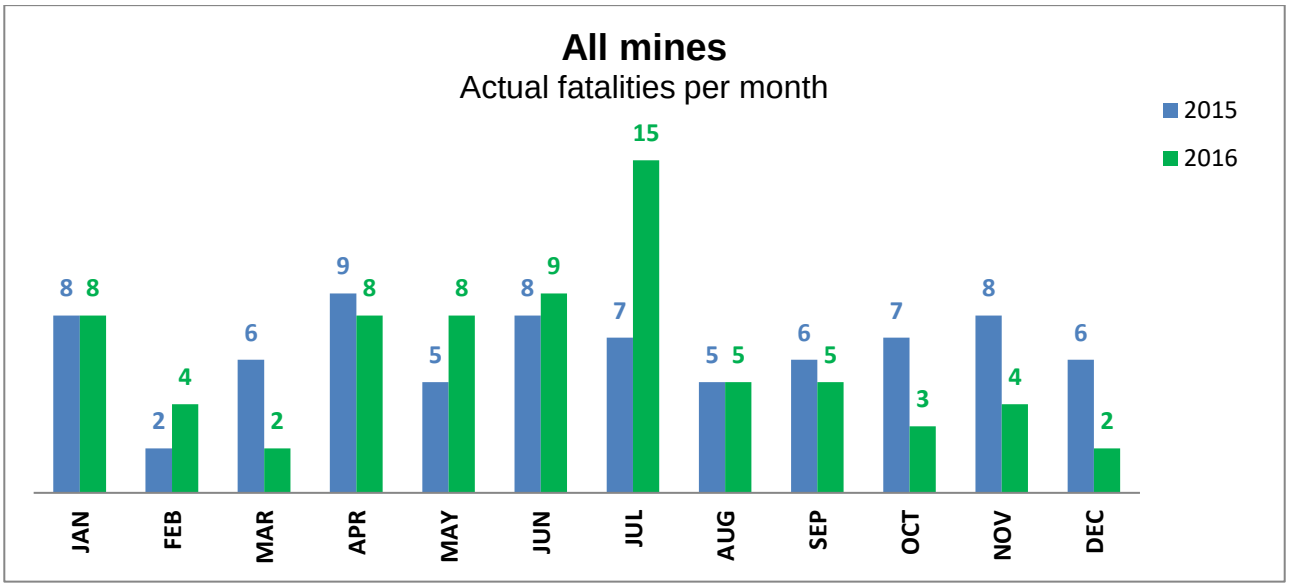
mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

Occupational Health and Safety Report:

December 2016

1. OVERALL FATALITIES PER MONTH

During the month of December 2016, **two (2)** fatalities were reported whilst during the same period in 2015 a total of **six (6)** mine workers were fatally injured. However from January to December 2015 there were 77 mine workers that were fatally injured whilst during the same period in 2016 a total of 73 mine workers were fatally injured. This translates to a decrease in fatalities of 5% year on year.



2. STATISTICS OF FATALITIES BY REGION

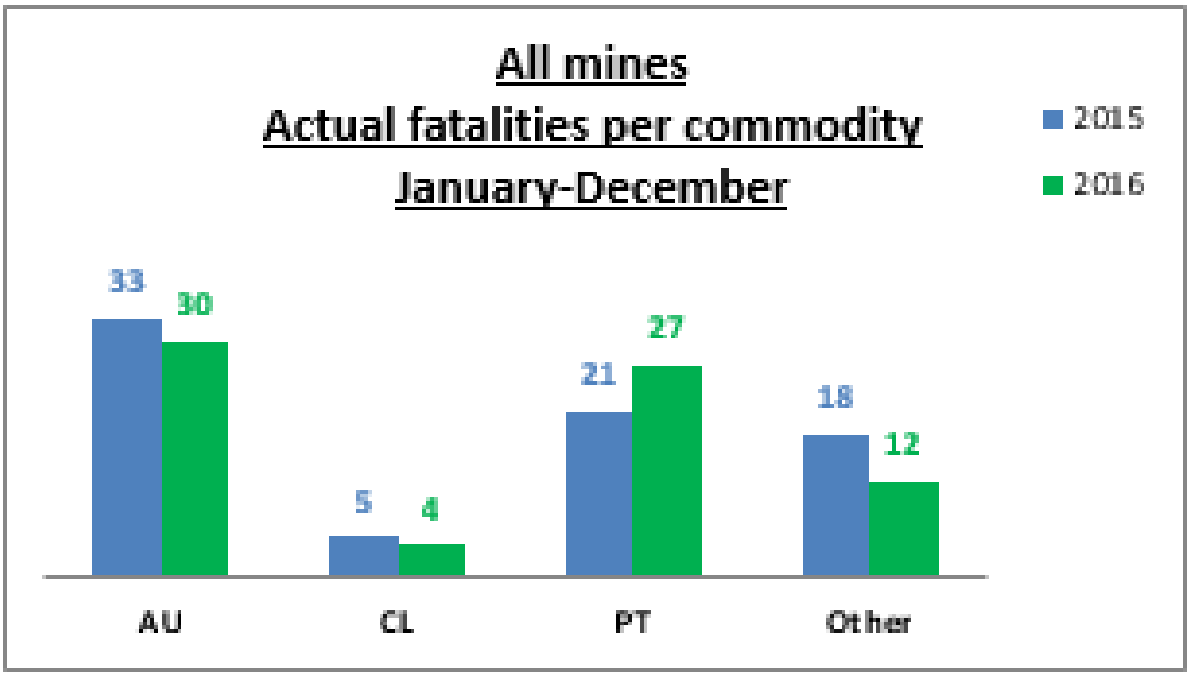
The table below illustrates the progressive performance of each region with regard to fatalities. During the month of December 2016, **eight (8)** of the **ten (10)** regions managed to mine without a fatality. The Western Cape, Eastern Cape and Kwa Zulu Natal regions last reported a fatality on 26/09/2015, 11/10/2015 and 05/02/2015 respectively.

	WC	NC	FS	EC	KZN	MPU	LP	GP	NW-KD	NW-RB	TOT
Jan	0	1	1	0	0	0	0	1	0	5	**8**
Feb	0	1	0	0	0	0	1	2	0	0	**4**
Mar	0	0	0	0	0	0	0	2	0	0	**2**
Apr	0	0	1	0	0	0	0	4	0	3	**8**
May	0	1	1	0	0	0	1	2	0	3	**8**
June	0	2	2	0	0	2	0	1	0	2	**9**
July	0	1	4	0	0	0	0	4	2	4	**15**
Aug	0	0	0	0	0	1	0	0	0	4	**5**
Sep	0	0	1	0	0	0	1	2	0	1	**5**
Oct	0	0	1	0	0	0	0	0	0	2	**3**
Nov	0	1	0	0	0	0	0	1	0	2	**4**
Dec	0	0	1	0	0	0	1	0	0	0	**2**
Total	**0**	**7**	**12**	**0**	**0**	**3**	**4**	**19**	**2**	**26**	**73**

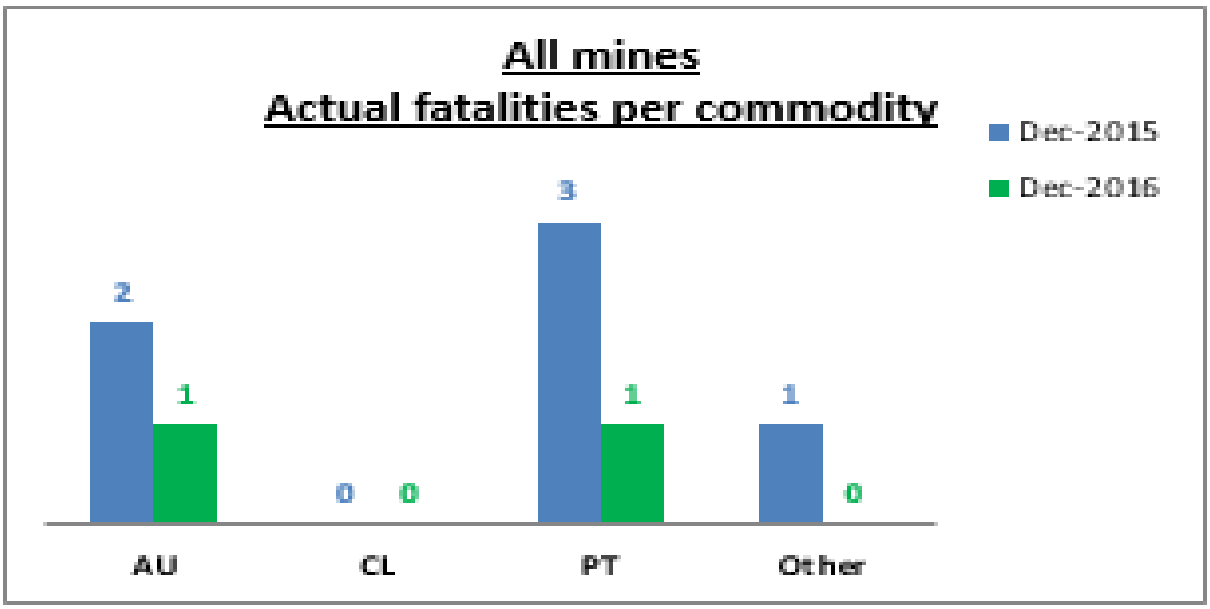
3. ANALYSIS OF FATALITIES BY COMMODITY

For the purpose of the analysis, commodities are grouped into gold (AU), platinum (PT), coal (CL) and other mines (i.e. chrome, manganese, diamonds, stone, sand, brickworks, etc.).

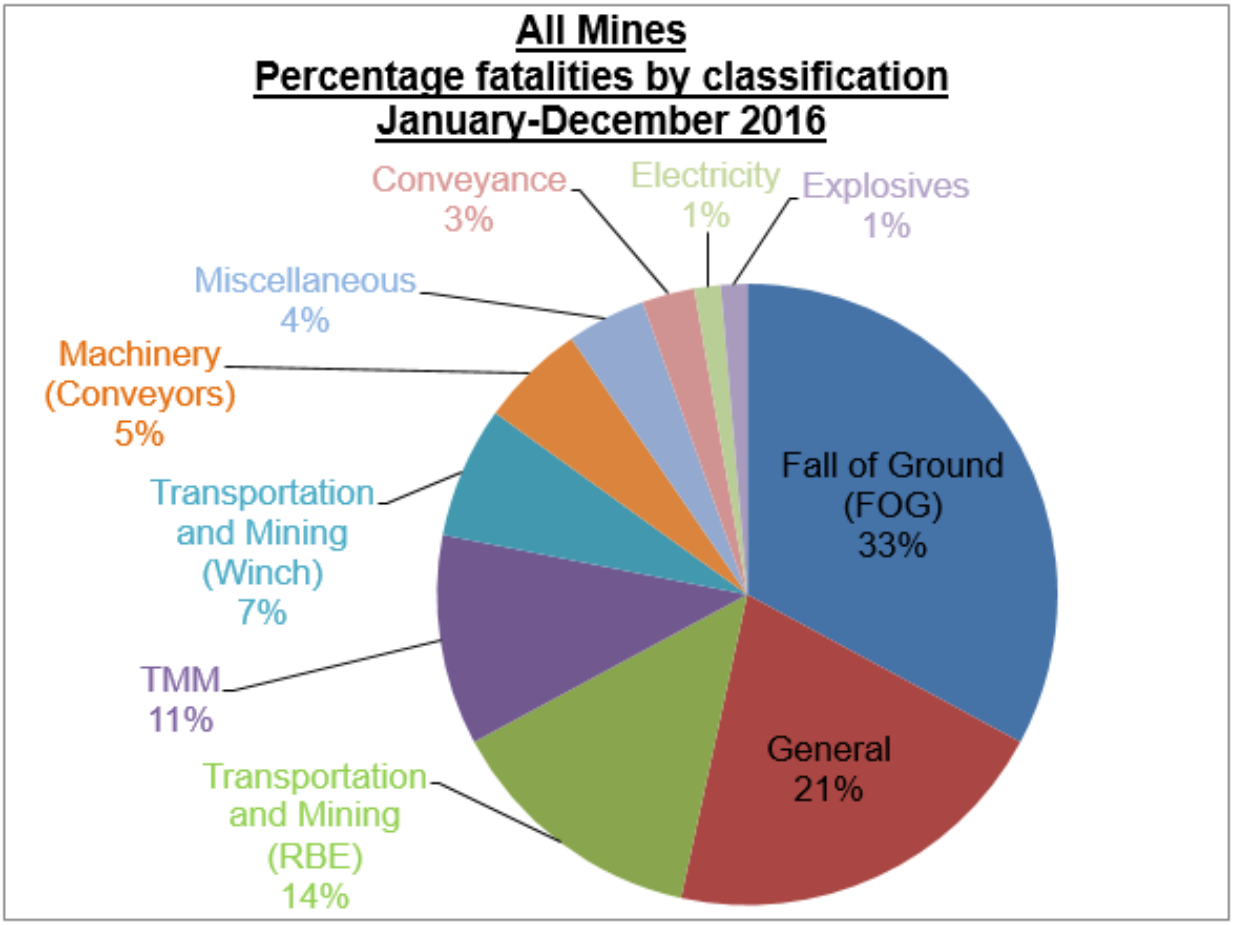
3.1 The comparison of fatalities year to date for December 2015 and 2016 are reflected on the graph below and shows decreases in fatalities in the gold, coal and other mines sectors of 3%, 20% and 33% respectively, while the platinum sector shows an increase in fatalities of 19%.



3.2 In December 2016, the gold and platinum mines sectors reported **one (1)** fatality each, while the coal and other mines sectors reported **none (0).**



4. ANALYSIS OF FATALITIES BY CLASSIFICATION



4.1 FOG (Fall of Ground) (33%)

There were **twenty four (24)** fatalities reported in this category this year, **fourteen (14)** at the gold mines, **eight (8)** at the platinum mines, **one (1)** at a coal mine and **one (1)** at a chrome mine. **None (0)** were reported in December 2016.

4.2 General (21%)

There were **fifteen (15)** fatalities reported in this category this year, **four (4)** at the gold mines, **seven (7)** at the platinum mines, **four (4)** in the other mines sector and **none (0)** at the coal mines. **One (1)** was reported in December 2016 at a platinum mine. The now deceased an employee was fatally injured when he was inundated with water and mud. His body was found stuck in a stationary scraper, almost covered with mud. He had just knocked off and was busy travelling up-raise near subdevelopment breakaway when the accident happened.

4.3 Transportation and Mining (RBE (Rail Bound Equipment)) (14%)

There were **ten (10)** fatalities reported in this category this year, **eight (8)** in the gold mines and **two (2)** in the platinum mine. **None (0)** were reported in December 2016.

4.4 TMM (Trackless Mobile Machines) (11%)

There were **eight (8)** fatalities reported in this category this year, **four (4)** at the other mines sector and **two (2) each** at the coal and platinum sectors respectively. **None (0)** were reported in December 2016.

4.5 Transportation and Mining (Winch) (7%)

There were **five (5)** fatalities reported in this category this year, **four (4)** at the platinum mines and **one (1)** at a gold mine. **None (0)** were reported in December 2016.

4.6 Machinery (Conveyors) (5%)

There were **four (4)** fatalities reported in this category this year, **two (2)** at the platinum mines, **one (1)** at a coal mine and **one (1)** at a diamond mine. **None (0)** were reported in December 2016.

4.7 Miscellaneous (4%)

There were **three (3)** fatalities reported in this category this year, all at the gold mines. **One (1)** was reported in December 2016 at a gold mine. The now deceased a new employee was found deceased by the Miner at the up-dip panel on his knees after knock off at approximately 19:30 from the breast panel where he was working.

4.8 Conveyance (3%)

There were **two (2)** fatalities reported in this category this year, **one (1)** each at platinum and diamond mines. **None (0)** were reported in December 2016.

4.9 Electricity (1%)

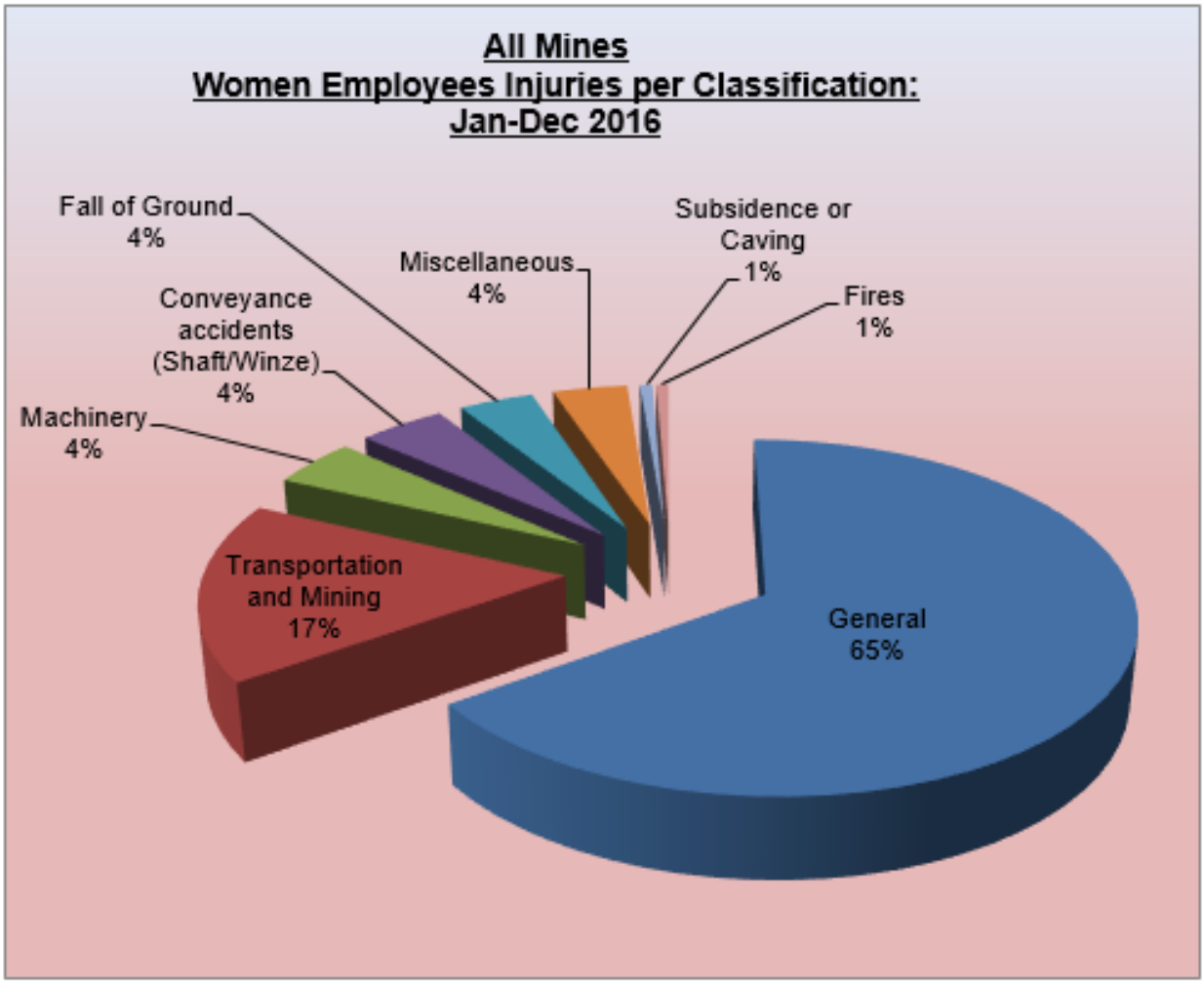
There was **one (1)** fatality reported in this category this year, at an iron ore mine. **None (0)** were reported in December 2016.

4.10 Explosives (1%)

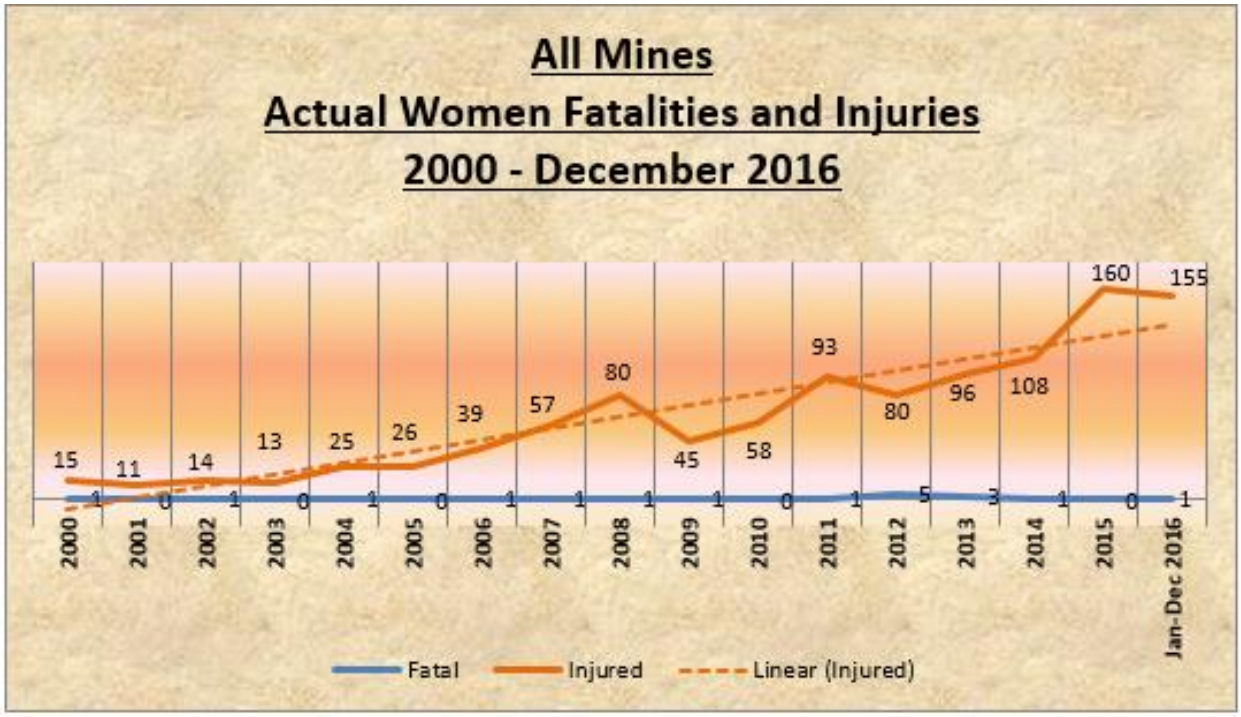
There was **one (1)** fatality reported in this category this year, at a platinum mine. **None (0)** were reported in November 2016.

4.11 Women Employees

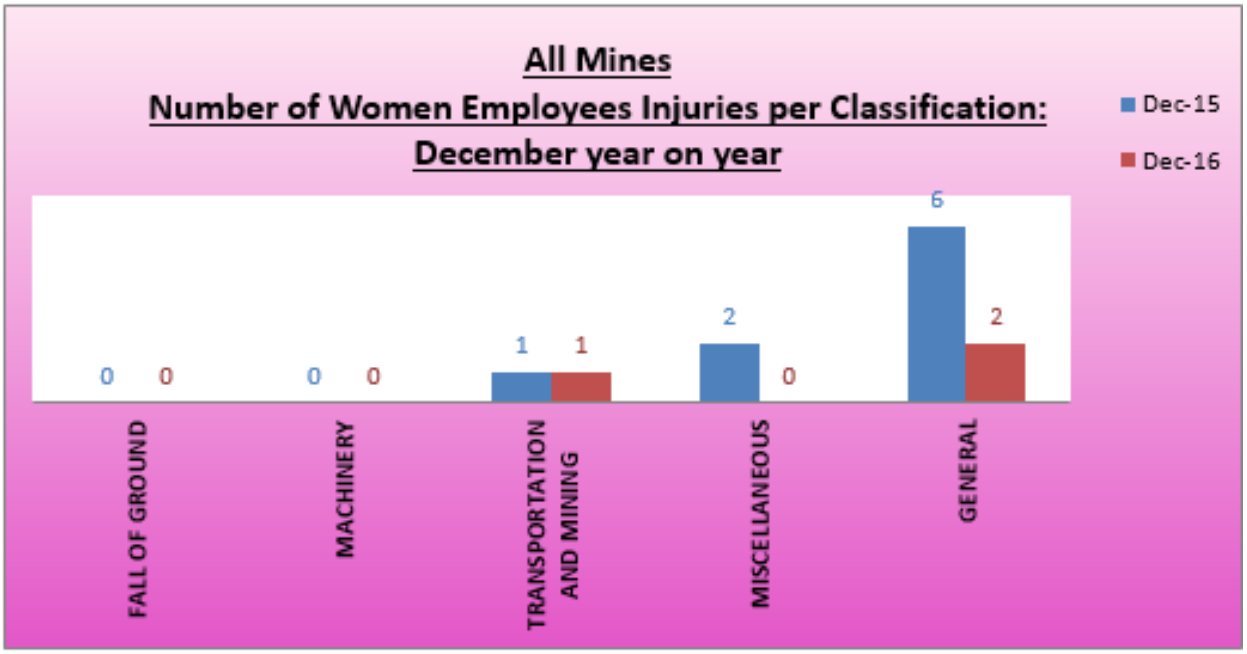
The number of women employees has steadily increased in the South African mining industry and the graph below shows a classification of injuries to women employees across all commodities from January to December 2016:



The graph below shows the number of injuries and fatalities to women employees across all commodities since 2000 to date:



The graph below shows the comparison of injuries to women employees across all commodities in December 2015 and December 2016:



5. FATALITIES AND INJURIES

5.1 FATALITIES

	Jan-Dec 2015	Jan-Dec 2016
Gold Mines	33	30
Platinum Mines	21	27
Coal Mines	5	4
Other mines	18	12
TOTAL	77	73

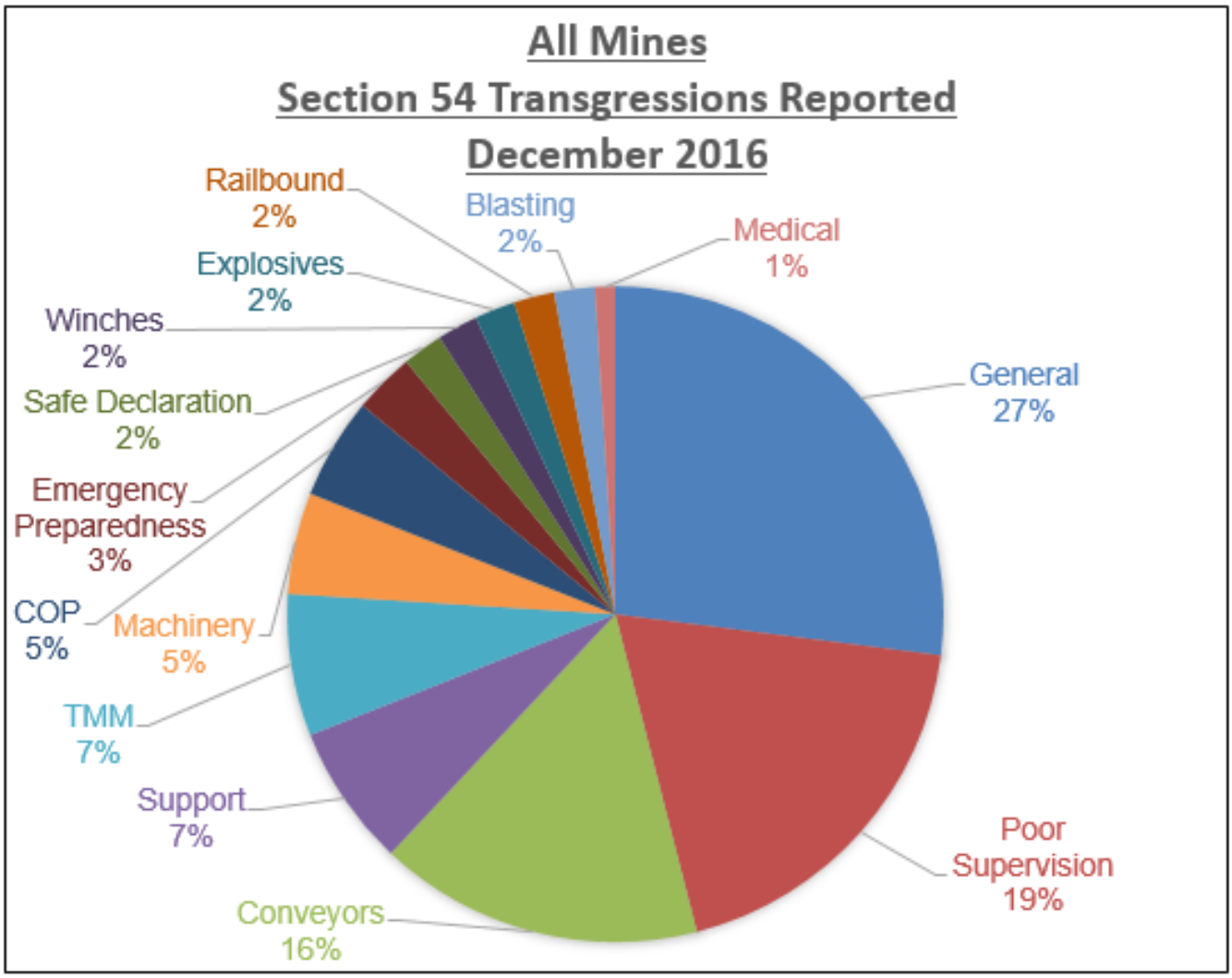
5.2 MINE INJURIES

The table below reflects the number of injury accidents that were reported from January to December 2015 and 2016, per the classification of the accident.

	INJURIES		
	Jan-Dec 2015	Jan-Dec 2016	%change
FALL OF GROUND	**508**	**429**	**-16**
Rockburst	95	78	-18
Strainburst	67	48	-28
Gravity	346	303	-12
MACHINERY	**248**	**197**	**-21**
Conveyor belts	68	48	-29
Drives, belts, chains	23	25	9
Portable power tools	128	94	-27
Other	29	30	3
TRACKBOUND TRANSPORT	**215**	**188**	**-13**
Locomotive	42	44	5
Locomotive drawn vehicle	55	45	-18
Rerailing	23	9	-61
Coupling/uncoupling	39	34	-13
Rocker arm shovel	12	18	50
Personnel transport	16	17	6
Hand trammed	17	13	-24
Other Transport	11	8	-27
WINCHES	**132**	**98**	**-26**
Scraper Winch Installation	84	79	-6
Single drum winch	22	1	-95
Double drum winch	10	11	10
Mono rope/rail	16	7	-56
TRACKLESS MOBILE MACHINES	**183**	**142**	**-22**
Mechanical loaders	22	12	-45

	Jan-Dec 2015	Jan-Dec 2016	%change
Tractor/trailer	4	3	-25
Coal mining machines	8	6	-25
Transporters	43	41	-5
Motor vehicles	16	11	-31
T&M lifting machines	33	23	-30
T&M mobile drilling machines	44	38	-14
Other TMM	13	8	-38
GENERAL	**1667**	**1444**	**-13**
Fall of material/rolling rock	272	229	-16
Manual handling of material	420	414	-1
Manual handling of mineral	80	73	-9
Falling in/from	51	42	-18
Slipping and falling	477	442	-7
Burning and scalding	43	28	-35
Splinters	41	29	-29
Dust, gas and fumes	41	16	-61
Inundation/drowning	3	4	33
Struck by ventilation door	26	16	-38
Struck by any object manual handling	213	151	-29
Conveyance accidents (shaft/winze)	**34**	**40**	**18**
Electricity (Not causing fires)	**16**	**15**	**-6**
Fires	**8**	**5**	**-38**
Explosives	**26**	**7**	**-73**
Subsidence/caving	**2**	**1**	**-50**
Occupational Disease	**0**	**1**	**100**
Heat sickness	**2**	**2**	**0**
Diving sickness	**1**	**0**	**-100**
Miscellaneous	**97**	**94**	**-3**
TOTAL	**3138**	**2662**	**-15**

6. SECTION 54 TRANSGRESSIONS REPORTED DURING THE MONTH



The categorised details below were extracted from the Section 54 Instruction documents that were forwarded from the various Department of Mineral Resources regions, showing the transgressions that led to mostly partial closures of mines, as per Section 54 of the Mine Health and Safety Act. Repeat transgressions in the details below were observed at different operations and were useful in creating the pie chart above.

6.1 General (50%)

This category of transgressions accounted for most of the section 54 transgressions observed in December 2016 and the areas covered were:

- there was no guard house for the security personnel, no toilet and no first aid equipment;
- the mine's brake test ramp was noncompliant (i.e testing procedure, signs, runway area etc…);
- the mine's diesel bay was noncompliant (i.e no bund wall, no fire extinguisher, etc…);
- there was no mine planning procedure available;
- there was no procedure to minimise blast induced damage;

- barring had not been conducted at all access ways sidewalls and working panels' sidewalls;
- Tractor Operator along with four passengers had no safety belts on;
- accumulation of ore in the raise line and in panel 1 gulley was observed;
- waiting place was situated in a noisy area and without illumination;
- on the day of the accident the Miner and his crew had clocked for underground earlier than the re-entry time as the mine standard requires;
- poor illumination at the station tip was observed;
- main tip was not closed, chain was left on the floor, tip was not attended to and T-sprag was not in position;
- water accumulation with a foul smell at the waste tip area was observed;
- poor water control was observed;
- mud accumulation was observed;
- about thirty 5 litre full paint containers were left at the crosscut;
- pinch bars were left on top of the box front;
- two fire extinguishers were not inspected for November and December;
- compressed air supply for Loader was not locked;
- dust fallout results for September and November 2016 had exceeded allowable limit and no investigations were conducted. There were no fallout buckets in other areas;
- watering down was not done due to ineffective dust suppression system or method;
- the mine did not have a start-up procedure for the plant;
- persons conducting repairs and cleaning of the conveyor belt installation were not authorised as prescribed;
- barring had not been conducted during entry examination and working places were not watered down;
- employees were not counted by the Onsetter when entering the cage and the cage was not levelled with the shaft platform when loading and offloading the employees;
- the Light Delivery Vehicle (LDV) keys were found in the contraband box which was not locked; and
- poor locomotive key control was observed.

6.2 Poor Supervision (35%)

The areas covered in this category of transgressions were:

- the Manager had overridden the Engineer and authorised the TMM (Trackless Mobile Machine) Operators to operate the TMMs;
- no flameproof examination was conducted by the Electrician at the section;
- electrical inspection report was not counter-signed by Miner as per standard;
- the burn down on camp lamp and GDI (Gas Detection Instruments) instruments was not conducted for quarter 4 instead of monthly as per the mine's COP;
- during the inspection at the lamproom, it was noted that there was multi shifting of cap lamps during spare lamps issuing;
- it was noted that calibration of the GDI test unit positioned at the lamp room was not done;
- Boilermaker did not have a gauge tool for wheel profiling;

- the employer had failed to comply with the requirements of the permission letter for the Engineer to be appointed at more than one mines dated 13 April 2016;
- there were no statutory reports available at the waiting place;
- blasted working places were not reported to the Mine Overseer and recorded on the mine ore-plot register;
- working places were not plotted and updated;
- the Conveyor Belt Operator did not conduct pre-use inspection and was not trained on conveyor belts;
- the employer had failed to erect a fence or barrier around the mine and keep it maintained in good condition;
- the working place had not been visited by the Rock Engineering Department within 21 days as per the DMR (Department of Mineral Resources) instruction;
- a working place had not been visited within 21 days by the Rock Engineering department as per Department of Mineral Resources instruction;
- Blaster was appointed without Opencast Blasting Certificate;
- no consultation with explosives supplier or manufacturer was conducted before the preparation and implementation of the blasting procedure;
- Miner and Shift Supervisor were placed to working places before training assessments were completed on them; and
- the Training Assessor was signing on behalf of employees on training monitoring documents.

6.3 Conveyors (30%)

The areas covered in this category of transgressions were:

- return strike conveyor belt tail pulley and conveyor belt were rubbing against the spillage;
- excessive accumulation of the spillage was observed along the dip main conveyor belt;
- transfer conveyor belt trip wire was loose and laying on the ground;
- trunk conveyor belt, rollers and idlers were rubbing against the spillage;
- a pull key on conveyor belt installation was found to be faulty as it could not stop the conveyor belt installation;
- the pre- start warning on the conveyor belt installations was found to be too short for adequate warning as it sounded for 4 to 5 seconds;
- the audibility of the pre-start warning alarm was found to be low in some areas of the conveyor belt installation;
- there was no means provided to enter the other side of the conveyor belt safely;
- proper lock-out of stored energy at the conveyor take–up was not conducted;
- a pull wire was rendered ineffective as it was found clipped or pinned to the structure by an electrical cable, which was a repeated transgression;
- 4. a pull key to the conveyor belt was not glanded and the earthing was discontinued;
- 5. a number of conveyor belt structure members were found cut or damaged by the belt;
- gap between nip guards and pulley belt was larger than 8mm;
- trip pull switch was not operational on the grizzly feed conveyor belt;
- there was no pre-use checklist for the conveyor belts; and

- the conveyor belt take-up guarding padlock mechanism was found damaged, allowing free access to all persons.

6.4 Support (13%)

The areas covered in this category of transgressions were:

- protruding roofbolts were not replaced;
- missing roofbolts on the brow were observed;
- cement packs measured 10.22m from the face against the standard of 9.0m and protruding roofbolts were not replaced in the centre gully;
- the bottom section of the panel was missing support for a distance of 7.2m from the face against a standard of 5m after the blast;
- the last pillar holing between two panels was not supported;
- roofbolts in the gully on the panel side of the centre line were not installed, against a standard of 0.5m from the centre line and the two-pole clusters were installed 2.0m from the centre line instead of 1.5m; and
- the 3-stick clusters in the Advance Strike Gully (ASG) were not installed, against a standard of 15m from the face.

6.5 TMM (Trackless Mobile Machines) (13%)

The areas covered in this category of transgressions were:

- hooter and handbrake of a FEL (Front End Loader) were not in working order;
- a 777 Dump Truck had overturned and brake failure was suspected;
- employees' cap lamps fitted with PDS (Proximity Detection System) were not detecting approaching vehicles;
- prop shaft covers of two LHDs (Load Haul Dumpers) were missing bolts, excessively opened and rotating parts exposed;
- a FEL was observed on stop due to breakdown, the mine did not supply records of breakdown (i.e. pre-use check list);
- two underground LDV's (Light Delivery Vehicles) were inspected and it was found that there was different understanding on LDV Drivers when filling the pre-start checklist regarding door interlock brakes. One of the LDV brakes were tested and the door interlock brakes failed; and
- the use of modified LDV’s (Light Delivery Vehicle) for the transportation of the persons was found to be unsafe as there were no safety belts for passengers at the back of the bakkie and there was no approval obtained for transportation of persons in such LDV’s underground from the DMR (Department of Mineral Resources) office.

6.6 Machinery (9%)

The areas covered in this category of transgressions were:

- the compressors of two Drill Rigs were found unattended to, not in operation and not isolated;
- a chain block which was not inspected as per mine standards was found to have been used for lock-out of the conveyor belt take up;
- Dry Powerscreen was observed with: no physical steps coming down, bent handrails at head pulley, a tail guard was found lying around, no passenger walkways around, no physical barrier to prevent inadvertent access underneath the conveyor belt, conveyor belt not covered underneath and no guards;
- a chain block which was rusted and had not been inspected was used for keeping the incline conveyor belt structure intact; and
- a belt tensioning winch installed at the incline conveyor belt was found with a control switch hanging loosely and was used without inspection and procedure.

6.7 Code of Practice (COP) (9%)

The areas covered in this category of transgressions were:

- the mine did not have the COP for the Right to Refuse Dangerous Work and Leave Dangerous Working Places;
- the COP for Fatigue Management was not complete;
- there were no mandatory Codes of Practice at the mine;
- the mine had not yet prepared the mandatory COP for Thermal Stress; and
- a COP was not compiled and submitted.

6.8 Emergency Preparedness (6%)

The areas covered in this category of transgressions were:

- lifeline was observed to be too high and could not be reached;
- refuge bay telephone was not operating; and
- there was no drinking water at the refuge bay.

6.9 Safe Declaration (4%)

The areas covered in this category of transgressions were:

- the safe declaration procedure did not indicate how the highwall would be made safe; and
- there were no safe declaration records at the mine.

6.10 Winches (4%)

The areas covered in this category of transgressions were:

- substandard winches at raise 2 were used with no signalling device and substandard rigging was observed; and
- signalling device on the mono-winch was not installed on the entire path of the rope installation.

6.11 Explosives (4%)

The areas covered in this category of transgressions were:

- the closest charged hole to the Drill Rigs was 10.3m against the Mine Health and Safety Act Regulation 4.6(5)(a) which requires 15m and the mine standard stipulated that a Drill Rig may work within 4m from a charged hole; and
- explosives boxes were found not lockable and the Inspector had issued an instruction the previous month.

6.12 Railbound (4%)

The areas covered in this category of transgressions were:

- loco and material car buffer were not aligning; and
- rails were submerged in water and mud.

6.13 Blasting (4%)

The area covered in this category of transgressions was that

- holes were drilled less than 15cm from the socket and they were measured to be between 10cm and 5cm; and
- sockets were not washed but plugged and footwall was not exposed at the face.

6.14 Medical (2%)

The area covered in this category of transgressions was that a system of medical surveillance was not maintained.

7. OCCUPATIONAL MEDICINE

7.1 Overall occupational diseases/illness per month

During December 2016 a total of 209 occupational diseases/illness were reported by regions from Health Incident Reports (HIRs), when compared to a total of 301 cases reported during the same period in 2015.

7.2 Analysis of occupational disease trends by region

There is an overall decrease of 30.5% (31%) in the total occupational diseases/illness reported by nine regions during December 2016 when compared to the total of cases reported by eight regions during the same period in 2015.

The table and graph below illustrate the progressive performance of each region with regards to the number of occupational diseases/illness reported on HIRs. In December 2016 Free State reported most cases, followed by Gauteng and Mpumalanga, North West Klerksdorp, North West Rustenburg, Northern Cape, KwaZulu-Natal and Western Cape regions. In December 2015 North West Rustenburg reported most cases, followed by Gauteng, Free State, Northern Cape, North West Klerksdorp, Mpumalanga and Western Cape regions. No occupational diseases/illness was reported from Eastern Cape region during the same period both years, whereas KwaZulu-Natal region did not report any occupational disease/illness.

7.3 Analysis of Health Incident Reports per common disease group

7.3.1 Pulmonary tuberculosis (PTB)

Pulmonary tuberculosis (PTB) cases have decreased by 21.5% (22%) when compared to the same period during the previous year.

7.3.2 Silicosis

Silicosis cases reported have decreased by 29.2% when compared to the same period during the previous year.

7.3.3 Noise-induced hearing loss (NIHL)

Noise-induced hearing loss (NIHL) cases have decreased by 66.6% (67%) when compared to the same period during the previous year.

7.4 Conclusion

The analysis of occupational disease trends from the health incident reports show an overall decrease on occupational disease reported when compared to the same period of the previous year. It must also be noted that reported occupational

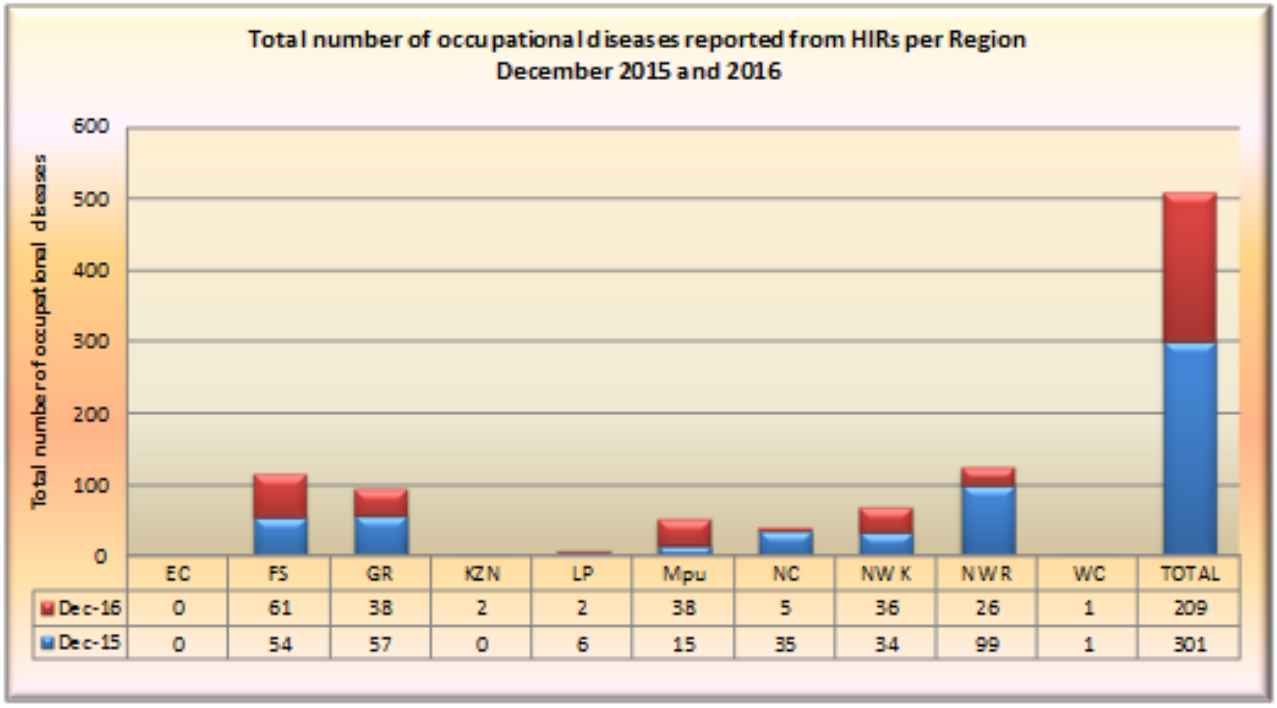
diseases/illness are based on the system of medical surveillance which is not conducted at the same time on mines.

Table 7.2 Occupational diseases/illness reported on Health Incident Reports (HIRs) per region: December 2015 and December 2016

	EC		FS		GR		KZN		LP		Mpu		NC		NW K		NW R		WC		TOTAL	TOTAL	% CHANGE TOTAL
	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	
PTB	0	0	35	40	38	24	0	0	4	2	1	18	12	4	1	24	61	8	1	0	153	120	-22
Sil+TB	0	0	1	3	0	0	0	0	0	0	0	0	0	0	1	1	6	0	0	0	8	4	-50
MDR-TB	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	100
XDR-TB	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-100
Sil	0	0	16	13	9	3	0	0	0	0	0	0	0	0	8	3	8	10	0	0	41	29	-29
Asb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CWP	0	0	0	0	0	0	0	0	0	0	2	11	0	0	0	0	1	0	0	0	3	11	267
COAD	0	0	1	2	1	1	0	0	0	0	6	3	1	0	2	0	1	0	0	0	12	6	-50
Occ Asthma	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-100
Heat Illness/Stroke	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NIHL	0	0	0	2	6	2	0	1	2	0	6	5	22	0	6	2	21	8	0	1	63	21	-67
Occ Skin Dxs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	-100
Muskulo-skeletal Disorders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Dxs	0	0	0	0	2	8	0	1	0	0	0	1	0	1	16	6	0	0	0	0	18	17	-6
Total	0	0	54	61	57	38	0	2	6	2	15	38	35	5	34	36	99	26	1	1	301	209	-31

Verification source: Health Incident Reports submitted by regions: December 2015 & 2016

Graph 7.3 Occupational diseases/illness reported on Health Incident Reports (HIRs) per region: December 2015 and 2016



Verification source: Health Incident Reports submitted by regions: December 2015 & 2016

8. STATUS REPORT ON THE MINE HEALTH AND SAFETY COUNCIL (MHSC) AWARD SCHEME 2016

Table 8.1 Mines that have achieved the safety awards:

No	Mine	Award	Date recorded	Last fatality
1	Savmore Colliery	Million (1)	06/01/2016	20/07/2013
2	Tselentis Colliery	Thousand (15)	20/01/2016	05/09/1991
3	Woestalleen Colliery	Thousand (1)	28/01/2016	31/08/2014
4	Mototolo Platinum: Lebowa	Thousand (7)	28/01/2016	Never
5	Dorstfontein Colliery: West Mine	Thousand (3)	13/02/2016	15/03/2012
6	Two Rivers Platinum Mine	Million (3)	01/03/2016	21/01/2012
7	South Deep Gold Mine	Million (1)	24/03/2016	09/05/2015
8	Halfgewonnen Colliery	Thousand (10)	05/05/2016	10/01/2006
9	Black Mountain Mine	Thousand (2)	22/05/2016	18/06/2013
10	Impala Platinum: Marula Mine	Million (2)	13/06/2016	06/09/2014
11	Zibulo Colliery	Thousand (1)	15/06/2016	21/05/2015
12	Wonderstone	Thousand (2)	04/07/2016	Never
13	New Denmark Colliery	Thousand (3)	11/07/2016	18/10/2013
14	Voorspoed Diamond Mine	Thousand (6)	15/07/2016	Never

No	Mine	Award	Date recorded	Last fatality
15	Tumelo Colliery	Thousand (4)	18/07/2016	Never
16	Finsch Diamond Mine	Million (3)	29/07/2016	17/11/2008
17	New Vaal Colliery	Thousand (11)	10/08/2016	09/03/2005
18	Tharissa Minerals	Thousand (1)	26/08/2016	28/09/2015
19	Namakwa Diamonds	Thousand (3)	01/09/2016	Never
20	Spitzkop Colliery	Thousand (4)	18/09/2016	01/12/2012
21	Glencore Tweefontein Colliery u/g	Thousand (9)	30/09/2016	11/10/2004
22	Forzando Colliery: North Mine	Thousand (18)	06/10/2016	15/03/1999
23	Assmang Manganese: Black Rock Mine	Million (5)	11/10/2016	23/04/2009