

# Ensuring a safe, healthy and appropriately skilled workforce



**Safety**

**Occupational health and wellness**

**Human resources management**



“We remain committed to maintaining a safe and healthy work environment for all employees. Safety and health are critical components of operational performance and directly affect productivity, efficiency, financial capital and our relationships with our stakeholders. ARM’s integrated wellness management programme aims to prevent occupational health hazards from impacting on employee health and actively identify and manage health risks and chronic conditions.”

# SAFETY

“The commitment by management and each individual to safe work is the core of our zero harm philosophy. Identifying hazards in the workplace and prevention of harm are at the heart of working safely.”

## Reporting context

### REPORTING FRAMEWORKS

#### ICMM



#### UN SDGs:



FTSE/  
Russel  
SHS

### PRINCIPAL LEGISLATION

- The Mine Health and Safety Act (MHSA)
- The Occupational Health and Safety Act (OHSA)
- The Mining Charter
- The Mineral and Petroleum Resources Development Act (MPRDA)
- The Disaster Management Act

Safety is a value and therefore a priority at all ARM operations and we remain committed to maintaining a safe and healthy work environment for all employees. Safety is a critical component of operational performance and directly affects productivity, efficiency, financial capital and our relationships with our stakeholders.

Mining, crushing and milling, and the processing and beneficiation of minerals and metals present challenging working conditions. Hazard identification and risk assessment is critical to ensuring appropriate controls for mitigation of harm.

The most significant safety concerns at our operations include falls of ground, trackless mobile machinery, working at heights and fatigue.

## HOW WE MANAGE SAFETY

Our holistic approach to employee wellness considers occupational hygiene, health and safety. Group safety policies inform operational safety policies and strategies that are adapted to meet the specific safety challenges at each operation. ARM-managed operations collaborate and share safety learnings across the group.

Each operation performs and continuously reviews risk assessments to identify and assess their specific safety and health risks. These assessments include input from regulators, specialists, equipment manufacturers, our employees and labour representatives. Identifying hazards in the workplace and prevention of harm are at the heart of working safely. Risk assessments are conducted daily, before commencing any new tasks, expansions or changes to current operations as well as in planning and execution of projects.

Operational safety and health policies and management systems align with OHSAS 18001, the international standard on health and safety management systems, and ISO 45001, the revised international standard which replaces OHSAS 18001. Modikwa and Nkomati mines did not undergo OHSAS 18001

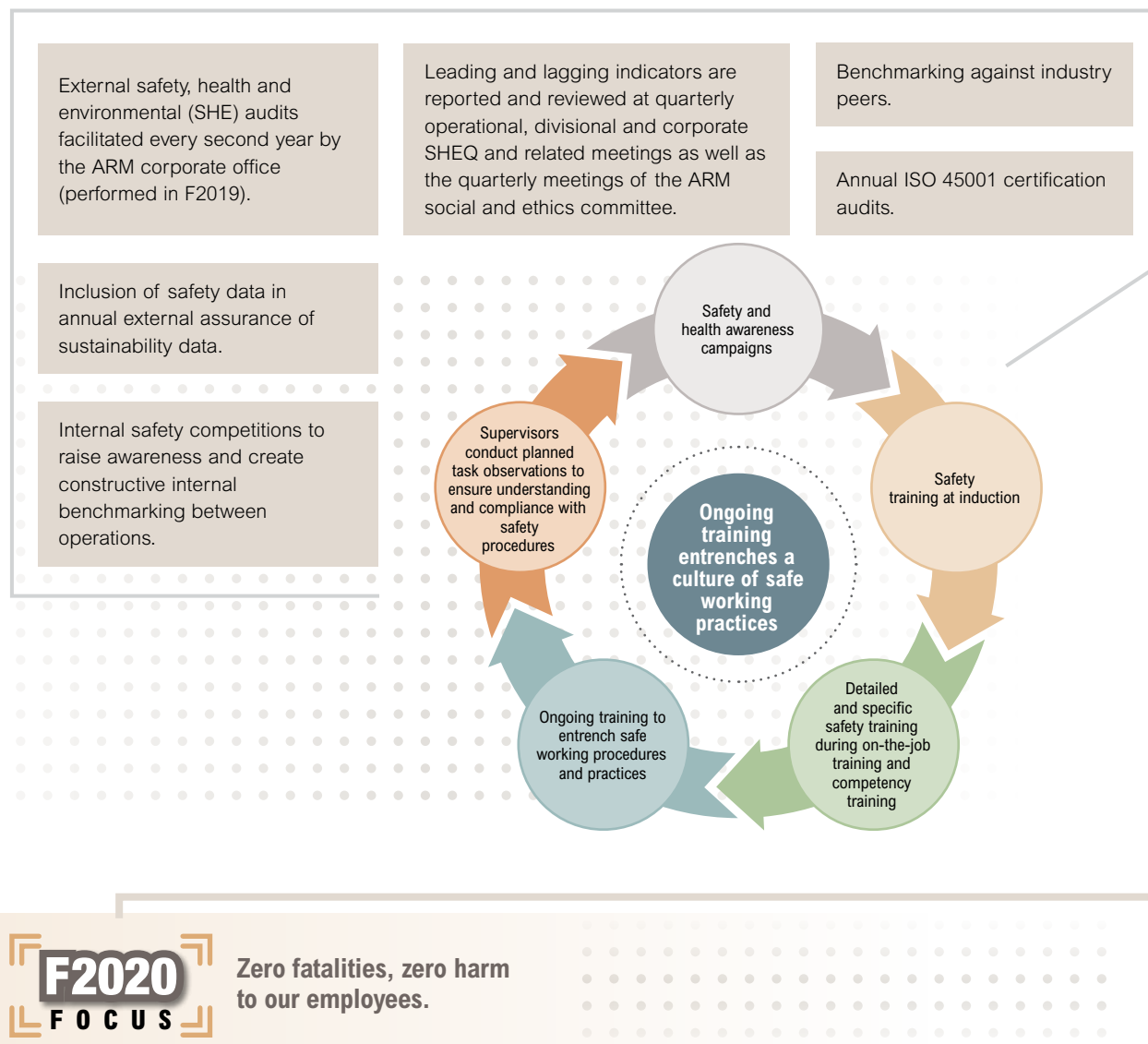


re-certification during F2020 as Modikwa Mine is preparing for certification in terms of ISO 45001 while Nkomati Mine is preparing for closure. Machadodorp Works was OHSAS 18001 certified and while it is not formally re-certified at this time due to a significant reduction in activities, remains aligned with the standard.

Safety training is provided to employees and contractors at induction, through-on-the job training and competency training, and on an ongoing basis to entrench a culture of safe working practices. Risk assessment informs Standard Operating Procedures, which are used for on-the-job training. Employees then undergo regular planned task observations by their supervisors to confirm that the correct procedures are followed and to coach and improve on safe task execution. Contractors are treated as employees, receiving the same training and are included in our safety reporting, as required by legislation and industry standards.

Performance incentives for operational, divisional and corporate staff include a weighting for safety performance that reflects leading and lagging safety indicators.

**We assess and monitor our safety processes and performance through:**



**Zero fatalities, zero harm  
to our employees.**

In September 2019, Mr Mpedi Ishmael Malatji, a load haul dump operator at Two Rivers Mine was fatally injured in an accident involving trackless moving machinery. At Nkomati Mine Mr Makoti Marks Tshwale, a water truck operator employed by a contractor, was fatally injured in October 2019 when he lost control of the truck he was driving causing it to overturn. Mr Simon Sandamela was fatally injured in a blasting incident on 10 November 2019 at Tweefontein Coal Mine<sup>1</sup>. Any loss of life is unacceptable and we conducted in-depth investigations into these accidents. Learnings and opportunities for improvement were presented to the members of the ARM social and ethics committee, who further contributed to insights around improving our safety systems.

We extend our deepest condolences to the families of Mr Malatji, Mr Tshwale and Mr Sandamela, and to their colleagues and friends.

ARM operations recorded 86 Lost Time Injuries<sup>2</sup> (LTIs) in F2020 (F2019: 90), 63 Reportable Injuries (F2019: 76) and 178 Recordable Injuries (F2019: 205). While injuries recorded at ARM operations decreased, total man-hours worked for the year reduced 11% in F2020. The ARM group Lost Time Injury Frequency Rate (LTIFR) consequently increased to 0.45 per 200 000 man hours (F2019: 0.42) while the Total Recordable Injury Frequency Rate (TRIFR) decreased to 0.92 (F2019: 0.96).

The LTIFR increased in both the Platinum and Ferrous divisions. Modikwa Mine is the only conventional stope/mining operation in the group and inherent risk is higher than at the other mines and 49 of the total LTIs were recorded at Modikwa Mine. The Black Rock Mine expansion project involves a large number of contractors on site, a significant increase in non-routine activities, the redeployment of employees to new work areas and the introduction of new tasks. Focused safety initiatives were launched at both Modikwa and Black Rock mines to improve safety performance and both operations showed an improvement in LTIFR.

<sup>1</sup> Safety statistics for non-managed operations are not recorded in ARM safety statistics.

<sup>2</sup> Safety definitions and additional safety statistics are available in the sustainability data tables available at [www.arm.co.za](http://www.arm.co.za)

Zero fatalities, zero harm to our employees *continued*

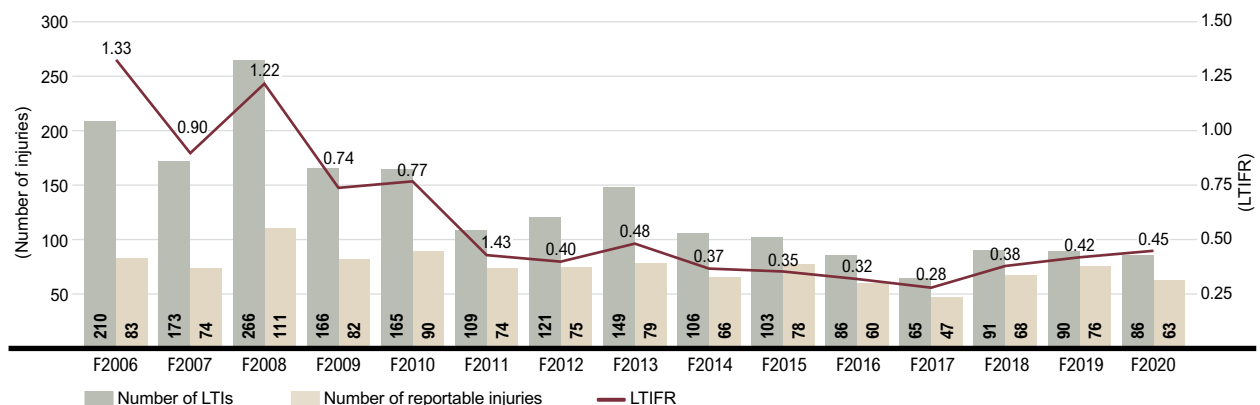
Injuries, the results of incident investigations and action plans to prevent recurrences are discussed in detail in operational safety meetings, operational management meetings and quarterly joint venture sustainable development committees. They are also included in reports to the quarterly ARM social and ethics committee meeting.

A strong focus in terms of safety relating to transport and trackless machinery remains on collision awareness and avoidance systems, which are also referred to as Proximity Detection Systems or PDS. Collision awareness systems (vehicle-to-vehicle as well as vehicle-to-person detection systems) have been installed in trackless machinery at ARM mines and collision avoidance systems are in the process of being installed. The operations are working jointly with vehicle manufacturers to develop solutions for current trackless mobile machinery. In addition, following the tragic fatal accident at Nkomati Mine, an audit of mobile machinery and maintenance systems was undertaken across the operations.

The focused safety intervention at Modikwa Mine saw the establishment of a sub-committee comprising representatives from both JV partners, ARM and Anglo American Platinum, to consider and review safety performance. Subsequently, three external safety specialist consulting firms were engaged to conduct surveys, audits and investigations of legal and technical compliance as well as of the safety culture at all levels of the organisation. The outcome of this process is an integrated safety improvement plan, which is being implemented.

During June 2020 a project manager was appointed to drive the implementation of the safety turnaround project.

Modikwa Mine's LTIFR improved from 0.90 in F2019 to 0.85.

**SAFETY PERFORMANCE: LAGGING INDICATORS (LTI AND REPORTABLE INJURIES)**

Safety achievements during the year included:

- Beeshoek Mine achieved 18 000 fatality-free production shifts on 16 August 2019, an accomplishment that took 16 years and 5 months to achieve. The mine also achieved 365 successive days without a lost time injury on 9 September 2019.
- Beeshoek Mine received the first prize for best safety performance, as well as the second prize for the most improved safety performance in the base metals category at the 10th annual South African Mining Industry SHE Awards day.
- Beeshoek Mine also received the runner-up award in the Northern Cape Mine Managers Association competition for the best safety performance.
- Khumani Mine achieved 3 million fatality free shifts on 29 November 2019.
- Black Rock Mine achieved 8 million fatality free shifts on 11 March 2020. This is a significant milestone that took 11 years and two months to reach and has only been achieved by a select few mines in South Africa, including Modikwa Mine. The mine also improved its LTIFR by 21% year-on-year.
- Modikwa Mine achieved 1 million fatality free shifts on 6 January 2020.

After year end, Beeshoek Mine achieved 19 000 fatality-free production shifts on 20 July 2020, an accomplishment that took 17 years and 4 months to achieve.

Operation	Total fatality-free shifts worked*	Last fatality*
Beeshoek Mine	4 505 705	March 2003
Black Rock Mine	8 187 522	April 2009
Khumani Mine	3 303 299	April 2015
Cato Ridge Works	2 568 626	February 2008
Machadodorp Works	1 138 917	February 2011
Modikwa Mine	1 461 950	March 2019
Two Rivers Mine	484 448	September 2019
Nkomati Mine	276 835	October 2019

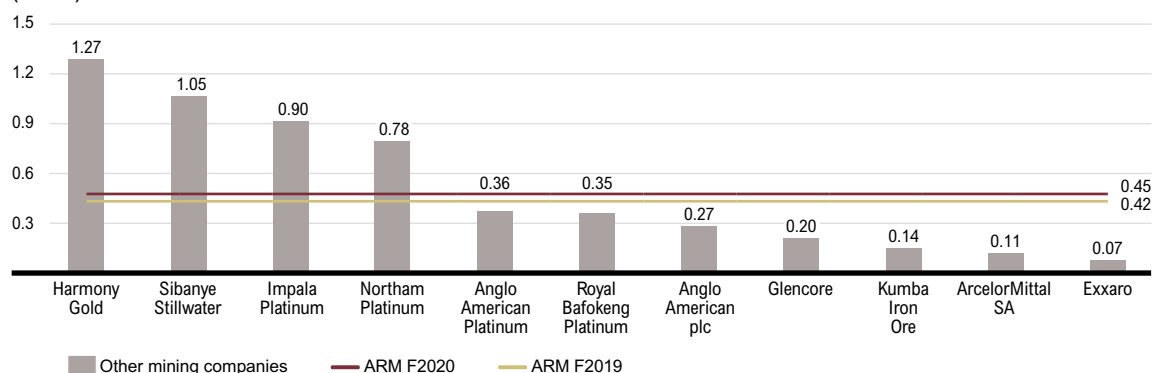
\* As at 30 June 2020.

Zero fatalities, zero harm to our employees *continued*

Safety performance indicators of different mining companies are not necessarily directly comparable due to the risks inherent in different mining and extraction processes, equipment and levels of complexity. We nevertheless benchmark our LTIFR against industry peers to provide context against which we can monitor our safety performance. The graph below compares ARM's LTIFR relative to the LTIFRs sourced from the latest published reports of peer mining companies.

**LTIFR INDUSTRY BENCHMARK**

(LTIFR)



Divisional and overall performance across the main lagging safety performance indicators we use to monitor our safety performance is shown in the table below.

	F2020			F2019		
	ARM Ferrous	ARM Platinum	ARM total	ARM Ferrous	ARM Platinum	ARM total
Lost Time Injuries	19	67	86	17	73	90
LTIFR <sup>1</sup>	0.23	0.63	0.45	0.19	0.60	0.42
Reportable Injuries	17	46	63	15	61	76
RIFR <sup>2</sup>	0.20	0.43	0.33	0.16	0.50	0.35
Total Recordable Injuries	40	138	178	60	145	205
TRIFR <sup>3</sup>	0.47	1.28	0.92	0.66	1.19	0.96
Fatalities	–	2	2*	–	1	1
FFR <sup>4</sup>	–	0.019	0.010	–	0.008	0.005

<sup>1</sup> LTIFR: Lost Time Injury Frequency Rate

<sup>2</sup> RIFR: Reportable Injury Frequency Rate

<sup>3</sup> TRIFR: Total Recordable Injury Frequency Rate

<sup>4</sup> FFR: Fatality Frequency Rate

\* Mr Simon Sandamela was fatally injured in a blasting incident on 10 November 2019 at Tweefontein Coal Mine. Safety statistics from ARM Coal are not included in the reporting boundary for this sustainability report as these operations are managed by our Joint Venture partner.



## F2020 FOCUS

### Improving compliance to regulatory and internal standards, thereby reducing stoppages due to Section 54 and Section 55 Notices.

In F2020, 28 Section 54 Notices were issued by the DMRE at ARM operations (F2019: 19) and 112 shifts (or part of shifts)<sup>1</sup> were affected by these stoppages (F2019: 64). 26 of these notices were issued in the ARM Platinum division – 13 at Modikwa Mine and 9 at Two Rivers Mine. One Section 55 Notice was issued at Black Rock Mine and four at Modikwa Mine, not affecting any shifts.

A significant number of shifts were lost as a result of stopping operations after the fatalities at Two Rivers and Nkomati mines, which were followed by extensive investigation and engagement with the DMRE to ensure that all measures for improvement and recurrence were implemented.

The smelters in the group were not issued with any Compliance or Prohibition Notices in terms of the Occupational Health and Safety Act during F2020 (F2019: 0).

<sup>1</sup> Note that stoppages may be applied to a particular activity within an area or to a specific area only, while production continues in the rest of the operation. Therefore quantification and comparison of shifts lost in each case is specific and unique.



More detailed safety statistics, including Section 54 and Section 55 Notices by operation, are available in the sustainability data tables on the ARM website [www.arm.co.za](http://www.arm.co.za)

	F2020			F2019		
	ARM Ferrous	ARM Platinum	ARM total	ARM Ferrous	ARM Platinum	ARM total
Section 54 Notices	2	26	28	1	18	19
Shifts (or part thereof) affected by Section 54 Notices	–	112	112	–	64	64
Section 55 Notices*	1	4	5	1	1	2

\* No shifts or part thereof affected by Section 55 Notices.





**Continued focus on monitoring and implementation of existing leading practices. Active participation in new initiatives and leading practices.**

ARM participates in industry forums and initiatives relating to health and safety where good practice is shared and adopted by members to help to improve health and safety performance. These initiatives include:

#### **The Mining Industry Occupational Safety and Health (MOSH) initiatives**

The MOSH Learning Hub was established by the Minerals Council South Africa (MCSA) to encourage mining companies to learn and adopt leading practices from areas of excellence across the industry. The MOSH Initiatives aim to help the mining industry to meet the Tripartite occupational health and safety Targets and Milestones. ARM's executive: sustainable development and the group occupational health and wellness superintendent participate in the MOSH Task Force of the MCSA and the Occupational Health and Safety Policy Committee of the MCSA.

#### **The International Council on Mining And Metals (ICMM)**

Membership of the ICMM provides access to a network for learning from peers and implementing industry good practice.

#### **The Culture Transformation Framework (CTF)**

The CTF aims to eliminate discrimination and create a safe, healthy and productive mining industry in South Africa, with risks controlled at source.

ARM's culture, systems and programmes align with the goals of the CTF. The Framework arose from a tripartite process between government, labour and industry with the goal of fostering collaboration between these stakeholders.



**Implementation of the Critical Control Management process to enhance current risk controls.**

Implementation of the Critical Control Management (CCM) process across the mining operations is at an advanced stage. The CCM process is globally recognised as a process that could significantly help to prevent disabling or fatal accidents by identifying critical controls to prevent major unwanted events. Good practice is being shared within the group. Completion of implementation has been delayed due to the Covid-19 preparations. Upon completion of implementation at all operations and pending the lifting of travel restrictions, an external audit of the process will be commissioned.



**Continued alignment with the occupational health and safety Milestones and targets set for 2024 during the 2014 Tripartite Summit of the Mine Health and Safety Council.**

ARM monitors and reports internally in terms of the Milestones at quarterly operational sustainable development committee/compliance review meetings. Progress towards achieving the targets is reported to the DMRE in the annual Mining Charter reports, and is also reported to the MCSA.

## **Focus for F2021**

Zero fatalities and zero harm to employees.

Reduction in injuries and severity of injuries.

Completion of the implementation of the CCM process as well as verification of effective implementation.

Continued learning, internally among operations and from engagement with peers and industry associations.

# OCCUPATIONAL HEALTH AND WELLNESS

“Safe and sustainable mining requires a healthy workforce. ARM’s integrated wellness management programme aims to prevent occupational health hazards from impacting on employee health and to actively identify and manage health risks and chronic conditions that may impact the wellness and quality of life of individuals. Health is also integral to the safety and productivity of the workforce.”

## Reporting context

### REPORTING FRAMEWORKS

ICMM



UN SDGs:



### PRINCIPAL LEGISLATION

- The Mine Health and Safety Act (MHSA)
- The Occupational Health and Safety Act (OHS Act)
- The Mining Charter
- The Occupational Diseases in Mines and Works Act
- The Compensation for Occupational Injuries and Diseases Act
- The Disaster Management Act

ARM takes a precautionary approach to occupational health and wellness that aims as far as possible to limit at-source workplace exposure to hazards. The integrated wellness management programme also covers primary and chronic health challenges that affect the workforce, including pulmonary tuberculosis (PTB), HIV and sexually transmitted infections (STIs). The programme aligns with and supports government initiatives described in the National Strategic Plan (NSP) to reduce and prevent these and other primary health challenges, and includes community awareness and outreach initiatives.

Our approach to occupational health and wellness aligns with the requirements of the Department of Health (DoH), Department of Employment and Labour (DOEL), Department of Mineral Resources and Energy (DMRE) and the Mine Health and Safety Council (MHSC).

## HOW WE MANAGE OCCUPATIONAL HEALTH AND WELLNESS

The occupational health management programme combines occupational hygiene surveillance that provides important leading indicators regarding exposure to hazards in the workplace with comprehensive risk-based occupational medical surveillance programmes that identify and monitor for the health risks relevant to each workplace and occupation. These programmes align with SANS 16001 (the South African national standard on disease and wellness management) and

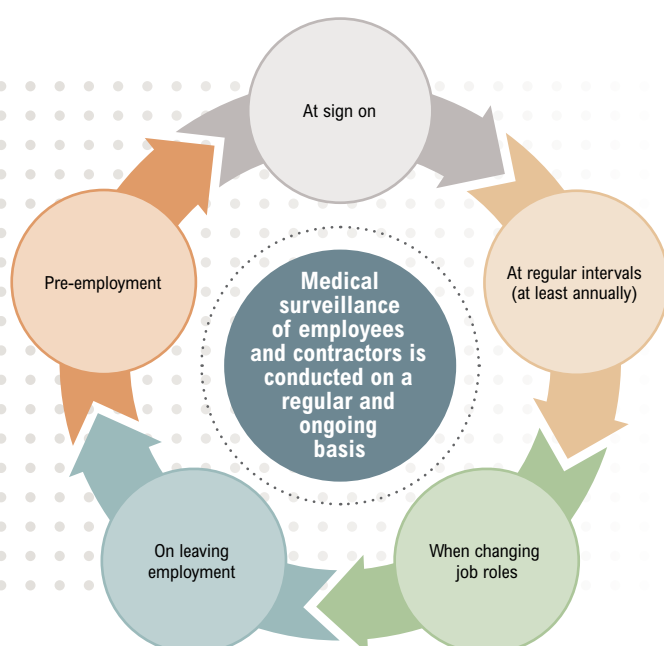


the three mines in the ARM Ferrous division are SANS 16001 certified. Two Rivers Mine and Cato Ridge Works are certified in terms of ISO 45001 (the international standard on occupational health and safety management) and Nkomati Mine is certified in terms of OHSAS 18001 (the previous international standard on occupational health and safety management). Modikwa Mine is implementing an integrated ISO 14001 and ISO 45001 management system in preparation for certification in terms of these standards. While Modikwa Mine and Machadodorp Works are not currently formally certified in terms of OHSAS 18001, they remain aligned with the standard.



Site clinics are operated and managed by reputable external occupational healthcare service providers which we contract and partner with to provide occupational health and wellness services to employees and contractors.

The occupational healthcare system is linked to access controls to ensure that employees know their health status and that only employees who are fit to perform work enter potentially hazardous workplaces. Health screening and medical examinations appropriate to each employee's risk profile are conducted at least annually. Supervisors are notified of due dates for employees' scheduled medical examinations to ensure that priority is given to medical examinations, certificates of fitness are valid and chronic conditions are well controlled.



Contractors are treated as employees and are screened at the start of, during and at completion of contracts. Occupational health and hygiene training is provided at induction, and Wellness Officers and Peer Educators provide ongoing training and awareness.

Operational wellness committees at the operations meet regularly to discuss issues relating to occupational health, hygiene and wellness. Engagement between representatives of the employer, employees and organised labour promotes a partnership approach to managing wellness.

The superintendent: occupational health and wellness co-ordinates the implementation of group health and wellness policies and oversight across the group. The ARM health and wellness standard informs occupational hygiene, health and wellness practices and processes to ensure consistency across operations. The standard is based on the requirements of relevant legislation, reporting frameworks, industry good

practice and SANS 16001. The operational clinics are audited annually by a certified external auditor against legal requirements and the ARM standard to identify areas for improvement, measure year-on-year progress and benchmark performance between operations. The average score across the operations was 86.5% in F2019, above the target of 81% at the time. In order to ensure continuous improvement, we revised the target to 85% in F2020. The audits are usually conducted towards the end of the financial year and the focus on Covid-19 related initiatives and the national lockdown resulted in the audits not being performed in person this year. Instead, the occupational medical practitioner who conducted the audits in F2019 held virtual meetings and conducted online reviews to revisit the findings from the previous audits to ensure that the requisite improvements have been implemented and that the standard remained consistent across the group.

A comprehensive audit of each operation will be conducted during the third quarter of F2021.

Other assessments that provide assurance around the integrated wellness management programme include:

- Quarterly reviews by an external occupational health expert.
- Annual internal audits of operating procedures and practices by an independent occupational health nurse and doctor to monitor compliance and identify areas for improvement.
- External safety, health and environmental (SHE) audits facilitated every second year by the ARM corporate office (performed in F2019).
- Annual external audits related to certification in terms of OHSAS 18001 and ISO 45001.
- SANS 16001 certification audits at the mines in the ARM Ferrous division.
- Annual external assurance of a number of health indicators as part of the assurance of sustainability data.



## OCCUPATIONAL HEALTH AND WELLNESS

Material health risks in the mining industry include noise-induced hearing loss (NIHL), occupational respiratory diseases arising from exposure to particulate matter, fumes and hazardous substances. The ten-year goals set by the Mine Health and Safety Council (MHSC) in 2014, referred to as the Occupational Health and Safety Milestones, include the elimination of occupational lung diseases and NIHL.

A comprehensive hearing conservation programme at the operations addresses NIHL and regular occupational medical surveillance programmes monitor for occupational respiratory disease. While cases of occupational respiratory disease have been reported at our operations, baseline indicators from pre-employment medical surveillance indicate that, to date, these cases relate to exposure that arose before commencing employment with ARM. Our clinics facilitate compensation submissions in these cases regardless of the origin of conditions.

We aim to limit at-source workplace exposure to hazards as far as possible, through a combination of:

- identification of potential hazards and risk assessment;
- control at source;
- personal protective equipment;
- employee education and training on job-related risks and related controls;
- awareness campaigns;

- occupational hygiene and personal monitoring; and
- formalised safe operating procedures to limit exposure.

All employees and contractors undergo medical surveillance prior to starting to work in risk areas in order to measure and record individual baseline information for relevant indicators, such as hearing and lung capacity. These indicators are regularly monitored as part of the mandatory medical surveillance programmes to assess and follow up on shifts from the baselines. Deterioration in the indicators is addressed through counselling and training and, where appropriate, the use of personal protective equipment. For example, when the hearing capacity of an employee shifts from the initially recorded baseline above a defined threshold, the case is reported to the DMRE and, if occupational exposure is suspected, the employee is referred for specialist examination to confirm this.

The Covid-19 lockdown, the staggered restart and focus on limiting the spread of Covid-19 at operations created a backlog in scheduled periodical medical surveillance, including audiometric tests and lung function tests. Each operation engaged with the regional office of the DMRE to appraise them of the backlog and the plans for managing the overdue medicals. As a result, there has been a decrease in the number of audiometric and HIV counselling and voluntary testing sessions but PTB screening continued as part of Covid-19 related health screening practices.



**Continued focus on reaching the 2014 Occupational Health and Safety Milestones, which include elimination of occupational lung diseases and noise-induced hearing loss.**

ARM's progress against the ten year goals set by the MHSC:

### **Eliminate occupational lung disease (no new cases of silicosis)**

No new silicosis infections have been diagnosed arising from exposure at ARM-managed mining operations since 2009. Three silicosis cases that were diagnosed, investigated and established as originating from exposure prior to employment at ARM operations, were submitted for compensation during F2020 but not included in the Milestone statistics.

### **Eliminate noise-induced hearing loss (no hearing shifts >25 db from hearing baseline)**

Regular audiometric testing includes early warning programmes to effectively manage NIHL. In cases where early warning indicators or even minor shifts from the hearing baseline are detected, counselling and coaching about hearing protection is provided.

### **Prevention of HIV & AIDS and PTB (PTB incidence to be below national level, currently reported as 567/100 000)**

The incidence of PTB per 100 000 employees at ARM mines is 245. This is significantly below the national rate of 567 and the industry rate of 298 (for 2019).

1 Source: WHO Global TB Report 2018, based on 2017 data. This is the latest available WHO data as reported in the Masoyise Health Programme 2019 Annual Report

## Hearing conservation and NIHL<sup>1</sup>

The hearing conservation programme aligns with the Mining Industry Occupational Safety and Health (MOSH) leading practice on noise, an initiative in adoption of leading practice facilitated by the MCSA. Regular audiometric testing is done to monitor deviation from individual hearing baseline in the form of Standard Threshold Shifts and includes specialist early warning programmes that detect deformity in the sensory hair before actual hearing loss occurs.

Percentage loss of hearing (PLH) measures deviation from the individual's hearing baseline established before they start working or when they are transferred between work environments. Where deterioration in hearing is identified, appropriate measures are implemented as shown in the column on the right. PLH shifts of 5% or more are reported to the DMRE and investigated in terms of Section 11.5 of the Mine Health and Safety Act (MHSA).

Where the hearing loss may be due to exposure to noise, individuals with PLH shifts greater than 10% are referred for specialist examination. This includes diagnostic audiograms conducted by an Audiologist and Ear, Nose and Throat Specialist to establish the cause of the hearing loss. If the audiograms confirm NIHL due to workplace exposure, a claim for compensation is submitted on behalf of the employee<sup>2</sup>.



### How we manage hearing conservation

#### Audiometric testing

- Baseline medical surveillance testing performed prior to employment and when transferring between work environments to establish baselines.
- Regular periodic hearing tests include early warning programmes and identify PLH shifts from the hearing baseline.

#### Workplace hearing conservation initiatives

- Reducing equipment noise emissions to below the DMRE threshold (107 dB(A)).
- A buy-quiet policy for new equipment.
- Hearing safety awareness campaigns in high noise areas.
- Training in the use of hearing protection devices (HPDs), which include personalised HPDs at all operations for employees who work in areas where they might be exposed to noise above 85db.

#### If hearing deteriorates

- Counselling and coaching is provided to the affected person.
- Clinic personnel provide training.
- Appropriateness and effectiveness of hearing protection devices is re-confirmed.
- Exposure to noise both at and outside the workplace is monitored.
- The employee is redeployed to work in areas with low noise levels where possible.

### Hearing conservation in F2020

**↓ 31 284**  
Audiometric tests conducted decreased 14% to 31 284 due to Covid-19 impact  
(F2019: 36 572)

**↓ 1.1%**  
The number of employees who recorded PLH shifts >10% decreased to 1.1% as a result of our ongoing focus on hearing conservation  
(F2019: 1.4%)

**↓ 2.1%**  
The number of employees who experienced PLH shifts or deterioration in hearing between 5% and 10% from baselines as recorded at employment decreased to 2.1% due to effective early warning programmes for hearing loss  
(F2019: 2.7%)

<sup>1</sup> More information on current and historic NIHL at an operational level can be found in ARM's sustainability data tables, available on our website at [www.arm.co.za](http://www.arm.co.za).

<sup>2</sup> Claims for NIHL are submitted for compensation to either Rand Mutual Assurance (mine employees) or the Medical Bureau for Occupational Diseases (employees at our two smelters) in terms of the Occupational Diseases in Mines and Works Act.

## Dust and hazardous substances

### Hazardous substances include:

#### Dust particulates

Long-term exposure to high levels of dust can result in respiratory complications including pneumoconiosis and increased pulmonary tuberculosis (PTB) infection rates. The occupational hygiene monitoring programmes at ARM operations routinely monitor the silica content in the orebodies of our base metals and platinum mines. Silica levels recorded are consistently below analytical detection limits and there is therefore minimal risk of exposure to silica at our operations.

While three cases of silicosis were reported during F2020 (F2019: 6), the baseline indicators for these workers recorded at pre-employment occupational medical surveillance indicate that these arose from exposure to silica before commencing work at ARM operations. The clinic personnel at the relevant operations facilitated the process of submitting compensation claims for affected individuals.

Dust suppression is a core occupational hygiene focus and airborne dust levels are controlled using water sprays and surfactants. Extractor fans minimise exposure to dust in the workplace where relevant and where dust cannot be eliminated at source, employees are supplied with dust masks.

#### Asbestos

Asbestos fibres have been detected in the ore body at Nkomati Mine but are not present at the other mines in the group. Nkomati Mine has extensive dust suppression and exposure mitigation measures in place and a comprehensive surveillance and control programme was implemented in consultation with leading experts from the Institute of Medicine (IOM) in Scotland.

Two cases of asbestosis were diagnosed at Black Rock Mine and reported to the Medical Bureau for Occupational Diseases (MBOD) in F2020 (F2019: 3). Investigation into these cases by the local Asbestos Relief Trust confirmed that they relate to community exposure. The cases were reported to the DMRE and the site clinic facilitated compensation claims.

#### Manganese

A medical surveillance and biological monitoring protocol for manganese developed by leading occupational health specialists has been implemented at Cato Ridge Works, which processes manganese ore, at Black Rock Mine, where the ore is mined, and for employees who handle the ore at the Saldanha and Port Elizabeth port terminals.



#### Other

- Chromium
- Coal, tar, pitch and volatiles (CTPV) at Cato Ridge Works

## PRIMARY HEALTH

ARM's integrated wellness management approach includes comprehensive programmes to manage the primary healthcare challenges in the workforce.

Primary healthcare (PHC) services including treatment and counselling are provided through wellness centres at all of the mines, except for Nkomati Mine, where the full time PHC nurse provides daily PHC services at the mine clinic. Trained occupational health and wellness coordinators oversee the wellness programmes at the operations.

Healthcare programmes at the operations align with and support national health priorities, including those addressing pulmonary tuberculosis (PTB), HIV & Aids and sexually transmitted infections (STIs) laid out in the National Strategic Plan 2017 – 2022 of the DoH, the DMRE Guidelines for PTB, HIV & Aids Management and the requirements of the Mining Charter.

The wellness coordinators at Two Rivers, Modikwa, Khumani, Beeshoek and Black Rock mines have completed training on the implementation of SANS 16001, which addresses disease and wellness management, including HIV & Aids. Beeshoek, Black Rock and Khumani mines have Memorandums of Understanding (MOUs) with the Northern Cape DoH to strengthen the implementation of provincial PTB, HIV & Aids, STIs and chronic diseases strategies, and extend primary healthcare services to contractors and communities. These partnerships build capacity of local clinic staff and engage communities and other stakeholders to decrease the morbidity and mortality associated with these diseases. The wellness centre at Beeshoek Mine is approved to dispense HIV & Aids, STI and PTB treatment.

A similar MOU was finalised at Modikwa Mine with the Limpopo DoH during the year and is being implemented. Implementation of an MOU at Two Rivers Mine is progressing, however mandatory training of clinic personnel by the DoH was delayed due to the national lockdown.

Contractors presenting with chronic diseases are treated in terms of memorandums of understanding with the DoH and, where appropriate, referred to public hospitals and clinics.



# Covid-19 management



**All South African operations stopped production from 27 March to 17 April 2020 in line with the national lockdown announced by the President on 23 March. Operations communicated with employees during lockdown, sending sms messages to motivate compliance with the lockdown rules and re-emphasise measures to protect employees and their families.**

Before restarting, the operations completed 'return to work' procedures in line with Standard Operating Procedures developed according to the guidelines from the Minerals Council South Africa and relevant guidelines including those of the Department of Mineral Resources and Energy (DMRE) and Department of Health (DoH). The mines submitted the mandatory Codes of Practice on Covid-19 management and engaged the DMRE in terms of return to work arrangements as required. Trade unions were involved with the development of the Return to Work plans and provided support to management with the restart of operations.

The operations continue to follow a risk-based approach in allowing employees to return to work. Employees who are vulnerable or have co-morbidity risks (e.g. HIV, TB, excessive body mass index, cholesterol or blood pressure as well as other chronic health conditions) that are not well controlled, have been excluded for their own wellbeing. Employees undergo compulsory occupational health screening to determine fitness to work initially upon return after the lockdown, in addition to daily Covid-19 related screening, referral or testing as appropriate.

Special training sessions were held to educate the workforce on the risks and all other matters relating to the Covid-19 epidemic.

Quarantine facilities have been secured for employees who test positive for Covid-19 and employees support programs are in place, including ongoing provision of medical support to employees who need it. Controls were extended to transport providers to implement effective sanitisation and distancing measures.

The mining and smelter operations continue to revise risk assessments and update Standard Operating Procedures and Codes of Practice as new guidelines and regulations are issued.

Site clinics have implemented the protocols of the National Institute of Communicable Diseases (NICD) of the DoH. Healthcare personnel have been trained by the DoH in terms of Covid-19 testing. Clinics have been inspected regularly by both the DMRE and DoH in terms of compliance with the protocols since re-opening of the operations and have been found compliant.

For confirmed Covid-19 cases, contact tracing and screening as well as case management in terms of quarantine and isolation, is conducted in alignment with the Guidelines issued by the DoH. Results of screening and testing are reported to the DMRE, the DoH and the MCSA as appropriate.

At the ARM corporate office, a comprehensive risk assessment was conducted and mitigation measures implemented prior to re-opening of the offices. A detailed Standard Operating Procedure was developed and implemented (and has subsequently been reviewed and updated) to manage the prevention of spreading of the Covid-19 virus in accordance with national and international guidelines. The ARM corporate health and safety committee and appointed Covid-19 compliance officer, continuously monitor compliance and implement improvement measures.

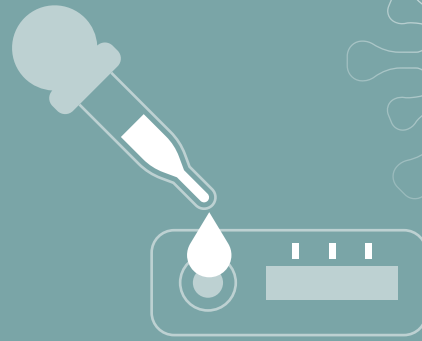
In order to manage Covid-19 positive cases and conduct appropriate contact tracing and screening at the ARM corporate office, the specialist services of an occupational nursing practitioner and occupational medical practitioner were contracted. This approach has served to contain outbreaks of Covid-19, protecting the health and safety of ARM corporate employees.

ARM operations also participated in various initiatives to support local communities during the pandemic.



See pages 39 and 40 for more details.

# Mining industry Covid-19 collaboration



Mining operations are participating in the collaborative initiative facilitated by the Minerals Council South Africa to ensure:

An effective Covid-19 testing strategy;

Increased testing capacity for the industry by facilitating access to laboratory facilities;

Engagement with the Department of Health, including the National Health Laboratory Services; and

Regional cooperation to secure quarantine and isolation facilities.

ARM participates in Regional Working Groups that were established in the mining communities around the mines.

## TESTING STRATEGY

The testing strategy prescribed by the National Institute for Communicable Diseases (NICD) was adopted throughout the operations and resulted in focus on:

- Testing employees based on health questionnaires, temperature screening, display of symptoms and direct contact with confirmed Covid-19 positive cases;
- Stratifying vulnerable and high-risk employees with co-morbidities;
- Quarantining of employees who travelled to and from areas declared as hot spots;
- Re-testing of employees post quarantine and isolation; and
- Regular testing of front line workers.

At the start of June 2020, the testing strategy was reviewed due to the high demand within the national system when testing facilities were no longer coping with the volumes received. The testing strategy was revised accordingly to:

- Only test symptomatic cases;
- Prioritise frontline workers; and
- Eliminate testing for employees post quarantine and Isolation subject to medical advice.

## TESTING CAPACITY

ARM operations formed collaborations within their regions to secure testing facilities as follows:

- Modikwa Mine signed an agreement with Anglo American to use the laboratory at Mototolo Mine;
- Khumani, Beeshoek and Black Rock mines signed a Memorandum of Understanding (MOU) with Anglo American to use testing machines based at Kolomela mine in Postmasburg and Kumba in Sishen, over and above the MOU agreements in place with the DoH in the Northern Cape.

## QUARANTINE AND ISOLATION FACILITIES

All ARM mining operations made arrangements for quarantine and isolation facilities within existing mine properties and arrangements with private lodges/hotels, as follows:

- Khumani and Beeshoek mines secured beds at a shared lodge in Kuruman;
- Black Rock Mine secured beds at a lodge at Black Rock Village and at the mine single quarters;
- Modikwa Mine set up an arrangement for capacity in a local residence, with half of the beds used for isolation purposes;
- Two Rivers Mine secured capacity at a hotel in Polokwane for employees from Mozambique and additional capacity at a local farm house; and
- Nkomati Mine secured capacity at a lodge in Machadodorp.

## PTB, HIV & Aids

ARM's occupational health and wellness program integrates management of PTB, HIV & Aids and STIs, and prioritises their early identification. Awareness and education about these conditions is provided during induction training and at wellness days, including World Aids Day on 1 December. The mining operations report monthly to the DMRE regarding screening, diagnosis and treatment, as well as compliance with the DMRE Guidelines for PTB, HIV & Aids Management.



**Continue passive PTB screening and offering HIV counselling and voluntary testing to all employees visiting our clinics.**

**Alignment with and implementation of the National Strategic Plan (NSP 2017 – 2022) to ensure reduction and prevention of PTB, HIV & Aids infections and STIs; offer all employees counselling and voluntary testing (CVT); and link all eligible employees to an anti-retroviral (ART) treatment programme.**

### The Masoyise Health Programme

The Masoyise Health Programme is a multi-stakeholder initiative led by the Minerals Council South Africa focused on leading the fight against PTB, HIV, occupational lung diseases and non-communicable diseases in the mining industry. The programme includes targets to offer HIV testing to 100% of employees annually and link those who test positive to an anti-retroviral therapy (ART) programme, and to reduce TB incidence in the mining sector to below the national TB rate by 2024. ARM participates in the programme and the mining operations submit quarterly Masoyise reports to the MCSA.

## HIV & Aids

Employees are encouraged to know their HIV status and to take responsibility for managing their wellness, and the ARM group HIV & Aids policy emphasises the right of all employees to confidentiality and non-discrimination on the basis of HIV status. Trained peer educators provide ongoing awareness and training, and provide formal feedback on their activities.

### HIV & Aids management in F2020

**↓ 27 397**  
CVT counselling sessions decreased 20% to 27 397 due to Covid-19 impact  
(F2019: 34 246)



**↑ 18 464**  
employees tested (+45%)  
(F2019: 12 765)

**↓ 3 168**  
employees on ART (-16%)  
(F2019: 4 767)

HIV counselling and voluntary testing (CVT) is offered (but not obligatory) at every visit to the PHC facilities, including at induction and during regular follow-up visits for chronic disease management. Permanent employees belong to medical aid schemes that provide disease management programme (DMP) benefits, including HIV & Aids treatment.

Indicative HIV prevalence rates from the operational clinics indicate that estimated prevalence rates at our operations are below the district and provincial prevalence. The average estimated HIV prevalence for the operations is 6.2% (F2019: 7.8%).

It is encouraging that more employees elected to undergo HIV testing than in the previous year. The number of employees tested for HIV increased by 45% year on year due to HIV campaigns at Modikwa, Black Rock and Two Rivers mines in December 2019. However, counselling sessions decreased 20% due to the lockdown in the last quarter, the restart during which operations operated at low capacity and the scaling down of activities at Nkomati Mine.

Anti-retroviral therapy (ART) is provided through various medical aid schemes, local wellness centres and through Government clinics with MOUs. The test and treat policy of the DoH has been implemented across all operations and all patients receiving ART are enrolled on DMPs. Employees and contractors receiving ART decreased by 16% as contractors returned to their home areas during Covid-19 and were transferred from ARM DMPs to DMPs in their home areas.

	F2020			F2019		
	ARM Ferrous	ARM Platinum	ARM total	ARM Ferrous	ARM Platinum	ARM total
Employees and contractors						
Counselled*	12 355	15 042	27 397	18 078	16 168	34 246
Tested	5 856	12 608	18 464	5 802	6 963	12 765
Enrolled in disease management programmes	1 597	1 571	3 168	1 715	2 049	3 764
Receiving anti-retroviral therapy (ART)	1 597	1 571	3 168	1 715	3 052	4 767

\* Since CVT is offered to employees and contractors at every visit to the PHC facilities, the number of counselling sessions can be greater than the number of employees and contractors at year end.



## Pulmonary tuberculosis (PTB)

Mandatory passive PTB screening tests are conducted on all employees and contractors using the cough questionnaire of the DoH each time they visit the clinics. Contact tracing is conducted at the workplace for all new PTB cases to manage infection control. Site clinics notify the community clinic in the area where the employee resides to arrange for contact tracing at home. New PTB cases are reported to the DMRE and submitted to the Medical Bureau for Occupational Disease (MBOD) for possible compensation.

*Note: The Department of Health monitors PTB statistics on a calendar-year basis. The PTB statistics in this section align with this approach and report statistics for the 12 months ending 31 December 2019 (C2019).*

Employees with PTB are treated by the local DoH clinic and monitored according to the national PTB management protocol. In alignment with the MOUs with the DoH, all mines provide Isoniazid Preventative Therapy (IPT), which is provided for a period of six months, particularly to support patients with HIV or other lung diseases such as pneumoconiosis.

### PTB management in the calendar year to 31 December 2019

**↑ 55 265**  
Passive screening tests (+10%)  
(C2018: 50 358)

**↓ 46**  
New PTB cases (-30%)  
(C2018: 66)



**↓ 87%**  
cure rate  
(C2018: 87.9%)

There has been a significant decrease (30% year on year) in the number of new PTB cases across the operations. This can be attributed to awareness programmes, health monitoring and IPT. PTB incidence is below national rates at all ARM mines and below industry rates at all mines except Two Rivers Mine. The mine has negotiated an MOU with the Limpopo DoH that will enable the implementation of IPT to reduce PTB rates. However, the mandatory training and accreditation of clinic personnel by the DoH could not be completed before year end due to the national lockdown. PTB incidence at Two Rivers Mine improved by 25% from C2018 to C2019 and we expect further improvement with the implementation of IPT. From January to June 2020, Two Rivers Mine recorded five new PTB cases compared to four new cases for the corresponding period in the previous year.

National PTB incidence	567/100 000 workers
Industry PTB incidence	435/100 000 workers
ARM Mines Incidence	245/100 000 workers
Total PTB cases at ARM Mines C2018	66
Total PTB cases at ARM Mines C2019	43*

\* Excludes 3 PTB cases recorded at the ARM smelter operation.

A total of 55 265 PTB screening tests were conducted on employees and contractors in the 12 months to 31 December 2019 and 46 new cases were detected. The cure rate remained at 87.0% (C2018: 87.9%), slightly below the DoH's 2014/2015 target of 90%. Three cases of multi-drug resistant (MDR) PTB were detected at our operations during the year (C2018: five). The patients were admitted to special MDR hospitals for further management as required by the DoH. Each case was investigated in terms of Section 11(5) of the Mine Health and Safety Act with the results being submitted to the DMRE and the progress of each patient being monitored by clinic personnel during treatment.



## F2020 FOCUS

Continued focus on reaching the 2014 Occupational Health and Safety Milestones, which include elimination of occupational lung diseases and noise-induced hearing loss.



ARM supports community initiatives that address PTB, HIV & Aids, including providing support for community wellness centres and home-based care groups, as well as facilitating community

awareness and testing campaigns. Where possible, ARM operations engage with local Aids councils to ensure community projects address the most pressing wellness and health needs.

	January to December 2019			January to December 2018		
	ARM Ferrous	ARM Platinum	ARM total	ARM Ferrous	ARM Platinum	ARM total
Employees and contractors:						
Screened*	37 002	18 263	55 265	33 587	16 771	50 358
New cases	22	24	46	13	53	66
Cured	16	24	40	8	50	58
MDR/XDR**	1	2	3	1	4	5

\* Since passive TB screening is conducted at all visits to the PHC facilities, the number of counselling sessions is greater than the number of employees and contractors at year end.

\*\* Multi-drug resistant/Extremely drug resistant TB.

The DoH's 90-90-90 principle relates to PTB, HIV & Aids counselling and testing, and refers to Goal Three of the NSP. This requires that operations achieve 90% compliance with the following elements by 2022:

### HIV & Aids

**90%** of employees living with HIV must know their status

**90%** of employees who are HIV positive must be on ART

**90%** of employees on ART must achieve viral suppression

### PTB

**90%** of employees must be screened for PTB

**90%** of those diagnosed with PTB must be on treatment

**90%** of those on PTB treatment must be cured successfully

ARM has achieved 100% for the three PTB-related goals, but the HIV & Aids indicators declined below the target in F2020. This is primarily due to a decrease in employees and contractors registered in DMPs and receiving ART as a result of operations operating at reduced capacity from March to June 2020 and the movement of contractor employees off ARM DMPs when transferred to different treatment programmes near their homes.

## Chronic conditions



**Continued risk-based monitoring and treatment of chronic conditions, particularly hypertension.**

The integrated health risk and wellness management programmes at the operations monitor chronic diseases including hypertension, Type 1 and Type 2 diabetes, and epilepsy. Individuals diagnosed with chronic conditions are recorded in chronic disease registers and monitored by specific occupational risk exposure profiles with specific reference to high risk occupations.

Lifestyle diseases including hypertension and Type 2 diabetes are increasing in the South African population. Hypertension remains a concern as it is a key risk factor for stroke and heart disease. The number of hypertension cases reported at operations increased by 20% in F2020 from 2 363 to 2 839 cases, with the highest prevalence rates evident at Beeshoek, Nkomati and Two Rivers mines. A high incidence has been recorded among employees working in core functions such as mining and engineering.

All operations have implemented programmes to address chronic conditions such as hypertension and diabetes by focusing on increasing physical activity and creating awareness around diet and lifestyle. Education on lifestyle diseases forms part of the compulsory occupational health surveillance programme.

The clinics monitor employees with hypertension and manage compliance with prescribed treatment regimes. Workplace blood pressure screening and surveillance have increased, body mass index is included in the medical surveillance programmes and occupational medical practitioners monitor and report blood pressure statistics every quarter.

The clinic teams in the Northern Cape mines include dieticians and the ARM Platinum operations use contracted dieticians as part of the employee assistance programmes. Education regarding lifestyle diseases is included in the compulsory occupational health surveillance programme for employees in addition to the wellness awareness aspect of the induction program. Clinics also engage other stakeholders such as the Department of Health and community NGOs in conducting wellness campaigns both in the workplace and the community.

Nkomati Mine identified a significant increase in new hypertension cases for the last quarter. According to the wellness and clinic team, stress related to the Covid-19 pandemic and imminent closure of the mine, played a material role. In addition to focused monitoring and lifestyle coaching, the mine has implemented financial coaching sessions and counselling sessions as part of the employee wellness programme.

Upper respiratory tract infections (URTIs) are diagnosed based on a medical screening questionnaire rather than on a full diagnostic process and are more frequent during the cold winter months. 8 694 cases of URTI were diagnosed and treated during F2020, which includes repeat cases (F2019: 12 194).

### Chronic conditions in F2020 (number of cases as a % of the workforce)

**Hypertension**

**↑ 15.1%**

(F2019: 11.5%)

**Diabetes Type 1**

**↑ 0.4%**

(F2019: 0.2%)

**Diabetes Type 2**

**↑ 2.9%**

(F2019: 2.3%)

**Epilepsy**

**→ 0.1%**

(F2019: 0.1%)

## Focus for F2021

Continued focus on reaching the 2024 occupational health and safety Milestones, which include elimination of occupational lung diseases and noise-induced hearing loss.

Continued risk-based monitoring and treatment of chronic conditions, particularly hypertension, supported by lifestyle coaching and awareness programmes

Continue alignment with the National Strategic Plan (NSP 2017 – 2022) to ensure reduction and prevention of PTB, HIV & Aids infections and STIs; offer all employees counselling and voluntary testing (CVT); and link all eligible employees to an anti-retroviral (ART) treatment programme.

Continue passive PTB screening and offering HIV counselling and voluntary testing to all employees visiting our clinics.

Reinforce PTB-related community outreach projects to focus on early detection and treatment of PTB for communities around the operations.

Continue progress towards achieving the DoH Strategic Plan in terms of the 90-90-90 goals for PTB, HIV & Aids, with a focus of improving performance in the HIV & Aids indicators.

Screening, testing and prevention of the further spread of Covid-19.