



# Driefontein Gold Mine

## Technical Short Form Report

Driefontein Gold Mine is a large, well-established shallow to ultra-deep level gold mine with workings that are accessed through eight shaft systems that mine various gold bearing reefs from open ground and pillars that occur at depths between 600 and 3,300 metres below surface. The shaft systems include five sub-vertical shafts and two tertiary shafts. Ore extracted from the gold bearing reefs is processed at three metallurgical plants. Annual mill throughput of approximately 6 million tons of ore is mined to produce approximately 830 koz of gold.

This Technical Short Form Report reflects the latest Life of Mine plan, coupled with an updated Mineral Resource and Mineral Reserve statement, as at 30 June 2009. The geological and evaluation models have been updated to reflect the latest available data. These models are coupled with an integrated and holistic mine design and schedule that is based on current performance levels and endeavours to take cognisance of the inherent risks associated with deep level mining.

Driefontein has undertaken a review of the safe extraction of all remnant pillar mining and consequently selected higher risk remnants and/or pillars have been excluded from the plan.

Significantly increased power, consumables and labour costs have offset the increased gold price revenues, with the effect that paylimits show only nominal reductions year-on-year despite increased gold prices for Mineral Resources and Mineral Reserves respectively.

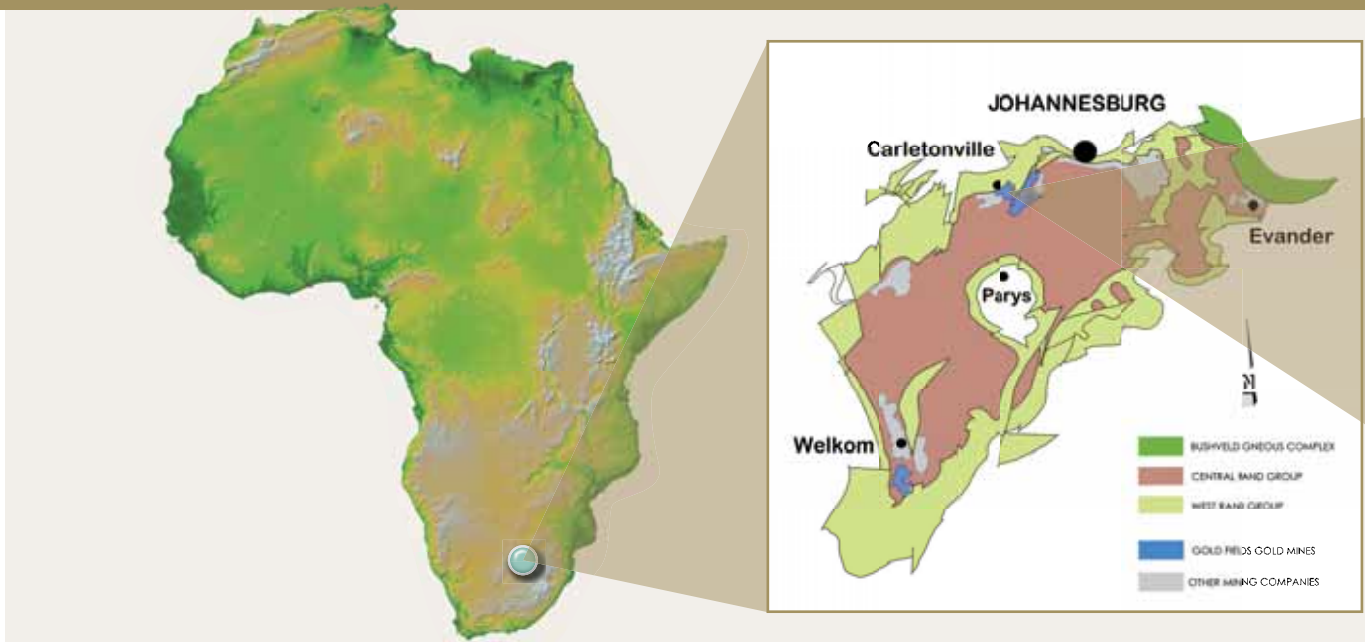
All Mineral Resource and Mineral Reserve figures reported are managed unless otherwise stated and Mineral Resources are inclusive of Mineral Reserves.

### Salient Features

- World class orebody with long life Mineral Resources of 52.8 Moz (excluding Tailing Storage Facility ounces).
- Mineral Reserves of 18.2 Moz.
- Underground uranium models have been generated for Driefontein.
- Focus on safe steady state production driving volume, value and quality.
- 4 Shaft pillar extraction to commence during Q4 F2010.
- Long-life franchise asset anchoring gold production to 2040 (31 years).

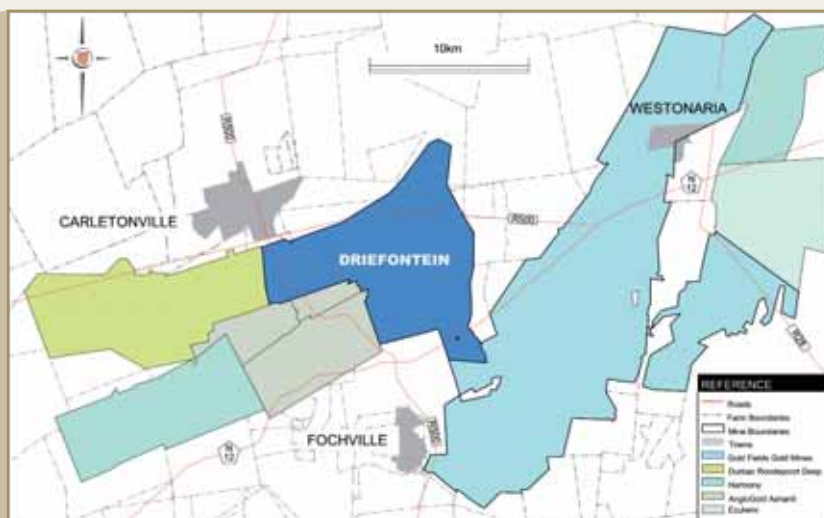
Driefontein Gold Mine is located in the Far West Rand Goldfields, situated in the geologically unique and world renowned Witwatersrand Basin, which remains the most significant gold depository in the history of mining. Geologically the mine is positioned within the richest formations of the Carbon Leader and Ventersdorp Contact Reefs ever found in South Africa.

West Driefontein Gold Mine was registered in March 1945 and ultimately became recognised as one of the most prolific gold producers in the country. The contiguous East Driefontein was registered in May 1968 and merged with West Driefontein during July 1981 to form a new company, Driefontein Consolidated Limited. Each mine however continued to manage its lease area separately until September 1999 when they amalgamated, pooling their resources to form one mine, the Driefontein Gold Mine, that extends for 12.5 km along strike and 8.5 km on dip.



## Key Features

<b>Independent Audit</b>	Figures reported in this declaration are as reviewed and approved by independent external consultants as at 30 June 2009
<b>Prepared by</b>	Gold Fields Limited
<b>Effective date</b>	30 June 2009
<b>Source of Information</b>	This Technical Statement is a summary of the internally sourced document entitled F2010 Driefontein Competent Persons Report
<b>Personal Inspection</b>	Personal inspection is conducted by the Competent Persons as listed, who are full time employees of Gold Fields Limited
<b>General Location</b>	Driefontein is situated some 70 km west of Johannesburg at latitude 26° 24' S and longitude 27° 30' E near Carletonville in the Gauteng Province of South Africa. The site is accessed via the N12 highway between Johannesburg and Potchefstroom
<b>Licence Status and Holdings</b>	Driefontein is entitled to mine all declared Mineral Resources and Reserves and has all the necessary statutory mining rights in place. The Mine has a new order mining right in respect of the mining area totalling 8,561 hectares. GFI Mining South Africa (Proprietary) Limited (GFIMSA) holds a 100% interest in Driefontein. Gold Fields Limited holds a 100% interest in GFIMSA
<b>Operational Infrastructure</b>	Driefontein is a large, well-established shallow to ultra deep level gold mine that is accessed from surface through a number of shafts to 50 level (the lowest working level) some 3,300 m below surface. It comprises eight producing shaft systems that mine different contributions from pillars and open ground, and three gold plants
<b>Climate</b>	No extreme climatic conditions are experienced that may affect mining operations
<b>Deposit Type</b>	Gold mineralisation occurs within laterally extensive quartz pebble conglomerate horizons called reefs, which are developed above unconformable surfaces within a depositional system near the basin margin. Driefontein exploits three primary reefs namely the Carbon Leader Reef (CL), Ventersdorp Contact Reef (VCR) and Middelveit Reef (MR) with the CL representing the majority of the current Mineral Reserves
<b>Life of Mine (LoM)</b>	It is estimated that the current Mineral Reserves will be depleted in 2040
<b>Environmental</b>	Driefontein systems, procedures, training etc. are at international best practice levels. ISO 14001:2004 certification has been obtained for this operation. The Safety Management System was certified by Bureau Veritas in F2009 for OHSAS 18001. The mine has full compliance status for the International Cyanide Management Code with certification awarded in September 2009
<b>Regulatory Codes</b>	Gold Fields reports its Mineral Resources and Mineral Reserves in accordance with the South African Code for The Reporting of Exploration Results, Mineral Resources and Mineral Reserves (2007 SAMREC Code), and other relevant international codes such as SEC Industry Guide 7, JORC Code and NI 43-101. The Mineral Resources and Mineral Reserves are underpinned by a sufficient Mineral Resource Management process and protocol to ensure adequate corporate governance in respect of the intent of the Sarbanes-Oxley Act



**Gold Fields has stated that:**  
**“If we cannot mine safely, we will not mine”.**  
**This principle is embedded at Driefontein.**

### Operating Statistics

Year ended June		F2009	F2008	F2007	F2006	F2005
Main development	km	20.1	27.5	28.0	27.4	27.8
Main on-reef development	km	4.1	5.8	5.3	4.2	3.8
Main on-reef development value	cm.g/t	926	1,242	1,307	1,454	1,837
Area mined	'000 m <sup>2</sup>	530	579	653	680	661
Tons milled (Underground & Surface)	'000 tons	6,217	5,981	6,652	6,867	6,694
Source of ore						
- Underground	'000 tons	3,137	3,273	3,812	3,867	3,794
- Yield	g/t	7.5	8.1	7.6	8.1	8.3
- Stockpile (Surface)	'000 tons	3,080	2,708	2,840	3,000	2,900
- Yield	g/t	0.7	0.8	1.0	1.4	0.7
- Average yield	g/t	4.2	4.8	4.8	5.2	5.4
- Gold produced (Underground & Surface)	kg	25,814	28,865	31,618	35,755	36,162
	'000 oz	830	928	1,017	1,150	1,163
Operating cost						
- Underground	R/ton	1 044	830	653	579	609
- Surface	R/ton	83	79	65	60	60
- Total	R/ton	568	490	402	352	371
- Gold sold	kg	25,814	28,865	31,618	35,755	36,162
- Cash cost	US\$/oz	448	412	348	315	330
	R/kg	129,837	96,293	80,457	64,870	65 884
- Capital expenditure	Rm	1 034	1,016	815	543	184
- NCE	R/kg	176,838	136,806	110,269	82,872	-
Number of employees		16,955	17,210	17,122	16 644	17 018
Expected Life-of-Mine	years	31	33	28	27	28
Mineral Reserves	million tons	75.2	80.4	80.4	94.6	100.0
Head grade of Mineral Reserves	g/t	7.5	7.6	8.3	7.4	7.3

*Rounding off of figures presented in this report may result in minor computational discrepancies. Where this occurs it is not deemed significant.*

### Geological Setting and Mineralisation

Driefontein is located in the West Wits Line that forms part of the Far West Rand Goldfields of the Witwatersrand Basin. Exploration in the area dates from 1898 and mining from 1945 when West Driefontein Gold Mine began sinking the 1 and 2 Shafts. Driefontein exploits three primary reefs namely the Ventersdorp Contact Reef (VCR) located at the top of the Central Rand Group, the Carbon Leader Reef (CL) near the base of the Group and the Middelveit Reef (MR), which occurs stratigraphically some 50 m to 75 m above the CL.



*Driefontein 2 Shaft ground works, 16 September 1945*



## Local geology

Several large dykes contribute to dividing the West Wits Line into a series of compartments, while the west dipping normal Bank Fault defines the eastern limit of both the CL and the VCR at Driefontein. The faulting in the area is characterised by easterly striking, strike slip faults with horizontal displacements of up to 450 metres. Pilanesberg, Bushveld and Ventersdorp age dykes are also present, striking in a northerly direction, with the exception of some of the latter dykes, which strike in an easterly direction.

In certain areas a fourth reef (Erosion Channel Reef) has been exploited and forms part of an erosion channel in the northern part of the Mine. This channel eliminates the CL but sometimes contains a conglomerate which is mined as a secondary reef. For reporting purposes, the Erosion Channel Reef is grouped with the CL and is not reported separately.

The vertical separation between the VCR and CL increases east to west from zero m to over 1,300 m on the western boundary. This is a result of the relative angle of the VCR unconformity surface to the regional CL strike and dip. The CL strikes west-southwest and dips to the south at approximately 25°.

The VCR strikes east-northeast and has a regional dip of approximately 21° to the south-southeast. Local variations in dip are largely due to the terrace-and-slope palaeo-topographic surface developed during VCR deposition.

The CL is generally a high grade reef and represents approximately 81% of the current Mineral Reserve, the VCR 17% with the remaining 2% comprising mainly MR.

### Ventersdorp Contact Reef

The VCR represents the final phase of sedimentation prior to the extrusion of the lavas of the Klipriviersberg Group and unconformably overlies the underlying strata of the Witwatersrand Supergroup. This erosional feature, in conjunction with the structural effects of the Bank Fault, results in the elimination of the CL and MR in a V-shaped area closing to the south in the eastern portion of the mine. The VCR, from west to east, overlies progressively older strata, from the Kimberley Conglomerate Formation in the west to the Jeppestown Subgroup in the east.

The VCR is dated at approximately 2.7 billion years and is an auriferous palaeoplacer, consisting of several complex, intercalated gravel types (facies). Lavas of the Klipriviersberg Group lie conformably on the gravels (conglomerates) and thus preserved unique characteristics of the sediments and the geomorphology. The sediments have been subdivided into five major facies types, which consist of a complex series of intercalated oligomictic and polymictic conglomerates of varying thicknesses and differing average gold grades.

The VCR is most extensively developed in the east of Driefontein. The subcrop line of the VCR against the Black Reef and overlying dolomites trends south-west and consequently restricts the area to the west that is underlain by VCR.

### Middelvei Reef

The MR is correlated with the South Reef of the Central Rand Goldfields. It occurs some 50 m above the CL over most of the lease area, except where eliminated by the VCR erosion surface, and is made up of a number of well-

packed, large pebble conglomerate bands. The pebbles are usually up to 30 mm in diameter, although pebbles up to 60 mm in diameter are occasionally present.

In some areas the MR assemblage is as much as 6 m thick with well developed Top, Middle and Bottom Bands, separated from each other by quartzite partings. The pebbles are well-rounded and are generally of vein quartz. The MR subcrops against the Black Reef just south of the northern boundary of Driefontein.

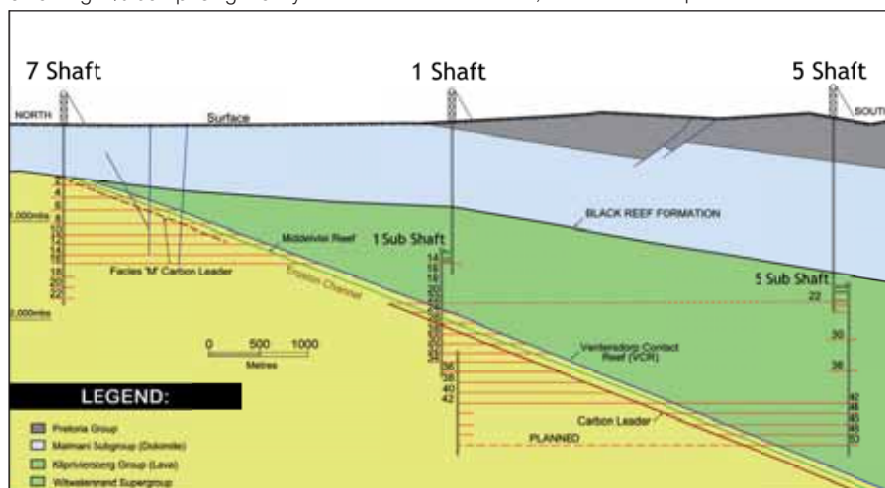
The MR in general has well defined “pay shoots” which are limited in extent and therefore difficult to project or explore. The Bottom Band is most exclusively the economic horizon of the MR, ranging from a single pebble lag to a maximum thickness of 80 cm.

### Carbon Leader Reef

The CL correlates with the Main Reef of the Central Rand Goldfields and is the principal reef mined at present and varies in thickness from a mere carbon streak to a solid seam of carbon 7 mm thick, to a multiple band medium pebble conglomerate, on average some 200 cm thick. The CL is the deepest reef and is present all over the mining area except where eliminated by the erosive surface at the base of the VCR in the central parts of the mine and by the Erosion Channel in the north. Four facies of CL are present on the mine: a carbon seam (CSCLR) and a single band conglomeratic (SCLR) facies in the west, a multiple band (MCLR) facies in the central parts and a single band conglomeratic facies in the east. Geostatistically the east and west single band facies differ markedly in their average gold content and channel widths.

The CL has a low angle of unconformity. The footwall consists of a package of conglomerates, usually referred to as the “Footwall bands of the CL” (also the “North Leader Zone”) and this zone is characterised by lenses of conglomerates, separated by yellowish grey argillaceous quartzite. The basal conglomerate band of this zone is called the North Leader (NL).

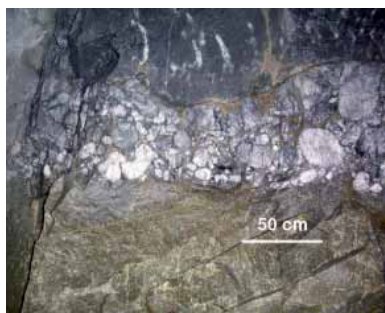
The hangingwall of the CL consists of a siliceous grey quartzite overlain by the Green Bar, a chloritoid shale occurring over most of the Witwatersrand Basin.



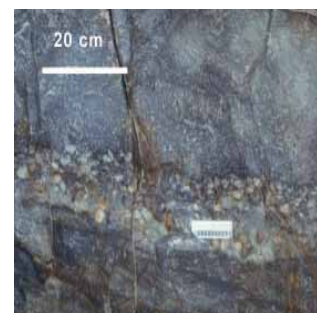
Typical section through the Driefontein orebody



The CSCLR is a carbon streak or seam in quartzite, grits or conglomerates, or a mixture of these sediments. In its more typical development it forms a thin footwall seam of soft friable carbon-rich quartzite, well mineralised with pyrite. On this seam rests a variable layer of pebbles, often with the layer of pebbles partly embedded in the carbon-rich material. The pebbles are well-rounded quartz vein material and are seldom more than 3 cm in diameter. This facies mostly occurs in the 10 Shaft area, which is now mostly mined out except for some small pillars.



*VCR C facies*

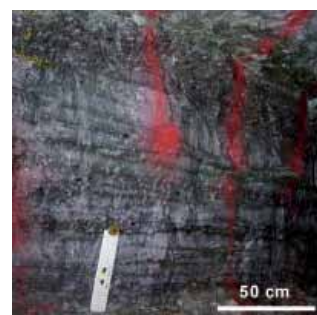


*Middelvlei Reef (Bottom Band)*

The SCLR is defined sedimentologically as a single conglomerate band containing no internal quartzite bands. The width thereof can vary from a single pebble band (or in extreme cases only a pyrite stringer) up to a metre thick. There appears to be a relationship between reef thickness and gold grade with reefs thinner than 50 cm containing the higher grades. The gold content of the SCLR is lower than that of the CSCLR.



*Carbon Leader (Carbon Seam facies)*



*Carbon Leader (Multiple Band facies)*

The MCLR is defined sedimentologically as a reef containing more than one conglomerate band separated by internal quartzite bands. The internal quartzite is similar in appearance to that forming the hangingwall of the CL.

The channel width of the MCLR varies from as little as 10 cm to more than 420 cm and the number of conglomerates is highly variable because of their lenticular nature. The gold grade of the MCLR is generally lower than that of the SCLR facies but, because of its channel

width, their gold accumulation (cm.g/t) is often similar. Carbon seams are also known to occur in these reefs accompanied by an increase in gold content.

## Exploration and drilling

The exploration strategy constitutes the following:-

- Improve confidence in the orebody;
- Multi-disciplinary approach;
- Integrated 3D seismic surveys;
- Underground fan drilling;
- Timeous prospect development; and
- Proactive geology modelling.

A continuous Mineral Reserve definition programme is in place and is aligned to facilitate better planning and optimisation, with appropriate lead time, to ensure robust geological and evaluation models, that will underpin the resource definition of the CL, VCR and MR. The programme will confirm the orebody potential in all areas of Driefontein, including secondary minerals such as uranium and sulphur. Exploration activities are focused on the extension of existing orebodies and the identification of new orebodies both at existing sites and at undeveloped sites. Once a potential area has been discovered, exploration is extended and intensified in order to enable clearer definition of the orebody and the potential portions to be mined. Geological techniques are constantly refined to improve the economic viability of prospecting and mining activities.

A selective cut strategy is being applied to the MCLR directed by advanced framework drilling conducted from the cross-cuts. The preferred mining cut improves stope grades (g/t Au) and mitigates the geotechnical risk linked to exposing incompetent hangingwall quartzites.

An extensive drilling programme on the old tailings dams in order to quantify the gold, uranium and sulphur content has been completed during F2009. Surface drilling of the

historic tailings was completed in March and evaluation activities in the middle of April 2009. A full project feasibility is currently underway and is planned for completion during F2010.

## Rock Engineering

The rock engineering practices are aimed at reducing risks and thus improving safety associated with gravity and seismic related rockfall and rockburst incidents through implementing the recommendations from the risk assessment department, testing of high-yield elongate support units and continuous assessment of the seismic systems. Rock engineering risk factors associated with pillar mining are detailed in the Mine Planning and Scheduling Section.

## Mining

Driefontein is a large, established shallow to deep level gold mine that is accessed from surface via eight shaft systems to 50 level (currently the lowest working level) some 3,300 m below surface. Driefontein comprises eight producing shafts that mine different contributions from pillars and open ground. The shafts vary in diameter, depth and hoisting capabilities.



*Tailings drilling activities*

## Mining methods

Access to orebodies (auriferous reefs) is provided through vertical, inclined and declined shaft systems. If additional depth is required to fully exploit the reef, and it is economically feasible, then secondary (sub-vertical) or tertiary shafts are sunk from the underground levels. Horizontal development at various intervals of a shaft, known as levels, extend access to the horizon of the reef to be mined. On-reef development then provides specific mining access.

The mining methods employed at Driefontein vary between shafts and can be subdivided as follows:

- Breast mining with dip pillars in the shaft pillar extraction at 1 Sub-Vertical;
- Breast mining with dip pillars at 1 Tertiary and 5 Sub-Vertical Shafts;
- Pillar extraction and scattered mining at 2 Shaft;
- Mini-longwall mining, scattered mining, shaft pillar and pillar extraction at 4 Sub-Vertical Shaft;
- Pillar extraction and scattered mining at 6 Sub-Vertical Shaft;



Remote loader used by SPH at Driefontein in the mining of a surface rock dump in an area where sinkholes occur

- Pillar extraction and scattered mining at 8 Shaft; and
- Reclamation and vamping at 6 Tertiary and 10 Sub-Vertical Shaft.

Driefontein is also mining old surface rock dumps containing gold. The dumps are loaded and screened to smaller fractions and then processed exclusively at 2 and 3 Plants.

## Mine planning and scheduling

Mine design and scheduling at Driefontein is done in Cadmine®, forming part of the seamless MRM Integrated Resource and Reserve Information System (IRRIS). All designs are based on two and three dimensional resource models.

Designs and schedules are done in consultation with production and other technical personnel. Production efficiencies are based on past experience and production models describing activities for the different mining combinations.

The LoM plan schedule will remain at approximately the current levels of some 50,000 m<sup>2</sup> per month (280 ktpm) from underground until F2017, whereafter it will decrease until the 9 Shaft production comes on line. In the LoM profile the above infrastructure Mineral Reserves will be

depleted in 2027 and thereafter production will be sourced solely from below the current infrastructure until 2040.

In accordance with the updated Pillar Mining Code of Practice, the F2010 operational plan was reviewed to provide assurance that Driefontein has not planned to mine any high risk pillars. The protocol to plan remnant extraction is based on an internal document which takes cognisance of a stringent safe remnant extraction practice.

The rock engineering risk factors (risk matrix) associated with remnant extraction were identified as Energy Release Rate, Average Pillar Stress, Shape, Width-to-Height Ratio and the presence of seismically active geological structures. Additional pillars and remnants have also been excluded from Driefontein's

F2010 Mineral Reserves.

Reserve development will continue to be a key performance indicator going forward and will be accelerated further in appropriate areas. The following table details the development advanced for the last 12 months to June 2009. A total of 20.1 km was developed with 4.1 km driven on-reef.

## Development results

Category	CL <sup>1</sup>	MR <sup>2</sup>	VCR <sup>3</sup>
Advanced (m)	10,260	4,033	5,781
On-reef (m)	2,128	1,472	520
Sampled (m)	1,926	1,239	375
Channel Width (cm)	62	63	58
Average grade (g/t)	20.2	7.7	12.7
Average value (cm.g/t)	1,248	481	738

<sup>1</sup>Carbon Leader Reef, <sup>2</sup>Middelvlei Reef, <sup>3</sup>Ventersdorp Contact Reef

## Projects

The 9 Sub-Vertical Shaft Deepening Project was approved in F2007, and the pre-sinking operations were completed early in 2008. The reduction in the amount of power supply to Driefontein, following the Eskom crisis, led to the postponement of the shaft, with

sinking delayed until 2012 when there should be sufficient power available to continue with the project. The shaft is currently at a depth of 3,059 m below surface. The completed shaft will be 4,121 m deep, making it the deepest mine in the world. The project will extend

Driefontein's Life of Mine by mining an additional 8.1 million ounces of Mineral Reserves. During F2010 a mine design, planning and financial comparison will be undertaken between sinking 9 Shaft and developing declines below 5 Shaft.





## Mineral Processing

Driefontein operates three gold processing plants. A centralised elution and carbon treatment facility, capable of processing carbon from all three of the Driefontein plants, was installed in August 2001. The benefits of this centralisation are better recovery rates, giving reduced dissolved gold losses and operating cost, as well as improved security. Gold bullion produced is dispatched to the Rand Refinery to further process it to a saleable quality of 99,9% fineness.

The 1 Gold Plant was commissioned in 1972 as a three stage crushing, two stage milling, filtration and zinc precipitation operation. The Plant was initially designed and installed to treat 100 kt of ore per month, but this has been gradually increased to a monthly throughput of 240 kt. The mineral processing technology in the Plant is based on SAG milling circuit followed by cyanide leaching. The SAG milling circuit was commissioned in September 2003 and replaced the conventional crushing and milling circuit while the filtration and zinc precipitation processes were replaced by the state of the art carbon in pulp (CIP) plant.

The first gold pour at 2 Gold Plant was in 1952 with ore obtained from the now



1 Processing Plant, Driefontein

defunct 11 shaft. In 1962 the collapse of the entire Carbon Leader plant occurred as a result of sinkhole activity, and the current 2 Plant was erected in less than 12 months. Currently 2 Plant is only treating surface waste rock material at 200 kt per month. It is delivered by rail from rock dumps to the plant feed bunkers. The plant flow sheet incorporates two SAG mills and a ball milling circuit, cyanide leaching and a carbon in pulp (CIP) plant. Loaded carbon is transported to

the central Elution Circuit at 1 Plant.

Originally a uranium plant, 3 Gold Plant was converted in 1998 to a surface low-grade waste rock treatment facility. The Plant was constructed using a combination of new as well as existing equipment on site. This Plant has the capacity to treat 115 kt per month of rock material reclaimed from the waste rock dumps located on the Mine.

## Sustainable Development

Gold Fields has embraced Sustainable Development as a business imperative, which is reflected in its Vision, Values and Strategy. Through this, Gold Fields has introduced structures that encourage a networked interface between disciplines like Safety, Health, Environmental Engineering, Natural Environment, Risk, Stakeholder Engagement, Legal and Communication. This approach has allowed Gold Fields to capitalise on synergies and to avoid duplication. In this regard, several Key Performance Indicators (KPIs) are monitored and utilised to make informed business decisions.

The serious injury frequency rate for F2009 was 3.0 serious injuries for every million hours worked, reflecting an improvement as compared to the serious injury frequency rate of 4.4 for F2008. The fatal injury frequency rate improved from 0.26 in F2008 to 0.16 fatalities for every million hours worked in F2009. The lost day injury frequency rate improved from 7.0 lost time injuries for every million hours worked for F2008 to 4.9 in F2009, with about a third of incidents caused by falls of ground,

which remains the major source of incidents in the mine.

Gold Fields is designing a safety management system called the Safe Production Management System, to address outstanding issues identified and to assist Driefontein to improve health and safety to best practice levels. The Mine continued with the Masiphephe safety programme, which targets elements of the Safe Production Management System during the year. On June 12, 2009, the Mine recorded in excess of 2.85 million fatality free shifts, which is a record achievement for the Mine and set a new benchmark for deep level gold mining.

In terms of community involvement, Driefontein has continued to support the Living Gold project that results in high quality roses being exported and which creates employment

for local community members. Driefontein has also recently built a primary school that has been made available to 1,600 children from the local community. A bakery was also introduced by Driefontein within the local community and is currently fully operational, which provides bread to the mine and surrounding communities and is owned by representatives of the local community. Other projects include waste management and the production of building materials like “ready mix” for construction.

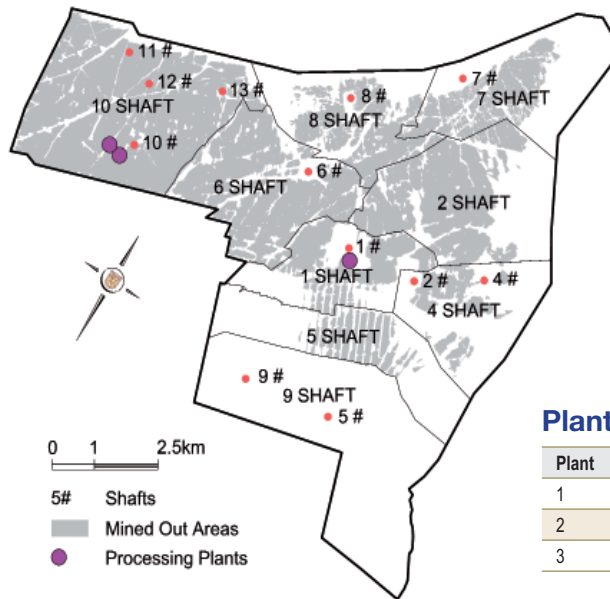
Driefontein’s environmental initiatives are focused on reducing the environmental footprint so as to reduce the impact that the mine may have on the receiving environment through concurrent rehabilitation and responsible water management. All potential sources of pollution like the water discharges are monitored and sampled on a regular basis.

Safety Statistics	Units	F2005	F2006	F2007	F2008	F2009
Fatalities	(No)	10	15	13	13	7
Fatality Rate	(per mmhrs)	0.2	0.3	0.3	0.3	0.2
LDIFR	(per mmhrs)	17.2	14.7	12.1	7.0	4.9

## Production and hoisting capacities

Shaft Zone	Planned Production (tpm)*	Operating Shaft	Hoisting Capacity (tpm)
1 Shaft		1	105,000
		1 SV	105,000
2 Shaft	58,520	1T	120,000
		2	165,000
4 Shaft	39,978	4 SV	107,000
5 Shaft		5	42,000
6 Shaft	102,006	5 SV	150,000
		6	96,000
8 Shaft	6,589	6 SV	77,000
		8	96,000
9 Shaft**	47,085	9	200,000
10 Shaft	7,342	10 SV	62,000

\* 5 year average; \*\*5 year average starting F2018  
SV: Sub Vertical; T: Tertiary



## Plant capacities

Plant	Capacity (tpm)
1	240,000
2	200,000
3	115,000

## Mineral Reserves per mining area

Mining Area	Proved			Probable		
	Tons (Mt)	Grade (g/t)	Gold (koz)	Tons (Mt)	Grade (g/t)	Gold (koz)
1 Shaft	3,2	7,4	749	7,3	8,4	1,978
2 Shaft	1,8	6,4	369	0,8	6,4	160
4 Shaft	3,6	10,8	1,247	1,9	8,0	478
5 Shaft	3,9	7,9	999	8,7	10,0	2,814
6 Shaft	0,5	6,1	89	0,0	4,1	1
8 Shaft	4,6	4,7	694	1,4	3,4	150
9 Shaft	-	-	-	27,4	9,2	8,097
10 Shaft	0,0	15,5	12	0,5	9,5	154
Total Mineral Reserves underground	17,6	7,4	4,157	48,0	9,0	13,832
Total Mineral Reserves surface	-	-	-	9,6	0,7	213
<b>Grand Total</b>	<b>17,6</b>	<b>7,4</b>	<b>4,157</b>	<b>57,6</b>	<b>7,6</b>	<b>14,045</b>

## Mineral Resources and Mineral Reserves

The Mineral Resources are classified as defined and described in the 2007 SAMREC Code and are consistent with the approach used at other Witwatersrand deep level gold operations. An updated resource model provides an effective platform for realistic mine design with the application of appropriate mining methods. Driefontein's Mineral Resources and Mineral Reserves are reported within its mining right and are adjusted to show the split between above (AI) and below (BI) current shaft infrastructure as defined by 50 level. The F2010 Mineral Resource includes dip pillars from the areas where breast mining with dip pillars is the mining method employed.

## Mineral Resources

Mineral Resources are quoted at an appropriate in-situ economic cut-off grade with tonnages and grades based on the resource block model. They also include estimates of any material below the cut-off grade required to be mined to extract the complete pay portion of the Mineral Resource.

Mineral Resource Classification	Tonnages (Mt)			Grade (g/t)			Gold ('000 oz)		
	June 2009	June 2008	Dec 2006	June 2009	June 2008	Dec 2006	June 2009	June 2008	Dec 2006
Underground									
Measured	50.2	38.4	37.7	10.5	12.9	13.1	16,887	15,926	15,840
Indicated (AI)	24.9	20.3	24.2	12.7	14.5	13.0	10,177	9,430	10,127
Inferred (AI)	17.4	-	-	5.9	-	-	3,343	-	-
Total (AI)	92.5	58.7	61.9	10.2	13.4	13.0	30,407	25,356	25,967
Indicated (BI)	43.2	43.5	49.7	12.4	13.5	11.8	17,262	18,847	18,771
Inferred (BI)	25.9	-	-	5.9	-	-	4,899	-	-
Total underground	161.6	102.2	111.6	10.1	13.5	12.5	52,568	44,203	44,738
Surface stockpile									
Indicated surface	9.6	9.1	6.0	0.7	0.7	0.9	213	197	181
Total surface stockpiles	9.6	9.1	6.0	0.7	0.7	0.9	213	197	181
<b>Grand Total</b>	<b>171.2</b>	<b>111.3</b>	<b>117.6</b>	<b>9.6</b>	<b>12.4</b>	<b>11.9</b>	<b>52,781</b>	<b>44,400</b>	<b>44,919</b>

Notes: AI = Above Infrastructure and BI = Below Infrastructure.





The Mineral Resource estimate for underground uranium and the gold and uranium in the Tailings Storage Facilities (TSF), are included in the figures below:

Mineral Resource Classification (Uranium)	Tons (Mt)			Grade (kg/t)			Uranium (Mlb)		
	June 2009	June 2008	Dec 2006	June 2009	June 2008	Dec 2006	June 2009	June 2008	Dec 2006
Underground									
Inferred (scheduled)	50.2	-	-	0.096	-	-	10.545	-	-
<b>Total underground</b>	<b>50.2</b>	<b>-</b>	<b>-</b>	<b>0.096</b>	<b>-</b>	<b>-</b>	<b>10.545</b>	<b>-</b>	<b>-</b>
Surface tailings									
Measured tailings	150.9	-	-	0.064	-	-	21.444	-	-
Indicated tailings	-	77.4	-	-	0.067	-	-	11.380	-
Inferred tailings	13.8	-	-	0.027	-	-	0.811	-	-
<b>Total surface tailings</b>	<b>164.7</b>	<b>77.4</b>	<b>-</b>	<b>0.061</b>	<b>0.067</b>	<b>-</b>	<b>22.255</b>	<b>11.380</b>	<b>-</b>
<b>Grand Total</b>	<b>214.9</b>	<b>77.4</b>	<b>-</b>	<b>0.069</b>	<b>0.067</b>	<b>-</b>	<b>32.800</b>	<b>11.380</b>	<b>-</b>

Mineral Resource Classification (Gold)	Tons (Mt)			Grade (g/t)			Gold ('000 oz)		
	June 2009	June 2008	Dec 2006	June 2009	June 2008	Dec 2006	June 2009	June 2008	Dec 2006
Surface tailings									
Measured tailings	150.9	-	-	0.3	-	-	1,703	-	-
Indicated tailings	-	77.4	-	-	0.5	-	-	1,167	-
Inferred tailings	13.8	-	-	0.2	-	-	102	-	-
<b>Total TSFs</b>	<b>164.7</b>	<b>77.4</b>	<b>-</b>	<b>0.3</b>	<b>0.5</b>	<b>-</b>	<b>1,805</b>	<b>1,167</b>	<b>-</b>

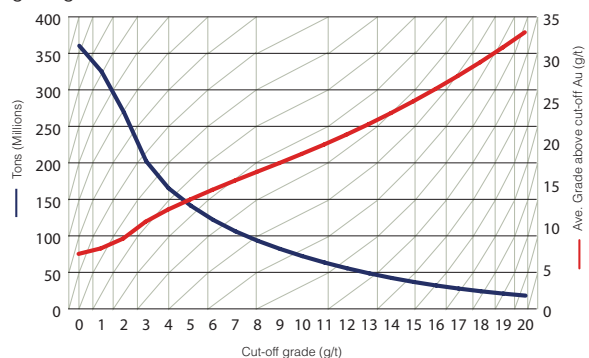
### Modifying factors

- The Measured and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce Mineral Reserves;
- All Mineral Resources and Mineral Reserves are quoted as at 30 June 2009;
- Unless otherwise stated, all Mineral Resources and Mineral Reserves are quoted as 100% (managed) and not attributable with respect to ownership;
- All Mineral Reserves are quoted in terms of Run-of-Mine (RoM) grades and tonnage as delivered to the metallurgical processing facilities and are fully diluted;
- Mineral Reserve statements include only Measured and Indicated Mineral Resources, modified to produce Mineral Reserves and contained in the LoM plan; and
- Mineral Resources and Mineral Reserves undergo both internal and external audits either during the year, yearly or biannually, and any issues identified are rectified at the earliest opportunity – usually during the current reporting cycle.

Modifying Factors		
Mineral Resource Gold Price	US\$/ oz	1,000
Exchange Rate	ZAR:US\$	8.95:1
Mineral Reserve Gold Price	US\$/ oz	800
Mineral Resource Paylimit	cm.g/t	920
Mineral Reserve Paylimit	cm.g/t	1,170
Mined Value	cm.g/t	1,823
Mine Call Factor	%	91
Block Factor	%	100
Shortfall	%	14
Stoping Width	cm	151
Mill Width	cm	196
Plant Recovery	%	97.0

### Grade tonnage curve

This grade tonnage curve represents undiluted grade (at block width) and tons within the total Mineral Resource. Underground Mineral Resources make provision for minor faulting and minor geological losses.



1 Processing Plant, Driefontein

## Mineral Reserves

The estimation of Mineral Reserves at Driefontein is based on surface drilling, underground drilling, surface three-dimensional reflection seismics, orebody facies, structural modelling, underground channel sampling and geostatistical estimation. The reefs are initially explored by drilling from the surface on an approximate 500 to 2,000 m grid. Once underground access is available, drilling is undertaken on an approximate 30 by 60 m grid. Underground channel sampling perpendicular to the reef is undertaken at 3 m intervals in development areas and at 5 m intervals in stope faces.

Mineral Reserve Classification	Tons (Mt)			Grade (g/t)			Gold ('000 oz)		
	June 2009	June 2008	Dec 2006	June 2009	June 2008	Dec 2006	June 2009	June 2008	Dec 2006
Underground									
Proved	17.6	19.7	21.1	7.4	7.6	8.4	4,157	4,834	5,691
Probable (AI)	20.6	19.3	22.2	8.7	9.7	9.8	5,735	6,003	6,995
Total (AI)	38.2	39.0	43.3	8.1	8.6	9.1	9,892	10,837	12,686
Probable (BI)	27.4	32.3	31.1	9.2	8.3	8.5	8,097	8,668	8,488
Total underground	65.6	71.3	74.4	8.5	8.5	8.9	17,989	19,505	21,174
Surface stockpiles									
Probable surface	9.6	9.1	6.0	0.7	0.7	0.9	213	197	181
Total surface stockpiles	9.6	9.1	6.0	0.7	0.7	0.9	213	197	181
<b>Grand Total</b>	<b>75.2</b>	<b>80.4</b>	<b>80.4</b>	<b>7.5</b>	<b>7.6</b>	<b>8.3</b>	<b>18,202</b>	<b>19,702</b>	<b>21,355</b>

Notes: AI = Above Infrastructure and BI = Below Infrastructure.

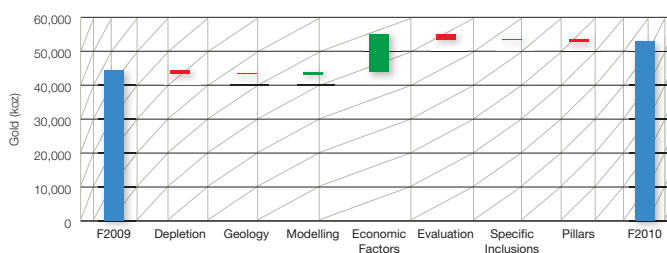
## Mineral Resources and Mineral Reserves Reconciliation year-on-year

### Mineral Resource

Factors that affected Mineral Resource reconciliation:

- Increase in gold price by US\$200/oz, which resulted in an additional 10.9 Moz.
- Decrease by 1.1 Moz due to pillar and fault loss exclusions.
- Decrease due to mining operations

Change in Mineral Resource F2009 to F2010

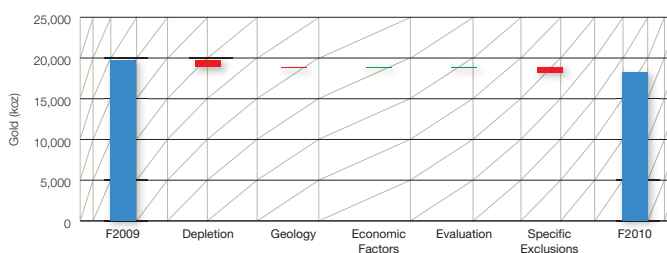


### Mineral Reserve

Factors that affected Mineral Reserve reconciliation:

- Depletions refer to ounces delivered to the plant during the past financial year
- Exclusions are mainly due to exclusion of remnants and pillars at 1, 2, 8 and 10 Shafts, and changes in dip pillar layouts at 9 Shaft.

Change in Mineral Reserve F2009 to F2010

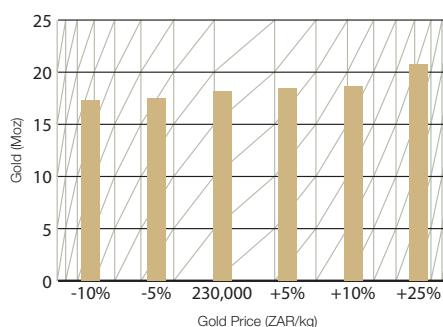


## Mineral Reserve sensitivity

The following graph indicates the Mineral Reserve sensitivity at -10%, -5%, base, +5%, +10% and +25% to the gold price.

The Mineral Reserve sensitivities are not based on detailed depletion schedules and should be considered on a relative and indicative basis only.

Managed Mineral Reserve Sensitivity





## Regulatory Codes

### SAMREC

This Technical Statement has been prepared in Compliance with the South Africa Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (2007 SAMREC Code).

### JSE

This Technical Statement has been prepared in compliance with the listing requirements of the JSE Securities Exchange, South Africa (JSE), specifically Section 12 – Issue 11.

### Sarbanes-Oxley Act

The Mineral Resource and Mineral Reserve is underpinned by an adequate Mineral Resource Management process and protocol to ensure adequate corporate governance in respect of the intent of the Sarbanes-Oxley Act.

### Environmental

Driefontein has an environmental management team who are supported by specialist assistance from the South Africa regional office in Johannesburg. The systems, procedures and training are at international best practice levels. Gold Fields has produced a Sustainability Report in 2009 and intends reporting annually in accordance with the Global Reporting Initiative.

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## Competent Persons

### GJJ van Vuuren: Manager – Mine Planning and Resource Management

MBA, GDE, BTECH Mineral Resource Management and Mine Surveyors Certificate of Competence (Reg. No. PMS 0190 – PLATO Member). Mr van Vuuren has over 21 years experience in the mining industry and is responsible for the overall Correctness, Standard and Compliance of this declaration.

### J van Eeden: Chief Geologist,

MSc (Geology). Mr van Eeden has over 26 years experience in the mining industry and is responsible for Geology and Exploration for Driefontein.

### C Dewey: Chief Evaluator

MSc Mining Engineering, GDE, ND Mine Survey and Mine Surveyors Certificate of Competence. Mr Dewey has over 35 years experience in the mining industry and is responsible for the Sampling and Evaluation functions for Driefontein.

### KI Shaw: Chief Surveyor

Mine Surveyors Certificate of Competence and MDP. Mr Shaw has over 36 years experience in the mining industry and is responsible for Survey, Reporting and Historical Modifying Factors for Driefontein.

### S Wild: Chief Mine Planner

NHD Mineral Resource Management and GDE in Mining Engineering. Mr Wild has over 13 years experience in the mining industry and is responsible for the Mine Planning and Scheduling for Driefontein.

### M Khan: Unit Manager Laboratory

BSc Chemistry. Mr Khan has over 24 years of experience in the mining industry and is responsible for the Assay Laboratory.

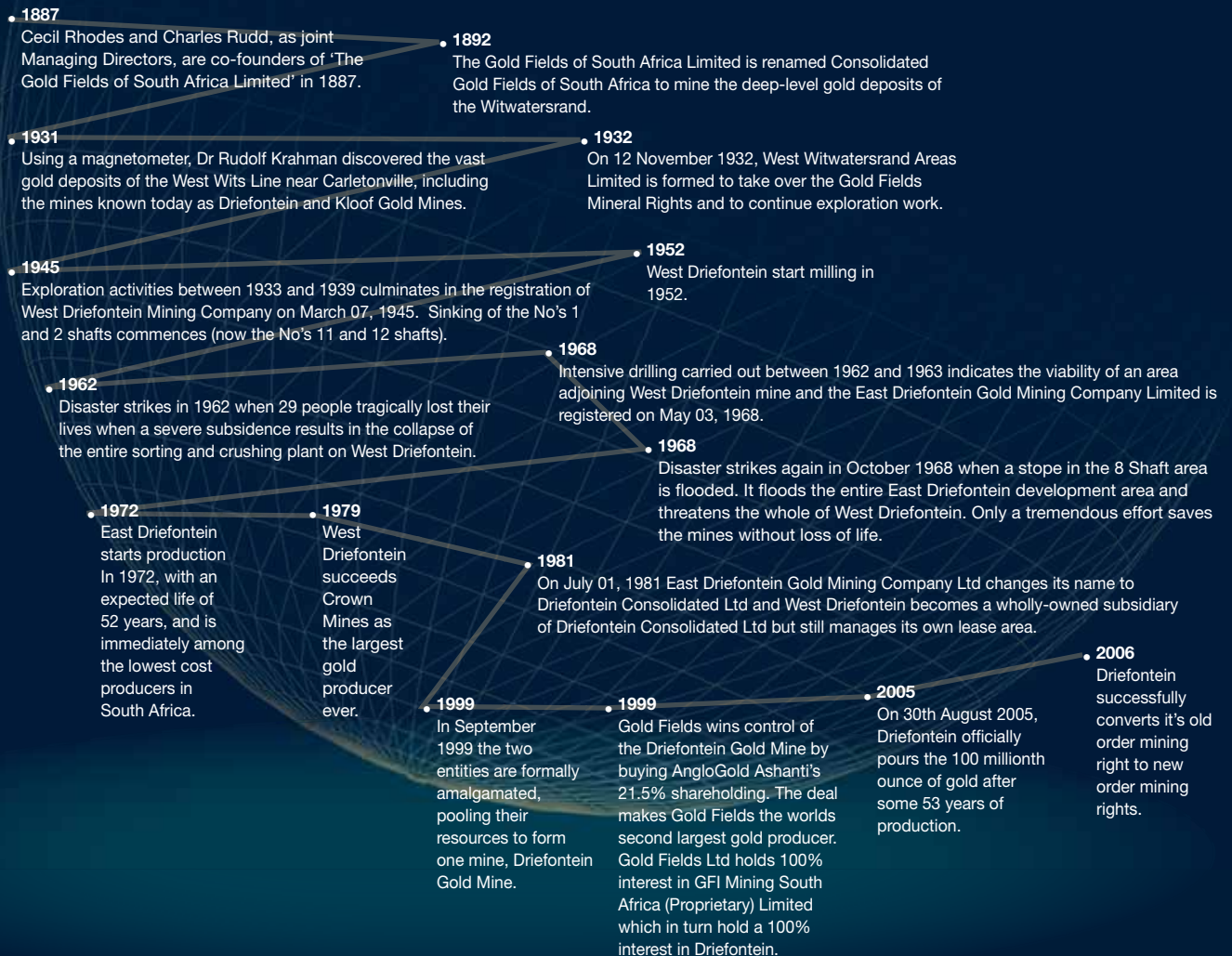
## Key Technical Staff

Post	Incumbent	Qualifications	Years	Key Responsibility
Vice President and Head of Operations	JJ Barnard	NHD Metalliferous Mining and Mine Managers Certificate	24	Overall strategic direction, leadership and management
Mining: Senior Manager Operations	J Horn	Mine Managers Certificate, Mine Overseer's Certificate, NHD Metal Mining	23	Full operational management
Mining: Senior Manager Operations	R Chaplin	BSc Mining Eng (Hons) Mine Managers Certificate	19	Full operational management
Mineral Resources Manager: Mine Planning and Resource Management	GJJ van Vuuren	MBA, NHD, GDE and a MSCC	20	Mine Planning, Mineral Resources & Mineral Reserves and compilation of CPR
Financial Senior Manager	C Keyter	BCom Acc and MBA	13	Financial reporting, compliance
Metallurgy Manager	D Taunyane	NHD Extraction Metallurgy MAP	20	Metallurgical management
Human Resource Manager	M Lancaster	B Proc (Hons) and LLB	26	Human resources management
Engineering Manager	L Neveling	NHD (Mech Eng) GCC (Mech Eng)	30	Engineering, logistics, infrastructure and management.





# Driefontein History at a Glance



## Disclaimer

### Forward looking statements

Certain statements in this document constitute "forward looking statements" within the meaning of Section 27A of the US Securities Act of 1933 and Section 21E of the US Securities Exchange Act of 1934.

Such forward looking statements involve known and unknown risks, uncertainties and other important factors that could cause the actual results, performance or achievements of the company to be materially different from the future results, performance or achievements expressed or implied by such forward looking statements. Such risks, uncertainties and other important factors include among others: economic, business and political conditions in South Africa, Ghana, Australia, Peru and elsewhere; the ability to achieve anticipated efficiencies and other cost savings in connection with past and future acquisitions, exploration and development activities; decreases in the market price of gold or copper; hazards associated with underground and surface gold mining; labour disruptions; availability terms and deployment of capital or credit; changes in government regulations, particularly environmental regulations; and new legislation affecting mining and mineral rights; changes in exchange rates; currency devaluations; inflation and other macro-economic factors, industrial action, temporary stoppages of mines for safety reasons; and the impact of the Aids crisis in South Africa. These forward looking statements speak only as of the date of this document. The company undertakes no obligation to update publicly or release any revisions to these forward looking statements to reflect events or circumstances after the date of this document or to reflect the occurrence of unanticipated events.