Western Cape maintained zero overexposures in the A-classification band. This is an indication that the mines are implementing the buy quiet policies and silencing strategies on equipment above the sound pressure level of 110 dB (A). However, new strategies need to be put in place to reduce the sound pressure levels to 107 dB (A) as per the new MHSC health milestone targets, continuous sharing strategies and the adoption of best practices.

### 3.2.1.1.2 Thermal stress

Monitoring is conducted on an annual cycle period in compliance with Regulation 9.2(7). Accurate and meaningful results are to be representative of all full working shifts for that thermal environment, as obtained from this monitoring.

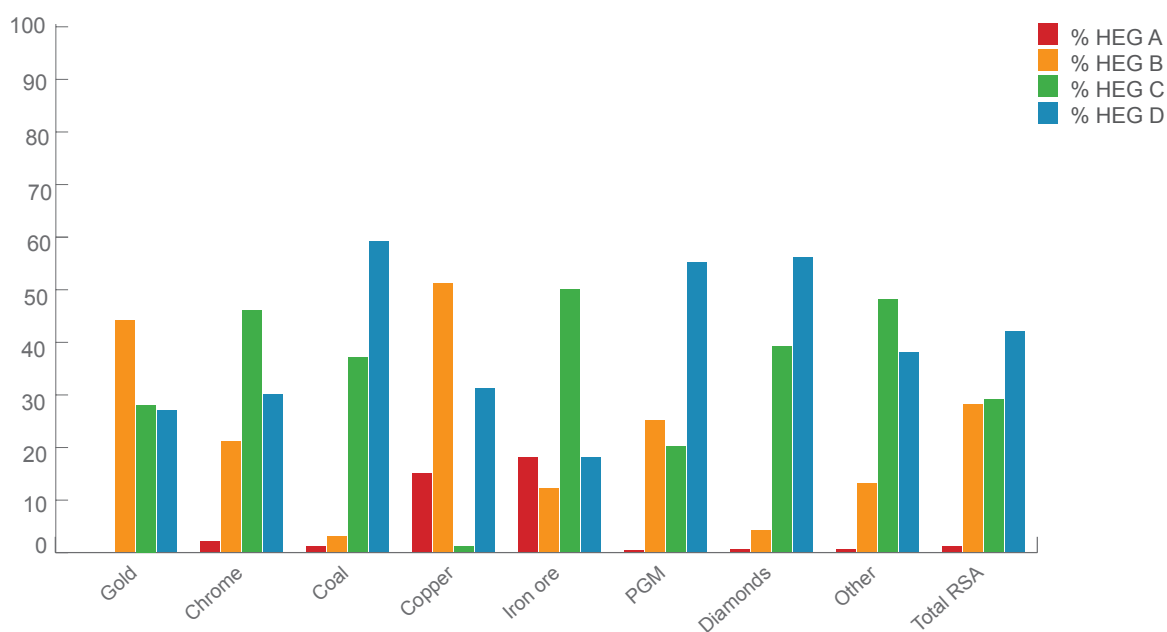
The employer must ensure that, in defining any particular thermal environment, the precautions listed below are heeded:

- 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 drifts could be crucial, and relying on winter temperatures may lead to an underestimation of the risk, and vice versa. Environmental monitoring should take this into account.

#### (a) Heat stress

For the purpose of defining the thermal environment from a heat stress management point of view, dry bulb (DB), wet bulb (WB) and globe temperatures, whirling hygrometers or any other suitable instrumentation may be used. This information may be extracted from existing databases that are continually updated. Regular monitoring, even on a daily basis, is recommended under certain circumstances

**FIGURE: 3.2.1.1.3(a): PERCENTAGE EXPOSURE TO THERMAL STRESS/HEAT PER CLASSIFICATION BAND PER COMMODITY IN 2014**



Heat stress exposure classification 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

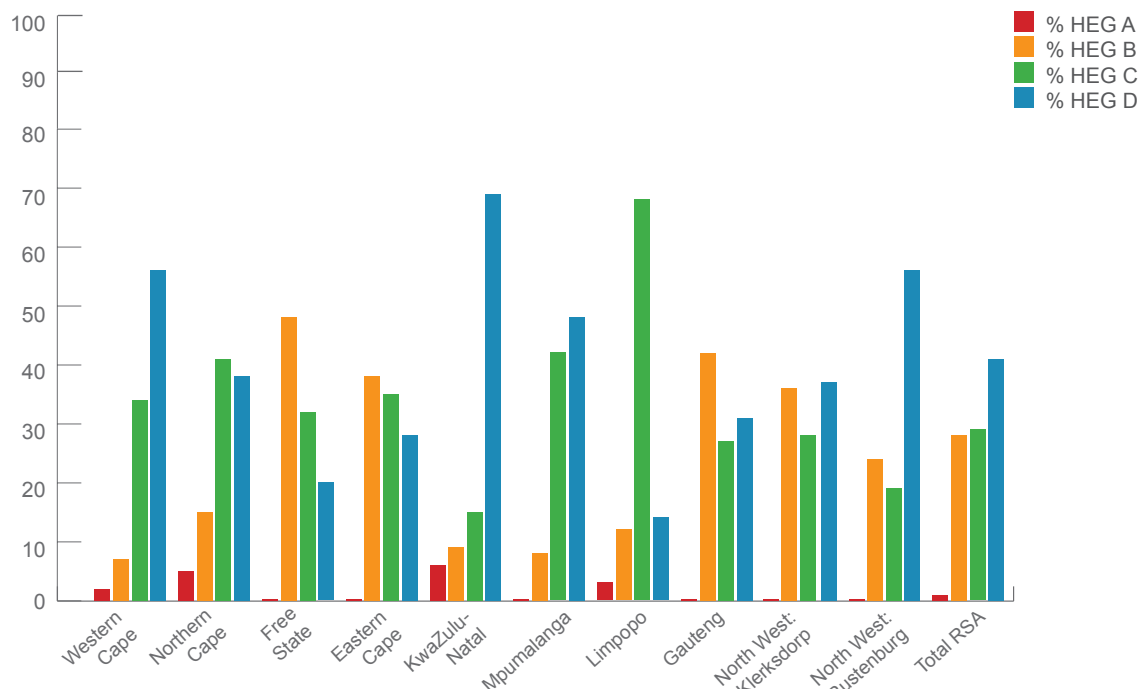
C = 27.5 °C < WB ≤ 29.0 °C and DB ≤ 37 °C globe temperature as for DB

D = WB ≤ 27.5 °C and DB ≤ 32.5 °C globe temperature: as for DB



There is an overall increase in heat overexposure of 1.14% in 2014 when compared to 0.78% in 2013. A significant increase is noted in iron ore (0.00% in 2013 to 18.42% in 2014), followed by chrome (0.00% in 2013 to 2.52% in 2014) and diamonds (0.00% in 2013 to 0.90% in 2014). Gold continued to maintain zero exposures in the A-classification band in 2013 and 2014. Climate change contributed to these increases, especially in the open-cast operations. Therefore, the mines are required to review risk assessment in order to address extreme climatic conditions.

**FIGURE: 3.2.1.1.3(b): PERCENTAGE EXPOSURE TO THERMAL STRESS/HEAT PER CLASSIFICATION BAND PER REGION IN 2014**



Heat stress exposure classification 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 temperatures: as for DB

Nationally, there was an increase in the A-classification band of 45.69% in 2014 when compared to 2013. The increase is a result of overexposures in the following regions: Northern Cape (0.00% in 2013 to 5.31% in 2014), Mpumalanga (0.00% in 2013 to 0.45% in 2014) and Gauteng (0.00% in 2013 to 0.13% in 2014). Despite the overall increase in overexposures, KwaZulu-Natal recorded a significant reduction of 5.63% in 2014 when compared to 14.15% in 2013 in the A-classification band. Free State, Eastern Cape and North West: Klerksdorp continued to show a record of zero overexposures in 2013 and 2014.

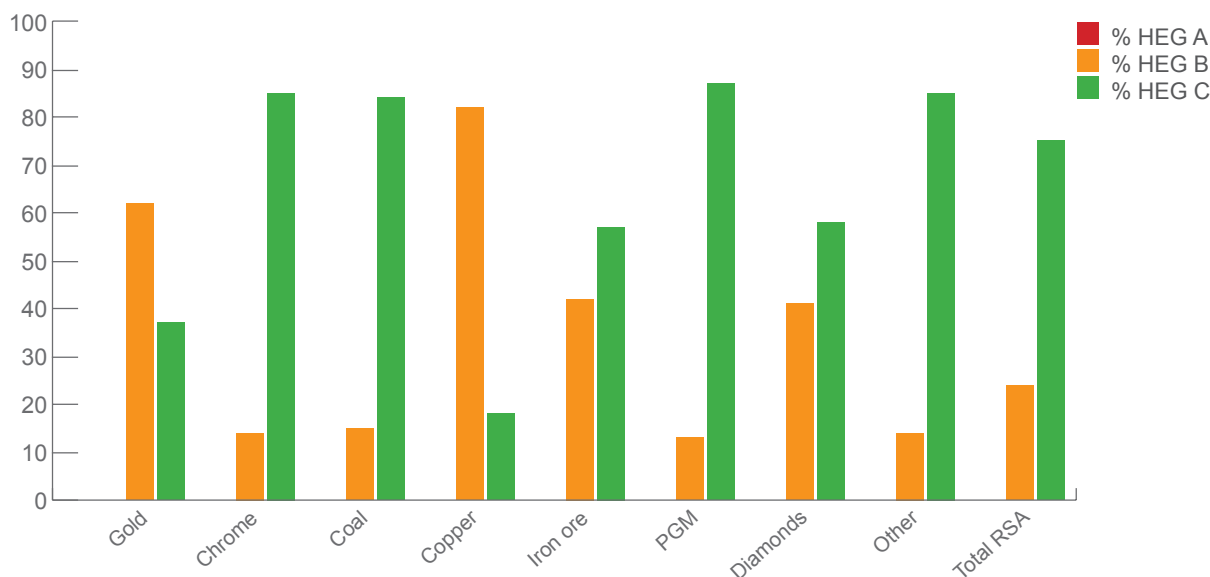
#### (b) Cold stress

- Temperature ranges are given in terms of equivalent chill temperature.
- Cold stress management (CSM).
- Thermal monitoring for cold stress should be conducted during the coldest quarter (June to August), as determined by risk assessment.
- For defining the thermal environment from a CSM point of view, DB temperatures and velocity, using any suitable instrumentation, may be used. This information may be extracted from existing databases that are continually updated. Regular monitoring, even on a daily basis, is recommended under certain circumstances.





**FIGURE: 3.2.1.1.3(c): PERCENTAGE EXPOSURE TO THERMAL STRESS/COLD PER EXPOSURE CLASSIFICATION BAND PER COMMODITY IN 2014**



Cold stress exposure classification band:

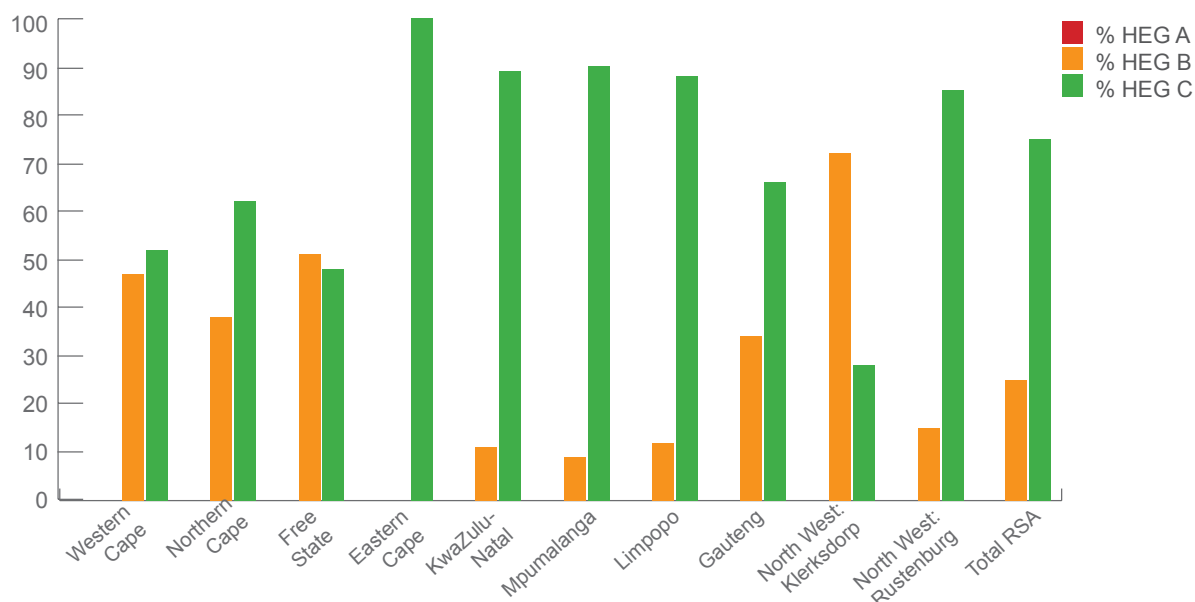
A = Temperature  $\geq -30.0^{\circ}\text{C}$

B =  $5.0^{\circ}\text{C} \leq \text{Temperature} < -30.0^{\circ}\text{C}$

C = Temperature  $> 5.0^{\circ}\text{C}$

All commodities have continued to have zero overexposures in the A-classification band. Commodities that have shown significant improvement in homogenous exposure group (HEG) B are chrome (34.43% in 2013 to 15.12% in 2014), platinum group metals (PGM) (31.90% in 2013 to 13.15% in 2014) and diamonds (64.02% in 2013 to 41.57% in 2014). It is evident that there is adherence in the implementation of CSM, however, more strides are required to be taken to ensure that there are zero exposures in the B-classification band.

**FIGURE: 3.2.1.3(d): PERCENTAGE EXPOSURE TO THERMAL STRESS/COLD PER EXPOSURE CLASSIFICATION BAND PER REGION IN 2014**



Cold stress exposure classification band:

A = Temperature  $\geq -30.0^{\circ}\text{C}$

B =  $5.0^{\circ}\text{C} \leq \text{Temperature} < -30.0^{\circ}\text{C}$

C = Temperature  $> 5.0^{\circ}\text{C}$

All regions continued to maintain zero exposures in the A-classification band in 2014. It should be noted that there is an improvement in exposures in HEG B. This improvement is significant in Eastern Cape (41.35% in 2013 to 0.00% in 2014), North West: Rustenburg (31.63% in 2013 to 15.25% in 2014) and Free State (82.07% in 2013 to 51.31% in 2014).



## General

There is an increase in overexposures to airborne pollutants and thermal heat above the OEL. Improvements have been noted in noise exposures and thermal cold exposures in the A-classification band in 2014 when compared to 2013. The MHSI has developed standardised audit tools, established occupational hygiene focus groups for information sharing and has encouraged implementation of best practices and verification of statutory returns data. Mines are profiled to prioritise high-risk mines, and focus inspections are conducted.

With regard to airborne pollutants, mines must focus on the elimination of dust at source, starting with risk assessment, the classification of high-risk areas, and the monitoring and evaluation of such areas through the implementation of a hierarchy of controls. As far as noise is concerned, the mines must strive to reduce and eventually eliminate the risk of workers' exposure in the A- and B-classification bands. More emphasis should be placed on the buy quiet policy and strategies to reduce the sound pressure level of equipment emitting noise to below 107 dB as agreed at the MHSC Summit of 2014.

Surface mines should ensure that strategies put in place should take climate change into consideration when implementing heat and cold stress management

programmes. A collaborative effort is required from all stakeholders involved to take the original equipment manufacturers into account. These include forums like the MOSH Learning Hub and the MHSC research outcomes. The best outcomes will be achieved through engaging with and sharing best practices throughout the mining industry.

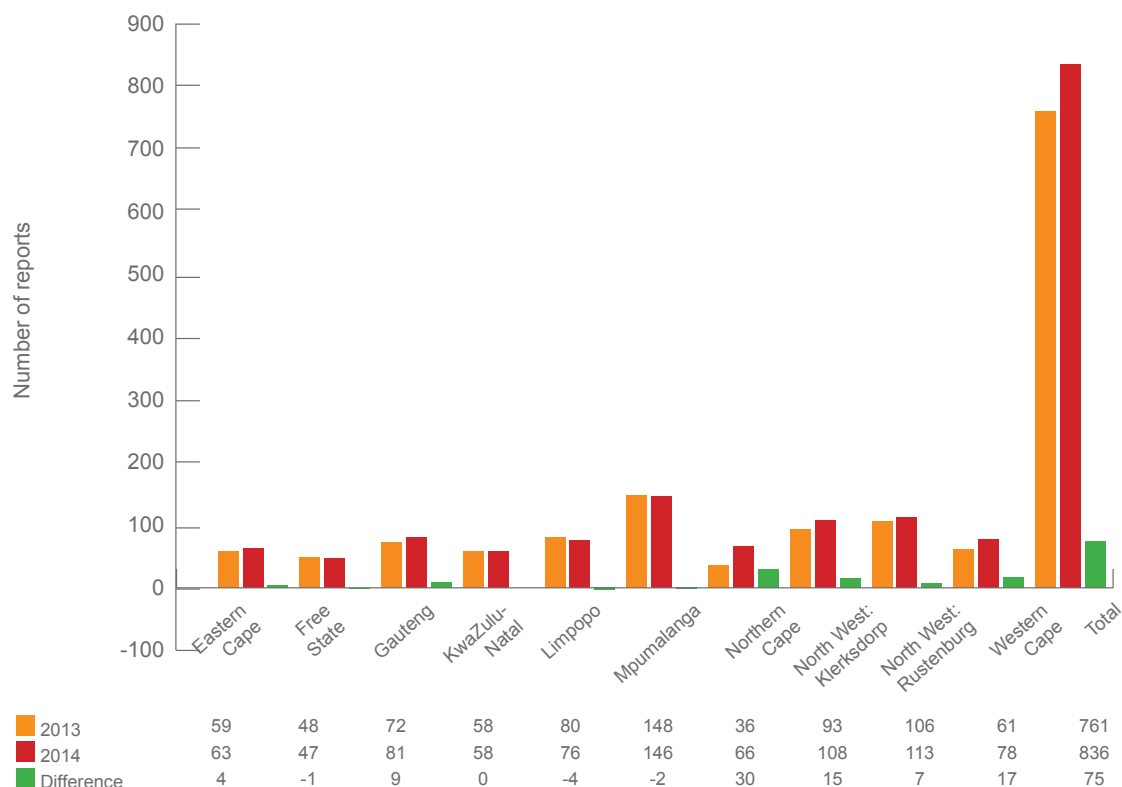
## 3.2.2 Occupational medicine

In terms of Section 2 of the MHSA, the employer has an obligation to ensure safety by compiling an annual report on health and safety at the mine, including statistics on health and safety that must be kept in terms of this Act and the AMR referred to in Section 16 of the Act.

### 3.2.2.1 Annual medical reports

Every employer is required to submit a copy of the AMR to the medical inspector through the relevant regional office on or before the end of February each year as per the CIOM instruction. A total of 836 AMRs were received for the period under review, which is an increase of about 10% compared to 761 AMRs that were received during the previous period. Some regions submitted fewer AMRs compared to 2013. For example, the AMR submissions from the Free State decreased by 2%, Limpopo decreased by 5%, and Mpumalanga decreased by 1%. Figure 3.2.2.1(a) shows all AMRs received per region.

FIGURE 3.2.2.1(a): ANNUAL MEDICAL REPORTS RECEIVED PER REGION: 2013 AND 2014



\*provisional

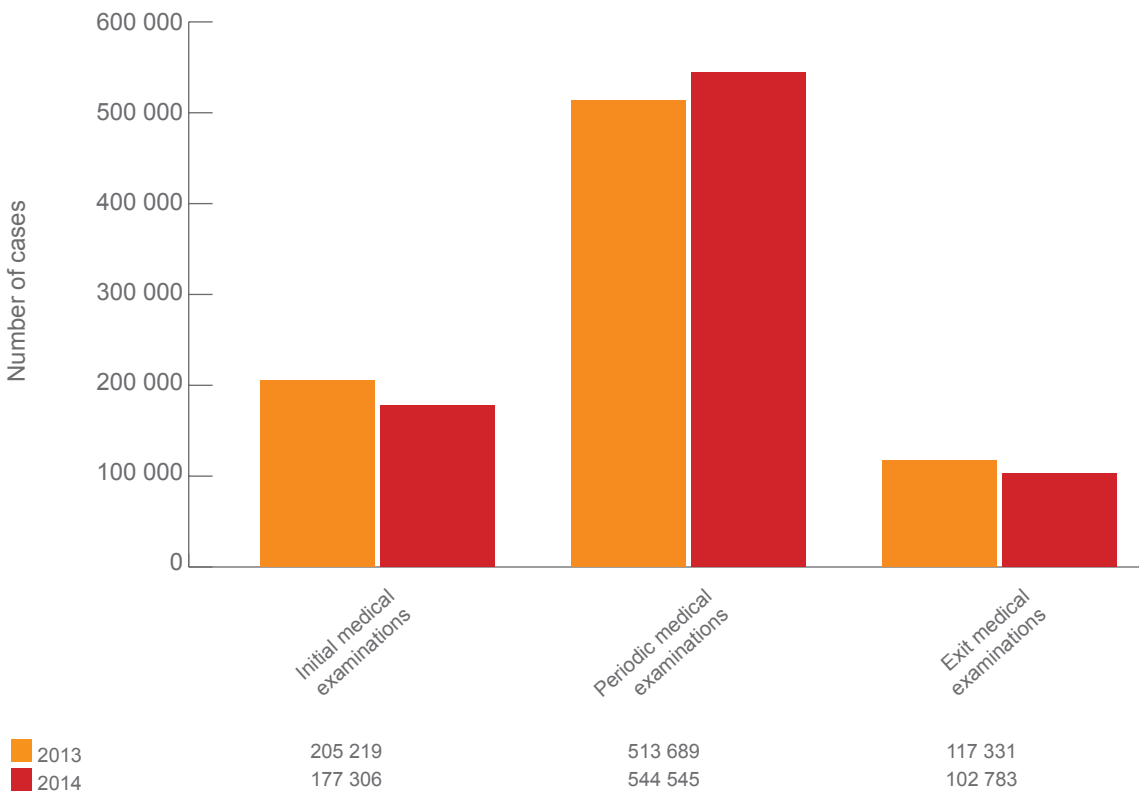


### Medical surveillance conducted

The employer is required to establish and maintain a system of medical surveillance of employees exposed to health hazards if required to do so by regulation or a notice in the *Government Gazette*; or if, after assessing risks in terms of Section 11(1), it is necessary to do so as per Section 13(1) of the MHSA. Every system of medical surveillance must be appropriate, considering the health hazards to which employees are or may be exposed to. It must also be designed so that it provides information that the employer can use in determining measures to eliminate, control and minimise the health risk and hazards to which employees are or may be exposed. Finally, it must prevent, detect and treat occupational diseases, and consist of an initial medical examination and other medical examinations at appropriate intervals.

The total number of initial medical examinations decreased by 14%, the periodic medical examinations increased by 6% and the exit medical examinations decreased by 12% compared to the previous year as shown in the Figure 3.2.2.1(c).

**FIGURE 3.2.2.1(b): MEDICAL SURVEILLANCE CONDUCTED: 2013 AND 2014**



\* provisional



TABLE 3.2.2.1(a): OCCUPATIONAL DISEASES REPORTED FROM THE AMRs PER REGION: 2013 AND 2014

Region	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	Percentage change
	Silicosis	Silicosis	PTB	PTB	Sil+TB	Sil+TB	NIHL	NIHL	CWP	CWP	Asbestosis	Asbestosis	Other	Other	Total	Total	Total	Total	
Eastern Cape	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	100		
Free State	483	472	775	597	51	195	170	195	0	0	2	1	106	116	1 587	1 436	-10		
Gauteng	309	224	646	818	3	192	173	192	0	0	0	0	74	120	1 205	1 367	13		
KwaZulu-Natal	6	2	65	86	0	23	15	23	1	2	1	0	1	3	89	116	30		
Limpopo	6	1	45	110	0	169	132	169	8	4	0	3	4	6	195	293	50		
Mpumalanga	41	28	335	375	1	198	308	198	111	88	6	9	70	60	872	761	13		
Northern Cape	0	7	39	102	0	185	151	185	1	0	0	1	6	8	197	303	54		
North West: Klerksdorp	362	136	403	199	93	104	96	104	0	0	0	0	165	68	1 119	544	-51		
North West: Rustenburg	220	193	940	1166	1	342	339	342	4	0	1	1	25	30	1 530	1 733	13		
Western Cape	1	0	7	3	0	16	5	16	0	0	0	0	1	1	14	20	43		
<b>Total</b>	<b>1 430</b>	<b>1 063</b>	<b>3 255</b>	<b>3 460</b>	<b>149</b>	<b>1 424</b>	<b>1 389</b>	<b>1 424</b>	<b>125</b>	<b>94</b>	<b>10</b>	<b>15</b>	<b>452</b>	<b>412</b>	<b>6 810</b>	<b>6 577</b>	<b>-3</b>		

\* provisional

A total of 6 577 occupational diseases were reported in the AMRs during 2014, which shows an overall decrease of 3% compared to the 6 810 occupational diseases that were reported during the previous year. A decrease in the total number of reported occupational diseases shows an improvement considering an increase in statutory reporting of 10% in the AMRs submitted by mines.



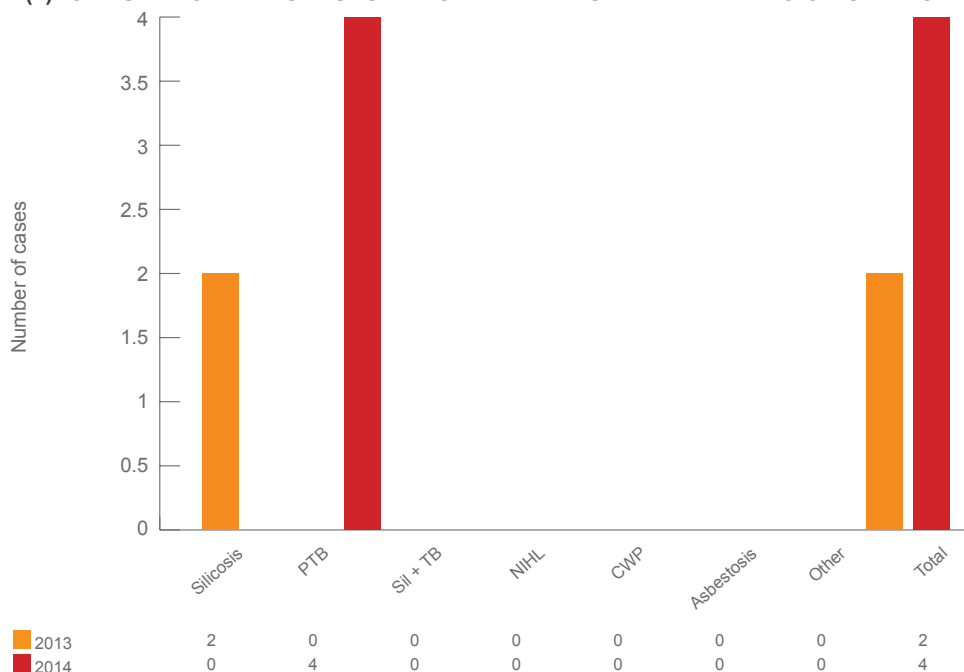
### 3.2.2.2 Analysis of medical surveillance trends

#### (a) Occupational disease trends by region

##### Eastern Cape

The region reported four occupational diseases during the year, as opposed to two occupational diseases reported during the previous year. The AMRs submitted increased by 7%, compared to the previous year.

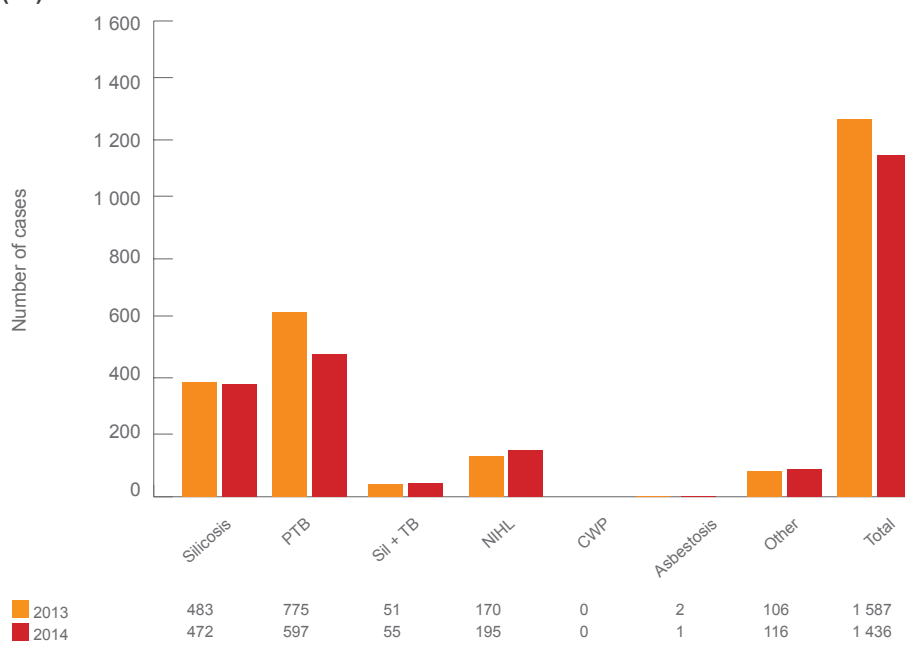
**FIGURE 3.2.2.2(1): OCCUPATIONAL DISEASES REPORTED IN EASTERN CAPE REGION'S AMRs: 2013 AND 2014**



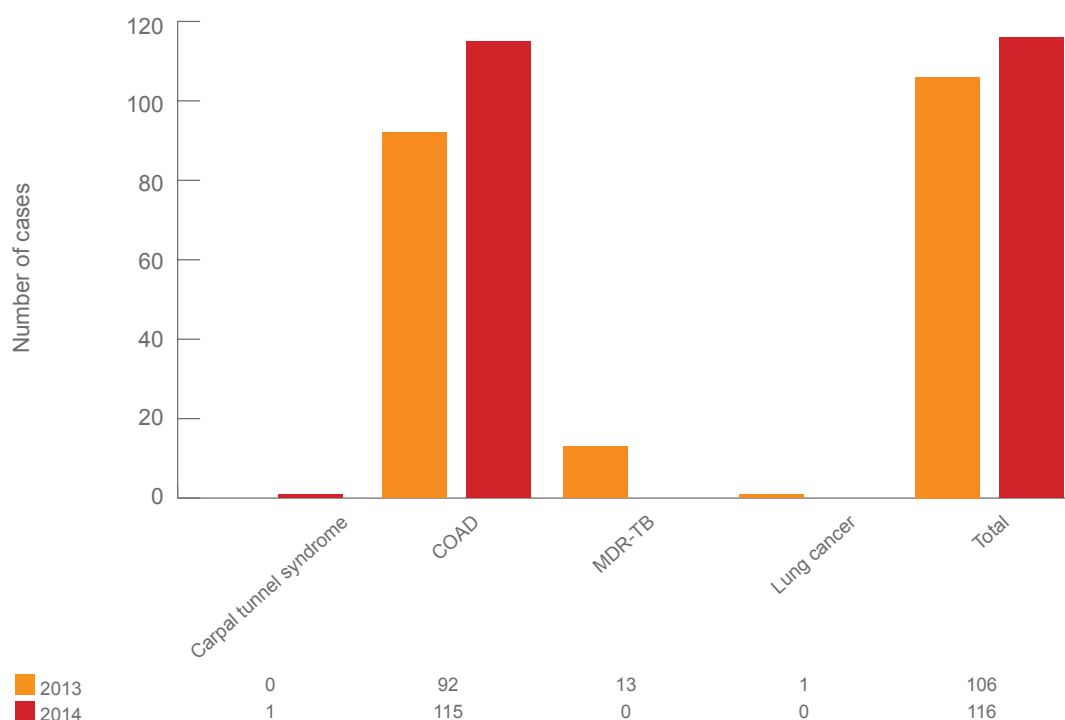
##### Free State

The overall number of reported occupational diseases decreased by 10% compared to the previous year. Silicosis cases decreased by 2%, PTB cases decreased by 23%, Sil+TB cases decreased by 8%, while the number of reported NIHL cases showed an upward trend, increasing by 15%. Other occupational diseases increased by 9%. The reason for an increased prevalence in NIHL is that most of these cases were reported as barotrauma, while they were cases of NIHL.

**FIGURE 3.2.2.2(2a): OCCUPATIONAL DISEASES REPORTED IN FREE STATE REGION'S AMRs: 2013 AND 2014**



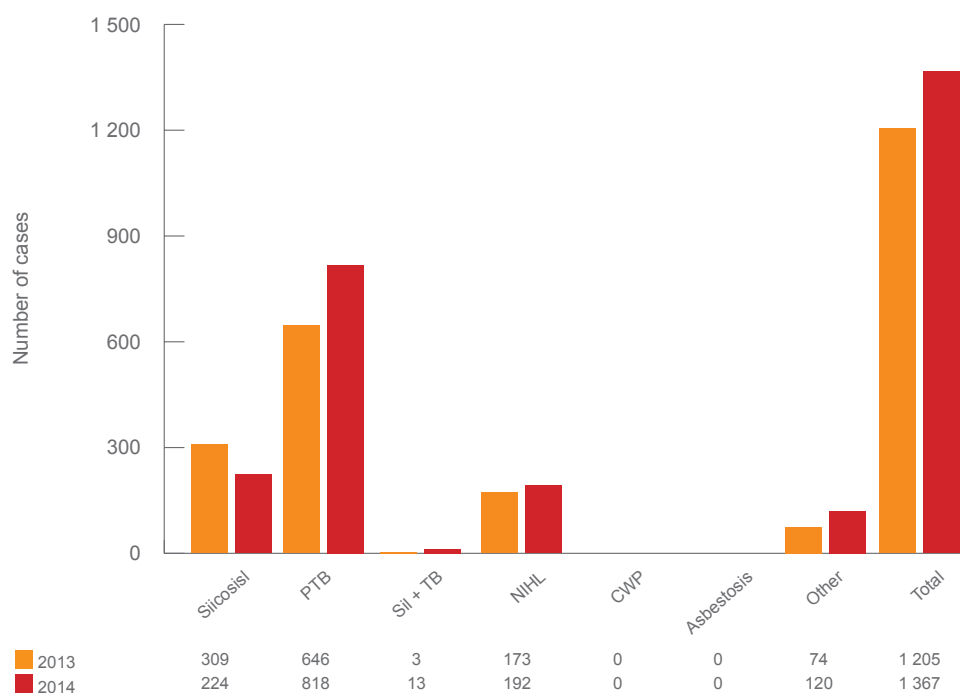


**FIGURE 3.2.2.2(b): OTHER OCCUPATIONAL DISEASES REPORTED IN FREE STATE REGION'S AMRs: 2013 AND 2014**

\* provisional

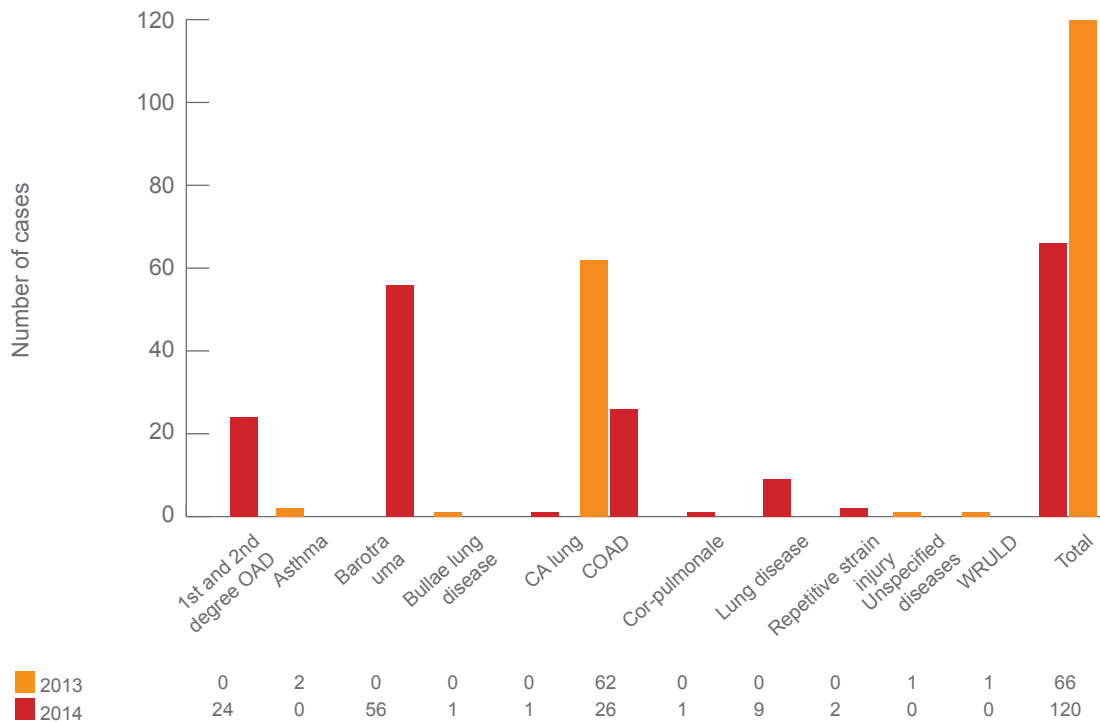
**Gauteng**

The AMRs submitted increased by 10% compared to the previous year. The overall occupational diseases reported increased by 13% compared to the previous year. Silicosis decreased by 28%, while PTB cases increased by 27%, Sil+TB cases by 333%, NIHL cases by 11% and other occupational diseases by 62%. The increase in PTB is related to the use of new diagnostic equipment, for example, GeneXpert, which laboratories in Gauteng are using. This equipment provides precise results in a short period of time compared to microscopy, culture and sensitivity (MC&S). An increase in Sil+TB is expected in the gold mines, as previous cases of silicosis usually progress and develop into TB. The increase in NIHL alluded to the increase in AMRs received from Gauteng, as well as confirming barotrauma as NIHL.

**FIGURE 3.2.2.2(3a): OCCUPATIONAL DISEASES REPORTED IN GAUTENG REGION'S AMRs: 2013 AND 2014**

\* provisional



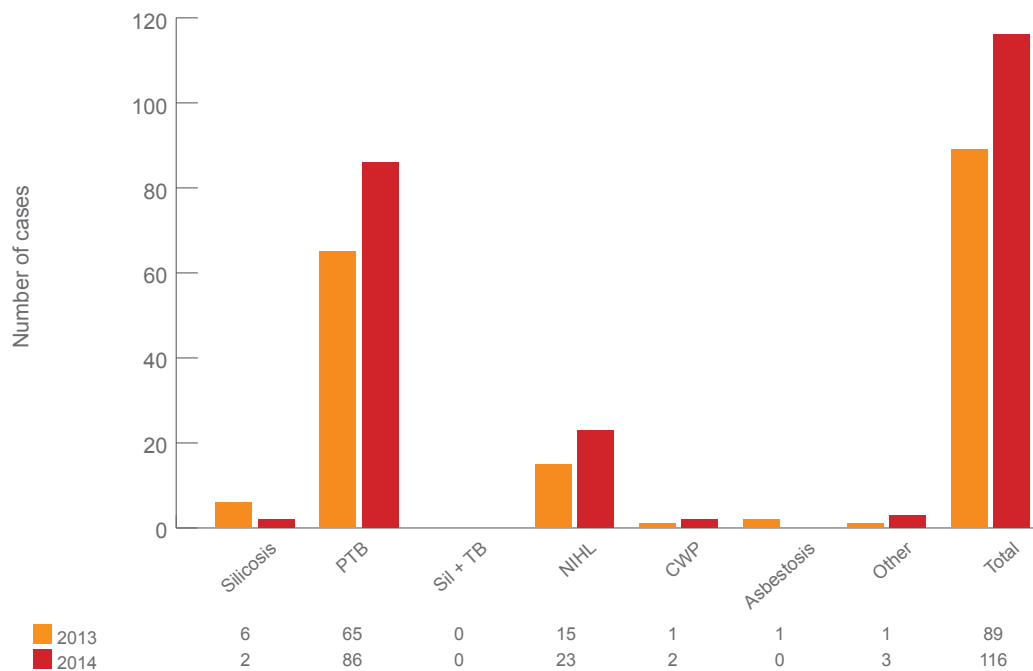
**FIGURE 3.2.2.2(3b): OTHER OCCUPATIONAL DISEASES REPORTED IN GAUTENG REGION'S AMRs: 2013 AND 2014**

\* provisional

#### KwaZulu-Natal

The total reported occupational diseases increased by 30% compared to the previous year, while the total number of AMRs submitted by the mines in the region remains the same as the previous year. The number of silicosis cases decreased by 67%, while PTB cases increased by 32%. NIHL cases also increased by 53%.

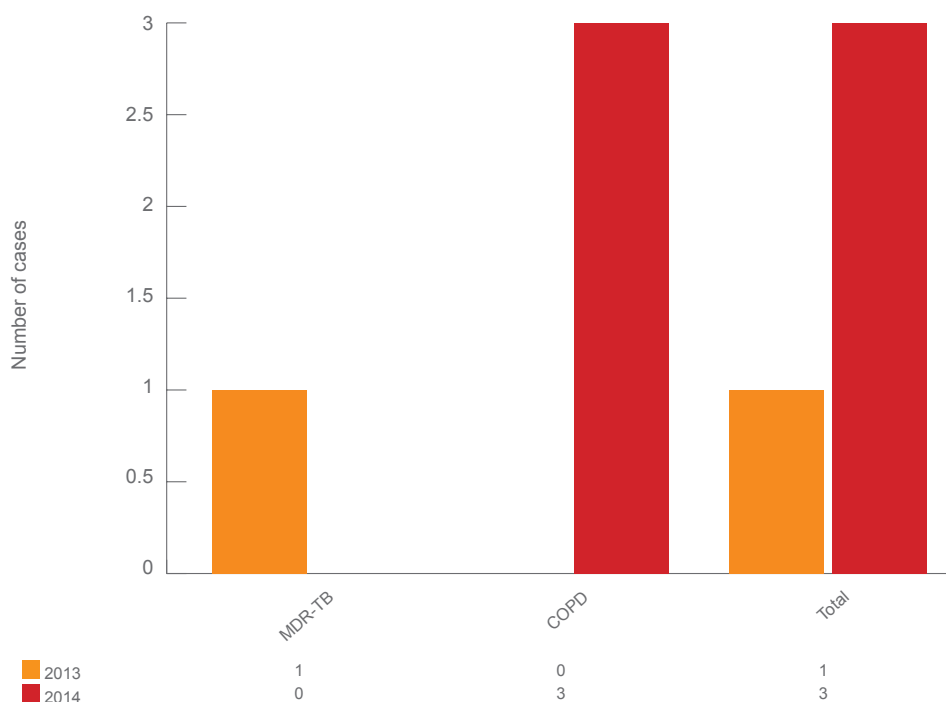
PTB cases increased because of a high prevalence in KwaZulu-Natal. The increase in NIHL is due to improved reporting by the region.

**FIGURE 3.2.2.2(4a): OCCUPATIONAL DISEASES REPORTED IN KWAZULU-NATAL REGION'S AMRs: 2013 AND 2014**

\* provisional



**FIGURE 3.2.2.2(4b): OTHER OCCUPATIONAL DISEASES REPORTED IN KWAZULU-NATAL REGION'S AMRs: 2013 AND 2014**

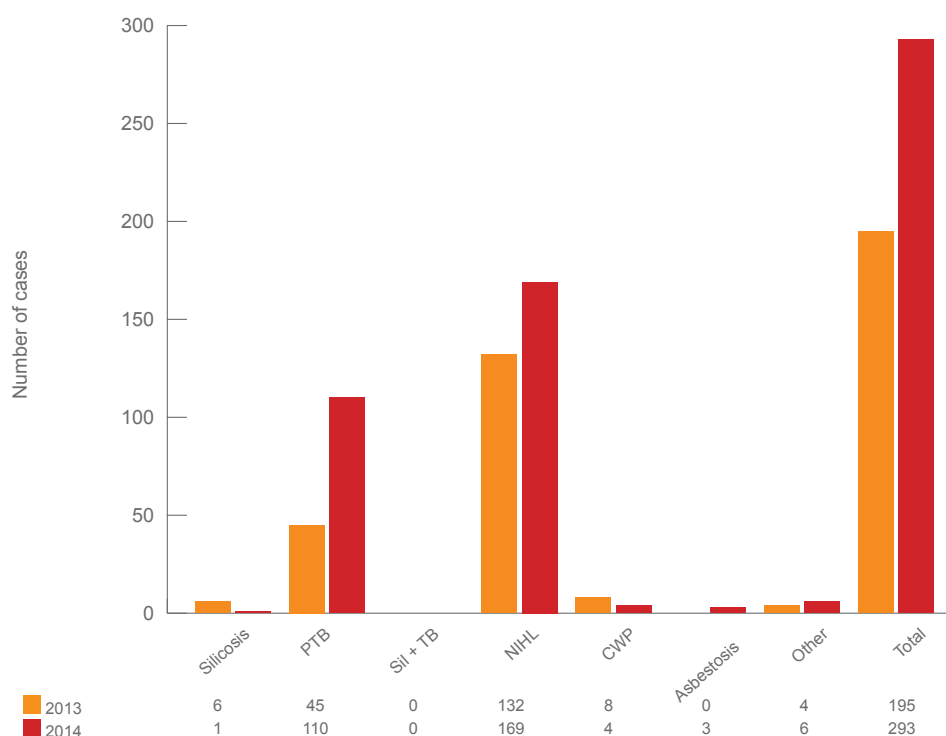


*\* provisional*

### Limpopo

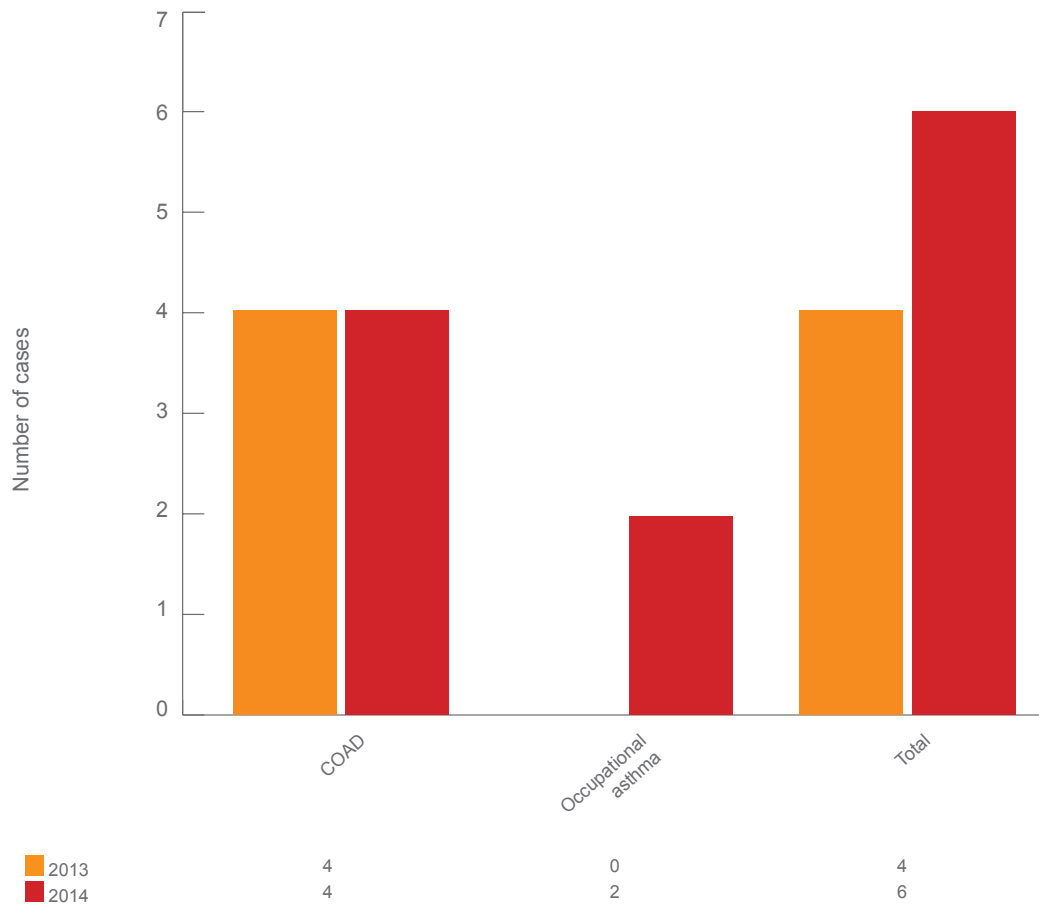
The total number of submitted AMRs decreased by four compared to the previous year. The reported occupational diseases increased by 50% compared to the previous year. Most mines have incorporated contract workers in their medical surveillance and TB management programmes, hence yielding improved reporting. Silicosis cases decreased by 83%, while PTB cases increased by 144% and NIHL cases by 28%. The increase in PTB is due to the inclusion of contract workers in the statistics, which has not been the case in previous years. The same applies to NIHL.

**FIGURE 3.2.2.2(5a): OCCUPATIONAL DISEASES REPORTED IN LIMPOPO REGION'S AMRs: 2013 AND 2014**

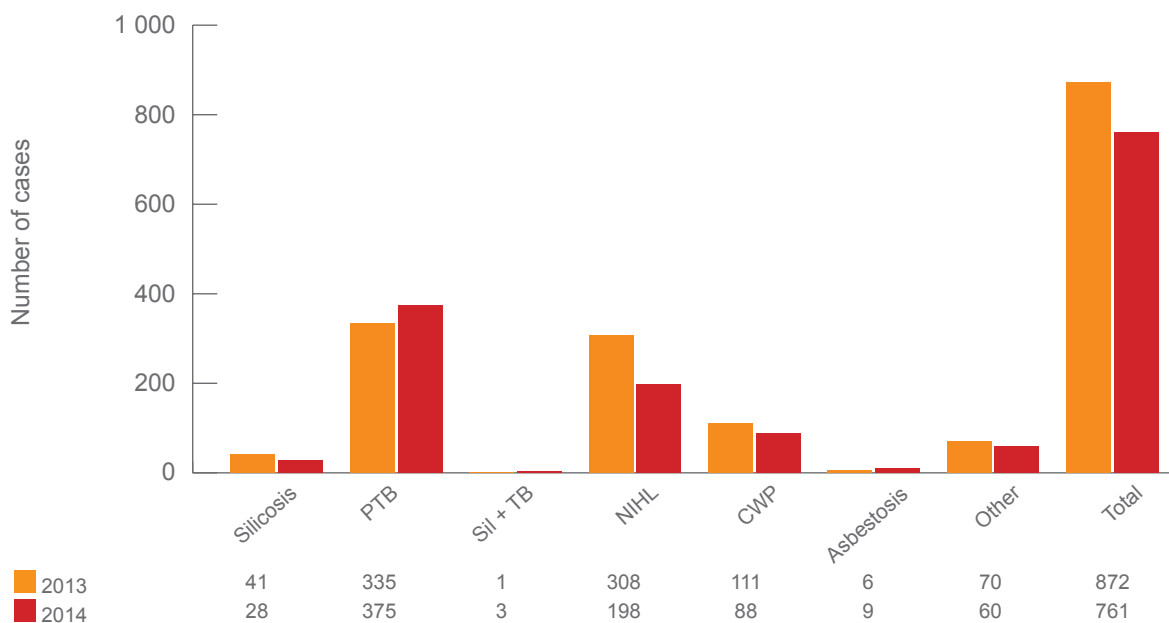


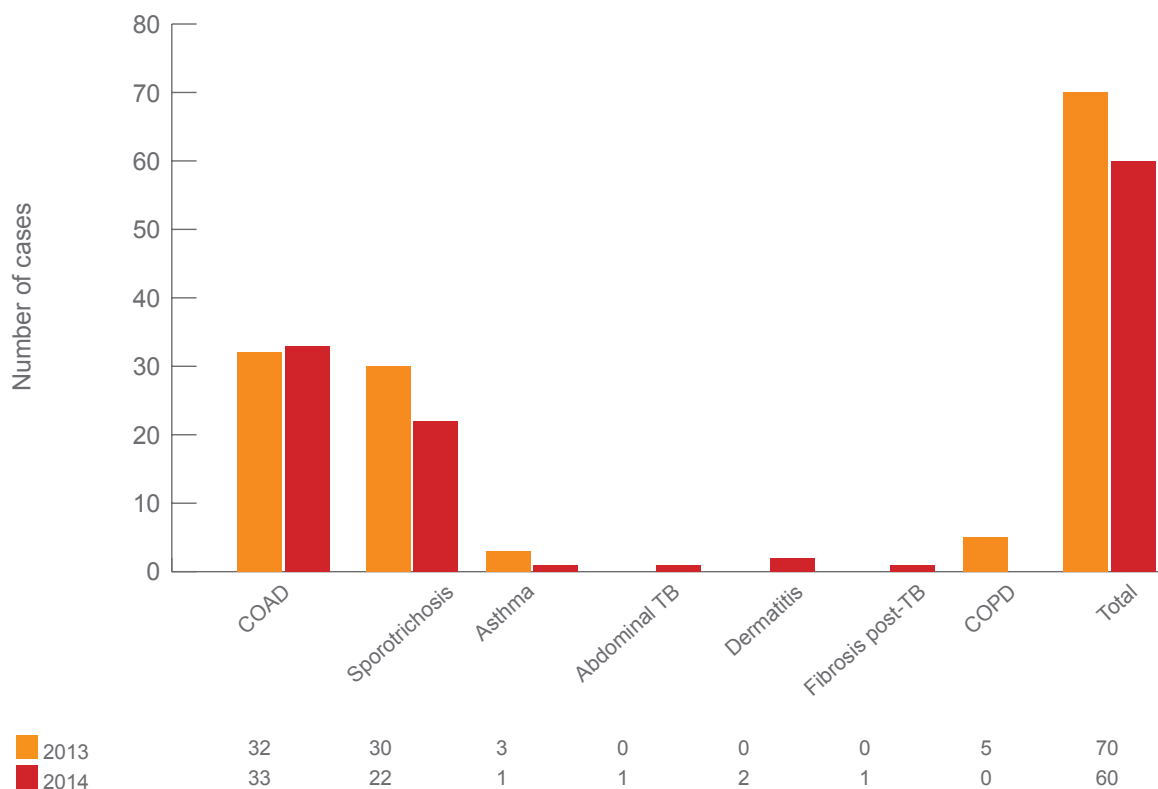
*\* provisional*



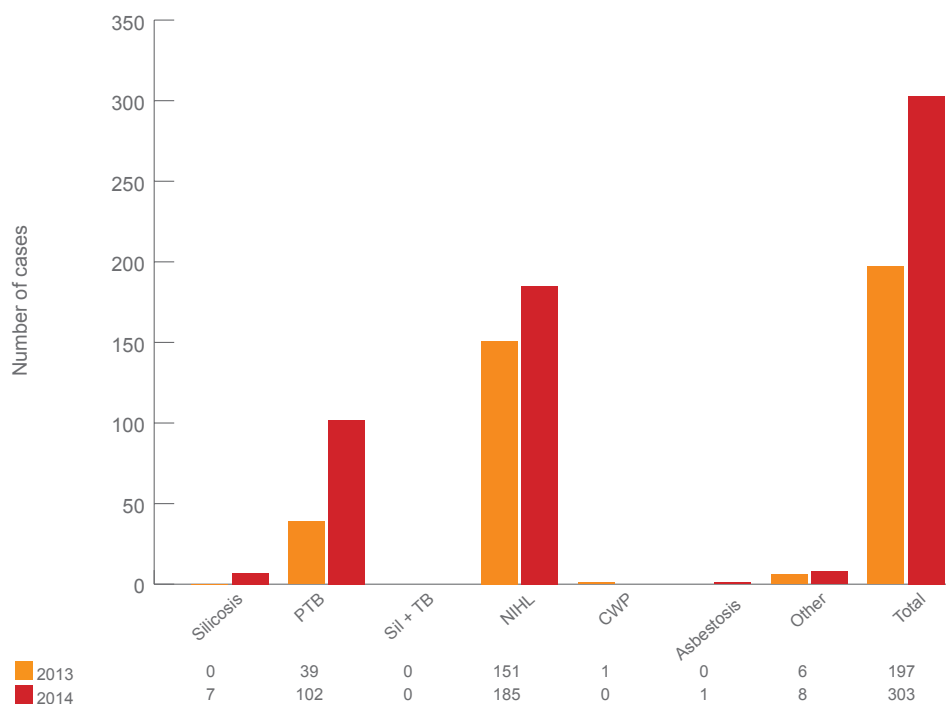
**FIGURE 3.2.2.2(5b): OTHER OCCUPATIONAL DISEASES REPORTED IN LIMPOPO REGION'S AMRs: 2013 AND 2014****Mpumalanga**

The AMRs submitted by mines decreased by 1% compared to the previous year. The number of silicosis cases decreased by 32%, NIHL by 36%, CWP by 21% and other occupational diseases by 14%, while PTB increased by 12%.

**FIGURE 3.2.2.2(6a): OCCUPATIONAL DISEASES REPORTED IN MPUMALANGA REGION'S AMRs: 2013 AND 2014**

**FIGURE 3.2.2.2(6b): OTHER OCCUPATIONAL DISEASES REPORTED IN MPUMALANGA REGION'S AMRs: 2013 AND 2014****Northern Cape**

There is an improvement in statutory reporting by 83% in AMRs submitted by the mines compared to the previous year, resulting in a 54% increase in the number of occupational diseases reported in 2014. Six silicosis cases were reported, while no cases were reported in the previous year. The number of reported PTB cases showed an upward trend by 162%. The reported number of NIHL cases also increased by 23%. Statutory reporting both in the diamond and other mines increased by 222% and 30% respectively, leading to an increase in the reported number of occupational diseases.

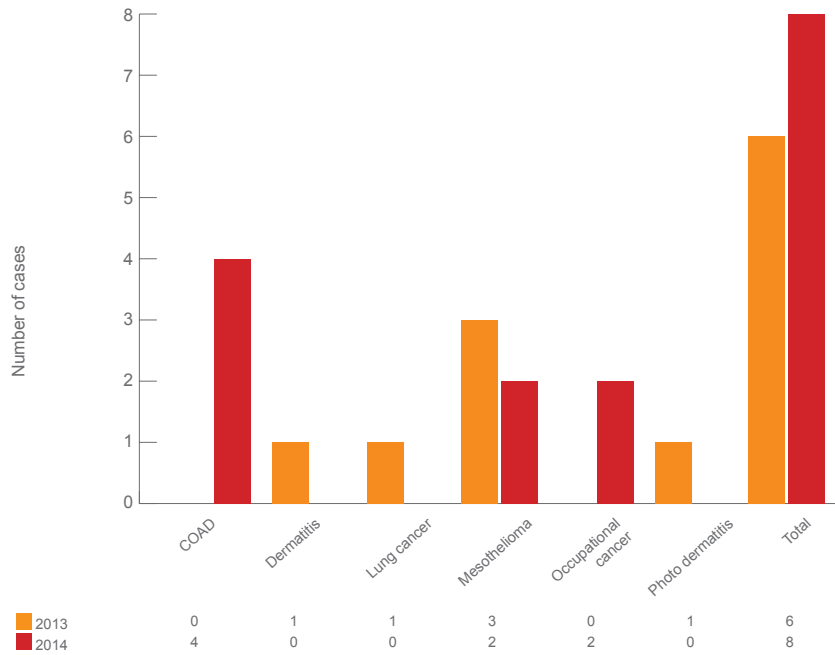
**FIGURE 3.2.2.2(7a): OCCUPATIONAL DISEASES REPORTED IN NORTHERN CAPE REGION'S AMRs: 2013 AND 2014**

\*provisional





**FIGURE 3.2.2.2(7b): OTHER OCCUPATIONAL DISEASES REPORTED IN NORTHERN CAPE REGION'S AMRs: 2013 AND 2014**

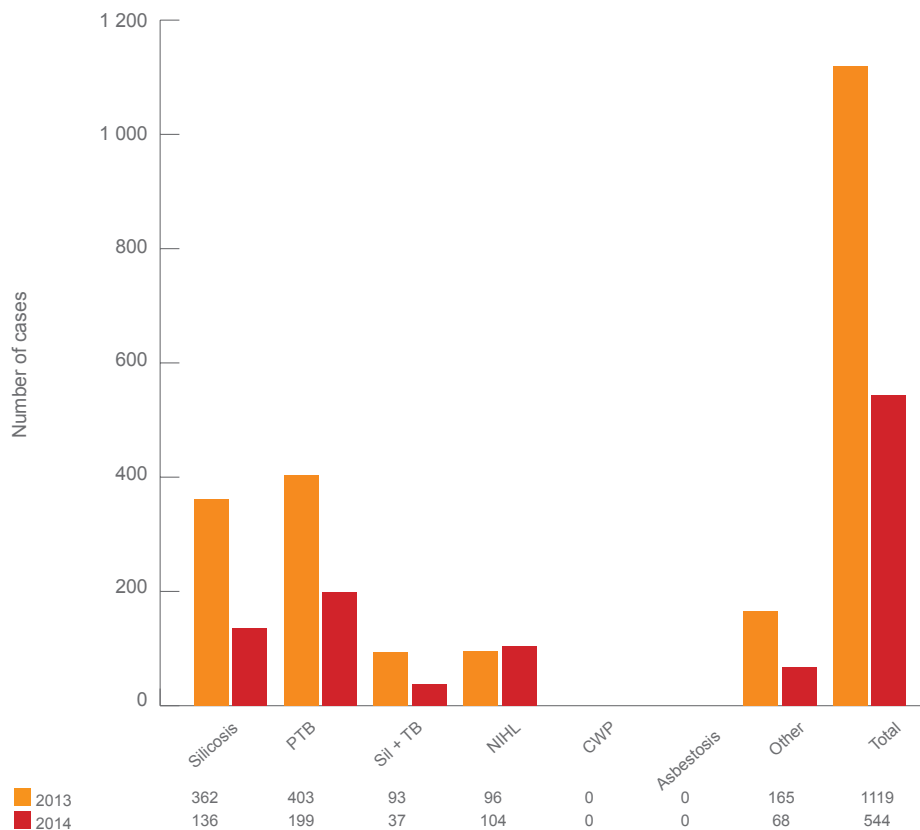


\* provisional

#### North West: Klerksdorp

The AMRs submitted by mines increased by 16% compared to the previous year. The reported occupational diseases decreased by 51% compared to 2013. The reported silicosis cases decreased by 62%, PTB showed a downward trend by 51%, and Sil+TB decreased by 60%. Other occupational diseases showed a downward trend by 59%, while NIHL increased by 8%.

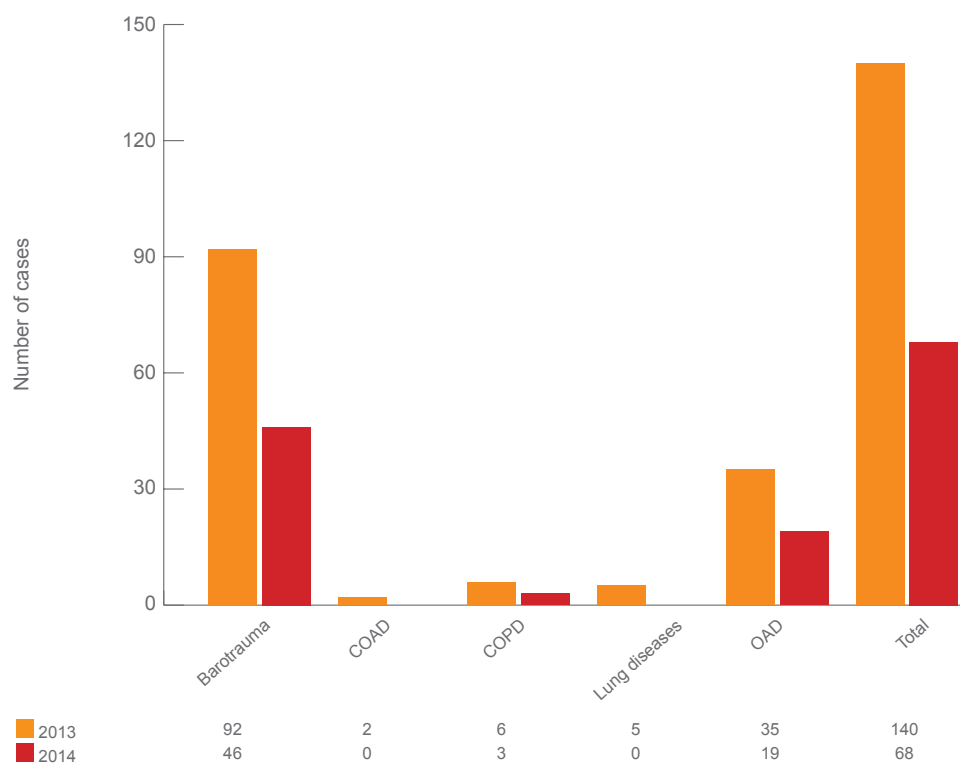
**FIGURE 3.2.2.2(8a): OCCUPATIONAL DISEASES REPORTED IN NORTH WEST: KLERKSDORP REGION'S AMRs: 2013 AND 2014**



\* provisional



**FIGURE 3.2.2.2(8b): OTHER OCCUPATIONAL DISEASES REPORTED IN NORTH WEST: KLERKSDORP REGION'S AMRs: 2013 AND 2014**

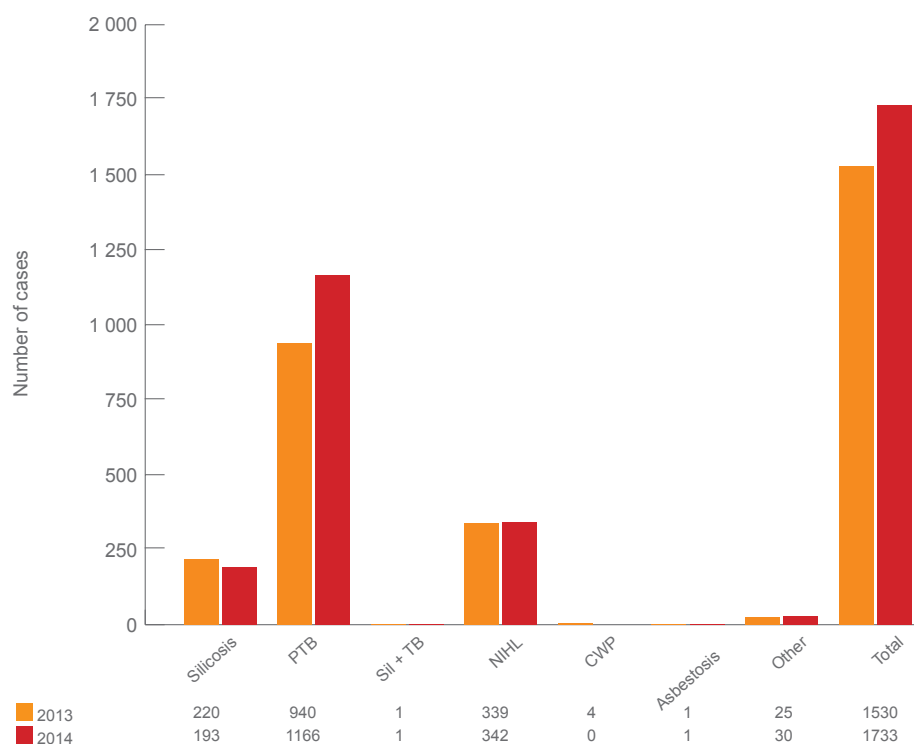


\* provisional

#### North West: Rustenburg

The region had an increase of 7% in the number of AMRs submitted by mines compared to the previous year. The reported occupational diseases showed an increase of 13%. The number of reported silicosis cases showed a downward trend of 12%, while PTB cases increased by 24%. NIHL cases increased by 1% and other occupational diseases increased by 20%.

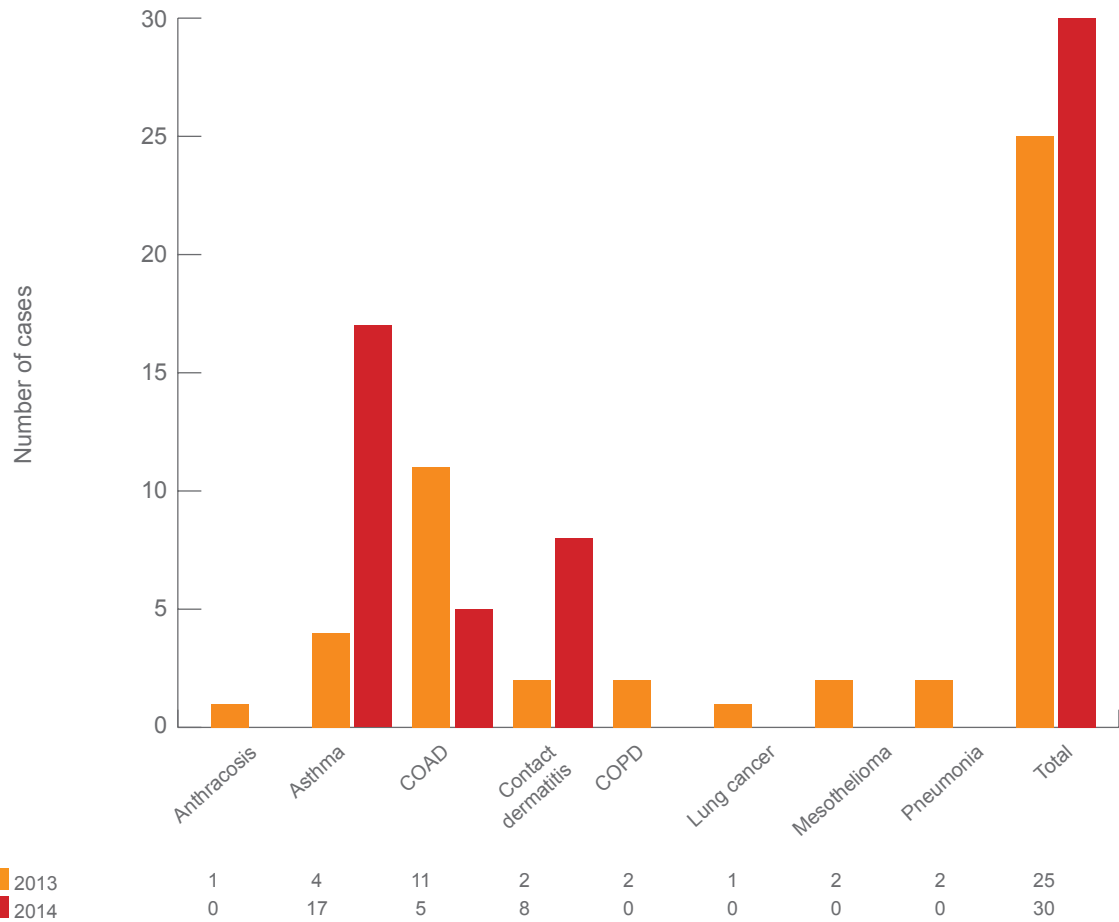
**FIGURE 3.2.2.2(9a): OCCUPATIONAL DISEASES REPORTED IN NORTH WEST: RUSTENBURG REGION'S AMRs: 2013 AND 2014**



\* provisional



**FIGURE 3.2.2.2(9b): OTHER OCCUPATIONAL DISEASES REPORTED IN NORTH WEST: RUSTENBURG REGION'S AMRs: 2013 AND 2014**



\* provisional

Most asthma cases reported were non-occupational, which were reported in line with reporting all non-occupational diseases by mines. The dermatitis cases were due to unexplained sensitivity to nickel after a long period of exposure.

### Western Cape

The AMRs received from the region increased by 28% compared to the previous year. The overall number of reported occupational diseases increased by 43%. PTB cases showed a downward trend of 57%, while NIHL increased by 220%. The affected employees have a history of about 15 to 36 years of exposure to noise in previous employment, including the South African National Defence Force (SANDF) and oil rigs/petrochemical factories.



FIGURE 3.2.2.2(10a): OCCUPATIONAL DISEASES REPORTED IN WESTERN CAPE REGION'S AMRs: 2013 AND 2014

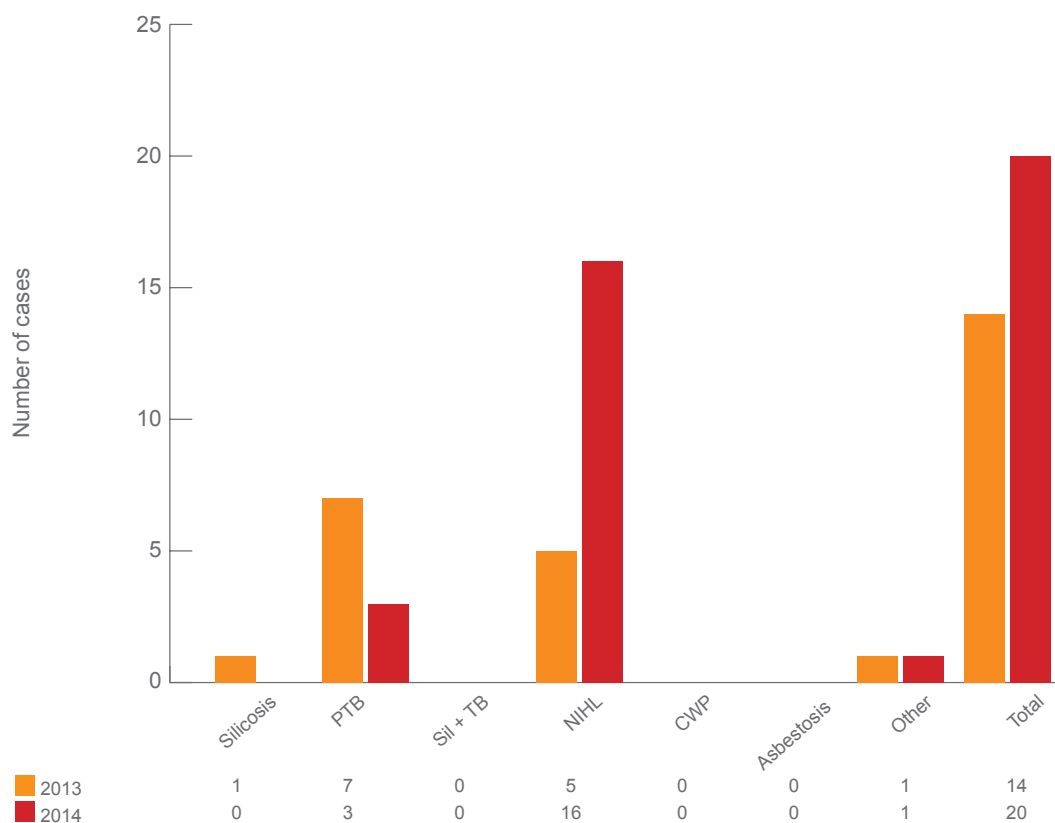
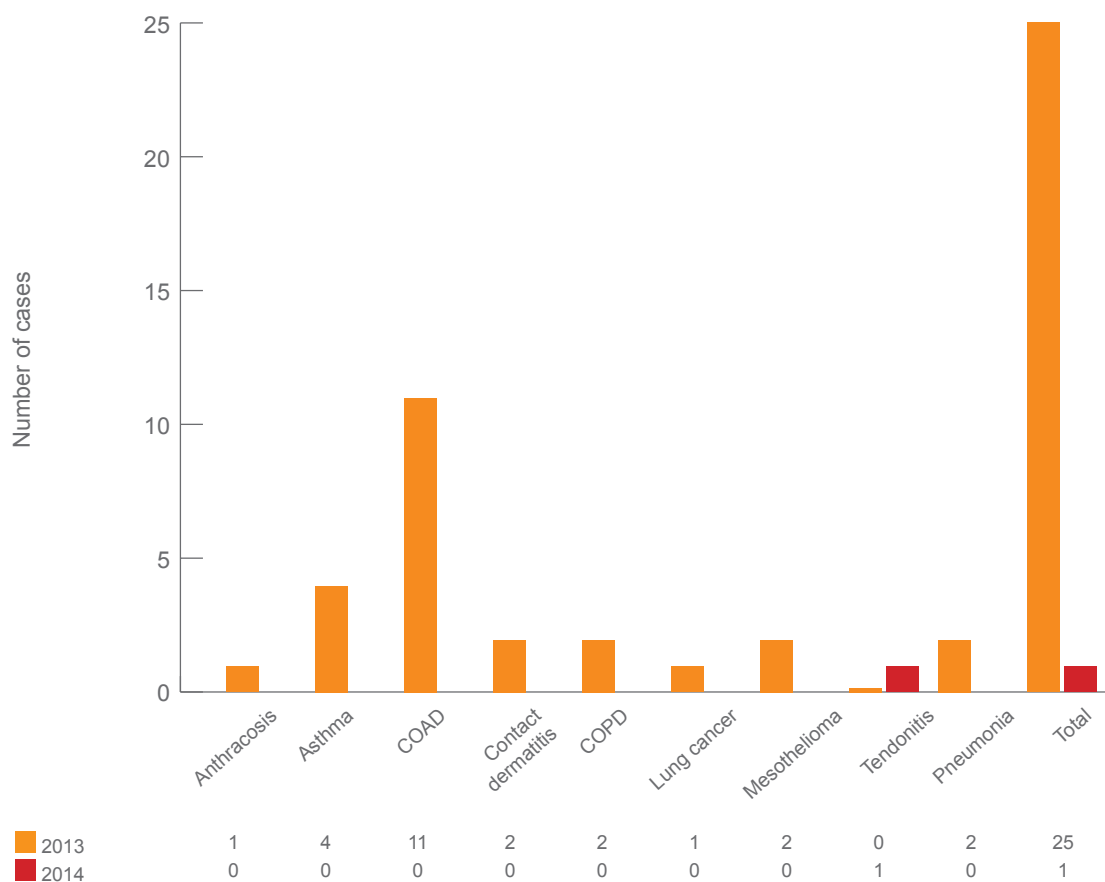


FIGURE 3.2.2.2(10b): OTHER OCCUPATIONAL DISEASES REPORTED IN WESTERN CAPE REGION'S AMRs: 2013 AND 2014



(b) Occupational diseases per commodity

The total number of reported silicosis cases showed a downward trend of 26%. PTB cases increased by 6%, Sil+TB cases decreased by 27%, NIHL cases increased by 3%, CWP cases decreased by 25%, asbestosis cases increased by 50% and other occupational diseases decreased by 9%.

TABLE: 3.2.2(a): OCCUPATIONAL DISEASES AS REPORTED ON AMRs PER COMMODITY: 2013 AND 2014

	Silicosis		PTB		Sil+TB		NIHL		CWP		Asbestosis		Other		Total	Total	Percentage change
	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	
Gold mines	1 164	837	1 900	1 697	140	107	471	470	0	0	2	2	358	312	4 035	3 425	-15
Platinum mines	217	178	949	1 134	0	0	354	387	7	0	0	1	17	17	1 544	1 717	11
Coal mines	8	8	269	279	0	0	230	131	116	94	6	7	42	37	671	556	-17
Diamond mines	11	1	6	17	3	0	14	42	0	0	0	0	7	12	41	72	76
Other mines	30	39	131	333	6	2	320	394	2	0	2	5	28	34	519	807	55
<b>Total</b>	<b>1 430</b>	<b>1 063</b>	<b>3 255</b>	<b>3 460</b>	<b>149</b>	<b>109</b>	<b>1 389</b>	<b>1 424</b>	<b>125</b>	<b>94</b>	<b>10</b>	<b>15</b>	<b>452</b>	<b>412</b>	<b>6 810</b>	<b>6 577</b>	<b>-3</b>

\* provisional

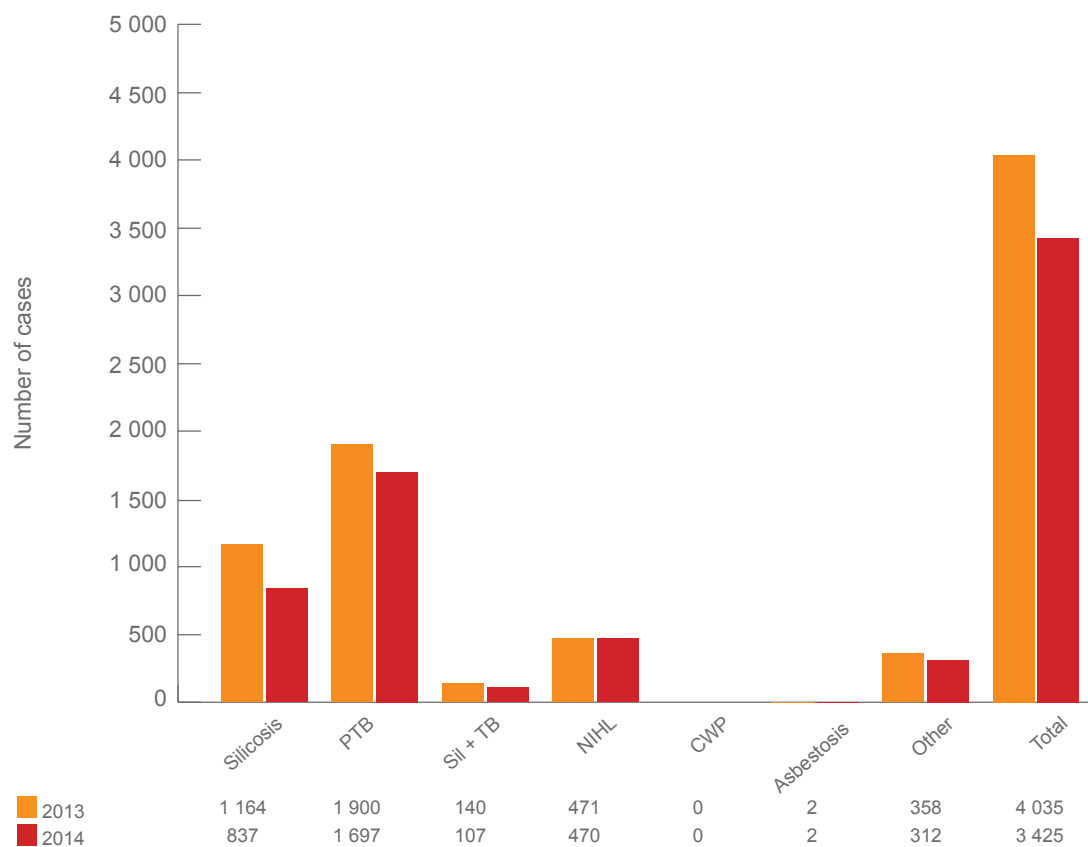
**Gold mines**

The overall number of occupational diseases reported from four regions (Free State, Gauteng, Mpumalanga and North West: Klerksdorp) decreased by 15% compared to the previous year. The number of silicosis cases showed a downward trend of 28%. PTB cases also decreased by 11%. NIHL cases showed a decrease of 0.2% compared to the previous year.

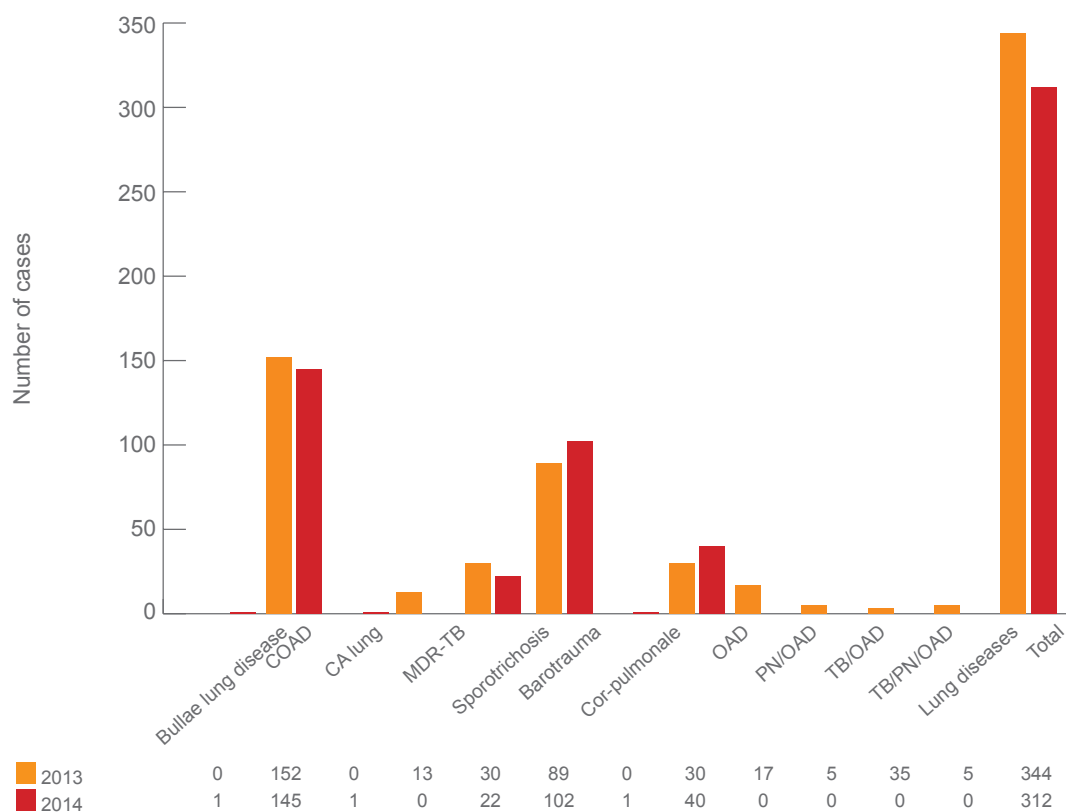
However, it is of great concern that the gold mines are a major contributor (by about 52%) to the overall occupational diseases reported by the mining sector. The reason could be related to the depth of most gold mines and high exposure levels. Chronic obstructive airways disease (COAD) is mainly a complication of most occupational lung-related diseases. Factors that contribute to barotrauma cases include exposure to changes in altitude among underground workers.





**FIGURE 3.2.2.2(1.1a): OCCUPATIONAL DISEASES AS REPORTED ON GOLD MINES' AMRs FOR 2013 AND 2014**

\* provisional

**FIGURE 3.2.2.2(1.1b): OTHER OCCUPATIONAL DISEASES AS REPORTED ON GOLD MINES' AMRs FOR 2013 AND 2014**

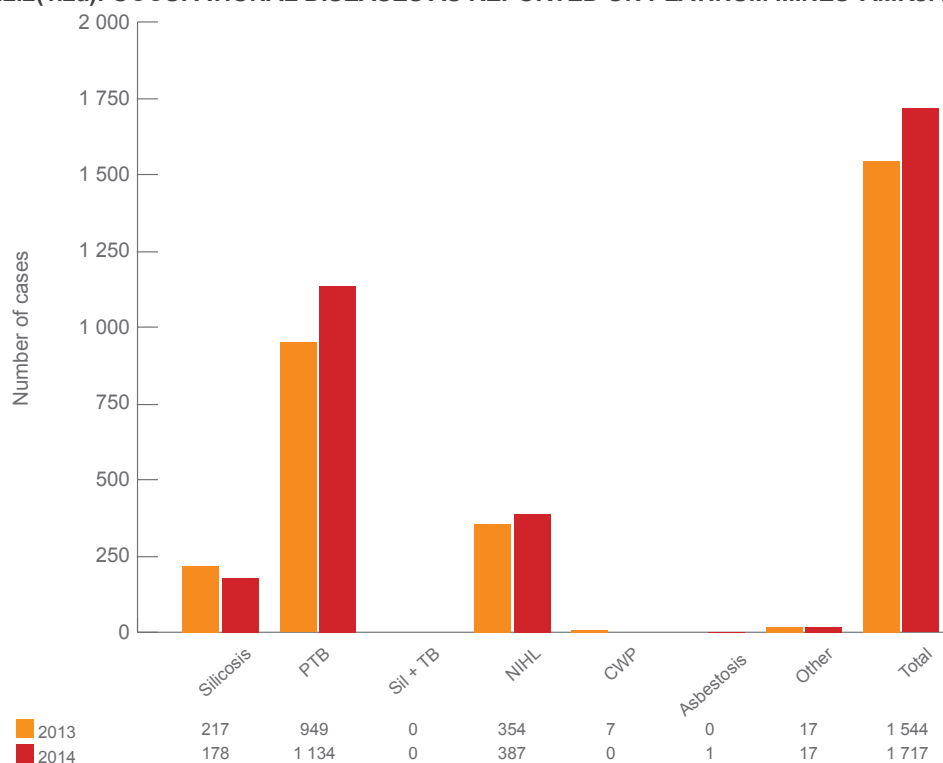
\* provisional



### Platinum mines

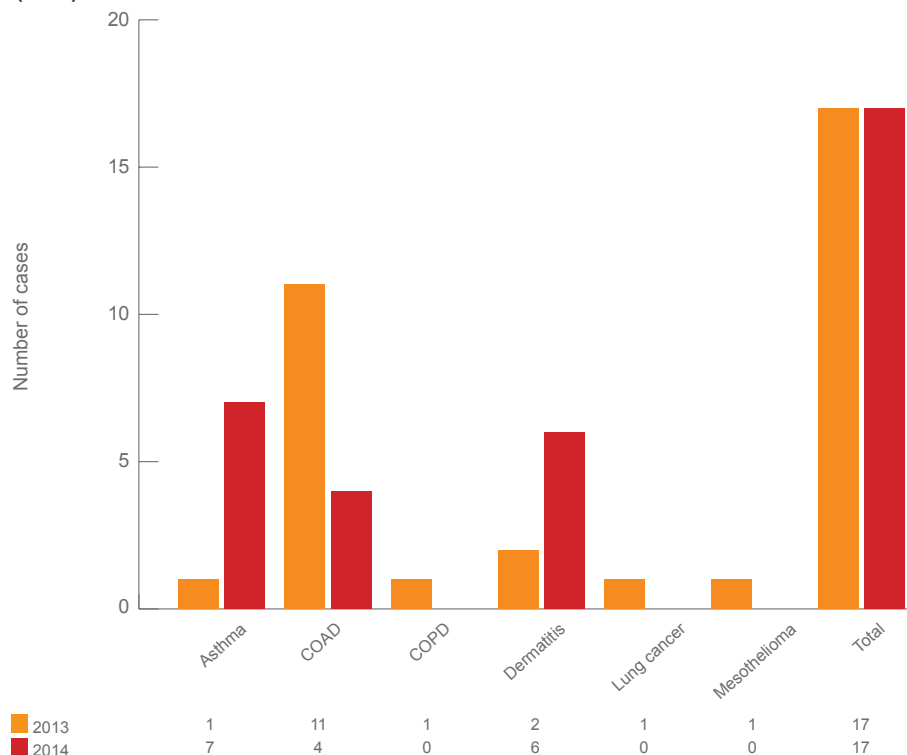
The overall number of occupational diseases reported by three regions (Limpopo, Mpumalanga and North West: Rustenburg) increased by 11% compared to the previous year. The number of silicosis cases decreased by 18%, while PTB cases increased by 19%. The number of NIHL cases increased by 9%. Other occupational diseases remained unchanged at 17 cases for 2013 and 2014. Increased promotion, awareness and adoption of the NSP on HIV, TB and sexually transmitted infections (STIs) (2012–2016) of the National Department of Health (NDoH) was observed, with most mines having incorporated contract workers in their TB management programmes, hence yielding improved reporting. Active TB case finding in line with the NSP has also attributed to increased cases being identified.

**FIGURE 3.2.2.2(1.2a): OCCUPATIONAL DISEASES AS REPORTED ON PLATINUM MINES' AMRs: 2013 AND 2014**



\* provisional

**FIGURE 3.2.2.2(1.2b): OTHER OCCUPATIONAL DISEASES AS REPORTED ON PLATINUM MINES' AMRs: 2013 AND 2014**



\* provisional

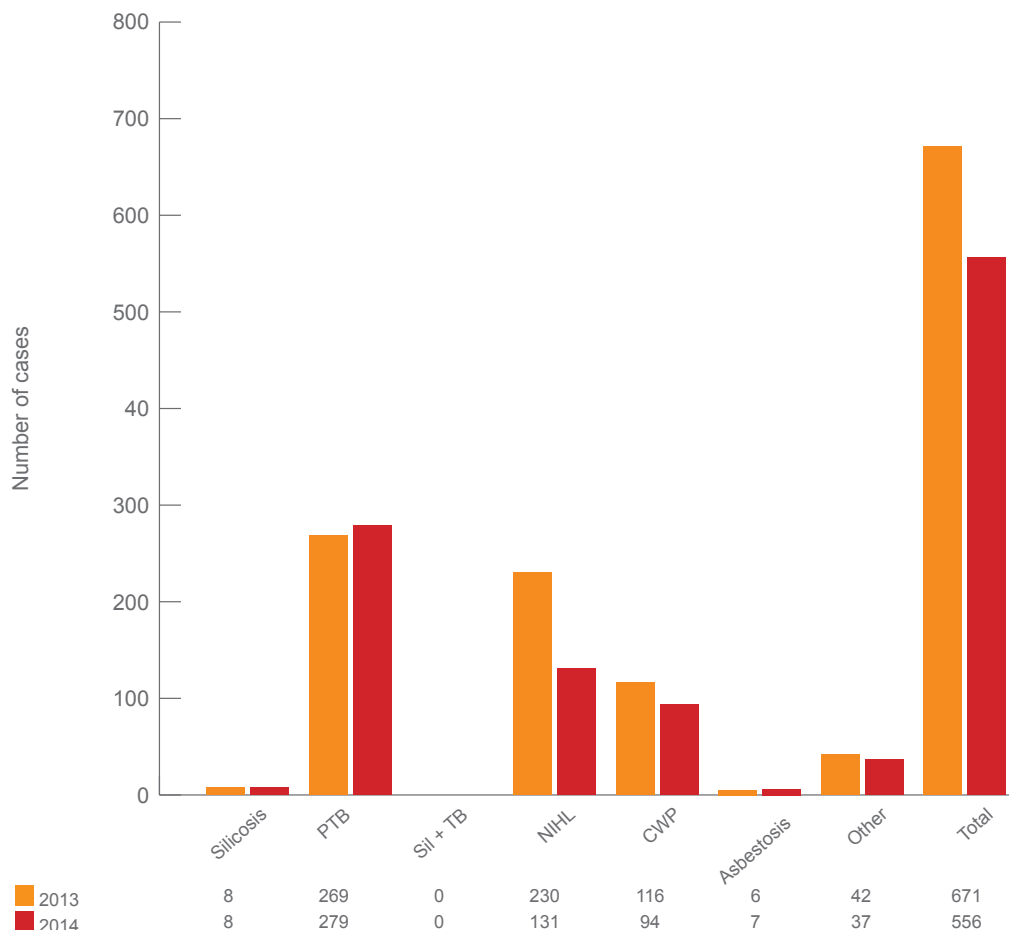


Most asthma cases reported were non-occupational, which were reported in line with the reporting of all non-occupational diseases by mines. The dermatitis cases are due to unexplained sensitivity to nickel after a long period of exposure.

### Coal mines

The overall number of occupational diseases reported by four regions (Free State, KwaZulu-Natal, Limpopo and Mpumalanga) show a downward trend of 17% compared to cases reported from the same regions during the previous year. NIHL cases decreased by 43%, while PTB cases increased by 4%. Silicosis cases remained unchanged at eight cases for 2013 and 2014, and asbestosis cases showed a slight increase of 17%. CWP cases decreased by 19%.

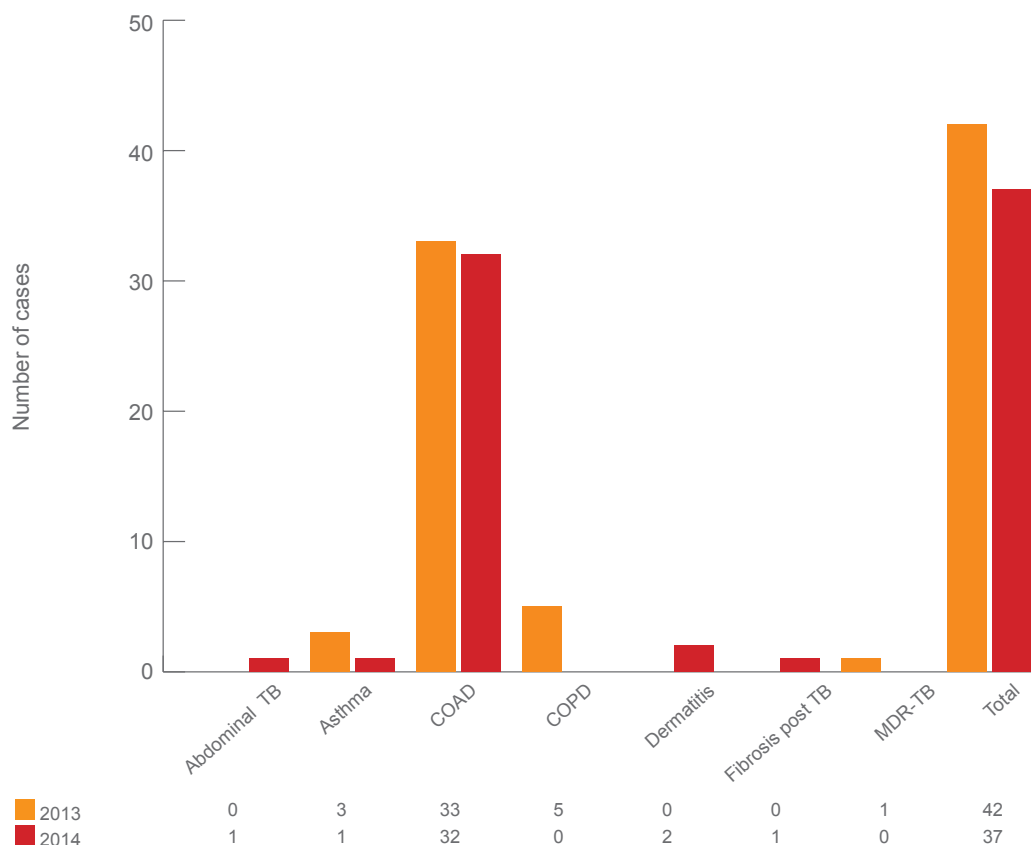
**FIGURE 3.2.2.2(1.3a): OCCUPATIONAL DISEASES AS REPORTED ON COAL MINES' AMRS: 2013 AND 2014**



*\* provisional*

Occupational health and safety tripartite forums are used to discuss relevant occupational health issues, including the importance of statutory reporting by mines. The implementation of the TB Guidance Note results in improved case finding, the utilisation of effective diagnostic equipment, such as GeneXpert, an effective mine referral system and timeous feedback to the mine's occupational medical practitioners (OMPs).

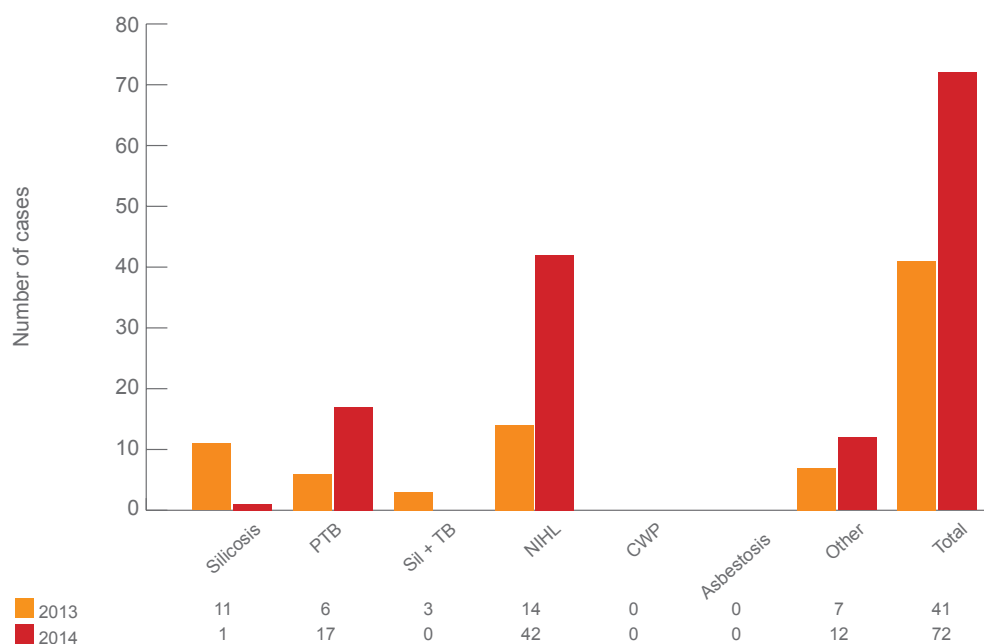


**FIGURE 3.2.2.2(1.3b): OTHER OCCUPATIONAL DISEASES AS REPORTED ON COAL MINES' AMRS: 2013 AND 2014**

\* provisional

**Diamond mines**

The number of regions that reported occupational diseases increased from five to six (Free State, Gauteng, Limpopo, Northern Cape, North West: Klerksdorp and North West: Rustenburg) compared to the previous year. There is an upward trend of 76% in the total number of occupational diseases reported. The number of silicosis cases decreased by 90%, while PTB cases showed an increase of 183%. NIHL cases increased by 200% and other occupational diseases increased by 71%. Statutory reporting in the diamond mines increased by 222% and 12% in the Northern Cape and North West: Klerksdorp respectively, resulting in increased occupational diseases reported.

**FIGURE 3.2.2.2(1.4a): OCCUPATIONAL DISEASES AS REPORTED ON DIAMOND MINES' AMRs: 2013 AND 2014**

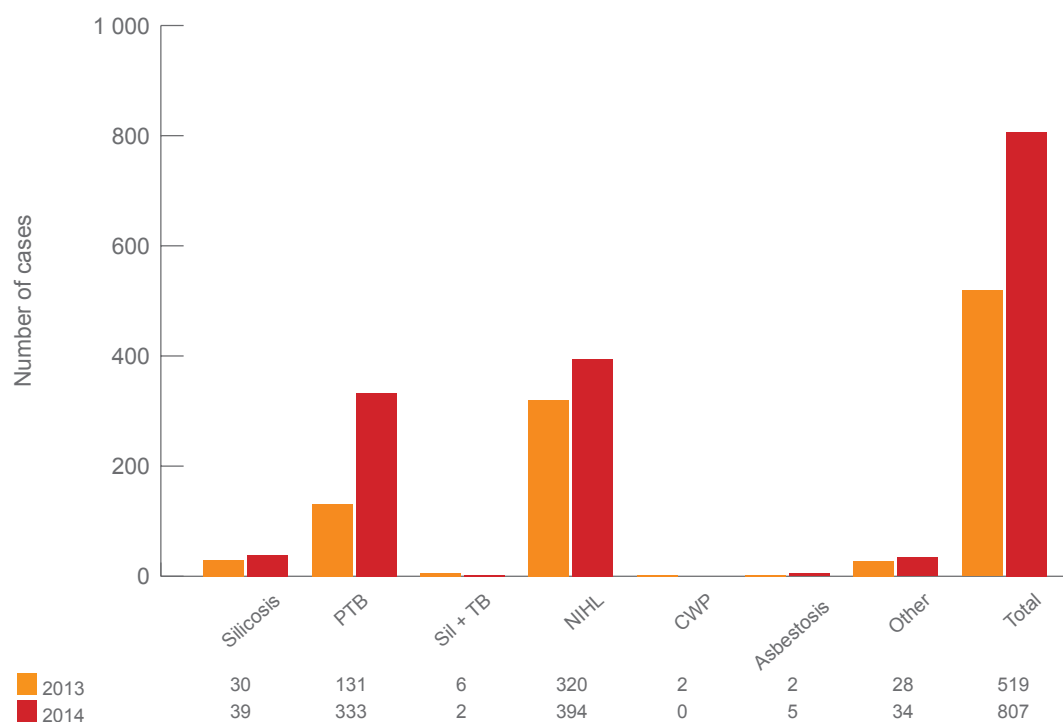
\* provisional



### All other mines

The overall number of occupational diseases reported by all 10 regions increased by 55% compared to the previous year. Sil+TB cases decreased by 67%, while silicosis cases increased by 30%. PTB cases showed an upward trend of 154% and NIHL cases increased by 23%. Asbestosis increased by 150% and other occupational diseases increased by 21%.

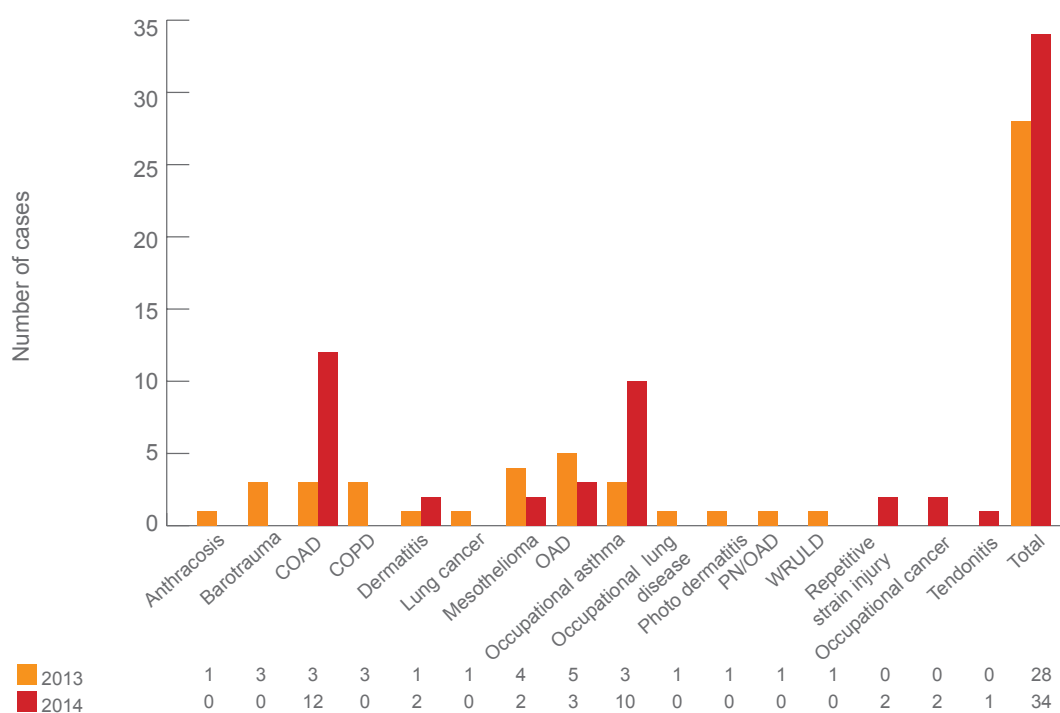
**FIGURE 3.2.2.2(1.5a): OCCUPATIONAL DISEASES AS REPORTED ON ALL OTHER MINES' AMRs: 2013 AND 2014**



\* provisional

There has been a general increase in statutory reporting by all other mines, with 37% recorded in the Northern Cape, 28% in North West: Klerksdorp, 15% in Gauteng and 9% in Eastern Cape, resulting in an increase in the reporting of occupational diseases.

**FIGURE 3.2.2.2(1.5b): OTHER OCCUPATIONAL DISEASES AS REPORTED ON ALL OTHER MINES' AMRs: 2013 AND 2014**



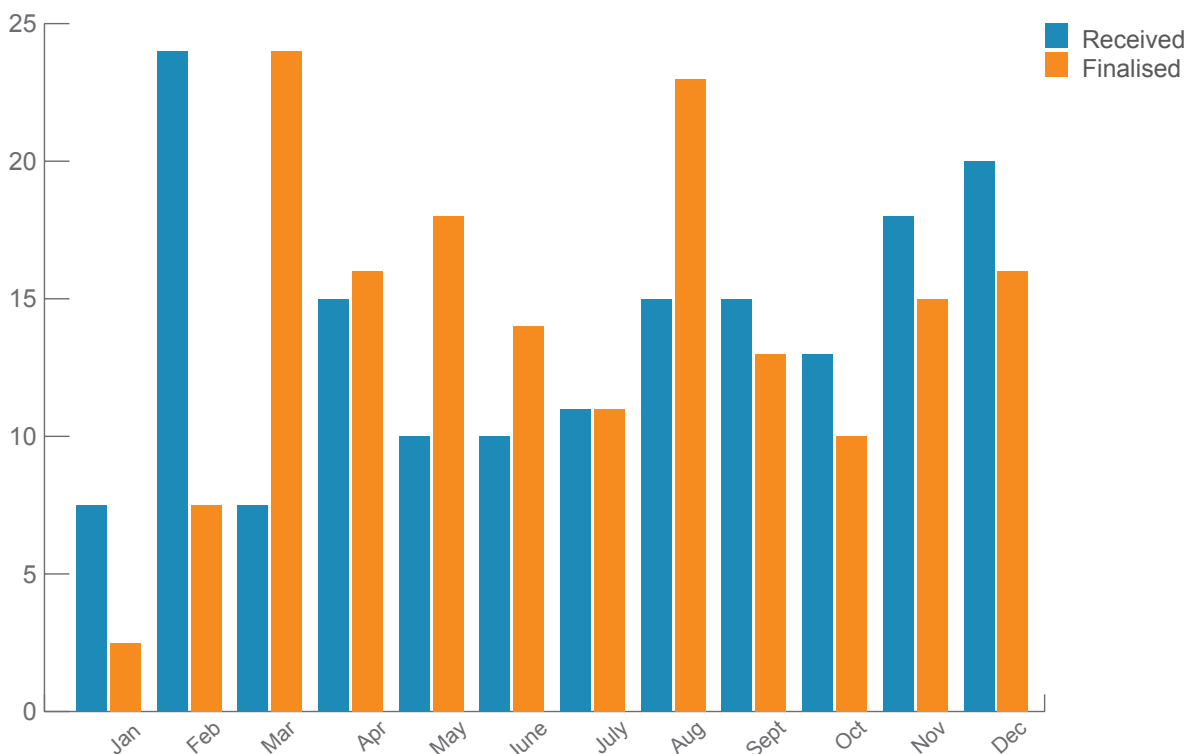
\* provisional



### 3.2.2.3 Medical inspector's report

As stated in Section 20 of the MHSA, employees may appeal to the medical inspector against a decision that the employee is unfit to perform any particular category of work; or any finding of an occupational medical practitioner contained in an exit certificate. Conditions for the appeal process are stipulated in Section 20(2) to Section 20(7) of the Act.

**FIGURE 3.2.2.3(a): APPEALS RECEIVED AND FINALISED FOR 2014**



A total of 167 appeals were received for the period under review, compared to 150 received in 2013. Similarly, 172 appeals were completed in 2014, compared to 156 in 2013.

It should be noted that at any given time there is a backlog of appeals due to various reasons. As a result, more appeals are handled in some months than in others. This is based on the fact that more reports would have been received from second-opinion doctors. Therefore, in any particular month, the medical inspector might be finalising the backlog of previous months and not necessarily attending to appeals received in that month.

#### Appeals received per region

**TABLE 1: NUMBER OF APPEALS PER REGION: JANUARY TO DECEMBER 2014**

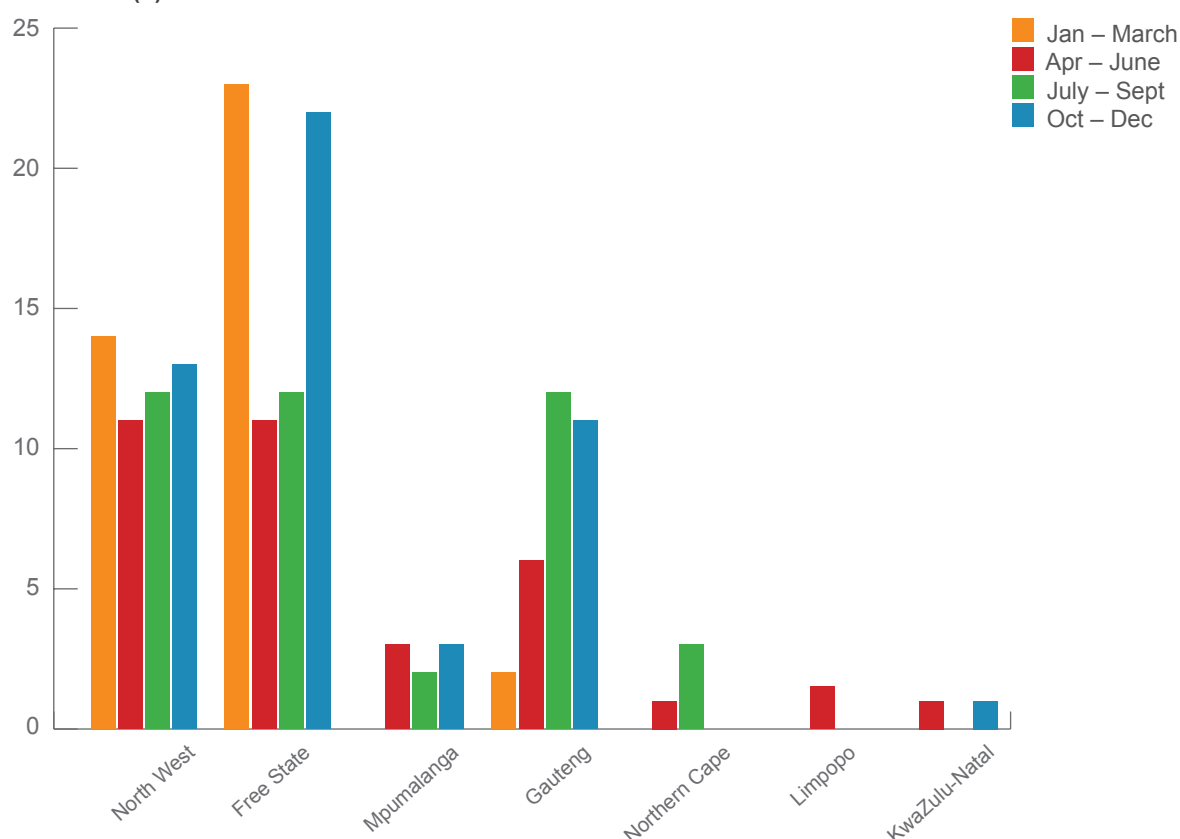
	North West	Free State	Mpumalanga	Gauteng	Northern Cape	Limpopo	KwaZulu-Natal
January to March	15	23	0	2	0	0	0
April to June	11	11	3	6	1	2	2
July to September	12	12	2	12	3	0	0
October to December	14	22	3	11	0	0	1
<b>Total</b>	<b>37</b>	<b>48</b>	<b>6</b>	<b>20</b>	<b>4</b>	<b>2</b>	<b>2</b>

\* provisional





FIGURE 3.2.2.3(b): APPEALS PER REGION



Most of the appeals were received from Free State, North West and Gauteng, with most being received at the beginning of the year and at the end of the year. Many employees were medically incapacitated in the Free State during the period under review, hence most of the appeals originated from that region. The mines that contributed to the increase in medical incapacitations were contacted to obtain clarity. Some of the mines indicated that their focus had changed to being proactive in terms of preventing further exposure to hazards. The mines also had to present measures taken to control dust effectively, as most appeals were related to TB and silicosis. Unfortunately, being proactive resulted in the incapacitation of more employees who were not physically unfit, leading to an increase in medical appeals received from the region.

#### Appeals received per commodity

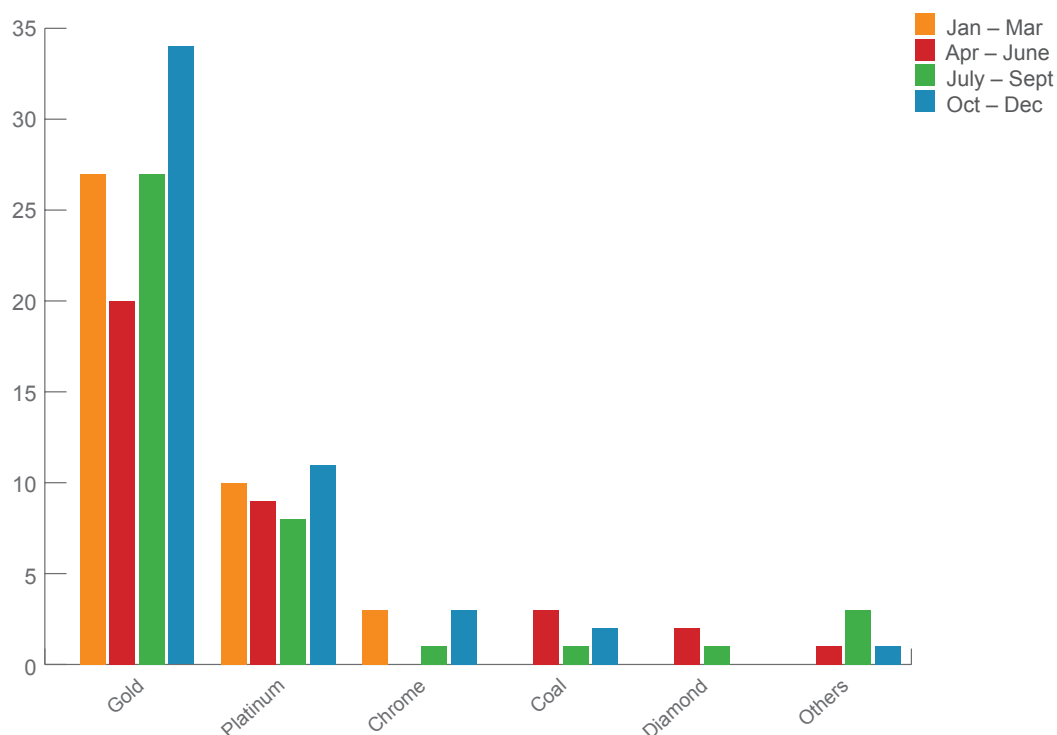
TABLE 2: NUMBER OF APPEALS PER COMMODITY

	Gold	Platinum	Chrome	Coal	Diamond	Others	Total
January to March	27	10	3	0	0	0	40
April to June	20	9	0	3	2	1	35
July to September	27	8	1	1	1	3	41
October to December	34	11	3	2	0	1	51
<b>Total</b>	<b>108</b>	<b>38</b>	<b>7</b>	<b>6</b>	<b>3</b>	<b>5</b>	<b>167</b>

\* provisional



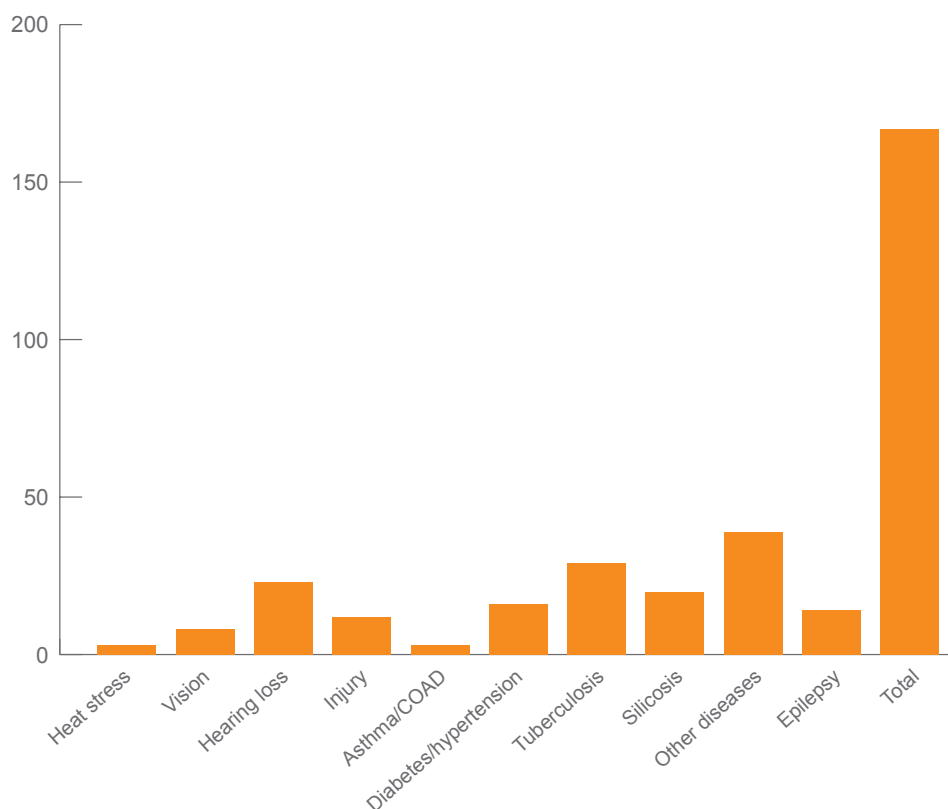
FIGURE 3.2.2.3(c): APPEALS PER COMMODITY: JANUARY TO DECEMBER 2014



The main commodities contributing to the appeals received for 2014 were gold and platinum, with gold taking the lead. This corresponds to the high number of appeals in Free State and Gauteng where gold is found. The appeals received from the platinum sector were mostly related to chronic diseases, especially diabetes. Most people who were diagnosed with diabetes were declared unfit for various reasons, with the old guideline on minimum standards of fitness stated as a reason. There is a need to ensure that there is a common understanding of the interpretation of this guideline.

#### Diseases handled as per appeals received for 2014

FIGURE 3.2.2.3(d): DISEASES HANDLED IN THE APPEALS RECEIVED FOR JANUARY TO DECEMBER 2014



\* provisional

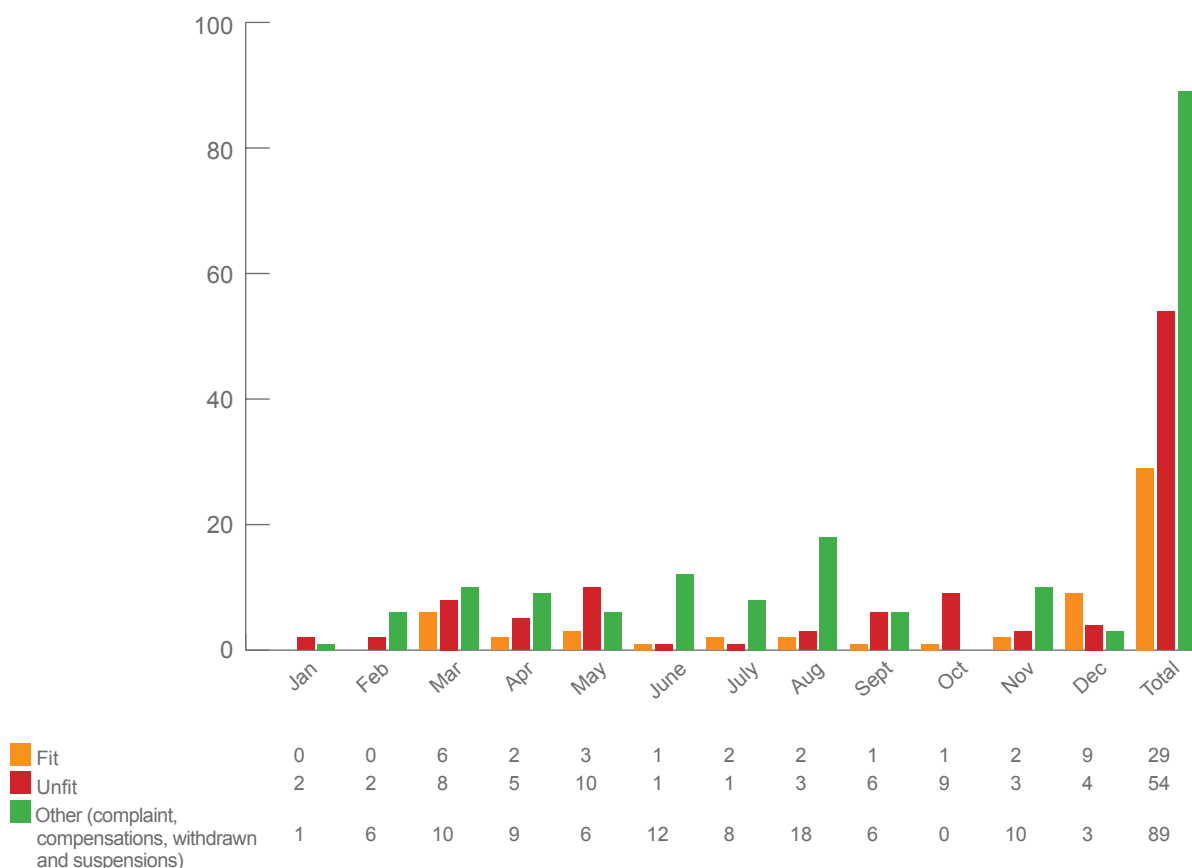


Other diseases include HIV/AIDS-related diseases, psychiatric conditions, cardiovascular diseases, orthopedic problems, etc. This category has contributed to the majority of the appeals handled, followed by TB, hearing loss and silicosis. Appeals related to TB and silicosis were mostly received from gold mines, particularly in Free State.

### Appeal findings

The medical inspector has a right in terms of Section 20 of the MSHA to vary, confirm or set aside the decision of the occupational medical practitioner. The appeal findings below are in keeping with the rights of the medical inspector.

**FIGURE 3.2.2.3(e): APPEAL FINDINGS: JANUARY TO DECEMBER 2014**



*\* provisional*

Approximately 17% of appellants were found to be fit, thus the decision of the OMP was set aside. Some 31% was found to be unfit and the decision of the OMP was confirmed. The rest of the appeals (52%) were varied in that some were complaints or compensation issues that were handled differently.

In Section 20 of the MSHA, it is stated that employees may appeal to the medical inspector against a decision that the employee is unfit to perform any particular category of work, or any finding of an OMP contained in an exit certificate. Conditions for the appeal process are stipulated in Section 20(2) to 20(7) of the Act.

### Challenges to the appeal process

Challenges are experienced when expectations from different stakeholders are not met.

Expectations from employees:

- Appeal within prescribed time frames
- Fill in all details required (name, contact details, type of work, reason for appealing, etc.)
- Send relevant supporting documents if available
- Be available for second-opinion assessment

Expectations from employers:

- Holistic approach in determining fitness status of employees
- Provide adequate reasons for declaring employees unfit



- Inform employees of their rights for a Section 20 appeal once a final decision has been made
- Send all supporting medical documents when requested

Expectations from service providers:

- Assist by providing dates for second-opinion assessments
- Conduct necessary investigations (chest X-rays, lung function tests, etc.)
- Provide reports speedily after assessing employees

The medical inspector has been engaging the above stakeholders on an ongoing basis to address the issues above. The medical inspector also gives presentations at workshops arranged by health and safety representatives to make them aware of the requirements for the appeal process.

Further engagement by the medical inspector will be at regional tripartite committees to address a bigger forum with different stakeholders. OMPs and service providers will be engaged on an ongoing basis.

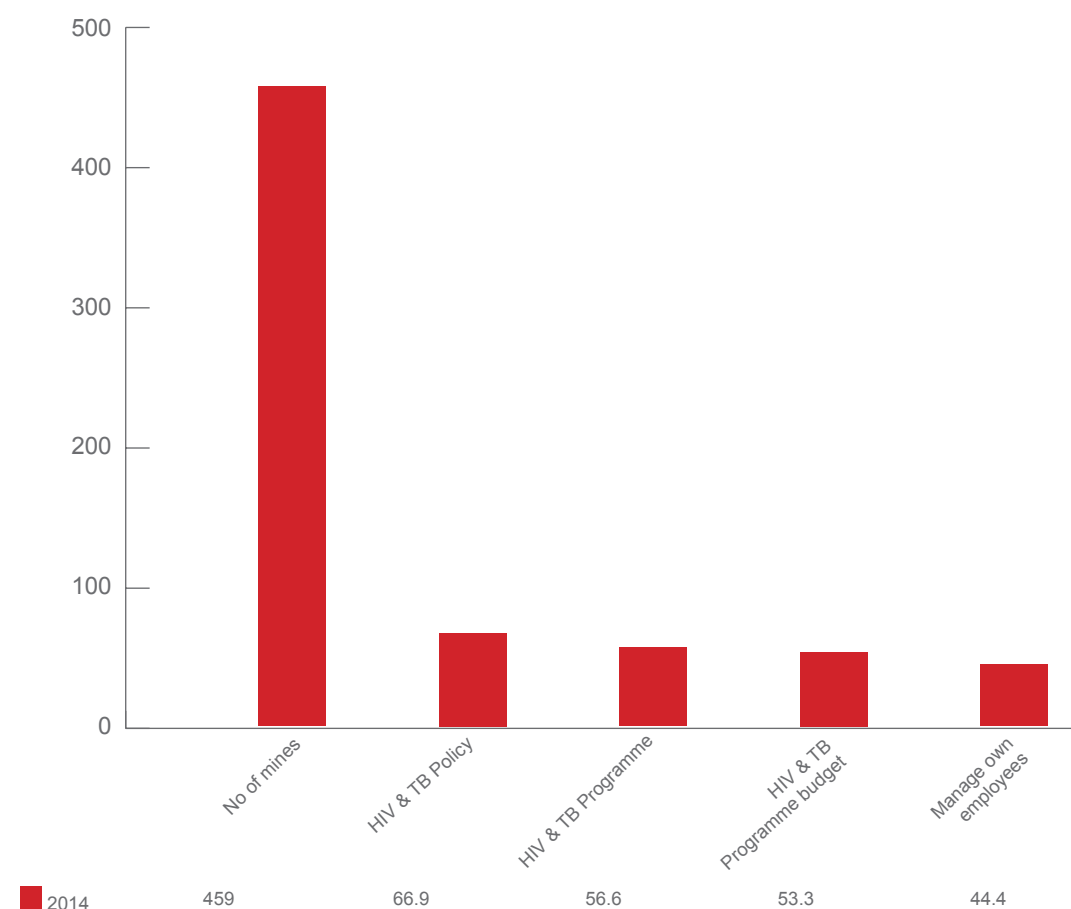
### 3.2.2.4 Reporting on TB and HIV

The mines have been reporting on HIV and TB since 2014, following summit commitments that were endorsed by the principal stakeholders. The summit commitments were informed by the survey conducted by the National Institute of Health (NIOH) on TB and HIV in the mining industry. Mines were then required to report using DMR 164 (the TB and HIV reporting form).

The following analysis is based on TB and HIV data received from mines for the period under review, whereby 459 mines, covering 465 923 employees (as opposed to 233 mines, covering 423 032 employees in 2013) complied with the reporting requirements.

#### Compliance for all mines

FIGURE 3.2.2.4(a): COMPLIANCE FOR ALL MINES: 2014



\* provisional



In 2014, compliance with the integrated HIV and TB policy was 66.9%, and compliance with the integrated HIV and TB programme was 56.6%. The HIV and TB programme budget was 53.3%. Compliance with the policy for mines to manage their own employees was 44.4%.

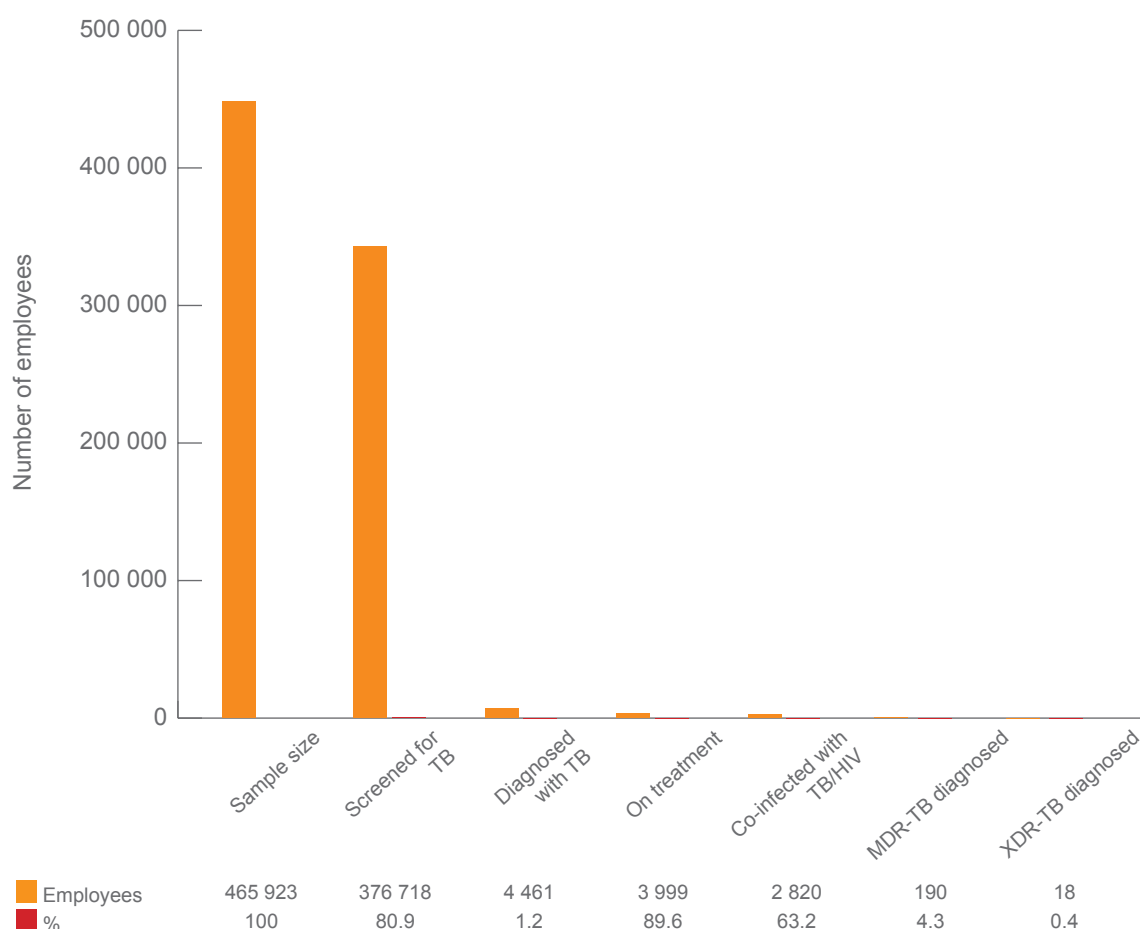
There is an overall increase in the number of mines that have submitted DMR 164 forms, resulting in an overall improvement in compliance measures.

**TABLE 3: COMPLIANCE FOR ALL MINES PER COMMODITY: 2014**

Measure	Coal mines: mines: 78 Employees: 93 924	Diamond mines: Mines: 50 Employees: 9 227	Gold mines: Mines: 51 Employees: 113 161	Platinum mines: Mines: 71 Employees: 160 490	Other mines: Mines: 209 Employees: 89 121	Total Mines: 459 Employees: 465 923
Integrated HIV and TB policy	65 (83.3%)	16 (32.0%)	20 (39.2%)	70 (98.6%)	136 (65.1%)	307 (66.9%)
Integrated HIV and TB programme	72 (92.3%)	14 (28.0%)	34 (66.7%)	68 (95.8%)	119 (56.9%)	260 (56.5%)
HIV and TB programme budget	60 (76.9%)	5 (10.0%)	31 (60.8%)	71 (100%)	78 (37.3%)	245 (53.3%)
Manage their own employees, including contractors	52 (66.7%)	13 (26.0%)	42 (82.3%)	40 (56.3%)	57 (27.3%)	204 (44.4%)

#### TB programme and TB/HIV co-infection in all mines: 2014

**FIGURE 3.2.2.4(b): TB PROGRAMME AND TB/HIV CO-INFECTION ALL MINES**



\* provisional



TABLE 4: DATA COMPARISON BETWEEN 2013 AND 2014

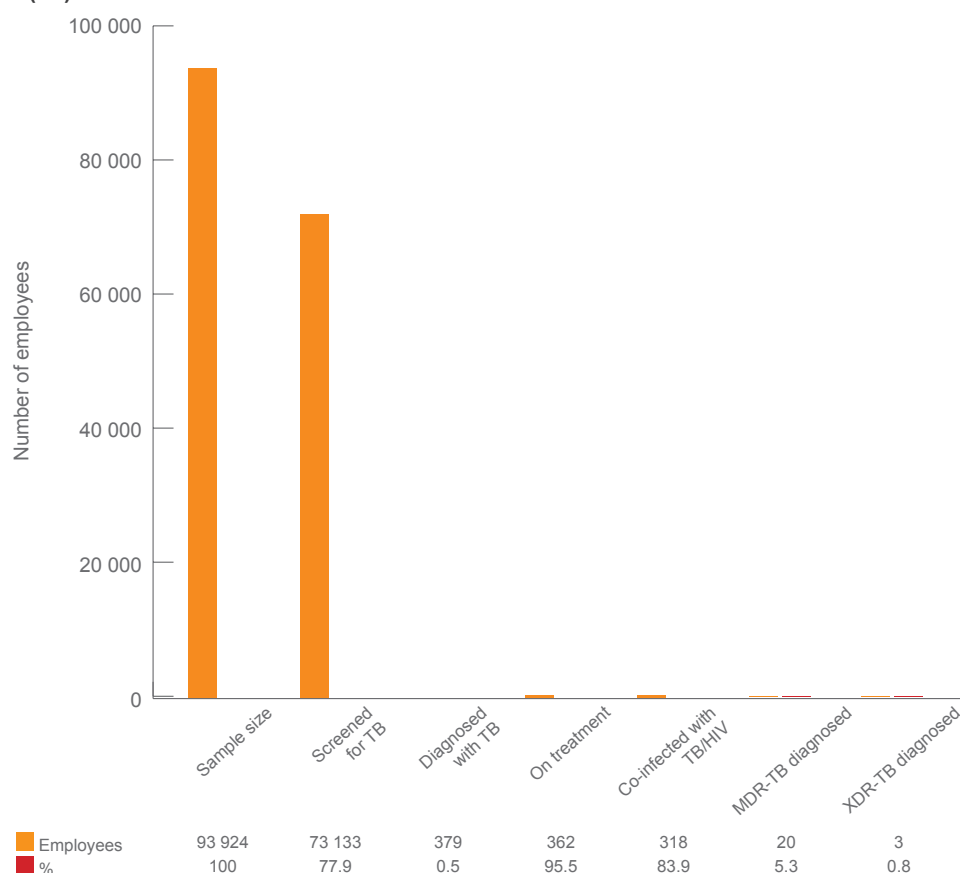
Data elements	Total labour force: 2013 (423 032)	Total labour force: 2014 (465 923)
Counselled for HIV	229 151 (54.2%)	259 297 (55.7%)
Tested for HIV	192 557 (84%)	183 202 (70.7%)
HIV positive	17 384 (9.0%)	19 084 (10.4%)
Co-infected with TB and HIV	2 905 (80.8%)	2 820 (63.2%)
Living with HIV and on ART in 2014	28 887	24 740
Screened for TB	308 403 (72.9%)	376 718 (80.8%)
Diagnosed with TB	3 593 (1.2%)	4 461 (1.2%)
On TB treatment	3 483 (96.9%)	3 999 (89.6%)
Diagnosed with multi-drug-resistant TB (MDR-TB)	149 (4.1%)	190 (4.3%)
On MDR-TB treatment	172 (4.8%)	197 (2.03%)
Diagnosed with extremely drug-resistant TB (XDR-TB)	11 (0.3%)	18 (0.4%)

\* provisional

The total number of employees diagnosed with TB was 4 461 in 2014, compared to 3 593 in 2013. Of note is that only 1.2% of those who were screened for TB were diagnosed with TB. MDR-TB cases increased from 149 in 2013 to 190 in 2014, and XDR-TB cases increased from 11 to 18.

#### TB programme and TB/HIV co-infection per commodity

FIGURE 3.2.2.4(b1): COAL



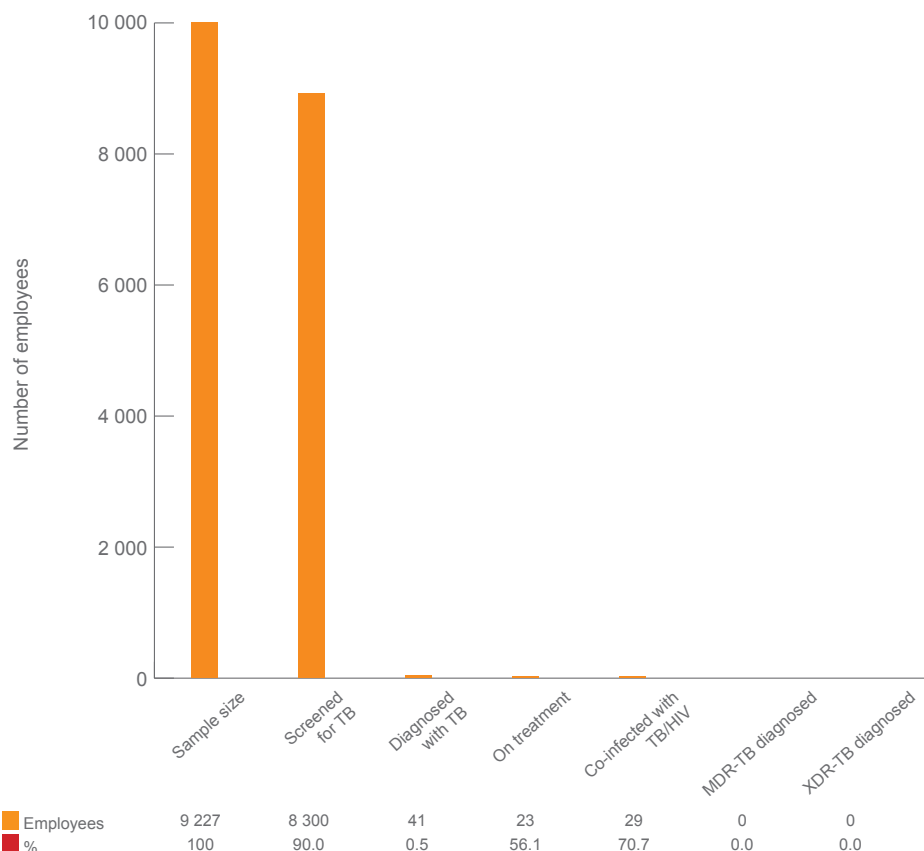
\* provisional

Approximately 1% of employees screened for TB were diagnosed with TB. The co-infection rate in the coal sector is 83.9%. The reason for the low percentage diagnosed with TB is that some employees from large coal mines are on medical aid schemes, so their diseases are confirmed and treated privately. Most employees from small- to medium-sized coal mines use public facilities, as they do not have on-site health services. Of the employees diagnosed with TB, 95.5% were put on TB treatment.





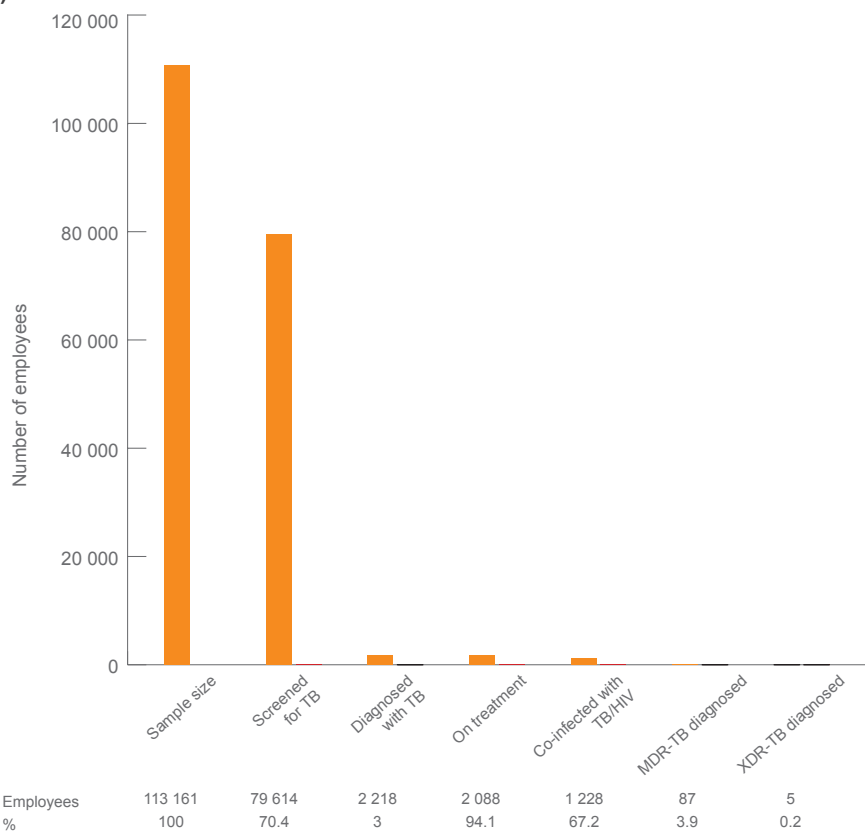
FIGURE 3.2.2.4(b2): DIAMONDS



\* provisional

Only 0.5% of employees screened for TB were diagnosed with TB. The co-infection rate is 70.7%. The diamond sector does not have other predisposing factors for TB like silica dust, thus the most common predisposing factor to employees who acquire TB in the diamond sector is likely to be HIV infection.

FIGURE 3.2.2.4(b3): GOLD

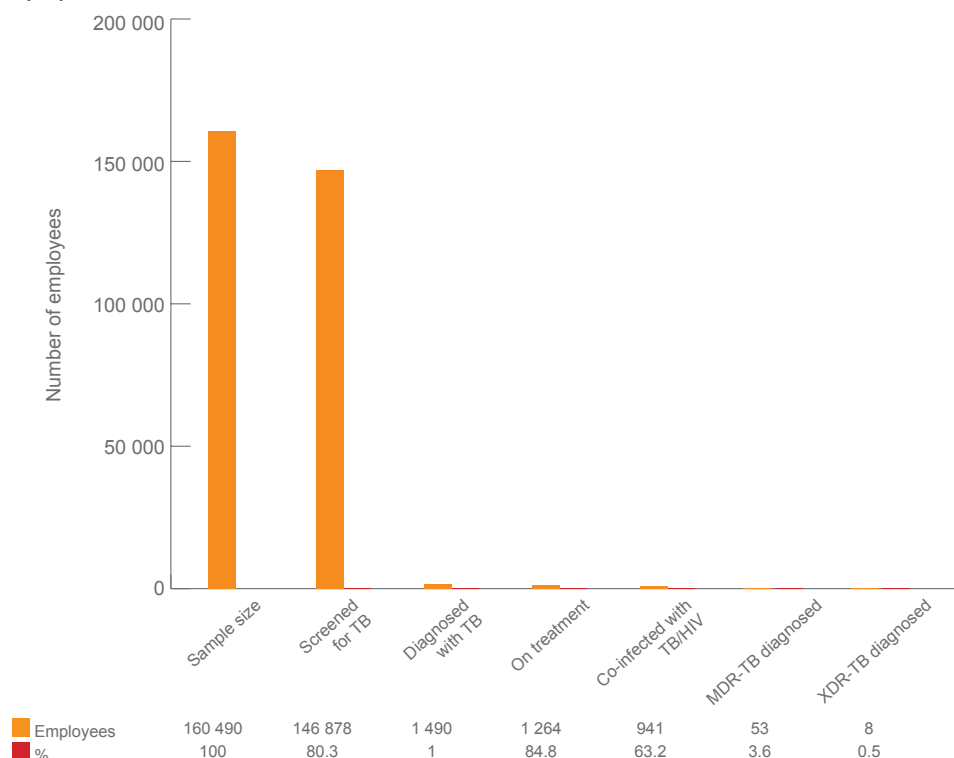


\* provisional



Approximately 3% of employees were diagnosed with TB out of 70.4% of employees who were screened for TB. The co-infection rate was 67.2%. In the gold sector, factors that need to be considered as contributing towards increasing the risk of TB are silica dust and HIV infection. In an effort to prevent and reduce TB infection, it is necessary to ensure that dust control measures are effective and HCT campaigns are not once-off events, but remain ongoing events. Most mines have indicated that employees get screened for TB at all medical stations during medical surveillance and when sessions are held with health practitioners at primary health care facilities.

**FIGURE 3.2.2.4(b4): PLATINUM**

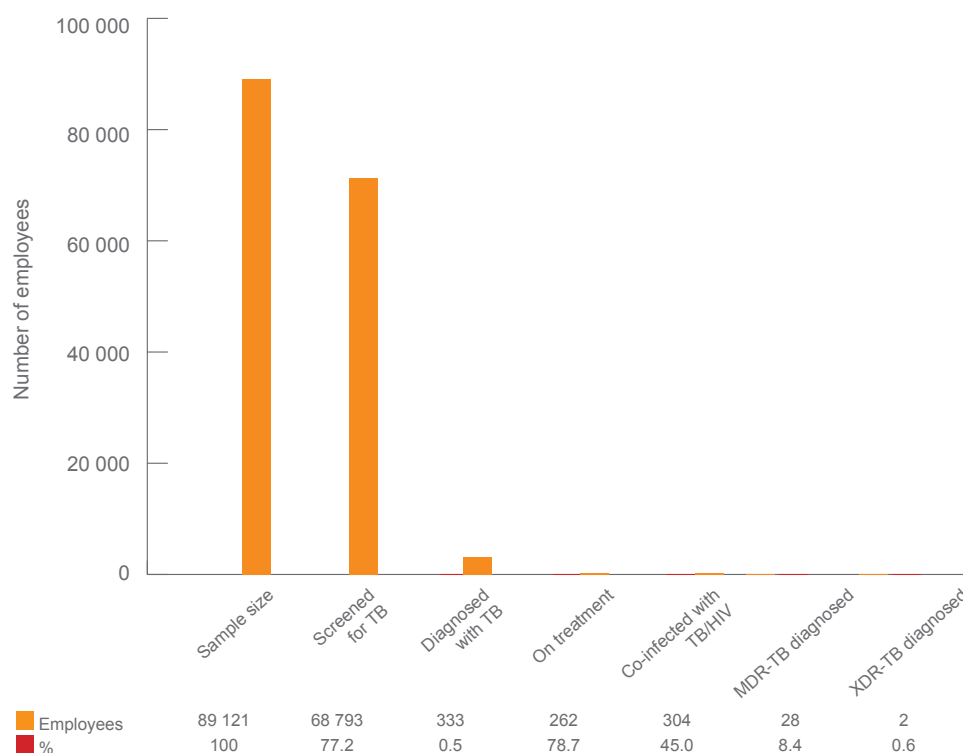


\* provisional

Approximately 80.3% of employees were screened for TB during the period under review, and 1% of those screened were diagnosed with TB. The co-infection rate was 63.2% for the platinum sector. Silica dust is not a major contributor to TB infection in the platinum sector although some employees previously worked in the gold sector, and were thus exposed to silica dust there. The co-infection rate is almost similar to that in the gold sector. The reasons provided for the increase in screening were based on the frequent contractors who also get screened as they come for medical surveillance. As these contractors exit, the total number of employees decreases in comparison to the number of employees screened for that particular reporting period.



FIGURE 3.2.2.4(b5): OTHER MINES

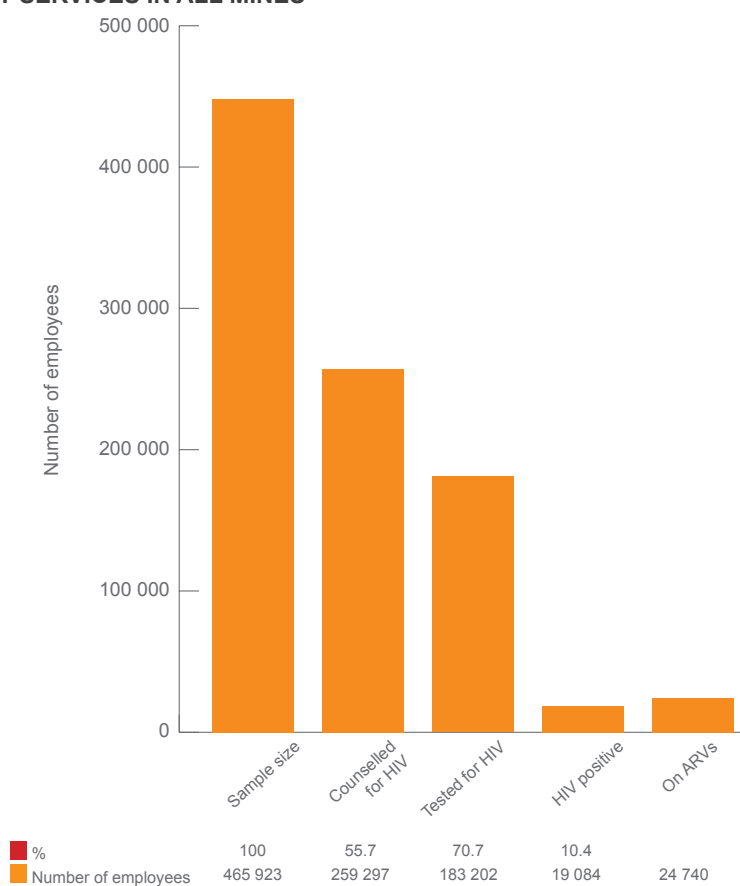


\* provisional

While 0.5% of employees in other mines were diagnosed with TB, most small mines do not have health services in-house, these are outsourced, and there is poor co-ordination of data between the service provider and the company. The co-infection rate was 45%.

#### HCT services in all mines for 2014

FIGURE 3.2.2.4(c): HCT SERVICES IN ALL MINES



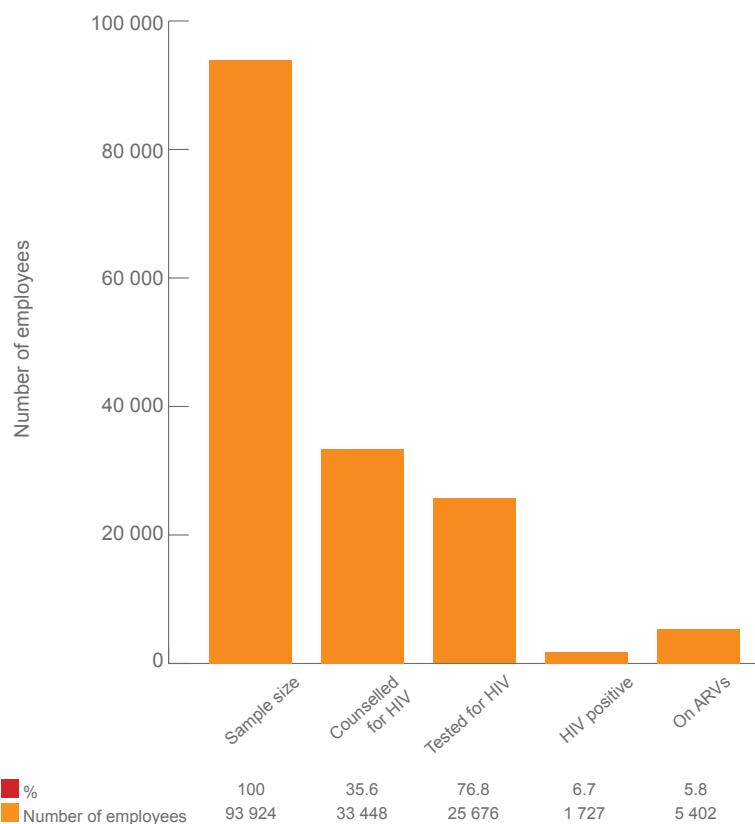
\* provisional



The total sample size has increased from 423 032 in 2013 to 465 923 in 2014. Generally, the big mines did well with HCT campaigns, but when combining data with that from small mines, the percentages dropped. Basically, 70.7% of those who were counselled agreed to be tested for HIV, and 10.4% of those who were tested, were HIV positive. The number of employees on antiretrovirals (ARVs) appears lower, as not all employees who tested HIV positive needed to be on ARVs.

#### HCT services per commodity

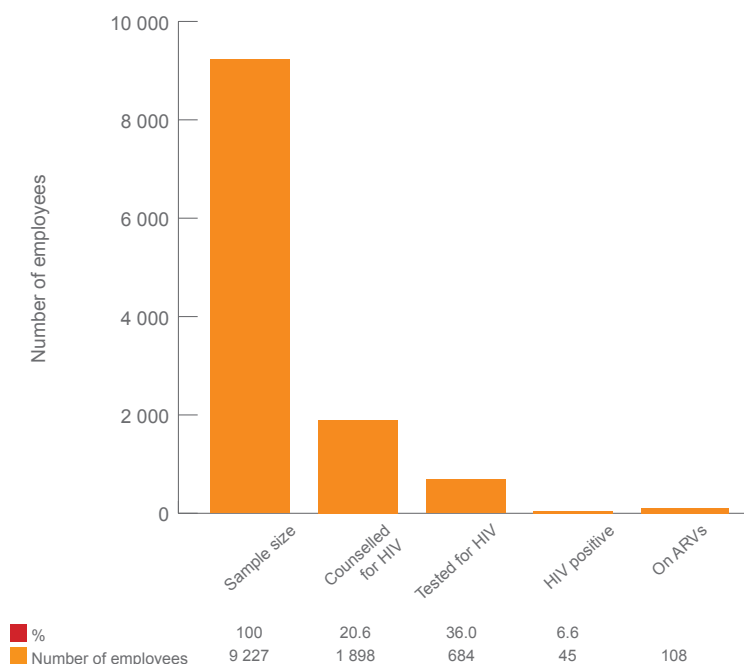
FIGURE 3.2.2.4(c1): COAL



\* provisional

The figure above represents that of the 93 924 employees in the coal sector who submitted DMR 164 reports. Of the 33 448 employees counselled, 25 676 (76.8%) agreed to be tested for HIV, and 6.7% of those who tested were found to be positive. The coal sector is reported to have good HIV programmes. This can be seen in the low rate of employees who were found to be HIV positive.

FIGURE 3.2.2.4(c2): DIAMONDS

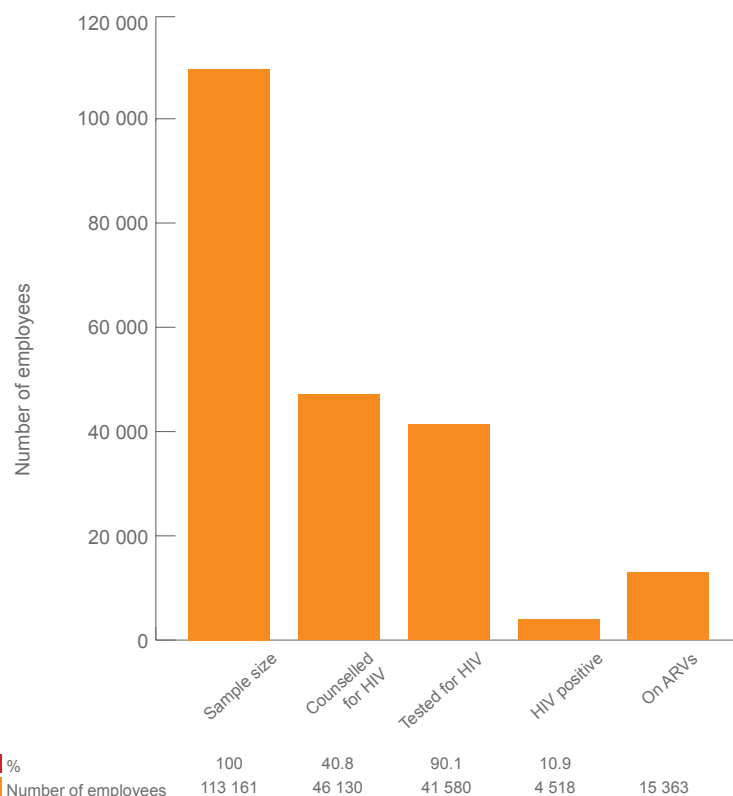


\* provisional



Only 20.6% of employees in the diamond sector were counselled for HIV, 36% of whom agreed to be tested, and of these, 6.6% tested positive. The HIV services are mainly outsourced. There is poor coordination of data with the health centres. The diamond sector has been requested to implement a robust advocacy, communication and social mobilisation strategy in some of its mines.

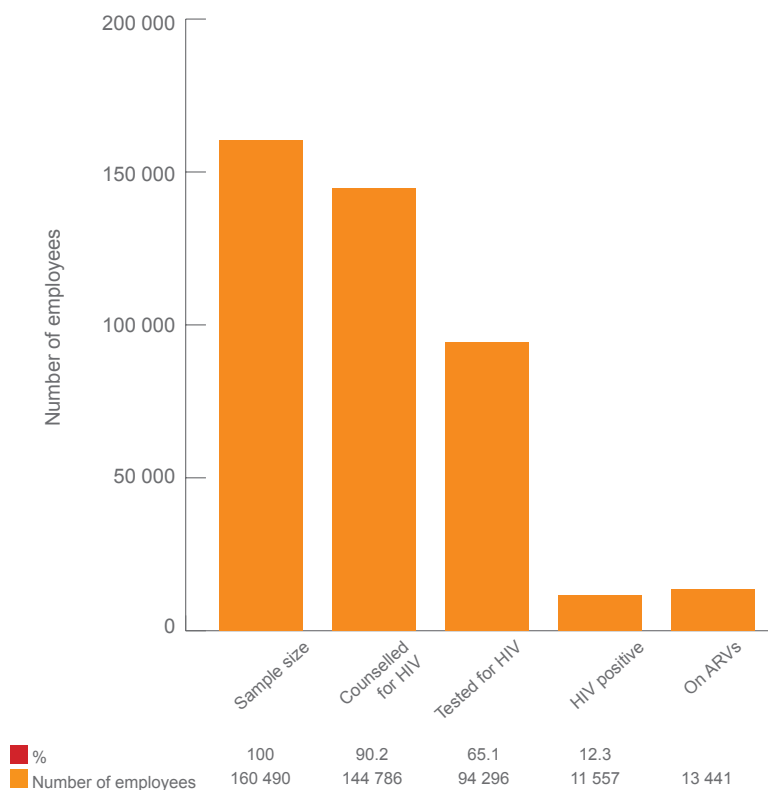
**FIGURE 3.2.2.4(c3): GOLD**



*\* provisional*

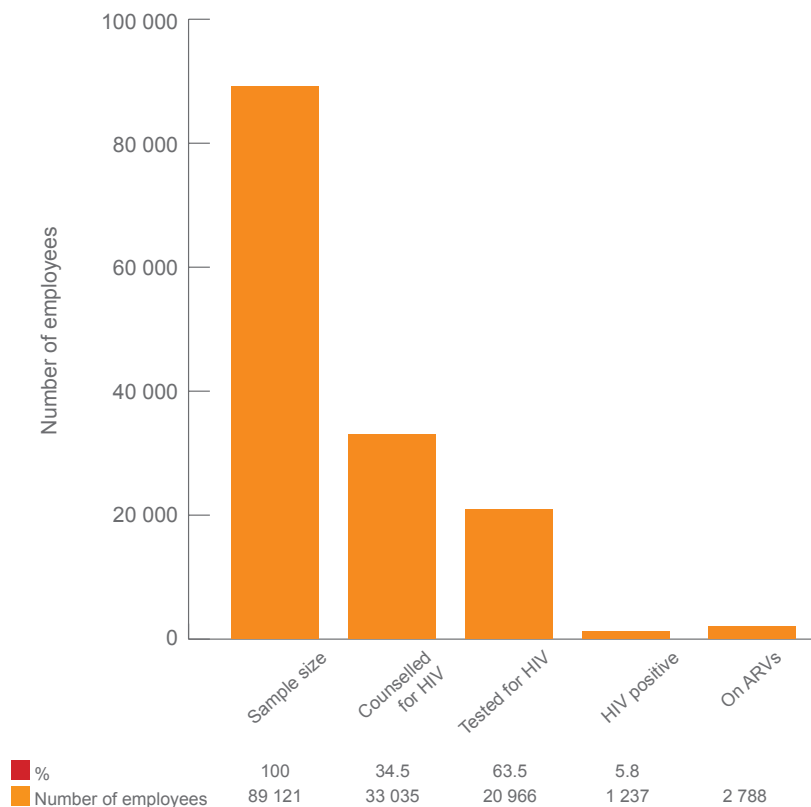
Of those counselled for HIV in the gold mines, 90.1% agreed to undergo HIV testing and 10.9% of those were found to be HIV positive. Despite the increased drive in HCT campaigns, some mines have indicated that the low rate of HIV counselling is as a result of employees not voluntarily seeking to be counselled, and even when they are counselled, they still have an option not to be tested. Others have indicated that some of their employees who know their status do not necessarily go for counselling again. Some mines have, however, done well in terms of counselling and testing their employees. Unlike TB screening, which can be implemented easily without consent, HIV testing cannot be implemented without consent.



**FIGURE 3.2.2.4(c4): PLATINUM**

\* *provisional*

HIV counselling in the platinum mines was found to be 90.2%. Of those who were counselled, 65.1% undertook the HIV test, and 12.3% were found to be HIV positive.

**FIGURE 3.2.2.4(c5): OTHER MINES**

\* *provisional*



Other mines counselled 34.5% of their employees and 63.5% were tested for HIV. Those who tested positive were 5.8%. Other mines mostly rely on mobile clinics for HCT campaigns, which are not always on site, hence the low figures in terms of employees being counselled and tested for HIV.

**TABLE 5: HCT SERVICES AND TB PROGRAMME DATA ELEMENTS PER COMMODITY: 2014**

<b>Data elements</b>	<b>Coal labour force 93 924 (78)</b>	<b>Diamond labour force 9 227 (50)</b>	<b>Gold labour force 113 161 (51)</b>	<b>Platinum labour force 160 490 (71)</b>	<b>Other mines labour force 89 121 (209)</b>	<b>Total labour force 2014 465 923</b>
Counselled for HIV	<b>33 448</b> (35.6%)	<b>1 898</b> (20.6%)	<b>46 130</b> (46.8%)	<b>144 786</b> (90.2%)	<b>33 035</b> (34.5%)	<b>259 297</b> (55.7%)
Tested for HIV	<b>25 676</b> (76.8%)	<b>684</b> (36%)	<b>41 580</b> (90.1%)	<b>94 296</b> (65.1%)	<b>20 966</b> (63.5%)	<b>183 202</b> (70.7%)
HIV positive	<b>1 727</b> (6.7%)	<b>45</b> (6.6%)	<b>4 518</b> (10.9%)	<b>11 557</b> (12.3%)	<b>1 237</b> (5.9%)	<b>19 084</b> (10.4%)
Co-infected with TB and HIV	<b>318</b> (83.9%)	<b>29</b> (70.7%)	<b>1 228</b> (67.2%)	<b>941</b> (63.2%)	<b>304</b> (45%)	<b>2 820</b> (63.2%)
Living with HIV and on ART in 2014	<b>5 402</b>	<b>108</b>	<b>15 363</b>	<b>13 441</b>	<b>2 788</b>	<b>24 740</b>
Screened for TB	<b>73 133</b> (77.9%)	<b>8 300</b> (90%)	<b>79 614</b> (70.4%)	<b>146 878</b> (80.3%)	<b>68 793</b> (77.2%)	<b>376 718</b> (80.8%)
Diagnosed with TB	<b>379</b> (0.4%)	<b>41</b> (0.5%)	<b>2 218</b> (2.8%)	<b>1 490</b> (1.0%)	<b>333</b> (0.5%)	<b>4 461</b> (1.2%)
On TB treatment	<b>362</b> (95.5%)	<b>23</b> (56.1%)	<b>2 088</b> (94.1%)	<b>1 264</b> (84.8%)	<b>262</b> (78.7%)	<b>3 999</b> (89.6%)
Diagnosed with MDR-TB	<b>20</b> (5.3%)	<b>0</b> (0.0%)	<b>87</b> (3.9%)	<b>53</b> (3.6%)	<b>28</b> (8.4%)	<b>190</b> (4.3%)
On MDR-TB treatment	<b>14</b> (3.8%)	<b>0</b> (0.0%)	<b>95</b> (4.2%)	<b>74</b> (4.9%)	<b>14</b> (0.5%)	<b>197</b> (2.03%)
Diagnosed with XDR-TB	<b>3</b> (0.79%)	<b>0</b> (0.0%)	<b>5</b> (0.2%)	<b>8</b> (0.54%)	<b>2</b> (0.6%)	<b>18</b> (0.4%)

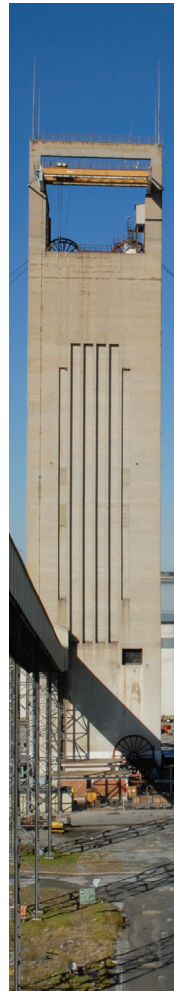
\* *provisional*

In 2014, there was an increase in the number of employees who were counselled for HIV and screened for TB, compared to 2013 as indicated in the table above. The number of employees diagnosed with TB and those found to be HIV positive has also increased. The total co-infection rate has, however, declined. The decline might be due to mines that do not have data, as their employees are treated either in the private sector or in the public sector. The increase in TB cases might stem from improved tools used in diagnosing TB, like GeneXpert, and increased opportunities available for TB screening. The increased HCT campaigns in the mining sector have contributed to an increase in the number of employees who were tested and found to be HIV positive.

Mines that did not do well have been identified, and will be followed up, especially in the gold and diamond sectors. The small mines, which mostly fall under other mines, will also be followed up. In terms of compliance, most mines have separate policies on HIV and TB, but the data received gives the impression that they do not have policies at all.







All images are courtesy of the Chamber of Mines of South Africa (<http://www.chamberofmines.org.za>) and Media Club South Africa (<http://www.medioclubsouthafrica.com>).

# ACTIVITIES OF THE INSPECTORATE



## 4. ACTIVITIES OF THE INSPECTORATE

### 4.1 CENTRAL AND COASTAL REGIONS

#### General

The Chief Directorate consists of the Eastern Cape, Northern Cape, KwaZulu-Natal and Gauteng regions. A wide variety of minerals is mined in these regions, the main commodities being diamonds, gold, coal, manganese and iron ore. There are also many quarry and sand-mining operations, particularly in the coastal regions. Mining operations occur on the surface, underground and offshore, as well as mining from borrow pits for the upgrading of roads by the Department of Public Works and the South African National Roads Agency Ltd (SANRAL).

#### Occupational health performance

In 2014, Eastern Cape, Gauteng, Northern Cape and KwaZulu-Natal had an average exposure to airborne pollutants of 13%, 32% and 55% for HEG A, B and C respectively. The exposure levels in 2013 were 12%, 29% and 59% respectively. The reductions in HEG A and B are encouraging. However, more stringent enforcement has been ordered to ensure that these figures are improved next year.

The average exposure to noise levels in Eastern Cape, Gauteng, Northern Cape and KwaZulu-Natal in 2014 were 0.24%, 70.18% and 29.57% for HEG A, B and C respectively. In 2013, the exposure levels were 1.6%, 56.4% and 42% respectively. Mining companies with employees in HEG A and B will have to do more in the line of engineering controls to reduce the exposure of their employees to high levels of noise.

The regions in question recorded 273 AMRs submitted for 2014, compared to 225 for 2013. The number of reported diseased for 2014 was 1 790 compared to 1 493 for 2013. The main occupational diseases in 2014 were due to silicosis, PTB and NIHL.

#### Occupational safety performance

For the regions in question, the number of fatalities remained the same as the previous year (33 fatalities). A total of 839 persons were injured in 2014, as opposed to 742 in 2013. This corresponded to an increase of 13%. The major contributors of fatalities were general accidents, transportation- and mining-related accidents, and FOG. General accidents include accidents due to manual handling of material, drowning, inundation by falling ore, and slipping and falling.

Through the successful implementation of the Occupational Health and Safety (OHS) Improvement Strategy Action Plan, the MHSI embarked on a strategy to implement a change in health and safety attitudes and mindsets to enforce compliance with health and safety measures in the three regions. The strategy addresses the issue of unacceptable loss of life and injuries at mines by placing greater emphasis on roof-fall accidents, transportation- and mining-related accidents, investigations and inquiries.

#### Illegal mining

Illegal mining activities experienced in the closed, defunct and liquidated gold mines around Gauteng continue to be a major challenge for the Department, mining companies and local authorities. The other regions are also reporting a growth in the "illegal mining sector", and rival gangs at both surface and underground operations are a source of major concern. Illegal mining forums have been established in Gauteng and Eastern Cape, and continue to meet on a regular basis to implement strategies to combat illegal mining operations. Northern Cape and KwaZulu-Natal have established ad hoc committees to address the same concerns. The Portfolio Committee on Mineral Resources inspected illegal mining sites in Gauteng during the period under review.

#### Rising water in the Witwatersrand compartments

As reported in previous years, the pumping of water from the mine voids in the Central Basin, which extends from Roodepoort to Boksburg, ceased in October 2008. The water level rose steadily until pumping recommenced in mid-year. Some problems were experienced with both the operation of the water treatment plant and the submersible pumps in the initial phase, resulting in a fall in the water level at a rate of some 10 cm per day.

The pumping of an increased volume to the treatment plant in the Western Basin had the desired effect of lowering the water table in the mine void. However, substantial rains during the year have resulted in the water level remaining relatively static.

The water level in the Eastern Basin continues to rise by approximately 0.33 m per day. However, a new pumping facility and water treatment plant currently under construction at Grootvlei No 3 Shaft will assist with the drainage of water from the Eastern Basin.

#### Strategy to improve health and safety

Some 470 Section 54 and 1 865 Section 55 notices were issued during the period under review. Fifteen administrative fines were recommended. The value of fines imposed totalled R680 000.



Regional staff continues with the following:

- Conduct and participate in tripartite structures established to deal with challenges relating to occupational health and safety, as well as those related to training and capacity-building in the mining industry.
- Conduct and participate in occupational health and safety meetings with chief executive officers (CEOs) of mining companies to highlight occupational health and safety challenges regarding the mining operations for which they are responsible.
- Employ OHS strategies to combat health and safety incidents, including HIV and TB prevention in the mining industry.
- Participate in OHS summits, seminars and conferences of the mining industry
- Monitor mining companies' strategies to reduce occupational exposure level, special noise and environmental pollutants.
- Withdraw employees who are overexposed to noise and dust in HEG A and B.

#### 4.1.1 Eastern Cape

The Eastern Cape region is situated in the southeastern part of South Africa. It is surrounded by the Western Cape, Northern Cape, Free State and KwaZulu-Natal. The region is the second largest of South Africa's nine provinces in terms of surface area (approximately 169 580 km<sup>2</sup>) and the third largest in terms of population.

According to the Mineral Regulations branch, there are approximately 422 registered mining operations, of which 230 are not operational in the Eastern Cape. There are approximately 2 500 people in medium- and high-risk operations. Operational mining takes place in some 50 hard rock quarries and many gravel and clay quarries to provide the necessary materials for the construction industry. There continues to be much activity throughout the region related to the repair and upgrading of roads from materials mined from many borrow pits. The underground coal-mining operation near Indwe remained unproductive during the period under review due to matters related to change of ownership.

On the occupational health side, there has been a progressive steady increase in the submission of AMRs, with 51 recorded in 2012, 59 in 2013 and 68 in 2014. There has also been a decrease in diseases reported. Four cases of PTB and one case of NIHL was reported for the period under review, with no thermal-related illnesses reported. All employees at mines are given awareness programmes from the Department of Health with regard to HIV and TB, as well as the promotion of health issues from the OMP and occupational health practitioner (OHP). In three mining houses, voluntary testing and counselling is given in this regard. The average exposure to airborne pollutants for the period under review was 17%, 34% and 49% for HEG A, B and C respectively.

There was no exposure to noise levels from machinery in HEG A, nor was there any exposure to heat in HEG A during 2014.

On the occupational safety side, no fatal accidents were recorded in 2014 (as opposed to one in 2013). Five reportable injuries were recorded in 2014 (as opposed to none in 2013). This is commendable and all mining companies must strive for zero fatalities.

##### 4.1.1.1 Topical issues and matters of interest

###### *Illegal mining operations*

The incidence of illegal mining continues to spread within the region, particularly in the former Transkei. Inspectors continue to face a threat of violence from perpetrators. Licensed operators have been requested to report illegal operations to their nearest police station for further attention.

##### 4.1.1.2 Inspections and audits

Inspections were performed in accordance with the annual planning.

Category	Inspections	Audits
Planned	372	44
Actual	423	50
Percentage compliance	114	114

##### 4.1.1.3 Total accidents reported

No fatal accidents occurred in the Eastern Cape in between 1 January and 31 December 2014.

Fatalities	0
> 14-day injuries	5
1- to 13-day injuries	16

##### 4.1.1.4 Investigations and inquiries

	Investigations	Inquiries (including investigations)	Total
Initiated	5	0	5
Completed	5	0	5
Percentage compliance	100	100	100

##### 4.1.1.5 Disaster-type accidents and outcomes of inquiries and investigations

No disaster-type accidents were reported for the period under review.





#### 4.1.1.6 Statutory notices

Inspectors issued 14 Section 54 instructions to stop dangerous conditions, occurrences or practices, and 136 instructions for non-compliance with the provisions of the MHSA during the period under review.

Section 54 notices	Section 55 notices
14	136

#### 4.1.1.7 Administrative fines

Number of fines recommended by the inspector	8
Value recommended	R10 000 each
Number set aside by the principal inspector	6
Value set aside	R60 000
Number imposed by the principal inspector	2
Value of fines imposed	R20 000
Appeals	0
Value of fines paid	R20 000

#### 4.1.1.8 Examinations

Certificates	Examination boards	Number of candidates	Certificates issued
Mine Overseers	0	0	0
Blasting	0	0	0
Onsetter	0	0	0
Lampsman	0	0	0

#### 4.1.1.9 Land-use applications and complaints

	Received	Completed	Percentage
Township developments	9	9	100
Mining and prospecting rights	23	23	100
Mining permits	167	167	100
Closure certificates	20	20	100
Environmental management	111	111	100
Complaints	9	9	100

#### 4.1.1.10 Strategies adopted to improve the status quo

November 2014 saw the hosting of a well-attended and successful Mine Health and Safety Summit, where revised mine health and safety milestones were agreed upon and adopted by organised labour, employers, the state and

other interested and affected parties. These milestones have been communicated to all mining operations in the Eastern Cape via newsletters and regional tripartite meetings.

Audits conducted through the year continue to identify where employers need to focus attention, and inspections are geared to follow up on problems identified during group audits. In order to improve the health and safety performance at mines, the following aspects will receive more focused attention:

- New legislation and codes of practice
- Statutory appointments
- Safety berms at quarry crests
- Medical surveillance and AMRs
- Updating of mine plans
- Holding of tripartite stakeholder meetings
- Investigation of occupational diseases
- Compliance with quarterly reporting on hygiene measurements
- Implementation of integrated HIV and TB programmes
- Implementation of strategies to reduce the occupational exposure levels of employees

### 4.1.2 Gauteng

The major commodity mined in Gauteng is gold, which is mined in the large, deep mines of the West and Far West Rand. Apart from the Modder East operation of Gold One, gold mining in the East Rand has virtually come to an end.

Central Rand Gold, to the west of Johannesburg, is conducting open-cast mining operations. The underground operations have had to be suspended because the water level has risen in the Central Rand Compartment since the curtailment of pumping at East Rand Proprietary Mines (ERPM).

Open-cast gold-mining operations are also being carried out in the Mogale (Krugersdorp) area. Investigations by Gold One are in progress to evaluate the old mining areas of the Far East Rand with the intention of the recommencement of mining in selected areas by the newly established Goliath Gold Mining Company.

Diamond mining is carried out at the underground Petra Mine in Cullinan, as well as at numerous small surface operations. Open-cast coal mining is carried out in the Nigel district, and there is extensive interest in prospecting for coal in the Bronkhorstspuit district.

In addition to the operations detailed above, there are a large number of hard rock quarries, clay quarries and sand mines in the region. The labour force is approximately 75 094 persons.

During 2014, 1 367 cases of occupational diseases were reported, compared to 1 205 in 2013. This translates to a



13% regression. PTB remains a challenge, and contributed 60% to the occupational diseases reported in 2014.

Thirty persons were fatally injured in the mines in the region during the period under review, compared to 21 in 2013. This translates to a 43% regression. Some 696 persons were injured in accidents in the region in 2014, compared to 631 during 2013. This translates to a 10% regression.

#### 4.1.2.1 Topical issues and matters of interest

##### *Rising water in the Witwatersrand compartments*

As reported in previous years, the pumping of water from the mine voids in the Central Basin, which extends from Roodepoort to Boksburg, ceased in October 2008. The water rose steadily until pumping recommenced in mid-year. Some problems were experienced with both the operation of the water treatment plant and the submersible pumps in the initial phase, resulting in a continued rise in the water level, albeit at a slower rate.

The water level at South West Vertical (SWV) Shaft, where pumping is being carried out, is now some 102 m below surface. The current water level is now above the long-term environmental critical level (ECL) at SWV Shaft. Two submersible pumps are operating at the shaft, and are pumping at a rate of 72 MI a day.

The water level has started to drop at a rate of 10 cm per day. Central Rand Gold has a mining right over much of the Central Rand, and is planning to mine to a depth of 300 m below the surface. Should it wish to extend its mining to that depth, the company will have to bear the incremental cost of pumping to a greater depth, but it is likely to be a lengthy period before any substantial gain in the water level is achieved.

The water treatment plant on the old Randfontein Estates gold mine is currently treating approximately 30 MI of mine water a day from the Western Basin, which is an increase on previous years. The pumping of the increased volume to the treatment plant had the desired effect of lowering the water table in the mine void, but the substantial rains during the year resulted in the water starting to decant on surface again. This has been halted, but no substantial drop in the water level has been achieved.

The water level in the Eastern Basin continues to rise at approximately 0.33 m a day. A pumping facility and water treatment plant, similar to the plant at SWV Shaft, is currently under construction for the Eastern Basin at Grootvlei No 3 Shaft, where pumping was last carried out. It is imperative that the time table for the completion of the treatment plant and the commencement of pumping is achieved. At the current rate of increase in the water level, it is estimated that the water will be within 40 m of

the surface at the low point in Nigel when the pumping is scheduled to commence.

##### *Illegal mining issues*

Illegal mining activities continue to be a major problem for the region, particularly in the East Rand and West Rand, where the reefs outcrop or where the sub-outcrop is close to the surface. The records available to this office show that 61 illegal miners were fatally injured during 2014. Fourteen were killed in the first two months of 2015.

Rival gangs armed with firearms fight for territory in the defunct mines. Many have been killed in such circumstances. The South African Police Service (SAPS) ascribes a large number of murders in the mining areas to rivalry between illegal mining gangs. The SAPS has reported that much of the violence has shifted from the mining areas to the informal settlements adjacent to the old mining areas.

Most of the illegal miners are also illegal immigrants. A number of incidents involving illegal miners made media headlines during the year. The mine rescue services and local emergency services assisted in mine rescue and body recovery operations during the year. These operations come at a high cost, both to the Department and the mining companies involved.

The Portfolio Committee on Mineral Resources inspected the affected areas during the year to apprise itself of the illegal mining situation in Gauteng. The Gauteng Illegal Mining Stakeholder Forum continues to meet on a regular basis to implement strategies to combat illegal mining activities. The Department will continue to collaborate with law enforcement agencies and other stakeholders to ensure improvement.

#### 4.1.2.2 Inspections and audits

During the year under review, officers conducted 1 698 inspections and 45 group audits.

The audits revealed shortcomings at some mines.

Category	Inspections	Audits
Planned	1 588	44
Actual	1 698	45
Percentage compliance	107	102

#### 4.1.2.3 Total accidents reported

During 2014, 30 persons were fatally injured in the mines in the region, compared to 21 in 2013. This translates to a 43% regression. Some 696 persons were injured in accidents in the region in 2014, compared to 631 in 2013. This translates to a 10% regression.



Fatalities	30
> 14-day accidents	696
1- to 13-day accidents	400

#### 4.1.2.4 Investigations and inquiries

When accidents occur, mines report the accidents and incidents to the responsible inspectors on a daily basis. This allows for such occurrences to be investigated very soon after the event. Risk profiles of working areas have been carried out so that “hot spot” areas can be identified and targeted. Specific types of accidents are being targeted in an attempt to improve health and safety.

	Investigations	Inquiries	Total
Initiated	321	18	339
Completed	294	18	312
Percentage completed	92	100	96

#### 4.1.2.5 Disaster-type accidents and outcomes of inquiries and investigations

At Doornkop Mine, which is owned by Harmony Gold, nine employees died after being exposed to noxious gases after an underground fire.

#### 4.1.2.6 Statutory notices

During the year, inspectors issued 388 Section 54 instructions to stop dangerous conditions, occurrences or practices, and 1 668 instructions for non-compliance with the provisions of the MHSA.

Section 54 notices	Section 55 notices
388	1 668

#### 4.1.2.7 Administrative fines

Four administrative fines were recommended by inspectors of the region. No fines have been imposed as yet.

Number of fines recommended by inspector	4
Number set aside by principal inspector	0
Number imposed by principal inspector	0
Value of fines imposed	0
Appeals	0
Value of fines paid	0

#### 4.1.2.8 Examinations

The fire incident that occurred in the offices of the Department of Mineral Resources in Braamfontein in June 2014 had a major disruptive effect on the examinations carried out by the Department, as records could not be accessed.

There has been a marked reduction in the number of applications for the Mine Overseers examinations in the past year. The training providers confirm that fewer candidates are applying for training. As can be seen in the table below, the pass rate for Mine Overseers Certificate remains very low.

Blasting Certificate examinations were suspended on 30 June 2009 in accordance with an instruction of the CIOM, but will be reverting back to the Department later in 2015.

Onsetter Certificate examinations are being conducted by the Department again after having been the responsibility of the MQA.

Certificate	Examination boards	Number of candidates	Certificates issued
Mine Overseers	18	105	5
Blasting	0	0	0
Onsetter	1	4	4
Lampsman	5	6	4

#### 4.1.2.9 Land-use applications and complaints

Inspectors spend much time processing applications for townships and new mining activities. As mentioned above, there has been a marked increase in applications for mining rights and permits, especially prospecting rights, particularly in the Bronkhorstspuit district. An increasing number of complaints have emanated from townships that are encroaching on established mining activities.

	Received	Completed	Percentage
Township developments	34	50	147
Mining rights	45	57	127
Prospecting rights	33	40	121
Closure certificates	20	20	100
Environmental management	51	50	98
Complaints	33	23	70



#### 4.1.2.10 Strategies adopted for improving the status quo

The following are some of the strategies that have been adopted to improve health and safety in the region:

- Focusing on certain areas or disciplines that have been identified as high risk:
  - Fire prevention at mines
  - Seismically active areas
    - Enforcing preconditioning
    - No persons permitted in the “no go” areas
    - No mining of pillars or remnants
    - Second outlets
  - FOG-active areas
    - Implementation of hanging-wall nets
  - Ore passes and mudrush accidents
  - Occupational hygiene/medicine-related issues, including HIV and TB issues
  - Engineering and shaft-related issues
    - Hauling-related issues
    - Conveyors
- Ensuring that mines plan safely and maintain daily planning
- Encouraging mine management to be more proactive in the prevention of dangerous situations and to initiate their own corrective measures following an accident or incident
- An increase in systems and practical audits by inspectors with follow-up underground inspections
- Increased interaction between inspectors, mine management and unions
- Monitoring emergency preparedness and response at the mines
- Withdrawing employees who are exposed to high levels of noise and airborne pollutants at a particular working place from such working place

#### 4.1.3 KwaZulu-Natal

The KwaZulu-Natal region is situated on the east coast and is surrounded by the Eastern Cape, Free State and Mpumalanga, bordering Lesotho, Swaziland and Mozambique.

A wide range of mines, including those mining heavy minerals from dunes, underground and open-cast coal mines, quarries and sand mines, as well as an Eskom pumped storage scheme, makes the region diverse in terms of skills and the requirements of the Act. According to the Mineral Regulations branch, there are approximately 407 operating registered mining operations, of which 67 are medium- to high-risk operations, with approximately 15 000 employees.

The coal mines in KwaZulu-Natal deliver a product of a high quality, but which is generally low in seam height

with numerous geological intrusions. The mines are also labour-intensive, and the machinery used is outdated when compared to the modern equipment used in the coal-mining sector. The continued low price of coal has slowed capital investment in new mines and has reduced the number of people being employed.

Inspection of sand mining remains limited due to staffing of the Department. This is being addressed by championing inspectors to visit areas periodically.

The remaining gold mine has stopped both the washing of tailing dams and underground mining, and attention has been placed on care and maintenance.

The health and safety performance of the region improved with only three fatal accidents in 2014, compared to nine during 2013. Reportable accidents of 14 days or more also showed an improvement, dropping from 44 in 2013 to 25 in 2014. One- to 13-day accidents dropped from 46 accidents in 2013 to 29 accidents for 2014.

The number of medical cases in the region regressed from 75 cases of PTB in 2013 to 82 cases in 2014. NIHL regressed from 11 cases in 2013 to 23 cases in 2014. The number of silicosis cases reported decreased from six cases in 2013 to three cases in 2014.

#### 4.1.3.1 Topical issues and matters of interest

##### *Illegal mining operations*

Illegal mining continues to increase, especially in the sand-mining sector. These range from small single-manned operations that sell their mined sand to building contractors, to large, well-organised operations that mine sensitive areas along the rivers in the region. Illegal gold-mining activities appear to have ceased, with no new reports from the mines. Other illegal mining activities range from theft on discarded dumps, the sale of stockpiled minerals from road projects, small foxhole mining for calcium, and illegal mining in the borrow pits of the Roads Department. Forty borrow pits have applied for mining authorisation over the past year by means of a joint effort between the Roads Department and the Department of Mineral Resources.

##### *Ingula Pumped Storage Scheme*

Construction work continues at the Ingula Pumped Storage Scheme. The 3 500 workers reported a fatality-free year and an overall reduction in accidents. The delay in this project has increased the work requirements and the risks associated with completion of the works. This is offset with more frequent visits and inspectors from Mpumalanga assisting with statutory requirements and authorisations. Risks to the region were further increased with the construction at a new site of a heavy mineral sand





deposit that is underway in Northern KwaZulu-Natal, with around 1 200 temporary workers being employed on the mine. This will continue into the latter half of 2016.

#### Quarry industry concerns

The quarry industry's belief that the Act governing the mines is onerous and should only be applicable to large operations is still posing risks to employees in these operations. A low level of operational skills of mining-related issues and a limited understanding of the application of the Act further increases risks in the sector. A programme of increasing safety and health awareness with mines' visits, tripartite meetings and best practice is increasing the standards on these operations.

#### Proximity detection systems

The two biggest employers of mine workers, totalling some 10 000 people, have fitted proximity detection systems to reduce and possibly eliminate the risk of injury caused by mobile machinery.

#### 4.1.3.2 Inspections and audits

Inspections were performed in accordance with the annual planning.

Category	Inspections	Audits
Planned	354	44
Actual	353	43
Percentage compliance	99	98

#### 4.1.3.3 Total accidents reported

Three fatal accidents occurred in KwaZulu-Natal between 1 January and 31 December 2014.

Fatalities	3
> 14-day accidents	25
1- to 13-day accidents	29

#### 4.1.3.4 Investigations and inquiries

	Investigations	Inquiries (including investigations)	Total
Initiated	29	3	32
Completed	11	2	11
Percentage compliance	38	67	34

#### 4.1.3.5 Disaster-type accidents and outcomes of inquiries and investigations

No disaster-type accidents were reported during the period under review.

#### 4.1.3.6 Statutory notices

During 2014, inspectors of the region issued 22 Section 54 instructions to stop dangerous conditions, occurrences or practices, and 39 instructions for non-compliance with the provisions of the MHSA.

Section 54 notices	Section 55 notices
39	22

#### 4.1.3.7 Administrative fines

Number of fines recommended by the inspector	0
Value recommended	0
Number set aside by the principal inspector	0
Value set aside	0
Number imposed by the principal inspector	0
Value of fines imposed	0
Appeals	0
Value of fines paid	0

#### 4.1.3.8 Examinations

Certificates	Examination boards	Number of candidates	Certificates issued
Mine Overseers	0	0	0
Blasting	0	0	0
Onsetter	0	0	0
Lampsman	0	0	0

#### 4.1.3.9 Land-use applications and complaints

	Received	Completed	Percentage
Township developments	35	35	100
Mining and prospecting rights	50	121	242
Mining permits	120	195	160
Closure certificates	12	4	33
Environmental management	58	57	98
Complaints	6	10	167



#### 4.1.3.10 Strategies adopted to improve status quo

The region will continue with the strategy of zero tolerance to non-compliance with action plans and the enforcement of both the Act and milestones as set at the Mining Summit in November 2014. More effective use of the administrative fines process will be applied to ensure compliance.

Staffing has improved with all disciplines covered for the first time in several years.

Construction projects, underground mines and large heavy mineral sand mining shall remain the focus of the region, as well as high-priority mines for audit and inspection purposes.

The region's focus areas will be set on the issues that continue to affect the health and safety of employees in the mining sector. These areas are as follows:

- The Code of Practice (COP) will focus on roof and rock fall accidents with a view to preventing rock fall accidents and slope instability. Focus areas that will remain include the completion and quality of the early examination, completion and appropriateness of the Shift Boss's logbooks, checking and compliance of the size of the intersections, checking the roof bolt density, offline mining and roadway width compliance, and time left unsupported. Rock Engineer reports and adherence to these reports will also be audited.
- TMM accidents remain high in the region. The application of the newly gazetted laws concerning TMMs and the COP for Fatigue Management will assist in reducing and eliminating accidents with regard to machinery. Focus areas will include checking the correctness and completeness of pre-use checklists, correct licence issuing and authorisation for the use of machines, ensuring that risks are identified for run-over and hit-by hazards. Testing of traffic management systems and COPs that are both practical and used in practice will continue to be focus areas. The appointment of competent engineers will be enforced during 2015 and 2016.
- Hygiene and health issues remain of the utmost importance, with overexposure to noise, dust and heat not being tolerated in KwaZulu-Natal. To ensure this, all machinery will be required to be marked with actual noise levels indicated on the machine for both inside and outside of the driver's cab. There will be a focus on correct measuring procedures, together with the calibration of testing equipment. Emergency preparedness will continue to be tested, with all underground mines being audited every year on the effectiveness of the evacuation process. The medical surveillance of all employees remains a key point for the office, with a focus on certificate of fitness and exit medicals compliance. Two other focus points will be the sealing off of old worked-out panels and education on the influences of diesel particle matter.

#### 4.1.4 Northern Cape

The Northern Cape region is situated in the central part of the country, with its boundaries formed by Namibia in the northwest, Botswana and North West in the northeast, Free State in the east, the Eastern Cape in the southeast and the Western Cape in the south.

The Northern Cape is a very large region with very vast distances between the mines. Mining operations are diversified, and range from small-scale diggings to very large open-cast mines, including underground operations. Mining methods used range from simple to complex mining. The majority of the diggers are ignorant of the correct mining methods, as they come from farming backgrounds. Most of the accidents in the region are commonly machinery-related.

Wide varieties of minerals are mined in this region, with manganese, iron ore and diamonds being the main commodities. Base metals, kieselghur, rose quartz, limestone gypsum, tiger's eye, granite, feldspar and salt minerals are also included. There are also a number of brickworks, quarries and sea operations, for example diving and offshore. There continues to be much activity through the region in the repair and upgrading of roads from materials mined from many borrow pits. Production levels at many operations have remained below expectations as a consequence of the depressed global economy affecting their operations. Some mines are still on the downward trend due to a drop in iron ore and manganese, with threatening retrenchments.

A remarkable regression of accidents was observed during 2014 with an increase of 57% in injuries, compared to 2013. A similar trend was observed with the dangerous occurrences, which increased by 68% during the same period. The region suffered two fatalities in 2013, and only one in 2014. Most of these incidents were related to TMM, for example runaways, collisions with objects, a few overturned slips and falls, and fires/ashes. The reporting of occupational diseases improved tremendously in 2014 after the appointment of the medical inspector. The highest occupational disease-related cases reported in the region were for NIHL, followed by PTB. Most of the mines, especially the large operations, have implemented TB, and HIV and AIDS policies.

##### 4.1.4.1 Topical issues and matters of interest

###### *Illegal mining operations*

It is noted with concern that the incidence of illegal mining continues to spread in the region, especially with diamonds and wesselite (a secondary gem to manganese). Inspectors sometimes have to face the threat of violence from perpetrators.



Appropriate licenced operators have requested the Department for assistance in this regard. At this time the Department does not have the capacity to police these activities, and has requested licenced operators to report illegal operations to their nearest police station for further attention. Monthly meetings are held with different stakeholders to discuss these issues at the Mines Crime Combating Forum.

#### 4.1.4.2 Inspections and audits

Inspections and audits were performed in accordance with annual planning.

Category	Inspections	Audits
Planned	504	48
Actual	540	51
Percentage compliance	107	106

#### 4.1.4.3 Total accidents reported

Three fatal accidents occurred in the Northern Cape between 1 January and 31 December 2014.

Fatalities	1
> 14-day accidents	113
1- to 13-day accidents	171

#### 4.1.4.4 Investigations and inquiries

The necessary investigations and inquiries are as follows:

	Investigations	Inquiries (including investigations)	Total
Initiated	133	2	135
Completed	133	2	135
Percentage compliance	100	100	100

#### 4.1.4.5 Disaster-type accidents and outcomes of inquiries and investigations

No disaster-type accidents were reported for the year under review.

#### 4.1.4.6 Statutory notices

During the year, inspectors issued 29 Section 54 instructions to stop dangerous conditions, occurrences or practices, and 55 instructions for non-compliance with the provisions of the MHSA.

Section 54 notices	Section 55 notices
29	39

#### 4.1.4.7 Administrative fines

Number of fines recommended by the inspector	3
Number set aside by the principal inspector	3
Number imposed by the principal inspector	3
Value of fines imposed	R600 000
Appeals	0
Value of fines paid	0

#### 4.1.4.8 Examinations

Certificates	Examination boards	Number of candidates	Certificates issued
Mine Overseers	4	4	0
Blasting	0	0	0
Onsetter	0	0	0
Lampsman	0	0	0

#### 4.1.4.9 Land-use applications and complaints

	Received	Completed	Percentage
Township developments	0	0	0
Mining and prospecting rights and mining permits	266	266	100
Mine closures	52	44	80
Environmental management	200	200	100
Complaints	14	19	74

#### 4.1.4.10 Strategies adopted for improving the status quo

Audits and inspections conducted throughout the year continue to identify areas on which employers need to focus, give attention to and follow up on problems identified during group audits and inspections.

To improve the health and safety performance at mines, more focused attention is needed for FOG, slope instability, blasting operations, fires related to TMM and plants, thermal stress, general hygiene matters, statutory returns and ergonomics, and risk assessment issues related to general engineering.



## 4.2 REGIONAL OPERATIONS: CENTRAL AND NORTH EASTERN REGIONS

The Chief Directorate comprises Free State, Limpopo and Mpumalanga. The major commodities mined are coal, platinum, gold, copper and industrial minerals. Numerous base minerals are also mined and there are a large number of crushers, quarries and borrow pits.

### *Occupational health performance*

In 2014, Free State, Limpopo and Mpumalanga had an average exposure to airborne pollutants of 7%, 24% and 69% for HEG A, B and C respectively. In 2013, exposure levels were 8%, 27% and 65% respectively. There was a 1% and 2% decrease in HEG A and B respectively. The reduction was minimal and more engineering controls must be implemented to ensure a significant improvement from one year to the next.

The average exposure to noise for Free State, Limpopo and Mpumalanga in 2014 was 1%, 64% and 35% for HEG A, B and C respectively, as opposed to 3%, 60% and 37% respectively in 2013. There was a minimal reduction in exposure of 2% in HEG A, an increase of 4% in HEG B and a regression of 2% in HEG C. This is of great concern, especially as employees were exposed to noise levels greater than 105 dB.

The mining industry has reached the end of the milestone period of 2013, and there are still employees in HEG A. Similarly, mining companies with employees in HEG A and HEG B will have to put more effective engineering controls in place to reduce the exposure of employees to high levels of noise.

The total number of cases of occupational diseases reported in Free State, Limpopo and Mpumalanga was 2 490 in 2014, compared to 2 654 in 2013. There was a decrease in the number of cases of occupational diseases to 164 or 6%. The main cases of occupational diseases were due to silicosis (501 in 2014, as compared to 530 in 2013), PTB (1 155 in 2014, as compared to 1 082 in 2013) and NIDH (562 in 2014, as compared to 610 in 2013). Free State had the second highest number of cases of occupational diseases in the country, with 1 436 cases, which represents 22% of the total number of cases of occupational diseases in the national mining sector.

In the coal sector, cases of occupational diseases decreased by 17% from 671 in 2013 to 556 in 2014. The main occupational diseases were PTB (279 cases), NIHL (131 cases) and CWP (94 cases). The number of cases of PTB increased by 4%, while the number of cases of NIHL and CWP decreased by 43% and 19% respectively. Mining companies must ensure that they improve their case

findings and that employees diagnosed with TB complete their medication courses. Mining companies must procure mine equipment that generates noise and dust levels that comply with the requirements of the Act.

### *Occupational safety performance*

There were 26 fatalities in 2014, as opposed to 25 in 2013. This corresponds to a 4% increase year-on-year. The decrease in the number of fatalities in Mpumalanga was 18%. Limpopo remained constant and the number of fatalities in Free State increased by 38%. The accident analysis shows that FOG fatalities contributed 32%, transportation- and mining-related accidents also contributed 32%, and general accidents contributed 28%.

The number of person injured in 2014 was 825, as compared to 749 in 2013. This corresponds to an increase of 10%. The major accident contributors were general accidents, transportation- and mining-related accidents and FOG accidents, which contributed 48%, 25% and 15% respectively. General accidents include manual handling of material, drowning, inundation by flowing ore, and slipping and falling.

Through the successful implementation of the OHS Improvement Strategy Action Plan, the MHSI in the three regions embarked on a strategy to bring about a change in health and safety attitudes and mindsets to enforce compliance with health and safety measures. The strategy addresses the issue of unacceptable loss of life and injuries at mines by putting more emphasis on roof fall accidents, transportation- and mining-related accidents, investigations and inquiries.

### *Topical issues and matters of interest*

During the year under review, complaints relating to mines blasting close to communities were received in Free State and Mpumalanga. Some of these complaints received considerable media attention. The complaints normally include damage to property due to blasting and dust.

The regions continue to experience a shortage in the availability of qualified rock engineers and certificated engineers. The high number of accidents in transportation- and mining-related accidents, as well as roof fall-related accidents, can be attributed to this shortage.

Mines continue to report accidents late or do not report accidents at all. Another challenge is the repeat findings from inspections and audits.

### *Illegal mining*

The Chief Directorate also chairs the Barberton Stakeholder Forum on illegal mining. Although there has





been a significant reduction in illegal mining underground, a lot still needs to be done since these activities are now moving to other areas in the country.

The Mpumalanga Illicit Mining Stakeholder Forum consists of representatives of the Department of Mineral Resources, the Department of Home Affairs and Immigration, the Directorate: Priority Crime Investigation (Hawks), the SAPS Barberton, Crime Intelligence, the State Security Agency, the Department of Justice and Constitutional Development, the local municipality, the mining companies: Galaxy Gold Reefs Mining Gold, Barberton Mines, Evander Gold Mines, Transvaal Gold Mines Estates and Vantage Goldfields, the Community Policing Forum and organised labour.

The level of illegal mining has been significantly reduced in the Barberton area due to the great efforts and action taken by all the stakeholders at national and provincial level. The collective effort of all stakeholders is highly commendable. The latest development is that more and more employees are being enticed into illegal mining activities during shift hours. This is evidenced by the fact that employees are being apprehended for the possession of gold-bearing material compared to illegal miners. There is also clear evidence of the improvement in the security measures that are being implemented by mining companies.

#### *Strategies for improving status quo*

The Central and North Eastern Regions will continue to embark on a zero-tolerance policy to non-compliance through the implementation of the OHS Improvement Strategy Action Plan. This will be achieved through the following:

- Convene meetings with company CEOs and various stakeholder leadership to ensure that health and safety strategies are implemented.
- Continue to promote the use of proximity detection systems.
- Focus on strategies to reduce noise levels and exposure levels to respirable crystalline silica by implementing effective engineering controls.
- Focus on mines with employees in HEG A that will have to 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.
- Ensure that mines improve the process of declaring working places to be safe before work commences.
- Improve TB case findings, and encourage and monitor employees to complete their course of treatment.
- Promote HCT, as well as continuous support on efforts and initiatives to combat TB and HIV/AIDS.
- Implement a COP on emergency preparedness, the safe use of self-contained self-rescuers and the safety

of refuge bays, as well as the availability of mine rescue services.

## 4.2.1 Free State

The following commodities are mined in Free State: gold, coal, diamonds, aggregates and sand, with the major commodity being gold. Two major gold-mining companies operate in the region: Harmony Gold and Sibanye Gold (Beatrix mines).

Harmony Gold accounts for 21 450 employees, and Sibanye Gold accounts for 9 500, including contractors in the gold sector. The rest of the labour comes from the two coal mines near Sasolburg, four diamond mines, quarries, sandworks and open-cast mines, with an estimated 7 500 employees, giving a total of about 38 450 employees in the region.

There was an increase in accidents of 11 fatalities in 2014, compared to eight in 2013. There was a 3% increase in reportable accidents for the same period, most of these were due to FOGs and rolling rock. The submission of both occupational hygiene returns and AMRs improved in 2014. Out of 49 operations, 95% complied with this requirement. The challenge is usually from smaller operations, as larger ones submit their returns without fail.

High numbers of medical separations are still experienced in the region due to silicosis. Although there has been an overall improvement of 10.9% in occupational diseases reported, Sil+TB and NIHL indicates regression. The TB, and HIV and AIDS policies have been implemented by all the bigger mines. Only a few smaller mines have not implemented these policies.

A total of 1 429 occupational diseases were reported in 2014, compared to 1 585 in 2013, an improvement of 11% overall. There was a regression of 15% in NIHL cases (170 in 2013 to 195 in 2014); a 2% reduction of silicosis cases (483 in 2013 to 472 in 2014) and a 23% reduction in PTB cases (775 in 2013 to 2 597 in 2014). However, there has been regression in the areas of NIHL by 3% (175 cases reported in 2014 as opposed to 170 in 2013), and Sil+TB at 55.6% (115 cases reported in 2014 as opposed to 51 in 2013).

AMRs have been submitted as expected, with 48 of the expected 49 being received, compared to 49 submitted in 2013.

Four medical cases were reported for the year ("collapse and die" cases). The employers were tasked with instituting programmes that would address challenges of employees with a chronic disease history at the mine, namely to identify them, offer treatment, monitor them and keep records, including the proper placement of employees.



#### 4.2.1.1 Topical issues and matters of interest

##### *HIV and TB Day in Welkom*

The Deputy President, Mr Cyril Ramaphosa, visited the region on World AIDS Day. The theme was “Zero Stigma, Zero Discrimination”. The challenge of rising TB, HIV, silicosis and other health problems is indicative of a serious challenge in the region. The communities surround most of the mines. Programmes have been put in place by the mines, which run campaigns and TB treatment in newly built medical hubs.

##### *Illegal mining activities*

Illegal mining activities continue to plague this region, as more people become unemployed and more shafts close. The open-mine shafts and mine dumps are used by illegal miners for access and the transportation of food and water to the underground workings. The biggest challenge is that access for illegal miners and access for their material is often through the help of mine employees themselves.

The hotspots are mainly in the Odendaal, Virginia and Welkom area. On average, four illegal miners die and 80 are arrested monthly due to risks taken in accessing the underground workings. Disruptive operations by police and security personnel are conducted regularly, which result in these arrests. Stakeholder forums are also held, regionally and at national level, to combat these activities.

The rehabilitation and sealing of the shafts is in progress. However, the other shafts cannot be closed or sealed as they provide ventilation and water pumping for the existing production shafts.

##### *Methane explosion*

There was a methane explosion in one of the old shafts that is being rehabilitated in the Welkom area. This left many houses in the region damaged. The responsible company set up a disaster centre and many houses were repaired.

#### 4.2.1.2 Inspections and audits

Inspections and audits were performed in accordance with the annual planning.

Category	Inspections	Audits
Planned	1 116	48
Actual	1 218	63
Percentage compliance	109	131

In an analysis of inspections and audits, the biggest challenge in the region remains FOG or rolling rock. Non-adherence to mine support standards and COPs by employers results in these unwanted incidents.

Some of the working places also become very hot as miners need to work far from the shaft ventilation source as the mineral gets depleted.

Mining equipment non-conformances have also being noted.

#### 4.2.1.3 Total accidents reported

Fatalities	11
> 14-day accidents	313
1- to 13-day accidents	78
Non-casualties	37

The main cause of injuries and fatalities reported results from FOG and rolling rock, although there has been a decline in the overall accidents reported in the region. Heat-related medical cases have been reported, which is often aggravated by employees with a history of chronic disease.

#### 4.2.1.4 Investigations and inquiries

	Investigations	Inquiries	Total
Initiated	257	21	278
Completed	260	26	286
Percentage completed	101	124	112

The turnaround time on investigations and inquiries has improved, as reporting and the conducting of internal investigations by mines and reporting has improved.

#### 4.2.1.5 Disaster-type accidents and outcomes of enquiries and investigations

No disaster-type accidents were reported for the year under review.

#### 4.2.1.6 Statutory notices

Section 54(1) notices	Section 54(1) instructions	Section 55 notices	Section 55 instructions
121	245	373	539

Most enforcement instructions were issued for non-conformances to COPs and standards in the mining, mining machinery, occupational hygiene and occupational medicine spheres. Poor support in mines, poor safety declarations of workings, high temperatures, dusty working places, poor housekeeping, substandard rails, explosive boxes and medical hubs are some of the causes.



#### 4.2.1.7 Administrative fines

No administrative penalties were imposed during the year under review.

Number of fines recommended by the inspector	0
Value recommended	0
Number set aside by principal inspector	0
Value set aside	0
Number imposed by principal inspector	0
Values of fines imposed	0
Appeals	0
Value of fines paid	0

#### 4.2.1.8 Examinations

Due to poor failure rates, the number of examinations was reduced to two examinations per month to give candidates a better opportunity to prepare. Later in the year, there was a marked improvement in attendance as employers afforded candidates time to prepare and attend the courses.

Certificate	Examination boards	Number of candidates called	Number of candidates attended	Certificates issued
Mine Overseers	22	178	126	20
Blasting	0	0	0	0
Onsetter	8	10	10	7
Lampsman	7	7	7	5

#### 4.2.1.9 Land-use applications and complaints

Category	Received	Completed	Percentage
Township developments	38	38	100
Mining rights	18	18	100
Mining permits	54	54	100
Prospecting rights	64	64	100
Closure certificates	80	77	96
Environmental management	102	102	100
Complaints	54	54	100

The demand for land-use and township development is minimal, as determined by the applications received. There were 29 applications for Sunday labour, exemption and permissions that were processed and completed.

#### 4.1.1.10 Strategies adopted for improving the status quo

This region launched the following projects during the year in an effort to improve the status quo:

1. MOSH: continuation of in-stope roof bolting and netting
2. MOSH initiative: use of winch covers for dust
3. Tripartite meetings and subcommittee meetings
4. Participating in working groups to monitor and mitigate occupational diseases, including on HIV and TB
5. Close partnerships with other government departments, trade unions and other key stakeholders
6. Audits and inspections of safety management systems and their implementation
7. Quarterly workshops on health and safety with key stakeholders
8. Enforcement instructions (stoppages of unsafe practices and workplaces)

#### 4.2.2 Limpopo

There has been a significant increase in the number of major mining operations in the Limpopo region. Most of the underground mines are operated by medium- to large-sized companies with the life of a mine averaging 15 to 20 years. Small- to medium-sized companies remain a challenge in terms of the enforcement of compliance in comparison to larger operations that are generally well resourced.

Against a backdrop of the region's expansion and particularly serious capacity issues in the platinum and small-mining sector, there were only six fatalities for 2013 and 2014. There was a significant regression of 53% on reportable injuries from 156 in 2013 to 239 in 2014.

A lot still needs to be done in the area of occupational health. The effectiveness of efforts to control or eliminate health exposure at the source remains a concern. Some employers do not cooperate with occupational medical practitioners in terms of sending employees suspected of having occupational disease to recommended referral centres for further investigation, confirming such diseases, where required, and isolating the affected employees from the workplace.

There was a regression of 50% in cases reported by the region. The most prevalent occupational diseases reported on the AMRs were NIHL and PTB with 169 and 110 cases, respectively. The significant increase was because the contractors were excluded in the previous year's information.



The engagement and cooperation of the MHSI, employers and unions on mine health and safety-related issues is continuously encouraged and promoted. This has seen the establishment of two tripartite forums over the years, which meet regularly, where these issues are discussed and leading practices are shared.

#### 4.2.2.1 Topical issues and matters of interest

The use of conveyor belts, TMM and the general condition of mining equipment remains a cause for concern. The region has also seen an increase in the number of observations made during inspections, where early examination and the declaration of working places is not adequately addressed.

#### 4.2.2.2 Inspections and audits

Category	Inspections	Audits
Planned	747	54
Actual	646	54
Percentage compliance	86.5	100

The frequency of inspections and audits is determined from the analysis of accident statistics at specific mines and statutory instructions issued over the period. The figures displayed are based on the strength of the total staff complement. Six additional audits were conducted during the fourth quarter to address poor health and safety challenges at the mines.

#### 4.2.2.3 Total accidents reported

Fatalities	6
>14-day accidents	239
1- to 13-day accidents	118

There was an increase in the number of reportable accidents for 2014, compared to the previous year. This can possibly be attributed to the increase in the number of mines that are now reporting accidents in the prescribed manner as previously requested through newsletters and instruction letters. In the past, mines were instructed to submit SAMRASS forms whenever there was an accident, and to submit a "nil" return on the forms when there was no injury during that period.

#### 4.2.2.4 Investigations and inquiries

	Investigations	Inquiries	Total
Initiated	123	5	128
Completed	123	4	127
Percentage completed	100	80	99

There is a concern regarding the quality of some mine investigations, in that they focus on the injured person and the immediate supervisor, rather than the cause of the accident. Mines are encouraged to rather focus on system failures during these accident investigations.

#### 4.2.2.5 Disaster-type accidents and outcomes of inquiries and investigations

No disaster-type accidents were experienced during the period under review.

#### 4.2.2.6 Statutory notices

Section 54 notices	Section 55 notices
96	61

An analysis of accident reports and inspections/audit outcomes reveal that the poor application of mine standards and procedures, and generally discipline, are still the main contributors to system failures at the mines.

#### 4.2.2.7 Administrative fines

Number of fines recommended by the inspector	4
Value recommended	N/A
Number set aside by the principal inspector	4
Value set aside	N/A
Number imposed by the principal inspector	0
Value of fines imposed	N/A
Appeals	0
Value of fines paid	N/A

Even though no administrative fines were imposed during the period under review, there has been a noticeable improvement when mining operations and shafts are stopped, and working places are closed. This has been considered to be effective and an immediate response is obtained. Although there have been instances relating to repeat transgressions, and where administrative fines could have been appropriate.

#### 4.2.2.8 Examinations

Certificate/qualification	Examination boards	Number of candidates	Certificates issued
Mine Overseers	17	217	10
Blasting	0	0	0
Onsetter	0	0	0
Lampsman	3	4	3





The region also conducted examinations for industry qualifications. The table above also reflects the number of certificates issued during the period under review. There has been a drop in the number of Mine Overseers certificates issued, reflecting a training proficiency in the region. High absenteeism rates remain a source of concern in that 217 candidates were accepted for the examinations, but only 192 were present.

#### 4.2.2.9 Land-use applications and complaints

	Received	Completed	Percentage
Township development	54	45	83
Mining and prospecting rights	148	188	127
Closure certificates	49	41	84
Environmental management	89	77	87
Complaints	7	3	43

The increase in the demand for both residential land and mining rights has a tremendous effect on the workload of the MHSI. Complaints from communities living in close proximity of mining operations have also increased.

#### 4.2.2.10 Strategies adopted for improving the status quo

The region believes that the visibility of inspectors, through inspections and audits, is a proactive way for mines to comply with health and safety standards. The strategy is to conduct purposeful inspections that reveal any failure in the mine's health and safety systems, and taking the appropriate action when necessary.

The region will continue to embark on a zero-tolerance policy to non-compliance through the implementation of the OHS Improvement Strategy Action Plan and the effective implementation of the administrative fines system.

Cooperation from mine employers, mine employees, communities affected by mining operations and the MHSI will continue to be encouraged to ensure that there are effective and efficient ways and strategies in place to deal with health and safety issues relating to mining operations in the region.

The MHSI will continue to convene meetings with company CEOs and other stakeholder leadership where there is little or no improvement with regard to safety and health, to ensure that appropriate measures are put in place to enhance health and safety. It will continue to encourage mines to adopt the use of personnel detection systems and to declare working places to be safe before work commences.

Furthermore, mines will be evaluated on the following:

- Mines' readiness to respond to emergency situations timeously
- Prevention of fires underground
- Early warning systems
- Prevention of flammable gas explosions
- Elimination of pneumoconiosis
- Elimination of NIHL
- Elimination of heat and cold stress-related illnesses

Although minimal improvement was realised in dealing with occupational diseases, the effort and level of success by some mines is commendable, and the remainder of the mines are encouraged to develop and implement similar strategies. The MHSI continues to support efforts and initiatives to combat TB and HIV/AIDS through various interventions.

### 4.2.3 Mpumalanga

#### 4.2.3.1 Topical issues and matters of interest

Mpumalanga is the second largest region in the country. The number of employees on all the mines and working in the region has remained at approximately 89 000. A wide variety of minerals are mined in Mpumalanga with coal being the main commodity. Gold, platinum and other base minerals are mined, and there is a large number of crushers and quarries in the region.

There has been a significant increase in the number of small- to medium-sized coal-mining operations in the region over the past few years following the promulgation of the MRPDA. These operations are generally operated by contractors, some of whom have no mining experience or background. This has led to an increase in the number of accidents being reported by these small- to medium-sized operators. The majority, if not all of these mines are open-cast or surface operations that operate in close proximity to human settlements. This has led to an increase in the number of complaints lodged by communities regarding blasting activities.

The number of injury accidents decreased from 273 in 2013 to 251 in 2014, and the number of fatal accidents decreased from 11 in 2013 to nine in 2014, which translates into a 18% reduction.

Exposure to high levels of noise and airborne pollutants is still of great concern to the Department. In 2014, 1.4% of the total number of employees in the region were in HEG A and 4.9% were in HEG B in terms of noise exposure levels, while 9% were in HEG A and 28% were in HEG B in terms of airborne pollutants.

AMRs submitted by mines decreased by two reports compared to the previous year. The number of silicosis cases decreased by 13, NIHL cases decreased by 110



cases, CWP cases decreased by 23 and other diseases decreased by 10 cases, while PTB increased by 40 cases.

#### 4.2.3.2 Inspections and audits

The following number of inspections and audits were conducted:

Category	Inspections	Audits	
		Individual	Group
Planned	897	465	48
Actual	780	284	41
Percentage compliance	87	61	85

The number of inspections and audits planned is based on the actual number of inspectors.

#### 4.2.3.3 Total accidents reported

The majority of accidents reported by the mines are mainly general accidents, such as slipping and falling, being caught between objects, pulling and pushing, and the handling of material, followed by transportation-related accidents. There is also an increase in FOG accidents in the coal mines.

Fatalities	9
> 14-day accidents	273
1- to 13-day accidents	62

#### 4.2.3.4 Investigations and inquiries

	Investigations	Inquiries	Total
Initiated	343	11	354
Completed	302	13	315
Percentage completed	88	118	89

Lack of adequate risk assessments and hazard identification appeared to be the root cause of most of the accidents that were reportable. Lack of appropriate training, fatigue management systems and contractor management are also major root causes of accidents.

#### 4.2.3.5 Disaster-type accidents and outcomes of inquiries and investigations

No disaster-type accidents were reported for the year under review.

#### 4.2.3.6 Statutory notices

Section 55 notices	Section 54 notices
61	92

Stoppage instructions in terms of Section 54 were mainly issued for the following:

- No proof of batch testing for self-contained self-rescuers (SCSRs) and gas detection instrumentation (GDI) in terms of SANS 1737 and SANS 1515 respectively
- Failure to send a 1% sample of SCSR to the Council for Scientific and Industrial Research (CSIR) for annual testing
- Failure to allocate SCSR per person
- Failure to conduct burn-down tests on cap lamps in accordance with the original equipment manufacturer (OEM) specification
- Unauthorised vehicles used to convey persons underground
- TMMs operated by unauthorised or unlicensed operators
- Mines' TMMs are not aligned with the baseline risk assessment and COPs
- TMMs are operated with items identified as A class or "No go" hazards ticked as defective in checklists
- Nip guards are not installed on conveyor belts
- Some tasks performed at some mines have not been risk assessed
- Failure to declare workings safe or unsafe areas declared safe
- Incompetent employees (lack of training) performing tasks requiring certain competencies
- Substandard support conditions
- Working under unsupported roof structure
- Failure to report accidents as prescribed in the regulations
- Failure to secure explosives

#### 4.2.3.7 Administrative fines

Number of fines recommended by the inspector	3
Value recommended	0
Number set aside by the principal inspector	0
Value set aside	0
Number imposed by the principal inspector	0
Value of fines imposed	0
Appeals	0
Value of fines paid	0

Representations have been made for two of the three recommended fines. The principal inspector is considering whether to impose or disregard the recommendations.



#### 4.2.3.8 Examinations

Certificate/ qualification	Examination boards	Number of candidates	Certificates issued
Mine Overseers	23	135	18
Blasting	0	0	0
Onsetter	1	1	1
Lampsman	8	8	7

Out of a total of 135 candidates for the Mine Overseers Certificate of Competency, only 18 managed to obtain the certificate. The pass rate is a cause for concern. The quality of preparation by candidates for the Mine Overseers examination boards is dissatisfactory. Some candidates even attend boards coming off night shift. Employers are urged to give candidates the necessary support in terms of preparation and giving them time off to study.

#### 4.2.3.9 Land-use applications and complaints

	Received	Completed	Percentage
Township developments	18	18	100
Mining and prospecting rights and permits	210	181	86
Closure applications	22	34	155
Environmental management	15	7	47
Complaints	23	14	61
Applications for approvals, exemptions and permissions	911	726	80

The majority of the complaints received by the office were mainly from communities living in close proximity to surface or open-cast mining operations. Most of the complaints relate to blasting practices at mines, i.e. the communities allege that, as a result of blasting, their houses are cracking, farmers complain about groundwater disturbances, noise and dust created by TMMs, etc.

#### 4.2.3.10 Strategies adopted for improving the status quo

The region has identified that general accidents are a major contributor of reportable accidents, followed by machinery and transportation accidents. There is also an increase in FOG accidents, especially at underground coal mines.

The Department will increase visibility at the mines as a proactive way to enforce compliance at the mines. Focused inspections, audits and investigations will be conducted with the aim of revealing system failures in terms of mine health and safety. Appropriate enforcement action will be taken if necessary.

The activities of the regional inspectorate will focus on the prevention of FOG and slope failures, the prevention of transportation and machinery-related accidents, with an emphasis on the enforcement of the new regulations, and the implementation of new COP guidelines, housekeeping and material handling.

Tripartite forums have been re-established in the region. This will be utilised effectively to share best practices, learnings and working together to find solutions on problematic issues that are common to most operations.

It has been noted with concern that some mines do not have integrated TB and HIV/AIDS programmes. Mines will be encouraged to have such programmes. Employees working without having undergone initial and periodic medical surveillance will be withdrawn from workings and appropriate action will be taken against employers who allow this to happen. The MHSI will endeavour to ensure that mines put strategies in place to curb increasing cases of TB among employees in the region.

In terms of exposure to airborne pollutants and noise, employees still exposed to HEG A and HEG B will be withdrawn from such areas by the Department. Mines are encouraged to implement strategies put in place to reduce overexposure to noise and airborne pollutants.

## 4.3 WESTERN REGIONS

The Western Regions consist of North West: Klerksdorp, North West: Rustenburg and Western Cape. A wide variety of minerals are mined in the Western Regions, with major commodities being PGMs, gold, diamonds, oil and gas, as well as aggregate and sand. The mining activities in the Western Regions are conducted on the surface, underground and offshore.

The total number of employees at work for the Western Regions during the period under review was 147 061, which is equivalent to 33% of all employees at work in South African mines during 2014.

During the period under review, the Chief Directorate: Western Regions, through the regional offices, conducted 2 152 routine workplace inspections and 201 planned audits.

As part of enforcement measures taken during the audits and inspections, 326 notices were issued in terms of



Section 54 and 544 notices were issued in terms of Section 55. The notices issued in terms of Section 54 deal with dangerous conditions at mines, while those issued in terms of Section 55 order compliance with the MHSA. Seventeen administrative fines were also recommended against mine employers. However, they were all set aside by the principal inspector for various reasons.

Twenty-four fatal accidents occurred during the period under review. This translates to a decrease of about 31% when compared to the 35 fatal accidents that were reported in 2013. A total of 1 036 injuries were reported for 2014, which translates to a decrease of about 37% when compared to the 1 646 injuries reported for 2013.

In dealing with the above fatal and injury accidents, the Western Regions completed 17 fatal inquiries and 624 investigations during the period under review. The outstanding accident inquiries and investigations were mainly due to the non-availability of witnesses during the strike period. They have all subsequently been finalised, and reports are being prepared for submission to the relevant authorities.

In terms of the AMRs submitted for the Western Regions during 2014, there was a slight improvement in the number of cases of occupational diseases reported, from 2 663 in 2013 to 2 297 in 2014. However, it is concerning that there was an increase in the number of PTB cases reported in North West: Rustenburg. The restricted access to health care facilities by contractors, the poor housing and living conditions of mine employees, as well as the mushrooming of informal settlements around the mines are some of the reasons that contribute to the increase in PTB cases.

North West: Klerksdorp and Western Cape experienced a slight regression in the number of NIHL cases reported in 2014, mainly due to high noise exposure levels and an ageing of the workforce. The majority of mines in the western regions have adopted second-generation silencing of drilling machines.

An increased number of methane intersections were reported in North West: Rustenburg during the period under review. However, drilling of pre-conditioning holes to distress the gas pockets has been adopted as the best practice by the affected mines in the Western Regions.

#### *Strategies for improving the status quo*

The Western Regions have embarked on a number of strategies to deal with health and safety challenges adopted at the mines. These include the following:

- Withdrawal of legal appointments of line supervision for non-adherence to standards

- Visits to secondary support crews – monthly reports submission
- Immediate withdrawal of machinery exceeding the set milestone targets through a series of inspections
- Involvement of OEMs during audits and inspections on a monthly basis
- Instruction letter to mines for procedure of circulation of service department reports
- Increased inspections and audits at high-risk mines
- Stoppage statutory instructions issued to mines where repeat deviations are identified
- Verification inspections conducted prior to upliftment of the instruction
- More focus on proper early entry examination and support standards compliance
- The adoption of a comprehensive health strategy to deal with issues on HIV, TB and occupational diseases by mines in the Western Regions; tripartite forum meetings ensure that health issues are prioritised and inspectors conduct routine audits on issues of health; where lack of compliance is identified, stringent actions are taken against employers
- At the small-scale mines, in collaboration with the Department of Health, MHSI inspectors encourage the use of mobile clinics to conduct wellness campaigns, which include TB, HIV and non-occupational diseases

#### *Challenges*

The safety and security of women in mining continue to be a challenge for the mining sector. The Western Regions, in particular the mines in North West: Rustenburg, have seen an increased women participation in the mining sector since the dawn of democracy. It is thus disturbing that there is an increase in the number of cases of harassment and discrimination against women in the workplaces. Again, it is of great concern that the health and safety of female workers, including the continued inhumane treatment they receive from their fellow workers in some of the mines, is not improving. In all recent incidents of rape or murder cases reported against women mine workers, law enforcement agencies have been seen to swiftly apprehend perpetrators and, in some cases, sentencing the alleged perpetrators. However, these incidents continue to taint the image of the mining sector.

The Western Regions have established women structures at the mines to continue to support victims of sexual harassment, as well as the elevation of the women safety and security dialogue. All cases reported are adequately investigated and recommendations of appropriate measures are developed and implemented to ensure that women mineworkers have a safe and dignified working environment at all times. In this regard, the instructions of the CIOM are continuously enforced, and several workshops have been held with women to address the issues of safety, security and sexual harassment at mines.





The MHSC's research on security matters involving women in mining will result in a guideline and awareness materials developed to assist the industry to deal with issues of sexual harassment and discrimination against women mine workers. The Western Regions welcome the above development and will tirelessly support the implementation of these outcomes.

#### *Labour unrest*

There have been numerous protracted industrial strikes and illegal underground sit-ins during the period under review. Three major companies on the platinum belt – Impala Platinum, Anglo Platinum and Lonmin Platinum – experienced a wage dispute and protracted strikes that lasted for five months. This strike had a severe impact on mine employees, business and also affected the livelihood of communities residing in the surrounding areas. However, since July 2014, there has been a significant improvement in this regard. Continuous engagements between unions, business and government at the quarterly tripartite forums have somehow reduced tensions and confrontations among workers and employers. North West: Rustenburg, where the majority of these incidents have been reported, has increased the frequency of these meetings, such that tripartite forums are now held on a monthly basis. There is also a standing instruction to the effect that where a mine has experienced a strike that lasted over a couple of days, no work may be resumed in any workplace before a comprehensive risk assessment has been conducted and adequate remedial steps presented to the principal IOM in the affected region.

### 4.3.1 North West: Rustenburg

North-West: Rustenburg is situated between North West: Klerksdorp in the south, Limpopo in the north, Gauteng in the east and the Northern Cape in the west. A wide variety of minerals is mined in this region with PGM and chrome being the main commodities. The region is made up of labour-intensive underground mining operations, and there are also a large number of crushers and quarries. Other minerals that are being exploited in the region include diamonds, limestone, slate and granites, which are commonly exploited with less labour-intensive surface operations. North West: Rustenburg accounts for most of the mine employees in the country.

Twenty-one fatalities were reported in 2014, compared to 30 in 2013, which resulted in a 30% year-on-year improvement. The regional strategy, which largely focused on the eradication of FOG accidents and transportation-related accidents has resulted in tremendous improvements of the said accidents.

In terms of the AMRs submitted for 2014, there was a slight increase in the number of cases of occupational diseases reported, from 1 530 in 2013 to 1 733 in 2014. Such an increase is due to an increase in cases of PTB. Some of the reasons for such an increase is that the contractor restricted access to health care facilities. Living conditions in informal settlements around the mines also played a significant role in contributing to the increase in PTB. The region also experienced a slight increase in the number of medical deaths reported. This is mainly due to inadequate monitoring of chronic illnesses and the non-screening of sick notes from private medical practitioners.

In terms of occupational hygiene, an increased number of methane intersections was reported during the period under review. It is important to note that there is no proactive solution to identify some of the flammable gas pockets. However, the drilling of pre-conditioning holes to distress the gas pockets is regarded as the best practice. The region has also significantly reduced the number of HEG A exposures in terms of noise and airborne pollutants. Some of the major companies in the region have adopted second-generation silencing of drilling machines.

#### 4.3.1.1 Topical issues and matters of interest

During the first quarter of the 2014, three major mining companies operating in the region – Anglo American Platinum Division, Lonmin Platinum Mines and Impala Platinum Mines – embarked on the protected wage strike for a period of approximately five months. The strike had a negative impact on the lives of many people who reside in the Rustenburg area, and the economy in general.

Small business enterprises were mostly affected by this prolonged strike. Many of the mines' employees who were on strike returned to their respective homes. Many of the mine employees also lost their belongings due to lack of income. It was a relief to everyone when the employees went back to work on 23 June 2014 after months of tense negotiations.

During the period under review, the region also experienced some tension between the two major trade unions operating in the region. The Department's regional office was also concerned that this tension may negatively affect the health and safety of mine employees.

#### 4.3.1.2 Inspections and audits

Category	Inspections	Audits
Planned	618	42
Actual	675	35
Percentage compliance	109	83



#### 4.3.1.3 Total accidents reported

Fatalities	21
> 14-day accidents	764
1- to 13-day accidents	316

#### 4.3.1.4 Investigations and inquiries

	Investigations	Inquiries
Initiated	747	23
Completed	425	14
Percentage completed	57	61

Most of the investigations and inquiries were delayed due to the unavailability of mine personnel because of the wage strike at the three biggest mining operations in the region.

#### 4.3.1.5 Disaster-type accidents and outcomes of inquiries and investigations

No disaster-type accidents were reported for the period under review.

#### 4.3.1.6 Statutory notices

Section 54 notices	Section 55 notices
171	227

Section 54 instructions issued were mainly on deviations from mine standards and procedures, poor contractor management and the unavailability of mine health and safety management systems. Most of the Section 54 instructions issued resulted in stoppage of the workplace(s) or equipment until remedial measures were presented to the office of the principal IOM.

#### 4.3.1.7 Administrative fines

Number of fines recommended by the inspector	4
Value recommended	R0.00
Number set aside by the principal inspector	4
Value set aside	0
Number imposed by the principal inspector	0
Value of fines paid	R0.00
Appeals	0

#### 4.3.1.8 Examinations

Certificate / qualification	Examination boards	Number of candidates	Certificates issued
Mining Overseers	31	400	38
Onsetter	10	72	39
Lampsman	8	56	12

Generally, there was a low percentage of certificates issued as most candidates were not adequately prepared for the above examinations.

#### 4.3.1.9 Land-use applications and complaints

	Received	Completed	Percentage
Complaints	94	58	62

Most of the complaints were delayed due to the unavailability of mine personnel as a result of a five-month protected wage strike. All land-use applications are done at the Klerksdorp office. The complaints were generally on community-related matters, such as cracked houses, blasting activities by different operations and dust. Other complaints related to health and safety conditions at different operating mines.

#### 4.3.1.10 Strategies adopted to improve the status quo

The following strategies were adopted to improve performance:

- Risk classification of working places is done into low-, medium- and high-risk areas.
- Stoppage statutory instructions are issued to mines where repeat deviations are identified.
- Verification inspections are sometimes conducted prior to upliftment of the instruction.
- Health and safety road shows were conducted in the last quarter of the year to create awareness.
- There is more focus on proper early entry examination and support standards compliance.
- Inspectors were encouraged to conduct odd shifts randomly.
- In cases of gross negligence, the legal appointment of supervisors was withdrawn for the purposes of re-training.



- The Regional Tripartite Forum was reorganised and one hour was allocated to health issues/presentations (including HIV and TB).
- Medical examinations are conducted more frequently for employees who are over-exposed, for example to noise.
- Risk-based medical examinations were also encouraged by the regional office.
- An instruction was issued by the regional office to have a database on lifestyle diseases and to monitor it frequently.
- Efforts to improve living conditions were encouraged and supported.

#### 4.3.2 North West: Klerksdorp

North-West: Klerksdorp is surrounded by the Free State, Gauteng and the Northern Cape. Gold is predominantly mined in underground mines, which are still labour intensive. Other minerals that are exploited in the region include uranium, diamonds, limestone, fluorspar, slate, talc, clay, pyrophyllite and andalusite, which are commonly exploited with less labour-intensive surface operations.

The regional office enforces the requirement of the MHSa with the emphasis on the employer ensuring the health and safety of employees at the mines. This is done through monitoring compliance to the MHSa through a series of inspections, audits, investigations and inquiries. The regional office also participates in forums aimed at addressing mining matters that are likely to adversely affect surrounding mining communities, namely the Regional Mining Development and Environment Committee (REMDEC) and the Klerksdorp-Orkney-Stilfontein-Hartebeesfontein (KOSH) Water Task Team meetings.

Three mine fatalities were reported in 2014, compared to five in 2013, which resulted in a 40% year-on-year improvement. Of the three mine fatalities, two were the result of FOG accidents and one was a subsequent death following an accident in which an employee was hit by a pipe. No employees were fatally injured in transportation- and mining-related mine accidents in 2014, as opposed to three employees fatally injured in such accidents in 2013.

The submission rate of AMRs required in terms of Section 16 of the MHSa improved significantly in 2014. There has been a significant reduction in the number of cases of most of the occupational diseases, such as silicosis, PTB and Sil+TB. However, there was a slight regression in terms of NIHL.

The number of reports on occupational hygiene measurements has significantly improved, although the quality of the reports still requires more attention. Many small-scale mines have now installed air-conditioning

systems in their vehicles in order to improve the environmental conditions for the TMM operators. Sadly, some mines are still reporting HEG A exposures on noise and airborne pollutants, and the region has started taking stringent enforcement measures to ensure that no mine employee works under HEG A exposures.

Sadly, in 2014, Buffelsfontein Gold Mine (BGM) was placed under care and maintenance, which resulted in over 3 000 job losses. The said mine is in the process of rehabilitation and mine closure, which has attracted illegal reclamation of the mine's infrastructure by armed criminals. These armed criminals have posed safety and security concerns for the mine employees performing essential services, particularly the pumping of underground mine water, to the extent that the pumping operations had to be halted. The affected mining companies are collaborating in the management of underground water to ensure that the halting of water pumping operations by BGM does not result in catastrophic acid mine drainage (AMD) in Klerksdorp.

##### 4.3.2.1 Topical issues and matters of interest

The region has seen an increase in the number of small-scale mines, particularly diamond diggings. The diamond diggings were previously not adequately regulated in terms of the MHSa before the split of the region into North West: Klerksdorp and North West: Rustenburg offices. The main challenge with the diamond diggings is that most of the legal appointees have no appropriate mining qualifications or experience, and do not appear to be familiar with the provisions of the Act. The region has embarked on an exercise to encourage the diamond diggings to familiarise themselves with the provisions of the Act.

China Africa Precious Metals (CAPM) shafts, formerly owned by Pamodzi Gold in Orkney, are in the process of being re-established with the intention of safely restarting production operations in due course. The said shafts have been idling for a number of years, which has resulted in the accumulation of underground water and the build-up of underground stresses, which should be well managed to avert any potential accidents.

##### 4.3.2.2 Inspections and audits

Category	Inspections	Audits
Planned	750	48
Actual	813	56
Percentage compliance	108	119



#### 4.3.2.3 Total accidents reported

Fatal accidents	3
> 14-day accidents	261
1- to 13-day accidents	278

#### 4.3.2.4 Investigations and inquiries

	Investigations	Inquiries	Total
Initiated	200	3	203
Completed	189	3	192
Percentage completed	95	100	95

#### 4.3.2.5 Disaster-type accidents and outcomes of inquiries and investigations

No disaster-type accident occurred in the region for the period under review.

#### 4.3.2.6 Statutory notices

Section 54 notices	Section 55 notices
141	225

Section 54 instructions issued were mainly on deviations from mine standards and procedures, poor contractor management and unavailability of mine health and safety management systems. Most of the Section 54 instructions issued resulted in the stoppage of the workplace(s) or equipment until remedial measures were presented to the office of the principal IOM.

#### 4.3.2.7 Administrative fines

Number of fines recommended by the inspector	12
Value recommended	0
Number fines set aside by the principal inspector	12
Value set aside	0
Number of fines imposed by the principal inspector	0
Value of fines paid	0
Appeals	0

#### 4.3.2.8 Examinations

Certificate/qualification	Examination boards	Number of candidates	Certificates issued
Mining Overseers	15	106	19
Onsetter	7	45	45
Lampsman	1	5	1

Generally, a low percentage of certificates was issued as most candidates were not adequately prepared for the above examinations.

#### 4.3.2.9 Land-use applications and complaints

	Received	Completed	Percentage
Township developments	15	15	100
Mining and prospecting rights	175	175	100
Closure certificates	69	69	100
Environmental management	49	49	100
Complaints	7	7	100

#### 4.3.2.10 Strategies adopted for improving the status quo

The following strategies are adopted to improve performance:

- More inspections and audits are conducted at high-risk mines.
- Stoppage statutory instructions are issued to mines where repeat deviations are identified.
- Verification inspections are sometimes conducted prior to upliftment of the instructions.
- Inspectors conduct follow-up audits and inspections to monitor the progress of action plans presented to the regional office.
- There is more focus on proper early entry examination and support standards compliance.
- Administration fine recommendations are made for repeat transgressions.
- In cases of gross negligence, legal appointments are withdrawn for the purposes of re-training.
- Mines are encouraged to have wellness programmes to address healthy lifestyles and non-occupational diseases, including HIV.





- The mines (big and medium operations) conduct wellness campaigns in accordance with the South African Health Awareness Calendar.
- Mines are encouraged to deal with lifestyle conditions at the mine hospitals or medical stations for employees who are not on medical aid.
- At some mines, employees are questioned and tested on the signs and symptoms of TB whenever they visit the health facility (medical stations and hospitals) and during health campaigns at different mines.
- During these awareness campaigns, mine employees are counselled and – with their consent – HIV testing is done; it should be noted that this is managed at the primary health care facility and not at the occupational health centre.
- At the small-scale mines, the Department of Health uses its mobile clinics to conduct the wellness campaigns, which includes TB, HIV and non-occupational diseases.

### 4.3.3 Western Cape

The Western Cape region has only one small underground mine, Steenkampskraal, which was dormant for a very long time, but is in the process of re-opening. The other mines are offshore oil and gas mines at Mossel Bay, sea diamond mines on the West Coast, limestone mines for cement and other purposes, and sand, stone and clay mines for the construction industry.

No fatal accidents have occurred in the last two years. Reportable injury accidents increased from six to 14.

A notable improvement has been achieved in the field of occupational hygiene in that 18 more mines submitted occupational hygiene reports. Measures taken to suppress the dust to which employees are exposed have also improved.

The number of AMRs submitted increased from 65 in 2013 to 79 for 2014. The number of cases of occupational diseases reduced significantly, except for NIHL, where there was an increase that could be attributed mostly to the age of the employees.

#### 4.3.3.1 Topical issues and matters of interest

Although the majority of mines in the Western Cape region are small mines, there is a strong willingness by mine owners and managers in the region to comply with the requirements of the MHSA. Inspectors have also contributed to a large extent by encouraging owners and managers of mines not just to comply with the mine legislation, but to establish a health and safety culture on the mines. The fruits of this are evident in the accident statistics.

Quarterly Tripartite Forum meetings have been introduced on a regional scale, and have been attended with active participation by unions, employers and state representatives.

#### 4.3.3.2 Inspections and audits

All the mines in the region plan for inspections on a regular basis, no matter how small they are. There are currently 215 operational mines. All the mines have some form of risk management programme in place.

The inspection planning ensures that mines are visited by an inspector of the mining, engineering, occupational hygiene and occupational medicine disciplines. The regular inspection frequency is having the desired effect of ensuring that mines are compliant in terms of physical conditions and making safety and health part of the operating culture. The structure of the office is such that there is one inspector per discipline, which makes it difficult to conduct group audits, but instead more inspections and individual audits are done per discipline.

Category	Inspections	Audits
Planned	660	220
Actual	664	109
Percentage compliance	101	50

#### 4.3.3.3 Total accidents reported

A total of 41 accidents were reported. The region had no fatal accidents in 2013 or 2014, after having two fatal accidents in 2012. The region had 11 reportable injury accidents, compared to six in the previous year. Fourteen accidents were reported where the injured returned before 14 days, which is half that of the previous year. Sixteen non-casualty accidents were reported, which were mainly fires and runaway vehicles.

Fatalities	0
> 14-day accidents	11
1- to 13-day accidents	14
Non-casualty accidents	16

#### 4.3.3.4 Investigations and inquiries

The injuries sustained in the accidents that caused persons to be off work for more than 14 days were all of a minor nature, and investigations were done in collaboration with the mines.



	Investigations	Inquiries	Total
Initiated	14	0	14
Completed	10	0	10

#### 4.3.3.5 Disaster-type accidents and outcomes of inquiries and investigations

There were no-disaster type accidents reported for the period under review.

#### 4.3.3.6 Statutory notices

The majority of the statutory notices, in terms of the MHSA, were issued for inadequate guarding of machinery, training and risk management issues.

Section 54 notices	Section 55 notices
14	92

#### 4.3.3.7 Administrative fines

One administration fine was recommended by an inspector. However, subsequent to the representation by the employer, the principal IOM decided to set it aside.

Number of fines recommended by inspectors	1
Value recommended	R50 000
Number set aside by the principal inspector	1
Value set aside	R50 000

#### 4.3.3.8 Examinations

Since there are no operating underground mines in this region, no Mine Overseers, Blasting, Onsetter and Lampsman examinations took place in this region during the period under review. There were also no examination boards for open-cast blasting certificates during the year under review.

#### 4.3.3.9 Land-use applications and complaints

The past year has seen a 41% decrease in applications for mining rights, mining permits and prospecting rights. Some 35 applications were lodged in 2014, as opposed to 59 in 2013. The number of applications for the approval of environmental management plans also decreased by 36%, as only 35 applications were received in 2014, as opposed to 55 in 2013. However, the number of mine closure applications increased by 175%, as 22

applications were received in 2014, as opposed to eight applications received in 2013. These trends may need some investigation to ensure sustainable development in the Western Cape.

One complaint of illegal mining was received during the period under review. On investigation, it was found that it was not mining, but the building of a dam.

	Received	Completed
Township developments	42	42
Mining and prospecting rights	35	35
Closure certificates	22	22
Environmental management	35	35
Complaints	1	1

#### 4.3.3.10 Strategies adopted for improving the status quo

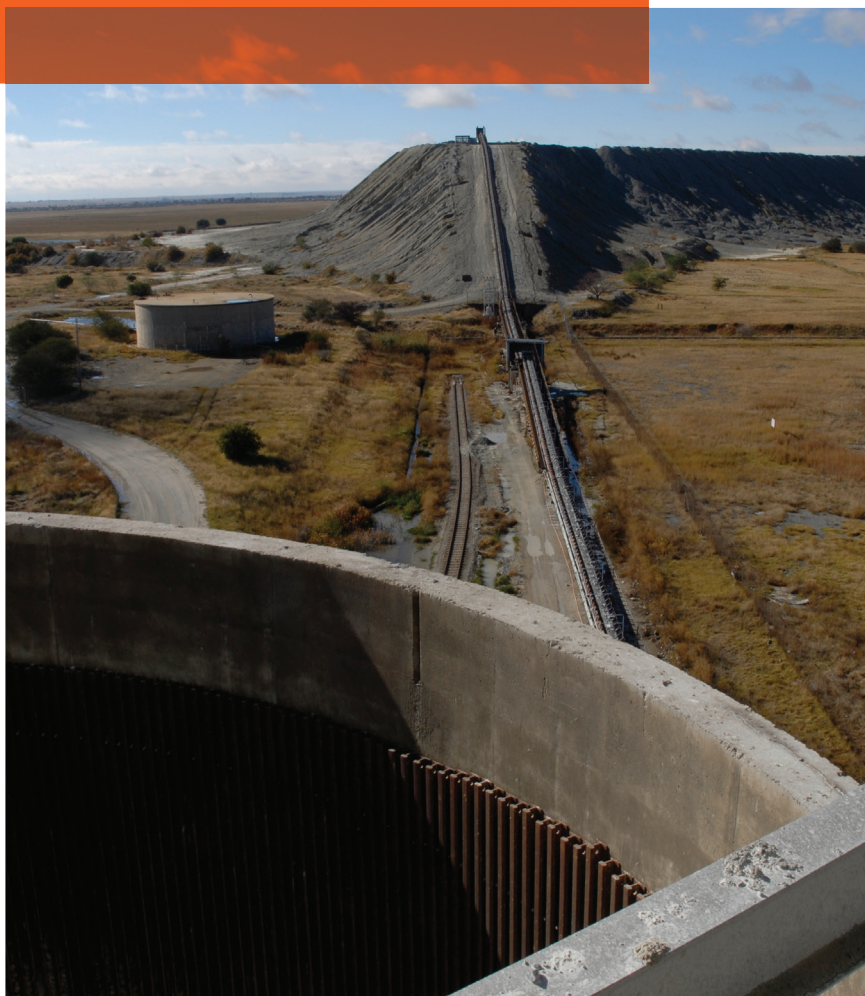
Inspectors are continuously motivated to influence the mines to improve the quality and effectiveness of risk management, training and behaviour-based safety. To ensure more visibility, the inspection strategy has been changed to ensure that a specific mine will see an inspector at least once every three months. The audit strategy was changed to do individual audits. From a safety perspective, specific attention is given to falling from structures, belt conveyors, transportation- and mining-related accidents, and asphyxiation, which have been the main causes of fatal accidents in the past 10 years.

The strategy for occupational hygiene is to identify all the mines that need to report on occupational exposure, as prescribed, and to ensure that the correct data is captured on the national database. Steps are taken to ensure that the mines that report high values conduct investigations and submit the investigations and corrective actions taken to the office of the MHSI.

The strategy for occupational medicine is to ensure that occurrences of occupational diseases are reported on the various formats and that the data is correct. Specific attention is paid to entry and exit medical surveys. The occurrences of occupational diseases must be investigated and submitted to the MHSI.

As measures to improve on HIV and TB cases, the IOMs, during inspections and audits, check to see that mines comply with the NSP on HIV/AIDS, as well as TB. Awareness messages to encourage testing for HIV and TB form part of every inspection and audit.





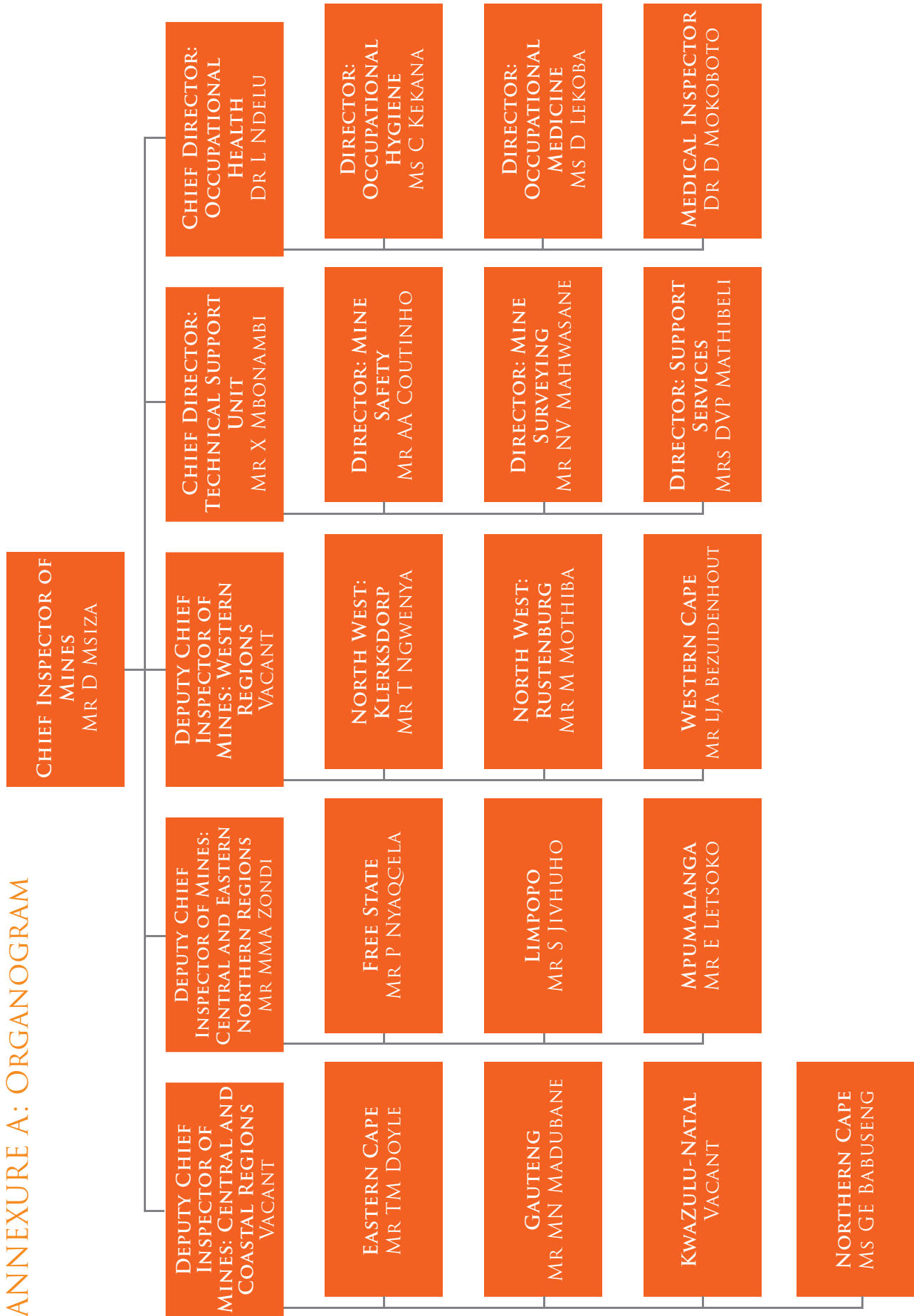
All images are courtesy of the Chamber of Mines of South Africa (<http://www.chamberofmines.org.za>) and Media Club South Africa (<http://www.medioclubsouthafrica.com>).

# ANNEXURES



## ANNEXURE B: CONTACT LIST

### ANNEXURE A: ORGANOGRAM





POSITION	OFFICIAL	WORK TEL	WORK FAX	ADDRESS	E-MAIL
Chief Inspector of Mines	Mr D Msiza	012 444 3639 012 444 3970	086 6931 613	Private Bag X59 ARCADIA 0007	phumudzo.rambau@dmr.gov.za sithembile.mkhize@dmr.gov.za
Deputy Chief Inspector of Mines: Central and North Eastern Regions	Mr MMA Zondi	012 444 3663	012 4443165	Private Bag X59 ARCADIA 0007	lindiwe.sekwati@dmr.gov.za
Deputy Chief Inspector of Mines: Western Regions	Vacant	012 444 3661	086 461 7230	Private Bag X59 ARCADIA 0007	mokgadi.lesoka@dmr.gov.za
Deputy Chief Inspector of Mines: Central and Coastal Regions	Vacant	012 444 3649	012 341 2271	Private Bag X59 ARCADIA 0007	freda.seema@dmr.gov.za
Chief Director: Occupational Health	Dr L Ndelu	012 444 3163	012 341 2271	Private Bag X59 ARCADIA 0007	zanele.ngcobo@dmr.gov.za
Chief Director: Technical Support Unit	Mr X Mbonambi	012 444 3676	012 444 3165	Private Bag X59 ARCADIA 0007	arista.muller@dmr.gov.za
Director: Mine Safety	Mr A Coutinho	012 444 3612	012 444 3165	Private Bag X59 ARCADIA 0007	portia.sokhulu@dmr.gov.za
Medical Inspector	Dr D Mokoboto	012 444 3614	086 693 4584	Private Bag X59 ARCADIA 0007	pertunia.makhubela@dmr.gov.za
Director: Occupational Medicine	Ms D Lekoba	012 444 3785	012 341 2271	Private Bag X59 ARCADIA 0007	ncumisa.ncobo@dmr.gov.za
Director: Occupational Hygiene	Ms CT Kekana	012 444 3646	012 341 2271	Private Bag X59 ARCADIA 0007	anesia.matjokane@dmr.gov.za
Director: Mine Health and Safety Legal Services	Mr G Ndamse	012 444 3274	012 444 3131	Private Bag X59 ARCADIA 0007	mmasello.maimela@dmr.gov.za
Director: Mine Surveying	Mr NV Mahwasane	012 444 3789	086 239 2789	Private Bag X59 ARCADIA 0007	goitsehang.sekwati@dmr.gov.za
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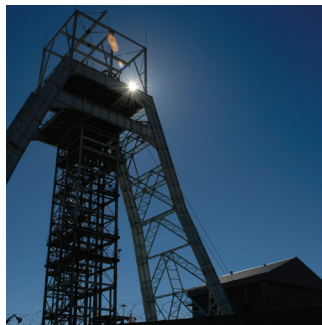
## ANNEXURE C: ACRONYMS

<b>AIDS</b>	Acquired Immune Deficiency Syndrome	<b>MOSH</b>	Mine Occupational Safety and Health
<b>AMD</b>	Acid mine drainage	<b>MPRDA</b>	Mineral and Petroleum Resources Development Act
<b>AMR</b>	Annual Medical Report	<b>MQA</b>	Mining Qualifications Authority
<b>AQI</b>	Air Quality Index	<b>NDoH</b>	National Department of Health
<b>ARV</b>	Antiretroviral	<b>NEDLAC</b>	National Economic Development and Labour Council
<b>BGM</b>	Buffelsfontein Gold Mine	<b>NIOH</b>	National Institute of Health
<b>CAPM</b>	China Africa Precious Metals	<b>NIHL</b>	Noise-induced hearing loss
<b>CEO</b>	Chief Executive Officer	<b>NUM</b>	National Union of Mine Workers
<b>CIOM</b>	Chief Inspector of Mines	<b>NSP</b>	National Strategic Plan
<b>COAD</b>	Chronic obstructive airway disease	<b>OEL</b>	Occupational exposure limit
<b>COP</b>	Code of Practice	<b>OEM</b>	Original equipment manufacturer
<b>COPD</b>	Chronic obstructive pulmonary disease	<b>OHP</b>	Occupational health practitioner
<b>CSIR</b>	Council for Scientific and Industrial Research	<b>OHS</b>	Occupational health and safety
<b>CSM</b>	Cold stress management	<b>OMP</b>	Occupational medical practitioner
<b>CWP</b>	Coal workers' pneumoconiosis	<b>PGM</b>	Platinum Group Metals
<b>ECL</b>	Environmental critical level	<b>PPE</b>	Personal protective equipment
<b>ERPM</b>	East Rand Proprietary Mines	<b>PTB</b>	Pulmonary tuberculosis
<b>FEL</b>	Front-end loader	<b>REMDEC</b>	Regional Mining Development and Environmental Committee
<b>FOG</b>	Fall of ground	<b>SANDEF</b>	South African National Defence Force
<b>GCC</b>	Government Certificate of Competency	<b>SANRAL</b>	South African National Road Agency Ltd
<b>GIS</b>	Geographic Information Systems	<b>SAPS</b>	South African Police Service
<b>HEG</b>	Homogenous exposure groups	<b>SCSR</b>	Self-contained self-rescuer
<b>HCT</b>	HIV counselling and testing	<b>Sil+TB</b>	Silico-tuberculosis
<b>HIV</b>	Human Immunodeficiency Virus	<b>SLA</b>	Service level agreement
<b>IOM</b>	Inspector of Mines	<b>STI</b>	Sexually transmitted infection
<b>KOSH</b>	Klerksdorp-Orkney-Stilfontein-Hartebeesfontein	<b>STS</b>	Standard threshold shift
<b>LHD</b>	Load haul dumper	<b>SWV</b>	South West Vertical
<b>MC&amp;S</b>	Microscopy, culture and sensitivity	<b>TB</b>	Tuberculosis
<b>MDR-TB</b>	Multi-drug-resistant tuberculosis	<b>TMM</b>	Trackless mobile machines
<b>MHSA</b>	Mine Health and Safety Act, 1996 (Act 29 of 1996)	<b>XDR-TB</b>	Extremely drug-resistant tuberculosis
<b>MHSC</b>	Mine Health and Safety Council		
<b>MHSI</b>	Mine Health and Safety Inspectorate		
<b>MSCC</b>	Mine Surveyors' Certificate of Competency		









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